STORMWATER MANAGEMENT REPORT

VERONA SUNSET URBAN RENEWAL, LLC
BLOCK 303, LOT 4 – TOWNSHIP OF VERONA
BLOCK 301, LOT 5 AND BLOCK 401, LOT 1 –
TOWNSHIP OF MONTCLAIR
ESSEX COUNTY, NEW JERSEY

MATRIXNEWORLD

Engineering Progress

Prepared by:

Matrix New World Engineering, Land Surveying
and Landscape Architecture, PC
442 State Route 35, 2nd Floor
Eatontown, NJ 07724

Matrix No. 19-720

December 10, 2021
Revised May 10, 2022
Revised January 11, 2023
Revised March 21, 2023
Revised May 5, 2023



Sean M. Savage, PE
NJ Professional Engineer License No. 24GE04451000

MATRIXNEWORLD
Engineering Progress

TABLE OF CONTENTS

PAGE

1.0 Project Description 1
2.0 Methodology and Software 2
3.0 Stormwater Quantity 3
3.1 Pre-Development Site Conditions and Allowable Peak Rates and Volumes 3
3.2 Post-Development Site Conditions and Proposed Peak Rates and Volumes 4
4.0 Stormwater Quality 6
5.0 Groundwater Recharge/Mounding Analysis 6
6.0 Emergency Situation 7
7.0 Green Infrastructure 8
6.0 Conclusion 8

LIST OF APPENDICES

Appendix	Title
A	USGS Quad Map
B	USDA Web Soil Survey/Geotechnical Findings and Logs
C	NOAA Rainfall Data
D	Pre-Development 2-, 10-, and 100-Year Storm Event Calculations
E	Post-Development 2-, 10-, and 100-Year Storm Event Calculations
F	Low Impact Development Checklist
G	Pipe Design Calculations
H	Recharge Spreadsheet
I	Channel Stability Calculations
J	Drainage Area Maps

1.0 PROJECT DESCRIPTION

The subject property consists of three (3) contiguous lots and is identified as Block 303, Lot 4 in the Township of Verona and Block 301, Lot 5 and Block 401, Lot 1 in the Township of Montclair, Essex County, New Jersey. The subject site maintains frontage on Afterglow Avenue to the east, Sunset Avenue to the north, Bloomfield Avenue to the northeast, residential properties to the east, and residential properties and Dryer Road to the south. The property location is indicated in Appendix A, on the Quadrangle Map and Tax Map. The overall tract is 7.98 acres of which Block 303, Lot 4 within Verona Township encompasses approximately 5.55 acres (5.06 acres per the Township tax maps). It is noted that the development is proposed almost entirely within Block 303, Lot 4 of the Township of Verona with limited grading and disturbance within the Montclair Township lots.

The existing site is composed of a masonry school building with associated infrastructure including parking areas, drive aisles, and recreational play areas. The remainder of the site is currently mostly a combination of woods and grass, with a predominantly wooded area running along the eastern boundary line adjacent to the residential properties. The existing topography has a ridgeline that runs in a north-south direction and is parallel to the Verona-Montclair Municipal boundary line. This ridgeline divides the site and generally forces runoff east or west. There is a high point in the southeast corner of the subject property which also helps define the existing drainage patterns and directs runoff to flow north.

In the existing conditions, the subject site has been split into four drainage areas, first is the area flowing toward the drainage system at the intersection of Afterglow Avenue and Sunset Avenue. The second drainage area contains the existing school building and most of the associated surface parking area which is collected in an existing stormwater management system and conveyed to an existing manhole along Sunset Avenue. This stormwater conveyance system continues to drain toward Bloomfield Avenue and follows the existing topography. The third drainage area is the area northeast of the existing school which drains northeast toward Bloomfield Avenue and the adjacent residential properties. The fourth area is the remaining site area in the southeast corner of the site which flows east toward adjacent residential properties and Parkhurst Place.

The site consists of four soil types located throughout the subject site: Boonton- Urban Land, 8 to 15 percent slopes, (BouC); Yalesville-Urban Land, 0 to 8 percent slopes (YaotuB); Yalesville Loam, 0 to 8 percent slopes (YamnBc); and Boonton- Urban Land, 15 to 25 percent slopes

(BouD). All of the soils listed above on-site are grouped in HSG "C". Additionally, per geotechnical testing performed on-site, the existing soils exhibit no permeability characteristics and yielded permeability rates of 0.00 inches/hour.

The proposed residential development consists of one (1) residential building which contains a total of 200 units along with a parking garage, associated surface parking and loading, landscaping, lighting, water, sewer, and drainage facilities.

Since the proposed development is residential it is governed by the "Residential Site Improvement Standards" (RSIS) or NJAC 5:21. The proposed site improvements are shown on drawings entitled "Preliminary and Final Major Site Plan, Verona Development, Block 303, Lot 4 Situated in Township of Verona, Block 301, Lot 5 and Block 401, Lot 1, Situated in Township of Montclair, Essex County, New Jersey", dated 10/27/2021, and prepared by Matrix New World Engineering.

2.0 METHODOLOGY AND SOFTWARE

A detailed drainage study is described in the following sections of this report. The stormwater runoff flows that were determined for pre- and post-development conditions were calculated using the USDA Natural Resources Conservation Service Methodology, as described in the National Engineering Handbook NEH Part 630 – Hydrology. Hydrographs and stormwater management basin routings have been developed in accordance with TR-20 methodology. These modeling techniques are incorporated in the HydroCAD V 10.00 software package which was used to analyze the pre- and post-development flows and basin routings.

New Jersey 24-Hour Rainfall Frequency Data for the subject site, made available by National Oceanic and Atmospheric Administration (NOAA), was utilized in the stormwater management design (Appendix C). The pre- and post-development hydrologic characteristics for the design of the stormwater management system are based upon the 2-, 10-, and 100-year frequency storm events. To adequately demonstrate stormwater management control and compliance, peak reduction factors of 50%, 75%, and 80% were applied to the 2-, 10-, and 100-year pre-development peak runoff rates, respectively. A number of the drainage areas also decreased in size; therefore, requirements were met by not increasing the flow rate or volume to these analysis points.

3.0 STORMWATER QUANTITY

3.1 Pre-Development Site Conditions and Allowable Peak Rates and Volumes

Please refer to the Pre-Development Drainage Area Map within this report (Appendix D). The total pre-development drainage area of study is approximately 8.14 acres. Of this area, 2.39 acres drains towards Afterglow Avenue. This drainage area also includes two (2) smaller off-site areas which drain onto the site from the adjacent residential lots.

The summary of this pre-development drainage area, peak flow rates and volume are shown in Table 1 below. The calculations are included in Appendix D of this report.

Table 1: Pre-development Peak Flow Rates and Volume to Afterglow Ave

Storm Event (yr)	Pre-Development Peak Flow Rate (cfs)	Pre-Development Peak Volume (af)
2	1.52	0.215
10	3.52	0.471
100	7.98	1.059

The second study area is the on-site area which drains to Sunset Avenue via an existing stormwater conveyance system which also collects the runoff from the existing school building and parking areas. This area also collects the runoff from some overland portions of the project and consists of 3.17 acres. This area eventually flows toward Bloomfield Avenue via the existing stormwater conveyance system.

The summary of this pre-development drainage area and allowable flow rates are shown in Table 2 below. The calculations are included in Appendix D of this report.

Table 2: Pre-development Runoff Summary and Allowable Flow Rate to Sunset-Bloomfield Ave

Storm Event (yr)	Pre-Development Peak Flow Rate (cfs)	Peak Reduction Factor	Allowable Discharge Rate (cfs)
2	8.38	50%	4.19
10	13.86	75%	10.39
100	25.01	80%	20.00

The third study area consists of 1.87 acres and is the on-site area which drains overland to Bloomfield Avenue. Portions of the existing development which include recreational courts and play areas drain overland directly to Bloomfield Avenue or to the adjacent residential lots to the west which ultimately flow to Bloomfield Avenue.

The summary of this pre-development drainage area and allowable flow rates are shown in Table 3 below. The calculations are included in Appendix D of this report.

Table 3: Pre-Development Peak Flow Rates and Volume Overland to Bloomfield Ave

Storm Event (yr)	Pre-Development Peak Flow Rate (cfs)	Pre-Development Peak Volume (af)
2	1.93	0.193
10	4.16	0.399
100	9.05	0.866

The fourth and final existing drainage area consists of 0.71 acres and flows toward Parkhurst Place. This area also includes a small portion of an adjacent residential lot which conveys on-site and to the analysis point at Parkhurst Place.

The summary of this pre-development drainage area and allowable flow rates are shown in Table 4 below. The calculations are included in Appendix D of this report.

Table 4: Pre-development Peak Flow Rates and Volume to Parkhurst Place

Storm Event (yr)	Pre-Development Peak Flow Rate (cfs)	Pre-Development Peak Volume (af)
2	0.53	0.064
10	1.22	0.139
100	2.77	0.312

3.2 Post-Development Site Conditions and Allowable Peak Rates and Volumes

The proposed development has been designed to maintain similar drainage patterns as to the pre-development condition in order to reduce the effects of the development on the existing stormwater management system. The proposed development consists of two (2) underground module detention basins (Basin A and Basin B). The first system is located within the parking garage and the second is located within the surface parking area along the Sunset Avenue frontage. These basins are each designed to attenuate the runoff during the 2, 10 and 100 year storm events to below 50%, 75% and 80% of the pre-development flow rates for the portion of the site which drains to the Sunset-Bloomfield Avenue conveyance system. A bioretention basin (Basin C) is also proposed in the south side of the site prior to discharging to Basin A. This basin is designed with an underdrain system since the permeability rates on-site are poor. In the other three (3) drainage areas, we are reducing existing impervious coverage which results in a lower peak flow rate and volume in the post-development state. There are two (2) very small bypass

areas which will flow off-site unattenuated. These de minimus areas total only 0.07 acres and are included within the routings which meet the requirements listed above.

Infiltration and recharge are both not utilized in this stormwater design as the geotechnical tests which were conducted show that the soil is poorly drained. As a result of the geotechnical results, the basins proposed on-site are for detention/attenuation only. A copy of these findings is included within Appendix B of this report.

The summary of the post-development drainage areas is as follows:

Table 5: Pre-Development and Post-Development Peak Flow Rate and Volume Summary to Afterglow Ave

Storm Event (yr)	Pre-Development Peak Flow Rate (cfs)	Post-Development Peak Flow Rate (cfs)	Pre-Development Peak Volume (af)	Post-Development Peak Flow Volume (af)
2	1.52	0.86	0.215	0.109
10	3.52	1.99	0.471	0.239
100	7.98	4.52	1.059	0.539

Table 6: Pre-Development and Post-Development Peak Flow Rate Summary to Basin A and B to Sunset-Bloomfield Ave

Storm Event (yr)	Basin A Inflow (cfs)	Basin B Inflow (cfs)	Total Allowable Discharge Rate (cfs)	Basin A Outflow (cfs)	Basin B Outflow (cfs)	Total Post-Development Flow Rate (cfs)
2	7.57	3.18	4.19	2.19	1.73	3.79
10	11.70	5.15	10.39	4.80	4.63	9.25
100	22.22	9.11	20.00	7.12	8.77	15.27

Table 7: : Pre-Development and Post-Development Peak Flow Rate and Volume Summary Overland to Bloomfield Ave

Storm Event (yr)	Pre-Development Peak Flow Rate (cfs)	Post-Development Peak Flow Rate (cfs)	Pre-Development Peak Volume (af)	Post-Development Peak Flow Volume (af)
2	1.93	1.71	0.193	0.174
10	4.16	3.95	0.399	0.382
100	9.05	8.90	0.866	0.862

Table 8: Pre-Development and Post-Development Peak Flow Rate and Volume Summary to Parkhurst Place

Storm Event (yr)	Pre-Development Peak Flow Rate (cfs)	Post-Development Peak Flow Rate (cfs)	Pre-Development Peak Volume (af)	Post-Development Peak Flow Volume (af)
2	0.53	0.44	0.064	0.053
10	1.22	1.06	0.139	0.119
100	2.77	2.43	0.312	0.272

As can be seen from the tables above, Tables 5, 6, and 8 all demonstrate that in the post-development condition, both the peak flow rate and volume decrease from the pre-development rates. Table 6 above indicates that runoff rates have been reduced 50%, 75%, and 80% from existing conditions during 2-, 10-, and 100-year storm events with the use of the underground basins. Therefore, the stormwater quantity requirements have been satisfied per NJAC 7:8.

The post-development calculations are included within Appendix E of this report.

4.0 STORMWATER QUALITY

In the pre-development condition with the existing school building and associated infrastructure, there was a total of 1.49 acres of impervious coverage which consisted of parking lots and vehicle driveways. In the post-developed condition, there is a total of 0.91 acres of surface parking and driveways. As the on-site motor vehicle surface is decreasing by 0.58 acres, the site complies with the NJDEP water quality requirements. Although not required per NJDEP regulations, two (2) water quality structures are proposed which will provide water quality treatment for the runoff from the building as well as from the surface parking/drive aisle areas prior to the runoff entering the Township stormwater system.

5.0 GROUNDWATER RECHARGE / MOUNDING ANALYSIS

In accordance with NJDEP requirements, a proposed major land development shall maintain 100 percent of the site's average annual pre-developed groundwater recharge volume after development. The on-site soils consist of all hydraulic soils group type "C" soils which typically have slow infiltration rates. A number of soil permeability tests were completed on-site which yielded an infiltration rate of 0.00 inches per hour and can be found within Appendix B. As the existing on-site soils do not indicate any infiltration characteristics and there is evidence of shallow bedrock within the subject site, it can be concluded that the site does not posses any annual recharge and therefore the proposed development is in compliance with groundwater recharge and mounding requirements. Refer to Appendix H of this report for the Annual Groundwater Recharge Analysis.

6.0 EMERGENCY SITUATION

The two on-site underground stormwater detention systems have been designed so that in the unlikely circumstance that one of the outlet structures should fail, the on-site runoff would be able to convey overland to the existing system within Sunset Avenue. Basin A has been designed with an outlet structure that consists of an orifice and a weir. Should the orifice get clogged, runoff would convey over the weir and into the discharge pipe. If the weir or discharge pipe were to also be blocked and/or the system filled up completely, there is also an emergency grate at the garage entrance which would allow runoff to flow down the drive aisle and toward the trench drains at the entrance. This runoff would either be detained by Basin B or convey onto Sunset Avenue and into the existing off-site drainage system.

Basin B has also been designed with an outlet structure consisting of an orifice and a weir, similar to Basin A. If the orifice was clogged, runoff would convey over the weir and into the discharge pipe. If the weir or discharge pipe were to also get blocked and/or the system filled up completely, this system has an emergency release through the trench drain along Sunset Avenue. Based on the grate elevation of the trench drain, runoff would flow out of the grate and flow over the pavement into the existing off-site stormwater system near the intersection of Sunset Avenue and Bloomfield Avenue.

In both unlikely situations, the on-site runoff has a clear emergency release over land and within pavement areas.

Additionally, Basin C has been designed with an outlet structure consisting of an orifice and a weir, similar to Basins A and B. If the orifice was clogged, runoff would convey over the weir and into the discharge pipe. If the weir or discharge pipe were to also get blocked and/or the system filled up completely, this system has an emergency release through a grate at the top of the outlet structure. In emergency conditions, the runoff would flow out of the grate and flow overland towards a proposed inlet which will then allow the runoff to be detained by Basin A.

7.0 GREEN INFRASTRUCTURE

Based upon the existing soil conditions and in situ soil testing, the site has limited opportunities related to the use of green infrastructure since it is not suitable for infiltration or recharge. The project includes permeable pavement in the lower parking area, a proposed bioretention basin (Basin C), and a grassed swale area in the southeast corner of the site which meets the NJDEP BMP green infrastructure requirements. Additionally, the development proposes to preserve a large amount of existing vegetation and wooded areas on-site. Due to the measures incorporated into the proposed development, it is in our opinion that the project in compliance with green infrastructure requirements. Refer to the NJDEP Low Impact Development Checklist in Appendix F for additional information.

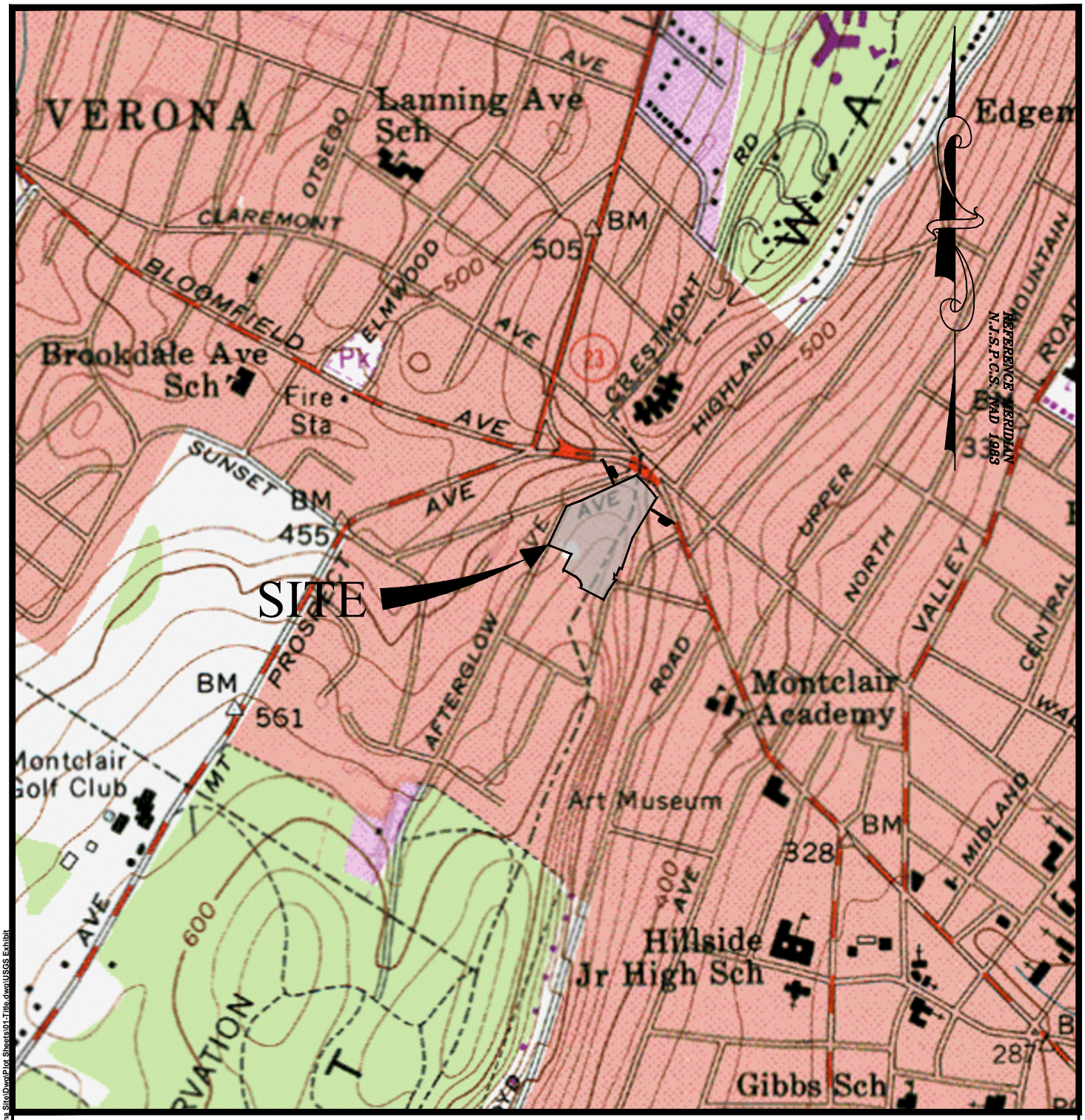
8.0 CONCLUSION

The applicant is proposing to clear the subject site of the existing site masonry school building and associated infrastructure to construct a residential development consisting of one (1) residential building with a total of 200 units along with a parking garage, associated surface parking and loading, landscaping, lighting, water, sewer, and drainage facilities. In the proposed development, the existing drainage patterns will be mostly maintained with reductions to the peak flow and volume to the analysis points for Drainage Areas 1, 3, and 4. Within Drainage Area 2, as there is an increase in impervious coverage, the stormwater runoff quantity requirements have been met with the design of the proposed stormwater management system which reduces the stormwater peak flow runoff in post-development conditions to less than the required 50%, 75%, and 80% of the pre-development 2-, 10-, and 100-year storm events, respectively. In Drainage Areas 1, 3, and 4, the impervious area has been decreased and/or the area itself is now smaller than the existing conditions, therefore the proposed flow and volume are less than or equal to that in the existing state. Stormwater quality and groundwater recharge requirements are not required to be addressed based on the existing site conditions and the decrease in motor vehicle surfaces.

Based on the above, it is Matrix New World Engineering's opinion that the proposed development will not have any negative impact on the surrounding area or on the existing storm sewer systems.

APPENDIX A

USGS QUAD MAP



1000 500 0 1000 2000 3000

GRAPHIC SCALE
1 inch=1,000 feet

USGS QUAD MAP

MATRIXNEWORLD
Engineering Progress

Matrix New World Engineering, Land Surveying
and Landscape Architecture, P.C.
442 State Route 35, Second Floor
Eatontown, New Jersey 07724
Certified WBE

Tel: 732-588-2999
Fax: 973-240-1818
www.matrixneworld.com

VERONA DEVELOPMENT
BLOCK 303, LOT 4 - TOWNSHIP OF VERONA
BLOCK 301, LOT 4 AND BLOCK 401, LOT 1 - TOWNSHIP OF MONTCLAIR
ESSEX COUNTY, NEW JERSEY

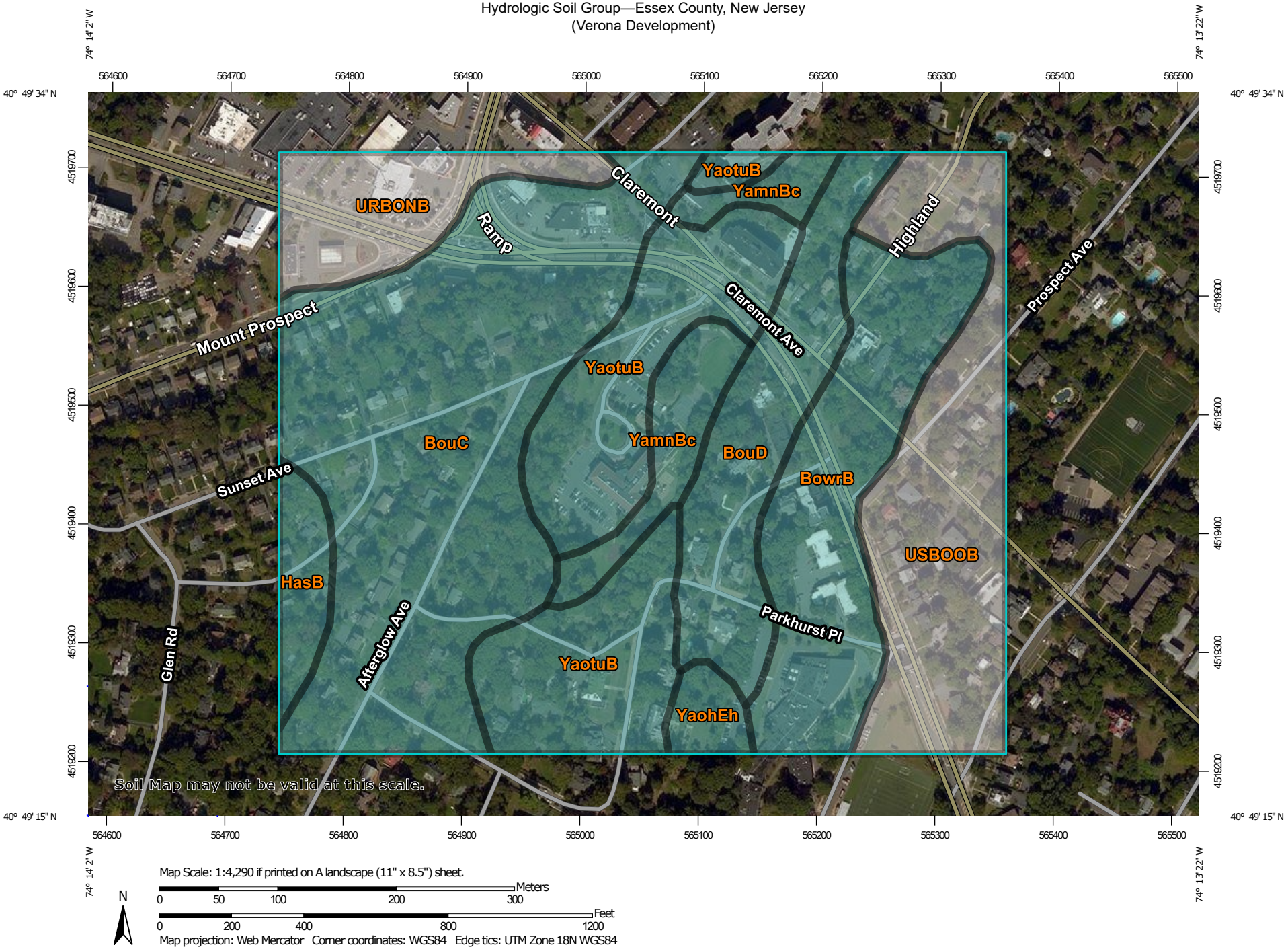
SCALE:	PROJECT NO.:	DATE:	FIGURE NO.:
1" = 1000'	19-720	10/27/2021	APPENDIX A

Plotted: 10/25/2021 11:07 AM, By: Chris Russo
© M:\MATRIXNEWORLD\ M:\Matrix LDS\Jobs\BNE Real Estate Group\19-720 - Verona Site\Dwg\Plot Sheets\01-Title.dwg\USGS Exhibit

APPENDIX B

USDA WEB SOIL SURVEY/GEOTECHNICAL FINDINGS AND LOGS

Hydrologic Soil Group—Essex County, New Jersey
(Verona Development)



Map Scale: 1:4,290 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, New Jersey
Survey Area Data: Version 16, Jun 1, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 25, 2014—Sep 27, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BouC	Boonton - Urban land, Boonton substratum complex, 8 to 15 percent slopes	C	23.6	30.6%
BouD	Boonton - Urban land, Boonton substratum complex, 15 to 25 percent slopes	C	7.3	9.5%
BowrB	Boonton - Urban land, Boonton substratum complex, red sandstone lowland, 0 to 8 percent slopes	C	9.9	12.9%
HasB	Haledon - Urban land, Haledon substratum complex, 0 to 8 percent slopes	C	1.9	2.4%
URBONB	Urban land, Boonton substratum, 0 to 8 percent slopes		4.6	6.0%
USBOOB	Urban land, Boonton substratum - Boonton complex, red sandstone lowland, 0 to 8 percent slopes		11.6	15.0%
YamnBc	Yalesville loam, 0 to 8 percent slopes, extremely stony	C	3.8	4.9%
YaohEh	Yalesville - Holyoke complex, 35 to 60 percent slopes, very rocky	C	1.1	1.4%
YaotuB	Yalesville - Urban land, Yalesville substratum complex, 0 to 8 percent slopes	C	13.3	17.3%
Totals for Area of Interest			**77.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

NOTES:

1. THIS FIGURE IS BASED ON THE EXISTING CONDITIONS MAP DRAWING PREPARED BY HENDERSON AND BODWELL, LLP, DATED MAY 24, 2006.
2. ALL ELEVATIONS ON THIS PLAN REFER TO NOAA TOPOGRAPHIC INFORMATION: 2014 NJ STATEWIDE LIDAR.
3. BORING LOCATIONS WERE IDENTIFIED IN THE FIELD BY MATRIX PERSONNEL BY TAPING AND LINE OF SIGHT MEASUREMENTS.
4. THE BORINGS WERE PERFORMED BY BORING BROTHERS INC. BETWEEN SEPTEMBER 16 AND 17, 2019 UNDER THE DIRECTION OF A MATRIX REPRESENTATIVE.

LEGEND

B-1 AS-DRILLED BORING LOCATION

PT-1 AS-DRILLED PERMEABILITY TEST LOCATION

0 20 40 60 120

SCALE: 1" = 60'

NO.	DESCRIPTION	DATE:	BY:	APR:
	REVISIONS			

DESIGNED BY: TP

REVIEWED BY: MS

RELEASED BY: MS

MATRIXNEWORLD
Engineering Progress

Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
WBE / DBE / SBE
Tel: 973-240-1800
Fax: 973-240-1818
www.matrixnewworld.com

NEW JERSEY CERTIFICATE OF AUTHORIZATION No. 24GA27962300

AS-DRILLED BORING LOCATION PLAN

BNE REAL ESTATE GROUP - VERONA SITE

BLOCK 303, LOT 4 (VERONA)
BLOCK 301, LOT 5/BLOCK 401, LOT 1 (MONTCLAIR)
ESSEX COUNTY, NEW JERSEY

PROJECT NUMBER: 19-720

SCALE: AS NOTED

DATE: OCTOBER 2019

2

© MATRIXNEWORLD\M:\Matrix LDS\Jobs\BNE Real Estate Group\19-720 - Verona Site\Geotech\Report\Figures\19-720 - As-Drilled BLP - 9.18.19.dwg

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-1**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/16/19**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **Woods East of Afterglow Ave/Sunset Ave Intersection**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **520.7** DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**			**9/16/19**	**10:15 am**	**7.2**	**N/A**
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	SAMPLE Type	SAMPLE Depth Feet	SAMPLE Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
	PUSH	S-1	SS	0-2	2-3-2-3 (67%)		S-1: Brown fine SAND and Silt, trace roots, wood, dry (SM)	
(518.7)		S-2	SS	2-4	3-4-5-6 (75%)		S-2: Light Brown Silty CLAY, some fine Sand, trace fine Gravel, trace roots, dry (CL) WC: 18.0%, Gravel: 4.0%, Sand: 28.6%, Fines: 67.4%	Sieve
(516.7)		S-3	SS	4-6	9-9-11-10 (100%)		S-3: Light Brown fine SAND and Silty Clay, trace fine Gravel, dry (SC) WC: 13.9%, LL: 25, PL: 15, PI: 10	Atterberg Limits
5	PUSH 50							
(514.7)		S-4	SS	6-8	14-11-13-10 (92%)		S-4: Red-Brown mf SAND, little Clayey Silt, little fine Gravel, wet (SM)	
▼	50 70							
(512.7)		S-5	SS	8-10	10-9-6-6 (50%)		S-5: Brown cmf SAND and cf Gravel, trace Silt, wet (SP)	
10	100 60							
(510.7)	MUD	S-6	SS	10-12	10-9-8-8 (63%)		S-6: Brown mf SAND, little Silt, little cf Gravel, wet (SM)	
(507.2)								
15	MUD	S-7	SS	15-17	6-3-3-6 (50%)		S-7: Brown mf* SAND, some Clay, little fine Gravel, wet (SC) WC: 13.1%, Fines: 32.5%, LL: 19, PL: 11, PI: 8	Pass No 200; Atterberg Limits
(503.7)							4" Casing to 10 feet bgs Bottom of Borehole @ 17 ft.	

NEWORLD NO GROUT 19-720 - DRAFT BORING LOGS - 10.8.19.GPJ MATRIX EGS.GDT 10/14/19

BORING NO.: **B-1**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-2**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/17/19**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **Grass Area South of South Parking Lot**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **562.0** DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	SAMPLE Type	SAMPLE Depth Feet	SAMPLE Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
	PUSH	S-1	SS	0-2	1-2-3-3 (63%)		S-1: Brown fine SAND and Silt, trace fine Gravel, trace roots, moist (SM)	
	PUSH	S-2	SS	2-4	8-6-6-8 (88%)		S-2: Red-Brown mf* SAND and Silt, trace cf Gravel, dry (SM) WC: 13.0%, Fines: 37.6%	Pass No 200
	40	S-3	SS	4-6	11-12-14-15 (79%)		S-3: Red-Brown mf* SAND and Silt, little cf* Gravel, dry (SM)	
5	60							
	80							
(556.0)		S-4	SS	6-8	17-15-15-13 (63%)		S-4: Red-Brown fine SAND and Silt and Clay, little cf* Gravel, dry (SC-SM) WC: 12.1%, Fines: 38.5%, LL: 21, PL: 14, PI: 7	Pass No 200; Atterberg Limits
	110							
	110	S-5	SS	8-9	20-100/6" (100%)		S-5A (Top 4"): Same as Above, dry (SC-SM)	
(553.7)	90						S-5B (Bottom 8"): Red-Brown mf* SAND, some Silt, trace cf Gravel, dry (SM)	
(553.0)	WATER	R-1	NX	9-14	(92%) [50%]		R-1: Dark Gray BASALT, mf grained, moderately fractured, slightly weathered (WS) (BASALT) Compressive Strength = 22,170 psi	Unconfined Comp.
10								
	WATER							
(548.0)							4" Casing to 9 feet bgs Bottom of Borehole @ 14 ft.	

NEWORLD NO GROUT 19-720 - DRAFT BORING LOGS - 10.8.19.GPJ MATRIX EGS.GDT 10/14/19

BORING NO.: **B-2**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-3**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/16/19**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **Woods West of Visitor Parking Area**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **542.0** DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	SAMPLE Type	SAMPLE Depth Feet	SAMPLE Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
	10	S-1	SS	0-2	2-2-1-2 (83%)		S-1: Brown fine SAND and Clayey Silt, little fine Gravel, dry (SM) *Bottom 6" of split spoon wet WC: 14.9%, Gravel: 13.6%, Sand: 45.1%, Fines: 41.3%, <2 µm: 7%	Sieve; Hydrometer
	50	S-2	SS	2-4	10-12-22-25 (83%)		S-2: Red-Brown mf* SAND and Silt, some cf* Gravel, dry (SM) *Top 10" of split spoon wet	
	60							
	80							
	WATER	S-3	SS	4-4.3	100/4" (100%)		S-3: Red-Brown mf* SAND, some cf* Gravel, little Silt, wet (SM)	
(537.7) 5 (537.0)		R-1	NX	5-10	(82%) [0%]		R-1: Dark Gray BASALT, mf* grained, closely fractured, slightly weathered (WS) (BASALT)	
	WATER							
10 (532.0)							4" Casing to 4 feet bgs Bottom of Borehole @ 10 ft.	

NEWORLD NO GROUT 19-720 - DRAFT BORING LOGS - 10.8.19.GPJ MATRIX EGS.GDT 10/14/19

BORING NO.: **B-3**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-4**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/16/19**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **South Edge of North Parking Lot**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **529.0** DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	SAMPLE Type	SAMPLE Depth Feet	SAMPLE Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
	20	S-1	SS	0-2	2-6-6-3 (25%)		S-1: Brown fine SAND and Silt, trace coarse Gravel, trace roots, dry (SM)	
	40							
		S-2	SS	2-4	5-6-10-13 (75%)		S-2: Red-Brown mf* SAND, some Silt, some cf Gravel, moist (SM)	
	25							
	55							
(525.0)	WATER	R-1	NX	4-9	(88%) [88%]		R-1: Dark Gray BASALT, fine grained, slightly fractured, slightly weathered (WS) (BASALT)	
5								
	WATER							
(520.0)							4" Casing to 4 feet bgs Bottom of Borehole @ 9 ft.	

NEWORLD NO GROUT 19-720 - DRAFT BORING LOGS - 10.8.19.GPJ MATRIX EGS.GDT 10/14/19

BORING NO.: **B-4**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-5**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/17/19**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **Southwest Corner of Basketball Court**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **552.6** DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	SAMPLE Type	SAMPLE Depth Feet	SAMPLE Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
							6" Asphalt	
(552.1)	25	S-1	SS	0.5-2	16-11-8 (39%)		S-1: Gray-Brown cmf* SAND, some Silt, little cf Gravel, dry (SM)	
	30	S-2	SS	2-4	7-9-6-7 (4%)		S-2: Same as Above, dry (SM)	
	30							
	30	S-3	SS	4-4.4	100/5" (60%)		S-3: Same as Above, dry (SM)	
(548.2)	110							
(547.6)	WATER	R-1	NX	5-10	(95%) [57%]		R-1: Dark Gray BASALT, cmf grained, moderately fractured, slightly weathered (WS) (BASALT) Compressive Strength = 13,760 psi	Unconfined Comp.
10 (542.6)	WATER						4" Casing to 5 feet bgs Bottom of Borehole @ 10 ft.	

NEWORLD NO GROUT 19-720 - DRAFT BORING LOGS - 10.8.19.GPJ MATRIX EGS.GDT 10/14/19

BORING NO.: **B-5**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-6**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/17/19**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **South Corner of Site**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **574.9** DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	SAMPLE Type	SAMPLE Depth Feet	SAMPLE Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
	20	S-1	SS	0-1.8	3-9-10-100/4" (41%)		S-1A (Top 4"): Brown fine SAND and Silt, trace roots, moist (SM)	
(573.5)	95						S-1B (Bottom 5"): Gray c*f GRAVEL, some cmf Sand, dry (CWR/GP)	
(572.9)	WATER	R-1	NX	2-7	(82%) [22%]		R-1: Dark Gray BASALT, mf grained, closely fractured, slightly weathered (WS) (BASALT)	
5								
	WATER							
(567.9)							4" Casing to 2 feet bgs Bottom of Borehole @ 7 ft.	

NEWORLD NO GROUT 19-720 - DRAFT BORING LOGS - 10.8.19.GPJ MATRIX EGS.GDT 10/14/19

BORING NO.: **B-6**

LOG NOTATION

Sample Classifications

SS = Split Spoon

NR = No Recovery

NX = Rock Core

SH = Shelby Tube

REC = Soil Recovery

RQD = Rock Quality Designation

Sand Classifications

c = Coarse

m = Medium

f = Fine

* = Predominant Grain Size

Soil Properties

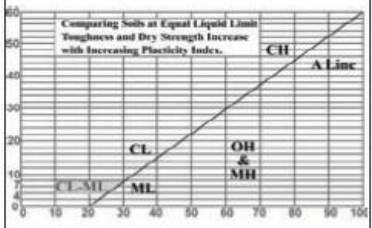
WC = Water Content

PL = Plastic Limit

LL = Liquid Limit

PI = Plasticity Index

OC = Organic Content

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES	FIELD IDENTIFICATION PROCEDURES (EXCLUDING PARTICLES LARGER THAN 3 IN. AND BASING FRACTIONS ON ESTIMATED WEIGHTS)			INFORMATION REQUIRED FOR DESCRIBING SOILS	LABORATORY CLASSIFICATION CRITERIA
1	2		3	4	5			6	7
Coarse-grained Soils More than half of material is larger than No. 200 sieve size. The No. 200 sieve size is about the smallest visible to the naked eye.	Gravels More than half of coarse fraction is larger than No. 4 sieve size. (For visual classification, the 1/4-in. size may be used as equivalent to the No. 4 sieve size.)	Clean Gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixture, little or no fines.	Wide range in grain size and substantial amounts of all intermediate particle sizes.			For undisturbed soils add information on stratification, degree of compactness, cementation, moisture condition, and drainage characteristics.	Use grain-size curve in identifying the fractions as given under field identification. Determine percentage of gravel and sand from grain-size curve. Depending on percentage of fine (fraction smaller than No. 200 sieve size) coarse-grained soils are classified as follows: Less than 5% GW, GP, SW, SP. More than 12% GM, GC, SM, SC. 5% to 12% Borderline cases requiring use of dual symbols. $C_u = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			GP	Poorly graded gravels or gravel-sand mixture, little or no fines.	Predominantly one size or a range of sizes with some intermediate sizes missing.				Not meeting all gradation requirements for GW
		Gravels with Fines (Appreciable amount of fines)	GM	Silty gravels, gravel and silt mixtures.	Nonplastic fines or fines with low plasticity (for identification procedures see ML below).			Give typical name; indicate approximate percentages of sand and gravel, maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbol in parentheses.	Atterberg limits below "A" line or P1 less than 4 — Above "A" line with P1 between 4 and 7 are borderline cases requiring use of dual symbols.
			GC	Clayey gravels, gravel and clay mixtures.	Plastic fines (for identification procedures see CL below).				Atterberg limits above "A" line with P1 greater than 7
	Sands More than half of coarse fraction is smaller than No 4 sieve size.	Clean Sand (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines.	Wide range in grain size and substantial amounts of all intermediate particle sizes.				$Cu = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			SP	Poorly graded sands or gravelly sands, little or no fines.	Predominantly one size or a range of sizes with some intermediate sizes missing.			Example: Silty sand, gravelly; about 20% hard, angular gravel particles 1/2-in. maximum size; rounded and subangular sand grains, coarse to fine; about 15% nonplastic fines with low dry strength; well compacted and moist in place; alluvial sand; (SM).	Not meeting all gradation requirements for SW
		Sands with Fines (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures.	Nonplastic fines or fines with low plasticity (for identification procedures see ML below).				Atterberg limits above "A" line or P1 less than 4 — Limits plotting in hatched zone with P1 between 4 and 7 are borderline cases requiring use of dual symbols.
			SC	Clayey sands, sand-clay mixtures.	Plastic fines (for identification procedures see CL below).				Atterberg limits above "A" line with Pl greater than 7
					Identification Procedure on Fraction Smaller than No. 40 Sieve Size.				
					Dry Strength (Crushing Characteristics)	Dilatancy (Reaction to shaking)	Toughness (Consistency near PL)		
Fine-grained Soils More than half of material is smaller than No. 200 sieve size.	Silts and Clays Liquid limit is less than 50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.	None to slight	Quick to slow	None	For undisturbed soils add information on structure, stratification, consistency in undisturbed and remolded states, moisture and drainage conditions	Plasticity Index — LIQUID LIMIT PLASTICITY CHART For laboratory classification of fine-grained soils 
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	Medium to high	None to very slow	Medium		
	Silts and Clays Liquid limit is greater than 50		OL	Organic silts and organic silty clays of low plasticity.	Slight to medium	Slow	Slight	Give typical name; indicate degree and character of plasticity; amount and maximum size of coarse grains; color in wet condition; odor, if any; local or geologic name and other pertinent descriptive information; and symbol in parentheses.	
			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	Slight to medium	Slow to none	Slight to medium		
			CH	Inorganic clays of high plasticity, fat clays.	High to very high	None	High		
			OH	Organic clays of medium to high plasticity, organic silts.	Medium to high	None to very slow	Slight to medium	Example: Clayey silt, brown; slightly plastic; small percentage of fine sand; numerous vertical root holes; firm and dry in place; loess; (ML)	
Highly Organic Soils			Pt	Peat and other highly organic soils.	Readily identified by color, odor, spongy feel and frequently by fibrous texture				

1. Boundary classifications: Soils possessing characteristics of two groups are designed by combinations of group symbols. For example GM-GC, well-graded gravel-sand mixture with clay binder.
2. All sieve sizes on this chart are U.S. standard.
3. Adopted by Corps of Engineers and Bureau of Reclamation, January 1952.

032058C

BURMISTER SOIL IDENTIFICATION METHOD

BURMISTER SOIL IDENTIFICATION METHOD

1. SOIL MATERIAL — Composition, Gradation, and Plasticity Characteristics

a) Soil Components and Soil Fractions

Sieve	3"	1"	3/8"	No. 10	No. 30	No. 60	No. 200	
				2 mm			0.076 mm	0.02 mm
Granular Component Fractions	GRAVEL			SAND			SILT	
	coarse	medium	fine	coarse	medium	fine	coarse	fine
Clay Soil Components							CLAY-SOIL Defined and Named on a Plasticity Basis	

b) Identifying Terms for Granular Soils
Composition and Proportion Terms for Components

Component		Proportion Terms	Defining Range of Percentages
Principal Components- GRAVEL, SAND, SILT (all Uppercase)			50% or more
Minor Components-	Gravel	and	35 to 50%
	Sand	some	20 to 35%
	Silt	little	10 to 20%
		trace	1 to 10%

Gradation Terms for Granular Soils		ORGANIC SOILS
coarse to fine	all fractions more than 10%	Plasticity Basis, as
coarse to medium	fine less than 10%	
medium to fine	coarse less than 10%	Organic SILT, H. PI
medium	coarse and fine less than 10%	
fine	coarse and medium less than 10%	Organic SILT, L. PI

PLUS or MINUS signs used to indicate upper or lower limits.

c) Identifying Terms for CLAY SOILS. Plasticity Basis for Combined Silt and Clay Components, Expressing the Relative Dominance of Clay

Overall Plasticity	Plasticity Index	Principal Component	Minor Component
Non-Plastic	0	SILT	Silt
Slight	1 to 5	Clayey SILT	Clayey Silt
Low	5 to 10	SILT & CLAY	Silt & Clay
Medium	10 to 20	CLAY & SILT	Clay & Silt
High	20 to 40	Silty CLAY	
Very High	more than 40	CLAY	

Example: Soil 60% coarse to fine Sand, 25% medium to fine Gravel, 15% Clayey Silt and color-brown.
Identification: Br. coarse to fine SAND, some medium to fine Gravel, little Clayey Silt.

References: 1) D. M. Burmister, "Principles and Techniques of Soil Identification" 29th Highway Research Board Proceedings, 1949.
2) "Identification and Classification of Soils – An appraisal and Statement of Principles", ASTM Special Technical Publication No. 113, 1951.

Field Classification of Soil Using the USCS

Apparent Density of Coarse-Grained Soils

SPT N-Value (corrected)	Apparent Density
0 - 4	Very loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
> 50	Very Dense

Consistency of Fine-Grained Soils

SPT N-Value (uncorrected)	Consistency	Compressive Strength (ksf)	Results of Manual Manipulation
< 2	Very Soft	< 0.5	Specimen (height = twice the diameter) sags under its own weight; extrudes between fingers when squeezed
3 - 4	Soft	> 0.5 - 1.0	Speciment can be pinched in to between the thumb and forefinger; remolded by light finger pressure
5 - 8	Medium stiff	> 1.0 - 2.0	Can be imprinted easily with fingers; remolded by strong finger pressure
9 - 15	Stiff	> 2.0 - 4.0	Can be imprinted with considerable pressure from fingers or indented by thumbnail
16 - 30	Very stiff	> 4.0 - 8.0	Can be barely imprinted by pressure from the fingers or indented by thumbnail
> 30	Hard	> 8.0	Cannot be imprinted by fingers or difficult to indent by thumbnail

MATRIXNEWORLD
Engineering Progress

PT ID No. PT- 1
Sheet 1 of 1

Prepared for:	**BNE Real Estate Group**	PROJECT:	19-720 - Verona Site
		LOCATION:	Woods West of Visitor Parking Lot (Boring B-3)

INSPECTOR:	Tim Pace	DRILLER:	Rob Dollar	Start Date:	9/16/2019	Weather:	70°F, Cloudy
CONTRACTOR:	Boring Brothers, Inc.	HELPER:	Matt	Start Time:	11:30 AM		
P.E./REP.:	Mike Soltys						

Depth of PT:	4 ft	Drill Bit Type:	Tri-Cone			Weight of Hammer for casing:	140 lbs
Rig Type:	CME 55	Casing Internal Diameter:	4	in		Type of Hammer:	Auto
		Casing Length:	66	in			

ASTM D-6391 – 11
PERMEABILITY COEFFICIENT (Km) FORMULA:

General Formula:

$$K_m = \pi R_t \times \frac{\left[D\left\{Ln\left(\frac{h_1}{h_2}\right)\right\}\right]}{11 \times (t_2 - t_1)}$$

Formula for 4" internal diameter casing (in/hr):

$$K_m = 1.142 R_t \times \frac{\left[Ln\left(\frac{h_1}{h_2}\right)\right]}{(t_2 - t_1)}$$

where:

$$R_t = {2.2902(0.9842^T)}/{T^{0.1702}}$$

PT-1 @ 4 ft

TEST 1

Water temperature (°C), T: Rt= -

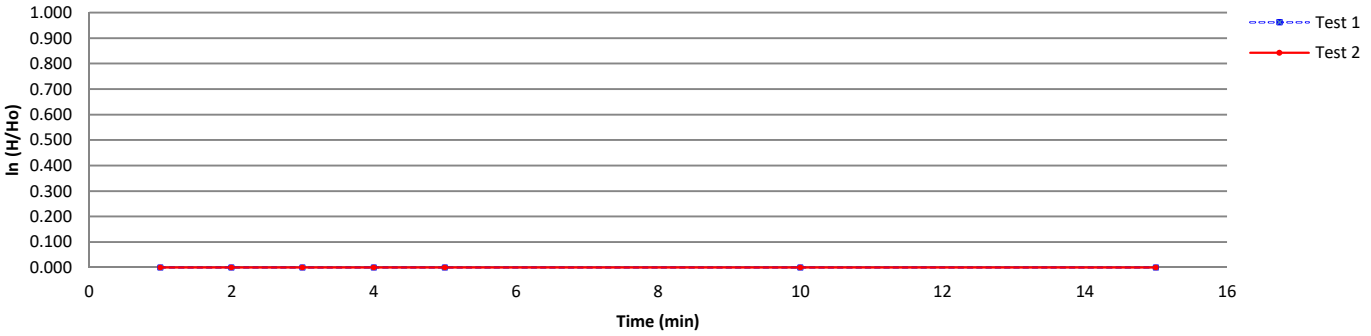
FIELD DATA		CALCULATED DATA			
Time (min)	Depth (in)	Height (in)	Ln (H/Ho)	(t_1-t_2)	*Kv (in/hr)
1		66.000	0.000	0.017	-
2		66.000	0.000	0.017	-
3		66.000	0.000	0.017	-
4		66.000	0.000	0.017	-
5		66.000	0.000	0.017	-
10		66.000	0.000	0.083	-
15		66.000	0.000	0.083	-

TEST 2

Water temperature (°C), T: Rt= -

FIELD DATA		CALCULATED DATA			
Time (min)	Depth (in)	Height (in)	Ln (H/Ho)	(t_1-t_2)	*Kv (in/hr)
1		66.000	0.000	0.017	-
2		66.000	0.000	0.017	-
3		66.000	0.000	0.017	-
4		66.000	0.000	0.017	-
5		66.000	0.000	0.017	-
10		66.000	0.000	0.083	-
15		66.000	0.000	0.083	-

PT-1 @ 4 ft



TEST 1 FINAL RESULTS

Time Weighted Average Permeability Coefficient **Km=** 0.0000 in/hr

TEST 2 FINAL RESULTS

Time Weighted Average Permeability Coefficient **Km=** 0.0000 in/hr

AVERAGE PT-1 @ 4 ft

Time Weighted Average Permeability Coefficient	**Km=**	0.0000	in/hr
		0.00E+00	ft/min

Inspectors Remarks:

No movement of water during 30-minute soak - PT cancelled at this depth.

DEFINITION OF VARIABLES

*Km= Mean permeability
T = Temperature of permeant (water), in °C
Ln = Natural Logarithmic
t1 = Time at the start of the test in the same units selected for Km
Rt = Ratio of viscosity of water at test temperature to the viscosity of water at 20°C
t2= Time at the end of the test in the units selected for Km
h1= Height of the water above the bottom of the casing at the start of the test in the same units selected for Km
h2= Height of the water above the bottom of the casing at the end of the test in the same units selected for Km

MATRIXNEWORLD
Engineering Progress

PT ID No. PT- 2
Sheet 1 of 1

Prepared for:	**BNE Real Estate Group**	PROJECT:	19-720 - Verona Site
		LOCATION:	South Edge of North Parking Lot (Boring B-4)

INSPECTOR:	Tim Pace	DRILLER:	Rob Dollar	Start Date:	9/16/2019	Weather:	70°F, Cloudy
CONTRACTOR:	Boring Brothers, Inc.	HELPER:	Matt	Start Time:	1:40 PM		
P.E./REP.:	Mike Soltys						

Depth of PT:	4 ft	Drill Bit Type:	Tri-Cone			Weight of Hammer for casing:	140 lbs
Rig Type:	CME 55	Casing Internal Diameter:	4	in		Type of Hammer:	Auto
		Casing Length:	66	in			

ASTM D-6391 – 11
PERMEABILITY COEFFICIENT (Km) FORMULA:

General Formula:

$$K_m = \pi R_t \times \frac{\left[D\left\{Ln\left(\frac{h_1}{h_2}\right)\right\}\right]}{11 \times (t_2 - t_1)}$$

Formula for 4" internal diameter casing (in/hr):

$$K_m = 1.142 R_t \times \frac{\left[Ln\left(\frac{h_1}{h_2}\right)\right]}{(t_2 - t_1)}$$

where:

$$R_t = {2.2902(0.9842^T)}/{T^{0.1702}}$$

PT-2 @ 4 ft

TEST 1

Water temperature (°C), T: 24.1 Rt= 0.91

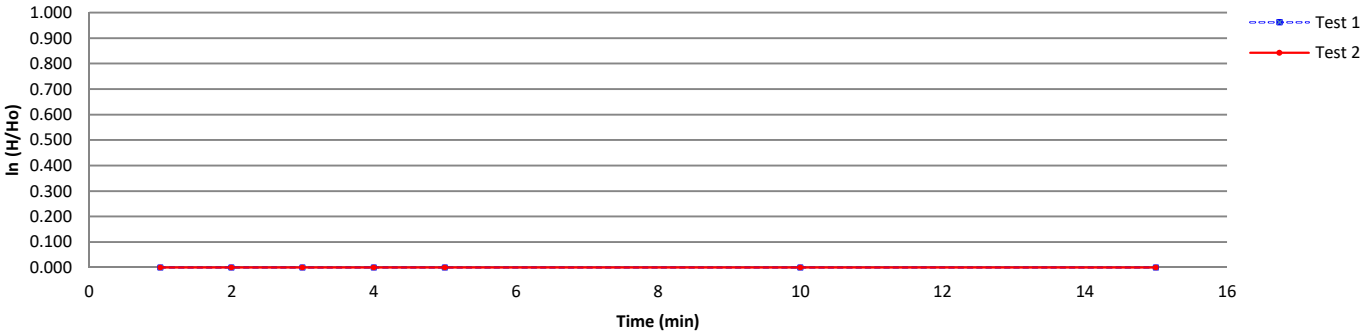
FIELD DATA		CALCULATED DATA			
Time (min)	Depth (in)	Height (in)	Ln (H/Ho)	(t_1-t_2)	*Kv (in/hr)
1	0.000	66.000	0.000	0.017	0.0000
2	0.000	66.000	0.000	0.017	0.0000
3	0.000	66.000	0.000	0.017	0.0000
4	0.000	66.000	0.000	0.017	0.0000
5	0.000	66.000	0.000	0.017	0.0000
10	0.000	66.000	0.000	0.083	0.0000
15	0.000	66.000	0.000	0.083	0.0000

TEST 2

Water temperature (°C), T: Rt= -

FIELD DATA		CALCULATED DATA			
Time (min)	Depth (in)	Height (in)	Ln (H/Ho)	(t_1-t_2)	*Kv (in/hr)
1		66.000	0.000	0.017	-
2		66.000	0.000	0.017	-
3		66.000	0.000	0.017	-
4		66.000	0.000	0.017	-
5		66.000	0.000	0.017	-
10		66.000	0.000	0.083	-
15		66.000	0.000	0.083	-

PT-2 @ 4 ft



TEST 1 FINAL RESULTS

Time Weighted Average Permeability Coefficient **Km=** 0.0000 in/hr

TEST 2 FINAL RESULTS

Time Weighted Average Permeability Coefficient **Km=** 0.0000 in/hr

AVERAGE PT-2 @ 4 ft

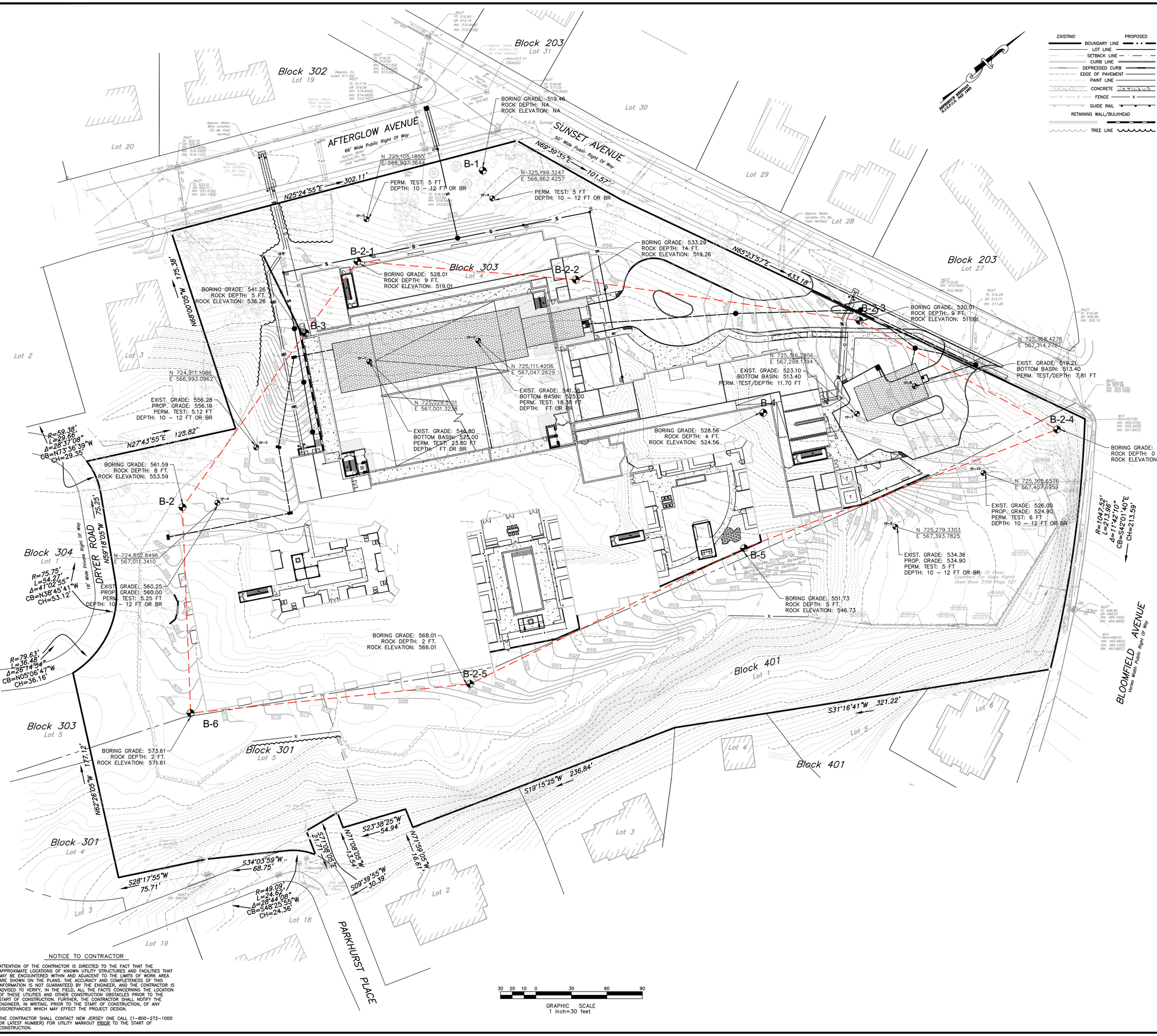
Time Weighted Average Permeability Coefficient	**Km=**	0.0000	in/hr
		0.00E+00	ft/min

Inspectors Remarks:

Test #2 cancelled - no water movement during Test #1.

DEFINITION OF VARIABLES

*Km= Mean permeability
T = Temperature of permeant (water), in °C
Ln = Natural Logarithmic
t1 = Time at the start of the test in the same units selected for Km
Rt = Ratio of viscosity of water at test temperature to the viscosity of water at 20°C
t2= Time at the end of the test in the units selected for Km
h1= Height of the water above the bottom of the casing at the start of the test in the same units selected for Km
h2= Height of the water above the bottom of the casing at the end of the test in the same units selected for Km



LEGEND

EXISTING	PROPOSED
BOUNDARY LINE	
LOT LINE	
SETBACK LINE	
CURB LINE	
DEPRESSED CURB	
EDGE OF PAVEMENT	
PAINT LINE	
CONCRETE	
FENCE	
GUIDE RAIL	
RETAINING WALL/BULKHEAD	
TREE LINE	

EXISTING	PROPOSED
INLET	
DOUBLE INLETS	
RECONSTRUCT INLET	
RESET INLET	
MANHOLE	
RECONSTRUCT MANHOLE	
RESET MANHOLE	
CLEANOUT	CO
DOWNSPOUT	DS
ROOF DOWNSPOUT	
SANITARY SEWER	S
SANITARY CLEANOUT	CO
WATER MAIN	W
WATER VALVE	W
WATER VALVE RESET	W
WATER METER	WM
FIRE HYDRANT	
GAS MAIN	G
GAS VALVE	G
GAS VALVE RESET	G
GAS METER	GM
TELEPHONE	T
CABLE TELEVISION	CATV
ELECTRIC CONDUIT	E
OVER HEAD WIRE	OH
STORM DRAIN	

EXISTING	PROPOSED
UTILITY POLE	
GUY ANCHOR	
BASIN	
FLOOD LIMIT	
MEAN HIGH WATER LINE	
EASEMENTS	
DRAINAGE	
SEWER	
SIGHT	
SLOPE	
UTILITY	
WATER	
ACCESS	
STREAM ENCROACHMENT	
WETLAND BUFFER (CONSERVATION)	
RIPARIAN BUFFER	

NOTICE TO CONTRACTOR

ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE FACT THAT THE APPROXIMATE LOCATIONS OF KNOWN UTILITY STRUCTURES AND FACILITIES THAT MAY BE ENCOUNTERED WITHIN AND ADJACENT TO THE LIMITS OF WORK AREA ARE SHOWN ON THE PLANS. THE ACCURACY AND COMPLETENESS OF THIS INFORMATION IS NOT GUARANTEED BY THE ENGINEER, AND THE CONTRACTOR IS ADVISED TO VERIFY, IN THE FIELD, ALL THE FACTS CONCERNING THE LOCATION OF THESE UTILITIES AND OTHER CONSTRUCTION OBSTACLES PRIOR TO THE START OF CONSTRUCTION. FURTHER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER, IN WRITING, PRIOR TO THE START OF CONSTRUCTION, OF ANY DISCREPANCIES WHICH MAY EFFECT THE PROJECT DESIGN.

THE CONTRACTOR SHALL CONTACT NEW JERSEY ONE CALL (1-800-272-1000 OR LATEST NUMBER) FOR UTILITY MARKOUT PRIOR TO THE START OF CONSTRUCTION.

30 20 10 0 30 60 90
GRAPHIC SCALE
1 inch=30 feet

NO.	DESCRIPTION	DATE:	DES.	REV./	REL.
REVISIONS					

DESIGNED BY:
REVIEWED BY:
RELEASED BY:

SEAN M. SAVAGE, P.E.
NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 24GE04451600
DATE

MATRIXNEWORLD
Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
442 State Route 35, Second Floor
Eatontown, New Jersey 07724
Certified WBE
Tel: 732-588-2999
Fax: 973-240-1818
www.matrixneworld.com
NEW JERSEY CERTIFICATE OF AUTHORIZATION No. 24GA27992300

TEST PIT LOCATION EXHIBIT

VERONA SUNSET URBAN RENEWAL, LLC
BLOCK 303, LOT 4 - TOWNSHIP OF VERONA
BLOCK 301, LOT 5 AND BLOCK 401, LOT 1 - TOWNSHIP OF MONTCLAIR
ESSEX COUNTY, NEW JERSEY

PROJECT NUMBER: 19-720
DATE: 09/12/2022
SCALE: 1" = 30'
SHEET 1 OF 1

Plotted: 9/28/2022 9:04 AM, By: Tori Massara
© MATRIXNEWORLD\M:\Matrix LDS\Jobs\BNE Real Estate Group\19-720 - Verona Site\Dwg\xMisc\2022-09-27 Test Pit Exhibit with old tests\Test Pit Exhibit.dwg\07 - Utility Plan

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-1**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/16/19**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **Woods East of Afterglow Ave/Sunset Ave Intersection**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **520.7** DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**			**9/16/19**	**10:15 am**	**7.2**	**N/A**
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	SAMPLE Type	SAMPLE Depth Feet	SAMPLE Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
	PUSH	S-1	SS	0-2	2-3-2-3 (67%)		S-1: Brown fine SAND and Silt, trace roots, wood, dry (SM)	
(518.7)		S-2	SS	2-4	3-4-5-6 (75%)		S-2: Light Brown Silty CLAY, some fine Sand, trace fine Gravel, trace roots, dry (CL) WC: 18.0%, Gravel: 4.0%, Sand: 28.6%, Fines: 67.4%	Sieve
(516.7)		S-3	SS	4-6	9-9-11-10 (100%)		S-3: Light Brown fine SAND and Silty Clay, trace fine Gravel, dry (SC) WC: 13.9%, LL: 25, PL: 15, PI: 10	Atterberg Limits
5	PUSH 50							
(514.7)		S-4	SS	6-8	14-11-13-10 (92%)		S-4: Red-Brown mf SAND, little Clayey Silt, little fine Gravel, wet (SM)	
▼	50 70							
(512.7)		S-5	SS	8-10	10-9-6-6 (50%)		S-5: Brown cmf SAND and cf Gravel, trace Silt, wet (SP)	
10	100 60							
(510.7)	MUD	S-6	SS	10-12	10-9-8-8 (63%)		S-6: Brown mf SAND, little Silt, little cf Gravel, wet (SM)	
(507.2)								
15	MUD	S-7	SS	15-17	6-3-3-6 (50%)		S-7: Brown mf* SAND, some Clay, little fine Gravel, wet (SC) WC: 13.1%, Fines: 32.5%, LL: 19, PL: 11, PI: 8	Atterberg Limits; Pass No 200
(503.7)							4" Casing to 10 feet bgs Bottom of Borehole @ 17 ft.	

NEWORLD NO GROUT 19-720 - FINAL BORING LOGS - 06.03.21.GPJ MATRIX EGS.GDT 6/3/21

BORING NO.: **B-1**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-2**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/17/19**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **Grass Area South of South Parking Lot**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **562.0** DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	Type	Depth Feet	Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
	PUSH	S-1	SS	0-2	1-2-3-3 (63%)		S-1: Brown fine SAND and Silt, trace fine Gravel, trace roots, moist (SM)	
	PUSH	S-2	SS	2-4	8-6-6-8 (88%)		S-2: Red-Brown mf* SAND and Silt, trace cf Gravel, dry (SM) WC: 13.0%, Fines: 37.6%	Pass No 200
	40							
5	60	S-3	SS	4-6	11-12-14-15 (79%)		S-3: Red-Brown mf* SAND and Silt, little cf* Gravel, dry (SM)	
	80							
(556.0)		S-4	SS	6-8	17-15-15-13 (63%)		S-4: Red-Brown fine SAND and Silt and Clay, little cf* Gravel, dry (SC-SM) WC: 12.1%, Fines: 38.5%, LL: 21, PL: 14, PI: 7	Atterberg Limits; Pass No 200
	110							
	110	S-5	SS	8-9	20-100/6" (100%)		S-5A (Top 4"): Same as Above, dry (SC-SM)	
(553.7)	90						S-5B (Bottom 8"): Red-Brown mf* SAND, some Silt, trace cf Gravel, dry (SM)	
(553.0)	WATER	R-1	NX	9-14	(92%) [50%]		R-1: Dark Gray BASALT, mf grained, moderately fractured, slightly weathered (WS) (BASALT) Compressive Strength = 22,170 psi	Unconfined Comp.
10								
	WATER							
(548.0)							4" Casing to 9 feet bgs Bottom of Borehole @ 14 ft.	

NEWORLD NO GROUT 19-720 - FINAL BORING LOGS - 06.03.21.GPJ MATRIX EGS.GDT 6/3/21

BORING NO.: **B-2**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-2-1**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **5/07/21**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **Southwest of School Building**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Brian Young**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	Type	Depth Feet	Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
		S-1	SS	0-2	1-3-6-7 (33%)		S-1: Brown cmf SAND, little Silt (SM)	
		S-2	SS	2-4	3-4-3-11 (25%)		S-2: Brown cmf SAND, little Silt, trace f Gravel (SM)	
5		S-3	SS	4-6	19-20-15-18 (42%)		S-3: Brown cmf SAND, little Silt, trace f Gravel (SM)	
		S-4	SS	6-8	28-16-17-14 (54%)		S-4: Brown cmf SAND, little Silt, trace f Gravel (SM)	
		S-5	SS	8-9	32-50/3" (33%)			
							Refusal (rock) at 9 feet bgs Bottom of Borehole @ 9 ft.	

NEWORLD NO GROUT 19-720 - FINAL BORING LOGS - 06.03.21.GPJ MATRIX EGS.GDT 6/3/21

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-2-2**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **5/07/21**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **North of School Building**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Brian Young**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	Type	Depth Feet	Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
		S-1	SS	0-2	1-2-1-2 (25%)		S-1: Brown cmf SAND, little Silt (SM)	
		S-2	SS	2-4	4-4-5-13 (63%)		S-2: Brown cmf SAND, little Silt (SM)	
5		S-3	SS	4-6	20-6-7-6 (50%)		S-3: Brown cmf SAND, little Silt (SM)	
		S-4	SS	6-8	13-9-8-6 (54%)		S-4: Brown cmf SAND, little Silt (SM)	
		S-5	SS	8-10	4-5-7-5 (46%)		S-5: Brown cmf SAND, little Silt (SM)	
10		S-6	SS	10-12	8-10-12-15 (54%)		S-6: Brown cmf SAND, little mf Gravel (SM)	
		S-7	SS	12-14	21-17-15-20 (38%)		S-6: Brown cmf SAND, little mf Gravel (SM)	
		S-8	SS	14-16	50/0"		Bottom of Borehole @ 14 ft.	

NEWORLD NO GROUT 19-720 - FINAL BORING LOGS - 06.03.21.GPJ MATRIX EGS.GDT 6/3/21

BORING NO.: **B-2-2**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-2-3**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **5/07/21**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **North of Parking Lot**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Brian Young**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	Type	Depth Feet	Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
		S-1	SS	0-2	1-2-1-4 (50%)		S-1: Brown cmf SAND (SM)	
		S-2	SS	2-4	4-5-6-8 (58%)		S-2: Brown cmf SAND, little Silt, trace mf Gravel (SM)	
5		S-3	SS	4-6	16-14-9-6 (46%)		S-3: Brown cmf SAND, little Silt, trace mf Gravel (SM)	
		S-4	SS	6-8	5-6-8-9 (8%)		S-4: Brown cmf SAND, little Silt, trace mf Gravel (SM)	
		S-5	SS	8-9	16-21-50/3" (33%)		Bottom of Borehole @ 9 ft.	

NEWORLD NO GROUT 19-720 - FINAL BORING LOGS - 06.03.21.GPJ MATRIX EGS.GDT 6/3/21

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-2-4**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **5/07/21**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **East Corner of Site**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Brian Young**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
				SS	**1 3/8"**						
				AUTO		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	SAMPLE Type	SAMPLE Depth Feet	SAMPLE Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
		S-1	SS	0-2	50/0"		Bottom of Borehole @ 0 ft.	

BORING NO.: **B-2-4**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-2-5**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **5/07/21**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **Southeast Corner of School Building**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Brian Young**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	Type	Depth Feet	Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
		S-1	SS	0-2	1-1-1-1 (54%)		S-1: Brown cmf SAND (SM)	
		S-2	SS	2-2.3	50/3" (33%)		S-2: Brown cmf SAND (SM) Bottom of Borehole @ 2 ft.	

BORING NO.: **B-2-5**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-3**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/16/19**
PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **Woods West of Visitor Parking Area**
DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **542.0** DATUM: **NJ STATE LIDAR**
DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	Type	Depth Feet	Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
	10	S-1	SS	0-2	2-2-1-2 (83%)		S-1: Brown fine SAND and Clayey Silt, little fine Gravel, dry (SM) *Bottom 6" of split spoon wet WC: 14.9%, Gravel: 13.6%, Sand: 45.1%, Fines: 41.3%, <2 µm: 7%	Sieve; Hydrometer
	50							
	60	S-2	SS	2-4	10-12-22-25 (83%)		S-2: Red-Brown mf* SAND and Silt, some cf* Gravel, dry (SM) *Top 10" of split spoon wet	
	80							
(537.7)	WATER	S-3	SS	4-4.3	100/4" (100%)		S-3: Red-Brown mf* SAND, some cf* Gravel, little Silt, wet (SM)	
5 (537.0)		R-1	NX	5-10	(82%) [0%]		R-1: Dark Gray BASALT, mf* grained, closely fractured, slightly weathered (WS) (BASALT)	
10 (532.0)	WATER						4" Casing to 4 feet bgs Bottom of Borehole @ 10 ft.	

NEWORLD NO GROUT 19-720 - FINAL BORING LOGS - 06.03.21.GPJ MATRIX EGS.GDT 6/3/21

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-4**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/16/19**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **South Edge of North Parking Lot**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **529.0** DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	SAMPLE Type	SAMPLE Depth Feet	SAMPLE Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
	20	S-1	SS	0-2	2-6-6-3 (25%)		S-1: Brown fine SAND and Silt, trace coarse Gravel, trace roots, dry (SM)	
	40							
		S-2	SS	2-4	5-6-10-13 (75%)		S-2: Red-Brown mf* SAND, some Silt, some cf Gravel, moist (SM)	
	25							
	55							
(525.0)	WATER	R-1	NX	4-9	(88%) [88%]		R-1: Dark Gray BASALT, fine grained, slightly fractured, slightly weathered (WS) (BASALT)	
5								
	WATER							
(520.0)							4" Casing to 4 feet bgs Bottom of Borehole @ 9 ft.	

NEWORLD NO GROUT 19-720 - FINAL BORING LOGS - 06.03.21.GPJ MATRIX EGS.GDT 6/3/21

BORING NO.: **B-4**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-5**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/17/19**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **Southwest Corner of Basketball Court**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **552.6** DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	SAMPLE Type	SAMPLE Depth Feet	SAMPLE Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
							6" Asphalt	
(552.1)	25	S-1	SS	0.5-2	16-11-8 (39%)		S-1: Gray-Brown cmf* SAND, some Silt, little cf Gravel, dry (SM)	
	30	S-2	SS	2-4	7-9-6-7 (4%)		S-2: Same as Above, dry (SM)	
	30							
	30	S-3	SS	4-4.4	100/5" (60%)		S-3: Same as Above, dry (SM)	
(548.2)	110							
(547.6)	WATER	R-1	NX	5-10	(95%) [57%]		R-1: Dark Gray BASALT, cmf grained, moderately fractured, slightly weathered (WS) (BASALT) Compressive Strength = 13,760 psi	Unconfined Comp.
10 (542.6)	WATER						4" Casing to 5 feet bgs Bottom of Borehole @ 10 ft.	

NEWORLD NO GROUT 19-720 - FINAL BORING LOGS - 06.03.21.GPJ MATRIX EGS.GDT 6/3/21

BORING NO.: **B-5**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **B-6**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **9/17/19**

PROJECT LOCATION: **Verona, New Jersey 07044** BORING LOCATION: **South Corner of Site**

DRILLING EQUIPMENT: **CME 55** ANGLE: **-90.0** DIR.: **-90** ELEV.: **574.9** DATUM: **NJ STATE LIDAR**

DRILLING CONTRACTOR: **Boring Brothers, Inc.** DRILLER: **Rob Dollar** INSPECTOR: **Tim Pace**

CASING and HAMMER				SAMPLER and HAMMER				GROUNDWATER LEVELS			
Type	I.D.	Weight	Drop	Type	I.D.	Weight	Drop	Date	Time	Depth	Casing Depth
FJ Steel	**4"**			**SS**	**1 3/8"**						
Auto		**140 lbs**	**30"**	**AUTO**		**140 lbs**	**30"**				

Depth Feet (Elev.)	CASING Blows/ Foot	SAMPLE No.	SAMPLE Type	SAMPLE Depth Feet	SAMPLE Blows/6" (REC. %) [RQD %]	Graphic Symbol	Description Of Material	Laboratory Tests
	20	S-1	SS	0-1.8	3-9-10-100/4" (41%)		S-1A (Top 4"): Brown fine SAND and Silt, trace roots, moist (SM)	
(573.5)	95						S-1B (Bottom 5"): Gray c*f GRAVEL, some cmf Sand, dry (CWR/GP)	
(572.9)	WATER	R-1	NX	2-7	(82%) [22%]		R-1: Dark Gray BASALT, mf grained, closely fractured, slightly weathered (WS) (BASALT)	
5								
	WATER							
(567.9)							4" Casing to 2 feet bgs Bottom of Borehole @ 7 ft.	

NEWORLD NO GROUT 19-720 - FINAL BORING LOGS - 06.03.21.GPJ MATRIX EGS.GDT 6/3/21

BORING NO.: **B-6**

MATRIXNEWORLD
Engineering Progress

PT ID No. PT- 1
Sheet 1 of 1

Prepared for:	**BNE Real Estate Group**	PROJECT:	19-720 - Verona Site
		LOCATION:	Woods West of Visitor Parking Lot (Boring B-3)

INSPECTOR:	Tim Pace	DRILLER:	Rob Dollar	Start Date:	9/16/2019	Weather:	70°F, Cloudy
CONTRACTOR:	Boring Brothers, Inc.	HELPER:	Matt	Start Time:	11:30 AM		
P.E./REP.:	Mike Soltys						

Depth of PT:	4 ft	Drill Bit Type:	Tri-Cone			Weight of Hammer for casing:	140 lbs
Rig Type:	CME 55	Casing Internal Diameter:	4	in		Type of Hammer:	Auto
		Casing Length:	66	in			

ASTM D-6391 – 11
PERMEABILITY COEFFICIENT (Km) FORMULA:

General Formula:

$$K_m = \pi R_t \times \frac{\left[D\left\{Ln\left(\frac{h_1}{h_2}\right)\right\}\right]}{11 \times (t_2 - t_1)}$$

Formula for 4" internal diameter casing (in/hr):

$$K_m = 1.142 R_t \times \frac{\left[Ln\left(\frac{h_1}{h_2}\right)\right]}{(t_2 - t_1)}$$

where:

$$R_t = {2.2902(0.9842^T)}/{T^{0.1702}}$$

PT-1 @ 4 ft

TEST 1

Water temperature (°C), T: Rt= -

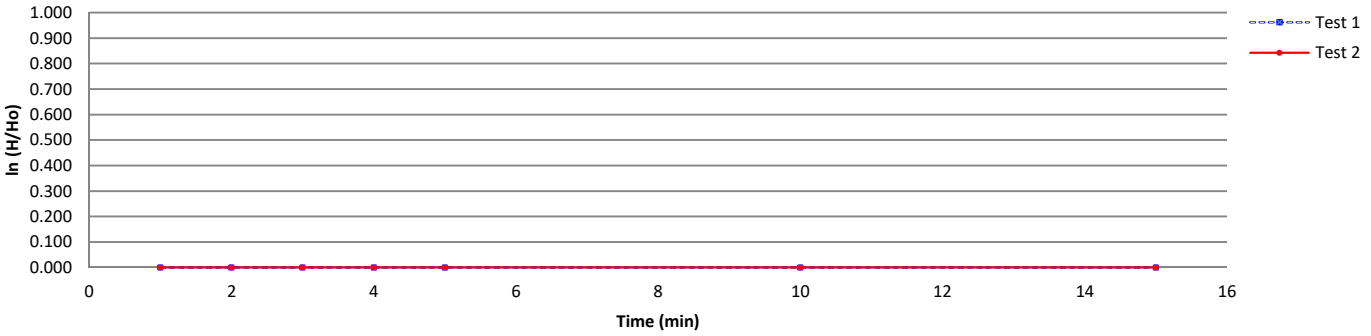
FIELD DATA		CALCULATED DATA			
Time (min)	Depth (in)	Height (in)	Ln (H/Ho)	(t_1-t_2)	*Kv (in/hr)
1		66.000	0.000	0.017	-
2		66.000	0.000	0.017	-
3		66.000	0.000	0.017	-
4		66.000	0.000	0.017	-
5		66.000	0.000	0.017	-
10		66.000	0.000	0.083	-
15		66.000	0.000	0.083	-

TEST 2

Water temperature (°C), T: Rt= -

FIELD DATA		CALCULATED DATA			
Time (min)	Depth (in)	Height (in)	Ln (H/Ho)	(t_1-t_2)	*Kv (in/hr)
1		66.000	0.000	0.017	-
2		66.000	0.000	0.017	-
3		66.000	0.000	0.017	-
4		66.000	0.000	0.017	-
5		66.000	0.000	0.017	-
10		66.000	0.000	0.083	-
15		66.000	0.000	0.083	-

PT-1 @ 4 ft



TEST 1 FINAL RESULTS

Time Weighted Average Permeability Coefficient **Km=** 0.0000 in/hr

TEST 2 FINAL RESULTS

Time Weighted Average Permeability Coefficient **Km=** 0.0000 in/hr

AVERAGE PT-1 @ 4 ft

Time Weighted Average Permeability Coefficient	**Km=**	0.0000	in/hr
		0.00E+00	ft/min

Inspectors Remarks:

No movement of water during 30-minute soak - PT cancelled at this depth.

DEFINITION OF VARIABLES

*Km= Mean permeability
T = Temperature of permeant (water), in °C
Ln = Natural Logarithmic
t1 = Time at the start of the test in the same units selected for Km
Rt = Ratio of viscosity of water at test temperature to the viscosity of water at 20°C
t2= Time at the end of the test in the units selected for Km
h1= Height of the water above the bottom of the casing at the start of the test in the same units selected for Km
h2= Height of the water above the bottom of the casing at the end of the test in the same units selected for Km

MATRIXNEWORLD
Engineering Progress

PT ID No. PT- 2
Sheet 1 of 1

Prepared for:	**BNE Real Estate Group**	PROJECT:	19-720 - Verona Site
		LOCATION:	South Edge of North Parking Lot (Boring B-4)

INSPECTOR:	Tim Pace	DRILLER:	Rob Dollar	Start Date:	9/16/2019	Weather:	70°F, Cloudy
CONTRACTOR:	Boring Brothers, Inc.	HELPER:	Matt	Start Time:	1:40 PM		
P.E./REP.:	Mike Soltys						

Depth of PT:	4 ft	Drill Bit Type:	Tri-Cone			Weight of Hammer for casing:	140 lbs
Rig Type:	CME 55	Casing Internal Diameter:	4	in		Type of Hammer:	Auto
		Casing Length:	66	in			

ASTM D-6391 – 11
PERMEABILITY COEFFICIENT (Km) FORMULA:

General Formula:

$$K_m = \pi R_t \times \frac{\left[D\left\{Ln\left(\frac{h_1}{h_2}\right)\right\}\right]}{11 \times (t_2 - t_1)}$$

Formula for 4" internal diameter casing (in/hr):

$$K_m = 1.142 R_t \times \frac{\left[Ln\left(\frac{h_1}{h_2}\right)\right]}{(t_2 - t_1)}$$

where:

$$R_t = {2.2902(0.9842^T)}/{T^{0.1702}}$$

PT-2 @ 4 ft

TEST 1

Water temperature (°C), T: 24.1 Rt= 0.91

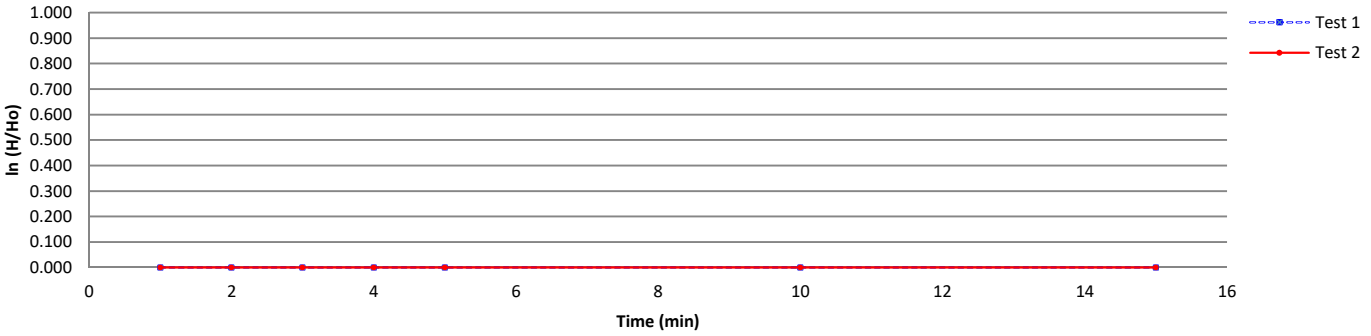
FIELD DATA		CALCULATED DATA			
Time (min)	Depth (in)	Height (in)	Ln (H/Ho)	(t_1-t_2)	*Kv (in/hr)
1	0.000	66.000	0.000	0.017	0.0000
2	0.000	66.000	0.000	0.017	0.0000
3	0.000	66.000	0.000	0.017	0.0000
4	0.000	66.000	0.000	0.017	0.0000
5	0.000	66.000	0.000	0.017	0.0000
10	0.000	66.000	0.000	0.083	0.0000
15	0.000	66.000	0.000	0.083	0.0000

TEST 2

Water temperature (°C), T: Rt= -

FIELD DATA		CALCULATED DATA			
Time (min)	Depth (in)	Height (in)	Ln (H/Ho)	(t_1-t_2)	*Kv (in/hr)
1		66.000	0.000	0.017	-
2		66.000	0.000	0.017	-
3		66.000	0.000	0.017	-
4		66.000	0.000	0.017	-
5		66.000	0.000	0.017	-
10		66.000	0.000	0.083	-
15		66.000	0.000	0.083	-

PT-2 @ 4 ft



TEST 1 FINAL RESULTS

Time Weighted Average Permeability Coefficient **Km=** 0.0000 in/hr

TEST 2 FINAL RESULTS

Time Weighted Average Permeability Coefficient **Km=** 0.0000 in/hr

AVERAGE PT-2 @ 4 ft

Time Weighted Average Permeability Coefficient	**Km=**	0.0000	in/hr
		0.00E+00	ft/min

Inspectors Remarks:

Test #2 cancelled - no water movement during Test #1.

DEFINITION OF VARIABLES

*Km= Mean permeability
T = Temperature of permeant (water), in °C
Ln = Natural Logarithmic
t1 = Time at the start of the test in the same units selected for Km
Rt = Ratio of viscosity of water at test temperature to the viscosity of water at 20°C
t2= Time at the end of the test in the units selected for Km
h1= Height of the water above the bottom of the casing at the start of the test in the same units selected for Km
h2= Height of the water above the bottom of the casing at the end of the test in the same units selected for Km

PERMEABILITY TESTING REPORT

VERONA SITE
BLOCK 303, LOT 4 – TOWNSHIP OF VERONA
BLOCK 301, LOT 5 & BLOCK 401, LOT 1 – TOWNSHIP OF MONTCLAIR
ESSEX COUNTY, NEW JERSEY

MATRIXNEWORLD

Engineering Progress

Prepared for:

BNE Real Estate Group
16 Microlab Road
Livingston, New Jersey 07039

Prepared by:

Matrix New World Engineering, Land Surveying
and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932

Matrix No. 19-720

October 2022

Michael J. Soltys, P.E.
NJ Professional Engineer License No. 24GE004930800

TABLE OF CONTENTS

1 INTRODUCTION 1
2 GEOLOGIC SETTING 2
3 SUBSURFACE FIELD PROGRAM 3
3.1 Test Pits 3
3.2 Field Permeability Testing (Basin Flood Testing and Double Ring Infiltrometer) 3
4 SUBSURFACE CONDITIONS 5
4.1 Test Pits Summary 5
5 CLOSURE 6

FIGURES

1 Site Location Map
2 Test Pit Location Plan
3 Bedrock Geology Location Map
4 Surficial Geology Location Map

APPENDICES

A Soil Test Pit Logs
B Soil Classification Tables

1 INTRODUCTION

Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C. (Matrix) has completed a geotechnical assessment to support the proposed construction in the townships of Verona and Montclair in Essex County, New Jersey (Site). The Site is located throughout Block 303, Lot 4 in Verona and Block 301, Lot 5 and Block 401, Lot 1 in Montclair, New Jersey. A Site Location Map is provided as Figure 1. The subsurface field program was conducted within the existing property bounded by Afterglow Avenue, Sunset Avenue, and Bloomfield Avenue.

Matrix provided geotechnical services as a consultant to BNE Real Estate Group. The purpose of the geotechnical assessment was to evaluate the suitability of the on-site soils for the support of a proposed apartment complex at the Site. A total of 10 test pits were excavated to depths between 4 and 12 feet below ground surface (bgs). One permeability test (double ring infiltrometer test or basin flood test) was conducted in each test pit to obtain drainage characteristics of the existing subsurface soils.

2 GEOLOGIC SETTING

According to the Bedrock Geologic Map of New Jersey (dated 2014), the Site is founded on Orange Mountain Basalt, where fine-grained and massive to columnar jointed bedrock is likely to be encountered. A Bedrock Geologic Map is provided as Figure 3.

From the Surficial Geologic Location Map of Northern New Jersey (dated 2002), the natural surface material (beyond fill) is suggested to be till moraine consisting primarily of silty and/or clayey sand, or silt. The Surficial Geology Map is shown in Figure 4.

The soil descriptions presented above are consistent with the findings from the subsurface field program, in which sand and silt were observed throughout the length of each test pit, with varying amounts of clay and gravel. Bedrock was typically encountered shallow at this Site and was consistent with the expected bedrock descriptions above.

3 SUBSURFACE FIELD PROGRAM

The subsurface field program was completed by generally accepted practice in the Geotechnical Engineering field and consisted of the advancement of 10 test pits and permeability tests.

A Matrix Geotechnical Engineer provided full-time test pit oversight and soil logging. Matrix prepared the field logs, which included depths, soil descriptions based on the Burmister Soil Classification System followed by the Unified Soil Classification System (USCS) letter symbol, and groundwater observations. The test pit logs are provided in Appendix A. Classification tables and charts used to determine the soil attributes are included in Appendix B.

3.1 Test Pits

A total of 10 test pits were excavated to obtain soil profile information at the potential locations of stormwater basins. Matrix retained Heritage Contracting Company (Heritage), located in Cranbury, New Jersey to advance test pits under observation of a Matrix Geotechnical Engineer. From October 5 through 7, 2022, Heritage advanced 10 test pits with a CAT 308C excavator to depths specified by the engineer. The test pit locations of the completed test pits were identified in the field by GPS. The locations are shown on Figure 2.

3.2 Field Permeability Testing (Basin Flood Testing and Double Ring Infiltrometer)

Permeability tests were performed in general conformance with the NJDEP Stormwater Best Management Practices Manual via the basin flood test or the double ring infiltrometer test method. Due to shallow bedrock and varying groundwater elevations due to recent heavy precipitation, the type of permeability test was determined in the field while advancing each test pit. In test pits where shallow bedrock was encountered, a basin flood test was conducted.

Basin flood tests were performed at the depth bedrock was encountered, as noted on the test pit logs in Appendix A. A 50 square foot test pit was advanced to bedrock and filled with 12 inches of water and allowed to drain over a 24-hour period. If the time required for the basin to drain completely was greater than 24 hours, the test was terminated. If the entirety of the water dissipated after the 24-hour period, the 12 inches of water were immediately replaced and allowed to dissipate for an additional 24 hours. Upon termination of the basin flood test, results were recorded and the permeability was calculated.

Basin flood tests were performed in TP-1 through TP-7, TP-9, and TP-10. The time required for the water to fully drain exceeded 24 hours in each of the test pits, therefore all basin flood tests were terminated and the bedrock can be considered to be a massive rock substratum.

One double ring infiltrometer test was conducted in test pit TP-8 at 4.75 feet bgs. The double ring infiltrometer test was attempted at least 12 inches above where the groundwater table or mottling was encountered; however, recent heavy precipitation may have impacted these levels. The double rings were inserted 2 to 3 inches into the soil then filled with water and allowed to presoak. Presoaking was carried out in two intervals of up to 30 minutes. The rings were then refilled, and the water level was measured in 30-minute intervals. When the drop in water level was stabilized, the permeability was calculated. The permeability rate in TP-8 was recorded as 0.625 inches per hour.

4 SUBSURFACE CONDITIONS

4.1 Test Pit Summary

The findings from the test pit exploration and permeability testing are summarized below. Basin flood tests were performed in TP-1 through TP-7, TP-9, and TP-10. One double ring infiltrometer test was performed in TP-8.

Table 4.1 – Test Pit Summary

Test Pit	Excavation Depth (feet bgs)	Groundwater Depth (feet bgs)*	Mottling Starting Depth (feet bgs)	Test Depth (feet bgs)	Permeability Rate, K (in/hr) +
TP-1	6	NE	3	6	N/A
TP-2	4	NE	3.5	4	N/A
TP-3	6	NE	2	6	N/A
TP-4	8.5	NE	3	8.5	N/A
TP-5	5	NE	5	5	N/A
TP-6	12	6	2	12	N/A
TP-7	6	2	2	6	N/A
TP-8	4.75	3.5	2.5	4.75	0.625
TP-9	7	6	3	7	N/A
TP-10	4.5	4.5	2	4.5	N/A

*NE = Not Encountered

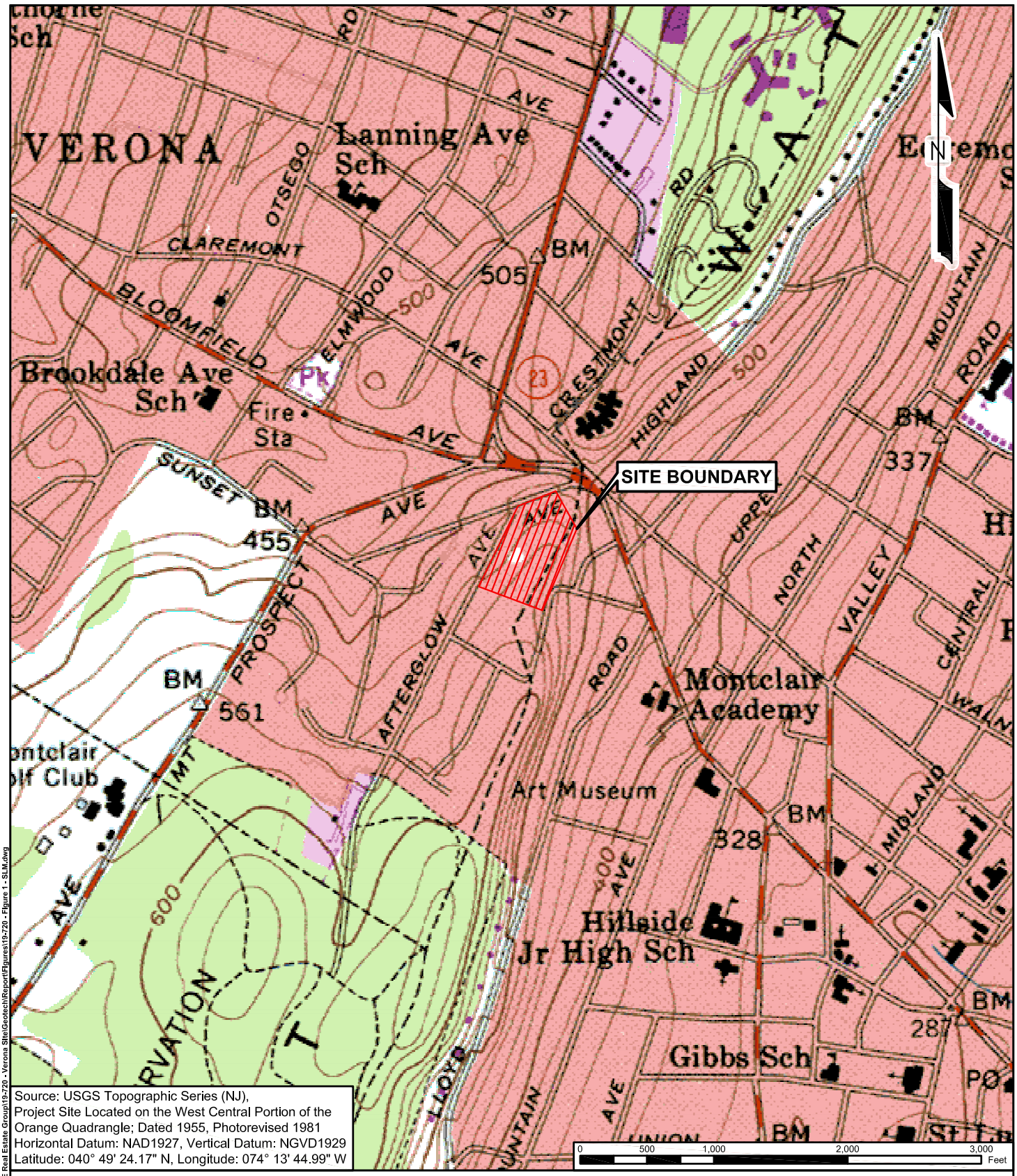
+ N/A = Test was terminated and a permeability rate was not calculated

5 CLOSURE

This report has been prepared to assist BNE Real Estate Group with the proposed development at the Verona Site in Essex County, New Jersey. The conclusions and recommendations provided within this report were prepared based on our understanding of the project and through the application of generally accepted soils and geotechnical engineering practices and are founded on the information made available to us at the time of the actual writing of the report and the site conditions, surface and subsurface, that existed at the time the exploratory test pits were performed. A further assumption has been made that the limited exploratory test pits, in relation both to the area extent of the site and to depth, are representative of general subsurface conditions across the site. Environmental issues (such as potentially contaminated soil and groundwater) are outside the scope of this study and should be addressed in a separate study.

Technical specifications and design drawings should incorporate our recommendations to ensure that subsurface conditions and other geotechnical issues at the site are adequately addressed in the construction documents. No warranties, expressed or implied, are made. Matrix should be notified of any changes to the planned construction or if subsurface conditions differing from those described herein are encountered, so the impact on the geotechnical recommendations can be evaluated.

FIGURES



Source: USGS Topographic Series (NJ),
Project Site Located on the West Central Portion of the Orange Quadrangle; Dated 1955, Photorevised 1981
Horizontal Datum: NAD1927, Vertical Datum: NGVD1929
Latitude: 040° 49' 24.17" N, Longitude: 074° 13' 44.99" W

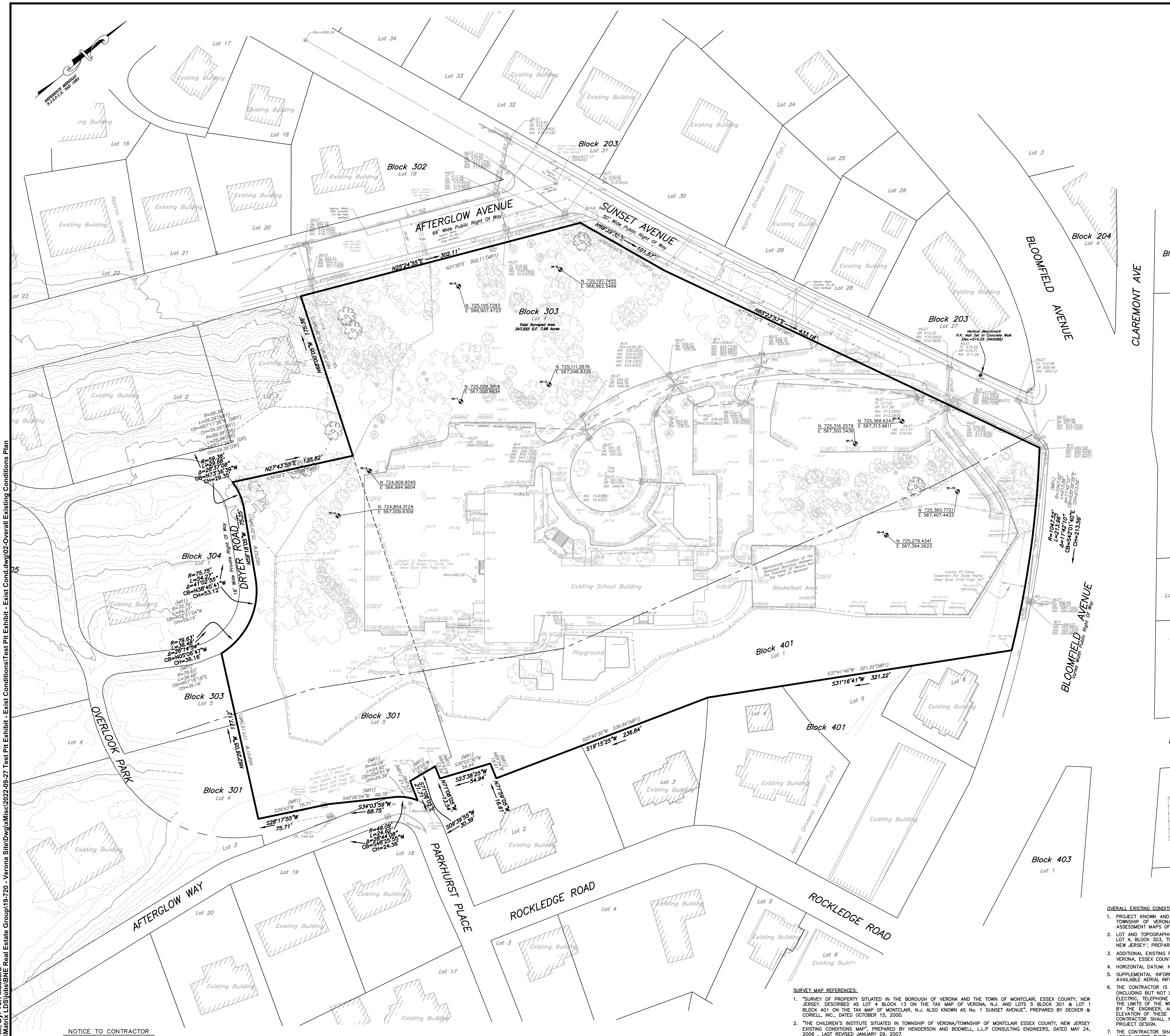
SITE LOCATION MAP

MATRIXNEWORLD
Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
WBE / DBE / SBE
Tel: 973-240-1800
Fax: 973-240-1818
www.matrixneworld.com

BNE REAL ESTATE GROUP - VERONA SITE
BLOCK 303, LOT 4 - TOWNSHIP OF VERONA
BLOCK 301, LOT 5 & BLOCK 401, LOT 1 - TOWNSHIP OF MONTCLAIR
ESSEX COUNTY, NEW JERSEY

SCALE:	PROJECT NO.:	DATE:	FIGURE NO.:
1" = 1,000'	19-720	OCTOBER 2022	1

© M:\MATRIXNEWORLD\M:\Matrix LDS\Jobs\BNE Real Estate Group\19-720 - Verona Site\Geotech\Report\Figures\19-720 - Figure 1 - SLM.dwg



OVERALL EXISTING CONDITIONS NOTES:

1. PROJECT KNOWN AND DESIGNATED AS TAX MAP LOT 4, BLOCK 303, AS SHOWN ON THE CURRENT TAX ASSESSMENT MAPS OF THE TOWNSHIP OF VERONA, TAX MAP SHEET 3 AND TAX MAP LOT 5, BLOCK 301 AND LOT 1, BLOCK 401 ON THE CURRENT TAX ASSESSMENT MAPS OF THE TOWNSHIP OF MONTCLAIR, TAX MAP SHEETS 3 AND 4.
2. LOT AND TOPOGRAPHIC SURVEY INFORMATION BASED UPON A SURVEY ENTITLED "BOUNDARY AND TOPOGRAPHIC SURVEY, TAX MAP OF LOT 4, BLOCK 303, TOWNSHIP OF VERONA, TAX MAP OF LOT 5, BLOCK 301 & LOT 1, BLOCK 401, TOWN OF MONTCLAIR ESSEX COUNTY, NEW JERSEY", PREPARED BY MATRIX NEW WORLD ENGINEERING, AND DATED 09/12/19, WITH ALL REVISIONS.
3. ADDITIONAL EXISTING FEATURES AND UTILITIES ARE BASED UPON A SURVEY ENTITLED "SUNSET AVENUE, TOWNSHIP OF THE BOROUGH OF VERONA, ESSEX COUNTY, NEW JERSEY", PREPARED BY MCCUMSEY – PETRY, P.C. AND DATED 8/8/95.
4. HORIZONTAL DATUM: NAD83; VERTICAL DATUM: NAVD88.
5. SUPPLEMENTAL INFORMATION SHOWN HEREON FOR THE SURROUNDING PROPERTIES BASED UPON LIDAR INFORMATION AND BEST AVAILABLE AERIAL INFORMATION.
6. THE CONTRACTOR IS DIRECTED TO THE FACT THAT THE APPROXIMATE LOCATIONS OF KNOWN UTILITY STRUCTURES AND FACILITIES (INCLUDING BUT NOT LIMITED TO SANITARY SEWERS, STORM SEWERS, POTABLE WATER LINES AND APPURTENANCES, NATURAL GAS LINES, ELECTRIC, TELEPHONE AND CATV LINES AND UNDERGROUND STORAGE TANKS) THAT MAY BE ENCOUNTERED WITHIN AND ADJACENT TO THE LIMITS OF THE WORK ARE SHOWN ON THE PLANS. THE ACCURACY AND COMPLETENESS OF THIS INFORMATION IS NOT GUARANTEED BY THE ENGINEER, AND THE CONTRACTOR IS ADVISED TO VERIFY IN THE FIELD ALL THE FACTS CONCERNING THE LOCATION AND ELEVATION OF THESE UTILITIES OR OTHER CONSTRUCTION OBSTACLES IMPACTED BY NEW CONSTRUCTION PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER, IN WRITING, PRIOR TO CONSTRUCTION, OF ANY DISCREPANCIES WHICH MAY AFFECT THE PROJECT DESIGN.
7. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES THAT CONSTRUCTION OF THE WORK UNDER THIS PLAN WILL PASS THROUGH AREAS WHERE THEIR SERVICES EXIST. NOTIFICATION TO THE UTILITIES MUST BE MADE IN A SUFFICIENT AMOUNT OF TIME IN ADVANCE (MIN. 72 HOURS) PRIOR TO START OF ANY CONSTRUCTION WORK IN THE AFFECTED AREAS.
8. ALL UTILITY SERVICES TO EXISTING RESIDENTIAL AND COMMERCIAL BUILDINGS ADJACENT TO THE PROJECT, THAT ARE TO REMAIN, WILL BE MAINTAINED DURING SITE CONSTRUCTION UNTIL THE REPLACEMENT UTILITIES ARE FULLY OPERATIONAL AND ACCEPTED BY THE APPROPRIATE AUTHORITY. THE CONTRACTOR SHALL PROVIDE ADVANCE NOTICE TO THE BUILDING OWNERS OF ANY TEMPORARY INTERRUPTIONS OF SERVICES. TEMPORARY INTERRUPTIONS MAY BE NEEDED TO CONNECT THE EXISTING SERVICES TO THE NEWLY CONSTRUCTED UTILITIES AND TO TEST THE NEW UTILITIES.
9. THE CONTRACTOR IS RESPONSIBLE TO ENSURE SHUT OFF, DISCONNECT, AND/OR CAPPING OF ALL UTILITIES TO THE SITE INCLUDING, BUT NOT LIMITED TO, WATER, SEWER, ELECTRIC, CABLE, TELEPHONE, ETC. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL UTILITY SHUT OFFS AND LETTERS, OBTAINING ALL PERMITS TO COMPLETE ALL PHASES OF THE PROJECT AND TO PROVIDE PERIMETER CHAIN LINK FENCING (MIN. 6' HIGH) AND SILT FENCING (MIN. 3' HIGH) FOR THE DURATION OF THE DEMOLITION PROJECT. IN ADDITION, THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A CONSTRUCTION ENTRANCE WITH A SOIL DECONTAMINATION STATION AND MAINTAINING SITE SECURITY. AN APPROVED SOIL EROSION & SEDIMENT CONTROL PLAN WILL BE PROVIDED UPON REQUEST.

SURVEY MAP REFERENCES:

1. "SURVEY OF PROPERTY SITUATED IN THE BOROUGH OF VERONA AND THE TOWN OF MONTCLAIR, ESSEX COUNTY, NEW JERSEY. DESCRIBED AS LOT 4 BLOCK 13 ON THE TAX MAP OF VERONA, N.J. AND LOTS 5 BLOCK 301 & LOT 1 BLOCK 401 ON THE TAX MAP OF MONTCLAIR, N.J. ALSO KNOWN AS No. 1 SUNSET AVENUE", PREPARED BY DECKER & CORIELL, INC., DATED OCTOBER 15, 2000.
2. "THE CHILDREN'S INSTITUTE SITUATED IN TOWNSHIP OF VERONA/TOWNSHIP OF MONTCLAIR ESSEX COUNTY, NEW JERSEY EXISTING CONDITIONS MAP", PREPARED BY HENDERSON AND BODWELL, L.L.P CONSULTING ENGINEERS, DATED MAY 24, 2006 , LAST REVISED JANUARY 29, 2007.

NOTICE TO CONTRACTOR

ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE FACT THAT THE APPROXIMATE LOCATIONS OF KNOWN UTILITY STRUCTURES AND FACILITIES THAT MAY BE ENCOUNTERED WITHIN AND ADJACENT TO THE LIMITS OF WORK AREA ARE SHOWN ON THE PLANS. THE ACCURACY AND COMPLETENESS OF THIS INFORMATION IS NOT GUARANTEED BY THE ENGINEER, AND THE CONTRACTOR IS ADVISED TO VERIFY, IN THE FIELD, ALL THE FACTS CONCERNING THE LOCATION OF THESE UTILITIES AND OTHER CONSTRUCTION OBSTACLES PRIOR TO THE START OF CONSTRUCTION. FURTHER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER, IN WRITING, PRIOR TO THE START OF CONSTRUCTION, OF ANY DISCREPANCIES WHICH MAY EFFECT THE PROJECT DESIGN.

THE CONTRACTOR SHALL CONTACT NEW JERSEY ONE CALL (1–800–272–1000 OR LATEST NUMBER) FOR UTILITY MARKOUT PRIOR TO THE START OF CONSTRUCTION.

40 30 20 10 0 40 80 120

GRAPHIC SCALE
1 inch=40 feet

Plotted: 9/27/2022 8:06 AM, By: Tori Massara
© MATRIXNEWORLD\M:\Matrix LDS\jobs\BNE Real Estate Group\19-720 - Verona Site\Dwg\xMisc\2022-09-27 Test Pit Exhibit - Exist Conditions\Test Pit Exhibit - Exist Cond.dwg\02-Overall Existing Conditions Plan

NO.	DESCRIPTION	DATE	DES.	REV.	REL.
	REVISIONS				

DESIGNED BY: REVIEWED BY: RELEASED BY:

SEAN M. SAVAGE, P.E.
NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 24GE04451000

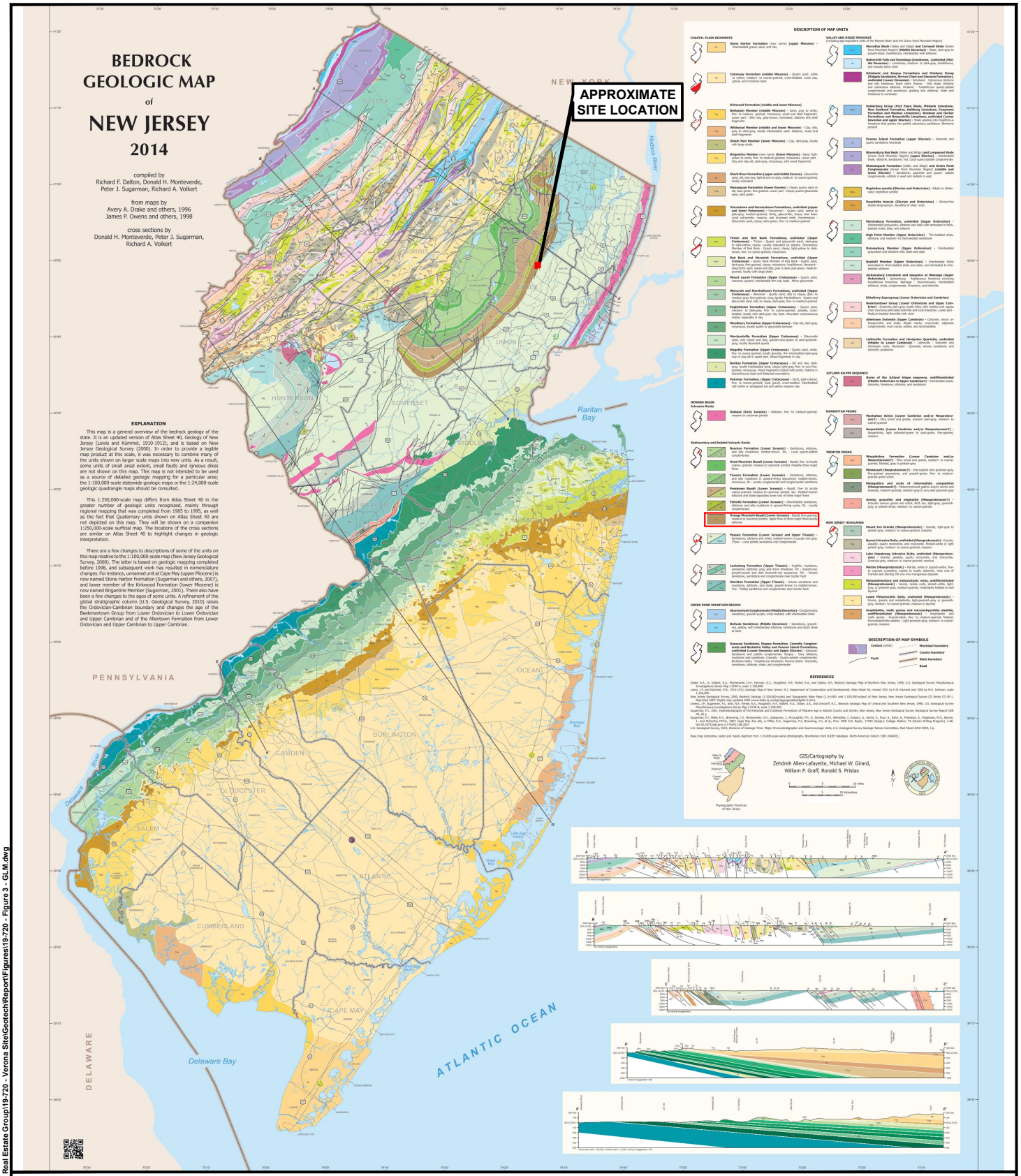
DATE

MATRIXNEWWORLD
Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
442 State Route 35, Second Floor
Eatontown, New Jersey 07724
Certified WBE
Tel: 732-588-2999
Fax: 973-240-1818
www.matrixnewworld.com
NEW JERSEY CERTIFICATE OF AUTHORIZATION No. 24GA27962300

TEST PIT LOCATION EXHIBIT
EXISTING CONDITIONS

VERONA SUNSET URBAN RENEWAL, LLC
BLOCK 303, LOT 4 - TOWNSHIP OF VERONA
BLOCK 301, LOT 5 AND BLOCK 401, LOT 1 - TOWNSHIP OF MONTCLAIR
ESSEX COUNTY, NEW JERSEY

PROJECT NUMBER:	19-720
DATE:	12/10/21
SCALE:	1" = 40'
FIGURE	2



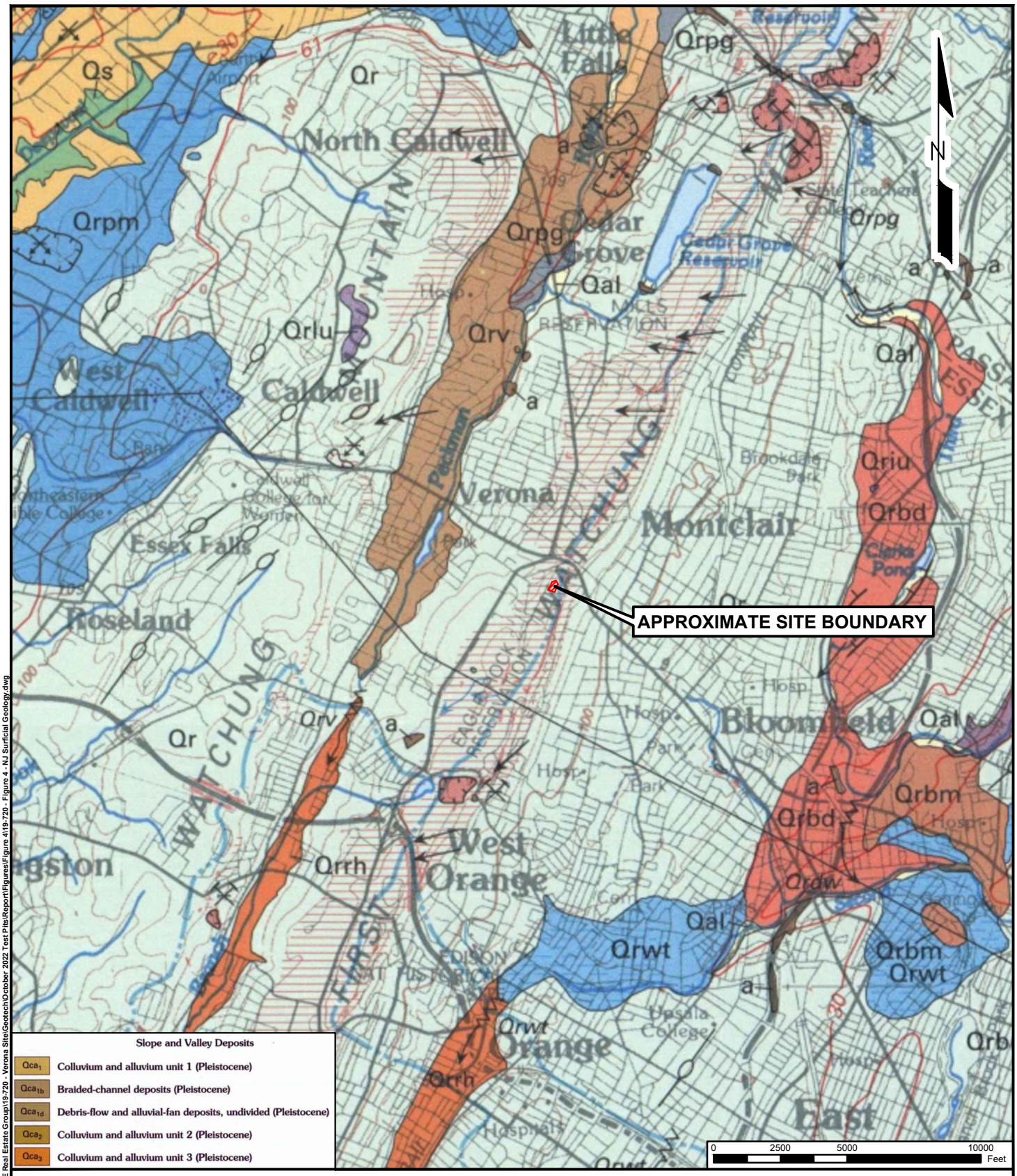
GEOLOGIC LOCATION MAP

MATRIXNEWORLD
Engineering Progress
Matrix New World Engineering, Land Surveying
and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
WBE / DBE / SBE
Tel: 973-240-1800
Fax: 973-240-1818
www.matrixneworld.com

BNE REAL ESTATE GROUP - VERONA SITE
BLOCK 303, LOT 4 - TOWNSHIP OF VERONA
BLOCK 301, LOT 5 & BLOCK 401, LOT 1 - TOWNSHIP OF MONTCLAIR
ESSEX COUNTY, NEW JERSEY

SCALE:	PROJECT NO.:	DATE:	FIGURE NO.:
NTS	19-720	OCTOBER 2022	3

© MATRIXNEWORLD\M:\Matrix LDS\Jobs\BNE Real Estate Group\19-720 - Verona Site\Geotech\Report\Figures\19-720 - Figure 3 - GLM.dwg



SURFICIAL GEOLOGY LOCATION MAP

MATRIXNEWORLD
Engineering Progress

Matrix New World Engineering, Land Surveying
and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
Certified WBE

Tel: 973-240-1800
Fax: 973-240-1818
www.matrixneworld.com

BNE REAL ESTATE GROUP - VERONA SITE
BLOCK 303, LOT4 - TOWNSHIP OF VERONA
BLOCK 301, LOT 5 & BLOCK 401, LOT 1 - TOWNSHIP OF MONTCLAIR
ESSEX COUNTY, NEW JERSEY

SCALE:	PROJECT NO.:	DATE:	FIGURE NO.:
1" = 5000'	19-720	OCTOBER 2022	4

© M:\MATRIXNEWORLD\M:\Matrix LDS\Jobs\BNE Real Estate Group\19-720 - Verona Site\Geotech\October 2022 Test Pits\Report\Figures\Figure 4\19-720 - Figure 4 - NJ Surficial Geology.dwg

APPENDIX A

SOIL TEST PIT

LOGS

LOG NOTATION

Sample Classifications

SS = Split Spoon

NR = No Recovery

NX = Rock Core

U = Shelby Tube

REC = Soil Recovery

RQD = Rock Quality Designation

Sand Classifications

c = Coarse

m = Medium

f = Fine

* = Predominant Grain Size

Soil Properties

WC = Water Content

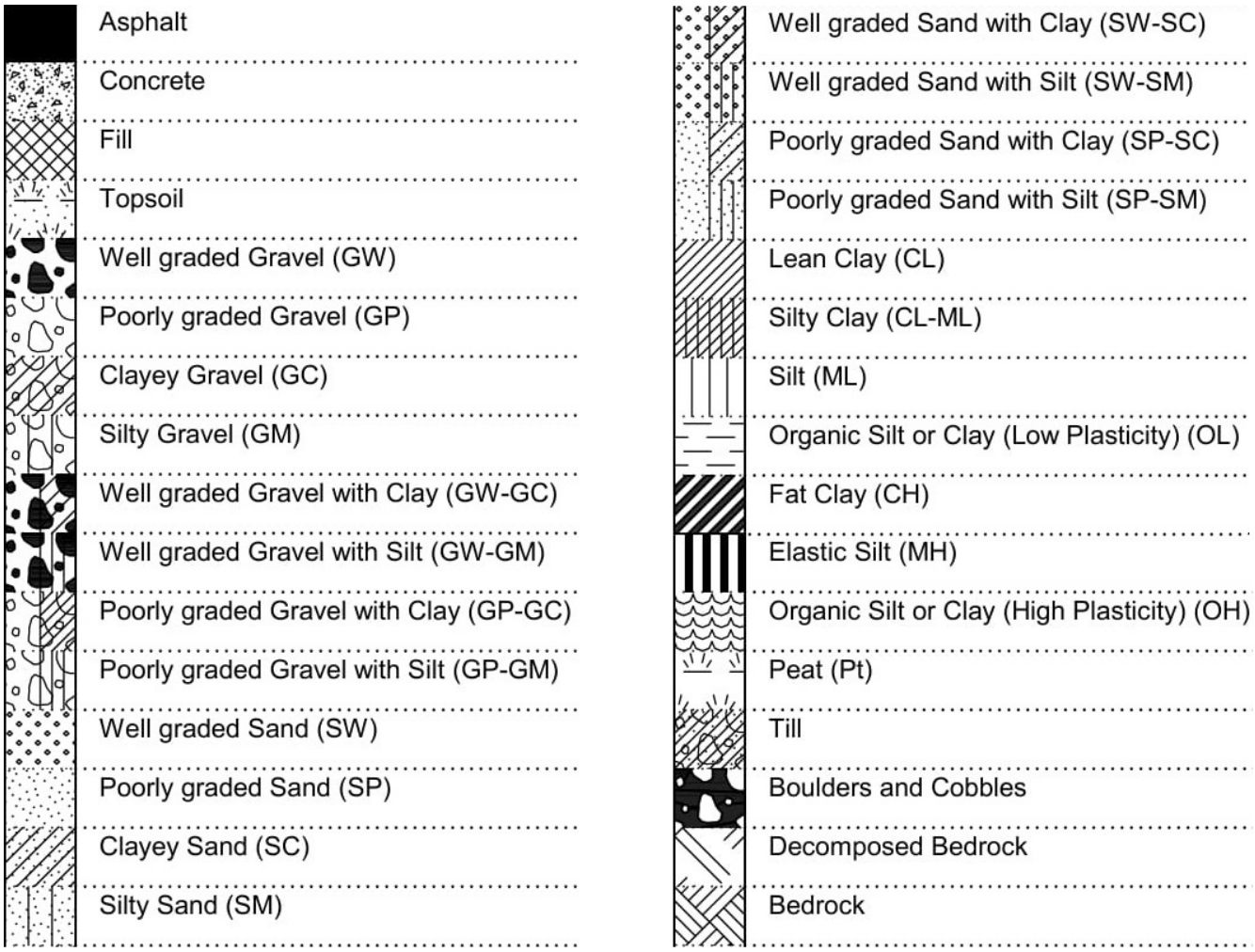
PL = Plastic Limit

LL = Liquid Limit

PI = Plasticity Index

OC = Organic Content

LOG GRAPHICAL LEGEND



MATRIXNEWORLD
Engineering Progress

TEST PIT LOG

TEST PIT NO.: **TP-1**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **10/5/2022**

PROJECT LOCATION: **Verona, New Jersey** ELEV.: TIME STARTED: **10:00:00 AM**

TEST PIT LOCATION: **West of Existing School Buidling** DATUM: TIME FINISHED: **10:30:00 AM**

CONTRACTOR: **Heritage Contracting Co.** GROUNDWATER LEVEL (IN): **Not Encountered**

EQUIPMENT: **CAT 308** OPERATOR: **T. Berking** INSPECTOR: **A. Radiola**

Depth Inches (Elev)	Sample No.	Depth Inches	Graphic Symbol	Description Of Material	Laboratory Tests
5 10 15 20 25				Brown mf SAND and Silt, little cf Gravel, wet (SM)	
30				Brown mf SAND, some Clay, trace cf Gravel, slight mottling, wet (SC)	
35 40 45 50 55 60 65 70				Brown mf SAND, some Silt, trace cf Gravel, wet (SM)	
				Bedrock at 6 feet bgs. Bottom of Test pit @ 72 in. Test Pit Backfilled.	

TEST PITS 19-720 - TEST PIT LOGS.GPJ MATRIX.EGS.GDT 10/25/22

MATRIXNEWORLD
Engineering Progress

TEST PIT LOG

TEST PIT NO.: **TP-2**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **10/5/2022**

PROJECT LOCATION: **Verona, New Jersey** ELEV.: TIME STARTED: **9:00:00 AM**

TEST PIT LOCATION: **West of Existing School Buidling** DATUM: TIME FINISHED: **9:30:00 AM**

CONTRACTOR: **Heritage Contracting Co.** GROUNDWATER LEVEL (IN): **Not Encountered**

EQUIPMENT: **CAT 308** OPERATOR: **T. Berking** INSPECTOR: **A. Radiola**

Depth Inches (Elev)	Sample No.	Depth Inches	Graphic Symbol	Description Of Material	Laboratory Tests
5 10 15 20 25 30 35 40 45				Brown mf SAND and Silt, little cf Gravel, wet (SM)	
				Brown CLAY, little mf Sand, trace cf Gravel, slight mottling, wet (CL)	
				Bedrock at 4 feet bgs. Bottom of Test pit @ 48 in. Test Pit Backfilled.	

TEST PITS 19-720 - TEST PIT LOGS.GPJ MATRIX EGS.GDT 10/25/22

MATRIXNEWORLD
Engineering Progress

TEST PIT LOG

TEST PIT NO.: **TP-3**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **10/5/2022**

PROJECT LOCATION: **Verona, New Jersey** ELEV.: TIME STARTED: **10:30:00 AM**

TEST PIT LOCATION: **Southwest of Existing School Buidling** DATUM: TIME FINISHED: **11:00:00 AM**

CONTRACTOR: **Heritage Contracting Co.** GROUNDWATER LEVEL (IN): **72**

EQUIPMENT: **CAT 308** OPERATOR: **T. Berking** INSPECTOR: **A. Radiola**

Depth Inches (Elev)	Sample No.	Depth Inches	Graphic Symbol	Description Of Material	Laboratory Tests
5 10 15 20 25 30 35 40 45 50 55 60 65 70				Brown mf SAND and Silt, little cf Gravel, wet (SM)	
				Brown mf SAND, some Clay, trace cf Gravel, wet (SC)	
				Brown mf SAND and Silt, little cf Gravel, slight mottling, wet (SM)	
				Bedrock at 6 feet bgs. Bottom of Test pit @ 72 in. Test Pit Backfilled.	

TEST PITS 19-720 - TEST PIT LOGS.GPJ MATRIX EGS.GDT 10/25/22

TEST PIT NO.: **TP-3**

MATRIXNEWORLD
Engineering Progress

TEST PIT LOG

TEST PIT NO.: **TP-4**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **10/5/2022**

PROJECT LOCATION: **Verona, New Jersey** ELEV.: TIME STARTED: **1:30:00 PM**

TEST PIT LOCATION: **Southwest of Existing School Buidling** DATUM: TIME FINISHED: **2:15:00 PM**

CONTRACTOR: **Heritage Contracting Co.** GROUNDWATER LEVEL (IN): **Not Encountered**

EQUIPMENT: **CAT 308** OPERATOR: **T. Berking** INSPECTOR: **A. Radiola**

Depth Inches (Elev)	Sample No.	Depth Inches	Graphic Symbol	Description Of Material	Laboratory Tests
5 10 15 20 25 30 35 40 45 50 55 60				Brown mf SAND and Silt, little cf Gravel, precipitation seeping from multiple depths, slight mottling, wet (SM)	
65 70 75 80 85 90 95				Dark Brown mf SAND and CLAY, little cf Gravel, slight mottling, wet (SC)	
100				Brown mf SAND and Silt, little cf Gravel, wet (SM)	
				Bedrock at 8.5 feet bgs. Bottom of Test pit @ 102 in. Test Pit Backfilled.	

TEST PITS 19-720 - TEST PIT LOGS.GPJ MATRIX.EGS.GDT 10/25/22

TEST PIT NO.: **TP-4**

MATRIXNEWORLD
Engineering Progress

TEST PIT LOG

TEST PIT NO.: **TP-5**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **10/5/2022**

PROJECT LOCATION: **Verona, New Jersey** ELEV.: TIME STARTED: **2:45:00 PM**

TEST PIT LOCATION: **East of Afterglow Avenue** DATUM: TIME FINISHED: **3:00:00 PM**

CONTRACTOR: **Heritage Contracting Co.** GROUNDWATER LEVEL (IN): **Not Encountered**

EQUIPMENT: **CAT 308** OPERATOR: **T. Berking** INSPECTOR: **A. Radiola**

Depth Inches (Elev)	Sample No.	Depth Inches	Graphic Symbol	Description Of Material	Laboratory Tests
5 10 15 20 25 30 35 40 45 50 55 60				Brown mf SAND and Silt, little cf Gravel, slight mottling, wet (SM)	
				Bedrock at 5 feet bgs. Bottom of Test pit @ 60 in. Test Pit Backfilled.	

TEST PITS 19-720 - TEST PIT LOGS.GPJ MATRIX.EGS.GDT 10/25/22

TEST PIT NO.: **TP-5**

MATRIXNEWORLD
Engineering Progress

TEST PIT LOG

TEST PIT NO.: **TP-6**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **10/5/2022**

PROJECT LOCATION: **Verona, New Jersey** ELEV.: TIME STARTED: **3:00:00 PM**

TEST PIT LOCATION: **East of Afterglow Avenue** DATUM: TIME FINISHED: **3:30:00 PM**

CONTRACTOR: **Heritage Contracting Co.** GROUNDWATER LEVEL (IN): **72**

EQUIPMENT: **CAT 308** OPERATOR: **T. Berking** INSPECTOR: **A. Radiola**

Depth Inches (Elev)	Sample No.	Depth Inches	Graphic Symbol	Description Of Material	Laboratory Tests
5 10 15 20 25 30 35 40				Brown mf SAND and Silt, little cf Gravel, slight precipitation seepage, mottling, wet (SM)	
45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120				Brown mf SAND and Silt, little Clay, little cf Gravel, precipitation seepage, slight mottling, wet (SM)	
125 130 135 140				Brown mf SAND and Silt, little cf Gravel, wet (SM)	
				Bedrock at 12 feet bgs. Bottom of Test pit @ 144 in. Test Pit Backfilled.	

TEST PITS 19-720 - TEST PIT LOGS.GPJ MATRIX EGS.GDT 10/25/22

MATRIXNEWORLD
Engineering Progress

TEST PIT LOG

TEST PIT NO.: **TP-7**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **10/6/2022**

PROJECT LOCATION: **Verona, New Jersey** ELEV.: TIME STARTED: **9:30:00 AM**

TEST PIT LOCATION: **Northern Parking Lot** DATUM: TIME FINISHED: **10:00:00 AM**

CONTRACTOR: **Heritage Contracting Co.** GROUNDWATER LEVEL (IN): **24**

EQUIPMENT: **CAT 308** OPERATOR: **T. Berking** INSPECTOR: **A. Radiola**

Depth Inches (Elev)	Sample No.	Depth Inches	Graphic Symbol	Description Of Material	Laboratory Tests
5				Asphalt	
10				Grey cf GRAVEL	
15				Brown mf SAND and CLAY, little cf Gravel, mottiling, wet (SC)	
20					
25 ▼					
30					
35					
40				Brown mf SAND and Silt, little cf Gravel, precipitation seeping, slight mottling, wet (SM)	
45					
50					
55					
60					
65					
70					
				Bedrock at 6 feet bgs. Bottom of Test pit @ 72 in. Test Pit Backfilled.	

TEST PITS 19-720 - TEST PIT LOGS.GPJ MATRIX.EGS.GDT 10/25/22

TEST PIT NO.: **TP-7**

MATRIXNEWORLD
Engineering Progress

TEST PIT LOG

TEST PIT NO.: **TP-8**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **10/6/2022**

PROJECT LOCATION: **Verona, New Jersey** ELEV.: TIME STARTED: **11:00:00 AM**

TEST PIT LOCATION: **West of Fenced in Field** DATUM: TIME FINISHED: **11:30:00 AM**

CONTRACTOR: **Heritage Contracting Co.** GROUNDWATER LEVEL (IN): **42**

EQUIPMENT: **CAT 308** OPERATOR: **T. Berking** INSPECTOR: **A. Radiola**

Depth Inches (Elev)	Sample No.	Depth Inches	Graphic Symbol	Description Of Material	Laboratory Tests
5				Asphalt	
10				Grey cf GRAVEL	
15				Brown mf SAND and Silt, little cf Gravel, slight precipitation seepage, wet (SM)	
20				Brown/Grey CLAY, some mf Sand, little cf Gravel, slight mottling, wet (CL)	
25					
30					
35					
40					
▼ 45				Brown mf SAND and Silt, little cf Gravel, slight precipitation seepage, wet (SM)	
50					
55				Bottom of Test pit @ 57 in. Test Pit Backfilled.	

TEST PITS 19-720 - TEST PIT LOGS.GPJ MATRIX.EGS.GDT 10/25/22

MATRIXNEWORLD
Engineering Progress

TEST PIT LOG

TEST PIT NO.: **TP-9**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **10/5/2022**

PROJECT LOCATION: **Verona, New Jersey** ELEV.: TIME STARTED: **11:30:00 AM**

TEST PIT LOCATION: **Inside Fenced in Field** DATUM: TIME FINISHED: **12:00:00 PM**

CONTRACTOR: **Heritage Contracting Co.** GROUNDWATER LEVEL (IN): **72**

EQUIPMENT: **CAT 308** OPERATOR: **T. Berking** INSPECTOR: **A. Radiola**

Depth Inches (Elev)	Sample No.	Depth Inches	Graphic Symbol	Description Of Material	Laboratory Tests
5 10 15 20 25 30 35				Brown mf SAND and Silt, little cf Gravel, trace debris, wet (SM)	
40 45 50 55 60 65 70 75 80				Brown mf SAND and Silt, little cf Gravel, slight mottling, wet (SM)	
				Bedrock at 7 feet bgs. Bottom of Test pit @ 84 in. Test Pit Backfilled.	

TEST PITS 19-720 - TEST PIT LOGS.GPJ MATRIX.EGS.GDT 10/25/22

MATRIXNEWORLD
Engineering Progress

TEST PIT LOG

TEST PIT NO.: **TP-10**

SHEET **1** OF **1**

PROJECT NO.: **19-720** PROJECT: **Verona Site** DATE: **10/5/2022**

PROJECT LOCATION: **Verona, New Jersey** ELEV.: TIME STARTED: **12:30:00 PM**

TEST PIT LOCATION: **Northern Parking Lot** DATUM: TIME FINISHED: **1:00:00 AM**

CONTRACTOR: **Heritage Contracting Co.** GROUNDWATER LEVEL (IN): **54**

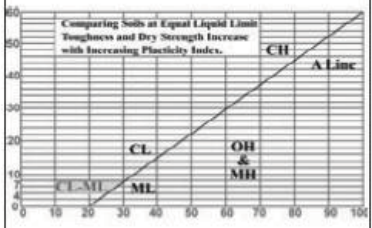
EQUIPMENT: **CAT 308** OPERATOR: **T. Berking** INSPECTOR: **A. Radiola**

Depth Inches (Elev)	Sample No.	Depth Inches	Graphic Symbol	Description Of Material	Laboratory Tests
5 10 15 20 25 30 35 40 45 50 ▼				Brown mf SAND and Silt, little cf Gravel, precipitation leaking from multiple depths, slight mottling, wet (SM)	
				Bedrock at 4.5 feet bgs. Bottom of Test pit @ 54 in. Test Pit Backfilled.	

TEST PITS 19-720 - TEST PIT LOGS.GPJ MATRIX.EGS.GDT 10/25/22

APPENDIX B

SOIL CLASSIFICATION TABLES

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES	FIELD IDENTIFICATION PROCEDURES (EXCLUDING PARTICLES LARGER THAN 3 IN. AND BASING FRACTIONS ON ESTIMATED WEIGHTS)			INFORMATION REQUIRED FOR DESCRIBING SOILS	LABORATORY CLASSIFICATION CRITERIA
1	2		3	4	5			6	7
Coarse-grained Soils More than half of material is larger than No. 200 sieve size. The No. 200 sieve size is about the smallest visible to the naked eye.	Gravels More than half of coarse fraction is larger than No. 4 sieve size. (For visual classification, the 1/4-in. size may be used as equivalent to the No. 4 sieve size.)	Clean Gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixture, little or no fines.	Wide range in grain size and substantial amounts of all intermediate particle sizes.			For undisturbed soils add information on stratification, degree of compactness, cementation, moisture condition, and drainage characteristics.	Use grain-size curve in identifying the fractions as given under field identification. Determine percentage of gravel and sand from grain-size curve. Depending on percentage of fine (fraction smaller than No. 200 sieve size) coarse-grained soils are classified as follows: Less than 5% GW, GP, SW, SP. More than 12% GM, GC, SM, SC. 5% to 12% Borderline cases requiring use of dual symbols. $C_u = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			GP	Poorly graded gravels or gravel-sand mixture, little or no fines.	Predominantly one size or a range of sizes with some intermediate sizes missing.				Not meeting all gradation requirements for GW
		Gravels with Fines (Appreciable amount of fines)	GM	Silty gravels, gravel and silt mixtures.	Nonplastic fines or fines with low plasticity (for identification procedures see ML below).			Give typical name; indicate approximate percentages of sand and gravel, maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbol in parentheses.	Atterberg limits below "A" line or P1 less than 4 — Above "A" line with P1 between 4 and 7 are borderline cases requiring use of dual symbols.
			GC	Clayey gravels, gravel and clay mixtures.	Plastic fines (for identification procedures see CL below).				Atterberg limits above "A" line with P1 greater than 7
	Sands More than half of coarse fraction is smaller than No 4 sieve size.	Clean Sand (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines.	Wide range in grain size and substantial amounts of all intermediate particle sizes.				$Cu = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			SP	Poorly graded sands or gravelly sands, little or no fines.	Predominantly one size or a range of sizes with some intermediate sizes missing.			Example: Silty sand, gravelly; about 20% hard, angular gravel particles 1/2-in. maximum size; rounded and subangular sand grains, coarse to fine; about 15% nonplastic fines with low dry strength; well compacted and moist in place; alluvial sand; (SM).	Not meeting all gradation requirements for SW
		Sands with Fines (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures.	Nonplastic fines or fines with low plasticity (for identification procedures see ML below).				Atterberg limits above "A" line or P1 less than 4 — Limits plotting in hatched zone with P1 between 4 and 7 are borderline cases requiring use of dual symbols.
			SC	Clayey sands, sand-clay mixtures.	Plastic fines (for identification procedures see CL below).				Atterberg limits above "A" line with Pl greater than 7
					Identification Procedure on Fraction Smaller than No. 40 Sieve Size.				
					Dry Strength (Crushing Characteristics)	Dilatancy (Reaction to shaking)	Toughness (Consistency near PL)		
Fine-grained Soils More than half of material is smaller than No. 200 sieve size.	Silts and Clays Liquid limit is less than 50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.	None to slight	Quick to slow	None	For undisturbed soils add information on structure, stratification, consistency in undisturbed and remolded states, moisture and drainage conditions	Plasticity Index — LIQUID LIMIT PLASTICITY CHART For laboratory classification of fine-grained soils 
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	Medium to high	None to very slow	Medium		
	Silts and Clays Liquid limit is greater than 50		OL	Organic silts and organic silty clays of low plasticity.	Slight to medium	Slow	Slight	Give typical name; indicate degree and character of plasticity; amount and maximum size of coarse grains; color in wet condition; odor, if any; local or geologic name and other pertinent descriptive information; and symbol in parentheses.	
			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	Slight to medium	Slow to none	Slight to medium		
			CH	Inorganic clays of high plasticity, fat clays.	High to very high	None	High		
			OH	Organic clays of medium to high plasticity, organic silts.	Medium to high	None to very slow	Slight to medium	Example: Clayey silt, brown; slightly plastic; small percentage of fine sand; numerous vertical root holes; firm and dry in place; loess; (ML)	
Highly Organic Soils			Pt	Peat and other highly organic soils.	Readily identified by color, odor, spongy feel and frequently by fibrous texture				

1. Boundary classifications: Soils possessing characteristics of two groups are designed by combinations of group symbols. For example GM-GC, well-graded gravel-sand mixture with clay binder.
2. All sieve sizes on this chart are U.S. standard.
3. Adopted by Corps of Engineers and Bureau of Reclamation, January 1952.

032058C

BURMISTER SOIL IDENTIFICATION METHOD

BURMISTER SOIL IDENTIFICATION METHOD

1. SOIL MATERIAL — Composition, Gradation, and Plasticity Characteristics

a) Soil Components and Soil Fractions

Sieve	3"	1"	3/8"	No. 10	No. 30	No. 60	No. 200	
				2 mm			0.076 mm	0.02 mm
Granular Component Fractions	GRAVEL			SAND			SILT	
	coarse	medium	fine	coarse	medium	fine	coarse	fine
Clay Soil Components							CLAY-SOIL Defined and Named on a Plasticity Basis	

b) Identifying Terms for Granular Soils
Composition and Proportion Terms for Components

Component		Proportion Terms	Defining Range of Percentages
Principal Components- GRAVEL, SAND, SILT (all Uppercase)			50% or more
Minor Components-	Gravel	and	35 to 50%
	Sand	some	20 to 35%
	Silt	little	10 to 20%
		trace	1 to 10%

Gradation Terms for Granular Soils		ORGANIC SOILS
coarse to fine	all fractions more than 10%	Plasticity Basis, as
coarse to medium	fine less than 10%	
medium to fine	coarse less than 10%	Organic SILT, H. PI
medium	coarse and fine less than 10%	
fine	coarse and medium less than 10%	Organic SILT, L. PI

PLUS or MINUS signs used to indicate upper or lower limits.

c) Identifying Terms for CLAY SOILS. Plasticity Basis for Combined Silt and Clay Components, Expressing the Relative Dominance of Clay

Overall Plasticity	Plasticity Index	Principal Component	Minor Component
Non-Plastic	0	SILT	Silt
Slight	1 to 5	Clayey SILT	Clayey Silt
Low	5 to 10	SILT & CLAY	Silt & Clay
Medium	10 to 20	CLAY & SILT	Clay & Silt
High	20 to 40	Silty CLAY	
Very High	more than 40	CLAY	

Example: Soil 60% coarse to fine Sand, 25% medium to fine Gravel, 15% Clayey Silt and color-brown.
Identification: Br. coarse to fine SAND, some medium to fine Gravel, little Clayey Silt.

References: 1) D. M. Burmister, "Principles and Techniques of Soil Identification" 29th Highway Research Board Proceedings, 1949.
2) "Identification and Classification of Soils – An appraisal and Statement of Principles", ASTM Special Technical Publication No. 113, 1951.

APPENDIX C

NOAA RAINFALL DATA

NOAA Atlas 14, Volume 2, Version 3
Location name: Verona, New Jersey, USA*
Latitude: 40.825°, Longitude: -74.2312°
Elevation: 470.3 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

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	**0.336** (0.307-0.369)	**0.401** (0.367-0.440)	**0.476** (0.434-0.523)	**0.529** (0.482-0.580)	**0.595** (0.540-0.652)	**0.644** (0.581-0.705)	**0.689** (0.620-0.755)	**0.730** (0.653-0.800)	**0.785** (0.695-0.863)	**0.823** (0.723-0.907)
10-min	**0.535** (0.488-0.587)	**0.639** (0.584-0.701)	**0.758** (0.691-0.832)	**0.841** (0.766-0.922)	**0.942** (0.855-1.03)	**1.01** (0.916-1.11)	**1.08** (0.974-1.19)	**1.15** (1.02-1.25)	**1.22** (1.08-1.34)	**1.27** (1.12-1.41)
15-min	**0.667** (0.609-0.732)	**0.800** (0.731-0.878)	**0.952** (0.869-1.05)	**1.06** (0.963-1.16)	**1.19** (1.08-1.30)	**1.28** (1.16-1.40)	**1.37** (1.23-1.49)	**1.44** (1.29-1.58)	**1.54** (1.36-1.69)	**1.60** (1.41-1.76)
30-min	**0.908** (0.829-0.997)	**1.10** (1.00-1.21)	**1.35** (1.23-1.48)	**1.52** (1.39-1.67)	**1.75** (1.58-1.91)	**1.91** (1.72-2.09)	**2.07** (1.86-2.27)	**2.22** (1.98-2.43)	**2.42** (2.14-2.65)	**2.55** (2.24-2.81)
60-min	**1.13** (1.03-1.24)	**1.37** (1.26-1.51)	**1.72** (1.57-1.89)	**1.98** (1.80-2.17)	**2.32** (2.10-2.54)	**2.57** (2.33-2.82)	**2.84** (2.55-3.11)	**3.10** (2.77-3.39)	**3.45** (3.05-3.78)	**3.71** (3.26-4.08)
2-hr	**1.38** (1.26-1.52)	**1.68** (1.54-1.85)	**2.13** (1.95-2.34)	**2.48** (2.26-2.73)	**2.97** (2.68-3.25)	**3.37** (3.02-3.69)	**3.77** (3.36-4.13)	**4.20** (3.72-4.60)	**4.80** (4.20-5.26)	**5.27** (4.56-5.79)
3-hr	**1.55** (1.42-1.70)	**1.88** (1.72-2.07)	**2.39** (2.18-2.62)	**2.78** (2.53-3.05)	**3.33** (3.01-3.64)	**3.77** (3.40-4.12)	**4.23** (3.78-4.62)	**4.71** (4.17-5.15)	**5.37** (4.71-5.88)	**5.91** (5.13-6.47)
6-hr	**2.00** (1.84-2.19)	**2.43** (2.23-2.66)	**3.07** (2.81-3.35)	**3.59** (3.27-3.91)	**4.34** (3.92-4.72)	**4.96** (4.45-5.38)	**5.62** (5.00-6.10)	**6.33** (5.58-6.86)	**7.34** (6.38-7.98)	**8.18** (7.03-8.91)
12-hr	**2.49** (2.27-2.74)	**3.02** (2.76-3.33)	**3.84** (3.50-4.23)	**4.53** (4.12-4.97)	**5.54** (4.98-6.05)	**6.41** (5.71-6.98)	**7.34** (6.48-7.99)	**8.38** (7.30-9.12)	**9.90** (8.47-10.8)	**11.2** (9.43-12.2)
24-hr	**2.82** (2.61-3.07)	**3.42** (3.16-3.71)	**4.38** (4.04-4.76)	**5.20** (4.79-5.65)	**6.43** (5.88-6.97)	**7.50** (6.81-8.13)	**8.69** (7.80-9.42)	**10.0** (8.89-10.9)	**12.0** (10.5-13.1)	**13.7** (11.8-15.0)
2-day	**3.33** (3.08-3.62)	**4.03** (3.73-4.39)	**5.15** (4.75-5.60)	**6.08** (5.60-6.61)	**7.45** (6.82-8.10)	**8.62** (7.83-9.37)	**9.89** (8.91-10.8)	**11.3** (10.1-12.3)	**13.3** (11.7-14.6)	**15.1** (13.0-16.6)
3-day	**3.50** (3.25-3.80)	**4.24** (3.93-4.60)	**5.39** (4.99-5.84)	**6.34** (5.85-6.88)	**7.73** (7.09-8.37)	**8.90** (8.11-9.64)	**10.2** (9.19-11.0)	**11.5** (10.3-12.6)	**13.5** (11.9-14.8)	**15.2** (13.3-16.8)
4-day	**3.67** (3.41-3.97)	**4.44** (4.13-4.81)	**5.63** (5.22-6.09)	**6.60** (6.11-7.14)	**8.01** (7.36-8.65)	**9.18** (8.38-9.92)	**10.4** (9.46-11.3)	**11.8** (10.6-12.8)	**13.8** (12.2-15.0)	**15.4** (13.5-16.9)
7-day	**4.34** (4.05-4.68)	**5.22** (4.87-5.62)	**6.49** (6.04-6.98)	**7.53** (6.99-8.10)	**9.03** (8.33-9.71)	**10.3** (9.42-11.1)	**11.6** (10.6-12.5)	**13.0** (11.7-14.1)	**15.0** (13.4-16.4)	**16.7** (14.7-18.3)
10-day	**4.99** (4.67-5.35)	**5.96** (5.58-6.39)	**7.29** (6.82-7.82)	**8.39** (7.82-8.99)	**9.93** (9.21-10.6)	**11.2** (10.3-12.0)	**12.5** (11.5-13.5)	**13.9** (12.7-15.0)	**15.9** (14.3-17.3)	**17.6** (15.6-19.1)
20-day	**6.74** (6.34-7.17)	**8.00** (7.52-8.51)	**9.55** (8.97-10.2)	**10.8** (10.1-11.5)	**12.4** (11.6-13.2)	**13.7** (12.7-14.6)	**15.0** (13.9-16.0)	**16.3** (15.0-17.5)	**18.1** (16.5-19.4)	**19.4** (17.6-21.0)
30-day	**8.40** (7.94-8.88)	**9.91** (9.37-10.5)	**11.6** (11.0-12.3)	**12.9** (12.1-13.6)	**14.5** (13.7-15.4)	**15.8** (14.8-16.7)	**17.0** (15.9-18.1)	**18.2** (17.0-19.4)	**19.8** (18.3-21.1)	**20.9** (19.3-22.5)
45-day	**10.7** (10.1-11.2)	**12.5** (11.9-13.2)	**14.5** (13.7-15.2)	**15.9** (15.1-16.8)	**17.8** (16.8-18.8)	**19.2** (18.1-20.2)	**20.5** (19.3-21.7)	**21.8** (20.5-23.1)	**23.4** (21.9-24.9)	**24.6** (22.8-26.2)
60-day	**12.8** (12.2-13.5)	**15.0** (14.3-15.8)	**17.1** (16.3-18.0)	**18.7** (17.8-19.7)	**20.7** (19.6-21.8)	**22.2** (21.0-23.4)	**23.5** (22.2-24.8)	**24.8** (23.4-26.2)	**26.3** (24.7-27.9)	**27.4** (25.6-29.2)

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

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

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

NOAA Atlas 14, Volume 2, Version 3
Location name: Verona, New Jersey, USA*
Latitude: 40.8239°, Longitude: -74.2288°
Elevation: 545.16 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

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	**4.03** (3.68-4.43)	**4.81** (4.40-5.28)	**5.71** (5.21-6.28)	**6.35** (5.78-6.96)	**7.14** (6.48-7.82)	**7.73** (6.97-8.46)	**8.27** (7.44-9.06)	**8.76** (7.84-9.60)	**9.42** (8.34-10.4)	**9.88** (8.68-10.9)
10-min	**3.21** (2.93-3.52)	**3.83** (3.50-4.21)	**4.55** (4.15-4.99)	**5.05** (4.60-5.53)	**5.65** (5.13-6.19)	**6.08** (5.50-6.67)	**6.50** (5.84-7.12)	**6.87** (6.14-7.53)	**7.34** (6.49-8.06)	**7.65** (6.72-8.43)
15-min	**2.67** (2.44-2.93)	**3.20** (2.92-3.51)	**3.81** (3.48-4.18)	**4.24** (3.85-4.64)	**4.75** (4.31-5.20)	**5.12** (4.62-5.60)	**5.46** (4.91-5.98)	**5.77** (5.16-6.32)	**6.14** (5.44-6.75)	**6.40** (5.63-7.06)
30-min	**1.82** (1.66-1.99)	**2.20** (2.01-2.41)	**2.69** (2.46-2.96)	**3.05** (2.77-3.34)	**3.49** (3.17-3.82)	**3.81** (3.45-4.18)	**4.14** (3.72-4.53)	**4.44** (3.97-4.86)	**4.83** (4.27-5.31)	**5.11** (4.49-5.63)
60-min	**1.13** (1.03-1.24)	**1.37** (1.26-1.51)	**1.72** (1.57-1.89)	**1.98** (1.80-2.17)	**2.32** (2.10-2.54)	**2.57** (2.33-2.82)	**2.84** (2.55-3.11)	**3.10** (2.77-3.39)	**3.45** (3.05-3.78)	**3.71** (3.26-4.08)
2-hr	**0.692** (0.631-0.758)	**0.842** (0.769-0.926)	**1.07** (0.972-1.17)	**1.24** (1.13-1.36)	**1.48** (1.34-1.63)	**1.68** (1.51-1.84)	**1.89** (1.68-2.07)	**2.10** (1.86-2.30)	**2.40** (2.10-2.63)	**2.64** (2.28-2.89)
3-hr	**0.515** (0.471-0.565)	**0.626** (0.573-0.688)	**0.795** (0.726-0.872)	**0.925** (0.843-1.01)	**1.11** (1.00-1.21)	**1.26** (1.13-1.37)	**1.41** (1.26-1.54)	**1.57** (1.39-1.71)	**1.79** (1.57-1.96)	**1.97** (1.71-2.16)
6-hr	**0.334** (0.306-0.366)	**0.405** (0.372-0.444)	**0.513** (0.469-0.560)	**0.600** (0.547-0.654)	**0.724** (0.655-0.787)	**0.828** (0.744-0.899)	**0.938** (0.835-1.02)	**1.06** (0.932-1.15)	**1.23** (1.07-1.33)	**1.37** (1.18-1.49)
12-hr	**0.207** (0.189-0.228)	**0.251** (0.229-0.276)	**0.319** (0.291-0.351)	**0.376** (0.342-0.413)	**0.460** (0.414-0.502)	**0.532** (0.474-0.580)	**0.609** (0.538-0.663)	**0.695** (0.606-0.757)	**0.822** (0.703-0.895)	**0.930** (0.783-1.01)
24-hr	**0.118** (0.109-0.128)	**0.142** (0.132-0.155)	**0.182** (0.168-0.198)	**0.217** (0.199-0.235)	**0.268** (0.245-0.290)	**0.313** (0.284-0.339)	**0.362** (0.325-0.393)	**0.417** (0.371-0.453)	**0.501** (0.436-0.546)	**0.573** (0.492-0.626)
2-day	**0.069** (0.064-0.075)	**0.084** (0.078-0.091)	**0.107** (0.099-0.117)	**0.127** (0.117-0.138)	**0.155** (0.142-0.169)	**0.179** (0.163-0.195)	**0.206** (0.186-0.224)	**0.235** (0.210-0.257)	**0.278** (0.244-0.305)	**0.314** (0.272-0.346)
3-day	**0.049** (0.045-0.053)	**0.059** (0.055-0.064)	**0.075** (0.069-0.081)	**0.088** (0.081-0.095)	**0.107** (0.098-0.116)	**0.124** (0.113-0.134)	**0.141** (0.128-0.153)	**0.160** (0.144-0.174)	**0.188** (0.166-0.206)	**0.212** (0.184-0.233)
4-day	**0.038** (0.036-0.041)	**0.046** (0.043-0.050)	**0.059** (0.054-0.063)	**0.069** (0.064-0.074)	**0.083** (0.077-0.090)	**0.096** (0.087-0.103)	**0.109** (0.099-0.118)	**0.123** (0.110-0.133)	**0.143** (0.127-0.156)	**0.160** (0.140-0.176)
7-day	**0.026** (0.024-0.028)	**0.031** (0.029-0.033)	**0.039** (0.036-0.042)	**0.045** (0.042-0.048)	**0.054** (0.050-0.058)	**0.061** (0.056-0.066)	**0.069** (0.063-0.074)	**0.077** (0.070-0.084)	**0.090** (0.080-0.098)	**0.099** (0.087-0.109)
10-day	**0.021** (0.019-0.022)	**0.025** (0.023-0.027)	**0.030** (0.028-0.033)	**0.035** (0.033-0.037)	**0.041** (0.038-0.044)	**0.047** (0.043-0.050)	**0.052** (0.048-0.056)	**0.058** (0.053-0.063)	**0.066** (0.060-0.072)	**0.073** (0.065-0.080)
20-day	**0.014** (0.013-0.015)	**0.017** (0.016-0.018)	**0.020** (0.019-0.021)	**0.022** (0.021-0.024)	**0.026** (0.024-0.028)	**0.029** (0.027-0.030)	**0.031** (0.029-0.033)	**0.034** (0.031-0.036)	**0.038** (0.034-0.040)	**0.040** (0.037-0.044)
30-day	**0.012** (0.011-0.012)	**0.014** (0.013-0.015)	**0.016** (0.015-0.017)	**0.018** (0.017-0.019)	**0.020** (0.019-0.021)	**0.022** (0.021-0.023)	**0.024** (0.022-0.025)	**0.025** (0.024-0.027)	**0.027** (0.025-0.029)	**0.029** (0.027-0.031)
45-day	**0.010** (0.009-0.010)	**0.012** (0.011-0.012)	**0.013** (0.013-0.014)	**0.015** (0.014-0.016)	**0.016** (0.016-0.017)	**0.018** (0.017-0.019)	**0.019** (0.018-0.020)	**0.020** (0.019-0.021)	**0.022** (0.020-0.023)	**0.023** (0.021-0.024)
60-day	**0.009** (0.008-0.009)	**0.010** (0.010-0.011)	**0.012** (0.011-0.013)	**0.013** (0.012-0.014)	**0.014** (0.014-0.015)	**0.015** (0.015-0.016)	**0.016** (0.015-0.017)	**0.017** (0.016-0.018)	**0.018** (0.017-0.019)	**0.019** (0.018-0.020)

[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.

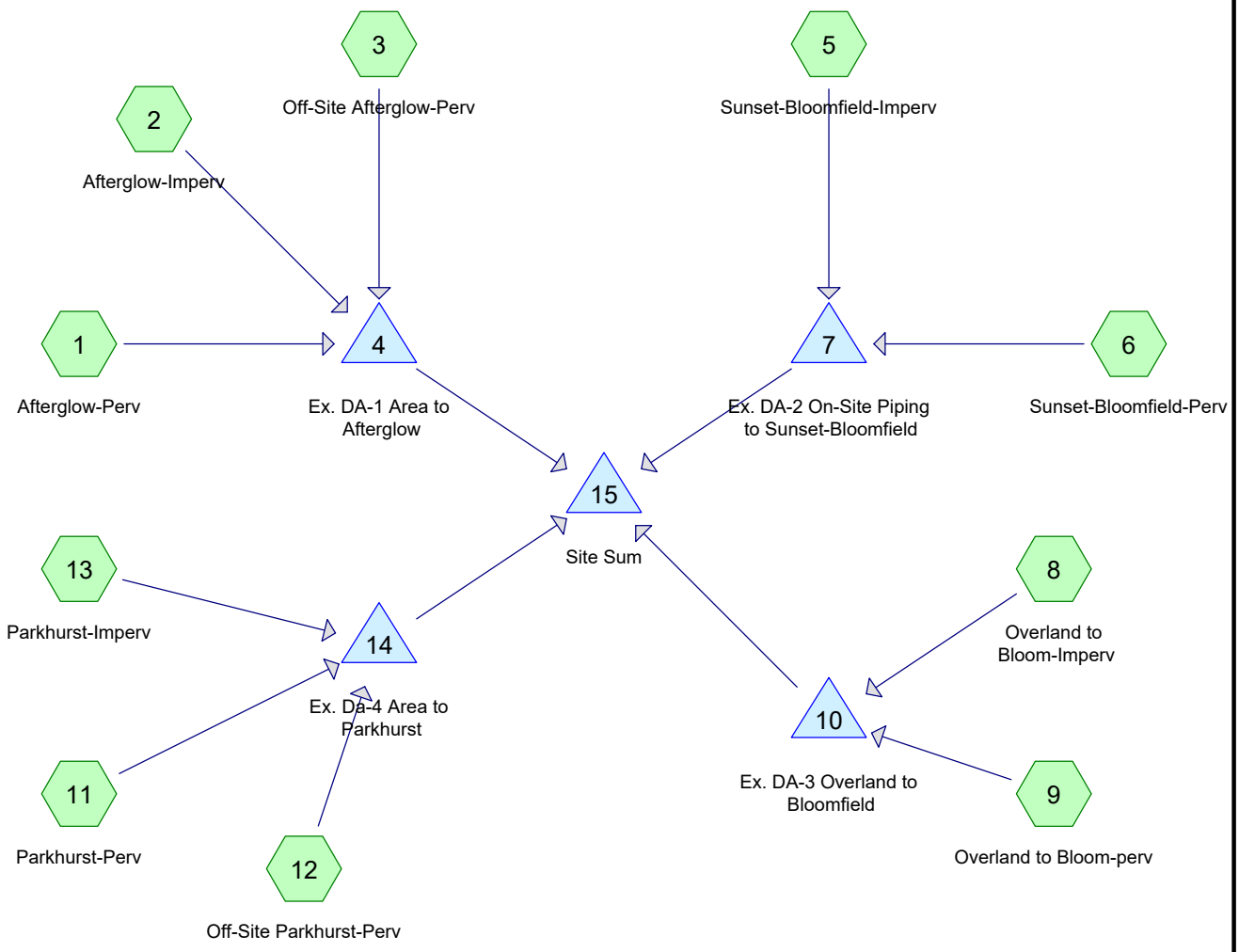
Back to Top

PF graphical

MATRIXNEWORLD
Engineering Progress

APPENDIX D

PRE-DEVELOPMENT 2-, 10-, AND 100-YEAR
STORM EVENT CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for Pre-Development

Prepared by Matrix New World Engineering, P.C. , Printed 3/21/2023

HydroCAD® 10.00-22 s/n 03376 © 2018 HydroCAD Software Solutions LLC

Summary for Subcatchment 1: Afterglow-Perv

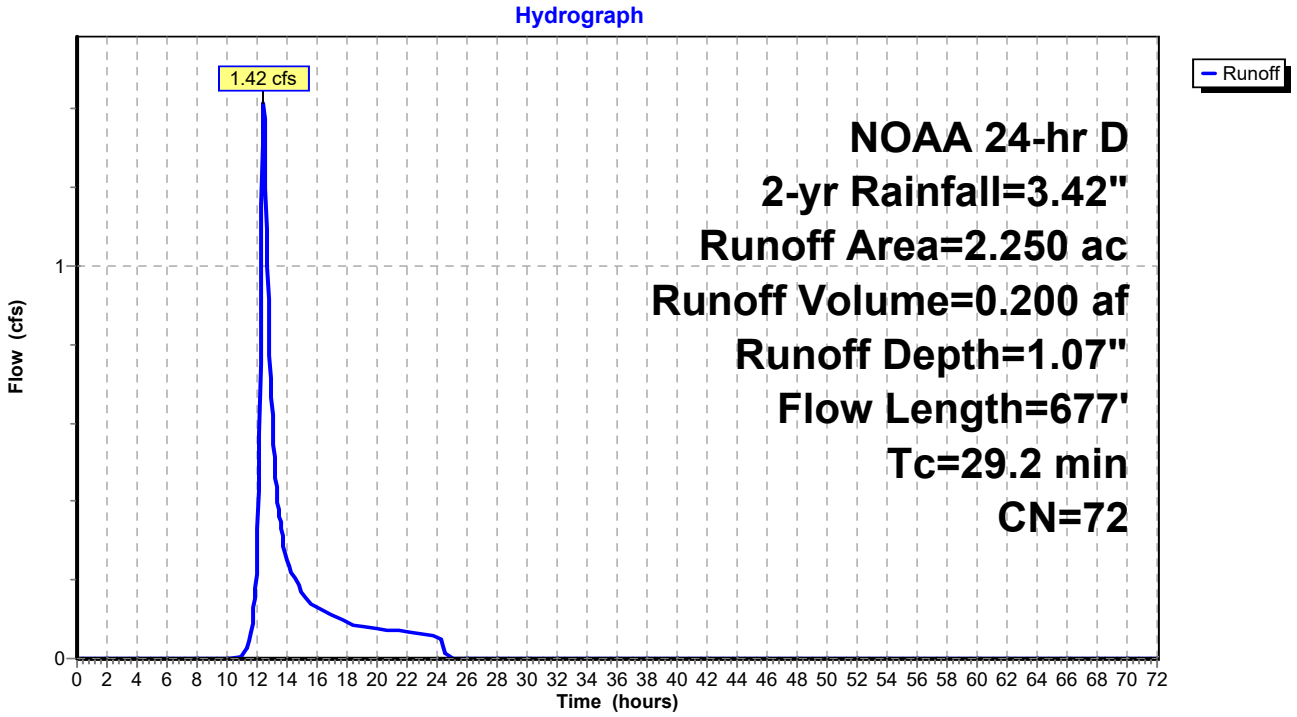
Runoff = 1.42 cfs @ 12.44 hrs, Volume= 0.200 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
2.250	72	Woods/grass comb., Good, HSG C
2.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.4	162	0.0741	1.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	40	0.0750	1.92		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	37	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	57	0.1930	3.08		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	52	0.1346	2.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	135	0.1481	2.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	94	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
29.2	677	Total			

Subcatchment 1: Afterglow-Perv



Hydrograph for Subcatchment 1: Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.00	0.00
12.00	1.64	0.16	**0.26**
13.00	2.53	0.54	**0.62**
14.00	2.74	0.66	0.25
15.00	2.88	0.74	0.17
16.00	2.98	0.79	0.13
17.00	3.06	0.84	0.11
18.00	3.13	0.89	0.09
19.00	3.19	0.92	0.08
20.00	3.24	0.95	0.08
21.00	3.29	0.99	0.07
22.00	3.34	1.02	0.07
23.00	3.38	1.04	0.06
24.00	**3.42**	**1.07**	0.06
25.00	3.42	1.07	0.00
26.00	3.42	1.07	0.00
27.00	3.42	1.07	0.00
28.00	3.42	1.07	0.00
29.00	3.42	1.07	0.00
30.00	3.42	1.07	0.00
31.00	3.42	1.07	0.00
32.00	3.42	1.07	0.00
33.00	3.42	1.07	0.00
34.00	3.42	1.07	0.00
35.00	3.42	1.07	0.00
36.00	3.42	1.07	0.00
37.00	3.42	1.07	0.00
38.00	3.42	1.07	0.00
39.00	3.42	1.07	0.00
40.00	3.42	1.07	0.00
41.00	3.42	1.07	0.00
42.00	3.42	1.07	0.00
43.00	3.42	1.07	0.00
44.00	3.42	1.07	0.00
45.00	3.42	1.07	0.00
46.00	3.42	1.07	0.00
47.00	3.42	1.07	0.00
48.00	3.42	1.07	0.00
49.00	3.42	1.07	0.00
50.00	3.42	1.07	0.00
51.00	3.42	1.07	0.00
52.00	3.42	1.07	0.00
53.00	3.42	1.07	0.00
54.00	3.42	1.07	0.00
55.00	3.42	1.07	0.00
56.00	3.42	1.07	0.00
57.00	3.42	1.07	0.00
58.00	3.42	1.07	0.00
59.00	3.42	1.07	0.00
60.00	3.42	1.07	0.00
61.00	3.42	1.07	0.00
62.00	3.42	1.07	0.00
63.00	3.42	1.07	0.00
64.00	3.42	1.07	0.00
65.00	3.42	1.07	0.00
66.00	3.42	1.07	0.00
67.00	3.42	1.07	0.00
68.00	3.42	1.07	0.00
69.00	3.42	1.07	0.00
70.00	3.42	1.07	0.00
71.00	3.42	1.07	0.00
72.00	3.42	1.07	0.00

Summary for Subcatchment 2: Afterglow-Imperv

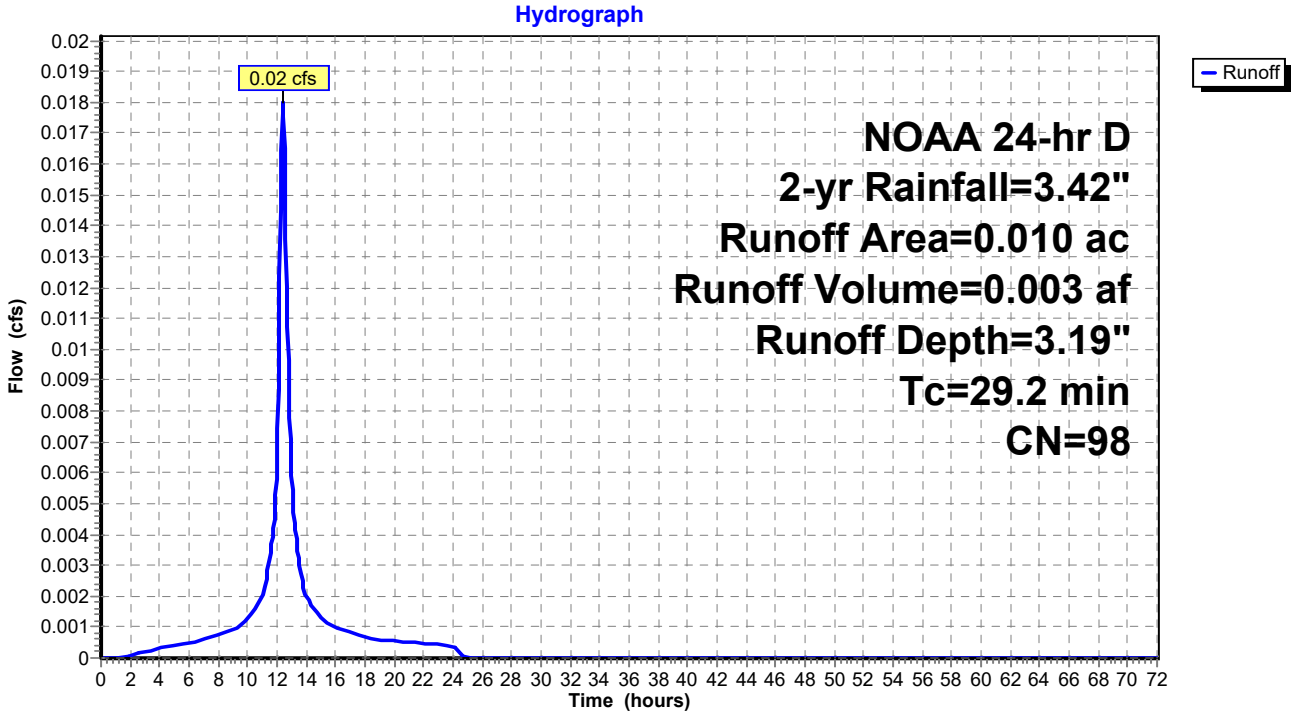
Runoff = 0.02 cfs @ 12.40 hrs, Volume= 0.003 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.010	98	Paved parking, HSG C
0.010		100.00% Impervious Area

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

Subcatchment 2: Afterglow-Imperv



Hydrograph for Subcatchment 2: Afterglow-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.13	0.03	0.00
4.00	0.18	0.06	0.00
5.00	0.23	0.09	0.00
6.00	0.29	0.14	0.00
7.00	0.36	0.19	0.00
8.00	0.44	0.27	0.00
9.00	0.54	0.36	0.00
10.00	0.68	0.48	0.00
11.00	0.89	0.68	0.00
12.00	1.64	1.42	**0.01**
13.00	2.53	2.30	**0.01**
14.00	2.74	2.51	0.00
15.00	2.88	2.65	0.00
16.00	2.98	2.74	0.00
17.00	3.06	2.83	0.00
18.00	3.13	2.90	0.00
19.00	3.19	2.95	0.00
20.00	3.24	3.01	0.00
21.00	3.29	3.06	0.00
22.00	3.34	3.10	0.00
23.00	3.38	3.15	0.00
24.00	**3.42**	**3.19**	0.00
25.00	3.42	3.19	0.00
26.00	3.42	3.19	0.00
27.00	3.42	3.19	0.00
28.00	3.42	3.19	0.00
29.00	3.42	3.19	0.00
30.00	3.42	3.19	0.00
31.00	3.42	3.19	0.00
32.00	3.42	3.19	0.00
33.00	3.42	3.19	0.00
34.00	3.42	3.19	0.00
35.00	3.42	3.19	0.00
36.00	3.42	3.19	0.00
37.00	3.42	3.19	0.00
38.00	3.42	3.19	0.00
39.00	3.42	3.19	0.00
40.00	3.42	3.19	0.00
41.00	3.42	3.19	0.00
42.00	3.42	3.19	0.00
43.00	3.42	3.19	0.00
44.00	3.42	3.19	0.00
45.00	3.42	3.19	0.00
46.00	3.42	3.19	0.00
47.00	3.42	3.19	0.00
48.00	3.42	3.19	0.00
49.00	3.42	3.19	0.00
50.00	3.42	3.19	0.00
51.00	3.42	3.19	0.00
52.00	3.42	3.19	0.00
53.00	3.42	3.19	0.00
54.00	3.42	3.19	0.00
55.00	3.42	3.19	0.00
56.00	3.42	3.19	0.00
57.00	3.42	3.19	0.00
58.00	3.42	3.19	0.00
59.00	3.42	3.19	0.00
60.00	3.42	3.19	0.00
61.00	3.42	3.19	0.00
62.00	3.42	3.19	0.00
63.00	3.42	3.19	0.00
64.00	3.42	3.19	0.00
65.00	3.42	3.19	0.00
66.00	3.42	3.19	0.00
67.00	3.42	3.19	0.00
68.00	3.42	3.19	0.00
69.00	3.42	3.19	0.00
70.00	3.42	3.19	0.00
71.00	3.42	3.19	0.00
72.00	3.42	3.19	0.00

Summary for Subcatchment 3: Off-Site Afterglow-Perv

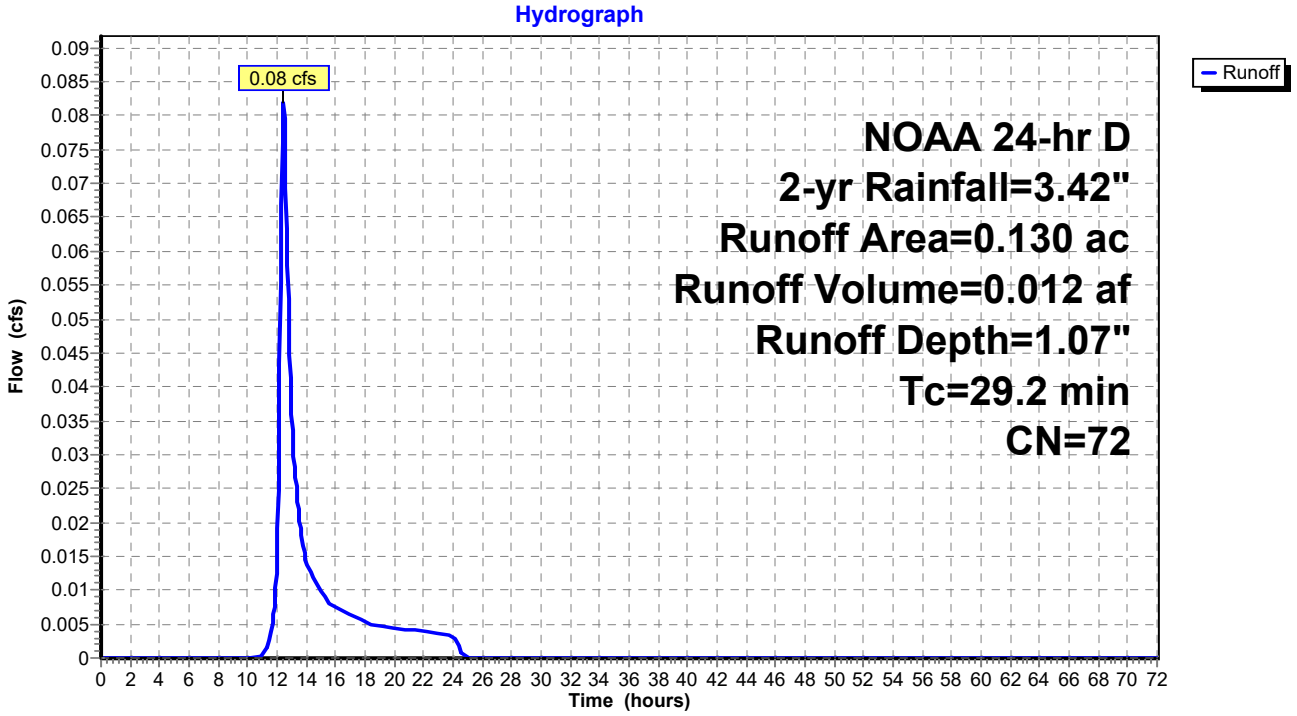
Runoff = 0.08 cfs @ 12.44 hrs, Volume= 0.012 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.130	72	Woods/grass comb., Good, HSG C
0.130		100.00% Pervious Area

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

Subcatchment 3: Off-Site Afterglow-Perv



Hydrograph for Subcatchment 3: Off-Site Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.00	0.00
12.00	1.64	0.16	**0.02**
13.00	2.53	0.54	**0.04**
14.00	2.74	0.66	0.01
15.00	2.88	0.74	0.01
16.00	2.98	0.79	0.01
17.00	3.06	0.84	0.01
18.00	3.13	0.89	0.01
19.00	3.19	0.92	0.00
20.00	3.24	0.95	0.00
21.00	3.29	0.99	0.00
22.00	3.34	1.02	0.00
23.00	3.38	1.04	0.00
24.00	**3.42**	**1.07**	0.00
25.00	3.42	1.07	0.00
26.00	3.42	1.07	0.00
27.00	3.42	1.07	0.00
28.00	3.42	1.07	0.00
29.00	3.42	1.07	0.00
30.00	3.42	1.07	0.00
31.00	3.42	1.07	0.00
32.00	3.42	1.07	0.00
33.00	3.42	1.07	0.00
34.00	3.42	1.07	0.00
35.00	3.42	1.07	0.00
36.00	3.42	1.07	0.00
37.00	3.42	1.07	0.00
38.00	3.42	1.07	0.00
39.00	3.42	1.07	0.00
40.00	3.42	1.07	0.00
41.00	3.42	1.07	0.00
42.00	3.42	1.07	0.00
43.00	3.42	1.07	0.00
44.00	3.42	1.07	0.00
45.00	3.42	1.07	0.00
46.00	3.42	1.07	0.00
47.00	3.42	1.07	0.00
48.00	3.42	1.07	0.00
49.00	3.42	1.07	0.00
50.00	3.42	1.07	0.00
51.00	3.42	1.07	0.00
52.00	3.42	1.07	0.00
53.00	3.42	1.07	0.00
54.00	3.42	1.07	0.00
55.00	3.42	1.07	0.00
56.00	3.42	1.07	0.00
57.00	3.42	1.07	0.00
58.00	3.42	1.07	0.00
59.00	3.42	1.07	0.00
60.00	3.42	1.07	0.00
61.00	3.42	1.07	0.00
62.00	3.42	1.07	0.00
63.00	3.42	1.07	0.00
64.00	3.42	1.07	0.00
65.00	3.42	1.07	0.00
66.00	3.42	1.07	0.00
67.00	3.42	1.07	0.00
68.00	3.42	1.07	0.00
69.00	3.42	1.07	0.00
70.00	3.42	1.07	0.00
71.00	3.42	1.07	0.00
72.00	3.42	1.07	0.00

Summary for Subcatchment 5: Sunset-Bloomfield-Imperv

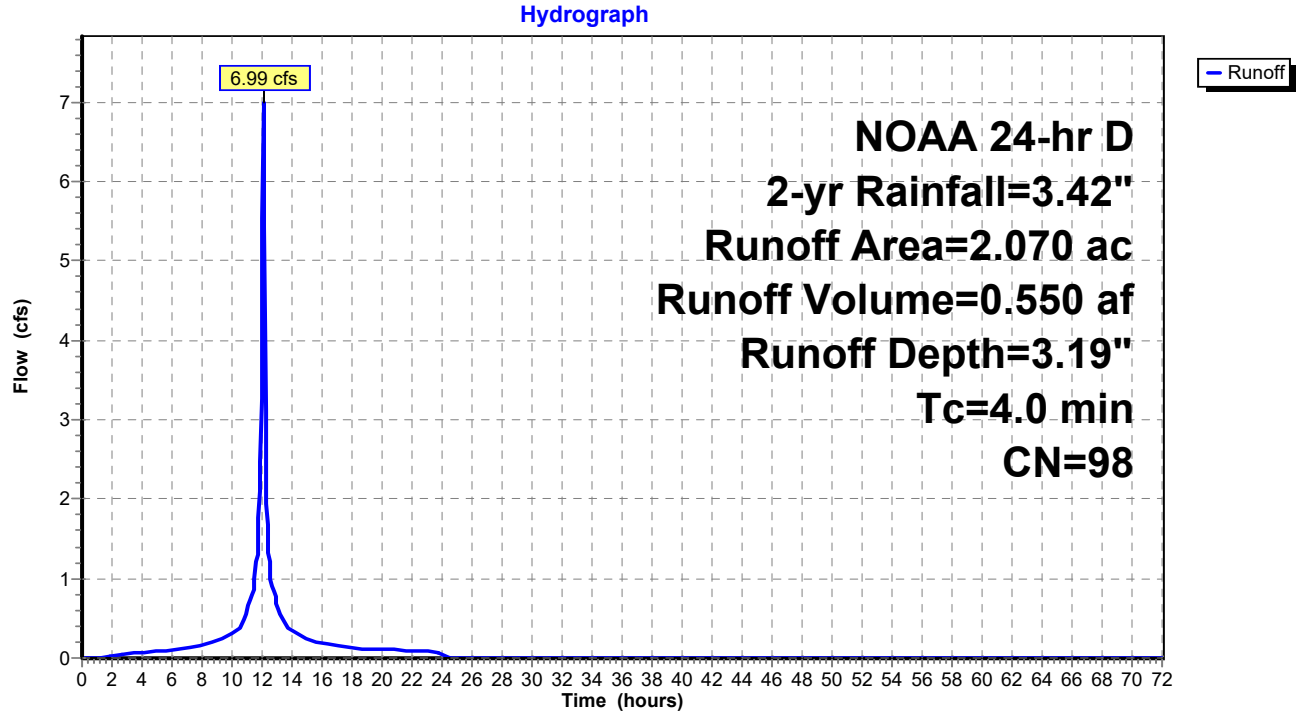
Runoff = 6.99 cfs @ 12.10 hrs, Volume= 0.550 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
2.070	98	Paved parking, HSG C
2.070		100.00% Impervious Area

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

Subcatchment 5: Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 5: Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.03
3.00	0.13	0.03	0.05
4.00	0.18	0.06	0.07
5.00	0.23	0.09	0.09
6.00	0.29	0.14	0.10
7.00	0.36	0.19	0.13
8.00	0.44	0.27	0.17
9.00	0.54	0.36	0.20
10.00	0.68	0.48	0.31
11.00	0.89	0.68	0.57
12.00	1.64	1.42	**4.20**
13.00	2.53	2.30	**0.67**
14.00	2.74	2.51	0.34
15.00	2.88	2.65	0.23
16.00	2.98	2.74	0.19
17.00	3.06	2.83	0.16
18.00	3.13	2.90	0.13
19.00	3.19	2.95	0.12
20.00	3.24	3.01	0.11
21.00	3.29	3.06	0.10
22.00	3.34	3.10	0.09
23.00	3.38	3.15	0.09
24.00	**3.42**	**3.19**	0.08
25.00	3.42	3.19	0.00
26.00	3.42	3.19	0.00
27.00	3.42	3.19	0.00
28.00	3.42	3.19	0.00
29.00	3.42	3.19	0.00
30.00	3.42	3.19	0.00
31.00	3.42	3.19	0.00
32.00	3.42	3.19	0.00
33.00	3.42	3.19	0.00
34.00	3.42	3.19	0.00
35.00	3.42	3.19	0.00
36.00	3.42	3.19	0.00
37.00	3.42	3.19	0.00
38.00	3.42	3.19	0.00
39.00	3.42	3.19	0.00
40.00	3.42	3.19	0.00
41.00	3.42	3.19	0.00
42.00	3.42	3.19	0.00
43.00	3.42	3.19	0.00
44.00	3.42	3.19	0.00
45.00	3.42	3.19	0.00
46.00	3.42	3.19	0.00
47.00	3.42	3.19	0.00
48.00	3.42	3.19	0.00
49.00	3.42	3.19	0.00
50.00	3.42	3.19	0.00
51.00	3.42	3.19	0.00
52.00	3.42	3.19	0.00
53.00	3.42	3.19	0.00
54.00	3.42	3.19	0.00
55.00	3.42	3.19	0.00
56.00	3.42	3.19	0.00
57.00	3.42	3.19	0.00
58.00	3.42	3.19	0.00
59.00	3.42	3.19	0.00
60.00	3.42	3.19	0.00
61.00	3.42	3.19	0.00
62.00	3.42	3.19	0.00
63.00	3.42	3.19	0.00
64.00	3.42	3.19	0.00
65.00	3.42	3.19	0.00
66.00	3.42	3.19	0.00
67.00	3.42	3.19	0.00
68.00	3.42	3.19	0.00
69.00	3.42	3.19	0.00
70.00	3.42	3.19	0.00
71.00	3.42	3.19	0.00
72.00	3.42	3.19	0.00

Summary for Subcatchment 6: Sunset-Bloomfield-Perv

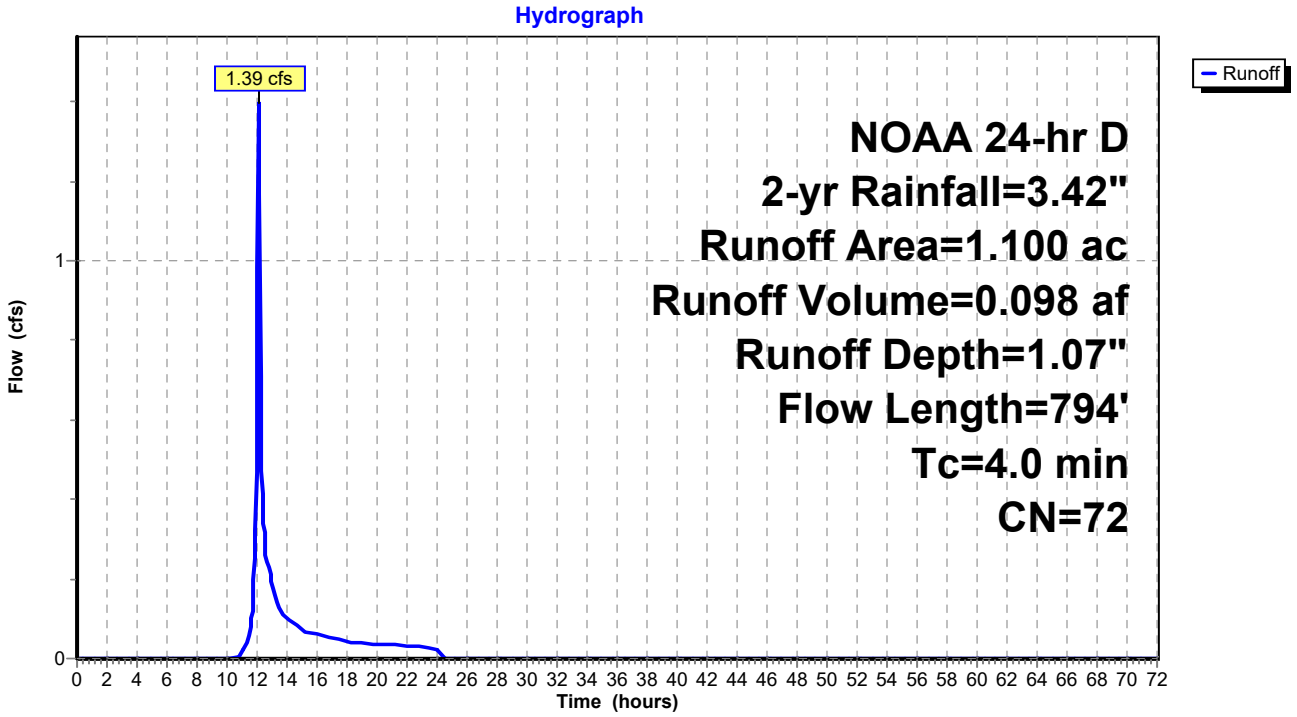
Runoff = 1.39 cfs @ 12.11 hrs, Volume= 0.098 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
1.100	72	Woods/grass comb., Good, HSG C
1.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	34	0.1470	0.31		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.6	66	0.0564	1.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.5	163	0.0598	4.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	140	0.0100	4.54	3.56	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.1	104	0.1050	14.70	11.54	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.1	91	0.0985	14.24	11.18	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.3	166	0.0565	10.78	8.47	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.1	30	0.0169	5.90	4.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
4.0	794	Total			

Subcatchment 6: Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 6: Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.00	0.01
12.00	1.64	0.16	**0.66**
13.00	2.53	0.54	**0.19**
14.00	2.74	0.66	0.10
15.00	2.88	0.74	0.07
16.00	2.98	0.79	0.06
17.00	3.06	0.84	0.05
18.00	3.13	0.89	0.04
19.00	3.19	0.92	0.04
20.00	3.24	0.95	0.04
21.00	3.29	0.99	0.03
22.00	3.34	1.02	0.03
23.00	3.38	1.04	0.03
24.00	**3.42**	**1.07**	0.03
25.00	3.42	1.07	0.00
26.00	3.42	1.07	0.00
27.00	3.42	1.07	0.00
28.00	3.42	1.07	0.00
29.00	3.42	1.07	0.00
30.00	3.42	1.07	0.00
31.00	3.42	1.07	0.00
32.00	3.42	1.07	0.00
33.00	3.42	1.07	0.00
34.00	3.42	1.07	0.00
35.00	3.42	1.07	0.00
36.00	3.42	1.07	0.00
37.00	3.42	1.07	0.00
38.00	3.42	1.07	0.00
39.00	3.42	1.07	0.00
40.00	3.42	1.07	0.00
41.00	3.42	1.07	0.00
42.00	3.42	1.07	0.00
43.00	3.42	1.07	0.00
44.00	3.42	1.07	0.00
45.00	3.42	1.07	0.00
46.00	3.42	1.07	0.00
47.00	3.42	1.07	0.00
48.00	3.42	1.07	0.00
49.00	3.42	1.07	0.00
50.00	3.42	1.07	0.00
51.00	3.42	1.07	0.00
52.00	3.42	1.07	0.00
53.00	3.42	1.07	0.00
54.00	3.42	1.07	0.00
55.00	3.42	1.07	0.00
56.00	3.42	1.07	0.00
57.00	3.42	1.07	0.00
58.00	3.42	1.07	0.00
59.00	3.42	1.07	0.00
60.00	3.42	1.07	0.00
61.00	3.42	1.07	0.00
62.00	3.42	1.07	0.00
63.00	3.42	1.07	0.00
64.00	3.42	1.07	0.00
65.00	3.42	1.07	0.00
66.00	3.42	1.07	0.00
67.00	3.42	1.07	0.00
68.00	3.42	1.07	0.00
69.00	3.42	1.07	0.00
70.00	3.42	1.07	0.00
71.00	3.42	1.07	0.00
72.00	3.42	1.07	0.00

Summary for Subcatchment 8: Overland to Bloom-Imperv

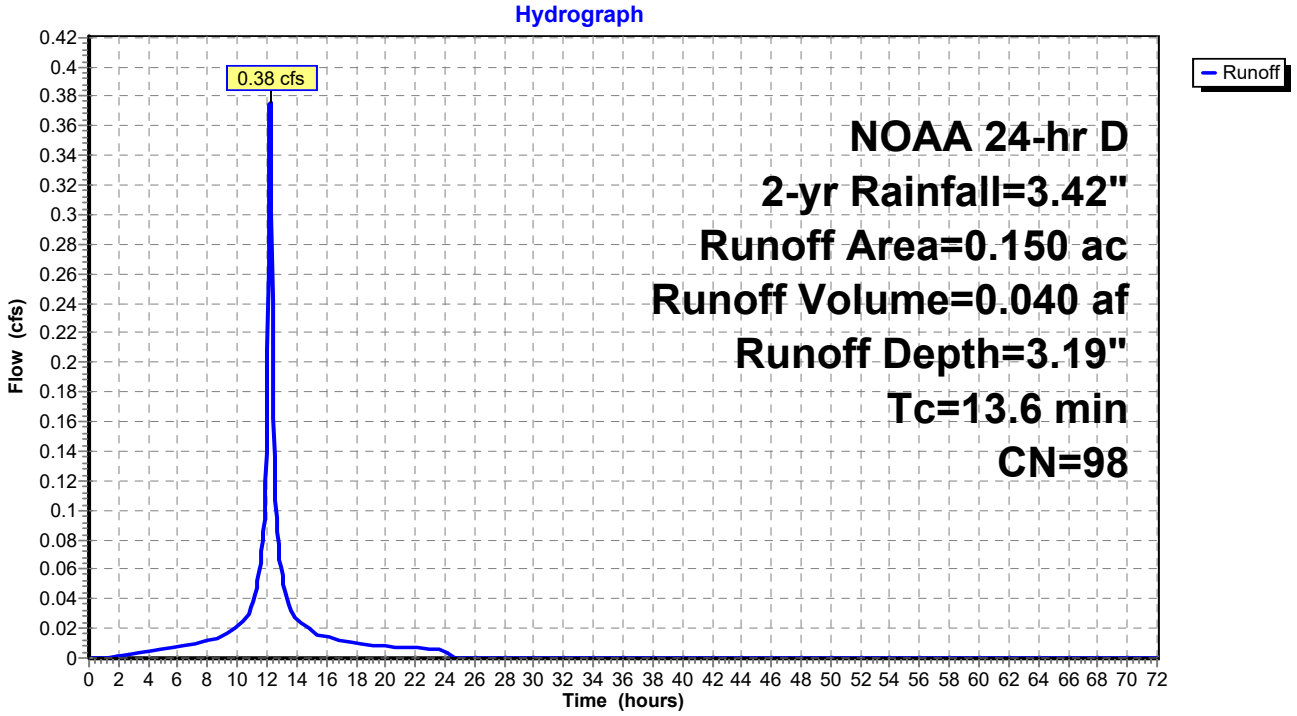
Runoff = 0.38 cfs @ 12.21 hrs, Volume= 0.040 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG C
0.150		100.00% Impervious Area

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

Subcatchment 8: Overland to Bloom-Imperv



Hydrograph for Subcatchment 8: Overland to Bloom-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.13	0.03	0.00
4.00	0.18	0.06	0.00
5.00	0.23	0.09	0.01
6.00	0.29	0.14	0.01
7.00	0.36	0.19	0.01
8.00	0.44	0.27	0.01
9.00	0.54	0.36	0.01
10.00	0.68	0.48	0.02
11.00	0.89	0.68	0.04
12.00	1.64	1.42	**0.17**
13.00	2.53	2.30	**0.06**
14.00	2.74	2.51	0.03
15.00	2.88	2.65	0.02
16.00	2.98	2.74	0.01
17.00	3.06	2.83	0.01
18.00	3.13	2.90	0.01
19.00	3.19	2.95	0.01
20.00	3.24	3.01	0.01
21.00	3.29	3.06	0.01
22.00	3.34	3.10	0.01
23.00	3.38	3.15	0.01
24.00	**3.42**	**3.19**	0.01
25.00	3.42	3.19	0.00
26.00	3.42	3.19	0.00
27.00	3.42	3.19	0.00
28.00	3.42	3.19	0.00
29.00	3.42	3.19	0.00
30.00	3.42	3.19	0.00
31.00	3.42	3.19	0.00
32.00	3.42	3.19	0.00
33.00	3.42	3.19	0.00
34.00	3.42	3.19	0.00
35.00	3.42	3.19	0.00
36.00	3.42	3.19	0.00
37.00	3.42	3.19	0.00
38.00	3.42	3.19	0.00
39.00	3.42	3.19	0.00
40.00	3.42	3.19	0.00
41.00	3.42	3.19	0.00
42.00	3.42	3.19	0.00
43.00	3.42	3.19	0.00
44.00	3.42	3.19	0.00
45.00	3.42	3.19	0.00
46.00	3.42	3.19	0.00
47.00	3.42	3.19	0.00
48.00	3.42	3.19	0.00
49.00	3.42	3.19	0.00
50.00	3.42	3.19	0.00
51.00	3.42	3.19	0.00
52.00	3.42	3.19	0.00
53.00	3.42	3.19	0.00
54.00	3.42	3.19	0.00
55.00	3.42	3.19	0.00
56.00	3.42	3.19	0.00
57.00	3.42	3.19	0.00
58.00	3.42	3.19	0.00
59.00	3.42	3.19	0.00
60.00	3.42	3.19	0.00
61.00	3.42	3.19	0.00
62.00	3.42	3.19	0.00
63.00	3.42	3.19	0.00
64.00	3.42	3.19	0.00
65.00	3.42	3.19	0.00
66.00	3.42	3.19	0.00
67.00	3.42	3.19	0.00
68.00	3.42	3.19	0.00
69.00	3.42	3.19	0.00
70.00	3.42	3.19	0.00
71.00	3.42	3.19	0.00
72.00	3.42	3.19	0.00

Summary for Subcatchment 9: Overland to Bloom-perv

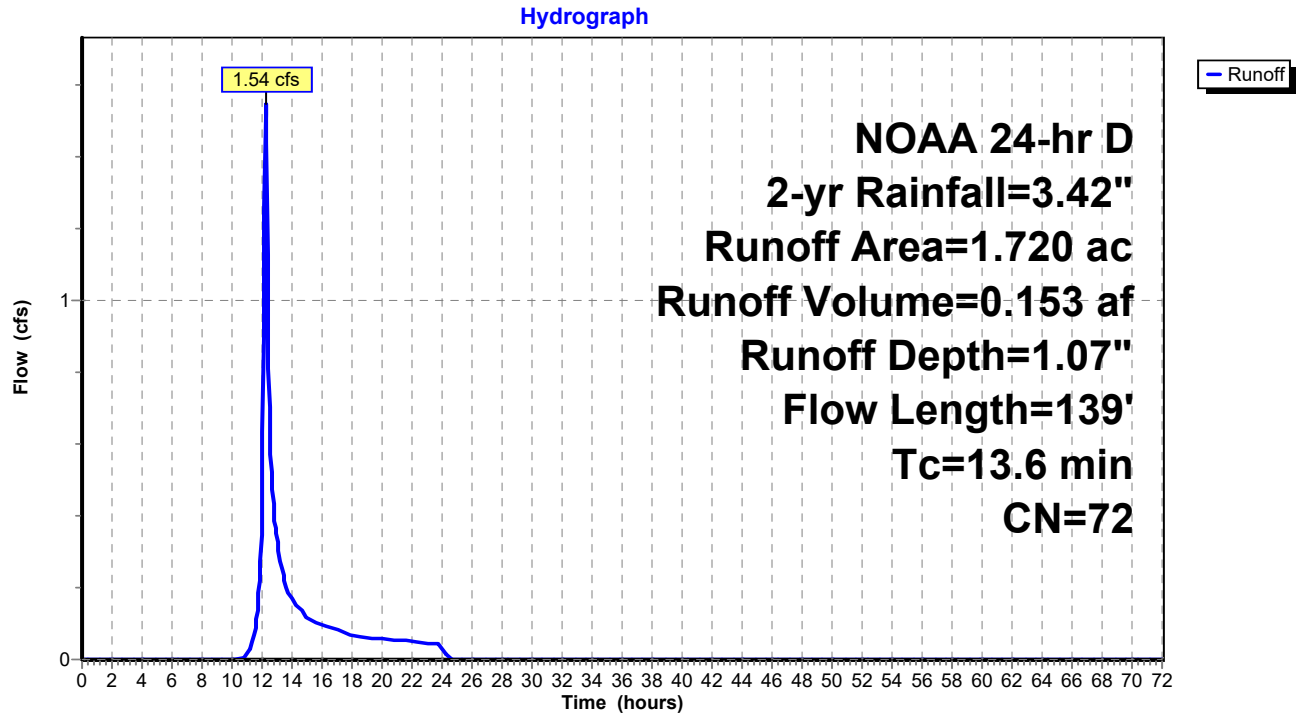
Runoff = 1.54 cfs @ 12.23 hrs, Volume= 0.153 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.940	74	>75% Grass cover, Good, HSG C
0.780	70	Woods, Good, HSG C
1.720	72	Weighted Average
1.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	71	0.0210	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
6.2	23	0.0217	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.2	28	0.1450	1.90		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	17	1.0000	5.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.6	139	Total			

Subcatchment 9: Overland to Bloom-perv



Hydrograph for Subcatchment 9: Overland to Bloom-perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.00	0.01
12.00	1.64	0.16	**0.46**
13.00	2.53	0.54	**0.34**
14.00	2.74	0.66	0.17
15.00	2.88	0.74	0.12
16.00	2.98	0.79	0.10
17.00	3.06	0.84	0.08
18.00	3.13	0.89	0.07
19.00	3.19	0.92	0.06
20.00	3.24	0.95	0.06
21.00	3.29	0.99	0.05
22.00	3.34	1.02	0.05
23.00	3.38	1.04	0.05
24.00	**3.42**	**1.07**	0.04
25.00	3.42	1.07	0.00
26.00	3.42	1.07	0.00
27.00	3.42	1.07	0.00
28.00	3.42	1.07	0.00
29.00	3.42	1.07	0.00
30.00	3.42	1.07	0.00
31.00	3.42	1.07	0.00
32.00	3.42	1.07	0.00
33.00	3.42	1.07	0.00
34.00	3.42	1.07	0.00
35.00	3.42	1.07	0.00
36.00	3.42	1.07	0.00
37.00	3.42	1.07	0.00
38.00	3.42	1.07	0.00
39.00	3.42	1.07	0.00
40.00	3.42	1.07	0.00
41.00	3.42	1.07	0.00
42.00	3.42	1.07	0.00
43.00	3.42	1.07	0.00
44.00	3.42	1.07	0.00
45.00	3.42	1.07	0.00
46.00	3.42	1.07	0.00
47.00	3.42	1.07	0.00
48.00	3.42	1.07	0.00
49.00	3.42	1.07	0.00
50.00	3.42	1.07	0.00
51.00	3.42	1.07	0.00
52.00	3.42	1.07	0.00
53.00	3.42	1.07	0.00
54.00	3.42	1.07	0.00
55.00	3.42	1.07	0.00
56.00	3.42	1.07	0.00
57.00	3.42	1.07	0.00
58.00	3.42	1.07	0.00
59.00	3.42	1.07	0.00
60.00	3.42	1.07	0.00
61.00	3.42	1.07	0.00
62.00	3.42	1.07	0.00
63.00	3.42	1.07	0.00
64.00	3.42	1.07	0.00
65.00	3.42	1.07	0.00
66.00	3.42	1.07	0.00
67.00	3.42	1.07	0.00
68.00	3.42	1.07	0.00
69.00	3.42	1.07	0.00
70.00	3.42	1.07	0.00
71.00	3.42	1.07	0.00
72.00	3.42	1.07	0.00

Summary for Subcatchment 11: Parkhurst-Perv

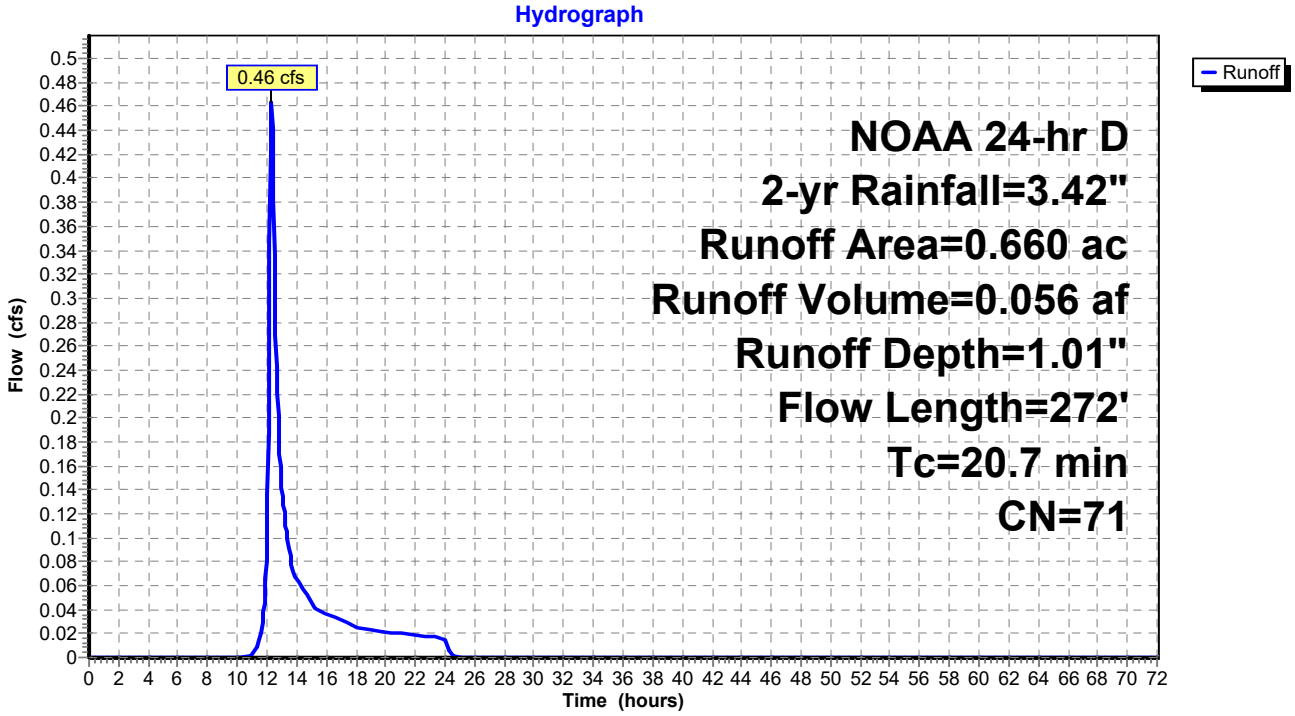
Runoff = 0.46 cfs @ 12.32 hrs, Volume= 0.056 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.160	74	>75% Grass cover, Good, HSG C
0.500	70	Woods, Good, HSG C
0.660	71	Weighted Average
0.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.6	53	0.0755	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	52	0.3462	2.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	67	0.1045	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.7	272	Total			

Subcatchment 11: Parkhurst-Perv



Hydrograph for Subcatchment 11: Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.00	0.00
12.00	1.64	0.14	**0.10**
13.00	2.53	0.51	**0.14**
14.00	2.74	0.62	0.06
15.00	2.88	0.69	0.05
16.00	2.98	0.75	0.04
17.00	3.06	0.80	0.03
18.00	3.13	0.84	0.03
19.00	3.19	0.87	0.02
20.00	3.24	0.90	0.02
21.00	3.29	0.93	0.02
22.00	3.34	0.96	0.02
23.00	3.38	0.99	0.02
24.00	**3.42**	**1.01**	0.02
25.00	3.42	1.01	0.00
26.00	3.42	1.01	0.00
27.00	3.42	1.01	0.00
28.00	3.42	1.01	0.00
29.00	3.42	1.01	0.00
30.00	3.42	1.01	0.00
31.00	3.42	1.01	0.00
32.00	3.42	1.01	0.00
33.00	3.42	1.01	0.00
34.00	3.42	1.01	0.00
35.00	3.42	1.01	0.00
36.00	3.42	1.01	0.00
37.00	3.42	1.01	0.00
38.00	3.42	1.01	0.00
39.00	3.42	1.01	0.00
40.00	3.42	1.01	0.00
41.00	3.42	1.01	0.00
42.00	3.42	1.01	0.00
43.00	3.42	1.01	0.00
44.00	3.42	1.01	0.00
45.00	3.42	1.01	0.00
46.00	3.42	1.01	0.00
47.00	3.42	1.01	0.00
48.00	3.42	1.01	0.00
49.00	3.42	1.01	0.00
50.00	3.42	1.01	0.00
51.00	3.42	1.01	0.00
52.00	3.42	1.01	0.00
53.00	3.42	1.01	0.00
54.00	3.42	1.01	0.00
55.00	3.42	1.01	0.00
56.00	3.42	1.01	0.00
57.00	3.42	1.01	0.00
58.00	3.42	1.01	0.00
59.00	3.42	1.01	0.00
60.00	3.42	1.01	0.00
61.00	3.42	1.01	0.00
62.00	3.42	1.01	0.00
63.00	3.42	1.01	0.00
64.00	3.42	1.01	0.00
65.00	3.42	1.01	0.00
66.00	3.42	1.01	0.00
67.00	3.42	1.01	0.00
68.00	3.42	1.01	0.00
69.00	3.42	1.01	0.00
70.00	3.42	1.01	0.00
71.00	3.42	1.01	0.00
72.00	3.42	1.01	0.00

Summary for Subcatchment 12: Off-Site Parkhurst-Perv

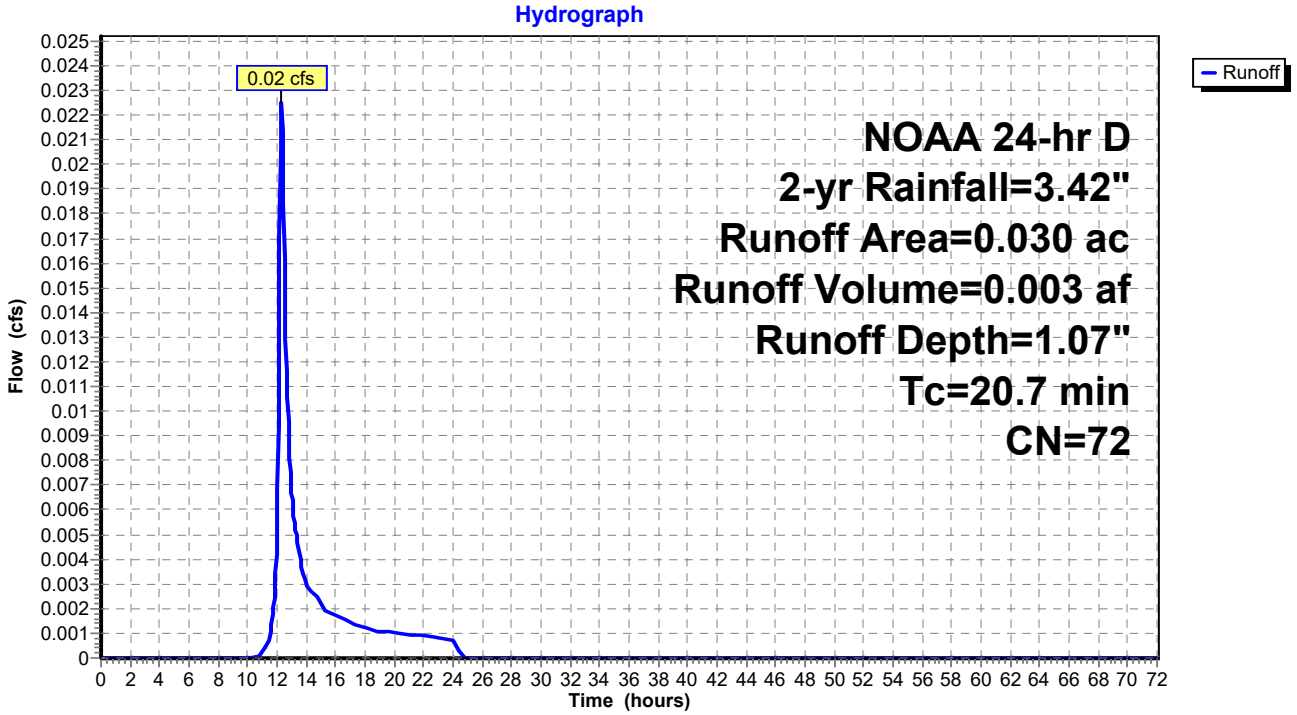
Runoff = 0.02 cfs @ 12.32 hrs, Volume= 0.003 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.030	72	Woods/grass comb., Good, HSG C
0.030		100.00% Pervious Area

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

Subcatchment 12: Off-Site Parkhurst-Perv



Hydrograph for Subcatchment 12: Off-Site Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.00	0.00
12.00	1.64	0.16	**0.01**
13.00	2.53	0.54	**0.01**
14.00	2.74	0.66	0.00
15.00	2.88	0.74	0.00
16.00	2.98	0.79	0.00
17.00	3.06	0.84	0.00
18.00	3.13	0.89	0.00
19.00	3.19	0.92	0.00
20.00	3.24	0.95	0.00
21.00	3.29	0.99	0.00
22.00	3.34	1.02	0.00
23.00	3.38	1.04	0.00
24.00	**3.42**	**1.07**	0.00
25.00	3.42	1.07	0.00
26.00	3.42	1.07	0.00
27.00	3.42	1.07	0.00
28.00	3.42	1.07	0.00
29.00	3.42	1.07	0.00
30.00	3.42	1.07	0.00
31.00	3.42	1.07	0.00
32.00	3.42	1.07	0.00
33.00	3.42	1.07	0.00
34.00	3.42	1.07	0.00
35.00	3.42	1.07	0.00
36.00	3.42	1.07	0.00
37.00	3.42	1.07	0.00
38.00	3.42	1.07	0.00
39.00	3.42	1.07	0.00
40.00	3.42	1.07	0.00
41.00	3.42	1.07	0.00
42.00	3.42	1.07	0.00
43.00	3.42	1.07	0.00
44.00	3.42	1.07	0.00
45.00	3.42	1.07	0.00
46.00	3.42	1.07	0.00
47.00	3.42	1.07	0.00
48.00	3.42	1.07	0.00
49.00	3.42	1.07	0.00
50.00	3.42	1.07	0.00
51.00	3.42	1.07	0.00
52.00	3.42	1.07	0.00
53.00	3.42	1.07	0.00
54.00	3.42	1.07	0.00
55.00	3.42	1.07	0.00
56.00	3.42	1.07	0.00
57.00	3.42	1.07	0.00
58.00	3.42	1.07	0.00
59.00	3.42	1.07	0.00
60.00	3.42	1.07	0.00
61.00	3.42	1.07	0.00
62.00	3.42	1.07	0.00
63.00	3.42	1.07	0.00
64.00	3.42	1.07	0.00
65.00	3.42	1.07	0.00
66.00	3.42	1.07	0.00
67.00	3.42	1.07	0.00
68.00	3.42	1.07	0.00
69.00	3.42	1.07	0.00
70.00	3.42	1.07	0.00
71.00	3.42	1.07	0.00
72.00	3.42	1.07	0.00

Summary for Subcatchment 13: Parkhurst-Imperv

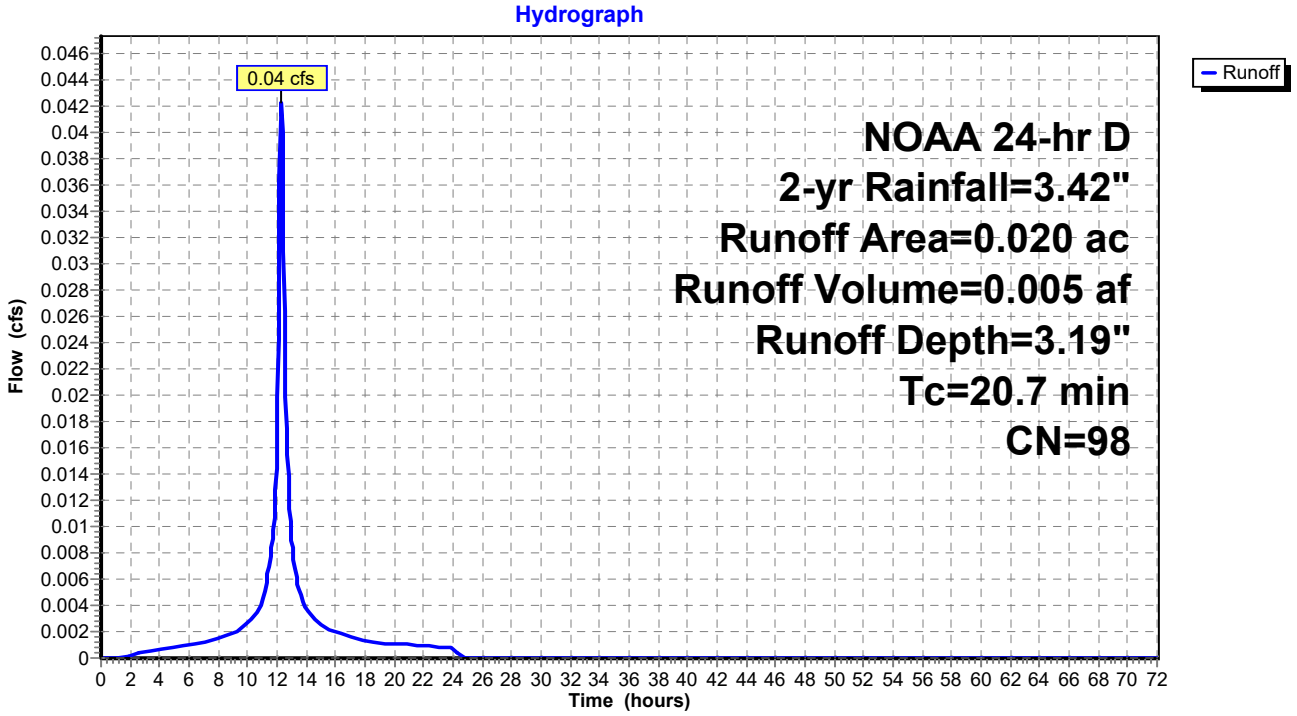
Runoff = 0.04 cfs @ 12.29 hrs, Volume= 0.005 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.020	98	Paved parking, HSG C
0.020		100.00% Impervious Area

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

Subcatchment 13: Parkhurst-Imperv



Hydrograph for Subcatchment 13: Parkhurst-Imperv

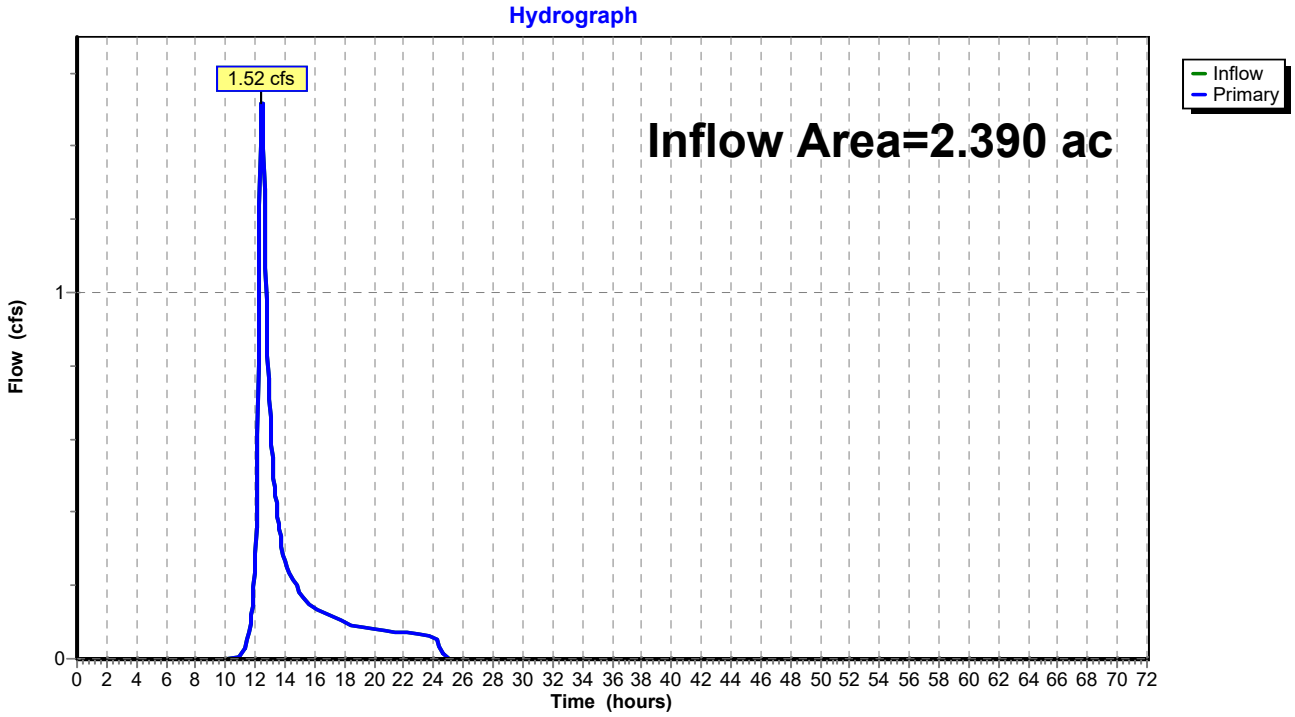
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.13	0.03	0.00
4.00	0.18	0.06	0.00
5.00	0.23	0.09	0.00
6.00	0.29	0.14	0.00
7.00	0.36	0.19	0.00
8.00	0.44	0.27	0.00
9.00	0.54	0.36	0.00
10.00	0.68	0.48	0.00
11.00	0.89	0.68	0.00
12.00	1.64	1.42	**0.02**
13.00	2.53	2.30	**0.01**
14.00	2.74	2.51	0.00
15.00	2.88	2.65	0.00
16.00	2.98	2.74	0.00
17.00	3.06	2.83	0.00
18.00	3.13	2.90	0.00
19.00	3.19	2.95	0.00
20.00	3.24	3.01	0.00
21.00	3.29	3.06	0.00
22.00	3.34	3.10	0.00
23.00	3.38	3.15	0.00
24.00	**3.42**	**3.19**	0.00
25.00	3.42	3.19	0.00
26.00	3.42	3.19	0.00
27.00	3.42	3.19	0.00
28.00	3.42	3.19	0.00
29.00	3.42	3.19	0.00
30.00	3.42	3.19	0.00
31.00	3.42	3.19	0.00
32.00	3.42	3.19	0.00
33.00	3.42	3.19	0.00
34.00	3.42	3.19	0.00
35.00	3.42	3.19	0.00
36.00	3.42	3.19	0.00
37.00	3.42	3.19	0.00
38.00	3.42	3.19	0.00
39.00	3.42	3.19	0.00
40.00	3.42	3.19	0.00
41.00	3.42	3.19	0.00
42.00	3.42	3.19	0.00
43.00	3.42	3.19	0.00
44.00	3.42	3.19	0.00
45.00	3.42	3.19	0.00
46.00	3.42	3.19	0.00
47.00	3.42	3.19	0.00
48.00	3.42	3.19	0.00
49.00	3.42	3.19	0.00
50.00	3.42	3.19	0.00
51.00	3.42	3.19	0.00
52.00	3.42	3.19	0.00
53.00	3.42	3.19	0.00
54.00	3.42	3.19	0.00
55.00	3.42	3.19	0.00
56.00	3.42	3.19	0.00
57.00	3.42	3.19	0.00
58.00	3.42	3.19	0.00
59.00	3.42	3.19	0.00
60.00	3.42	3.19	0.00
61.00	3.42	3.19	0.00
62.00	3.42	3.19	0.00
63.00	3.42	3.19	0.00
64.00	3.42	3.19	0.00
65.00	3.42	3.19	0.00
66.00	3.42	3.19	0.00
67.00	3.42	3.19	0.00
68.00	3.42	3.19	0.00
69.00	3.42	3.19	0.00
70.00	3.42	3.19	0.00
71.00	3.42	3.19	0.00
72.00	3.42	3.19	0.00

Summary for Pond 4: Ex. DA-1 Area to Afterglow

Inflow Area = 2.390 ac, 0.42% Impervious, Inflow Depth = 1.08" for 2-yr event
Inflow = 1.52 cfs @ 12.44 hrs, Volume= 0.215 af
Primary = 1.52 cfs @ 12.44 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 4: Ex. DA-1 Area to Afterglow



Hydrograph for Pond 4: Ex. DA-1 Area to Afterglow

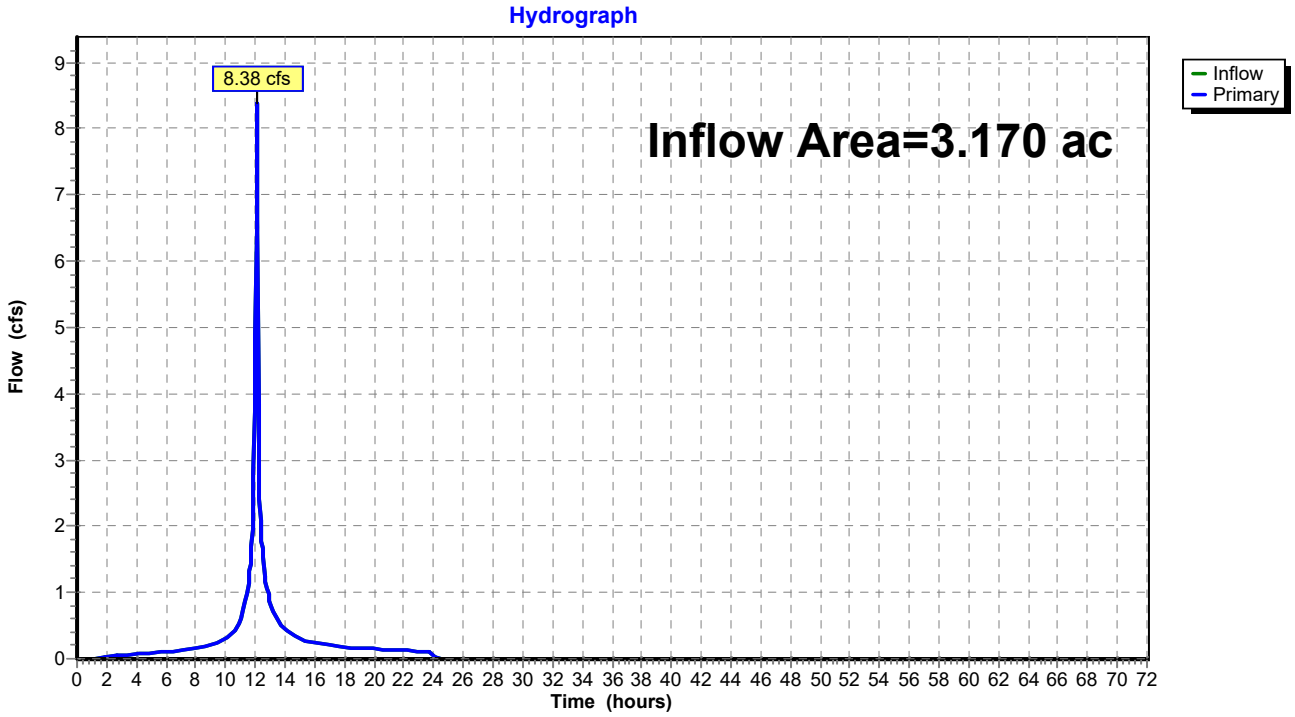
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.00		0.00
11.00	0.01		0.01
12.00	**0.29**		**0.29**
13.00	**0.66**		**0.66**
14.00	0.26		0.26
15.00	0.18		0.18
16.00	0.14		0.14
17.00	0.12		0.12
18.00	0.10		0.10
19.00	0.09		0.09
20.00	0.08		0.08
21.00	0.08		0.08
22.00	0.07		0.07
23.00	0.07		0.07
24.00	0.06		0.06
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 7: Ex. DA-2 On-Site Piping to Sunset-Bloomfield

Inflow Area = 3.170 ac, 65.30% Impervious, Inflow Depth = 2.45" for 2-yr event
Inflow = 8.38 cfs @ 12.10 hrs, Volume= 0.648 af
Primary = 8.38 cfs @ 12.10 hrs, Volume= 0.648 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 7: Ex. DA-2 On-Site Piping to Sunset-Bloomfield



Hydrograph for Pond 7: Ex. DA-2 On-Site Piping to Sunset-Bloomfield

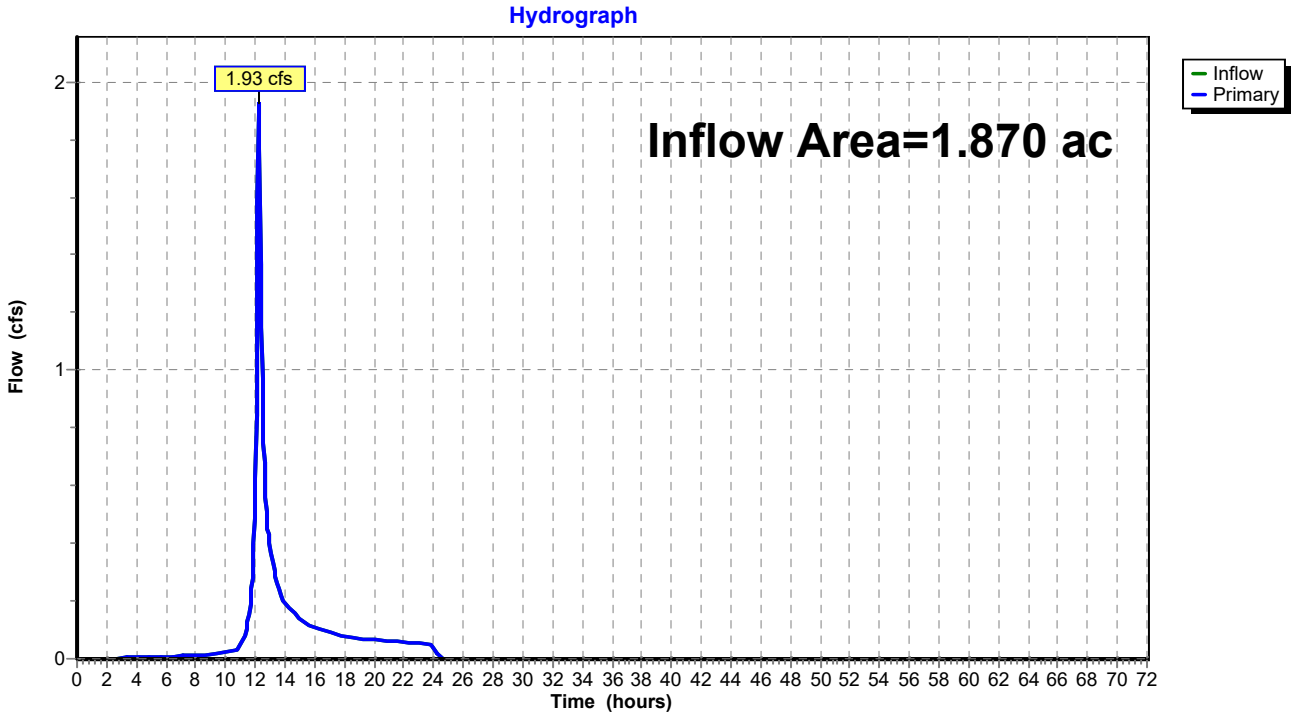
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.03		0.03
3.00	0.05		0.05
4.00	0.07		0.07
5.00	0.09		0.09
6.00	0.10		0.10
7.00	0.13		0.13
8.00	0.17		0.17
9.00	0.20		0.20
10.00	0.31		0.31
11.00	0.58		0.58
12.00	**4.86**		**4.86**
13.00	**0.86**		**0.86**
14.00	0.45		0.45
15.00	0.30		0.30
16.00	0.25		0.25
17.00	0.21		0.21
18.00	0.17		0.17
19.00	0.16		0.16
20.00	0.15		0.15
21.00	0.14		0.14
22.00	0.13		0.13
23.00	0.11		0.11
24.00	0.10		0.10
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 10: Ex. DA-3 Overland to Bloomfield

Inflow Area = 1.870 ac, 8.02% Impervious, Inflow Depth = 1.24" for 2-yr event
Inflow = 1.93 cfs @ 12.22 hrs, Volume= 0.193 af
Primary = 1.93 cfs @ 12.22 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 10: Ex. DA-3 Overland to Bloomfield



Hydrograph for Pond 10: Ex. DA-3 Overland to Bloomfield

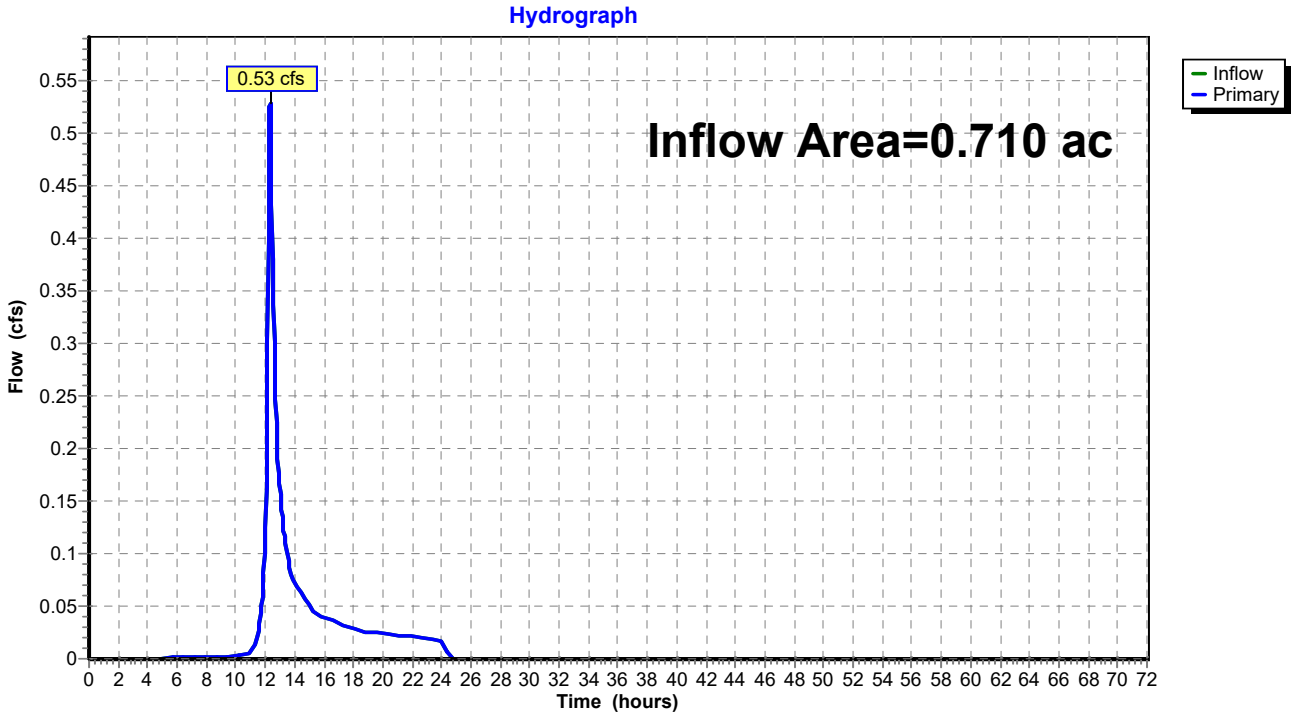
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.01		0.01
6.00	0.01		0.01
7.00	0.01		0.01
8.00	0.01		0.01
9.00	0.01		0.01
10.00	0.02		0.02
11.00	0.05		0.05
12.00	**0.63**		**0.63**
13.00	**0.39**		**0.39**
14.00	0.19		0.19
15.00	0.14		0.14
16.00	0.11		0.11
17.00	0.09		0.09
18.00	0.08		0.08
19.00	0.07		0.07
20.00	0.07		0.07
21.00	0.06		0.06
22.00	0.06		0.06
23.00	0.05		0.05
24.00	0.05		0.05
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 14: Ex. Da-4 Area to Parkhurst

Inflow Area = 0.710 ac, 2.82% Impervious, Inflow Depth = 1.08" for 2-yr event
Inflow = 0.53 cfs @ 12.32 hrs, Volume= 0.064 af
Primary = 0.53 cfs @ 12.32 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 14: Ex. Da-4 Area to Parkhurst



Hydrograph for Pond 14: Ex. Da-4 Area to Parkhurst

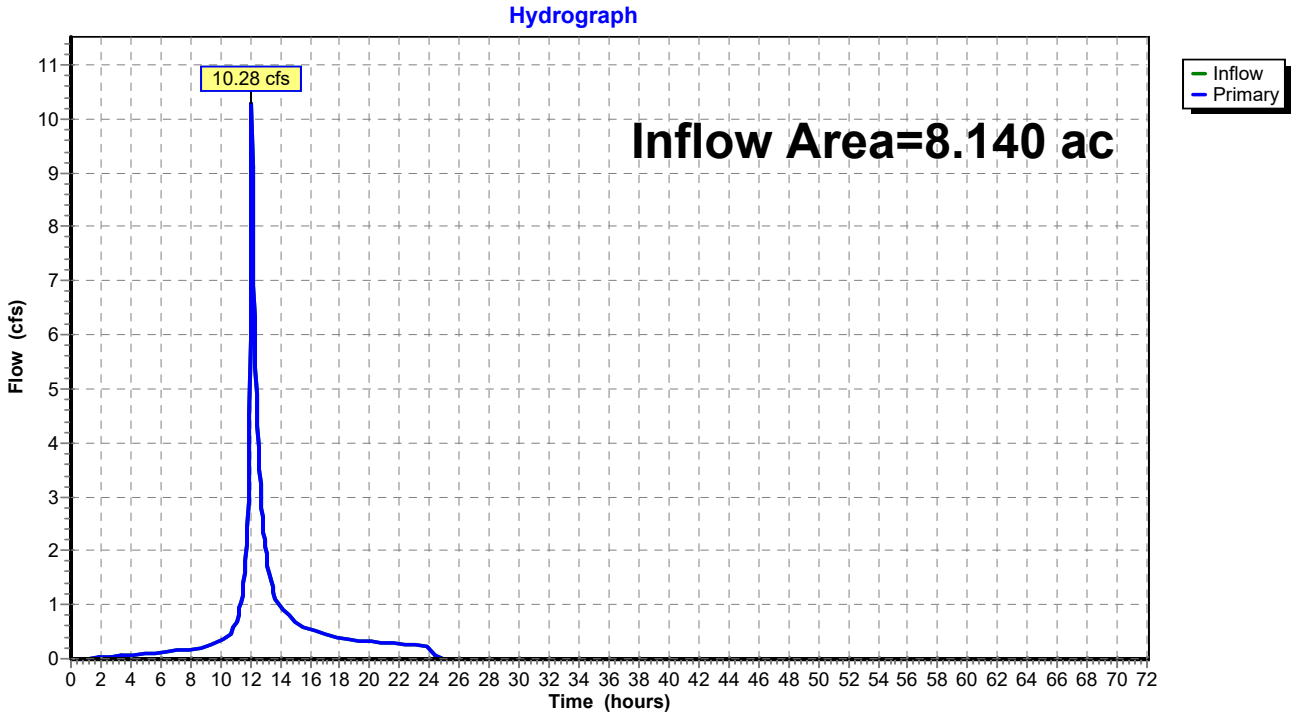
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.00		0.00
11.00	0.01		0.01
12.00	**0.13**		**0.13**
13.00	**0.16**		**0.16**
14.00	0.07		0.07
15.00	0.05		0.05
16.00	0.04		0.04
17.00	0.03		0.03
18.00	0.03		0.03
19.00	0.03		0.03
20.00	0.02		0.02
21.00	0.02		0.02
22.00	0.02		0.02
23.00	0.02		0.02
24.00	0.02		0.02
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 15: Site Sum

Inflow Area = 8.140 ac, 27.64% Impervious, Inflow Depth = 1.65" for 2-yr event
Inflow = 10.28 cfs @ 12.11 hrs, Volume= 1.119 af
Primary = 10.28 cfs @ 12.11 hrs, Volume= 1.119 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 15: Site Sum



Hydrograph for Pond 15: Site Sum

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.03		0.03
3.00	0.05		0.05
4.00	0.08		0.08
5.00	0.09		0.09
6.00	0.11		0.11
7.00	0.14		0.14
8.00	0.18		0.18
9.00	0.22		0.22
10.00	0.34		0.34
11.00	0.65		0.65
12.00	**5.90**		**5.90**
13.00	**2.07**		**2.07**
14.00	0.97		0.97
15.00	0.67		0.67
16.00	0.54		0.54
17.00	0.46		0.46
18.00	0.37		0.37
19.00	0.34		0.34
20.00	0.32		0.32
21.00	0.30		0.30
22.00	0.28		0.28
23.00	0.25		0.25
24.00	0.23		0.23
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Subcatchment 1: Afterglow-Perv

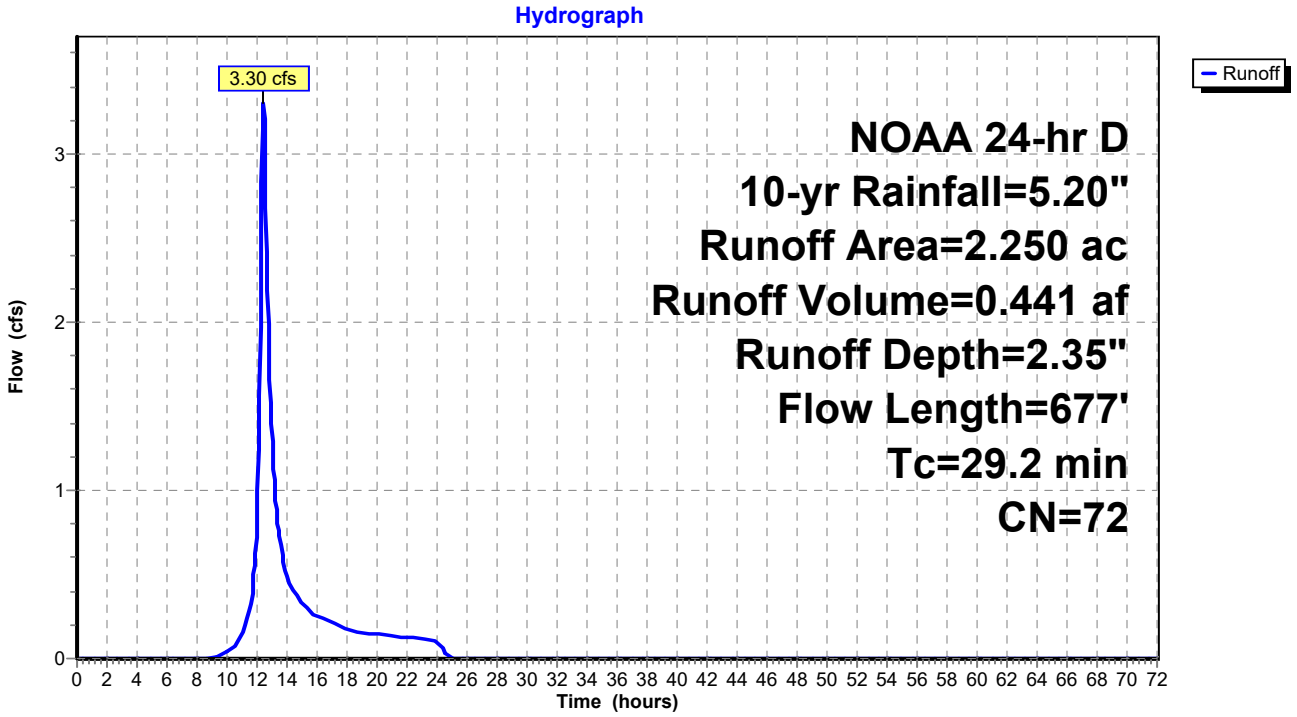
Runoff = 3.30 cfs @ 12.42 hrs, Volume= 0.441 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
2.250	72	Woods/grass comb., Good, HSG C
2.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.4	162	0.0741	1.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	40	0.0750	1.92		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	37	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	57	0.1930	3.08		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	52	0.1346	2.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	135	0.1481	2.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	94	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
29.2	677	Total			

Subcatchment 1: Afterglow-Perv



Hydrograph for Subcatchment 1: Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.02	0.04
11.00	1.35	0.07	0.13
12.00	2.49	0.52	**0.84**
13.00	3.85	1.35	**1.29**
14.00	4.17	1.58	0.48
15.00	4.38	1.73	0.33
16.00	4.53	1.84	0.25
17.00	4.65	1.93	0.21
18.00	4.76	2.01	0.18
19.00	4.84	2.08	0.15
20.00	4.93	2.14	0.14
21.00	5.00	2.20	0.13
22.00	5.08	2.26	0.12
23.00	5.14	2.31	0.11
24.00	**5.20**	**2.35**	0.10
25.00	5.20	2.35	0.00
26.00	5.20	2.35	0.00
27.00	5.20	2.35	0.00
28.00	5.20	2.35	0.00
29.00	5.20	2.35	0.00
30.00	5.20	2.35	0.00
31.00	5.20	2.35	0.00
32.00	5.20	2.35	0.00
33.00	5.20	2.35	0.00
34.00	5.20	2.35	0.00
35.00	5.20	2.35	0.00
36.00	5.20	2.35	0.00
37.00	5.20	2.35	0.00
38.00	5.20	2.35	0.00
39.00	5.20	2.35	0.00
40.00	5.20	2.35	0.00
41.00	5.20	2.35	0.00
42.00	5.20	2.35	0.00
43.00	5.20	2.35	0.00
44.00	5.20	2.35	0.00
45.00	5.20	2.35	0.00
46.00	5.20	2.35	0.00
47.00	5.20	2.35	0.00
48.00	5.20	2.35	0.00
49.00	5.20	2.35	0.00
50.00	5.20	2.35	0.00
51.00	5.20	2.35	0.00
52.00	5.20	2.35	0.00
53.00	5.20	2.35	0.00
54.00	5.20	2.35	0.00
55.00	5.20	2.35	0.00
56.00	5.20	2.35	0.00
57.00	5.20	2.35	0.00
58.00	5.20	2.35	0.00
59.00	5.20	2.35	0.00
60.00	5.20	2.35	0.00
61.00	5.20	2.35	0.00
62.00	5.20	2.35	0.00
63.00	5.20	2.35	0.00
64.00	5.20	2.35	0.00
65.00	5.20	2.35	0.00
66.00	5.20	2.35	0.00
67.00	5.20	2.35	0.00
68.00	5.20	2.35	0.00
69.00	5.20	2.35	0.00
70.00	5.20	2.35	0.00
71.00	5.20	2.35	0.00
72.00	5.20	2.35	0.00

Summary for Subcatchment 2: Afterglow-Imperv

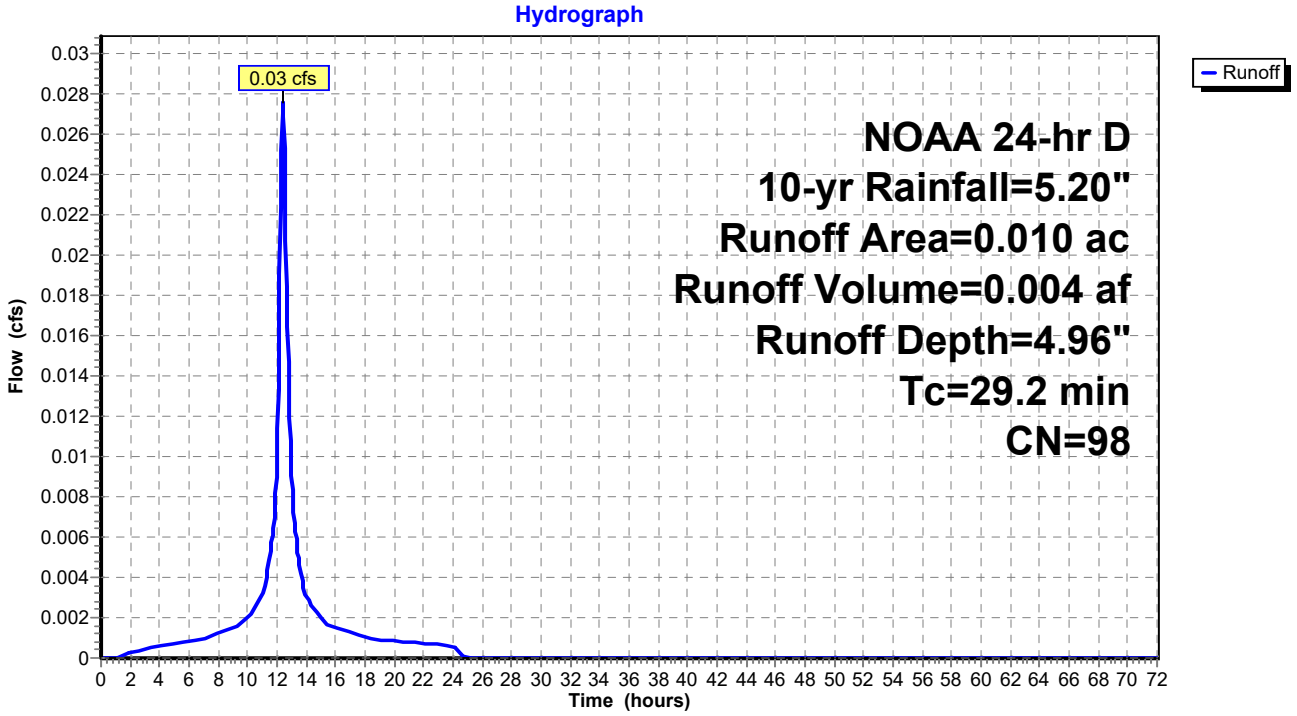
Runoff = 0.03 cfs @ 12.40 hrs, Volume= 0.004 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.010	98	Paved parking, HSG C
0.010		100.00% Impervious Area

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

Subcatchment 2: Afterglow-Imperv



Hydrograph for Subcatchment 2: Afterglow-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.00
3.00	0.20	0.07	0.00
4.00	0.27	0.12	0.00
5.00	0.36	0.19	0.00
6.00	0.44	0.27	0.00
7.00	0.55	0.36	0.00
8.00	0.67	0.48	0.00
9.00	0.82	0.62	0.00
10.00	1.03	0.82	0.00
11.00	1.35	1.13	0.00
12.00	2.49	2.26	**0.01**
13.00	3.85	3.61	**0.01**
14.00	4.17	3.93	0.00
15.00	4.38	4.14	0.00
16.00	4.53	4.29	0.00
17.00	4.65	4.42	0.00
18.00	4.76	4.52	0.00
19.00	4.84	4.61	0.00
20.00	4.93	4.69	0.00
21.00	5.00	4.77	0.00
22.00	5.08	4.84	0.00
23.00	5.14	4.90	0.00
24.00	**5.20**	**4.96**	0.00
25.00	5.20	4.96	0.00
26.00	5.20	4.96	0.00
27.00	5.20	4.96	0.00
28.00	5.20	4.96	0.00
29.00	5.20	4.96	0.00
30.00	5.20	4.96	0.00
31.00	5.20	4.96	0.00
32.00	5.20	4.96	0.00
33.00	5.20	4.96	0.00
34.00	5.20	4.96	0.00
35.00	5.20	4.96	0.00
36.00	5.20	4.96	0.00
37.00	5.20	4.96	0.00
38.00	5.20	4.96	0.00
39.00	5.20	4.96	0.00
40.00	5.20	4.96	0.00
41.00	5.20	4.96	0.00
42.00	5.20	4.96	0.00
43.00	5.20	4.96	0.00
44.00	5.20	4.96	0.00
45.00	5.20	4.96	0.00
46.00	5.20	4.96	0.00
47.00	5.20	4.96	0.00
48.00	5.20	4.96	0.00
49.00	5.20	4.96	0.00
50.00	5.20	4.96	0.00
51.00	5.20	4.96	0.00
52.00	5.20	4.96	0.00
53.00	5.20	4.96	0.00
54.00	5.20	4.96	0.00
55.00	5.20	4.96	0.00
56.00	5.20	4.96	0.00
57.00	5.20	4.96	0.00
58.00	5.20	4.96	0.00
59.00	5.20	4.96	0.00
60.00	5.20	4.96	0.00
61.00	5.20	4.96	0.00
62.00	5.20	4.96	0.00
63.00	5.20	4.96	0.00
64.00	5.20	4.96	0.00
65.00	5.20	4.96	0.00
66.00	5.20	4.96	0.00
67.00	5.20	4.96	0.00
68.00	5.20	4.96	0.00
69.00	5.20	4.96	0.00
70.00	5.20	4.96	0.00
71.00	5.20	4.96	0.00
72.00	5.20	4.96	0.00

Summary for Subcatchment 3: Off-Site Afterglow-Perv

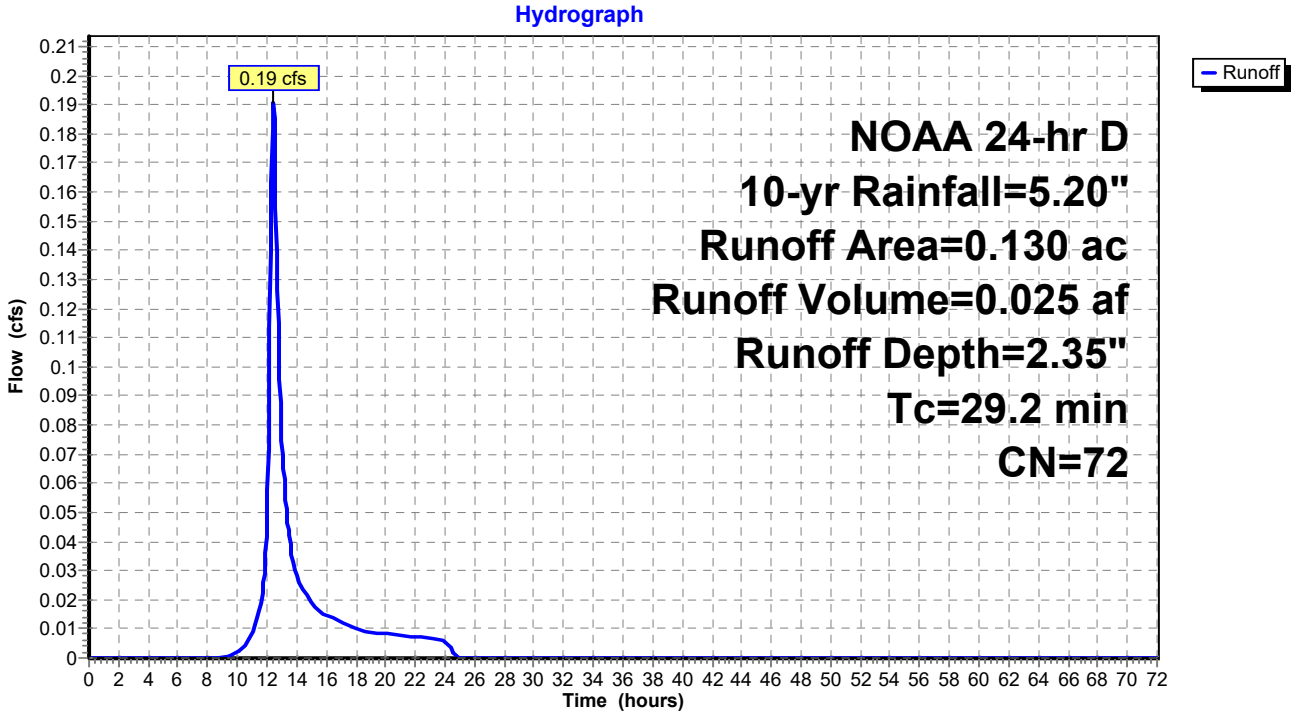
Runoff = 0.19 cfs @ 12.42 hrs, Volume= 0.025 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.130	72	Woods/grass comb., Good, HSG C
0.130		100.00% Pervious Area

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

Subcatchment 3: Off-Site Afterglow-Perv



Hydrograph for Subcatchment 3: Off-Site Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.02	0.00
11.00	1.35	0.07	0.01
12.00	2.49	0.52	**0.05**
13.00	3.85	1.35	**0.07**
14.00	4.17	1.58	0.03
15.00	4.38	1.73	0.02
16.00	4.53	1.84	0.01
17.00	4.65	1.93	0.01
18.00	4.76	2.01	0.01
19.00	4.84	2.08	0.01
20.00	4.93	2.14	0.01
21.00	5.00	2.20	0.01
22.00	5.08	2.26	0.01
23.00	5.14	2.31	0.01
24.00	**5.20**	**2.35**	0.01
25.00	5.20	2.35	0.00
26.00	5.20	2.35	0.00
27.00	5.20	2.35	0.00
28.00	5.20	2.35	0.00
29.00	5.20	2.35	0.00
30.00	5.20	2.35	0.00
31.00	5.20	2.35	0.00
32.00	5.20	2.35	0.00
33.00	5.20	2.35	0.00
34.00	5.20	2.35	0.00
35.00	5.20	2.35	0.00
36.00	5.20	2.35	0.00
37.00	5.20	2.35	0.00
38.00	5.20	2.35	0.00
39.00	5.20	2.35	0.00
40.00	5.20	2.35	0.00
41.00	5.20	2.35	0.00
42.00	5.20	2.35	0.00
43.00	5.20	2.35	0.00
44.00	5.20	2.35	0.00
45.00	5.20	2.35	0.00
46.00	5.20	2.35	0.00
47.00	5.20	2.35	0.00
48.00	5.20	2.35	0.00
49.00	5.20	2.35	0.00
50.00	5.20	2.35	0.00
51.00	5.20	2.35	0.00
52.00	5.20	2.35	0.00
53.00	5.20	2.35	0.00
54.00	5.20	2.35	0.00
55.00	5.20	2.35	0.00
56.00	5.20	2.35	0.00
57.00	5.20	2.35	0.00
58.00	5.20	2.35	0.00
59.00	5.20	2.35	0.00
60.00	5.20	2.35	0.00
61.00	5.20	2.35	0.00
62.00	5.20	2.35	0.00
63.00	5.20	2.35	0.00
64.00	5.20	2.35	0.00
65.00	5.20	2.35	0.00
66.00	5.20	2.35	0.00
67.00	5.20	2.35	0.00
68.00	5.20	2.35	0.00
69.00	5.20	2.35	0.00
70.00	5.20	2.35	0.00
71.00	5.20	2.35	0.00
72.00	5.20	2.35	0.00

Summary for Subcatchment 5: Sunset-Bloomfield-Imperv

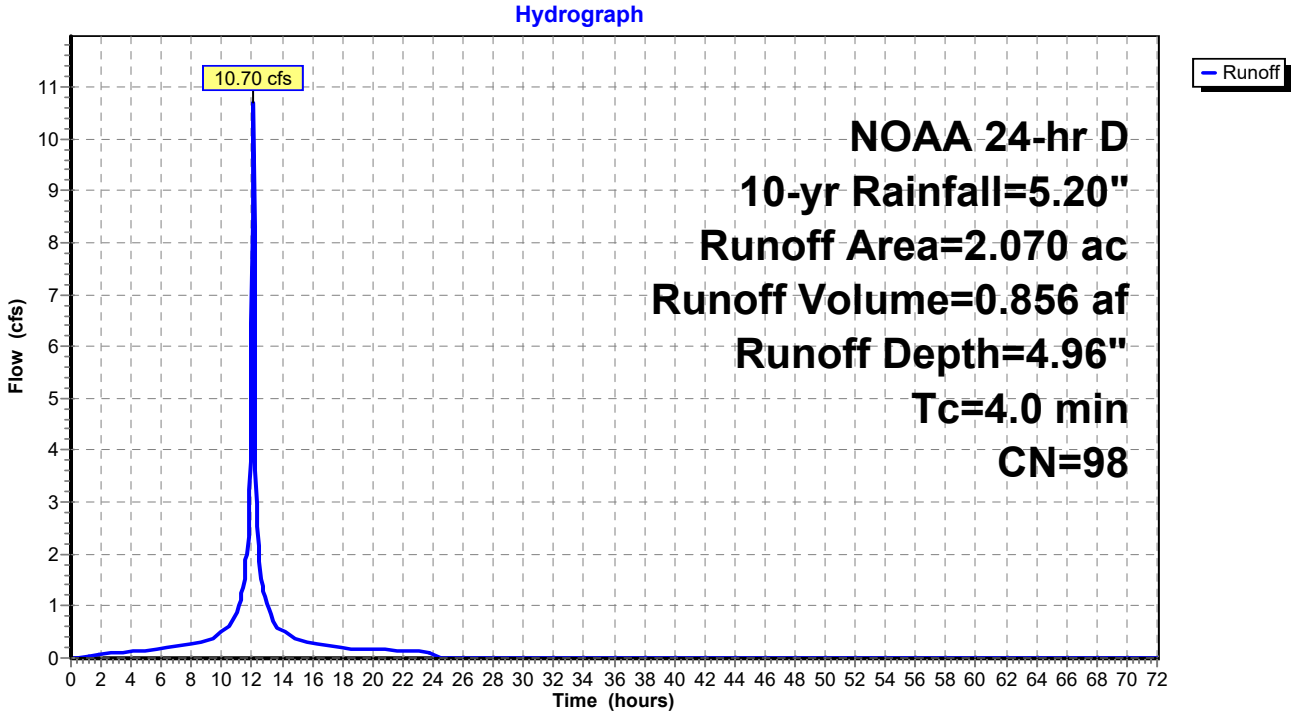
Runoff = 10.70 cfs @ 12.10 hrs, Volume= 0.856 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
2.070	98	Paved parking, HSG C
2.070		100.00% Impervious Area

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

Subcatchment 5: Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 5: Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.02
2.00	0.12	0.02	0.07
3.00	0.20	0.07	0.10
4.00	0.27	0.12	0.13
5.00	0.36	0.19	0.15
6.00	0.44	0.27	0.17
7.00	0.55	0.36	0.22
8.00	0.67	0.48	0.27
9.00	0.82	0.62	0.32
10.00	1.03	0.82	0.49
11.00	1.35	1.13	0.88
12.00	2.49	2.26	**6.44**
13.00	3.85	3.61	**1.03**
14.00	4.17	3.93	0.52
15.00	4.38	4.14	0.35
16.00	4.53	4.29	0.29
17.00	4.65	4.42	0.24
18.00	4.76	4.52	0.20
19.00	4.84	4.61	0.18
20.00	4.93	4.69	0.17
21.00	5.00	4.77	0.16
22.00	5.08	4.84	0.14
23.00	5.14	4.90	0.13
24.00	**5.20**	**4.96**	0.12
25.00	5.20	4.96	0.00
26.00	5.20	4.96	0.00
27.00	5.20	4.96	0.00
28.00	5.20	4.96	0.00
29.00	5.20	4.96	0.00
30.00	5.20	4.96	0.00
31.00	5.20	4.96	0.00
32.00	5.20	4.96	0.00
33.00	5.20	4.96	0.00
34.00	5.20	4.96	0.00
35.00	5.20	4.96	0.00
36.00	5.20	4.96	0.00
37.00	5.20	4.96	0.00
38.00	5.20	4.96	0.00
39.00	5.20	4.96	0.00
40.00	5.20	4.96	0.00
41.00	5.20	4.96	0.00
42.00	5.20	4.96	0.00
43.00	5.20	4.96	0.00
44.00	5.20	4.96	0.00
45.00	5.20	4.96	0.00
46.00	5.20	4.96	0.00
47.00	5.20	4.96	0.00
48.00	5.20	4.96	0.00
49.00	5.20	4.96	0.00
50.00	5.20	4.96	0.00
51.00	5.20	4.96	0.00
52.00	5.20	4.96	0.00
53.00	5.20	4.96	0.00
54.00	5.20	4.96	0.00
55.00	5.20	4.96	0.00
56.00	5.20	4.96	0.00
57.00	5.20	4.96	0.00
58.00	5.20	4.96	0.00
59.00	5.20	4.96	0.00
60.00	5.20	4.96	0.00
61.00	5.20	4.96	0.00
62.00	5.20	4.96	0.00
63.00	5.20	4.96	0.00
64.00	5.20	4.96	0.00
65.00	5.20	4.96	0.00
66.00	5.20	4.96	0.00
67.00	5.20	4.96	0.00
68.00	5.20	4.96	0.00
69.00	5.20	4.96	0.00
70.00	5.20	4.96	0.00
71.00	5.20	4.96	0.00
72.00	5.20	4.96	0.00

Summary for Subcatchment 6: Sunset-Bloomfield-Perv

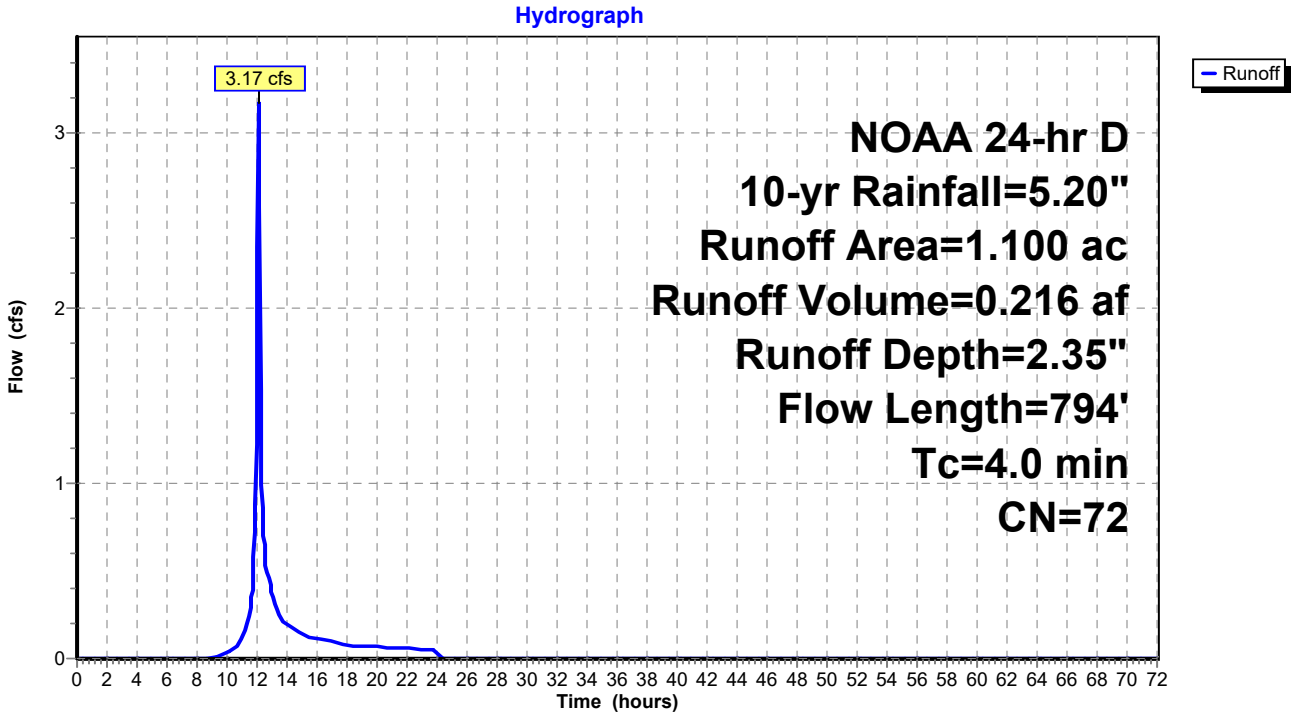
Runoff = 3.17 cfs @ 12.10 hrs, Volume= 0.216 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
1.100	72	Woods/grass comb., Good, HSG C
1.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	34	0.1470	0.31		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.6	66	0.0564	1.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.5	163	0.0598	4.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	140	0.0100	4.54	3.56	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.1	104	0.1050	14.70	11.54	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.1	91	0.0985	14.24	11.18	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.3	166	0.0565	10.78	8.47	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.1	30	0.0169	5.90	4.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
4.0	794	Total			

Subcatchment 6: Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 6: Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.02	0.03
11.00	1.35	0.07	0.11
12.00	2.49	0.52	**1.67**
13.00	3.85	1.35	**0.38**
14.00	4.17	1.58	0.20
15.00	4.38	1.73	0.14
16.00	4.53	1.84	0.12
17.00	4.65	1.93	0.10
18.00	4.76	2.01	0.08
19.00	4.84	2.08	0.07
20.00	4.93	2.14	0.07
21.00	5.00	2.20	0.06
22.00	5.08	2.26	0.06
23.00	5.14	2.31	0.05
24.00	**5.20**	**2.35**	0.05
25.00	5.20	2.35	0.00
26.00	5.20	2.35	0.00
27.00	5.20	2.35	0.00
28.00	5.20	2.35	0.00
29.00	5.20	2.35	0.00
30.00	5.20	2.35	0.00
31.00	5.20	2.35	0.00
32.00	5.20	2.35	0.00
33.00	5.20	2.35	0.00
34.00	5.20	2.35	0.00
35.00	5.20	2.35	0.00
36.00	5.20	2.35	0.00
37.00	5.20	2.35	0.00
38.00	5.20	2.35	0.00
39.00	5.20	2.35	0.00
40.00	5.20	2.35	0.00
41.00	5.20	2.35	0.00
42.00	5.20	2.35	0.00
43.00	5.20	2.35	0.00
44.00	5.20	2.35	0.00
45.00	5.20	2.35	0.00
46.00	5.20	2.35	0.00
47.00	5.20	2.35	0.00
48.00	5.20	2.35	0.00
49.00	5.20	2.35	0.00
50.00	5.20	2.35	0.00
51.00	5.20	2.35	0.00
52.00	5.20	2.35	0.00
53.00	5.20	2.35	0.00
54.00	5.20	2.35	0.00
55.00	5.20	2.35	0.00
56.00	5.20	2.35	0.00
57.00	5.20	2.35	0.00
58.00	5.20	2.35	0.00
59.00	5.20	2.35	0.00
60.00	5.20	2.35	0.00
61.00	5.20	2.35	0.00
62.00	5.20	2.35	0.00
63.00	5.20	2.35	0.00
64.00	5.20	2.35	0.00
65.00	5.20	2.35	0.00
66.00	5.20	2.35	0.00
67.00	5.20	2.35	0.00
68.00	5.20	2.35	0.00
69.00	5.20	2.35	0.00
70.00	5.20	2.35	0.00
71.00	5.20	2.35	0.00
72.00	5.20	2.35	0.00

Summary for Subcatchment 8: Overland to Bloom-Imperv

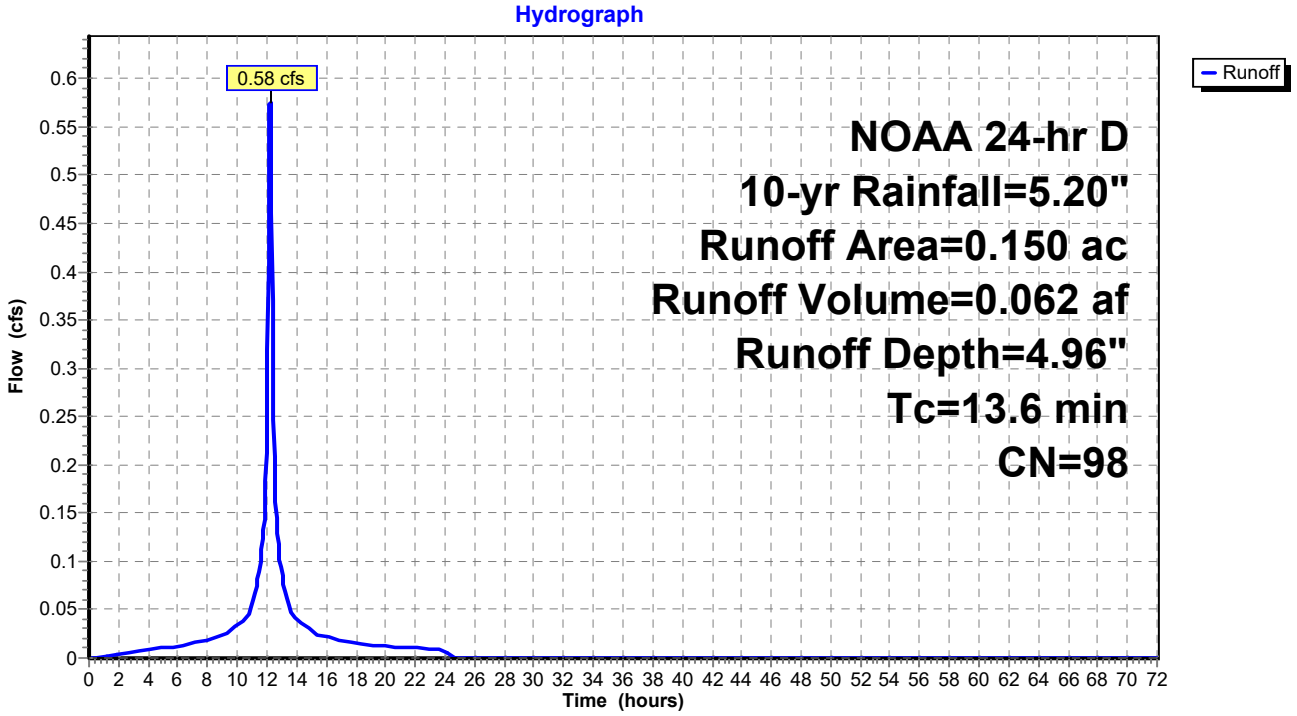
Runoff = 0.58 cfs @ 12.21 hrs, Volume= 0.062 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG C
0.150		100.00% Impervious Area

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

Subcatchment 8: Overland to Bloom-Imperv



Hydrograph for Subcatchment 8: Overland to Bloom-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.00
3.00	0.20	0.07	0.01
4.00	0.27	0.12	0.01
5.00	0.36	0.19	0.01
6.00	0.44	0.27	0.01
7.00	0.55	0.36	0.02
8.00	0.67	0.48	0.02
9.00	0.82	0.62	0.02
10.00	1.03	0.82	0.03
11.00	1.35	1.13	0.06
12.00	2.49	2.26	**0.26**
13.00	3.85	3.61	**0.09**
14.00	4.17	3.93	0.04
15.00	4.38	4.14	0.03
16.00	4.53	4.29	0.02
17.00	4.65	4.42	0.02
18.00	4.76	4.52	0.01
19.00	4.84	4.61	0.01
20.00	4.93	4.69	0.01
21.00	5.00	4.77	0.01
22.00	5.08	4.84	0.01
23.00	5.14	4.90	0.01
24.00	**5.20**	**4.96**	0.01
25.00	5.20	4.96	0.00
26.00	5.20	4.96	0.00
27.00	5.20	4.96	0.00
28.00	5.20	4.96	0.00
29.00	5.20	4.96	0.00
30.00	5.20	4.96	0.00
31.00	5.20	4.96	0.00
32.00	5.20	4.96	0.00
33.00	5.20	4.96	0.00
34.00	5.20	4.96	0.00
35.00	5.20	4.96	0.00
36.00	5.20	4.96	0.00
37.00	5.20	4.96	0.00
38.00	5.20	4.96	0.00
39.00	5.20	4.96	0.00
40.00	5.20	4.96	0.00
41.00	5.20	4.96	0.00
42.00	5.20	4.96	0.00
43.00	5.20	4.96	0.00
44.00	5.20	4.96	0.00
45.00	5.20	4.96	0.00
46.00	5.20	4.96	0.00
47.00	5.20	4.96	0.00
48.00	5.20	4.96	0.00
49.00	5.20	4.96	0.00
50.00	5.20	4.96	0.00
51.00	5.20	4.96	0.00
52.00	5.20	4.96	0.00
53.00	5.20	4.96	0.00
54.00	5.20	4.96	0.00
55.00	5.20	4.96	0.00
56.00	5.20	4.96	0.00
57.00	5.20	4.96	0.00
58.00	5.20	4.96	0.00
59.00	5.20	4.96	0.00
60.00	5.20	4.96	0.00
61.00	5.20	4.96	0.00
62.00	5.20	4.96	0.00
63.00	5.20	4.96	0.00
64.00	5.20	4.96	0.00
65.00	5.20	4.96	0.00
66.00	5.20	4.96	0.00
67.00	5.20	4.96	0.00
68.00	5.20	4.96	0.00
69.00	5.20	4.96	0.00
70.00	5.20	4.96	0.00
71.00	5.20	4.96	0.00
72.00	5.20	4.96	0.00

Summary for Subcatchment 9: Overland to Bloom-perv

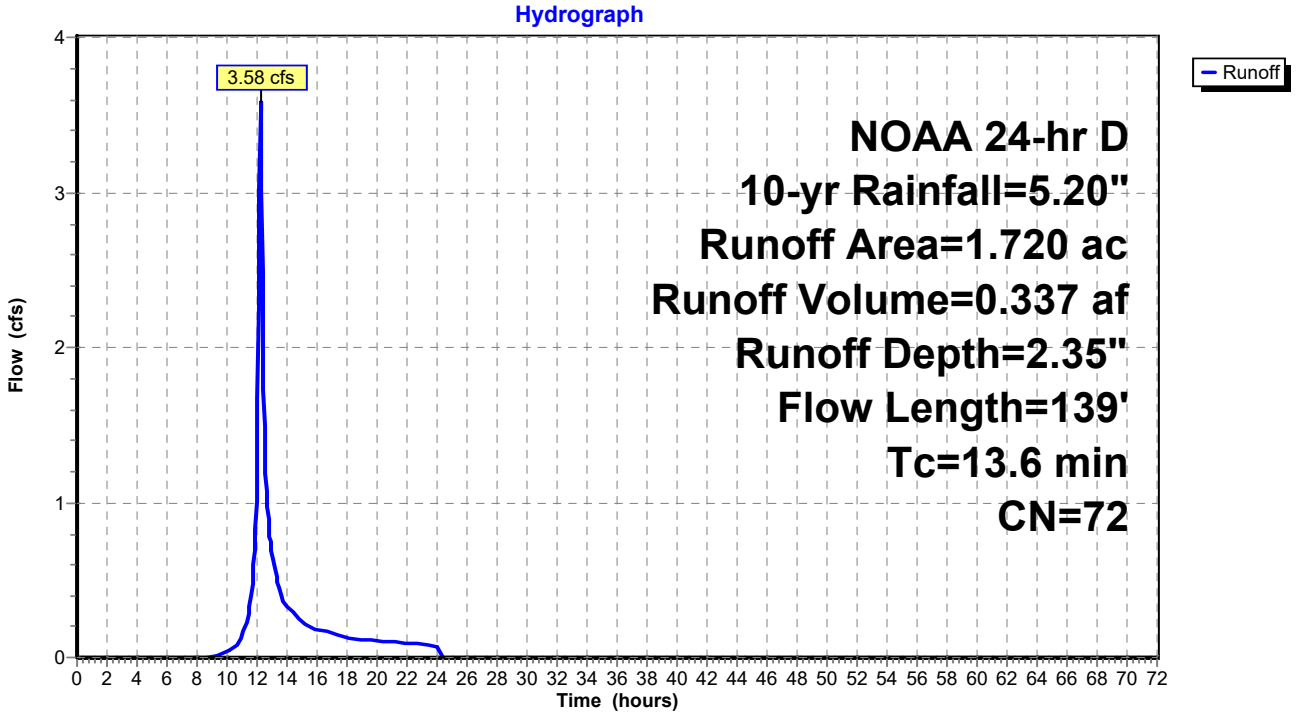
Runoff = 3.58 cfs @ 12.22 hrs, Volume= 0.337 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.940	74	>75% Grass cover, Good, HSG C
0.780	70	Woods, Good, HSG C
1.720	72	Weighted Average
1.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	71	0.0210	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
6.2	23	0.0217	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.2	28	0.1450	1.90		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	17	1.0000	5.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.6	139	Total			

Subcatchment 9: Overland to Bloom-perv



Hydrograph for Subcatchment 9: Overland to Bloom-perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.02	0.04
11.00	1.35	0.07	0.14
12.00	2.49	0.52	**1.27**
13.00	3.85	1.35	**0.68**
14.00	4.17	1.58	0.33
15.00	4.38	1.73	0.23
16.00	4.53	1.84	0.18
17.00	4.65	1.93	0.16
18.00	4.76	2.01	0.13
19.00	4.84	2.08	0.11
20.00	4.93	2.14	0.11
21.00	5.00	2.20	0.10
22.00	5.08	2.26	0.09
23.00	5.14	2.31	0.09
24.00	**5.20**	**2.35**	0.08
25.00	5.20	2.35	0.00
26.00	5.20	2.35	0.00
27.00	5.20	2.35	0.00
28.00	5.20	2.35	0.00
29.00	5.20	2.35	0.00
30.00	5.20	2.35	0.00
31.00	5.20	2.35	0.00
32.00	5.20	2.35	0.00
33.00	5.20	2.35	0.00
34.00	5.20	2.35	0.00
35.00	5.20	2.35	0.00
36.00	5.20	2.35	0.00
37.00	5.20	2.35	0.00
38.00	5.20	2.35	0.00
39.00	5.20	2.35	0.00
40.00	5.20	2.35	0.00
41.00	5.20	2.35	0.00
42.00	5.20	2.35	0.00
43.00	5.20	2.35	0.00
44.00	5.20	2.35	0.00
45.00	5.20	2.35	0.00
46.00	5.20	2.35	0.00
47.00	5.20	2.35	0.00
48.00	5.20	2.35	0.00
49.00	5.20	2.35	0.00
50.00	5.20	2.35	0.00
51.00	5.20	2.35	0.00
52.00	5.20	2.35	0.00
53.00	5.20	2.35	0.00
54.00	5.20	2.35	0.00
55.00	5.20	2.35	0.00
56.00	5.20	2.35	0.00
57.00	5.20	2.35	0.00
58.00	5.20	2.35	0.00
59.00	5.20	2.35	0.00
60.00	5.20	2.35	0.00
61.00	5.20	2.35	0.00
62.00	5.20	2.35	0.00
63.00	5.20	2.35	0.00
64.00	5.20	2.35	0.00
65.00	5.20	2.35	0.00
66.00	5.20	2.35	0.00
67.00	5.20	2.35	0.00
68.00	5.20	2.35	0.00
69.00	5.20	2.35	0.00
70.00	5.20	2.35	0.00
71.00	5.20	2.35	0.00
72.00	5.20	2.35	0.00

Summary for Subcatchment 11: Parkhurst-Perv

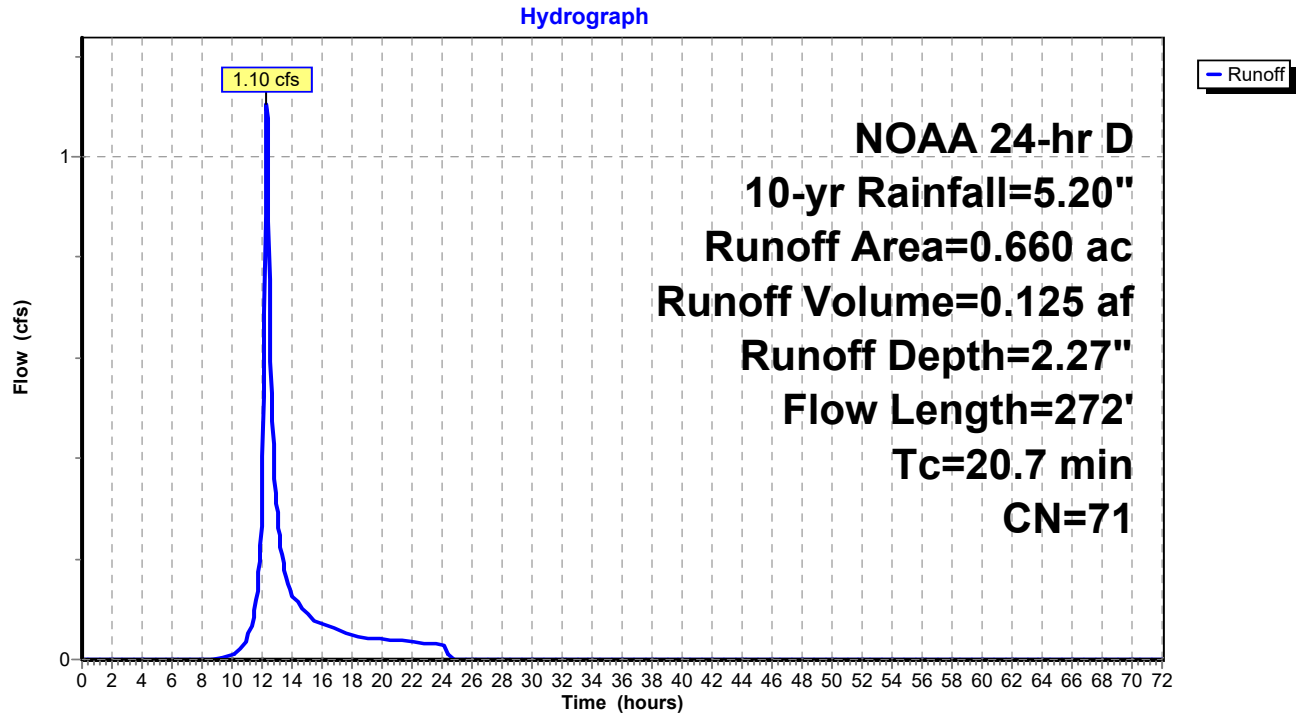
Runoff = 1.10 cfs @ 12.31 hrs, Volume= 0.125 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.160	74	>75% Grass cover, Good, HSG C
0.500	70	Woods, Good, HSG C
0.660	71	Weighted Average
0.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.6	53	0.0755	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	52	0.3462	2.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	67	0.1045	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.7	272	Total			

Subcatchment 11: Parkhurst-Perv



Hydrograph for Subcatchment 11: Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.01	0.01
11.00	1.35	0.06	0.04
12.00	2.49	0.49	**0.32**
13.00	3.85	1.29	**0.29**
14.00	4.17	1.51	0.13
15.00	4.38	1.66	0.09
16.00	4.53	1.76	0.07
17.00	4.65	1.86	0.06
18.00	4.76	1.93	0.05
19.00	4.84	2.00	0.04
20.00	4.93	2.06	0.04
21.00	5.00	2.12	0.04
22.00	5.08	2.17	0.04
23.00	5.14	2.22	0.03
24.00	**5.20**	**2.27**	0.03
25.00	5.20	2.27	0.00
26.00	5.20	2.27	0.00
27.00	5.20	2.27	0.00
28.00	5.20	2.27	0.00
29.00	5.20	2.27	0.00
30.00	5.20	2.27	0.00
31.00	5.20	2.27	0.00
32.00	5.20	2.27	0.00
33.00	5.20	2.27	0.00
34.00	5.20	2.27	0.00
35.00	5.20	2.27	0.00
36.00	5.20	2.27	0.00
37.00	5.20	2.27	0.00
38.00	5.20	2.27	0.00
39.00	5.20	2.27	0.00
40.00	5.20	2.27	0.00
41.00	5.20	2.27	0.00
42.00	5.20	2.27	0.00
43.00	5.20	2.27	0.00
44.00	5.20	2.27	0.00
45.00	5.20	2.27	0.00
46.00	5.20	2.27	0.00
47.00	5.20	2.27	0.00
48.00	5.20	2.27	0.00
49.00	5.20	2.27	0.00
50.00	5.20	2.27	0.00
51.00	5.20	2.27	0.00
52.00	5.20	2.27	0.00
53.00	5.20	2.27	0.00
54.00	5.20	2.27	0.00
55.00	5.20	2.27	0.00
56.00	5.20	2.27	0.00
57.00	5.20	2.27	0.00
58.00	5.20	2.27	0.00
59.00	5.20	2.27	0.00
60.00	5.20	2.27	0.00
61.00	5.20	2.27	0.00
62.00	5.20	2.27	0.00
63.00	5.20	2.27	0.00
64.00	5.20	2.27	0.00
65.00	5.20	2.27	0.00
66.00	5.20	2.27	0.00
67.00	5.20	2.27	0.00
68.00	5.20	2.27	0.00
69.00	5.20	2.27	0.00
70.00	5.20	2.27	0.00
71.00	5.20	2.27	0.00
72.00	5.20	2.27	0.00

Summary for Subcatchment 12: Off-Site Parkhurst-Perv

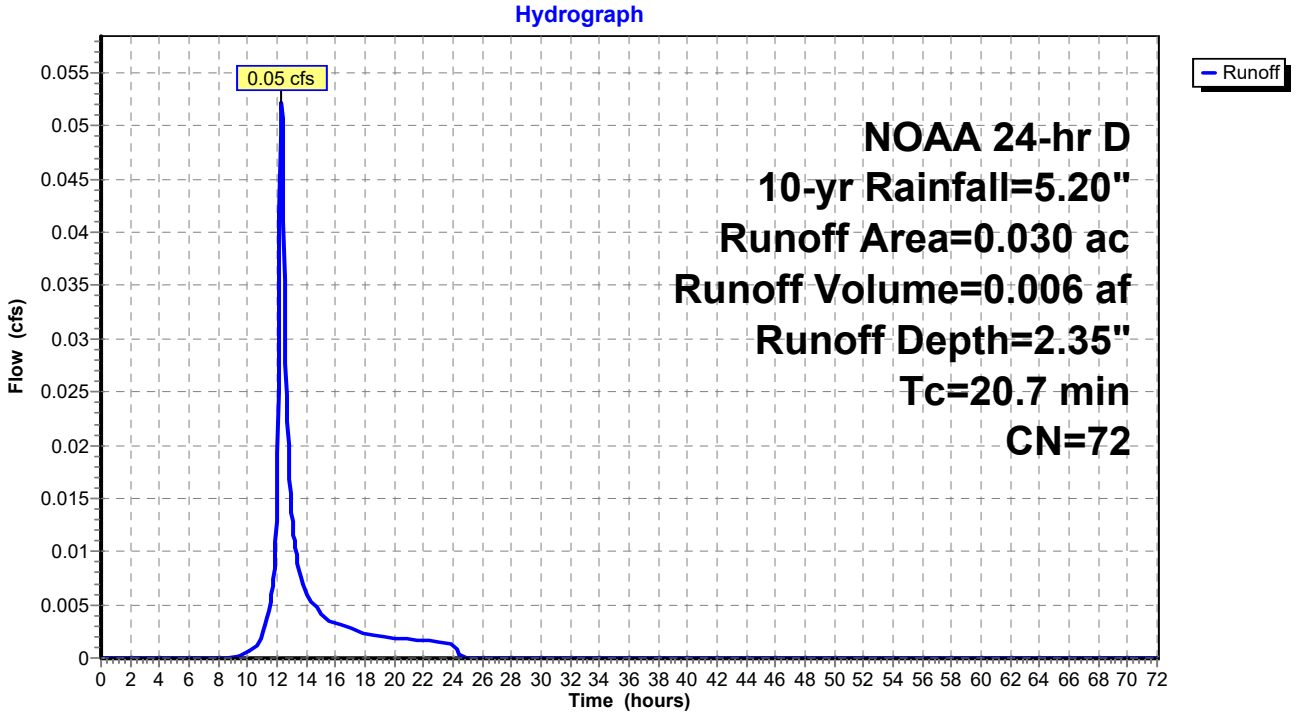
Runoff = 0.05 cfs @ 12.31 hrs, Volume= 0.006 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.030	72	Woods/grass comb., Good, HSG C
0.030		100.00% Pervious Area

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

Subcatchment 12: Off-Site Parkhurst-Perv



Hydrograph for Subcatchment 12: Off-Site Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.02	0.00
11.00	1.35	0.07	0.00
12.00	2.49	0.52	**0.02**
13.00	3.85	1.35	**0.01**
14.00	4.17	1.58	0.01
15.00	4.38	1.73	0.00
16.00	4.53	1.84	0.00
17.00	4.65	1.93	0.00
18.00	4.76	2.01	0.00
19.00	4.84	2.08	0.00
20.00	4.93	2.14	0.00
21.00	5.00	2.20	0.00
22.00	5.08	2.26	0.00
23.00	5.14	2.31	0.00
24.00	**5.20**	**2.35**	0.00
25.00	5.20	2.35	0.00
26.00	5.20	2.35	0.00
27.00	5.20	2.35	0.00
28.00	5.20	2.35	0.00
29.00	5.20	2.35	0.00
30.00	5.20	2.35	0.00
31.00	5.20	2.35	0.00
32.00	5.20	2.35	0.00
33.00	5.20	2.35	0.00
34.00	5.20	2.35	0.00
35.00	5.20	2.35	0.00
36.00	5.20	2.35	0.00
37.00	5.20	2.35	0.00
38.00	5.20	2.35	0.00
39.00	5.20	2.35	0.00
40.00	5.20	2.35	0.00
41.00	5.20	2.35	0.00
42.00	5.20	2.35	0.00
43.00	5.20	2.35	0.00
44.00	5.20	2.35	0.00
45.00	5.20	2.35	0.00
46.00	5.20	2.35	0.00
47.00	5.20	2.35	0.00
48.00	5.20	2.35	0.00
49.00	5.20	2.35	0.00
50.00	5.20	2.35	0.00
51.00	5.20	2.35	0.00
52.00	5.20	2.35	0.00
53.00	5.20	2.35	0.00
54.00	5.20	2.35	0.00
55.00	5.20	2.35	0.00
56.00	5.20	2.35	0.00
57.00	5.20	2.35	0.00
58.00	5.20	2.35	0.00
59.00	5.20	2.35	0.00
60.00	5.20	2.35	0.00
61.00	5.20	2.35	0.00
62.00	5.20	2.35	0.00
63.00	5.20	2.35	0.00
64.00	5.20	2.35	0.00
65.00	5.20	2.35	0.00
66.00	5.20	2.35	0.00
67.00	5.20	2.35	0.00
68.00	5.20	2.35	0.00
69.00	5.20	2.35	0.00
70.00	5.20	2.35	0.00
71.00	5.20	2.35	0.00
72.00	5.20	2.35	0.00

Summary for Subcatchment 13: Parkhurst-Imperv

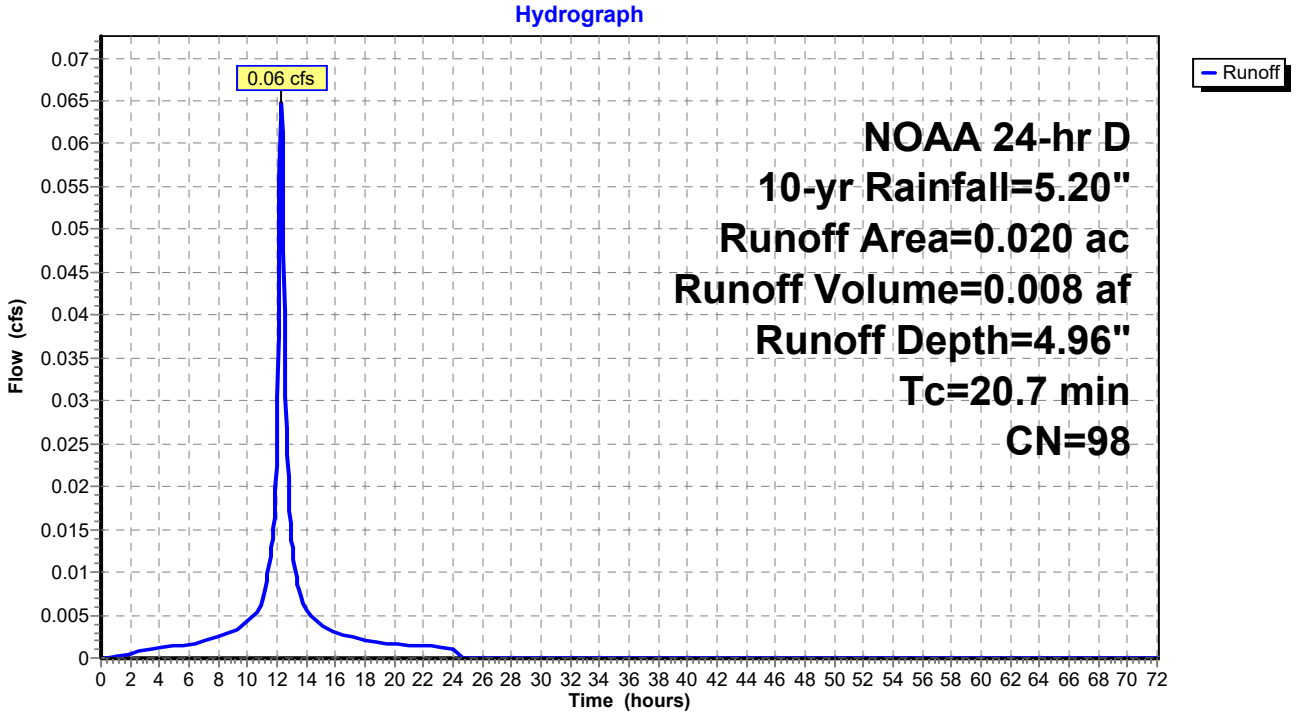
Runoff = 0.06 cfs @ 12.29 hrs, Volume= 0.008 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.020	98	Paved parking, HSG C
0.020		100.00% Impervious Area

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

Subcatchment 13: Parkhurst-Imperv



Hydrograph for Subcatchment 13: Parkhurst-Imperv

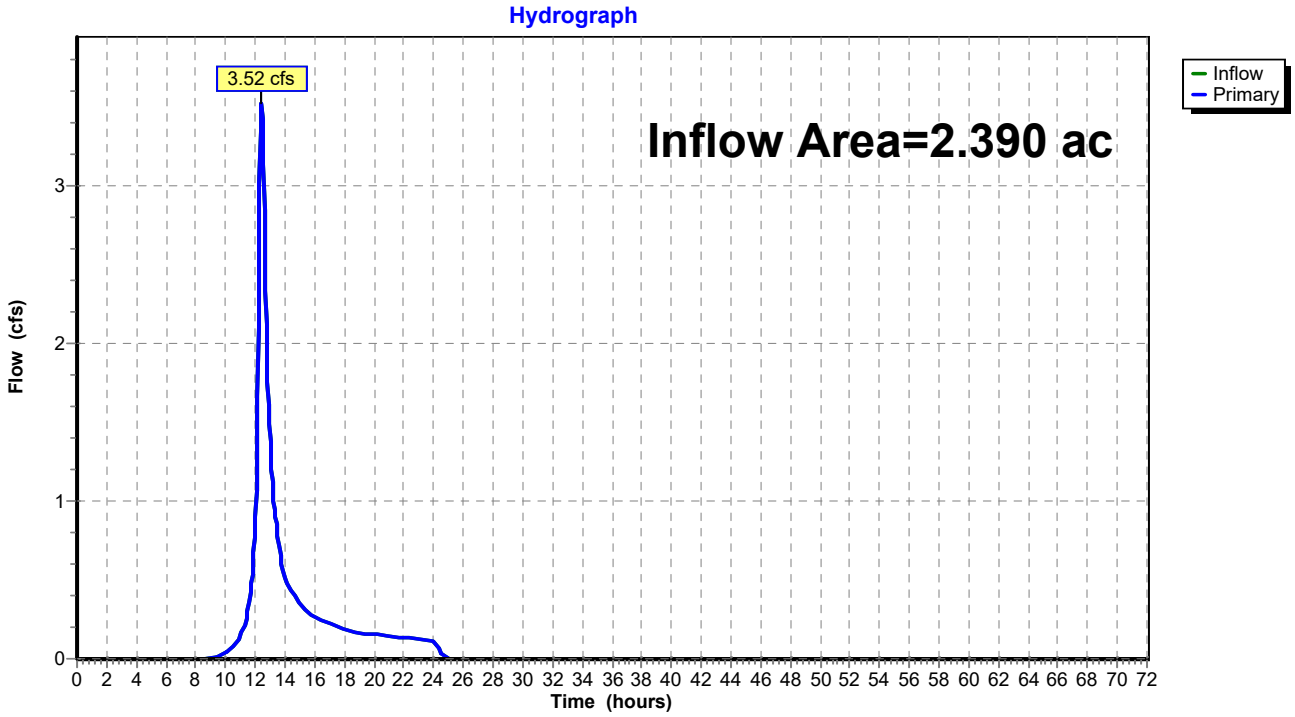
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.00
3.00	0.20	0.07	0.00
4.00	0.27	0.12	0.00
5.00	0.36	0.19	0.00
6.00	0.44	0.27	0.00
7.00	0.55	0.36	0.00
8.00	0.67	0.48	0.00
9.00	0.82	0.62	0.00
10.00	1.03	0.82	0.00
11.00	1.35	1.13	0.01
12.00	2.49	2.26	**0.03**
13.00	3.85	3.61	**0.01**
14.00	4.17	3.93	0.01
15.00	4.38	4.14	0.00
16.00	4.53	4.29	0.00
17.00	4.65	4.42	0.00
18.00	4.76	4.52	0.00
19.00	4.84	4.61	0.00
20.00	4.93	4.69	0.00
21.00	5.00	4.77	0.00
22.00	5.08	4.84	0.00
23.00	5.14	4.90	0.00
24.00	**5.20**	**4.96**	0.00
25.00	5.20	4.96	0.00
26.00	5.20	4.96	0.00
27.00	5.20	4.96	0.00
28.00	5.20	4.96	0.00
29.00	5.20	4.96	0.00
30.00	5.20	4.96	0.00
31.00	5.20	4.96	0.00
32.00	5.20	4.96	0.00
33.00	5.20	4.96	0.00
34.00	5.20	4.96	0.00
35.00	5.20	4.96	0.00
36.00	5.20	4.96	0.00
37.00	5.20	4.96	0.00
38.00	5.20	4.96	0.00
39.00	5.20	4.96	0.00
40.00	5.20	4.96	0.00
41.00	5.20	4.96	0.00
42.00	5.20	4.96	0.00
43.00	5.20	4.96	0.00
44.00	5.20	4.96	0.00
45.00	5.20	4.96	0.00
46.00	5.20	4.96	0.00
47.00	5.20	4.96	0.00
48.00	5.20	4.96	0.00
49.00	5.20	4.96	0.00
50.00	5.20	4.96	0.00
51.00	5.20	4.96	0.00
52.00	5.20	4.96	0.00
53.00	5.20	4.96	0.00
54.00	5.20	4.96	0.00
55.00	5.20	4.96	0.00
56.00	5.20	4.96	0.00
57.00	5.20	4.96	0.00
58.00	5.20	4.96	0.00
59.00	5.20	4.96	0.00
60.00	5.20	4.96	0.00
61.00	5.20	4.96	0.00
62.00	5.20	4.96	0.00
63.00	5.20	4.96	0.00
64.00	5.20	4.96	0.00
65.00	5.20	4.96	0.00
66.00	5.20	4.96	0.00
67.00	5.20	4.96	0.00
68.00	5.20	4.96	0.00
69.00	5.20	4.96	0.00
70.00	5.20	4.96	0.00
71.00	5.20	4.96	0.00
72.00	5.20	4.96	0.00

Summary for Pond 4: Ex. DA-1 Area to Afterglow

Inflow Area = 2.390 ac, 0.42% Impervious, Inflow Depth = 2.36" for 10-yr event
Inflow = 3.52 cfs @ 12.42 hrs, Volume= 0.471 af
Primary = 3.52 cfs @ 12.42 hrs, Volume= 0.471 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 4: Ex. DA-1 Area to Afterglow



Hydrograph for Pond 4: Ex. DA-1 Area to Afterglow

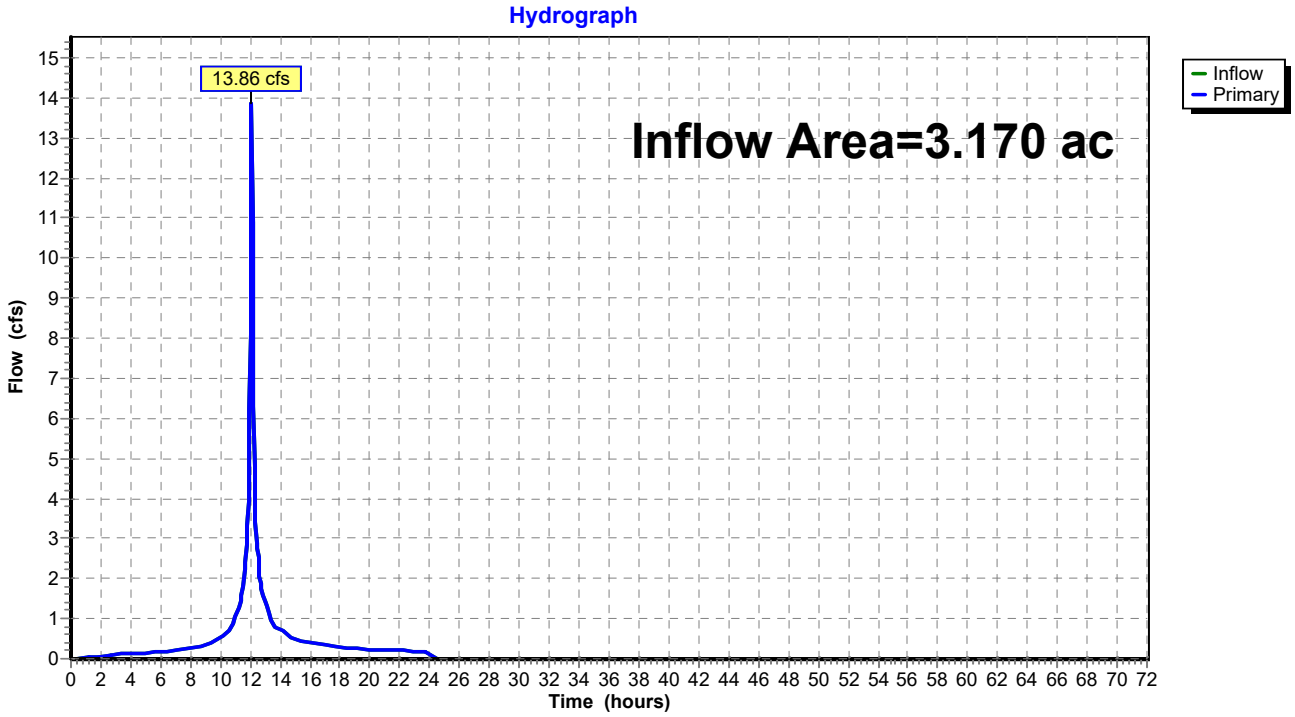
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.04		0.04
11.00	0.15		0.15
12.00	**0.90**		**0.90**
13.00	**1.38**		**1.38**
14.00	0.51		0.51
15.00	0.35		0.35
16.00	0.27		0.27
17.00	0.23		0.23
18.00	0.19		0.19
19.00	0.16		0.16
20.00	0.15		0.15
21.00	0.14		0.14
22.00	0.13		0.13
23.00	0.12		0.12
24.00	0.11		0.11
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 7: Ex. DA-2 On-Site Piping to Sunset-Bloomfield

Inflow Area = 3.170 ac, 65.30% Impervious, Inflow Depth = 4.06" for 10-yr event
Inflow = 13.86 cfs @ 12.10 hrs, Volume= 1.072 af
Primary = 13.86 cfs @ 12.10 hrs, Volume= 1.072 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 7: Ex. DA-2 On-Site Piping to Sunset-Bloomfield



Hydrograph for Pond 7: Ex. DA-2 On-Site Piping to Sunset-Bloomfield

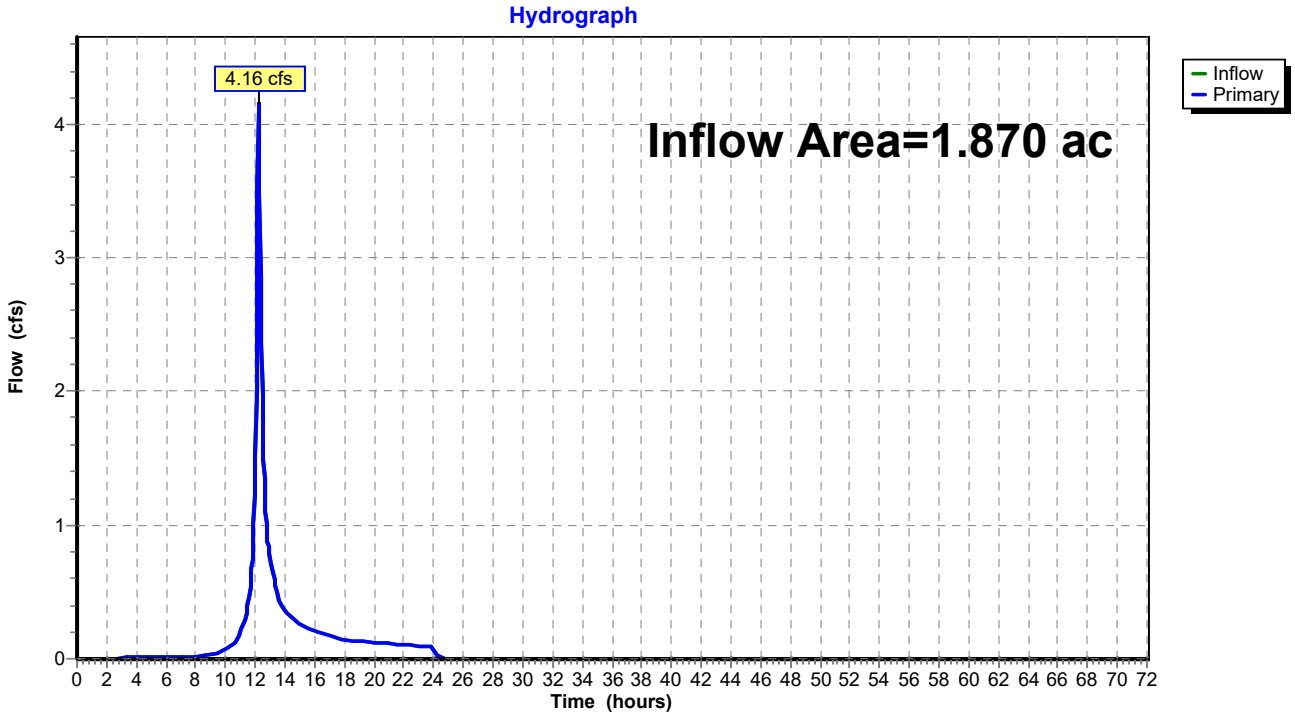
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.02		0.02
2.00	0.07		0.07
3.00	0.10		0.10
4.00	0.13		0.13
5.00	0.15		0.15
6.00	0.17		0.17
7.00	0.22		0.22
8.00	0.27		0.27
9.00	0.32		0.32
10.00	0.52		0.52
11.00	0.99		0.99
12.00	**8.10**		**8.10**
13.00	**1.40**		**1.40**
14.00	0.72		0.72
15.00	0.49		0.49
16.00	0.41		0.41
17.00	0.34		0.34
18.00	0.27		0.27
19.00	0.25		0.25
20.00	0.24		0.24
21.00	0.22		0.22
22.00	0.20		0.20
23.00	0.18		0.18
24.00	0.17		0.17
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 10: Ex. DA-3 Overland to Bloomfield

Inflow Area = 1.870 ac, 8.02% Impervious, Inflow Depth = 2.56" for 10-yr event
Inflow = 4.16 cfs @ 12.22 hrs, Volume= 0.399 af
Primary = 4.16 cfs @ 12.22 hrs, Volume= 0.399 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 10: Ex. DA-3 Overland to Bloomfield



Hydrograph for Pond 10: Ex. DA-3 Overland to Bloomfield

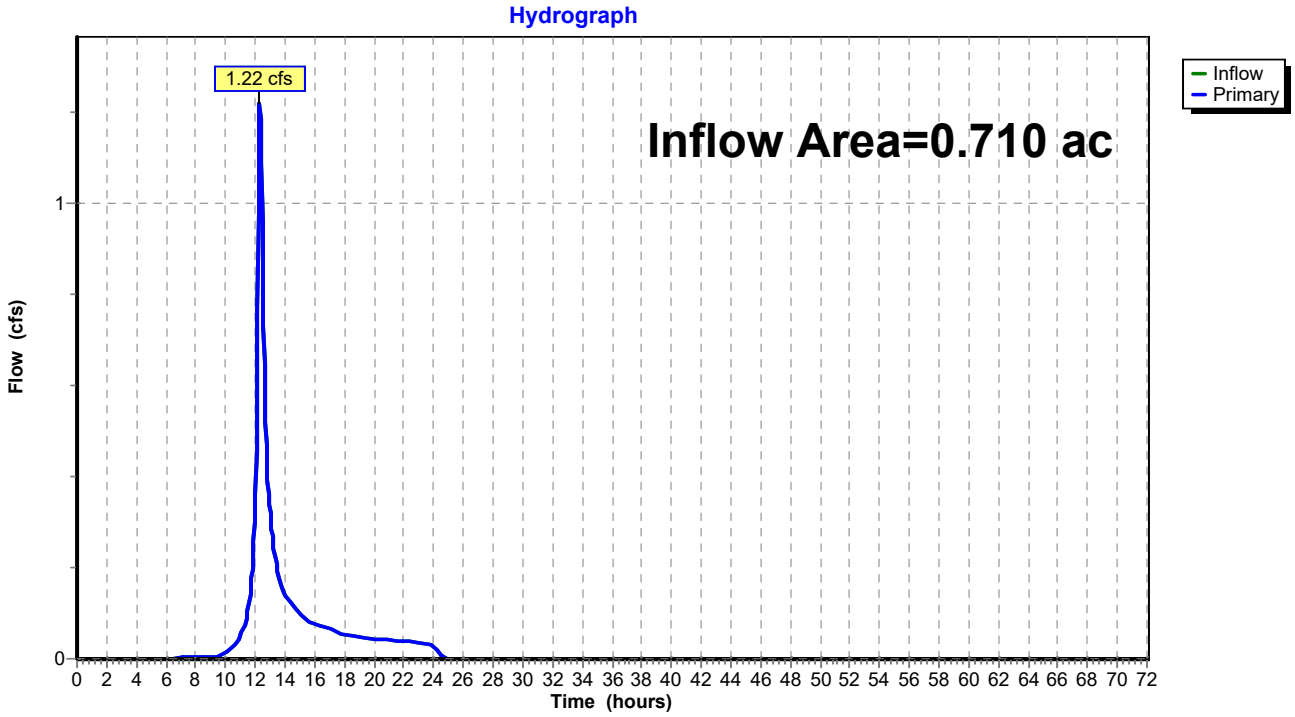
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.01		0.01
4.00	0.01		0.01
5.00	0.01		0.01
6.00	0.01		0.01
7.00	0.02		0.02
8.00	0.02		0.02
9.00	0.02		0.02
10.00	0.07		0.07
11.00	0.20		0.20
12.00	**1.52**		**1.52**
13.00	**0.76**		**0.76**
14.00	0.37		0.37
15.00	0.26		0.26
16.00	0.21		0.21
17.00	0.17		0.17
18.00	0.14		0.14
19.00	0.13		0.13
20.00	0.12		0.12
21.00	0.11		0.11
22.00	0.10		0.10
23.00	0.10		0.10
24.00	0.09		0.09
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 14: Ex. Da-4 Area to Parkhurst

Inflow Area = 0.710 ac, 2.82% Impervious, Inflow Depth = 2.35" for 10-yr event
Inflow = 1.22 cfs @ 12.31 hrs, Volume= 0.139 af
Primary = 1.22 cfs @ 12.31 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 14: Ex. Da-4 Area to Parkhurst



Hydrograph for Pond 14: Ex. Da-4 Area to Parkhurst

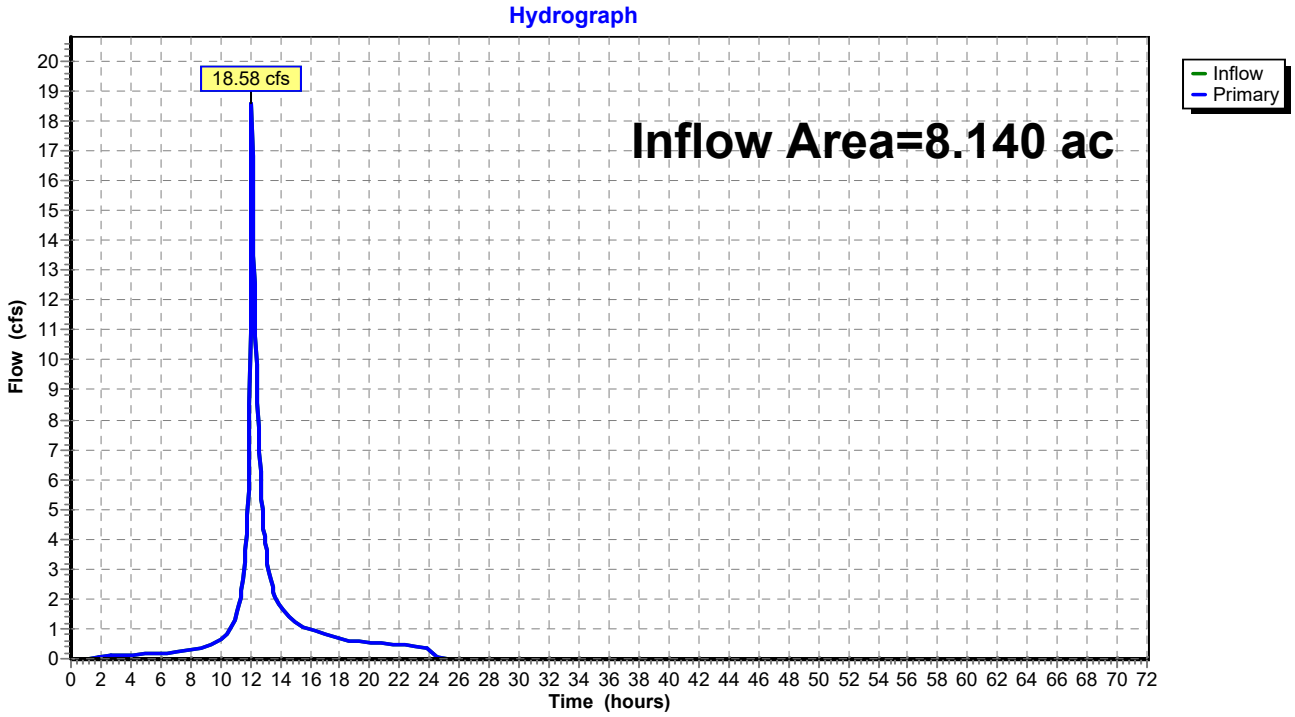
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.01		0.01
11.00	0.05		0.05
12.00	**0.36**		**0.36**
13.00	**0.32**		**0.32**
14.00	0.14		0.14
15.00	0.10		0.10
16.00	0.08		0.08
17.00	0.07		0.07
18.00	0.05		0.05
19.00	0.05		0.05
20.00	0.04		0.04
21.00	0.04		0.04
22.00	0.04		0.04
23.00	0.04		0.04
24.00	0.03		0.03
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 15: Site Sum

Inflow Area = 8.140 ac, 27.64% Impervious, Inflow Depth = 3.07" for 10-yr event
Inflow = 18.58 cfs @ 12.11 hrs, Volume= 2.081 af
Primary = 18.58 cfs @ 12.11 hrs, Volume= 2.081 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 15: Site Sum



Hydrograph for Pond 15: Site Sum

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.02		0.02
2.00	0.07		0.07
3.00	0.11		0.11
4.00	0.14		0.14
5.00	0.16		0.16
6.00	0.18		0.18
7.00	0.24		0.24
8.00	0.29		0.29
9.00	0.35		0.35
10.00	0.65		0.65
11.00	1.39		1.39
12.00	**10.89**		**10.89**
13.00	**3.86**		**3.86**
14.00	1.74		1.74
15.00	1.20		1.20
16.00	0.95		0.95
17.00	0.81		0.81
18.00	0.66		0.66
19.00	0.59		0.59
20.00	0.55		0.55
21.00	0.51		0.51
22.00	0.48		0.48
23.00	0.44		0.44
24.00	0.40		0.40
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Subcatchment 1: Afterglow-Perv

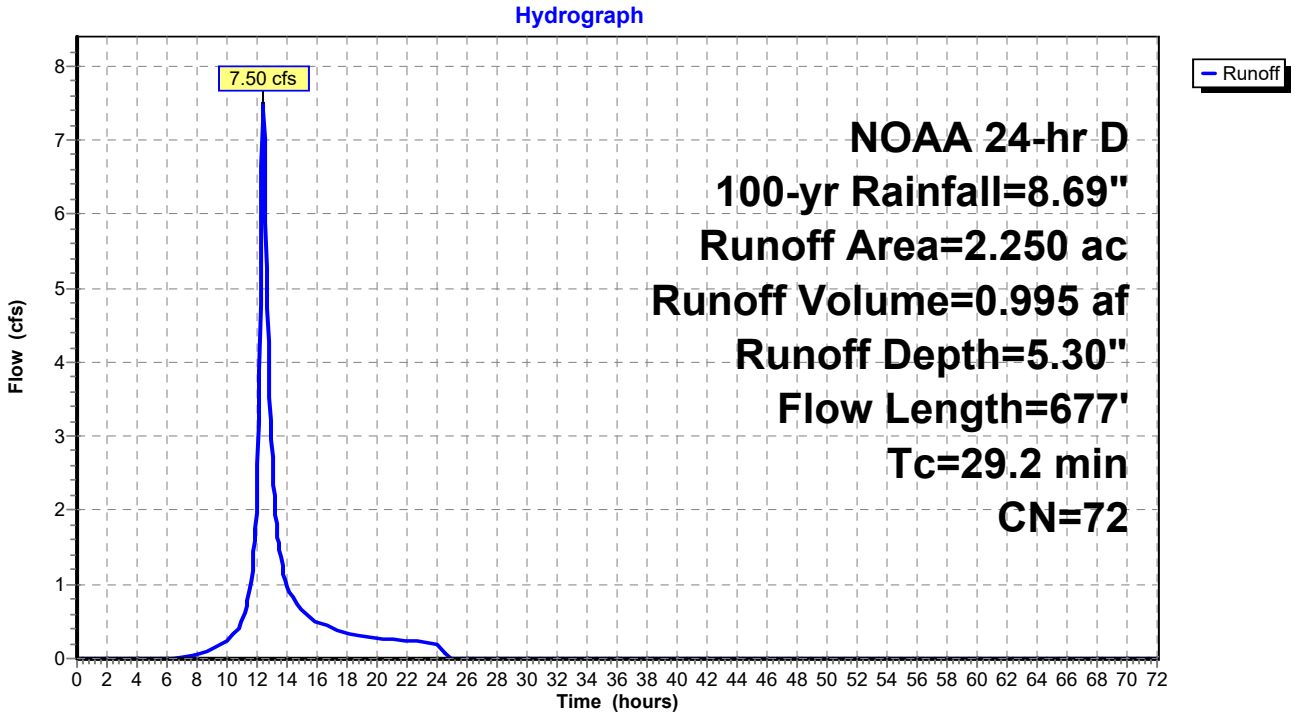
Runoff = 7.50 cfs @ 12.41 hrs, Volume= 0.995 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
2.250	72	Woods/grass comb., Good, HSG C
2.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.4	162	0.0741	1.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	40	0.0750	1.92		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	37	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	57	0.1930	3.08		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	52	0.1346	2.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.8	135	0.1481	2.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	94	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
29.2	677	Total			

Subcatchment 1: Afterglow-Perv



Hydrograph for Subcatchment 1: Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.00	0.01
8.00	1.13	0.03	0.06
9.00	1.38	0.08	0.12
10.00	1.72	0.18	0.24
11.00	2.26	0.41	0.52
12.00	4.16	1.58	**2.25**
13.00	6.43	3.35	**2.72**
14.00	6.97	3.80	0.97
15.00	7.31	4.10	0.66
16.00	7.56	4.31	0.49
17.00	7.77	4.50	0.42
18.00	7.95	4.65	0.34
19.00	8.10	4.78	0.29
20.00	8.23	4.90	0.28
21.00	8.36	5.01	0.26
22.00	8.48	5.12	0.24
23.00	8.59	5.22	0.22
24.00	**8.69**	**5.30**	0.20
25.00	8.69	5.30	0.00
26.00	8.69	5.30	0.00
27.00	8.69	5.30	0.00
28.00	8.69	5.30	0.00
29.00	8.69	5.30	0.00
30.00	8.69	5.30	0.00
31.00	8.69	5.30	0.00
32.00	8.69	5.30	0.00
33.00	8.69	5.30	0.00
34.00	8.69	5.30	0.00
35.00	8.69	5.30	0.00
36.00	8.69	5.30	0.00
37.00	8.69	5.30	0.00
38.00	8.69	5.30	0.00
39.00	8.69	5.30	0.00
40.00	8.69	5.30	0.00
41.00	8.69	5.30	0.00
42.00	8.69	5.30	0.00
43.00	8.69	5.30	0.00
44.00	8.69	5.30	0.00
45.00	8.69	5.30	0.00
46.00	8.69	5.30	0.00
47.00	8.69	5.30	0.00
48.00	8.69	5.30	0.00
49.00	8.69	5.30	0.00
50.00	8.69	5.30	0.00
51.00	8.69	5.30	0.00
52.00	8.69	5.30	0.00
53.00	8.69	5.30	0.00
54.00	8.69	5.30	0.00
55.00	8.69	5.30	0.00
56.00	8.69	5.30	0.00
57.00	8.69	5.30	0.00
58.00	8.69	5.30	0.00
59.00	8.69	5.30	0.00
60.00	8.69	5.30	0.00
61.00	8.69	5.30	0.00
62.00	8.69	5.30	0.00
63.00	8.69	5.30	0.00
64.00	8.69	5.30	0.00
65.00	8.69	5.30	0.00
66.00	8.69	5.30	0.00
67.00	8.69	5.30	0.00
68.00	8.69	5.30	0.00
69.00	8.69	5.30	0.00
70.00	8.69	5.30	0.00
71.00	8.69	5.30	0.00
72.00	8.69	5.30	0.00

Summary for Subcatchment 2: Afterglow-Imperv

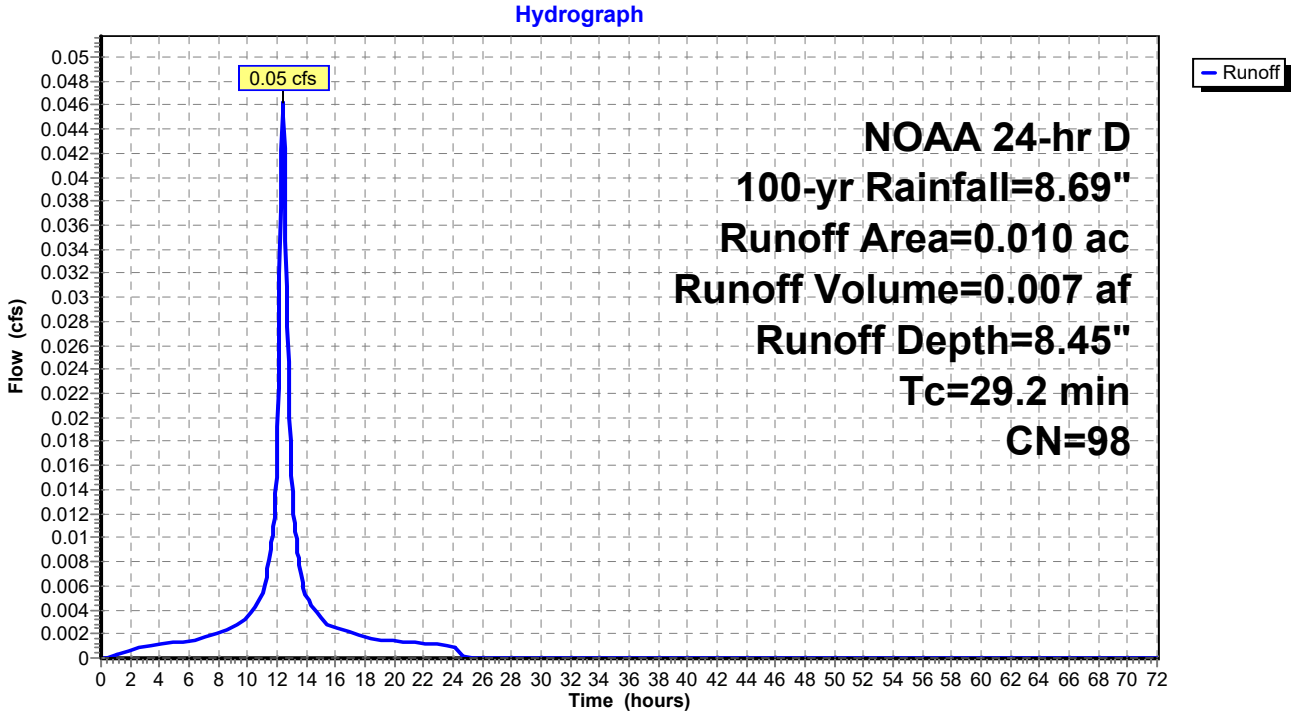
Runoff = 0.05 cfs @ 12.40 hrs, Volume= 0.007 af, Depth= 8.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.010	98	Paved parking, HSG C
0.010		100.00% Impervious Area

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

Subcatchment 2: Afterglow-Imperv



Hydrograph for Subcatchment 2: Afterglow-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.00
2.00	0.21	0.08	0.00
3.00	0.33	0.17	0.00
4.00	0.46	0.28	0.00
5.00	0.59	0.40	0.00
6.00	0.74	0.54	0.00
7.00	0.92	0.71	0.00
8.00	1.13	0.92	0.00
9.00	1.38	1.16	0.00
10.00	1.72	1.50	0.00
11.00	2.26	2.03	0.01
12.00	4.16	3.93	**0.02**
13.00	6.43	6.19	**0.02**
14.00	6.97	6.73	0.01
15.00	7.31	7.07	0.00
16.00	7.56	7.32	0.00
17.00	7.77	7.53	0.00
18.00	7.95	7.71	0.00
19.00	8.10	7.86	0.00
20.00	8.23	7.99	0.00
21.00	8.36	8.12	0.00
22.00	8.48	8.24	0.00
23.00	8.59	8.35	0.00
24.00	**8.69**	**8.45**	0.00
25.00	8.69	8.45	0.00
26.00	8.69	8.45	0.00
27.00	8.69	8.45	0.00
28.00	8.69	8.45	0.00
29.00	8.69	8.45	0.00
30.00	8.69	8.45	0.00
31.00	8.69	8.45	0.00
32.00	8.69	8.45	0.00
33.00	8.69	8.45	0.00
34.00	8.69	8.45	0.00
35.00	8.69	8.45	0.00
36.00	8.69	8.45	0.00
37.00	8.69	8.45	0.00
38.00	8.69	8.45	0.00
39.00	8.69	8.45	0.00
40.00	8.69	8.45	0.00
41.00	8.69	8.45	0.00
42.00	8.69	8.45	0.00
43.00	8.69	8.45	0.00
44.00	8.69	8.45	0.00
45.00	8.69	8.45	0.00
46.00	8.69	8.45	0.00
47.00	8.69	8.45	0.00
48.00	8.69	8.45	0.00
49.00	8.69	8.45	0.00
50.00	8.69	8.45	0.00
51.00	8.69	8.45	0.00
52.00	8.69	8.45	0.00
53.00	8.69	8.45	0.00
54.00	8.69	8.45	0.00
55.00	8.69	8.45	0.00
56.00	8.69	8.45	0.00
57.00	8.69	8.45	0.00
58.00	8.69	8.45	0.00
59.00	8.69	8.45	0.00
60.00	8.69	8.45	0.00
61.00	8.69	8.45	0.00
62.00	8.69	8.45	0.00
63.00	8.69	8.45	0.00
64.00	8.69	8.45	0.00
65.00	8.69	8.45	0.00
66.00	8.69	8.45	0.00
67.00	8.69	8.45	0.00
68.00	8.69	8.45	0.00
69.00	8.69	8.45	0.00
70.00	8.69	8.45	0.00
71.00	8.69	8.45	0.00
72.00	8.69	8.45	0.00

Summary for Subcatchment 3: Off-Site Afterglow-Perv

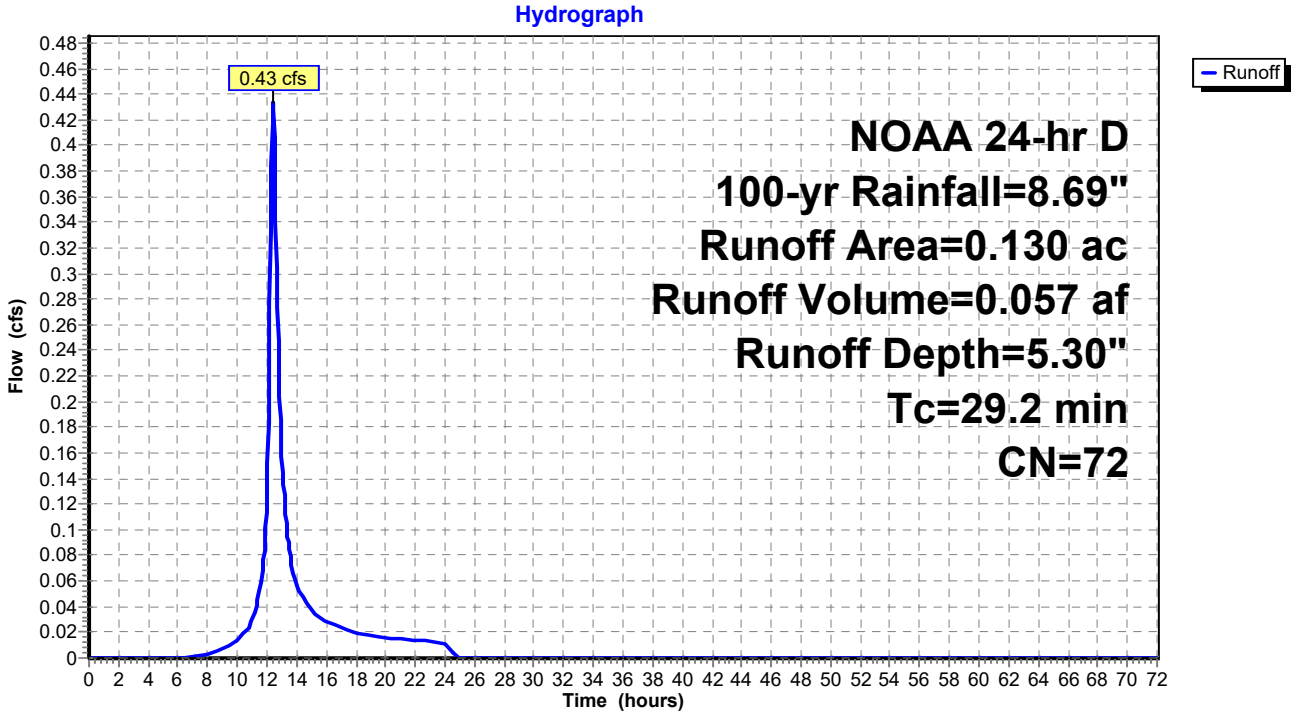
Runoff = 0.43 cfs @ 12.41 hrs, Volume= 0.057 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.130	72	Woods/grass comb., Good, HSG C
0.130		100.00% Pervious Area

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

Subcatchment 3: Off-Site Afterglow-Perv



Hydrograph for Subcatchment 3: Off-Site Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.00	0.00
8.00	1.13	0.03	0.00
9.00	1.38	0.08	0.01
10.00	1.72	0.18	0.01
11.00	2.26	0.41	0.03
12.00	4.16	1.58	**0.13**
13.00	6.43	3.35	**0.16**
14.00	6.97	3.80	0.06
15.00	7.31	4.10	0.04
16.00	7.56	4.31	0.03
17.00	7.77	4.50	0.02
18.00	7.95	4.65	0.02
19.00	8.10	4.78	0.02
20.00	8.23	4.90	0.02
21.00	8.36	5.01	0.01
22.00	8.48	5.12	0.01
23.00	8.59	5.22	0.01
24.00	**8.69**	**5.30**	0.01
25.00	8.69	5.30	0.00
26.00	8.69	5.30	0.00
27.00	8.69	5.30	0.00
28.00	8.69	5.30	0.00
29.00	8.69	5.30	0.00
30.00	8.69	5.30	0.00
31.00	8.69	5.30	0.00
32.00	8.69	5.30	0.00
33.00	8.69	5.30	0.00
34.00	8.69	5.30	0.00
35.00	8.69	5.30	0.00
36.00	8.69	5.30	0.00
37.00	8.69	5.30	0.00
38.00	8.69	5.30	0.00
39.00	8.69	5.30	0.00
40.00	8.69	5.30	0.00
41.00	8.69	5.30	0.00
42.00	8.69	5.30	0.00
43.00	8.69	5.30	0.00
44.00	8.69	5.30	0.00
45.00	8.69	5.30	0.00
46.00	8.69	5.30	0.00
47.00	8.69	5.30	0.00
48.00	8.69	5.30	0.00
49.00	8.69	5.30	0.00
50.00	8.69	5.30	0.00
51.00	8.69	5.30	0.00
52.00	8.69	5.30	0.00
53.00	8.69	5.30	0.00
54.00	8.69	5.30	0.00
55.00	8.69	5.30	0.00
56.00	8.69	5.30	0.00
57.00	8.69	5.30	0.00
58.00	8.69	5.30	0.00
59.00	8.69	5.30	0.00
60.00	8.69	5.30	0.00
61.00	8.69	5.30	0.00
62.00	8.69	5.30	0.00
63.00	8.69	5.30	0.00
64.00	8.69	5.30	0.00
65.00	8.69	5.30	0.00
66.00	8.69	5.30	0.00
67.00	8.69	5.30	0.00
68.00	8.69	5.30	0.00
69.00	8.69	5.30	0.00
70.00	8.69	5.30	0.00
71.00	8.69	5.30	0.00
72.00	8.69	5.30	0.00

Summary for Subcatchment 5: Sunset-Bloomfield-Imperv

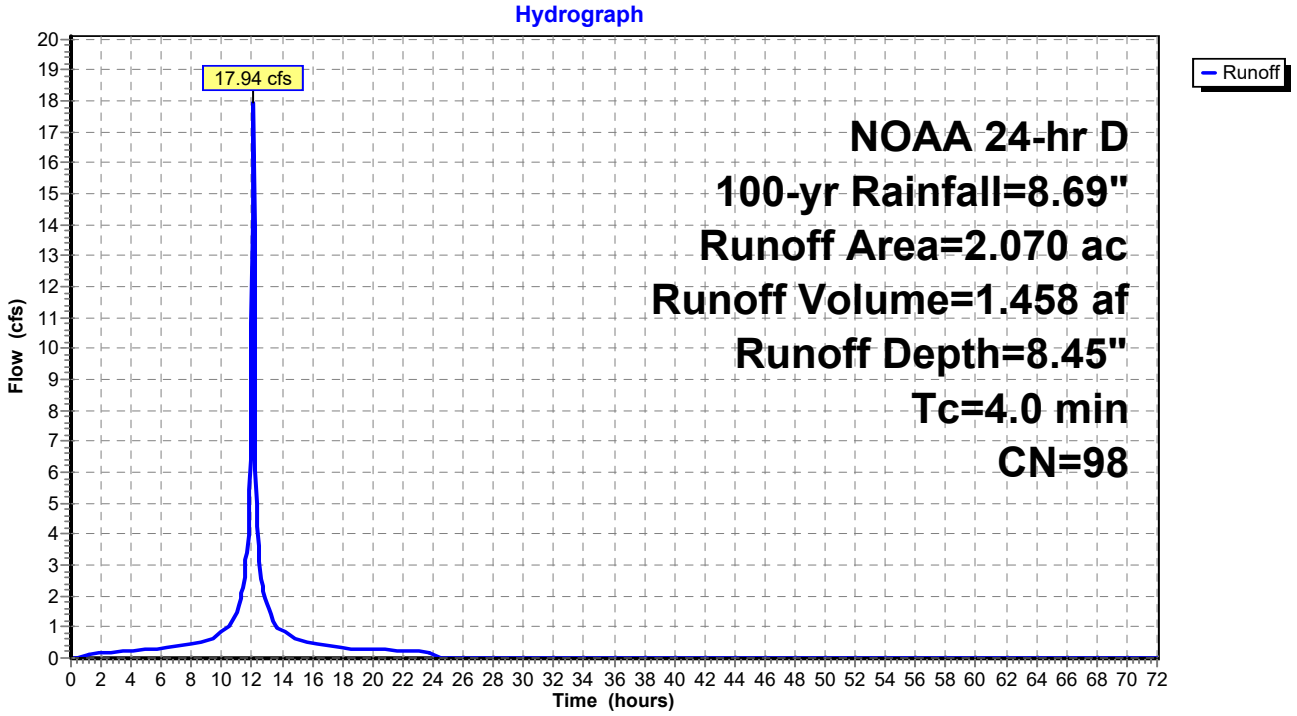
Runoff = 17.94 cfs @ 12.10 hrs, Volume= 1.458 af, Depth= 8.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
2.070	98	Paved parking, HSG C
2.070		100.00% Impervious Area

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

Subcatchment 5: Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 5: Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.08
2.00	0.21	0.08	0.16
3.00	0.33	0.17	0.21
4.00	0.46	0.28	0.25
5.00	0.59	0.40	0.28
6.00	0.74	0.54	0.30
7.00	0.92	0.71	0.38
8.00	1.13	0.92	0.47
9.00	1.38	1.16	0.55
10.00	1.72	1.50	0.83
11.00	2.26	2.03	1.49
12.00	4.16	3.93	**10.80**
13.00	6.43	6.19	**1.72**
14.00	6.97	6.73	0.88
15.00	7.31	7.07	0.59
16.00	7.56	7.32	0.49
17.00	7.77	7.53	0.41
18.00	7.95	7.71	0.33
19.00	8.10	7.86	0.30
20.00	8.23	7.99	0.28
21.00	8.36	8.12	0.26
22.00	8.48	8.24	0.24
23.00	8.59	8.35	0.22
24.00	**8.69**	**8.45**	0.20
25.00	8.69	8.45	0.00
26.00	8.69	8.45	0.00
27.00	8.69	8.45	0.00
28.00	8.69	8.45	0.00
29.00	8.69	8.45	0.00
30.00	8.69	8.45	0.00
31.00	8.69	8.45	0.00
32.00	8.69	8.45	0.00
33.00	8.69	8.45	0.00
34.00	8.69	8.45	0.00
35.00	8.69	8.45	0.00
36.00	8.69	8.45	0.00
37.00	8.69	8.45	0.00
38.00	8.69	8.45	0.00
39.00	8.69	8.45	0.00
40.00	8.69	8.45	0.00
41.00	8.69	8.45	0.00
42.00	8.69	8.45	0.00
43.00	8.69	8.45	0.00
44.00	8.69	8.45	0.00
45.00	8.69	8.45	0.00
46.00	8.69	8.45	0.00
47.00	8.69	8.45	0.00
48.00	8.69	8.45	0.00
49.00	8.69	8.45	0.00
50.00	8.69	8.45	0.00
51.00	8.69	8.45	0.00
52.00	8.69	8.45	0.00
53.00	8.69	8.45	0.00
54.00	8.69	8.45	0.00
55.00	8.69	8.45	0.00
56.00	8.69	8.45	0.00
57.00	8.69	8.45	0.00
58.00	8.69	8.45	0.00
59.00	8.69	8.45	0.00
60.00	8.69	8.45	0.00
61.00	8.69	8.45	0.00
62.00	8.69	8.45	0.00
63.00	8.69	8.45	0.00
64.00	8.69	8.45	0.00
65.00	8.69	8.45	0.00
66.00	8.69	8.45	0.00
67.00	8.69	8.45	0.00
68.00	8.69	8.45	0.00
69.00	8.69	8.45	0.00
70.00	8.69	8.45	0.00
71.00	8.69	8.45	0.00
72.00	8.69	8.45	0.00

Summary for Subcatchment 6: Sunset-Bloomfield-Perv

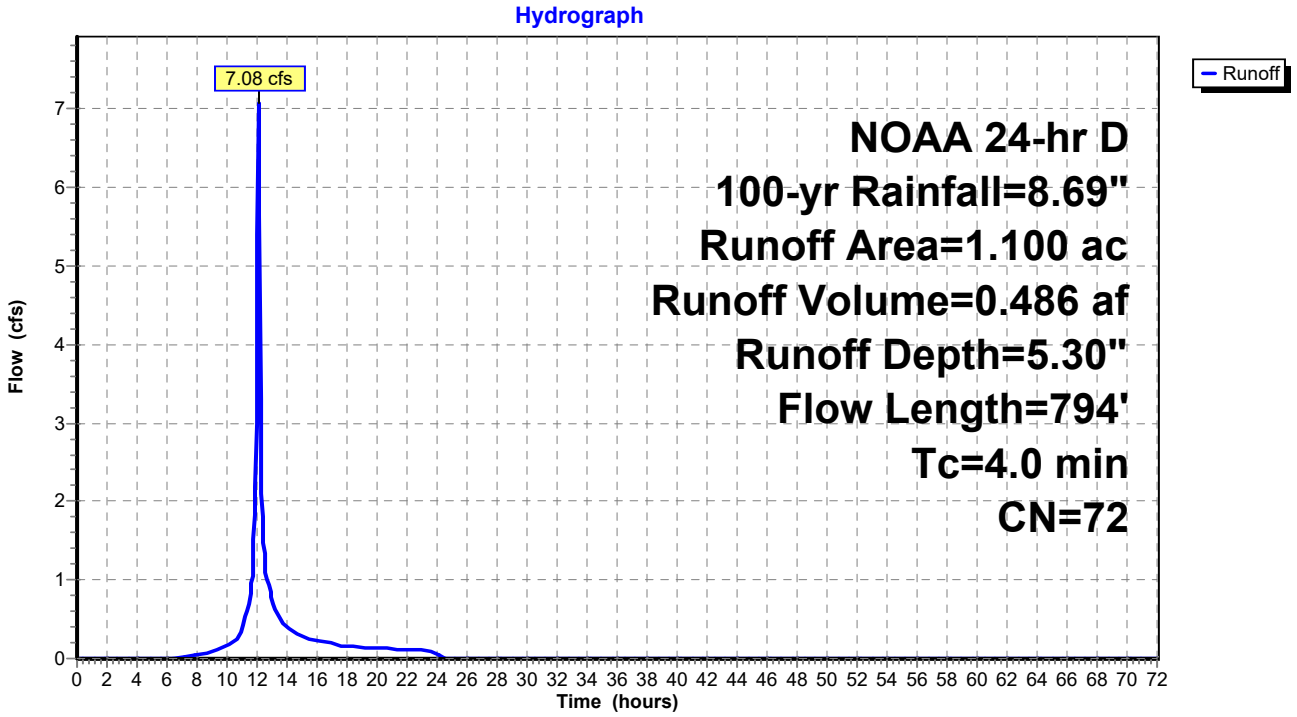
Runoff = 7.08 cfs @ 12.10 hrs, Volume= 0.486 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
1.100	72	Woods/grass comb., Good, HSG C
1.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	34	0.1470	0.31		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.6	66	0.0564	1.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.5	163	0.0598	4.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	140	0.0100	4.54	3.56	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.1	104	0.1050	14.70	11.54	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.1	91	0.0985	14.24	11.18	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.3	166	0.0565	10.78	8.47	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
0.1	30	0.0169	5.90	4.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay Pipe
4.0	794	Total			

Subcatchment 6: Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 6: Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.00	0.01
8.00	1.13	0.03	0.04
9.00	1.38	0.08	0.07
10.00	1.72	0.18	0.16
11.00	2.26	0.41	0.37
12.00	4.16	1.58	**3.96**
13.00	6.43	3.35	**0.76**
14.00	6.97	3.80	0.40
15.00	7.31	4.10	0.27
16.00	7.56	4.31	0.23
17.00	7.77	4.50	0.19
18.00	7.95	4.65	0.15
19.00	8.10	4.78	0.14
20.00	8.23	4.90	0.13
21.00	8.36	5.01	0.12
22.00	8.48	5.12	0.11
23.00	8.59	5.22	0.10
24.00	**8.69**	**5.30**	0.09
25.00	8.69	5.30	0.00
26.00	8.69	5.30	0.00
27.00	8.69	5.30	0.00
28.00	8.69	5.30	0.00
29.00	8.69	5.30	0.00
30.00	8.69	5.30	0.00
31.00	8.69	5.30	0.00
32.00	8.69	5.30	0.00
33.00	8.69	5.30	0.00
34.00	8.69	5.30	0.00
35.00	8.69	5.30	0.00
36.00	8.69	5.30	0.00
37.00	8.69	5.30	0.00
38.00	8.69	5.30	0.00
39.00	8.69	5.30	0.00
40.00	8.69	5.30	0.00
41.00	8.69	5.30	0.00
42.00	8.69	5.30	0.00
43.00	8.69	5.30	0.00
44.00	8.69	5.30	0.00
45.00	8.69	5.30	0.00
46.00	8.69	5.30	0.00
47.00	8.69	5.30	0.00
48.00	8.69	5.30	0.00
49.00	8.69	5.30	0.00
50.00	8.69	5.30	0.00
51.00	8.69	5.30	0.00
52.00	8.69	5.30	0.00
53.00	8.69	5.30	0.00
54.00	8.69	5.30	0.00
55.00	8.69	5.30	0.00
56.00	8.69	5.30	0.00
57.00	8.69	5.30	0.00
58.00	8.69	5.30	0.00
59.00	8.69	5.30	0.00
60.00	8.69	5.30	0.00
61.00	8.69	5.30	0.00
62.00	8.69	5.30	0.00
63.00	8.69	5.30	0.00
64.00	8.69	5.30	0.00
65.00	8.69	5.30	0.00
66.00	8.69	5.30	0.00
67.00	8.69	5.30	0.00
68.00	8.69	5.30	0.00
69.00	8.69	5.30	0.00
70.00	8.69	5.30	0.00
71.00	8.69	5.30	0.00
72.00	8.69	5.30	0.00

Summary for Subcatchment 8: Overland to Bloom-Imperv

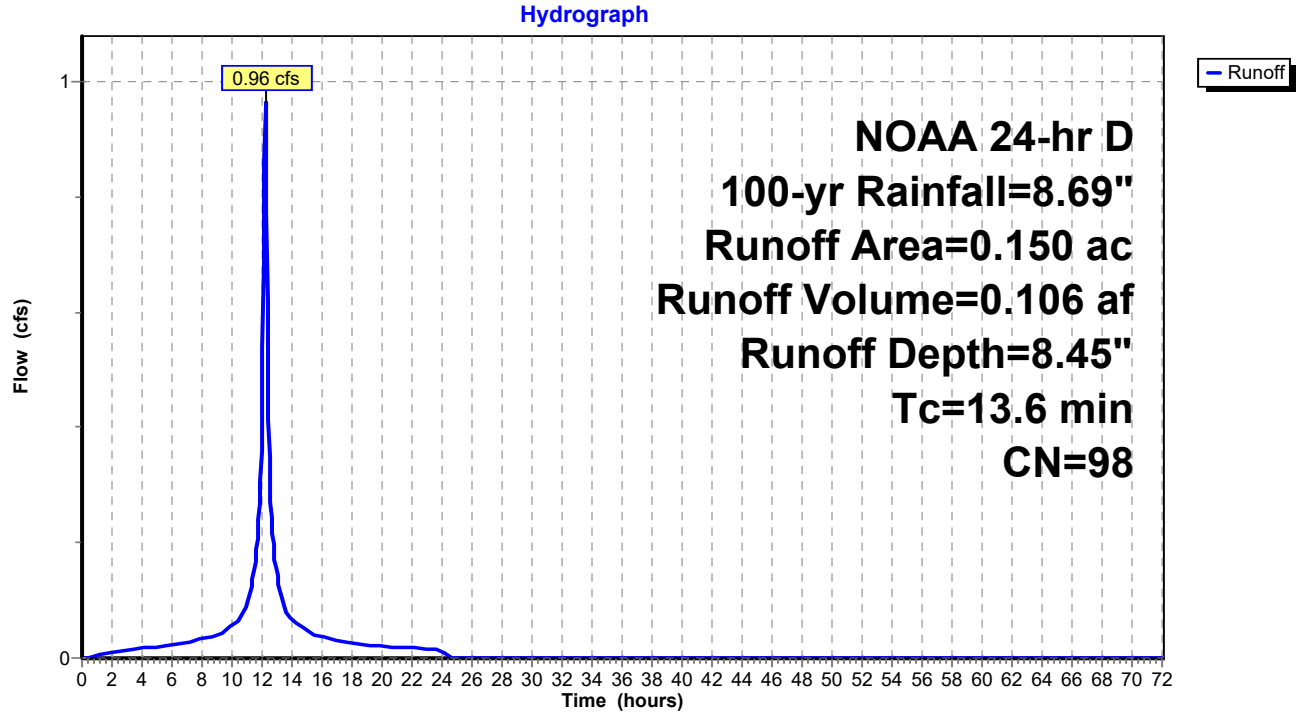
Runoff = 0.96 cfs @ 12.21 hrs, Volume= 0.106 af, Depth= 8.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG C
0.150		100.00% Impervious Area

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

Subcatchment 8: Overland to Bloom-Imperv



Hydrograph for Subcatchment 8: Overland to Bloom-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.00
2.00	0.21	0.08	0.01
3.00	0.33	0.17	0.01
4.00	0.46	0.28	0.02
5.00	0.59	0.40	0.02
6.00	0.74	0.54	0.02
7.00	0.92	0.71	0.03
8.00	1.13	0.92	0.03
9.00	1.38	1.16	0.04
10.00	1.72	1.50	0.06
11.00	2.26	2.03	0.10
12.00	4.16	3.93	**0.43**
13.00	6.43	6.19	**0.15**
14.00	6.97	6.73	0.07
15.00	7.31	7.07	0.05
16.00	7.56	7.32	0.04
17.00	7.77	7.53	0.03
18.00	7.95	7.71	0.02
19.00	8.10	7.86	0.02
20.00	8.23	7.99	0.02
21.00	8.36	8.12	0.02
22.00	8.48	8.24	0.02
23.00	8.59	8.35	0.02
24.00	**8.69**	**8.45**	0.01
25.00	8.69	8.45	0.00
26.00	8.69	8.45	0.00
27.00	8.69	8.45	0.00
28.00	8.69	8.45	0.00
29.00	8.69	8.45	0.00
30.00	8.69	8.45	0.00
31.00	8.69	8.45	0.00
32.00	8.69	8.45	0.00
33.00	8.69	8.45	0.00
34.00	8.69	8.45	0.00
35.00	8.69	8.45	0.00
36.00	8.69	8.45	0.00
37.00	8.69	8.45	0.00
38.00	8.69	8.45	0.00
39.00	8.69	8.45	0.00
40.00	8.69	8.45	0.00
41.00	8.69	8.45	0.00
42.00	8.69	8.45	0.00
43.00	8.69	8.45	0.00
44.00	8.69	8.45	0.00
45.00	8.69	8.45	0.00
46.00	8.69	8.45	0.00
47.00	8.69	8.45	0.00
48.00	8.69	8.45	0.00
49.00	8.69	8.45	0.00
50.00	8.69	8.45	0.00
51.00	8.69	8.45	0.00
52.00	8.69	8.45	0.00
53.00	8.69	8.45	0.00
54.00	8.69	8.45	0.00
55.00	8.69	8.45	0.00
56.00	8.69	8.45	0.00
57.00	8.69	8.45	0.00
58.00	8.69	8.45	0.00
59.00	8.69	8.45	0.00
60.00	8.69	8.45	0.00
61.00	8.69	8.45	0.00
62.00	8.69	8.45	0.00
63.00	8.69	8.45	0.00
64.00	8.69	8.45	0.00
65.00	8.69	8.45	0.00
66.00	8.69	8.45	0.00
67.00	8.69	8.45	0.00
68.00	8.69	8.45	0.00
69.00	8.69	8.45	0.00
70.00	8.69	8.45	0.00
71.00	8.69	8.45	0.00
72.00	8.69	8.45	0.00

Summary for Subcatchment 9: Overland to Bloom-perv

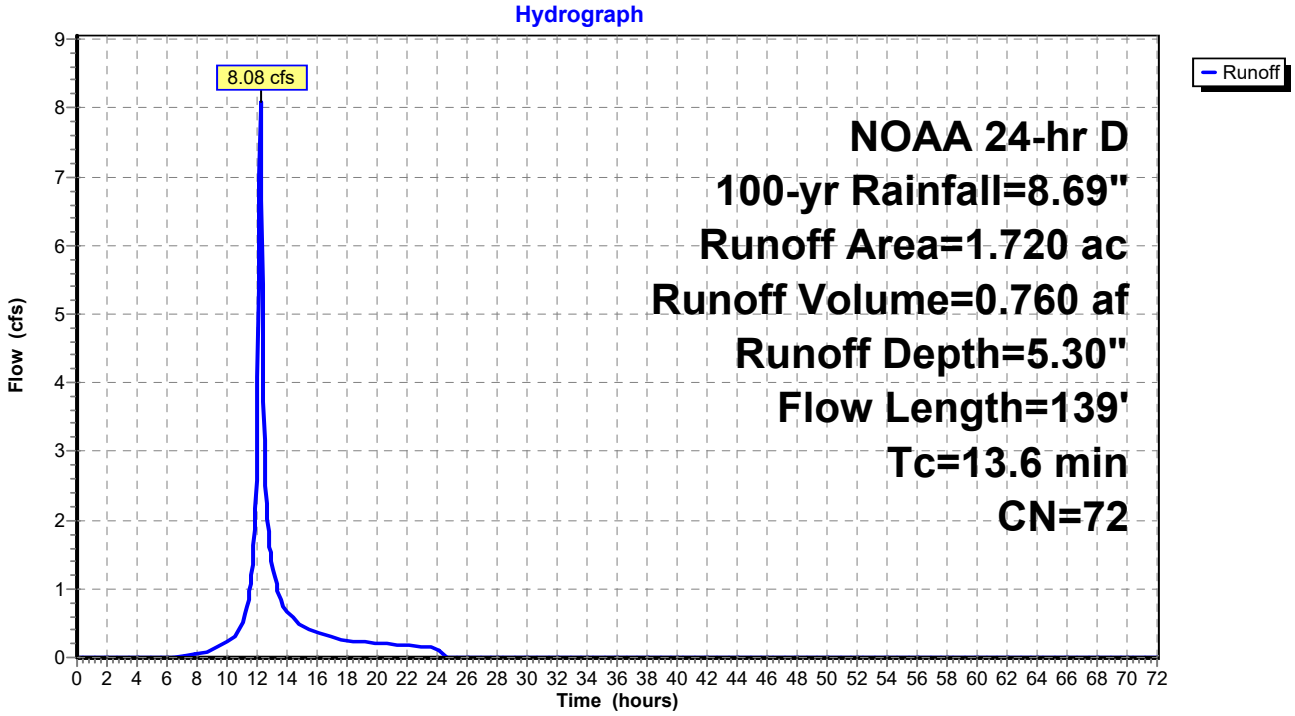
Runoff = 8.08 cfs @ 12.22 hrs, Volume= 0.760 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.940	74	>75% Grass cover, Good, HSG C
0.780	70	Woods, Good, HSG C
1.720	72	Weighted Average
1.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	71	0.0210	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
6.2	23	0.0217	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.2	28	0.1450	1.90		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	17	1.0000	5.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.6	139	Total			

Subcatchment 9: Overland to Bloom-perv



Hydrograph for Subcatchment 9: Overland to Bloom-perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.00	0.02
8.00	1.13	0.03	0.05
9.00	1.38	0.08	0.10
10.00	1.72	0.18	0.22
11.00	2.26	0.41	0.50
12.00	4.16	1.58	**3.18**
13.00	6.43	3.35	**1.38**
14.00	6.97	3.80	0.65
15.00	7.31	4.10	0.45
16.00	7.56	4.31	0.36
17.00	7.77	4.50	0.30
18.00	7.95	4.65	0.25
19.00	8.10	4.78	0.22
20.00	8.23	4.90	0.21
21.00	8.36	5.01	0.19
22.00	8.48	5.12	0.18
23.00	8.59	5.22	0.16
24.00	**8.69**	**5.30**	0.15
25.00	8.69	5.30	0.00
26.00	8.69	5.30	0.00
27.00	8.69	5.30	0.00
28.00	8.69	5.30	0.00
29.00	8.69	5.30	0.00
30.00	8.69	5.30	0.00
31.00	8.69	5.30	0.00
32.00	8.69	5.30	0.00
33.00	8.69	5.30	0.00
34.00	8.69	5.30	0.00
35.00	8.69	5.30	0.00
36.00	8.69	5.30	0.00
37.00	8.69	5.30	0.00
38.00	8.69	5.30	0.00
39.00	8.69	5.30	0.00
40.00	8.69	5.30	0.00
41.00	8.69	5.30	0.00
42.00	8.69	5.30	0.00
43.00	8.69	5.30	0.00
44.00	8.69	5.30	0.00
45.00	8.69	5.30	0.00
46.00	8.69	5.30	0.00
47.00	8.69	5.30	0.00
48.00	8.69	5.30	0.00
49.00	8.69	5.30	0.00
50.00	8.69	5.30	0.00
51.00	8.69	5.30	0.00
52.00	8.69	5.30	0.00
53.00	8.69	5.30	0.00
54.00	8.69	5.30	0.00
55.00	8.69	5.30	0.00
56.00	8.69	5.30	0.00
57.00	8.69	5.30	0.00
58.00	8.69	5.30	0.00
59.00	8.69	5.30	0.00
60.00	8.69	5.30	0.00
61.00	8.69	5.30	0.00
62.00	8.69	5.30	0.00
63.00	8.69	5.30	0.00
64.00	8.69	5.30	0.00
65.00	8.69	5.30	0.00
66.00	8.69	5.30	0.00
67.00	8.69	5.30	0.00
68.00	8.69	5.30	0.00
69.00	8.69	5.30	0.00
70.00	8.69	5.30	0.00
71.00	8.69	5.30	0.00
72.00	8.69	5.30	0.00

Summary for Subcatchment 11: Parkhurst-Perv

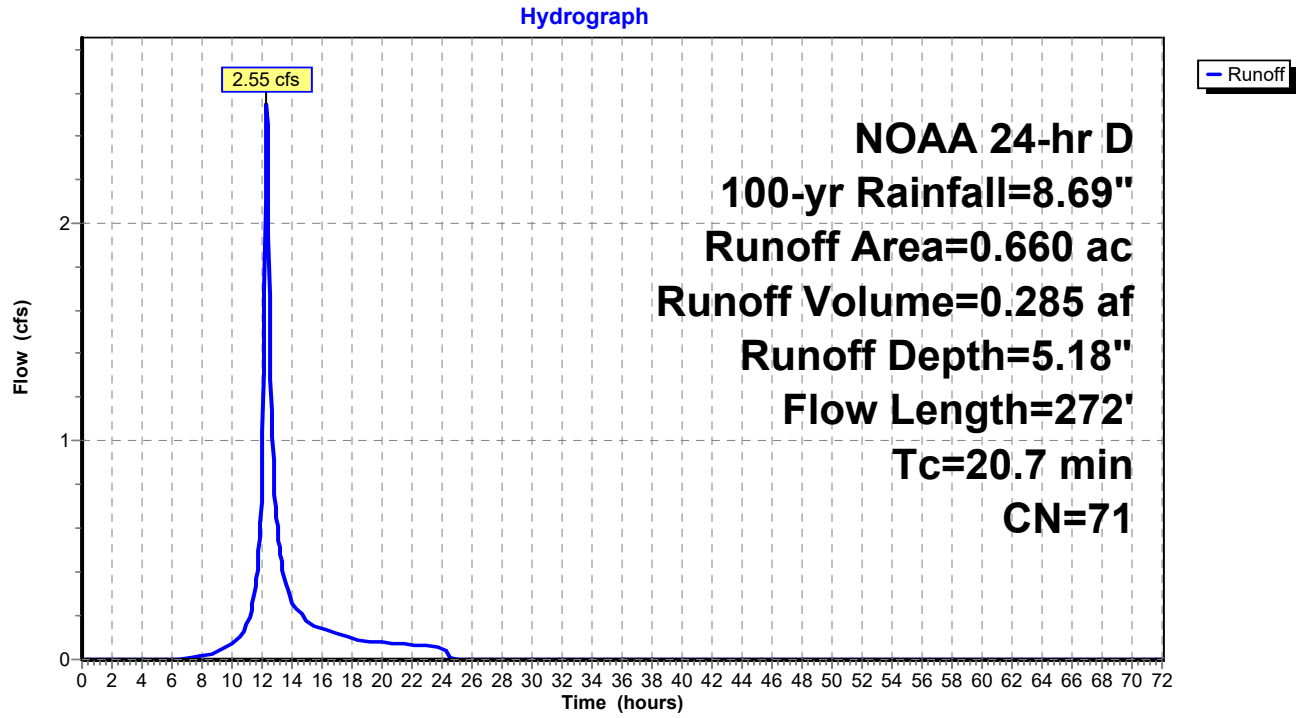
Runoff = 2.55 cfs @ 12.30 hrs, Volume= 0.285 af, Depth= 5.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.160	74	>75% Grass cover, Good, HSG C
0.500	70	Woods, Good, HSG C
0.660	71	Weighted Average
0.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.6	53	0.0755	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	52	0.3462	2.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	67	0.1045	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.7	272	Total			

Subcatchment 11: Parkhurst-Perv



Hydrograph for Subcatchment 11: Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.00	0.00
8.00	1.13	0.02	0.02
9.00	1.38	0.07	0.03
10.00	1.72	0.16	0.07
11.00	2.26	0.38	0.16
12.00	4.16	1.51	**0.86**
13.00	6.43	3.25	**0.61**
14.00	6.97	3.70	0.26
15.00	7.31	3.99	0.18
16.00	7.56	4.20	0.14
17.00	7.77	4.38	0.12
18.00	7.95	4.53	0.10
19.00	8.10	4.66	0.08
20.00	8.23	4.78	0.08
21.00	8.36	4.90	0.07
22.00	8.48	5.00	0.07
23.00	8.59	5.10	0.06
24.00	**8.69**	**5.18**	0.06
25.00	8.69	5.18	0.00
26.00	8.69	5.18	0.00
27.00	8.69	5.18	0.00
28.00	8.69	5.18	0.00
29.00	8.69	5.18	0.00
30.00	8.69	5.18	0.00
31.00	8.69	5.18	0.00
32.00	8.69	5.18	0.00
33.00	8.69	5.18	0.00
34.00	8.69	5.18	0.00
35.00	8.69	5.18	0.00
36.00	8.69	5.18	0.00
37.00	8.69	5.18	0.00
38.00	8.69	5.18	0.00
39.00	8.69	5.18	0.00
40.00	8.69	5.18	0.00
41.00	8.69	5.18	0.00
42.00	8.69	5.18	0.00
43.00	8.69	5.18	0.00
44.00	8.69	5.18	0.00
45.00	8.69	5.18	0.00
46.00	8.69	5.18	0.00
47.00	8.69	5.18	0.00
48.00	8.69	5.18	0.00
49.00	8.69	5.18	0.00
50.00	8.69	5.18	0.00
51.00	8.69	5.18	0.00
52.00	8.69	5.18	0.00
53.00	8.69	5.18	0.00
54.00	8.69	5.18	0.00
55.00	8.69	5.18	0.00
56.00	8.69	5.18	0.00
57.00	8.69	5.18	0.00
58.00	8.69	5.18	0.00
59.00	8.69	5.18	0.00
60.00	8.69	5.18	0.00
61.00	8.69	5.18	0.00
62.00	8.69	5.18	0.00
63.00	8.69	5.18	0.00
64.00	8.69	5.18	0.00
65.00	8.69	5.18	0.00
66.00	8.69	5.18	0.00
67.00	8.69	5.18	0.00
68.00	8.69	5.18	0.00
69.00	8.69	5.18	0.00
70.00	8.69	5.18	0.00
71.00	8.69	5.18	0.00
72.00	8.69	5.18	0.00

Summary for Subcatchment 12: Off-Site Parkhurst-Perv

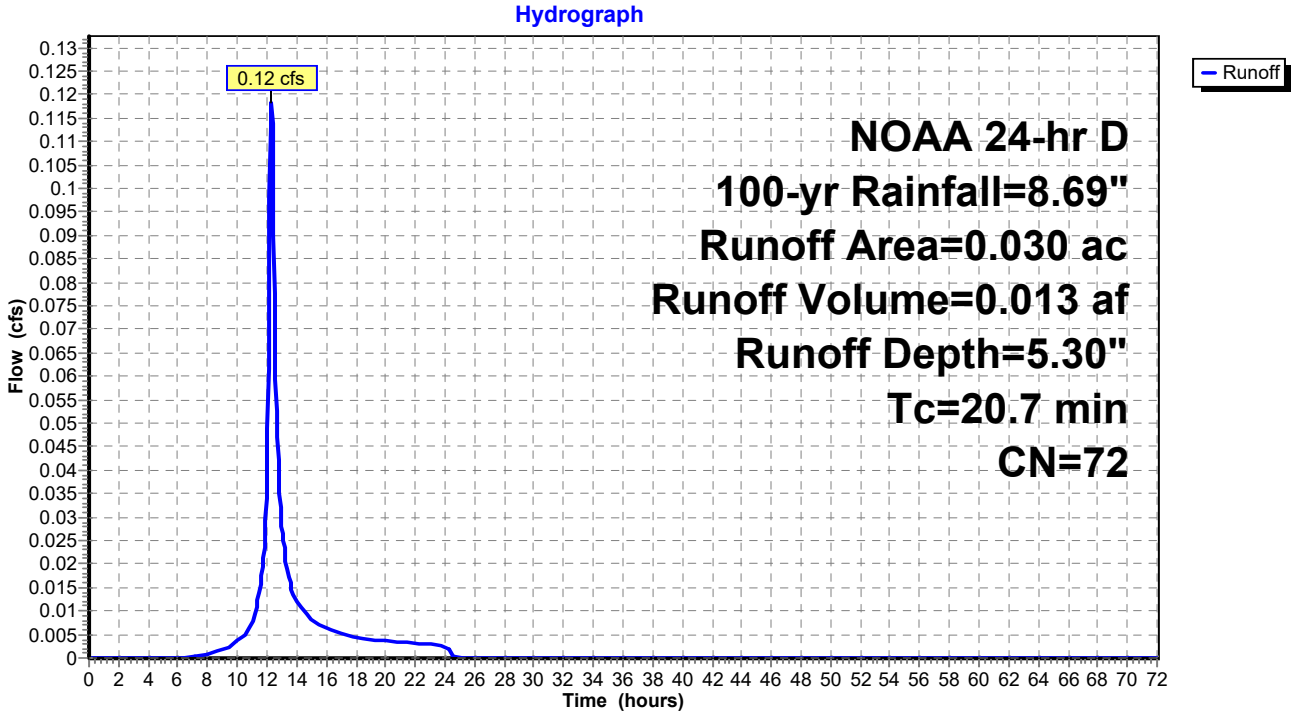
Runoff = 0.12 cfs @ 12.30 hrs, Volume= 0.013 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.030	72	Woods/grass comb., Good, HSG C
0.030		100.00% Pervious Area

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

Subcatchment 12: Off-Site Parkhurst-Perv



Hydrograph for Subcatchment 12: Off-Site Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.00	0.00
8.00	1.13	0.03	0.00
9.00	1.38	0.08	0.00
10.00	1.72	0.18	0.00
11.00	2.26	0.41	0.01
12.00	4.16	1.58	**0.04**
13.00	6.43	3.35	**0.03**
14.00	6.97	3.80	0.01
15.00	7.31	4.10	0.01
16.00	7.56	4.31	0.01
17.00	7.77	4.50	0.01
18.00	7.95	4.65	0.00
19.00	8.10	4.78	0.00
20.00	8.23	4.90	0.00
21.00	8.36	5.01	0.00
22.00	8.48	5.12	0.00
23.00	8.59	5.22	0.00
24.00	**8.69**	**5.30**	0.00
25.00	8.69	5.30	0.00
26.00	8.69	5.30	0.00
27.00	8.69	5.30	0.00
28.00	8.69	5.30	0.00
29.00	8.69	5.30	0.00
30.00	8.69	5.30	0.00
31.00	8.69	5.30	0.00
32.00	8.69	5.30	0.00
33.00	8.69	5.30	0.00
34.00	8.69	5.30	0.00
35.00	8.69	5.30	0.00
36.00	8.69	5.30	0.00
37.00	8.69	5.30	0.00
38.00	8.69	5.30	0.00
39.00	8.69	5.30	0.00
40.00	8.69	5.30	0.00
41.00	8.69	5.30	0.00
42.00	8.69	5.30	0.00
43.00	8.69	5.30	0.00
44.00	8.69	5.30	0.00
45.00	8.69	5.30	0.00
46.00	8.69	5.30	0.00
47.00	8.69	5.30	0.00
48.00	8.69	5.30	0.00
49.00	8.69	5.30	0.00
50.00	8.69	5.30	0.00
51.00	8.69	5.30	0.00
52.00	8.69	5.30	0.00
53.00	8.69	5.30	0.00
54.00	8.69	5.30	0.00
55.00	8.69	5.30	0.00
56.00	8.69	5.30	0.00
57.00	8.69	5.30	0.00
58.00	8.69	5.30	0.00
59.00	8.69	5.30	0.00
60.00	8.69	5.30	0.00
61.00	8.69	5.30	0.00
62.00	8.69	5.30	0.00
63.00	8.69	5.30	0.00
64.00	8.69	5.30	0.00
65.00	8.69	5.30	0.00
66.00	8.69	5.30	0.00
67.00	8.69	5.30	0.00
68.00	8.69	5.30	0.00
69.00	8.69	5.30	0.00
70.00	8.69	5.30	0.00
71.00	8.69	5.30	0.00
72.00	8.69	5.30	0.00

Summary for Subcatchment 13: Parkhurst-Imperv

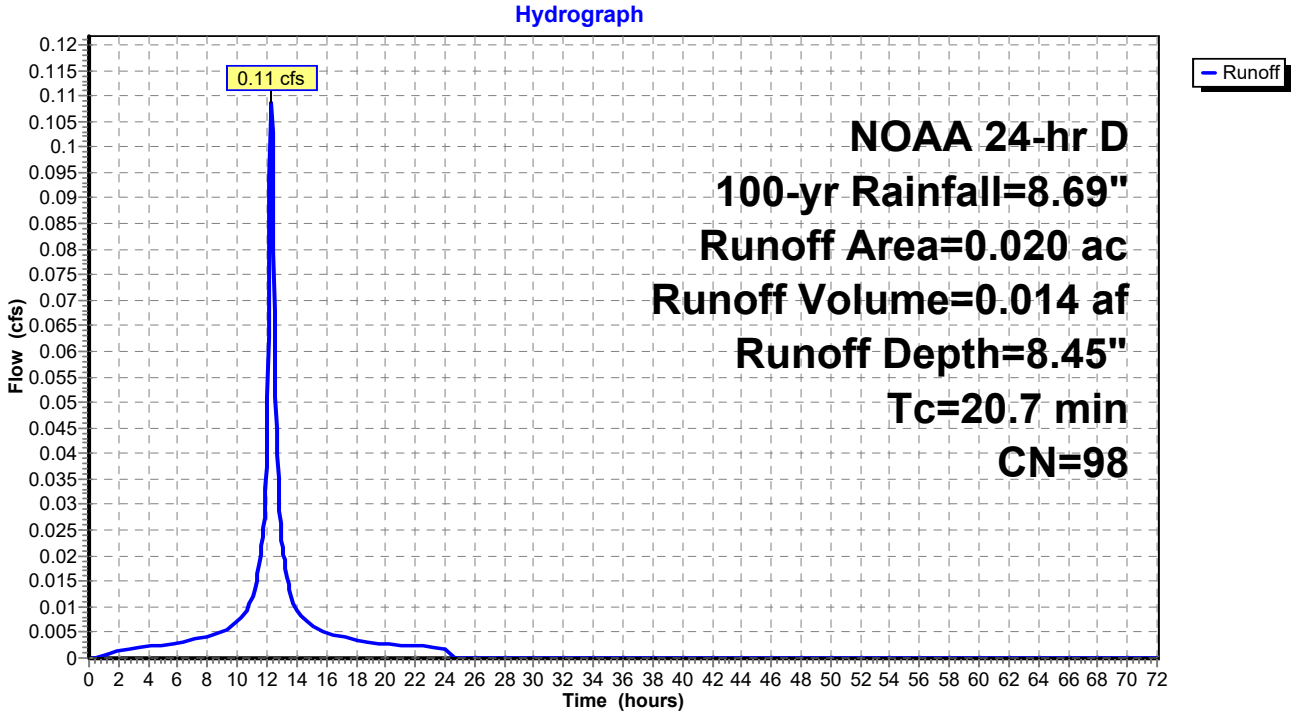
Runoff = 0.11 cfs @ 12.29 hrs, Volume= 0.014 af, Depth= 8.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.020	98	Paved parking, HSG C
0.020		100.00% Impervious Area

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

Subcatchment 13: Parkhurst-Imperv



Hydrograph for Subcatchment 13: Parkhurst-Imperv

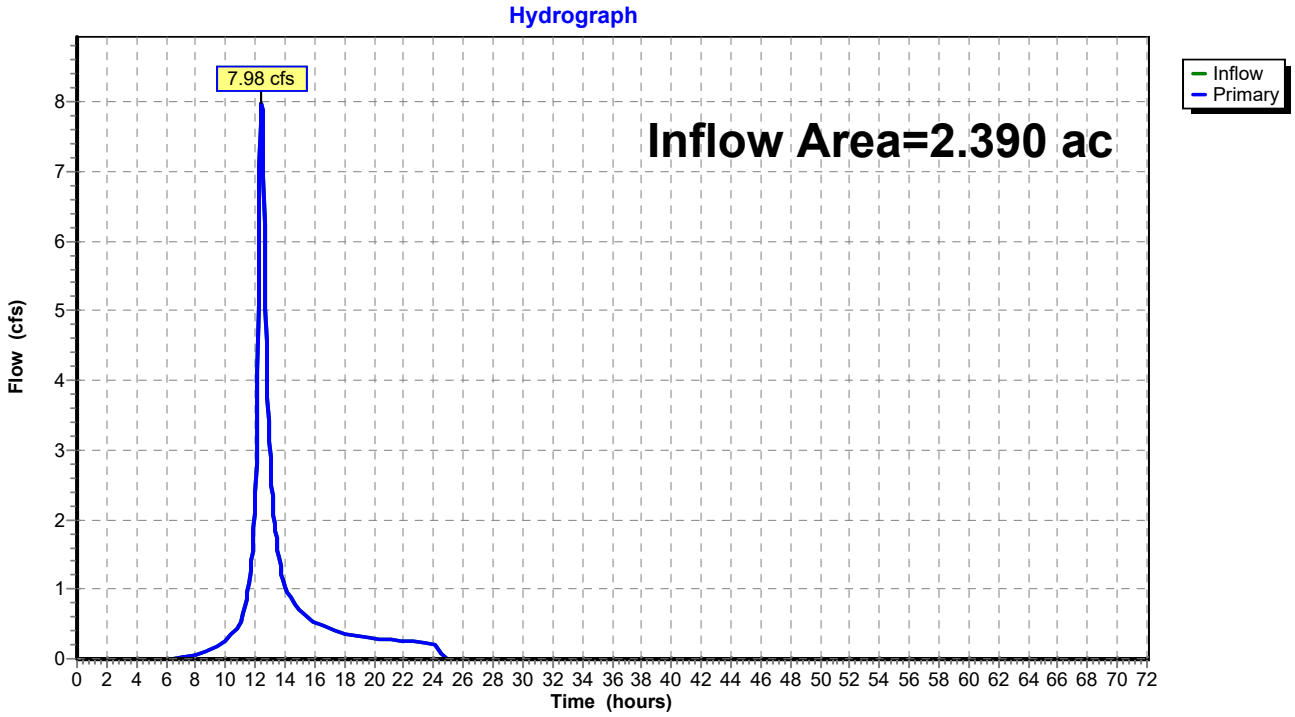
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.00
2.00	0.21	0.08	0.00
3.00	0.33	0.17	0.00
4.00	0.46	0.28	0.00
5.00	0.59	0.40	0.00
6.00	0.74	0.54	0.00
7.00	0.92	0.71	0.00
8.00	1.13	0.92	0.00
9.00	1.38	1.16	0.01
10.00	1.72	1.50	0.01
11.00	2.26	2.03	0.01
12.00	4.16	3.93	**0.04**
13.00	6.43	6.19	**0.02**
14.00	6.97	6.73	0.01
15.00	7.31	7.07	0.01
16.00	7.56	7.32	0.00
17.00	7.77	7.53	0.00
18.00	7.95	7.71	0.00
19.00	8.10	7.86	0.00
20.00	8.23	7.99	0.00
21.00	8.36	8.12	0.00
22.00	8.48	8.24	0.00
23.00	8.59	8.35	0.00
24.00	**8.69**	**8.45**	0.00
25.00	8.69	8.45	0.00
26.00	8.69	8.45	0.00
27.00	8.69	8.45	0.00
28.00	8.69	8.45	0.00
29.00	8.69	8.45	0.00
30.00	8.69	8.45	0.00
31.00	8.69	8.45	0.00
32.00	8.69	8.45	0.00
33.00	8.69	8.45	0.00
34.00	8.69	8.45	0.00
35.00	8.69	8.45	0.00
36.00	8.69	8.45	0.00
37.00	8.69	8.45	0.00
38.00	8.69	8.45	0.00
39.00	8.69	8.45	0.00
40.00	8.69	8.45	0.00
41.00	8.69	8.45	0.00
42.00	8.69	8.45	0.00
43.00	8.69	8.45	0.00
44.00	8.69	8.45	0.00
45.00	8.69	8.45	0.00
46.00	8.69	8.45	0.00
47.00	8.69	8.45	0.00
48.00	8.69	8.45	0.00
49.00	8.69	8.45	0.00
50.00	8.69	8.45	0.00
51.00	8.69	8.45	0.00
52.00	8.69	8.45	0.00
53.00	8.69	8.45	0.00
54.00	8.69	8.45	0.00
55.00	8.69	8.45	0.00
56.00	8.69	8.45	0.00
57.00	8.69	8.45	0.00
58.00	8.69	8.45	0.00
59.00	8.69	8.45	0.00
60.00	8.69	8.45	0.00
61.00	8.69	8.45	0.00
62.00	8.69	8.45	0.00
63.00	8.69	8.45	0.00
64.00	8.69	8.45	0.00
65.00	8.69	8.45	0.00
66.00	8.69	8.45	0.00
67.00	8.69	8.45	0.00
68.00	8.69	8.45	0.00
69.00	8.69	8.45	0.00
70.00	8.69	8.45	0.00
71.00	8.69	8.45	0.00
72.00	8.69	8.45	0.00

Summary for Pond 4: Ex. DA-1 Area to Afterglow

Inflow Area = 2.390 ac, 0.42% Impervious, Inflow Depth = 5.32" for 100-yr event
Inflow = 7.98 cfs @ 12.41 hrs, Volume= 1.059 af
Primary = 7.98 cfs @ 12.41 hrs, Volume= 1.059 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 4: Ex. DA-1 Area to Afterglow



Hydrograph for Pond 4: Ex. DA-1 Area to Afterglow

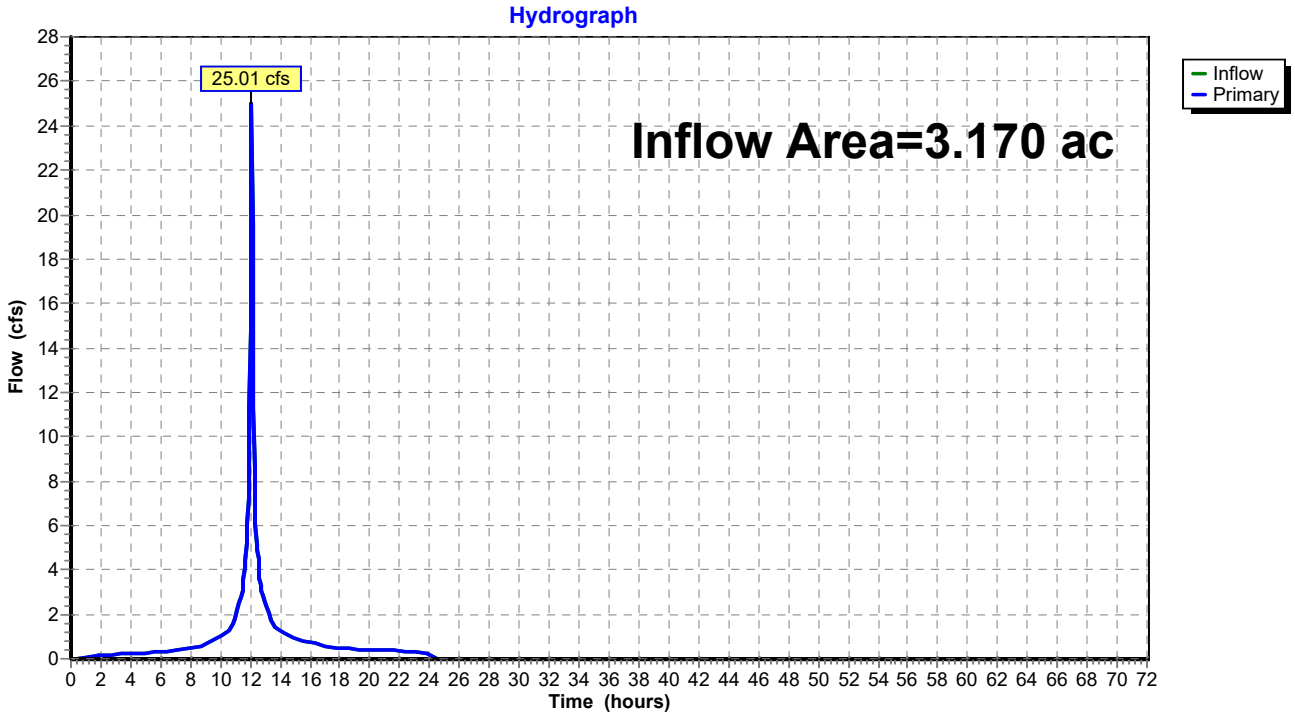
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.01		0.01
8.00	0.06		0.06
9.00	0.13		0.13
10.00	0.26		0.26
11.00	0.55		0.55
12.00	**2.39**		**2.39**
13.00	**2.89**		**2.89**
14.00	1.03		1.03
15.00	0.70		0.70
16.00	0.52		0.52
17.00	0.44		0.44
18.00	0.36		0.36
19.00	0.31		0.31
20.00	0.29		0.29
21.00	0.27		0.27
22.00	0.25		0.25
23.00	0.23		0.23
24.00	0.21		0.21
25.00	0.01		0.01
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 7: Ex. DA-2 On-Site Piping to Sunset-Bloomfield

Inflow Area = 3.170 ac, 65.30% Impervious, Inflow Depth = 7.36" for 100-yr event
Inflow = 25.01 cfs @ 12.10 hrs, Volume= 1.944 af
Primary = 25.01 cfs @ 12.10 hrs, Volume= 1.944 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 7: Ex. DA-2 On-Site Piping to Sunset-Bloomfield



Hydrograph for Pond 7: Ex. DA-2 On-Site Piping to Sunset-Bloomfield

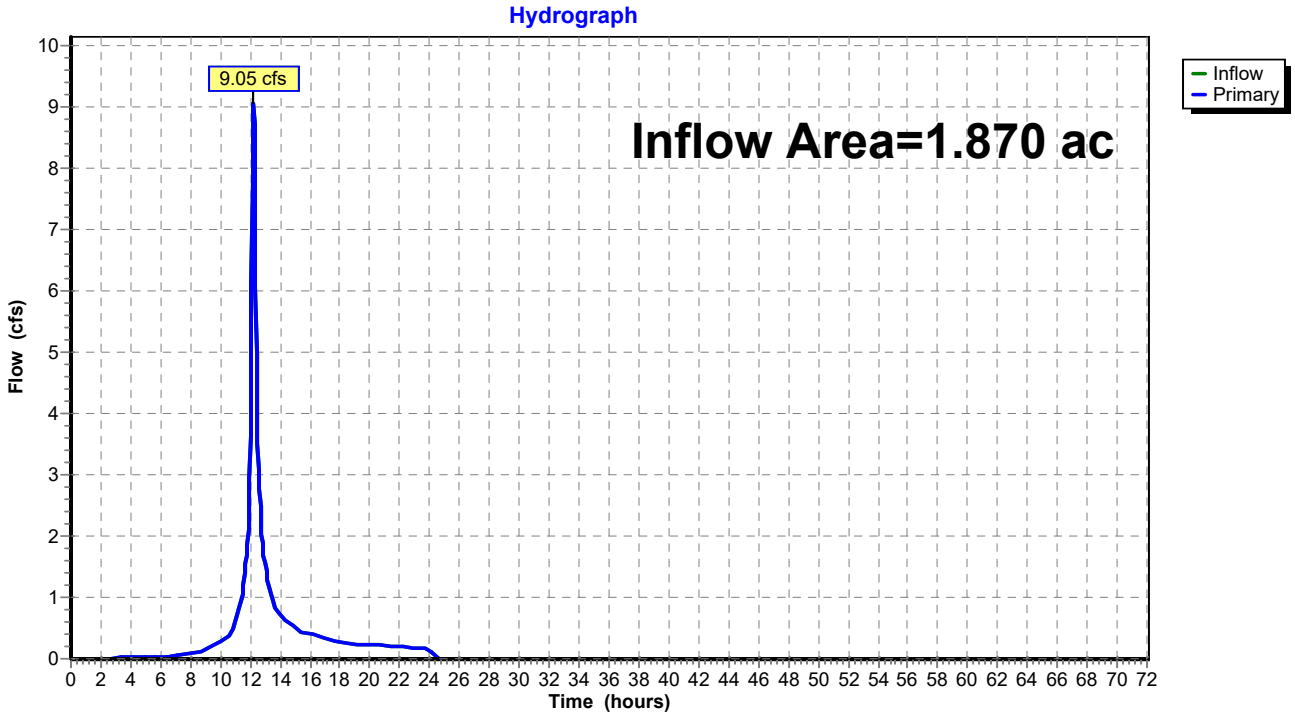
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.08		0.08
2.00	0.16		0.16
3.00	0.21		0.21
4.00	0.25		0.25
5.00	0.28		0.28
6.00	0.30		0.30
7.00	0.40		0.40
8.00	0.51		0.51
9.00	0.62		0.62
10.00	0.99		0.99
11.00	1.87		1.87
12.00	**14.76**		**14.76**
13.00	**2.48**		**2.48**
14.00	1.28		1.28
15.00	0.86		0.86
16.00	0.71		0.71
17.00	0.60		0.60
18.00	0.48		0.48
19.00	0.44		0.44
20.00	0.41		0.41
21.00	0.38		0.38
22.00	0.35		0.35
23.00	0.32		0.32
24.00	0.29		0.29
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 10: Ex. DA-3 Overland to Bloomfield

Inflow Area = 1.870 ac, 8.02% Impervious, Inflow Depth = 5.56" for 100-yr event
Inflow = 9.05 cfs @ 12.21 hrs, Volume= 0.866 af
Primary = 9.05 cfs @ 12.21 hrs, Volume= 0.866 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 10: Ex. DA-3 Overland to Bloomfield



Hydrograph for Pond 10: Ex. DA-3 Overland to Bloomfield

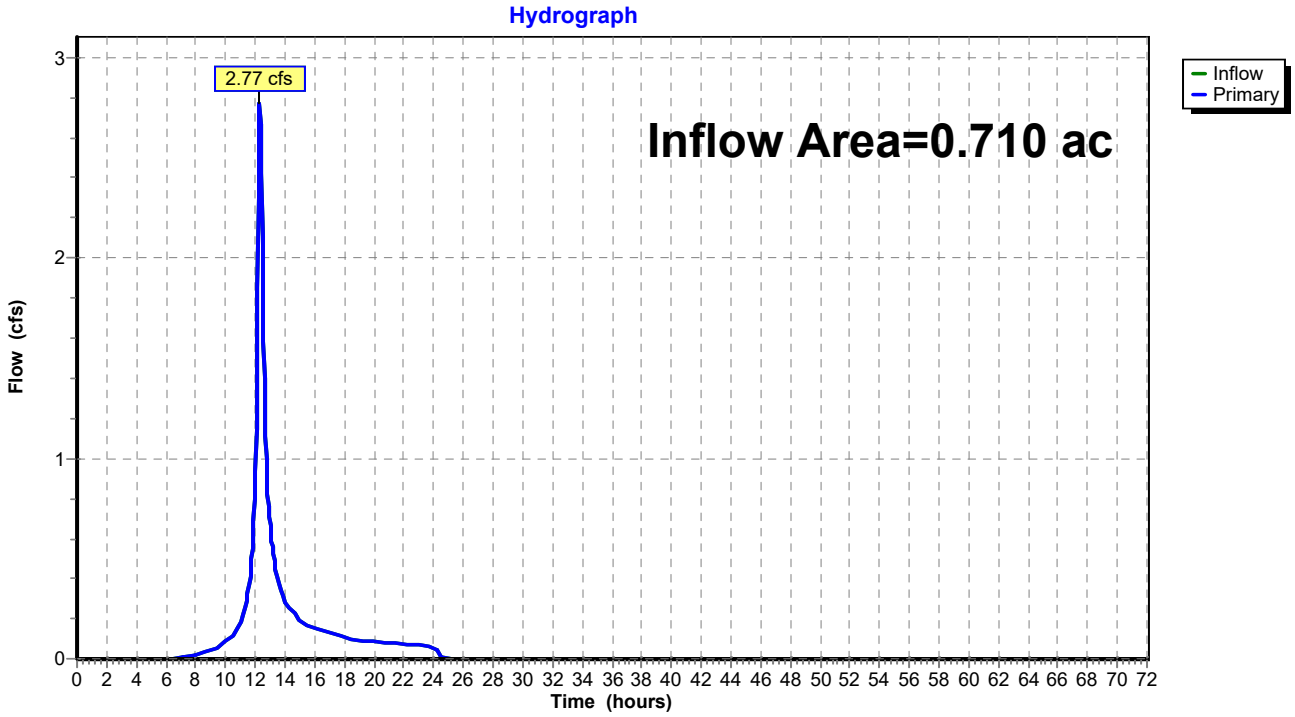
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.01		0.01
3.00	0.01		0.01
4.00	0.02		0.02
5.00	0.02		0.02
6.00	0.02		0.02
7.00	0.04		0.04
8.00	0.09		0.09
9.00	0.14		0.14
10.00	0.28		0.28
11.00	0.60		0.60
12.00	**3.61**		**3.61**
13.00	**1.53**		**1.53**
14.00	0.72		0.72
15.00	0.50		0.50
16.00	0.40		0.40
17.00	0.33		0.33
18.00	0.27		0.27
19.00	0.24		0.24
20.00	0.23		0.23
21.00	0.21		0.21
22.00	0.20		0.20
23.00	0.18		0.18
24.00	0.16		0.16
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 14: Ex. Da-4 Area to Parkhurst

Inflow Area = 0.710 ac, 2.82% Impervious, Inflow Depth = 5.28" for 100-yr event
Inflow = 2.77 cfs @ 12.30 hrs, Volume= 0.312 af
Primary = 2.77 cfs @ 12.30 hrs, Volume= 0.312 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 14: Ex. Da-4 Area to Parkhurst



Hydrograph for Pond 14: Ex. Da-4 Area to Parkhurst

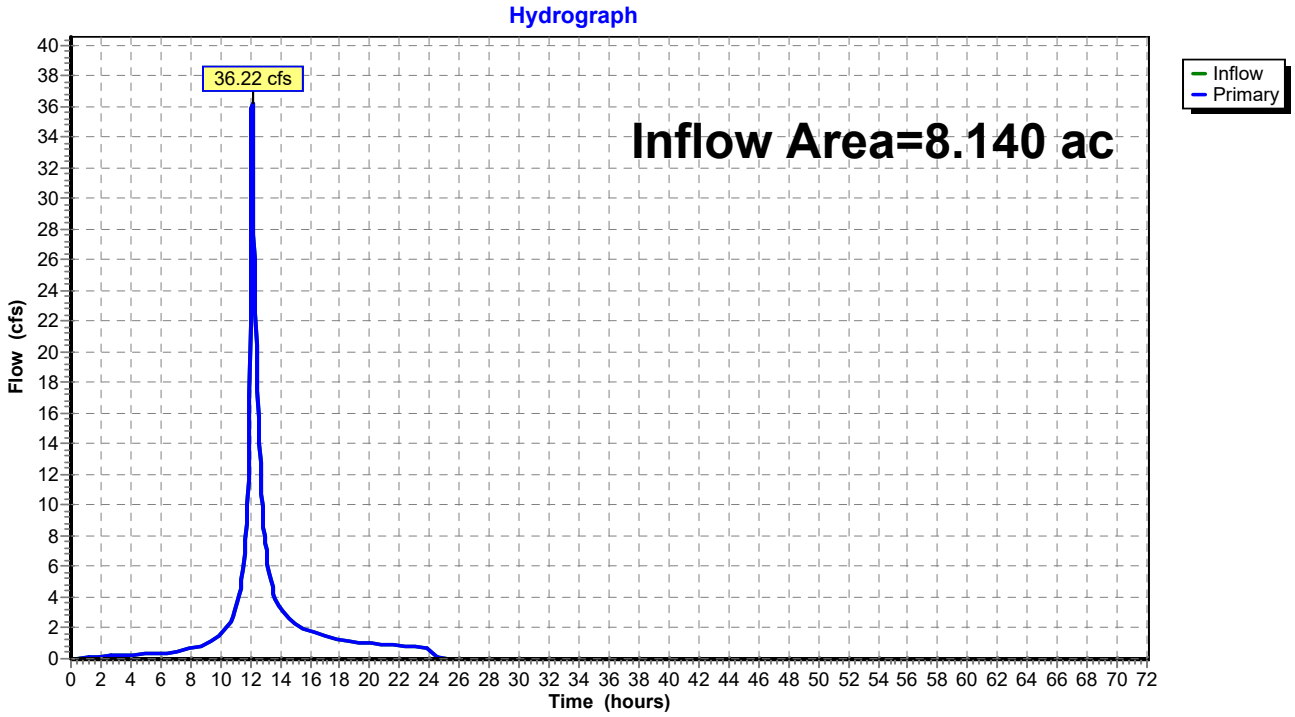
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.01		0.01
8.00	0.02		0.02
9.00	0.04		0.04
10.00	0.08		0.08
11.00	0.18		0.18
12.00	**0.94**		**0.94**
13.00	**0.66**		**0.66**
14.00	0.28		0.28
15.00	0.19		0.19
16.00	0.15		0.15
17.00	0.13		0.13
18.00	0.10		0.10
19.00	0.09		0.09
20.00	0.09		0.09
21.00	0.08		0.08
22.00	0.07		0.07
23.00	0.07		0.07
24.00	0.06		0.06
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 15: Site Sum

Inflow Area = 8.140 ac, 27.64% Impervious, Inflow Depth = 6.16" for 100-yr event
Inflow = 36.22 cfs @ 12.11 hrs, Volume= 4.181 af
Primary = 36.22 cfs @ 12.11 hrs, Volume= 4.181 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 15: Site Sum



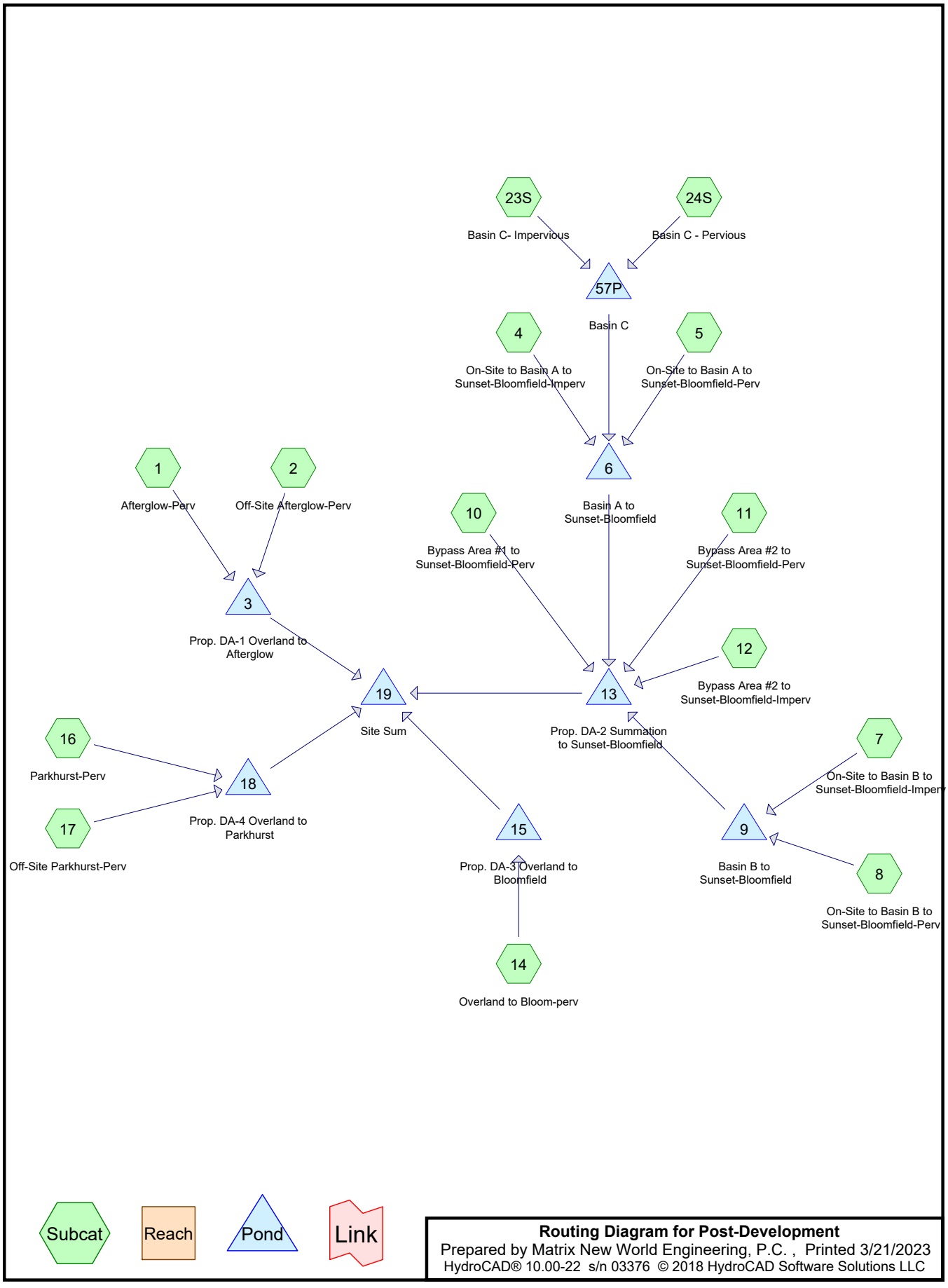
Hydrograph for Pond 15: Site Sum

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.08		0.08
2.00	0.18		0.18
3.00	0.23		0.23
4.00	0.27		0.27
5.00	0.30		0.30
6.00	0.33		0.33
7.00	0.46		0.46
8.00	0.68		0.68
9.00	0.94		0.94
10.00	1.61		1.61
11.00	3.20		3.20
12.00	**21.70**		**21.70**
13.00	**7.55**		**7.55**
14.00	3.30		3.30
15.00	2.25		2.25
16.00	1.78		1.78
17.00	1.50		1.50
18.00	1.22		1.22
19.00	1.09		1.09
20.00	1.02		1.02
21.00	0.95		0.95
22.00	0.88		0.88
23.00	0.80		0.80
24.00	0.73		0.73
25.00	0.01		0.01
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

MATRIXNEWORLD
Engineering Progress

APPENDIX E

POST-DEVELOPMENT 2-, 10-, AND 100-YEAR STORM EVENT CALCULATIONS



Routing Diagram for Post-Development

Prepared by Matrix New World Engineering, P.C. , Printed 3/21/2023

HydroCAD® 10.00-22 s/n 03376 © 2018 HydroCAD Software Solutions LLC

Summary for Subcatchment 1: Afterglow-Perv

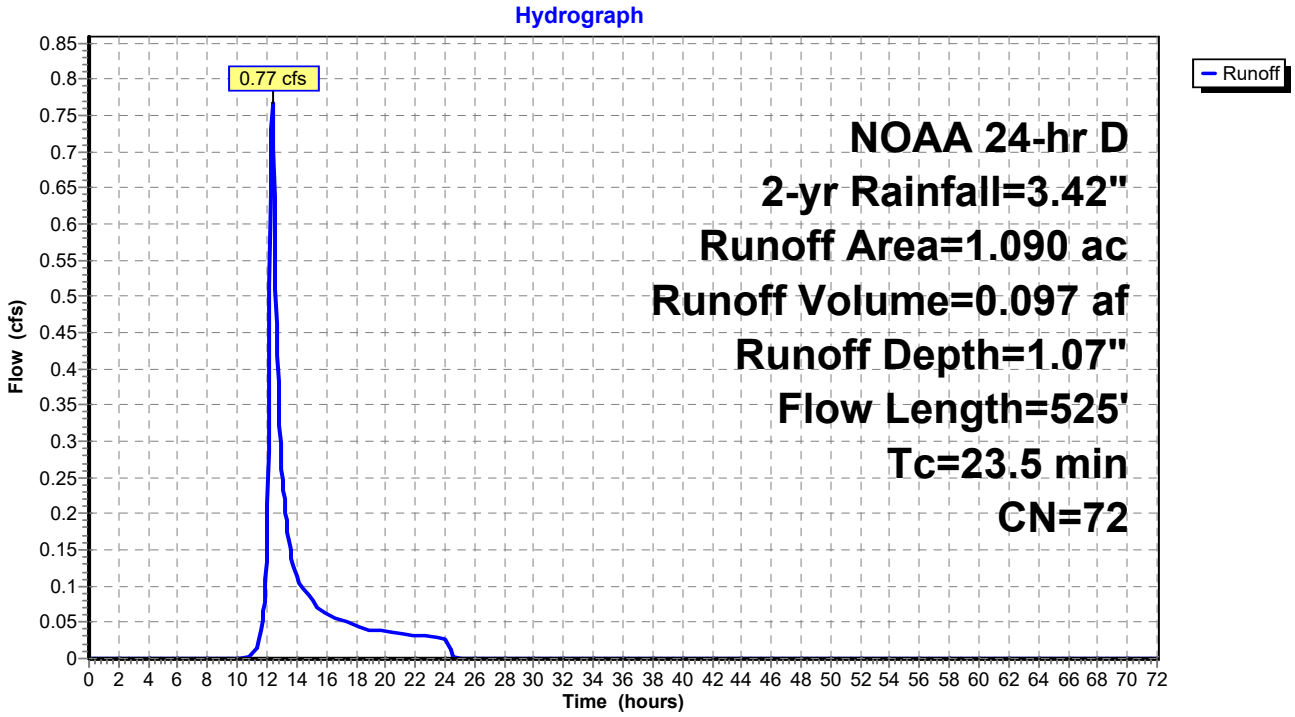
Runoff = 0.77 cfs @ 12.36 hrs, Volume= 0.097 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
1.030	72	Woods/grass comb., Good, HSG C
0.060	74	>75% Grass cover, Good, HSG C
1.090	72	Weighted Average
1.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0230	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	102	0.0775	1.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	131	0.0481	1.54		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	92	0.1957	2.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	46	0.1739	2.09		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	54	0.2037	2.26		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.5	525	Total			

Subcatchment 1: Afterglow-Perv



Hydrograph for Subcatchment 1: Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.00	0.00
12.00	1.64	0.16	**0.17**
13.00	2.53	0.54	**0.26**
14.00	2.74	0.66	0.11
15.00	2.88	0.74	0.08
16.00	2.98	0.79	0.06
17.00	3.06	0.84	0.05
18.00	3.13	0.89	0.04
19.00	3.19	0.92	0.04
20.00	3.24	0.95	0.04
21.00	3.29	0.99	0.03
22.00	3.34	1.02	0.03
23.00	3.38	1.04	0.03
24.00	**3.42**	**1.07**	0.03
25.00	3.42	1.07	0.00
26.00	3.42	1.07	0.00
27.00	3.42	1.07	0.00
28.00	3.42	1.07	0.00
29.00	3.42	1.07	0.00
30.00	3.42	1.07	0.00
31.00	3.42	1.07	0.00
32.00	3.42	1.07	0.00
33.00	3.42	1.07	0.00
34.00	3.42	1.07	0.00
35.00	3.42	1.07	0.00
36.00	3.42	1.07	0.00
37.00	3.42	1.07	0.00
38.00	3.42	1.07	0.00
39.00	3.42	1.07	0.00
40.00	3.42	1.07	0.00
41.00	3.42	1.07	0.00
42.00	3.42	1.07	0.00
43.00	3.42	1.07	0.00
44.00	3.42	1.07	0.00
45.00	3.42	1.07	0.00
46.00	3.42	1.07	0.00
47.00	3.42	1.07	0.00
48.00	3.42	1.07	0.00
49.00	3.42	1.07	0.00
50.00	3.42	1.07	0.00
51.00	3.42	1.07	0.00
52.00	3.42	1.07	0.00
53.00	3.42	1.07	0.00
54.00	3.42	1.07	0.00
55.00	3.42	1.07	0.00
56.00	3.42	1.07	0.00
57.00	3.42	1.07	0.00
58.00	3.42	1.07	0.00
59.00	3.42	1.07	0.00
60.00	3.42	1.07	0.00
61.00	3.42	1.07	0.00
62.00	3.42	1.07	0.00
63.00	3.42	1.07	0.00
64.00	3.42	1.07	0.00
65.00	3.42	1.07	0.00
66.00	3.42	1.07	0.00
67.00	3.42	1.07	0.00
68.00	3.42	1.07	0.00
69.00	3.42	1.07	0.00
70.00	3.42	1.07	0.00
71.00	3.42	1.07	0.00
72.00	3.42	1.07	0.00

Summary for Subcatchment 2: Off-Site Afterglow-Perv

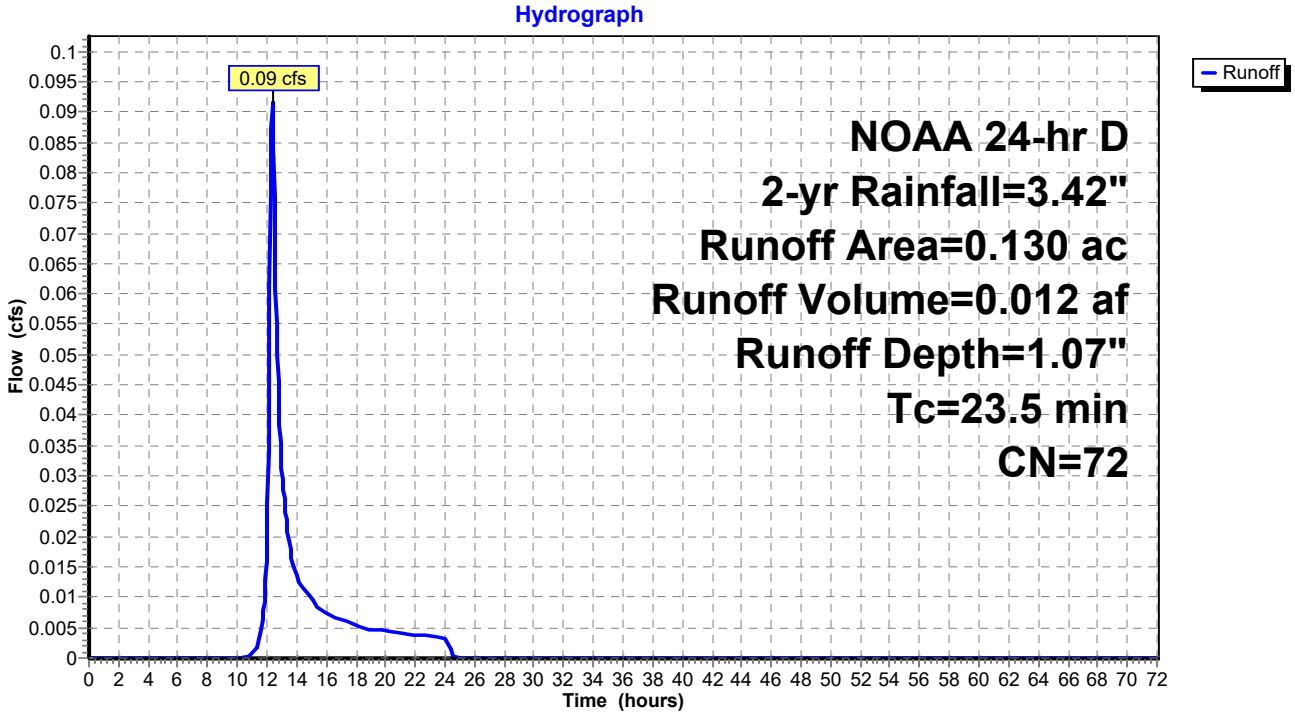
Runoff = 0.09 cfs @ 12.36 hrs, Volume= 0.012 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.090	72	Woods/grass comb., Good, HSG C
0.040	72	Woods/grass comb., Good, HSG C
0.130	72	Weighted Average
0.130		100.00% Pervious Area

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

Subcatchment 2: Off-Site Afterglow-Perv



Hydrograph for Subcatchment 2: Off-Site Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	3.42	1.07	0.00
1.00	0.04	0.00	0.00	54.00	3.42	1.07	0.00
2.00	0.08	0.00	0.00	55.00	3.42	1.07	0.00
3.00	0.13	0.00	0.00	56.00	3.42	1.07	0.00
4.00	0.18	0.00	0.00	57.00	3.42	1.07	0.00
5.00	0.23	0.00	0.00	58.00	3.42	1.07	0.00
6.00	0.29	0.00	0.00	59.00	3.42	1.07	0.00
7.00	0.36	0.00	0.00	60.00	3.42	1.07	0.00
8.00	0.44	0.00	0.00	61.00	3.42	1.07	0.00
9.00	0.54	0.00	0.00	62.00	3.42	1.07	0.00
10.00	0.68	0.00	0.00	63.00	3.42	1.07	0.00
11.00	0.89	0.00	0.00	64.00	3.42	1.07	0.00
12.00	1.64	0.16	**0.02**	65.00	3.42	1.07	0.00
13.00	2.53	0.54	**0.03**	66.00	3.42	1.07	0.00
14.00	2.74	0.66	0.01	67.00	3.42	1.07	0.00
15.00	2.88	0.74	0.01	68.00	3.42	1.07	0.00
16.00	2.98	0.79	0.01	69.00	3.42	1.07	0.00
17.00	3.06	0.84	0.01	70.00	3.42	1.07	0.00
18.00	3.13	0.89	0.01	71.00	3.42	1.07	0.00
19.00	3.19	0.92	0.00	72.00	3.42	1.07	0.00
20.00	3.24	0.95	0.00				
21.00	3.29	0.99	0.00				
22.00	3.34	1.02	0.00				
23.00	3.38	1.04	0.00				
24.00	**3.42**	**1.07**	0.00				
25.00	3.42	1.07	0.00				
26.00	3.42	1.07	0.00				
27.00	3.42	1.07	0.00				
28.00	3.42	1.07	0.00				
29.00	3.42	1.07	0.00				
30.00	3.42	1.07	0.00				
31.00	3.42	1.07	0.00				
32.00	3.42	1.07	0.00				
33.00	3.42	1.07	0.00				
34.00	3.42	1.07	0.00				
35.00	3.42	1.07	0.00				
36.00	3.42	1.07	0.00				
37.00	3.42	1.07	0.00				
38.00	3.42	1.07	0.00				
39.00	3.42	1.07	0.00				
40.00	3.42	1.07	0.00				
41.00	3.42	1.07	0.00				
42.00	3.42	1.07	0.00				
43.00	3.42	1.07	0.00				
44.00	3.42	1.07	0.00				
45.00	3.42	1.07	0.00				
46.00	3.42	1.07	0.00				
47.00	3.42	1.07	0.00				
48.00	3.42	1.07	0.00				
49.00	3.42	1.07	0.00				
50.00	3.42	1.07	0.00				
51.00	3.42	1.07	0.00				
52.00	3.42	1.07	0.00				

Summary for Subcatchment 4: On-Site to Basin A to Sunset-Bloomfield-Imperv

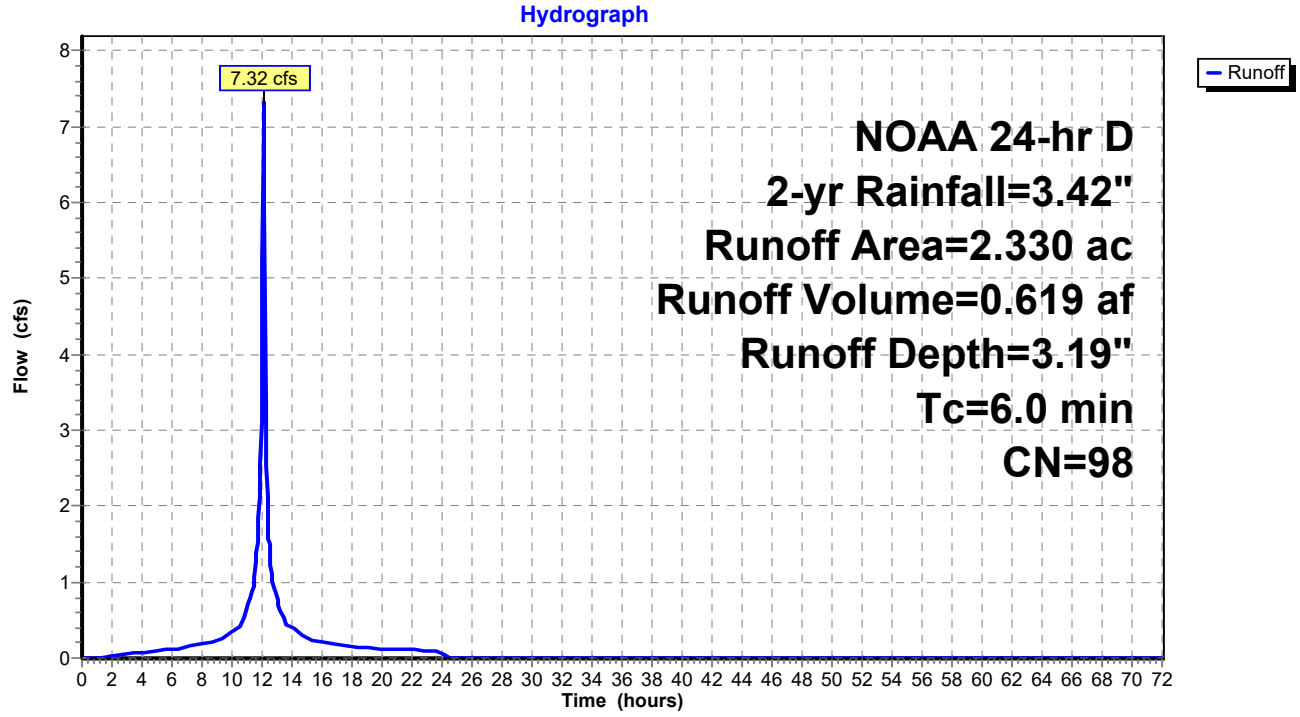
Runoff = 7.32 cfs @ 12.13 hrs, Volume= 0.619 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
2.200	98	Roofs, HSG C
0.130	98	Paved parking, HSG C
2.330	98	Weighted Average
2.330		100.00% Impervious Area

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

Subcatchment 4: On-Site to Basin A to Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 4: On-Site to Basin A to Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.03
3.00	0.13	0.03	0.06
4.00	0.18	0.06	0.08
5.00	0.23	0.09	0.10
6.00	0.29	0.14	0.11
7.00	0.36	0.19	0.15
8.00	0.44	0.27	0.19
9.00	0.54	0.36	0.23
10.00	0.68	0.48	0.35
11.00	0.89	0.68	0.63
12.00	1.64	1.42	**4.16**
13.00	2.53	2.30	**0.78**
14.00	2.74	2.51	0.39
15.00	2.88	2.65	0.26
16.00	2.98	2.74	0.22
17.00	3.06	2.83	0.18
18.00	3.13	2.90	0.15
19.00	3.19	2.95	0.13
20.00	3.24	3.01	0.12
21.00	3.29	3.06	0.11
22.00	3.34	3.10	0.11
23.00	3.38	3.15	0.10
24.00	**3.42**	**3.19**	0.09
25.00	3.42	3.19	0.00
26.00	3.42	3.19	0.00
27.00	3.42	3.19	0.00
28.00	3.42	3.19	0.00
29.00	3.42	3.19	0.00
30.00	3.42	3.19	0.00
31.00	3.42	3.19	0.00
32.00	3.42	3.19	0.00
33.00	3.42	3.19	0.00
34.00	3.42	3.19	0.00
35.00	3.42	3.19	0.00
36.00	3.42	3.19	0.00
37.00	3.42	3.19	0.00
38.00	3.42	3.19	0.00
39.00	3.42	3.19	0.00
40.00	3.42	3.19	0.00
41.00	3.42	3.19	0.00
42.00	3.42	3.19	0.00
43.00	3.42	3.19	0.00
44.00	3.42	3.19	0.00
45.00	3.42	3.19	0.00
46.00	3.42	3.19	0.00
47.00	3.42	3.19	0.00
48.00	3.42	3.19	0.00
49.00	3.42	3.19	0.00
50.00	3.42	3.19	0.00
51.00	3.42	3.19	0.00
52.00	3.42	3.19	0.00
53.00	3.42	3.19	0.00
54.00	3.42	3.19	0.00
55.00	3.42	3.19	0.00
56.00	3.42	3.19	0.00
57.00	3.42	3.19	0.00
58.00	3.42	3.19	0.00
59.00	3.42	3.19	0.00
60.00	3.42	3.19	0.00
61.00	3.42	3.19	0.00
62.00	3.42	3.19	0.00
63.00	3.42	3.19	0.00
64.00	3.42	3.19	0.00
65.00	3.42	3.19	0.00
66.00	3.42	3.19	0.00
67.00	3.42	3.19	0.00
68.00	3.42	3.19	0.00
69.00	3.42	3.19	0.00
70.00	3.42	3.19	0.00
71.00	3.42	3.19	0.00
72.00	3.42	3.19	0.00

Summary for Subcatchment 5: On-Site to Basin A to Sunset-Bloomfield-Perv

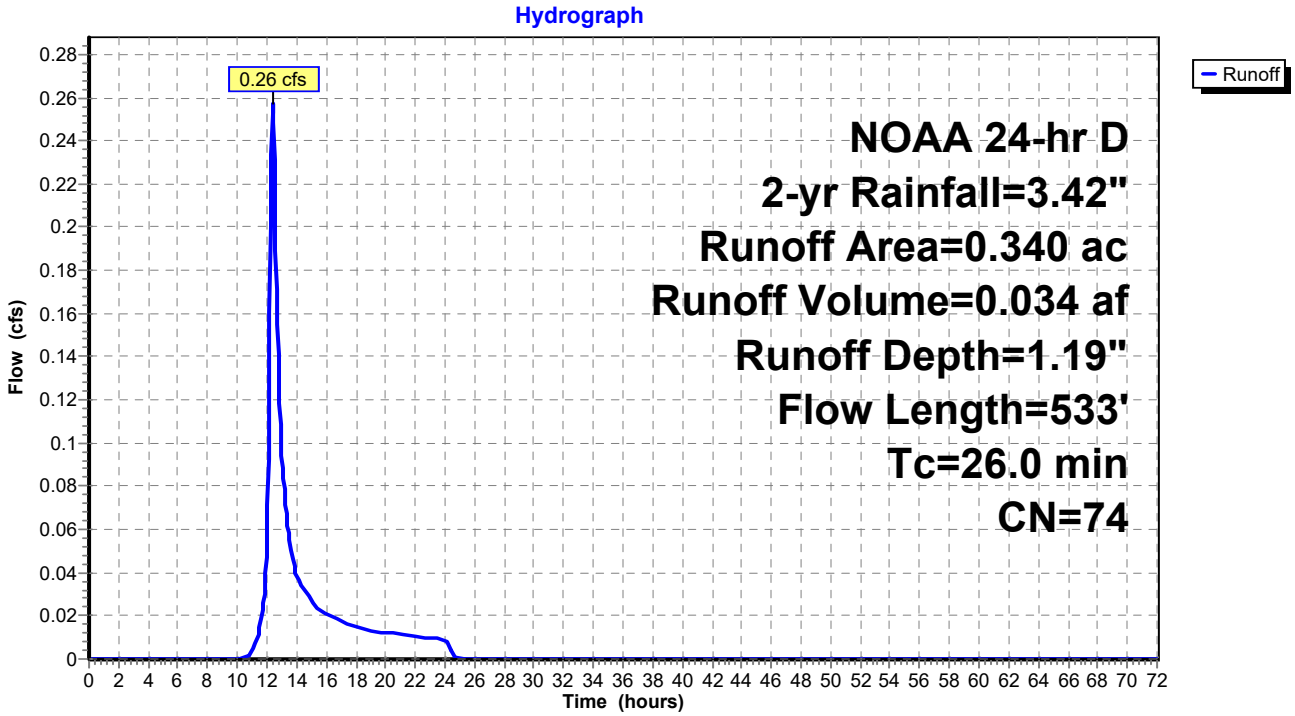
Runoff = 0.26 cfs @ 12.39 hrs, Volume= 0.034 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.340	74	>75% Grass cover, Good, HSG C
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	100	0.0140	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.2	10	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	38	0.0474	1.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	108	0.0741	1.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	277	0.0200	9.68	11.88	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 Corrugated PE, smooth interior
26.0	533	Total			

Subcatchment 5: On-Site to Basin A to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 5: On-Site to Basin A to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.01	0.00
12.00	1.64	0.20	**0.06**
13.00	2.53	0.63	**0.09**
14.00	2.74	0.75	0.04
15.00	2.88	0.83	0.03
16.00	2.98	0.89	0.02
17.00	3.06	0.95	0.02
18.00	3.13	0.99	0.01
19.00	3.19	1.03	0.01
20.00	3.24	1.06	0.01
21.00	3.29	1.10	0.01
22.00	3.34	1.13	0.01
23.00	3.38	1.16	0.01
24.00	**3.42**	**1.19**	0.01
25.00	3.42	1.19	0.00
26.00	3.42	1.19	0.00
27.00	3.42	1.19	0.00
28.00	3.42	1.19	0.00
29.00	3.42	1.19	0.00
30.00	3.42	1.19	0.00
31.00	3.42	1.19	0.00
32.00	3.42	1.19	0.00
33.00	3.42	1.19	0.00
34.00	3.42	1.19	0.00
35.00	3.42	1.19	0.00
36.00	3.42	1.19	0.00
37.00	3.42	1.19	0.00
38.00	3.42	1.19	0.00
39.00	3.42	1.19	0.00
40.00	3.42	1.19	0.00
41.00	3.42	1.19	0.00
42.00	3.42	1.19	0.00
43.00	3.42	1.19	0.00
44.00	3.42	1.19	0.00
45.00	3.42	1.19	0.00
46.00	3.42	1.19	0.00
47.00	3.42	1.19	0.00
48.00	3.42	1.19	0.00
49.00	3.42	1.19	0.00
50.00	3.42	1.19	0.00
51.00	3.42	1.19	0.00
52.00	3.42	1.19	0.00
53.00	3.42	1.19	0.00
54.00	3.42	1.19	0.00
55.00	3.42	1.19	0.00
56.00	3.42	1.19	0.00
57.00	3.42	1.19	0.00
58.00	3.42	1.19	0.00
59.00	3.42	1.19	0.00
60.00	3.42	1.19	0.00
61.00	3.42	1.19	0.00
62.00	3.42	1.19	0.00
63.00	3.42	1.19	0.00
64.00	3.42	1.19	0.00
65.00	3.42	1.19	0.00
66.00	3.42	1.19	0.00
67.00	3.42	1.19	0.00
68.00	3.42	1.19	0.00
69.00	3.42	1.19	0.00
70.00	3.42	1.19	0.00
71.00	3.42	1.19	0.00
72.00	3.42	1.19	0.00

Summary for Subcatchment 7: On-Site to Basin B to Sunset-Bloomfield-Imperv

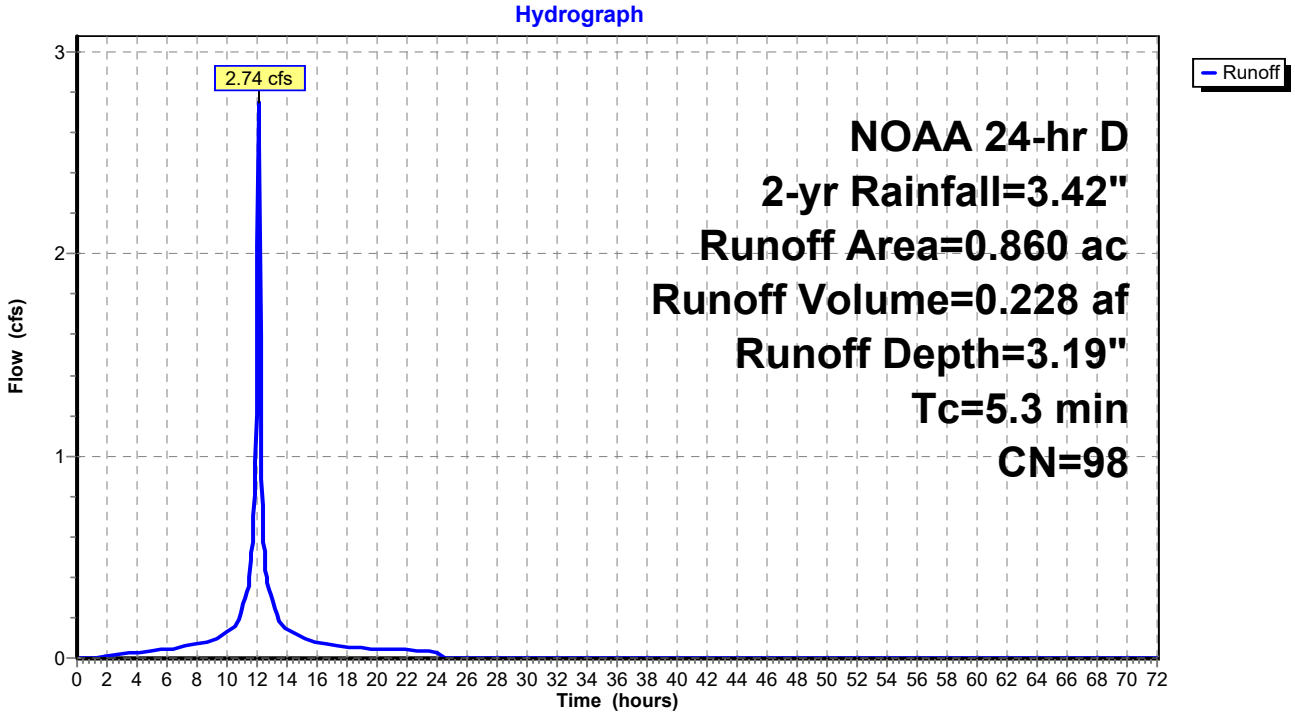
Runoff = 2.74 cfs @ 12.11 hrs, Volume= 0.228 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.390	98	Roofs, HSG C
0.470	98	Paved parking, HSG C
0.860	98	Weighted Average
0.860		100.00% Impervious Area

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

Subcatchment 7: On-Site to Basin B to Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 7: On-Site to Basin B to Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.01
3.00	0.13	0.03	0.02
4.00	0.18	0.06	0.03
5.00	0.23	0.09	0.04
6.00	0.29	0.14	0.04
7.00	0.36	0.19	0.05
8.00	0.44	0.27	0.07
9.00	0.54	0.36	0.08
10.00	0.68	0.48	0.13
11.00	0.89	0.68	0.23
12.00	1.64	1.42	**1.61**
13.00	2.53	2.30	**0.29**
14.00	2.74	2.51	0.14
15.00	2.88	2.65	0.10
16.00	2.98	2.74	0.08
17.00	3.06	2.83	0.07
18.00	3.13	2.90	0.05
19.00	3.19	2.95	0.05
20.00	3.24	3.01	0.05
21.00	3.29	3.06	0.04
22.00	3.34	3.10	0.04
23.00	3.38	3.15	0.04
24.00	**3.42**	**3.19**	0.03
25.00	3.42	3.19	0.00
26.00	3.42	3.19	0.00
27.00	3.42	3.19	0.00
28.00	3.42	3.19	0.00
29.00	3.42	3.19	0.00
30.00	3.42	3.19	0.00
31.00	3.42	3.19	0.00
32.00	3.42	3.19	0.00
33.00	3.42	3.19	0.00
34.00	3.42	3.19	0.00
35.00	3.42	3.19	0.00
36.00	3.42	3.19	0.00
37.00	3.42	3.19	0.00
38.00	3.42	3.19	0.00
39.00	3.42	3.19	0.00
40.00	3.42	3.19	0.00
41.00	3.42	3.19	0.00
42.00	3.42	3.19	0.00
43.00	3.42	3.19	0.00
44.00	3.42	3.19	0.00
45.00	3.42	3.19	0.00
46.00	3.42	3.19	0.00
47.00	3.42	3.19	0.00
48.00	3.42	3.19	0.00
49.00	3.42	3.19	0.00
50.00	3.42	3.19	0.00
51.00	3.42	3.19	0.00
52.00	3.42	3.19	0.00
53.00	3.42	3.19	0.00
54.00	3.42	3.19	0.00
55.00	3.42	3.19	0.00
56.00	3.42	3.19	0.00
57.00	3.42	3.19	0.00
58.00	3.42	3.19	0.00
59.00	3.42	3.19	0.00
60.00	3.42	3.19	0.00
61.00	3.42	3.19	0.00
62.00	3.42	3.19	0.00
63.00	3.42	3.19	0.00
64.00	3.42	3.19	0.00
65.00	3.42	3.19	0.00
66.00	3.42	3.19	0.00
67.00	3.42	3.19	0.00
68.00	3.42	3.19	0.00
69.00	3.42	3.19	0.00
70.00	3.42	3.19	0.00
71.00	3.42	3.19	0.00
72.00	3.42	3.19	0.00

Summary for Subcatchment 8: On-Site to Basin B to Sunset-Bloomfield-Perv

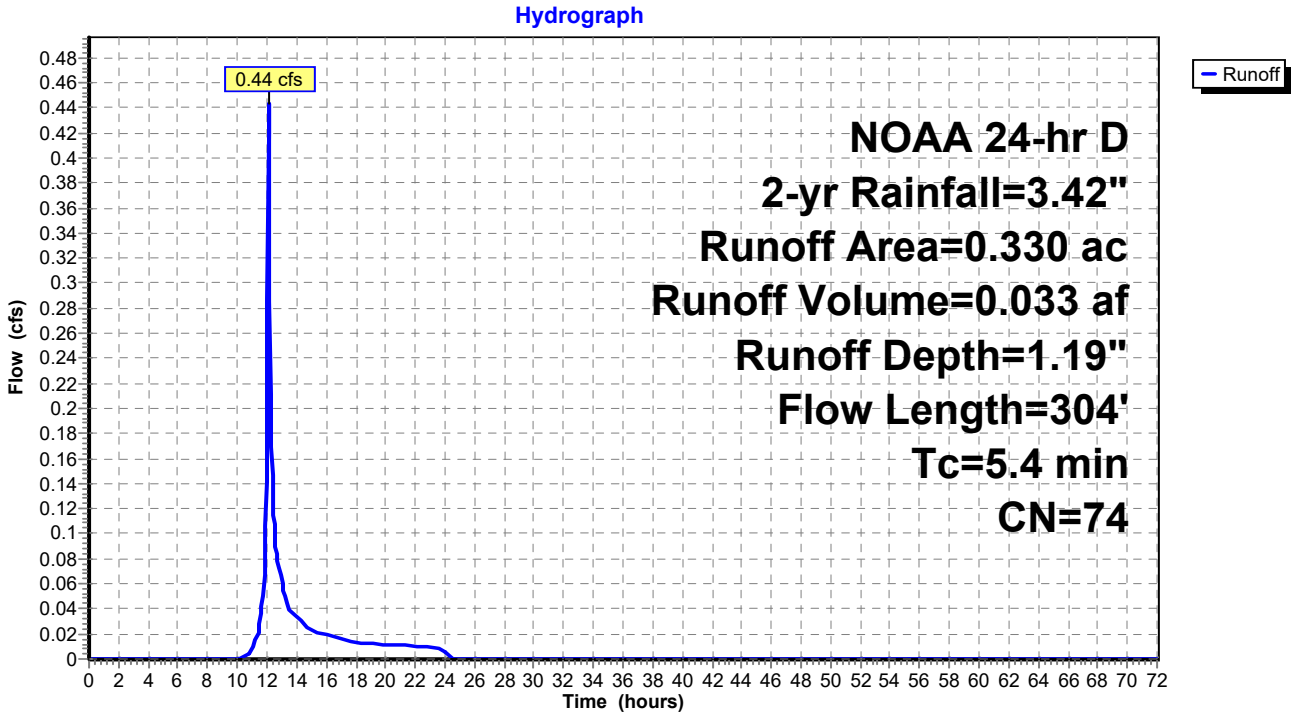
Runoff = 0.44 cfs @ 12.13 hrs, Volume= 0.033 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.330	74	>75% Grass cover, Good, HSG C
0.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	37	0.0270	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.0	63	0.0109	1.01		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.2	57	0.0623	5.07		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	101	0.0619	5.05		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	46	0.0100	6.84	8.40	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 Corrugated PE, smooth interior
5.4	304	Total			

Subcatchment 8: On-Site to Basin B to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 8: On-Site to Basin B to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.01	0.01
12.00	1.64	0.20	**0.21**
13.00	2.53	0.63	**0.06**
14.00	2.74	0.75	0.03
15.00	2.88	0.83	0.02
16.00	2.98	0.89	0.02
17.00	3.06	0.95	0.02
18.00	3.13	0.99	0.01
19.00	3.19	1.03	0.01
20.00	3.24	1.06	0.01
21.00	3.29	1.10	0.01
22.00	3.34	1.13	0.01
23.00	3.38	1.16	0.01
24.00	**3.42**	**1.19**	0.01
25.00	3.42	1.19	0.00
26.00	3.42	1.19	0.00
27.00	3.42	1.19	0.00
28.00	3.42	1.19	0.00
29.00	3.42	1.19	0.00
30.00	3.42	1.19	0.00
31.00	3.42	1.19	0.00
32.00	3.42	1.19	0.00
33.00	3.42	1.19	0.00
34.00	3.42	1.19	0.00
35.00	3.42	1.19	0.00
36.00	3.42	1.19	0.00
37.00	3.42	1.19	0.00
38.00	3.42	1.19	0.00
39.00	3.42	1.19	0.00
40.00	3.42	1.19	0.00
41.00	3.42	1.19	0.00
42.00	3.42	1.19	0.00
43.00	3.42	1.19	0.00
44.00	3.42	1.19	0.00
45.00	3.42	1.19	0.00
46.00	3.42	1.19	0.00
47.00	3.42	1.19	0.00
48.00	3.42	1.19	0.00
49.00	3.42	1.19	0.00
50.00	3.42	1.19	0.00
51.00	3.42	1.19	0.00
52.00	3.42	1.19	0.00
53.00	3.42	1.19	0.00
54.00	3.42	1.19	0.00
55.00	3.42	1.19	0.00
56.00	3.42	1.19	0.00
57.00	3.42	1.19	0.00
58.00	3.42	1.19	0.00
59.00	3.42	1.19	0.00
60.00	3.42	1.19	0.00
61.00	3.42	1.19	0.00
62.00	3.42	1.19	0.00
63.00	3.42	1.19	0.00
64.00	3.42	1.19	0.00
65.00	3.42	1.19	0.00
66.00	3.42	1.19	0.00
67.00	3.42	1.19	0.00
68.00	3.42	1.19	0.00
69.00	3.42	1.19	0.00
70.00	3.42	1.19	0.00
71.00	3.42	1.19	0.00
72.00	3.42	1.19	0.00

Summary for Subcatchment 10: Bypass Area #1 to Sunset-Bloomfield-Perv

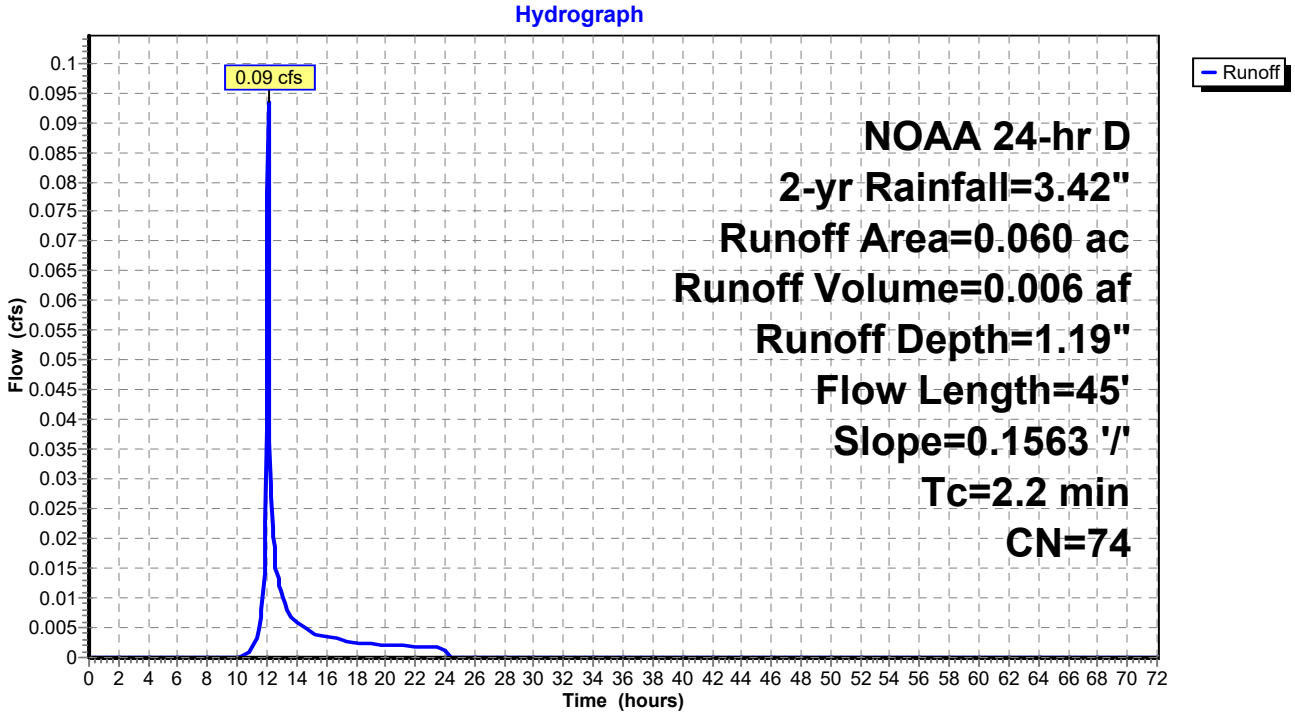
Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.006 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.060	74	>75% Grass cover, Good, HSG C
0.060		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	45	0.1563	0.34		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 10: Bypass Area #1 to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 10: Bypass Area #1 to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.01	0.00
12.00	1.64	0.20	**0.05**
13.00	2.53	0.63	**0.01**
14.00	2.74	0.75	0.01
15.00	2.88	0.83	0.00
16.00	2.98	0.89	0.00
17.00	3.06	0.95	0.00
18.00	3.13	0.99	0.00
19.00	3.19	1.03	0.00
20.00	3.24	1.06	0.00
21.00	3.29	1.10	0.00
22.00	3.34	1.13	0.00
23.00	3.38	1.16	0.00
24.00	**3.42**	**1.19**	0.00
25.00	3.42	1.19	0.00
26.00	3.42	1.19	0.00
27.00	3.42	1.19	0.00
28.00	3.42	1.19	0.00
29.00	3.42	1.19	0.00
30.00	3.42	1.19	0.00
31.00	3.42	1.19	0.00
32.00	3.42	1.19	0.00
33.00	3.42	1.19	0.00
34.00	3.42	1.19	0.00
35.00	3.42	1.19	0.00
36.00	3.42	1.19	0.00
37.00	3.42	1.19	0.00
38.00	3.42	1.19	0.00
39.00	3.42	1.19	0.00
40.00	3.42	1.19	0.00
41.00	3.42	1.19	0.00
42.00	3.42	1.19	0.00
43.00	3.42	1.19	0.00
44.00	3.42	1.19	0.00
45.00	3.42	1.19	0.00
46.00	3.42	1.19	0.00
47.00	3.42	1.19	0.00
48.00	3.42	1.19	0.00
49.00	3.42	1.19	0.00
50.00	3.42	1.19	0.00
51.00	3.42	1.19	0.00
52.00	3.42	1.19	0.00
53.00	3.42	1.19	0.00
54.00	3.42	1.19	0.00
55.00	3.42	1.19	0.00
56.00	3.42	1.19	0.00
57.00	3.42	1.19	0.00
58.00	3.42	1.19	0.00
59.00	3.42	1.19	0.00
60.00	3.42	1.19	0.00
61.00	3.42	1.19	0.00
62.00	3.42	1.19	0.00
63.00	3.42	1.19	0.00
64.00	3.42	1.19	0.00
65.00	3.42	1.19	0.00
66.00	3.42	1.19	0.00
67.00	3.42	1.19	0.00
68.00	3.42	1.19	0.00
69.00	3.42	1.19	0.00
70.00	3.42	1.19	0.00
71.00	3.42	1.19	0.00
72.00	3.42	1.19	0.00

Summary for Subcatchment 11: Bypass Area #2 to Sunset-Bloomfield-Perv

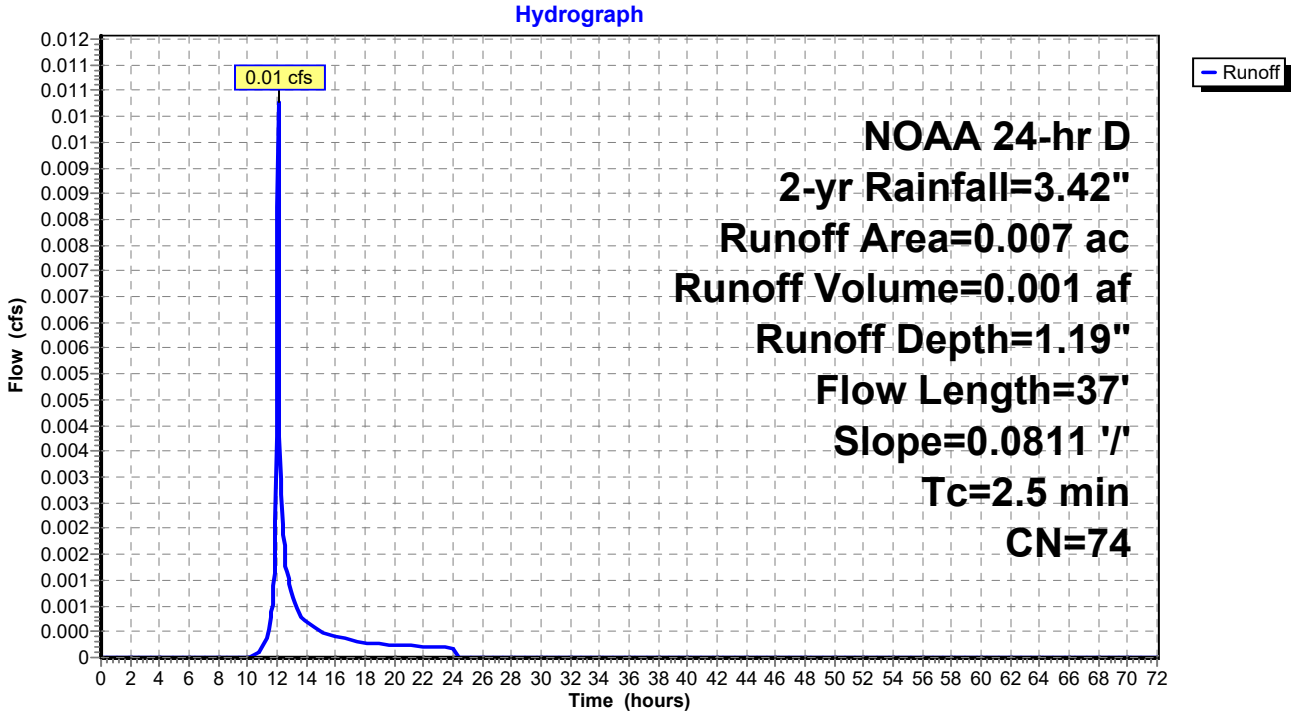
Runoff = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.007	74	>75% Grass cover, Good, HSG C
0.007		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0811	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 11: Bypass Area #2 to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 11: Bypass Area #2 to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.01	0.00
12.00	1.64	0.20	**0.01**
13.00	2.53	0.63	**0.00**
14.00	2.74	0.75	0.00
15.00	2.88	0.83	0.00
16.00	2.98	0.89	0.00
17.00	3.06	0.95	0.00
18.00	3.13	0.99	0.00
19.00	3.19	1.03	0.00
20.00	3.24	1.06	0.00
21.00	3.29	1.10	0.00
22.00	3.34	1.13	0.00
23.00	3.38	1.16	0.00
24.00	**3.42**	**1.19**	0.00
25.00	3.42	1.19	0.00
26.00	3.42	1.19	0.00
27.00	3.42	1.19	0.00
28.00	3.42	1.19	0.00
29.00	3.42	1.19	0.00
30.00	3.42	1.19	0.00
31.00	3.42	1.19	0.00
32.00	3.42	1.19	0.00
33.00	3.42	1.19	0.00
34.00	3.42	1.19	0.00
35.00	3.42	1.19	0.00
36.00	3.42	1.19	0.00
37.00	3.42	1.19	0.00
38.00	3.42	1.19	0.00
39.00	3.42	1.19	0.00
40.00	3.42	1.19	0.00
41.00	3.42	1.19	0.00
42.00	3.42	1.19	0.00
43.00	3.42	1.19	0.00
44.00	3.42	1.19	0.00
45.00	3.42	1.19	0.00
46.00	3.42	1.19	0.00
47.00	3.42	1.19	0.00
48.00	3.42	1.19	0.00
49.00	3.42	1.19	0.00
50.00	3.42	1.19	0.00
51.00	3.42	1.19	0.00
52.00	3.42	1.19	0.00
53.00	3.42	1.19	0.00
54.00	3.42	1.19	0.00
55.00	3.42	1.19	0.00
56.00	3.42	1.19	0.00
57.00	3.42	1.19	0.00
58.00	3.42	1.19	0.00
59.00	3.42	1.19	0.00
60.00	3.42	1.19	0.00
61.00	3.42	1.19	0.00
62.00	3.42	1.19	0.00
63.00	3.42	1.19	0.00
64.00	3.42	1.19	0.00
65.00	3.42	1.19	0.00
66.00	3.42	1.19	0.00
67.00	3.42	1.19	0.00
68.00	3.42	1.19	0.00
69.00	3.42	1.19	0.00
70.00	3.42	1.19	0.00
71.00	3.42	1.19	0.00
72.00	3.42	1.19	0.00

Summary for Subcatchment 12: Bypass Area #2 to Sunset-Bloomfield-Imperv

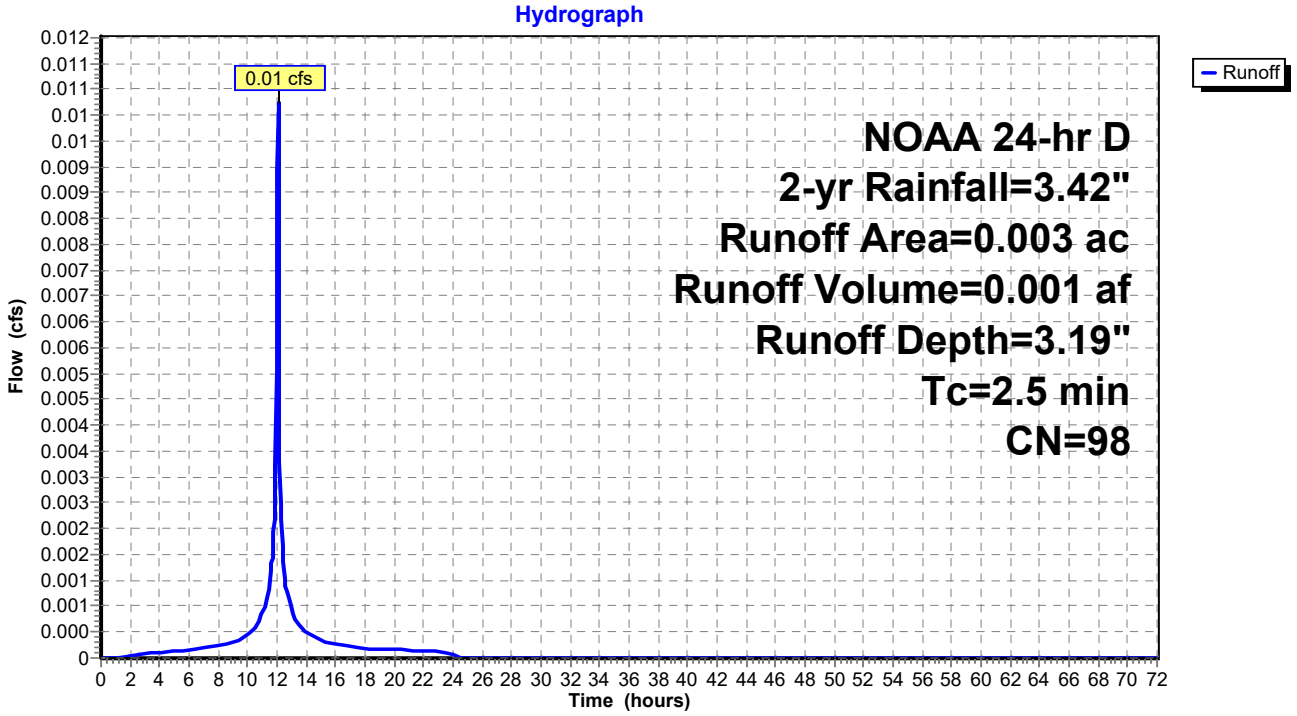
Runoff = 0.01 cfs @ 12.08 hrs, Volume= 0.001 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.003	98	Paved parking, HSG C
0.003		100.00% Impervious Area

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

Subcatchment 12: Bypass Area #2 to Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 12: Bypass Area #2 to Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.13	0.03	0.00
4.00	0.18	0.06	0.00
5.00	0.23	0.09	0.00
6.00	0.29	0.14	0.00
7.00	0.36	0.19	0.00
8.00	0.44	0.27	0.00
9.00	0.54	0.36	0.00
10.00	0.68	0.48	0.00
11.00	0.89	0.68	0.00
12.00	1.64	1.42	**0.01**
13.00	2.53	2.30	**0.00**
14.00	2.74	2.51	0.00
15.00	2.88	2.65	0.00
16.00	2.98	2.74	0.00
17.00	3.06	2.83	0.00
18.00	3.13	2.90	0.00
19.00	3.19	2.95	0.00
20.00	3.24	3.01	0.00
21.00	3.29	3.06	0.00
22.00	3.34	3.10	0.00
23.00	3.38	3.15	0.00
24.00	**3.42**	**3.19**	0.00
25.00	3.42	3.19	0.00
26.00	3.42	3.19	0.00
27.00	3.42	3.19	0.00
28.00	3.42	3.19	0.00
29.00	3.42	3.19	0.00
30.00	3.42	3.19	0.00
31.00	3.42	3.19	0.00
32.00	3.42	3.19	0.00
33.00	3.42	3.19	0.00
34.00	3.42	3.19	0.00
35.00	3.42	3.19	0.00
36.00	3.42	3.19	0.00
37.00	3.42	3.19	0.00
38.00	3.42	3.19	0.00
39.00	3.42	3.19	0.00
40.00	3.42	3.19	0.00
41.00	3.42	3.19	0.00
42.00	3.42	3.19	0.00
43.00	3.42	3.19	0.00
44.00	3.42	3.19	0.00
45.00	3.42	3.19	0.00
46.00	3.42	3.19	0.00
47.00	3.42	3.19	0.00
48.00	3.42	3.19	0.00
49.00	3.42	3.19	0.00
50.00	3.42	3.19	0.00
51.00	3.42	3.19	0.00
52.00	3.42	3.19	0.00
53.00	3.42	3.19	0.00
54.00	3.42	3.19	0.00
55.00	3.42	3.19	0.00
56.00	3.42	3.19	0.00
57.00	3.42	3.19	0.00
58.00	3.42	3.19	0.00
59.00	3.42	3.19	0.00
60.00	3.42	3.19	0.00
61.00	3.42	3.19	0.00
62.00	3.42	3.19	0.00
63.00	3.42	3.19	0.00
64.00	3.42	3.19	0.00
65.00	3.42	3.19	0.00
66.00	3.42	3.19	0.00
67.00	3.42	3.19	0.00
68.00	3.42	3.19	0.00
69.00	3.42	3.19	0.00
70.00	3.42	3.19	0.00
71.00	3.42	3.19	0.00
72.00	3.42	3.19	0.00

Summary for Subcatchment 14: Overland to Bloom-perv

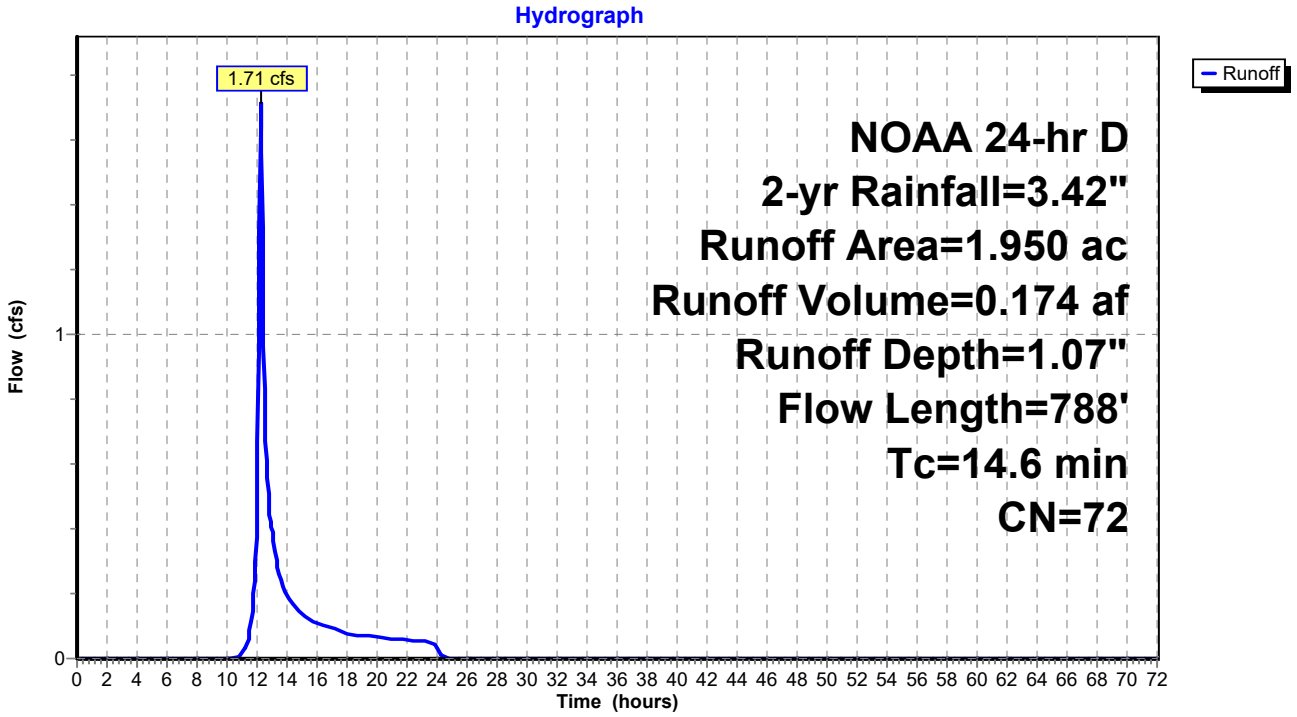
Runoff = 1.71 cfs @ 12.24 hrs, Volume= 0.174 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
1.170	74	>75% Grass cover, Good, HSG C
0.780	70	Woods, Good, HSG C
1.950	72	Weighted Average
1.950		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.0	174	0.0445	1.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.7	300	0.0720	1.88		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	79	0.1012	2.23		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	61	0.0410	1.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	61	0.0738	1.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	13	1.0000	7.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.6	788	Total			

Subcatchment 14: Overland to Bloom-perv



Hydrograph for Subcatchment 14: Overland to Bloom-perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.00	0.01
12.00	1.64	0.16	**0.49**
13.00	2.53	0.54	**0.39**
14.00	2.74	0.66	0.19
15.00	2.88	0.74	0.14
16.00	2.98	0.79	0.11
17.00	3.06	0.84	0.09
18.00	3.13	0.89	0.08
19.00	3.19	0.92	0.07
20.00	3.24	0.95	0.07
21.00	3.29	0.99	0.06
22.00	3.34	1.02	0.06
23.00	3.38	1.04	0.05
24.00	**3.42**	**1.07**	0.05
25.00	3.42	1.07	0.00
26.00	3.42	1.07	0.00
27.00	3.42	1.07	0.00
28.00	3.42	1.07	0.00
29.00	3.42	1.07	0.00
30.00	3.42	1.07	0.00
31.00	3.42	1.07	0.00
32.00	3.42	1.07	0.00
33.00	3.42	1.07	0.00
34.00	3.42	1.07	0.00
35.00	3.42	1.07	0.00
36.00	3.42	1.07	0.00
37.00	3.42	1.07	0.00
38.00	3.42	1.07	0.00
39.00	3.42	1.07	0.00
40.00	3.42	1.07	0.00
41.00	3.42	1.07	0.00
42.00	3.42	1.07	0.00
43.00	3.42	1.07	0.00
44.00	3.42	1.07	0.00
45.00	3.42	1.07	0.00
46.00	3.42	1.07	0.00
47.00	3.42	1.07	0.00
48.00	3.42	1.07	0.00
49.00	3.42	1.07	0.00
50.00	3.42	1.07	0.00
51.00	3.42	1.07	0.00
52.00	3.42	1.07	0.00
53.00	3.42	1.07	0.00
54.00	3.42	1.07	0.00
55.00	3.42	1.07	0.00
56.00	3.42	1.07	0.00
57.00	3.42	1.07	0.00
58.00	3.42	1.07	0.00
59.00	3.42	1.07	0.00
60.00	3.42	1.07	0.00
61.00	3.42	1.07	0.00
62.00	3.42	1.07	0.00
63.00	3.42	1.07	0.00
64.00	3.42	1.07	0.00
65.00	3.42	1.07	0.00
66.00	3.42	1.07	0.00
67.00	3.42	1.07	0.00
68.00	3.42	1.07	0.00
69.00	3.42	1.07	0.00
70.00	3.42	1.07	0.00
71.00	3.42	1.07	0.00
72.00	3.42	1.07	0.00

Summary for Subcatchment 16: Parkhurst-Perv

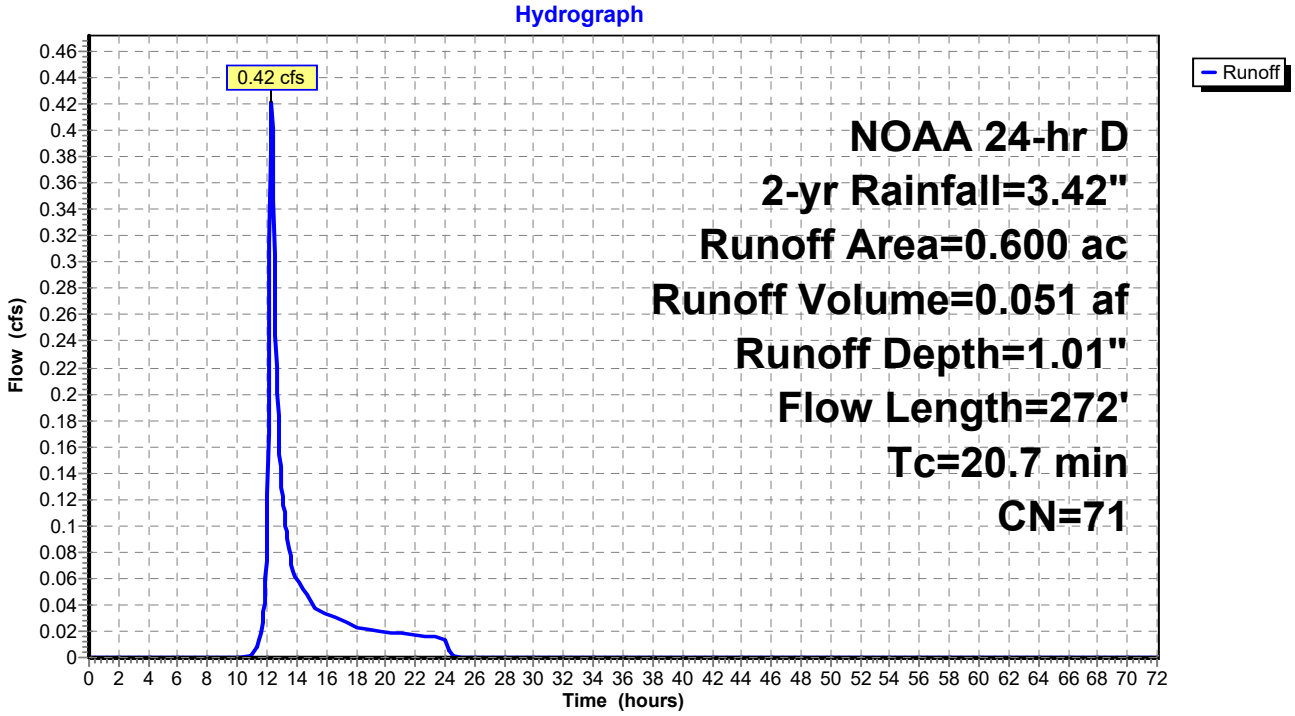
Runoff = 0.42 cfs @ 12.32 hrs, Volume= 0.051 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.140	74	>75% Grass cover, Good, HSG C
0.460	70	Woods, Good, HSG C
0.600	71	Weighted Average
0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.6	53	0.0755	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	52	0.3462	2.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	67	0.1045	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.7	272	Total			

Subcatchment 16: Parkhurst-Perv



Hydrograph for Subcatchment 16: Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.00	0.00
12.00	1.64	0.14	**0.09**
13.00	2.53	0.51	**0.13**
14.00	2.74	0.62	0.06
15.00	2.88	0.69	0.04
16.00	2.98	0.75	0.03
17.00	3.06	0.80	0.03
18.00	3.13	0.84	0.02
19.00	3.19	0.87	0.02
20.00	3.24	0.90	0.02
21.00	3.29	0.93	0.02
22.00	3.34	0.96	0.02
23.00	3.38	0.99	0.02
24.00	**3.42**	**1.01**	0.01
25.00	3.42	1.01	0.00
26.00	3.42	1.01	0.00
27.00	3.42	1.01	0.00
28.00	3.42	1.01	0.00
29.00	3.42	1.01	0.00
30.00	3.42	1.01	0.00
31.00	3.42	1.01	0.00
32.00	3.42	1.01	0.00
33.00	3.42	1.01	0.00
34.00	3.42	1.01	0.00
35.00	3.42	1.01	0.00
36.00	3.42	1.01	0.00
37.00	3.42	1.01	0.00
38.00	3.42	1.01	0.00
39.00	3.42	1.01	0.00
40.00	3.42	1.01	0.00
41.00	3.42	1.01	0.00
42.00	3.42	1.01	0.00
43.00	3.42	1.01	0.00
44.00	3.42	1.01	0.00
45.00	3.42	1.01	0.00
46.00	3.42	1.01	0.00
47.00	3.42	1.01	0.00
48.00	3.42	1.01	0.00
49.00	3.42	1.01	0.00
50.00	3.42	1.01	0.00
51.00	3.42	1.01	0.00
52.00	3.42	1.01	0.00
53.00	3.42	1.01	0.00
54.00	3.42	1.01	0.00
55.00	3.42	1.01	0.00
56.00	3.42	1.01	0.00
57.00	3.42	1.01	0.00
58.00	3.42	1.01	0.00
59.00	3.42	1.01	0.00
60.00	3.42	1.01	0.00
61.00	3.42	1.01	0.00
62.00	3.42	1.01	0.00
63.00	3.42	1.01	0.00
64.00	3.42	1.01	0.00
65.00	3.42	1.01	0.00
66.00	3.42	1.01	0.00
67.00	3.42	1.01	0.00
68.00	3.42	1.01	0.00
69.00	3.42	1.01	0.00
70.00	3.42	1.01	0.00
71.00	3.42	1.01	0.00
72.00	3.42	1.01	0.00

Summary for Subcatchment 17: Off-Site Parkhurst-Perv

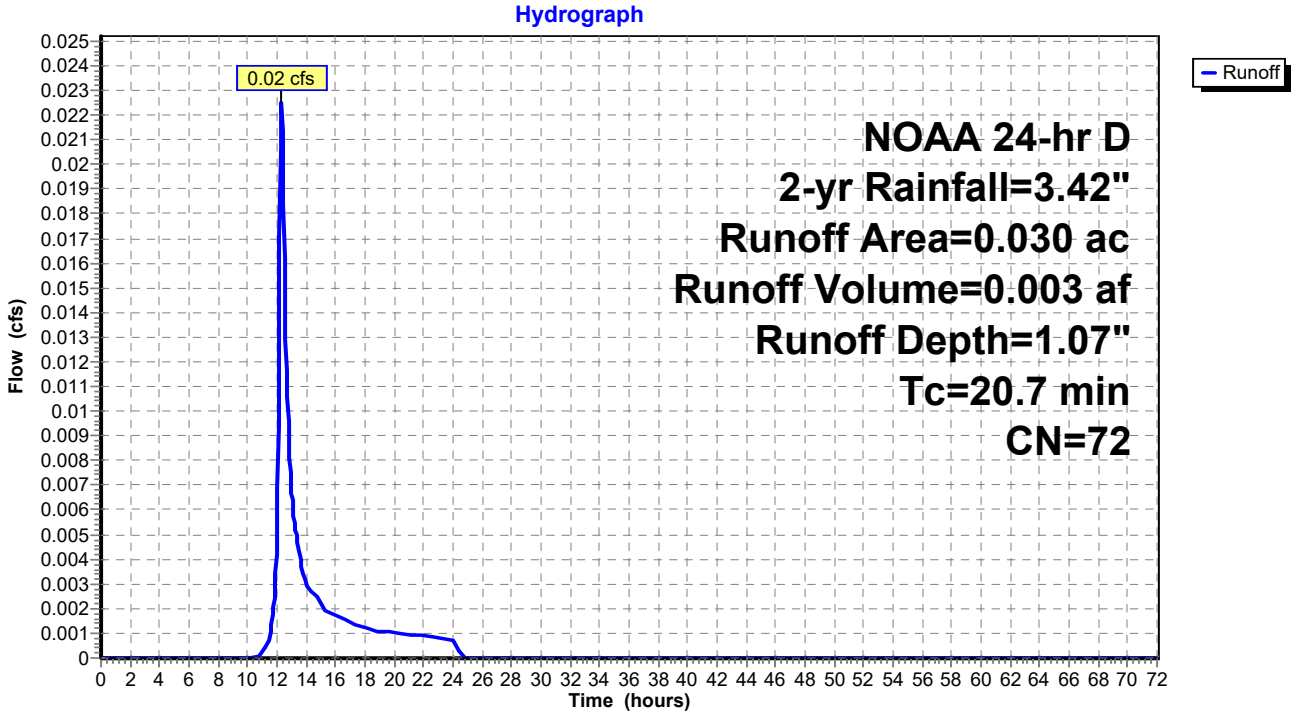
Runoff = 0.02 cfs @ 12.32 hrs, Volume= 0.003 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.030	72	Woods/grass comb., Good, HSG C
0.030		100.00% Pervious Area

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

Subcatchment 17: Off-Site Parkhurst-Perv



Hydrograph for Subcatchment 17: Off-Site Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.00	0.00
12.00	1.64	0.16	**0.01**
13.00	2.53	0.54	**0.01**
14.00	2.74	0.66	0.00
15.00	2.88	0.74	0.00
16.00	2.98	0.79	0.00
17.00	3.06	0.84	0.00
18.00	3.13	0.89	0.00
19.00	3.19	0.92	0.00
20.00	3.24	0.95	0.00
21.00	3.29	0.99	0.00
22.00	3.34	1.02	0.00
23.00	3.38	1.04	0.00
24.00	**3.42**	**1.07**	0.00
25.00	3.42	1.07	0.00
26.00	3.42	1.07	0.00
27.00	3.42	1.07	0.00
28.00	3.42	1.07	0.00
29.00	3.42	1.07	0.00
30.00	3.42	1.07	0.00
31.00	3.42	1.07	0.00
32.00	3.42	1.07	0.00
33.00	3.42	1.07	0.00
34.00	3.42	1.07	0.00
35.00	3.42	1.07	0.00
36.00	3.42	1.07	0.00
37.00	3.42	1.07	0.00
38.00	3.42	1.07	0.00
39.00	3.42	1.07	0.00
40.00	3.42	1.07	0.00
41.00	3.42	1.07	0.00
42.00	3.42	1.07	0.00
43.00	3.42	1.07	0.00
44.00	3.42	1.07	0.00
45.00	3.42	1.07	0.00
46.00	3.42	1.07	0.00
47.00	3.42	1.07	0.00
48.00	3.42	1.07	0.00
49.00	3.42	1.07	0.00
50.00	3.42	1.07	0.00
51.00	3.42	1.07	0.00
52.00	3.42	1.07	0.00
53.00	3.42	1.07	0.00
54.00	3.42	1.07	0.00
55.00	3.42	1.07	0.00
56.00	3.42	1.07	0.00
57.00	3.42	1.07	0.00
58.00	3.42	1.07	0.00
59.00	3.42	1.07	0.00
60.00	3.42	1.07	0.00
61.00	3.42	1.07	0.00
62.00	3.42	1.07	0.00
63.00	3.42	1.07	0.00
64.00	3.42	1.07	0.00
65.00	3.42	1.07	0.00
66.00	3.42	1.07	0.00
67.00	3.42	1.07	0.00
68.00	3.42	1.07	0.00
69.00	3.42	1.07	0.00
70.00	3.42	1.07	0.00
71.00	3.42	1.07	0.00
72.00	3.42	1.07	0.00

Summary for Subcatchment 23S: Basin C- Impervious

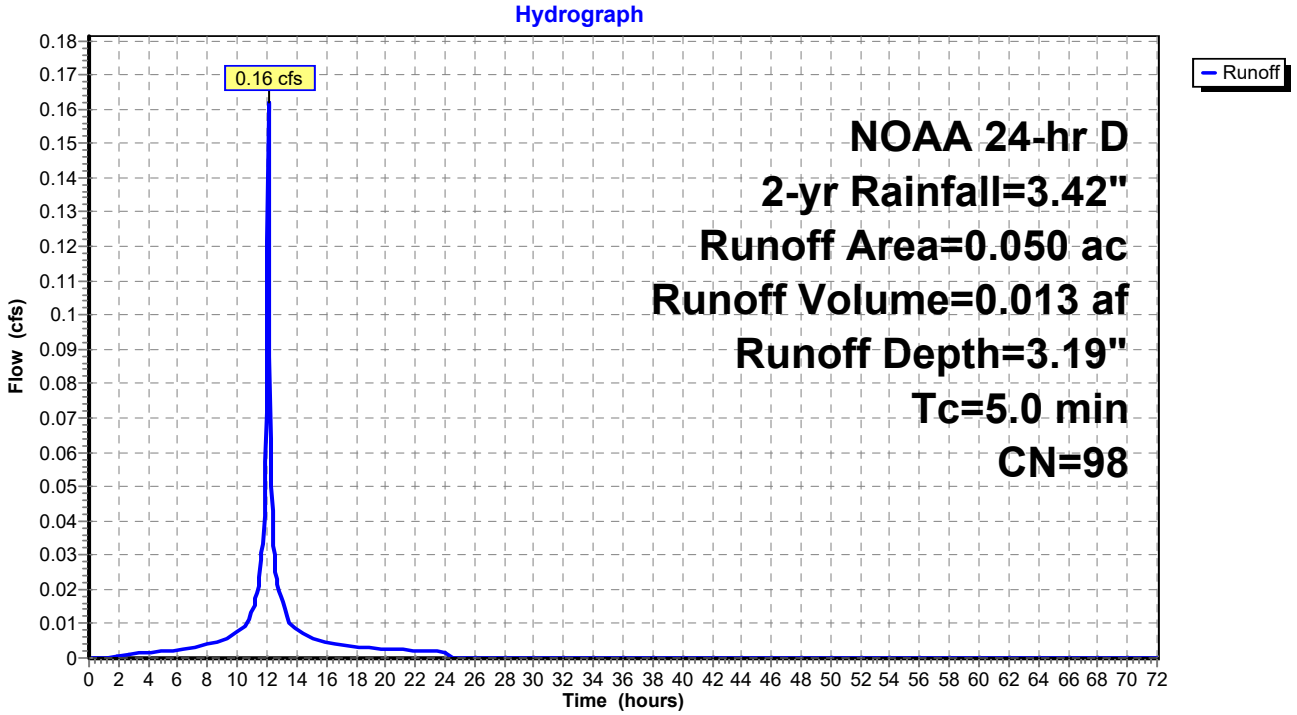
Runoff = 0.16 cfs @ 12.11 hrs, Volume= 0.013 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.050	98	Paved parking, HSG B
0.050		100.00% Impervious Area

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

Subcatchment 23S: Basin C- Impervious



Hydrograph for Subcatchment 23S: Basin C- Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.13	0.03	0.00
4.00	0.18	0.06	0.00
5.00	0.23	0.09	0.00
6.00	0.29	0.14	0.00
7.00	0.36	0.19	0.00
8.00	0.44	0.27	0.00
9.00	0.54	0.36	0.00
10.00	0.68	0.48	0.01
11.00	0.89	0.68	0.01
12.00	1.64	1.42	**0.10**
13.00	2.53	2.30	**0.02**
14.00	2.74	2.51	0.01
15.00	2.88	2.65	0.01
16.00	2.98	2.74	0.00
17.00	3.06	2.83	0.00
18.00	3.13	2.90	0.00
19.00	3.19	2.95	0.00
20.00	3.24	3.01	0.00
21.00	3.29	3.06	0.00
22.00	3.34	3.10	0.00
23.00	3.38	3.15	0.00
24.00	**3.42**	**3.19**	0.00
25.00	3.42	3.19	0.00
26.00	3.42	3.19	0.00
27.00	3.42	3.19	0.00
28.00	3.42	3.19	0.00
29.00	3.42	3.19	0.00
30.00	3.42	3.19	0.00
31.00	3.42	3.19	0.00
32.00	3.42	3.19	0.00
33.00	3.42	3.19	0.00
34.00	3.42	3.19	0.00
35.00	3.42	3.19	0.00
36.00	3.42	3.19	0.00
37.00	3.42	3.19	0.00
38.00	3.42	3.19	0.00
39.00	3.42	3.19	0.00
40.00	3.42	3.19	0.00
41.00	3.42	3.19	0.00
42.00	3.42	3.19	0.00
43.00	3.42	3.19	0.00
44.00	3.42	3.19	0.00
45.00	3.42	3.19	0.00
46.00	3.42	3.19	0.00
47.00	3.42	3.19	0.00
48.00	3.42	3.19	0.00
49.00	3.42	3.19	0.00
50.00	3.42	3.19	0.00
51.00	3.42	3.19	0.00
52.00	3.42	3.19	0.00
53.00	3.42	3.19	0.00
54.00	3.42	3.19	0.00
55.00	3.42	3.19	0.00
56.00	3.42	3.19	0.00
57.00	3.42	3.19	0.00
58.00	3.42	3.19	0.00
59.00	3.42	3.19	0.00
60.00	3.42	3.19	0.00
61.00	3.42	3.19	0.00
62.00	3.42	3.19	0.00
63.00	3.42	3.19	0.00
64.00	3.42	3.19	0.00
65.00	3.42	3.19	0.00
66.00	3.42	3.19	0.00
67.00	3.42	3.19	0.00
68.00	3.42	3.19	0.00
69.00	3.42	3.19	0.00
70.00	3.42	3.19	0.00
71.00	3.42	3.19	0.00
72.00	3.42	3.19	0.00

Summary for Subcatchment 24S: Basin C - Pervious

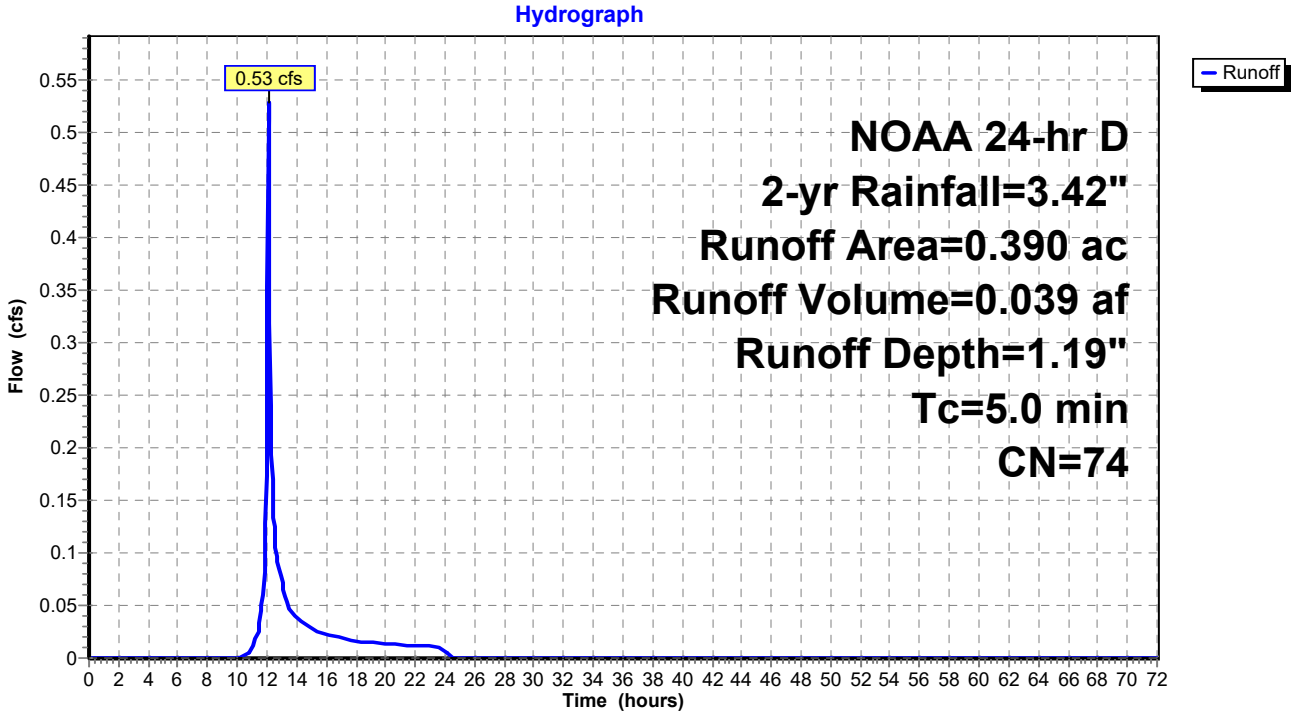
Runoff = 0.53 cfs @ 12.12 hrs, Volume= 0.039 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-yr Rainfall=3.42"

Area (ac)	CN	Description
0.310	74	>75% Grass cover, Good, HSG C
0.080	72	Woods/grass comb., Good, HSG C
0.390	74	Weighted Average
0.390		100.00% Pervious Area

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

Subcatchment 24S: Basin C - Pervious



Hydrograph for Subcatchment 24S: Basin C - Pervious

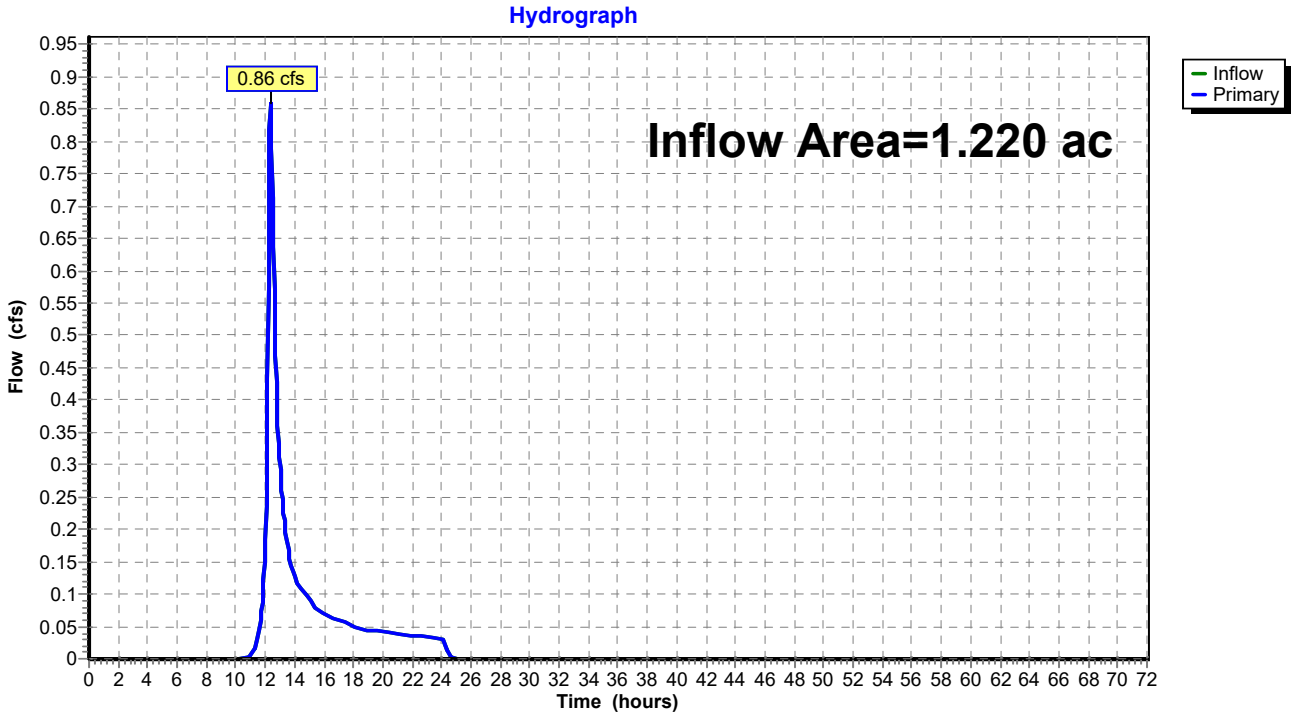
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.23	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.44	0.00	0.00
9.00	0.54	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.01	0.01
12.00	1.64	0.20	**0.25**
13.00	2.53	0.63	**0.07**
14.00	2.74	0.75	0.04
15.00	2.88	0.83	0.03
16.00	2.98	0.89	0.02
17.00	3.06	0.95	0.02
18.00	3.13	0.99	0.02
19.00	3.19	1.03	0.01
20.00	3.24	1.06	0.01
21.00	3.29	1.10	0.01
22.00	3.34	1.13	0.01
23.00	3.38	1.16	0.01
24.00	**3.42**	**1.19**	0.01
25.00	3.42	1.19	0.00
26.00	3.42	1.19	0.00
27.00	3.42	1.19	0.00
28.00	3.42	1.19	0.00
29.00	3.42	1.19	0.00
30.00	3.42	1.19	0.00
31.00	3.42	1.19	0.00
32.00	3.42	1.19	0.00
33.00	3.42	1.19	0.00
34.00	3.42	1.19	0.00
35.00	3.42	1.19	0.00
36.00	3.42	1.19	0.00
37.00	3.42	1.19	0.00
38.00	3.42	1.19	0.00
39.00	3.42	1.19	0.00
40.00	3.42	1.19	0.00
41.00	3.42	1.19	0.00
42.00	3.42	1.19	0.00
43.00	3.42	1.19	0.00
44.00	3.42	1.19	0.00
45.00	3.42	1.19	0.00
46.00	3.42	1.19	0.00
47.00	3.42	1.19	0.00
48.00	3.42	1.19	0.00
49.00	3.42	1.19	0.00
50.00	3.42	1.19	0.00
51.00	3.42	1.19	0.00
52.00	3.42	1.19	0.00
53.00	3.42	1.19	0.00
54.00	3.42	1.19	0.00
55.00	3.42	1.19	0.00
56.00	3.42	1.19	0.00
57.00	3.42	1.19	0.00
58.00	3.42	1.19	0.00
59.00	3.42	1.19	0.00
60.00	3.42	1.19	0.00
61.00	3.42	1.19	0.00
62.00	3.42	1.19	0.00
63.00	3.42	1.19	0.00
64.00	3.42	1.19	0.00
65.00	3.42	1.19	0.00
66.00	3.42	1.19	0.00
67.00	3.42	1.19	0.00
68.00	3.42	1.19	0.00
69.00	3.42	1.19	0.00
70.00	3.42	1.19	0.00
71.00	3.42	1.19	0.00
72.00	3.42	1.19	0.00

Summary for Pond 3: Prop. DA-1 Overland to Afterglow

Inflow Area = 1.220 ac, 0.00% Impervious, Inflow Depth = 1.07" for 2-yr event
Inflow = 0.86 cfs @ 12.36 hrs, Volume= 0.109 af
Primary = 0.86 cfs @ 12.36 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 3: Prop. DA-1 Overland to Afterglow



Hydrograph for Pond 3: Prop. DA-1 Overland to Afterglow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.00		0.00
11.00	0.00		0.00
12.00	**0.18**		**0.18**
13.00	**0.29**		**0.29**
14.00	0.13		0.13
15.00	0.09		0.09
16.00	0.07		0.07
17.00	0.06		0.06
18.00	0.05		0.05
19.00	0.04		0.04
20.00	0.04		0.04
21.00	0.04		0.04
22.00	0.04		0.04
23.00	0.03		0.03
24.00	0.03		0.03
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 6: Basin A to Sunset-Bloomfield

Inflow Area = 3.110 ac, 76.53% Impervious, Inflow Depth = 2.72" for 2-yr event
Inflow = 7.57 cfs @ 12.13 hrs, Volume= 0.704 af
Outflow = 2.19 cfs @ 12.41 hrs, Volume= 0.666 af, Atten= 71%, Lag= 17.0 min
Primary = 2.19 cfs @ 12.41 hrs, Volume= 0.666 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 526.22' @ 12.41 hrs Surf.Area= 0.187 ac Storage= 0.250 af
Flood Elev= 529.00' Surf.Area= 0.187 ac Storage= 0.635 af

Plug-Flow detention time= 166.9 min calculated for 0.666 af (95% of inflow)
Center-of-Mass det. time= 136.0 min (910.0 - 774.0)

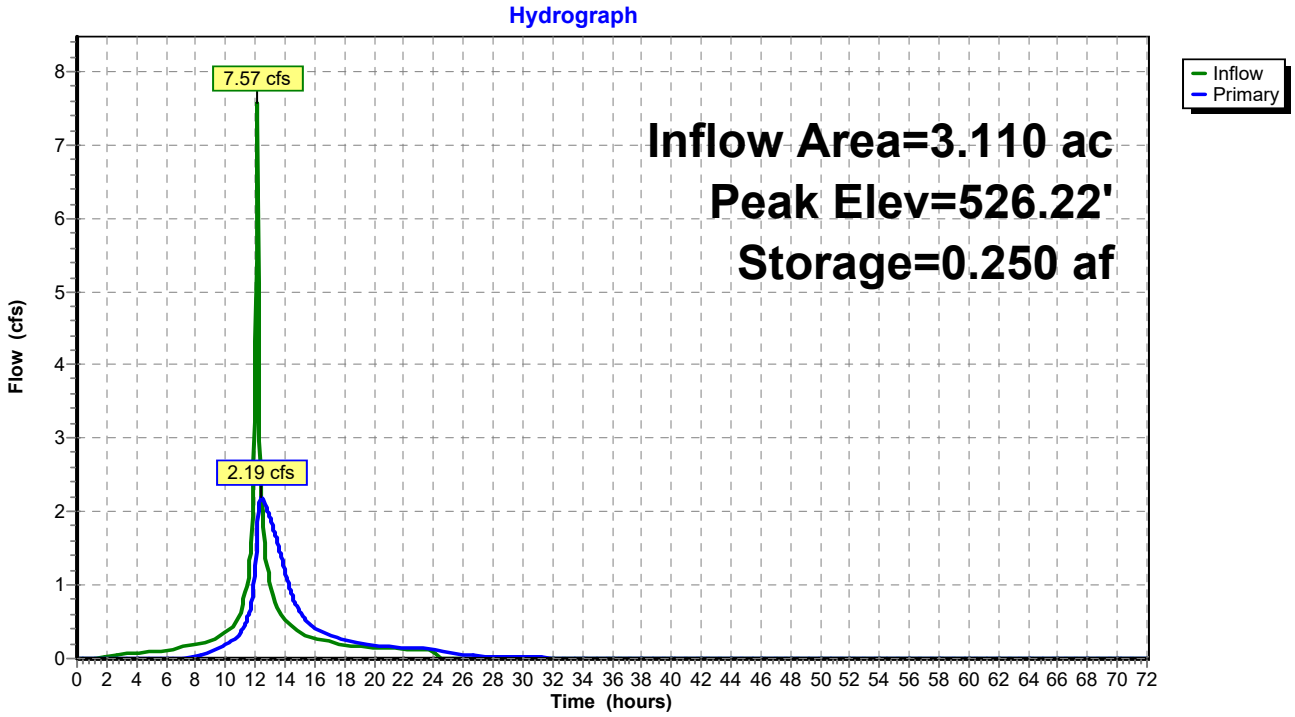
Volume	Invert	Avail.Storage	Storage Description
#1A	524.50'	0.105 af	**42.50'W x 161.00'L x 4.50'H Field A** 0.707 af Overall - 0.443 af Embedded = 0.263 af x 40.0% Voids
#2A	525.00'	0.430 af	**Brentwood StormTank 36"** x 1431 Inside #1 Inside= 18.0"W x 36.0"H => 4.37 sf x 3.00'L = 13.1 cf Outside= 18.0"W x 36.0"H => 4.50 sf x 3.00'L = 13.5 cf 27 Rows of 53 Chambers
#3B	524.50'	0.022 af	**26.00'W x 50.00'L x 4.50'H Field B** 0.134 af Overall - 0.079 af Embedded = 0.055 af x 40.0% Voids
#4B	525.00'	0.077 af	**Brentwood StormTank 36"** x 256 Inside #3 Inside= 18.0"W x 36.0"H => 4.37 sf x 3.00'L = 13.1 cf Outside= 18.0"W x 36.0"H => 4.50 sf x 3.00'L = 13.5 cf 16 Rows of 16 Chambers
		0.635 af	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	525.00'	**15.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 525.00' / 523.00' S= 0.0200 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	525.00'	**9.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	526.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.18 cfs @ 12.41 hrs HW=526.22' (Free Discharge)
└**1=Culvert** (Passes 2.18 cfs of 3.62 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 2.15 cfs @ 4.37 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 0.03 cfs @ 0.38 fps)

Pond 6: Basin A to Sunset-Bloomfield



Hydrograph for Pond 6: Basin A to Sunset-Bloomfield

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	524.50	0.00
2.50	0.04	0.003	524.54	0.00
5.00	0.10	0.018	524.73	0.00
7.50	0.17	0.043	525.04	0.01
10.00	**0.35**	**0.076**	**525.22**	**0.18**
12.50	**1.90**	**0.248**	**526.21**	**2.16**
15.00	0.34	0.114	525.44	0.63
17.50	0.20	0.085	525.28	0.27
20.00	0.15	0.076	525.22	0.18
22.50	0.13	0.071	525.20	0.14
25.00	0.00	0.062	525.14	0.08
27.50	0.00	0.053	525.09	0.03
30.00	0.00	0.048	525.06	0.02
32.50	0.00	0.046	525.05	0.01
35.00	0.00	0.044	525.04	0.01
37.50	0.00	0.043	525.03	0.01
40.00	0.00	0.042	525.03	0.00
42.50	0.00	0.041	525.02	0.00
45.00	0.00	0.041	525.02	0.00
47.50	0.00	0.040	525.02	0.00
50.00	0.00	0.040	525.01	0.00
52.50	0.00	0.039	525.01	0.00
55.00	0.00	0.039	525.01	0.00
57.50	0.00	0.039	525.01	0.00
60.00	0.00	0.038	525.01	0.00
62.50	0.00	0.038	525.00	0.00
65.00	0.00	0.038	525.00	0.00
67.50	0.00	0.038	525.00	0.00
70.00	0.00	0.038	525.00	0.00

Summary for Pond 9: Basin B to Sunset-Bloomfield

Inflow Area = 1.190 ac, 72.27% Impervious, Inflow Depth = 2.63" for 2-yr event
Inflow = 3.18 cfs @ 12.12 hrs, Volume= 0.261 af
Outflow = 1.73 cfs @ 12.22 hrs, Volume= 0.253 af, Atten= 46%, Lag= 6.2 min
Primary = 1.73 cfs @ 12.22 hrs, Volume= 0.253 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 514.70' @ 12.22 hrs Surf.Area= 0.039 ac Storage= 0.054 af
Flood Elev= 515.50' Surf.Area= 0.039 ac Storage= 0.080 af

Plug-Flow detention time= 70.9 min calculated for 0.253 af (97% of inflow)
Center-of-Mass det. time= 51.5 min (821.9 - 770.4)

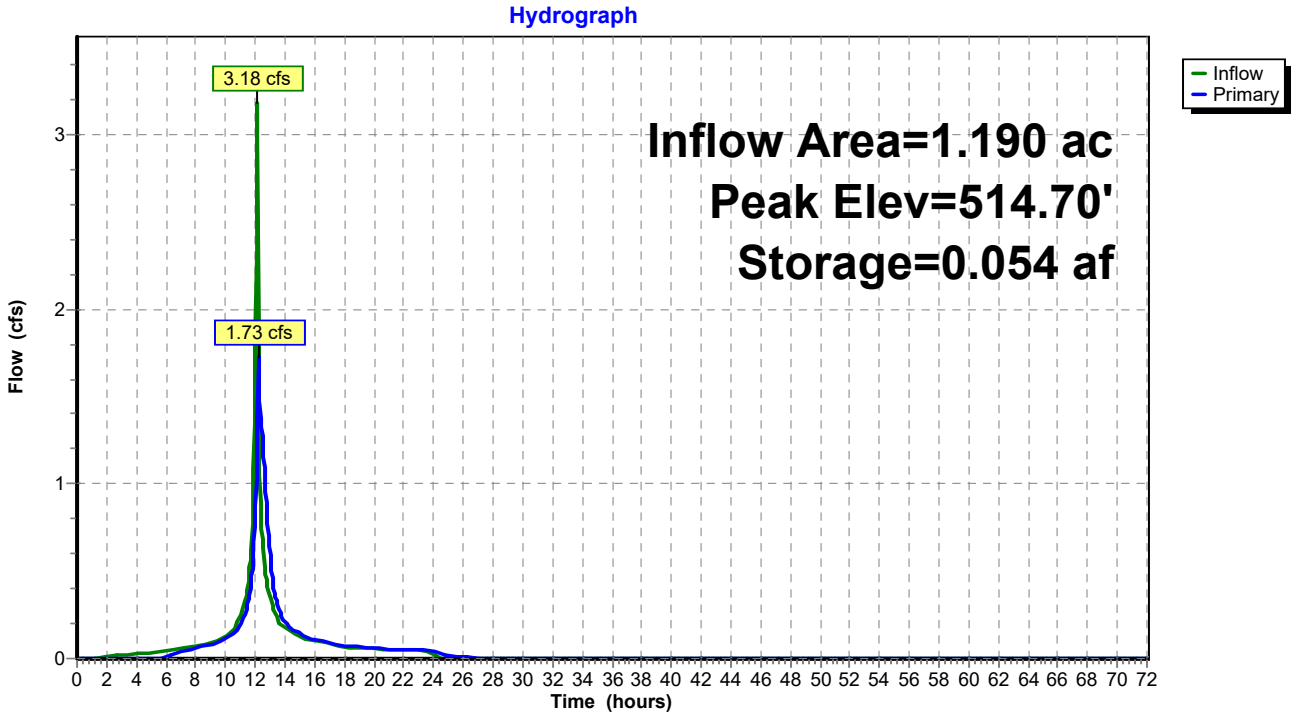
Volume	Invert	Avail.Storage	Storage Description
#1A	512.90'	0.027 af	**30.50'W x 56.00'L x 3.50'H Field A** 0.137 af Overall - 0.071 af Embedded = 0.067 af x 40.0% Voids
#2A	513.40'	0.068 af	**Brentwood StormTank 24"** x 342 Inside #1 Inside= 18.0"W x 24.0"H => 2.89 sf x 3.00'L = 8.7 cf Outside= 18.0"W x 24.0"H => 3.00 sf x 3.00'L = 9.0 cf 19 Rows of 18 Chambers
		0.095 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	510.57'	**15.0" Round Culvert** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 510.57' / 509.73' S= 0.0200 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	513.40'	**7.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	514.61'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.68 cfs @ 12.22 hrs HW=514.68' (Free Discharge)
└**1=Culvert** (Passes 1.68 cfs of 8.71 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.46 cfs @ 4.75 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 0.22 cfs @ 0.76 fps)

Pond 9: Basin B to Sunset-Bloomfield



Hydrograph for Pond 9: Basin B to Sunset-Bloomfield

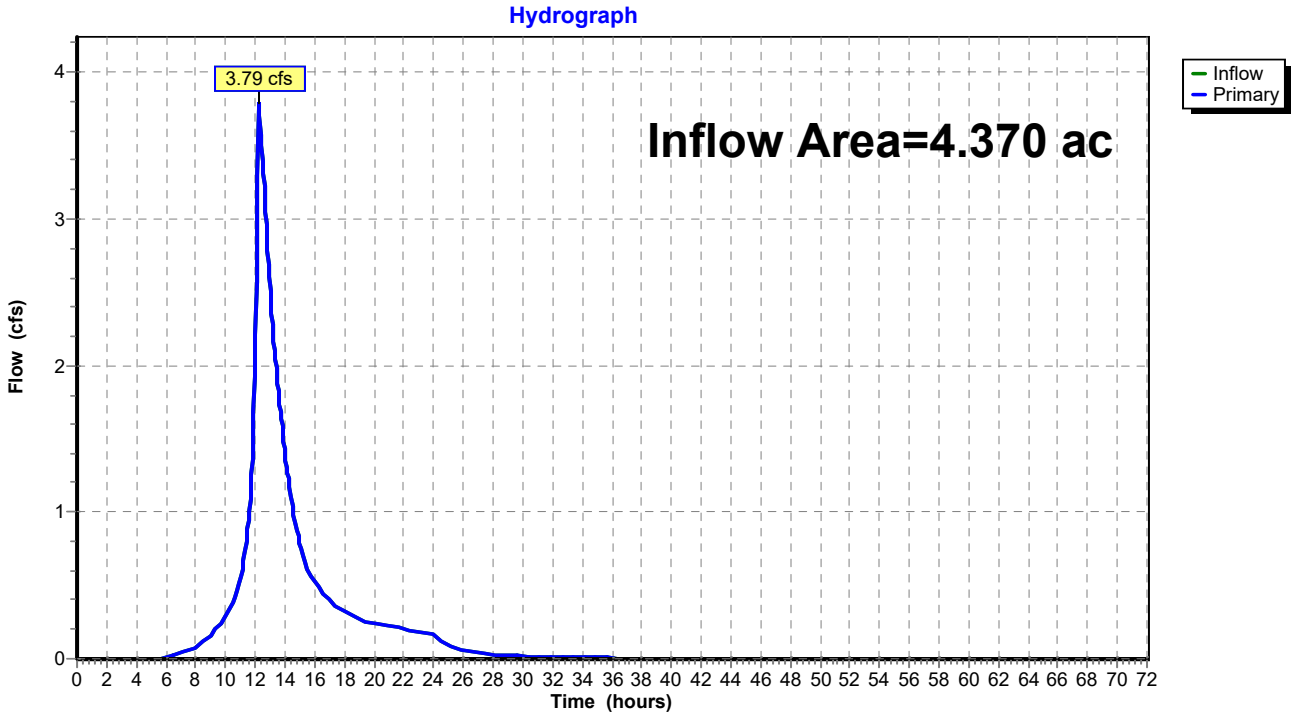
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	512.90	0.00
2.50	0.02	0.001	512.96	0.00
5.00	0.04	0.006	513.31	0.00
7.50	0.06	0.012	513.52	0.05
10.00	**0.13**	**0.014**	**513.58**	**0.11**
12.50	**0.65**	**0.043**	**514.39**	**1.21**
15.00	0.12	0.015	513.61	0.14
17.50	0.07	0.013	513.56	0.08
20.00	0.06	0.013	513.53	0.06
22.50	0.05	0.012	513.52	0.05
25.00	0.00	0.010	513.46	0.01
27.50	0.00	0.009	513.43	0.00
30.00	0.00	0.008	513.42	0.00
32.50	0.00	0.008	513.41	0.00
35.00	0.00	0.008	513.41	0.00
37.50	0.00	0.008	513.40	0.00
40.00	0.00	0.008	513.40	0.00
42.50	0.00	0.008	513.40	0.00
45.00	0.00	0.008	513.40	0.00
47.50	0.00	0.008	513.40	0.00
50.00	0.00	0.008	513.40	0.00
52.50	0.00	0.008	513.40	0.00
55.00	0.00	0.008	513.40	0.00
57.50	0.00	0.008	513.40	0.00
60.00	0.00	0.008	513.40	0.00
62.50	0.00	0.008	513.40	0.00
65.00	0.00	0.008	513.40	0.00
67.50	0.00	0.008	513.40	0.00
70.00	0.00	0.008	513.40	0.00

Summary for Pond 13: Prop. DA-2 Summation to Sunset-Bloomfield

Inflow Area = 4.370 ac, 74.21% Impervious, Inflow Depth > 2.55" for 2-yr event
Inflow = 3.79 cfs @ 12.23 hrs, Volume= 0.927 af
Primary = 3.79 cfs @ 12.23 hrs, Volume= 0.927 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 13: Prop. DA-2 Summation to Sunset-Bloomfield



Hydrograph for Pond 13: Prop. DA-2 Summation to Sunset-Bloomfield

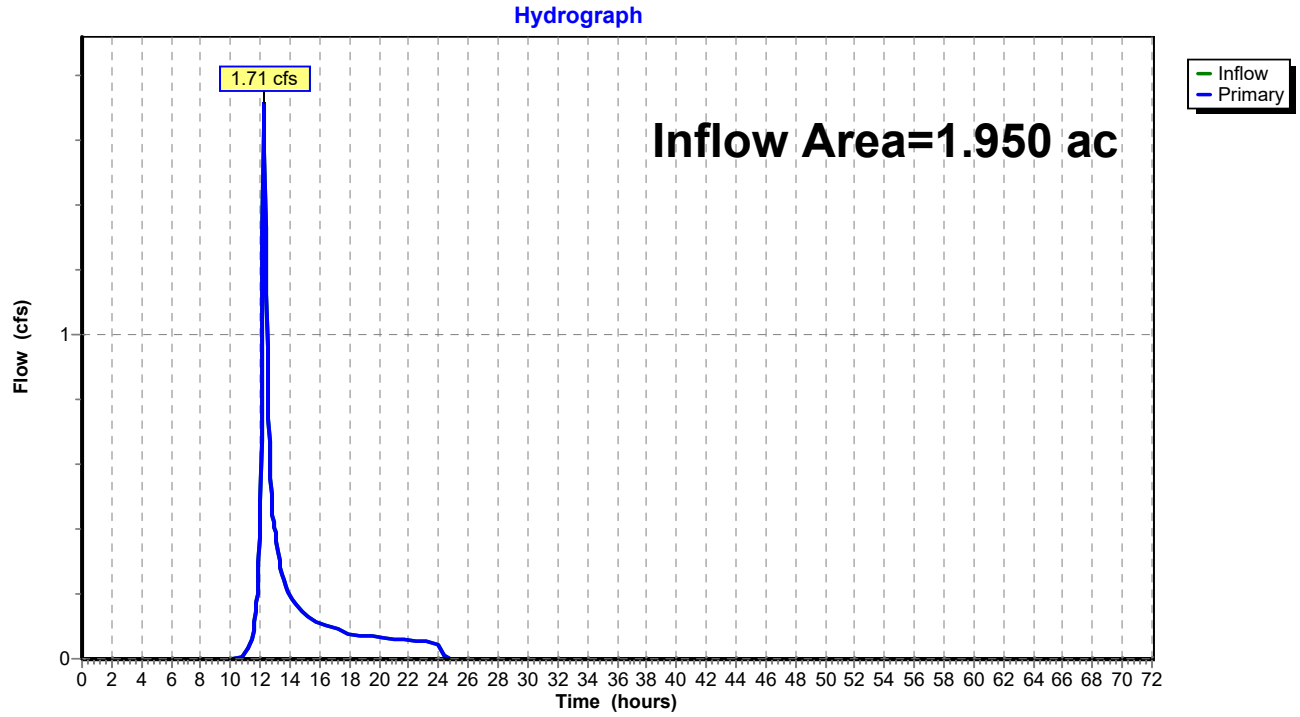
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.01		0.01
7.00	0.04		0.04
8.00	0.08		0.08
9.00	0.16		0.16
10.00	0.30		0.30
11.00	0.55		0.55
12.00	**2.21**		**2.21**
13.00	**2.52**		**2.52**
14.00	1.39		1.39
15.00	0.78		0.78
16.00	0.52		0.52
17.00	0.40		0.40
18.00	0.32		0.32
19.00	0.27		0.27
20.00	0.24		0.24
21.00	0.22		0.22
22.00	0.20		0.20
23.00	0.19		0.19
24.00	0.17		0.17
25.00	0.09		0.09
26.00	0.06		0.06
27.00	0.04		0.04
28.00	0.03		0.03
29.00	0.02		0.02
30.00	0.02		0.02
31.00	0.01		0.01
32.00	0.01		0.01
33.00	0.01		0.01
34.00	0.01		0.01
35.00	0.01		0.01
36.00	0.01		0.01
37.00	0.01		0.01
38.00	0.01		0.01
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 15: Prop. DA-3 Overland to Bloomfield

Inflow Area = 1.950 ac, 0.00% Impervious, Inflow Depth = 1.07" for 2-yr event
Inflow = 1.71 cfs @ 12.24 hrs, Volume= 0.174 af
Primary = 1.71 cfs @ 12.24 hrs, Volume= 0.174 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 15: Prop. DA-3 Overland to Bloomfield



Hydrograph for Pond 15: Prop. DA-3 Overland to Bloomfield

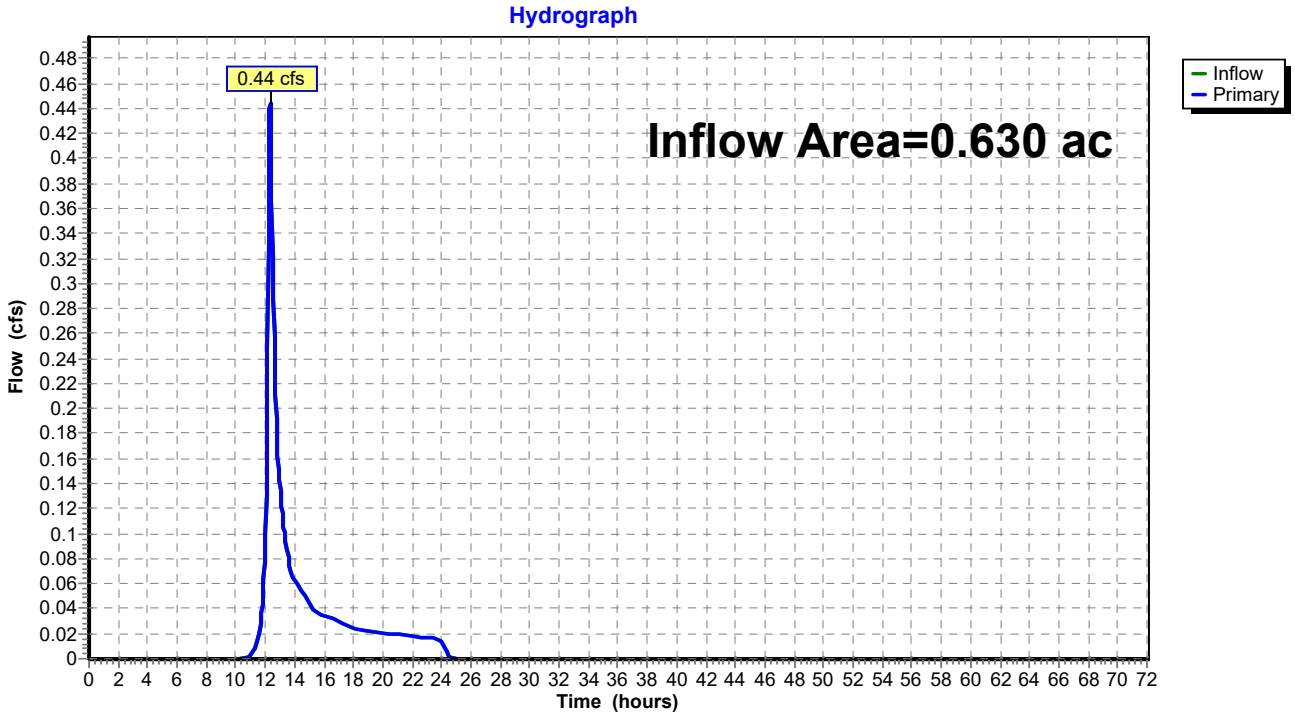
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.00		0.00
11.00	0.01		0.01
12.00	**0.49**		**0.49**
13.00	**0.39**		**0.39**
14.00	0.19		0.19
15.00	0.14		0.14
16.00	0.11		0.11
17.00	0.09		0.09
18.00	0.08		0.08
19.00	0.07		0.07
20.00	0.07		0.07
21.00	0.06		0.06
22.00	0.06		0.06
23.00	0.05		0.05
24.00	0.05		0.05
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 18: Prop. DA-4 Overland to Parkhurst

Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth = 1.02" for 2-yr event
Inflow = 0.44 cfs @ 12.32 hrs, Volume= 0.053 af
Primary = 0.44 cfs @ 12.32 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 18: Prop. DA-4 Overland to Parkhurst



Hydrograph for Pond 18: Prop. DA-4 Overland to Parkhurst

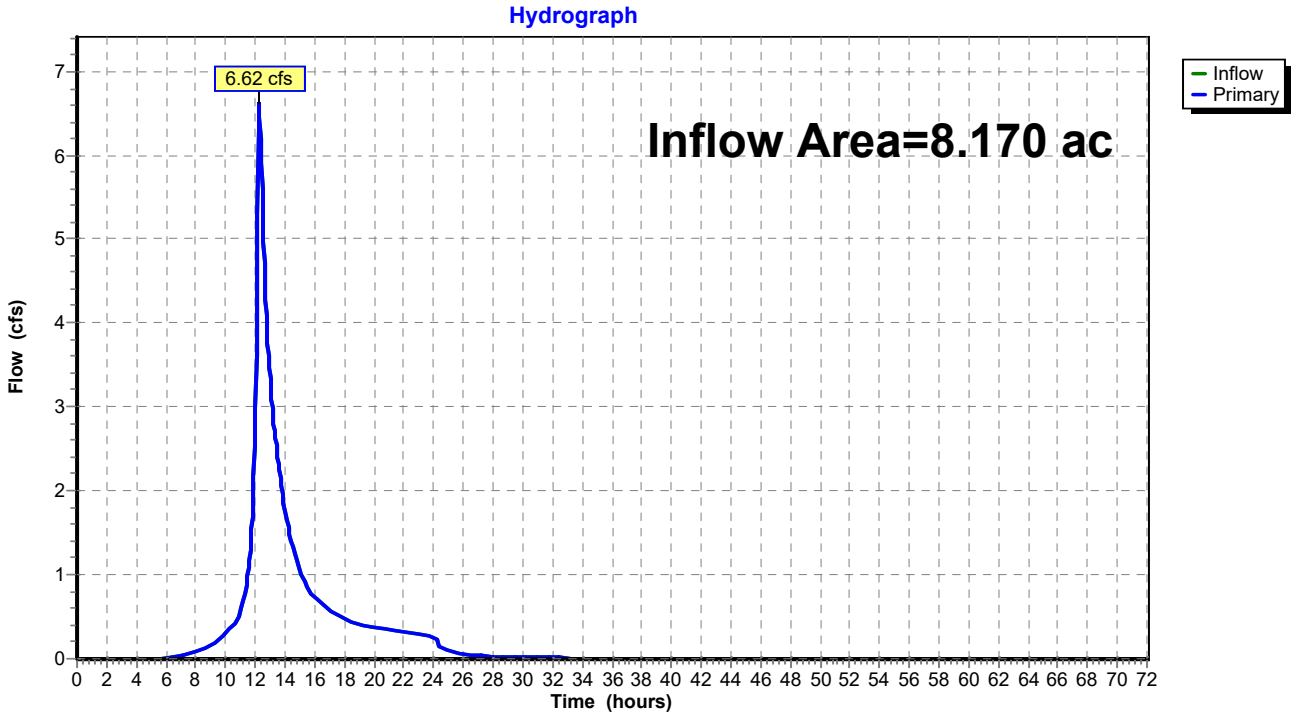
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.00		0.00
11.00	0.00		0.00
12.00	**0.10**		**0.10**
13.00	**0.14**		**0.14**
14.00	0.06		0.06
15.00	0.04		0.04
16.00	0.03		0.03
17.00	0.03		0.03
18.00	0.02		0.02
19.00	0.02		0.02
20.00	0.02		0.02
21.00	0.02		0.02
22.00	0.02		0.02
23.00	0.02		0.02
24.00	0.02		0.02
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 19: Site Sum

Inflow Area = 8.170 ac, 39.69% Impervious, Inflow Depth = 1.85" for 2-yr event
Inflow = 6.62 cfs @ 12.26 hrs, Volume= 1.263 af
Primary = 6.62 cfs @ 12.26 hrs, Volume= 1.263 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 19: Site Sum



Hydrograph for Pond 19: Site Sum

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.01		0.01
7.00	0.04		0.04
8.00	0.08		0.08
9.00	0.16		0.16
10.00	0.30		0.30
11.00	0.57		0.57
12.00	**2.98**		**2.98**
13.00	**3.33**		**3.33**
14.00	1.77		1.77
15.00	1.05		1.05
16.00	0.73		0.73
17.00	0.58		0.58
18.00	0.47		0.47
19.00	0.41		0.41
20.00	0.37		0.37
21.00	0.34		0.34
22.00	0.32		0.32
23.00	0.29		0.29
24.00	0.27		0.27
25.00	0.09		0.09
26.00	0.06		0.06
27.00	0.04		0.04
28.00	0.03		0.03
29.00	0.02		0.02
30.00	0.02		0.02
31.00	0.01		0.01
32.00	0.01		0.01
33.00	0.01		0.01
34.00	0.01		0.01
35.00	0.01		0.01
36.00	0.01		0.01
37.00	0.01		0.01
38.00	0.01		0.01
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 57P: Basin C

Inflow Area = 0.440 ac, 11.36% Impervious, Inflow Depth = 1.41" for 2-yr event
Inflow = 0.69 cfs @ 12.12 hrs, Volume= 0.052 af
Outflow = 0.18 cfs @ 12.41 hrs, Volume= 0.052 af, Atten= 74%, Lag= 17.5 min
Primary = 0.18 cfs @ 12.41 hrs, Volume= 0.052 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 85.25' Surf.Area= 0 sf Storage= 0 cf
Peak Elev= 558.69' @ 12.41 hrs Surf.Area= 2,145 sf Storage= 601 cf

Plug-Flow detention time= 64.2 min calculated for 0.052 af (100% of inflow)
Center-of-Mass det. time= 64.0 min (904.6 - 840.5)

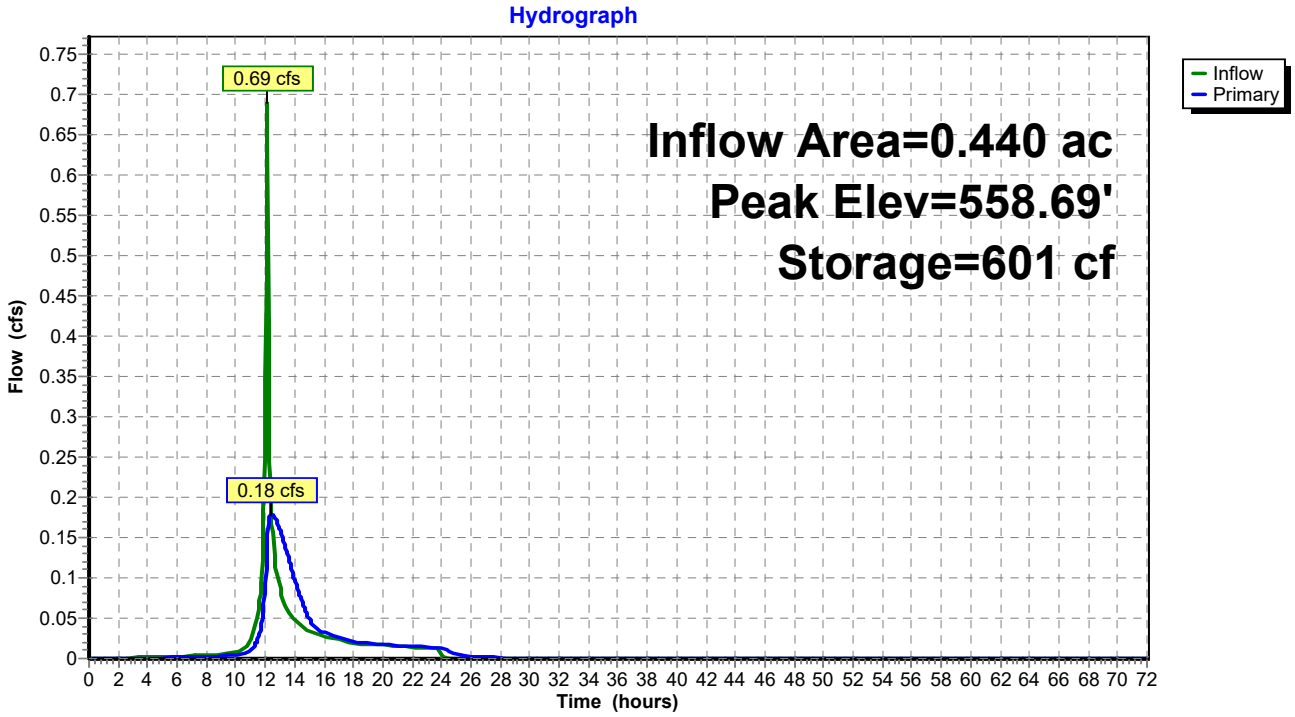
Volume	Invert	Avail.Storage	Storage Description
#1	557.99'	1,980 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
557.99	2,145	0.0	0	0
558.00	2,145	40.0	9	9
558.99	2,145	40.0	849	858
559.00	2,145	37.5	8	866
559.49	2,145	37.5	394	1,260
559.50	2,145	21.7	5	1,265
560.99	2,145	21.7	694	1,958
561.00	2,145	100.0	21	1,980

Device	Routing	Invert	Outlet Devices
#1	Primary	552.99'	**15.0" Round Culvert** L= 59.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 552.99' / 551.12' S= 0.0315 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	557.99'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	560.50'	**3.0' 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
#4	Device 1	562.50'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.18 cfs @ 12.41 hrs HW=558.69' (Free Discharge)
↑└**1=Culvert** (Passes 0.18 cfs of 13.31 cfs potential flow)
↑└**2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 3.65 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 57P: Basin C



Hydrograph for Pond 57P: Basin C

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	557.99	0.00
2.50	0.00	2	557.99	0.00
5.00	0.00	13	558.01	0.00
7.50	0.00	24	558.02	0.00
10.00	**0.01**	**40**	**558.04**	**0.00**
12.50	**0.16**	**597**	**558.69**	**0.18**
15.00	0.03	144	558.16	0.05
17.50	0.02	94	558.10	0.02
20.00	0.02	79	558.08	0.02
22.50	0.01	72	558.07	0.01
25.00	0.00	40	558.04	0.00
27.50	0.00	16	558.01	0.00
30.00	0.00	10	558.00	0.00
32.50	0.00	7	558.00	0.00
35.00	0.00	6	558.00	0.00
37.50	0.00	5	558.00	0.00
40.00	0.00	4	557.99	0.00
42.50	0.00	3	557.99	0.00
45.00	0.00	2	557.99	0.00
47.50	0.00	2	557.99	0.00
50.00	0.00	1	557.99	0.00
52.50	0.00	1	557.99	0.00
55.00	0.00	1	557.99	0.00
57.50	0.00	1	557.99	0.00
60.00	0.00	1	557.99	0.00
62.50	0.00	0	557.99	0.00
65.00	0.00	0	557.99	0.00
67.50	0.00	0	557.99	0.00
70.00	0.00	0	557.99	0.00

Summary for Subcatchment 1: Afterglow-Perv

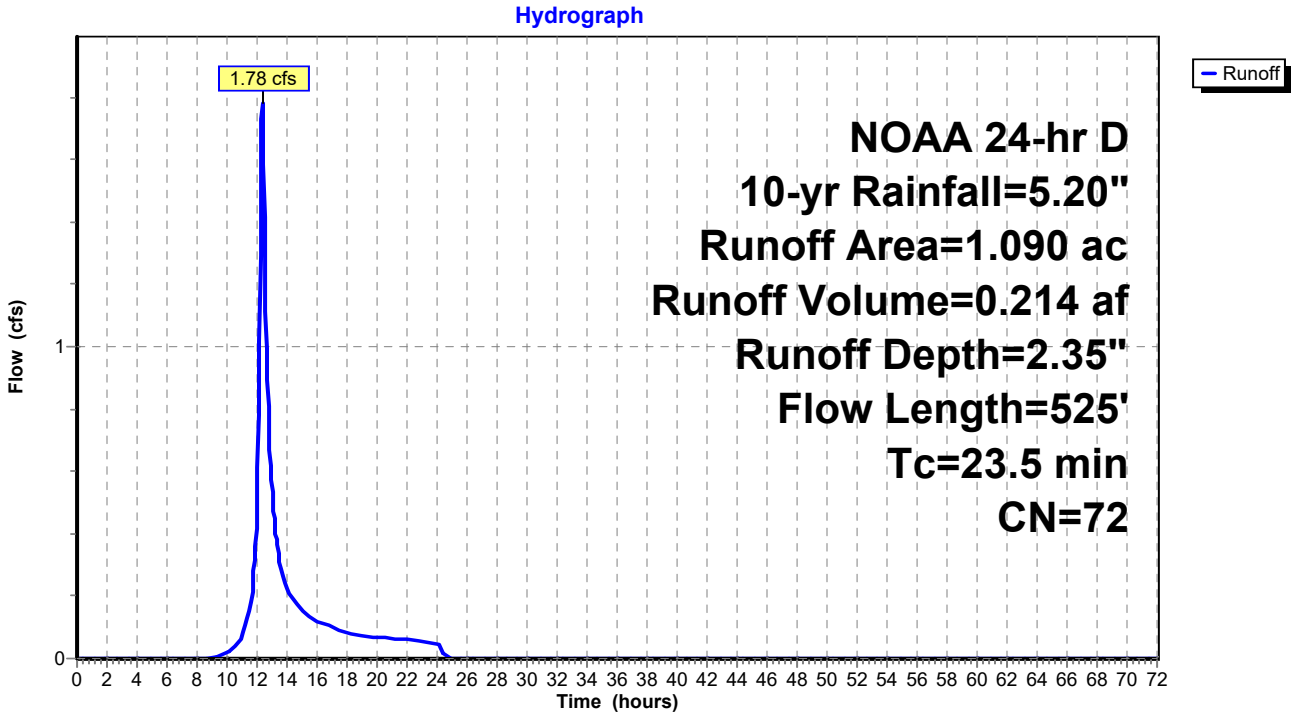
Runoff = 1.78 cfs @ 12.35 hrs, Volume= 0.214 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
1.030	72	Woods/grass comb., Good, HSG C
0.060	74	>75% Grass cover, Good, HSG C
1.090	72	Weighted Average
1.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0230	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	102	0.0775	1.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	131	0.0481	1.54		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	92	0.1957	2.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	46	0.1739	2.09		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	54	0.2037	2.26		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.5	525	Total			

Subcatchment 1: Afterglow-Perv



Hydrograph for Subcatchment 1: Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.02	0.02
11.00	1.35	0.07	0.07
12.00	2.49	0.52	**0.50**
13.00	3.85	1.35	**0.53**
14.00	4.17	1.58	0.22
15.00	4.38	1.73	0.16
16.00	4.53	1.84	0.12
17.00	4.65	1.93	0.10
18.00	4.76	2.01	0.08
19.00	4.84	2.08	0.07
20.00	4.93	2.14	0.07
21.00	5.00	2.20	0.06
22.00	5.08	2.26	0.06
23.00	5.14	2.31	0.06
24.00	**5.20**	**2.35**	0.05
25.00	5.20	2.35	0.00
26.00	5.20	2.35	0.00
27.00	5.20	2.35	0.00
28.00	5.20	2.35	0.00
29.00	5.20	2.35	0.00
30.00	5.20	2.35	0.00
31.00	5.20	2.35	0.00
32.00	5.20	2.35	0.00
33.00	5.20	2.35	0.00
34.00	5.20	2.35	0.00
35.00	5.20	2.35	0.00
36.00	5.20	2.35	0.00
37.00	5.20	2.35	0.00
38.00	5.20	2.35	0.00
39.00	5.20	2.35	0.00
40.00	5.20	2.35	0.00
41.00	5.20	2.35	0.00
42.00	5.20	2.35	0.00
43.00	5.20	2.35	0.00
44.00	5.20	2.35	0.00
45.00	5.20	2.35	0.00
46.00	5.20	2.35	0.00
47.00	5.20	2.35	0.00
48.00	5.20	2.35	0.00
49.00	5.20	2.35	0.00
50.00	5.20	2.35	0.00
51.00	5.20	2.35	0.00
52.00	5.20	2.35	0.00
53.00	5.20	2.35	0.00
54.00	5.20	2.35	0.00
55.00	5.20	2.35	0.00
56.00	5.20	2.35	0.00
57.00	5.20	2.35	0.00
58.00	5.20	2.35	0.00
59.00	5.20	2.35	0.00
60.00	5.20	2.35	0.00
61.00	5.20	2.35	0.00
62.00	5.20	2.35	0.00
63.00	5.20	2.35	0.00
64.00	5.20	2.35	0.00
65.00	5.20	2.35	0.00
66.00	5.20	2.35	0.00
67.00	5.20	2.35	0.00
68.00	5.20	2.35	0.00
69.00	5.20	2.35	0.00
70.00	5.20	2.35	0.00
71.00	5.20	2.35	0.00
72.00	5.20	2.35	0.00

Summary for Subcatchment 2: Off-Site Afterglow-Perv

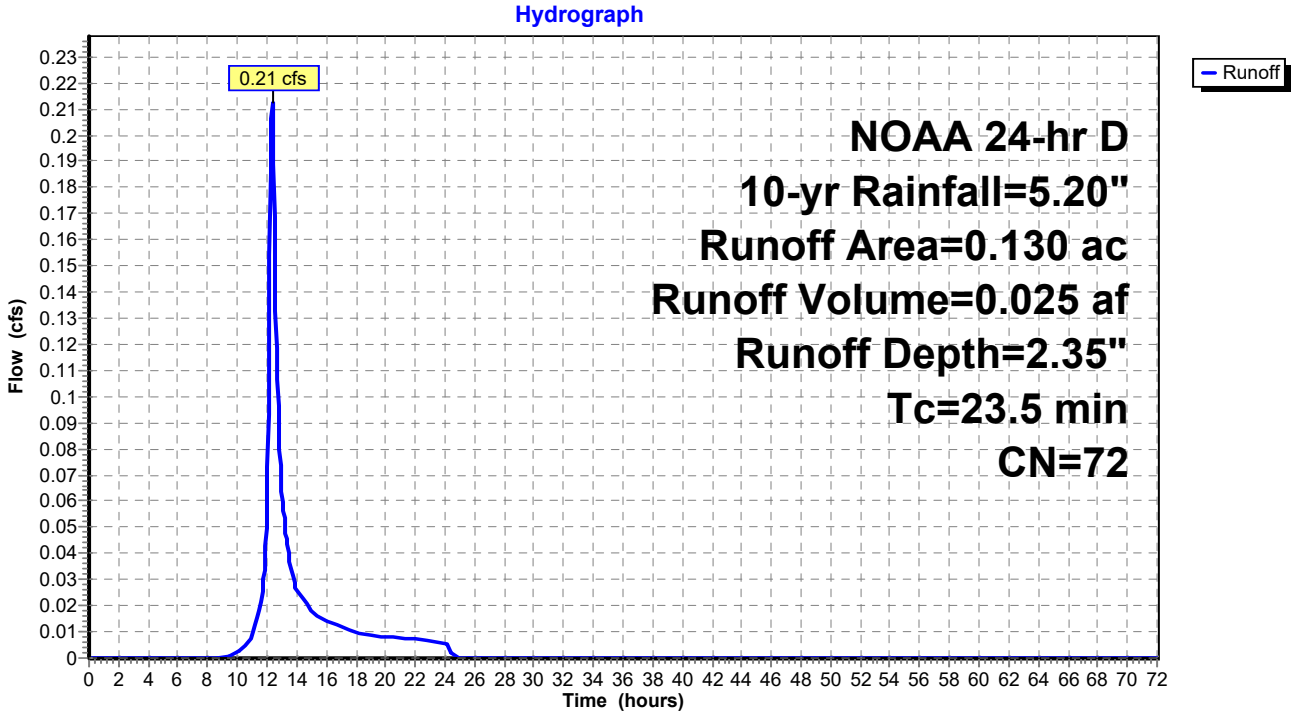
Runoff = 0.21 cfs @ 12.35 hrs, Volume= 0.025 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.090	72	Woods/grass comb., Good, HSG C
0.040	72	Woods/grass comb., Good, HSG C
0.130	72	Weighted Average
0.130		100.00% Pervious Area

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

Subcatchment 2: Off-Site Afterglow-Perv



Hydrograph for Subcatchment 2: Off-Site Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.02	0.00
11.00	1.35	0.07	0.01
12.00	2.49	0.52	**0.06**
13.00	3.85	1.35	**0.06**
14.00	4.17	1.58	0.03
15.00	4.38	1.73	0.02
16.00	4.53	1.84	0.01
17.00	4.65	1.93	0.01
18.00	4.76	2.01	0.01
19.00	4.84	2.08	0.01
20.00	4.93	2.14	0.01
21.00	5.00	2.20	0.01
22.00	5.08	2.26	0.01
23.00	5.14	2.31	0.01
24.00	**5.20**	**2.35**	0.01
25.00	5.20	2.35	0.00
26.00	5.20	2.35	0.00
27.00	5.20	2.35	0.00
28.00	5.20	2.35	0.00
29.00	5.20	2.35	0.00
30.00	5.20	2.35	0.00
31.00	5.20	2.35	0.00
32.00	5.20	2.35	0.00
33.00	5.20	2.35	0.00
34.00	5.20	2.35	0.00
35.00	5.20	2.35	0.00
36.00	5.20	2.35	0.00
37.00	5.20	2.35	0.00
38.00	5.20	2.35	0.00
39.00	5.20	2.35	0.00
40.00	5.20	2.35	0.00
41.00	5.20	2.35	0.00
42.00	5.20	2.35	0.00
43.00	5.20	2.35	0.00
44.00	5.20	2.35	0.00
45.00	5.20	2.35	0.00
46.00	5.20	2.35	0.00
47.00	5.20	2.35	0.00
48.00	5.20	2.35	0.00
49.00	5.20	2.35	0.00
50.00	5.20	2.35	0.00
51.00	5.20	2.35	0.00
52.00	5.20	2.35	0.00
53.00	5.20	2.35	0.00
54.00	5.20	2.35	0.00
55.00	5.20	2.35	0.00
56.00	5.20	2.35	0.00
57.00	5.20	2.35	0.00
58.00	5.20	2.35	0.00
59.00	5.20	2.35	0.00
60.00	5.20	2.35	0.00
61.00	5.20	2.35	0.00
62.00	5.20	2.35	0.00
63.00	5.20	2.35	0.00
64.00	5.20	2.35	0.00
65.00	5.20	2.35	0.00
66.00	5.20	2.35	0.00
67.00	5.20	2.35	0.00
68.00	5.20	2.35	0.00
69.00	5.20	2.35	0.00
70.00	5.20	2.35	0.00
71.00	5.20	2.35	0.00
72.00	5.20	2.35	0.00

Summary for Subcatchment 4: On-Site to Basin A to Sunset-Bloomfield-Imperv

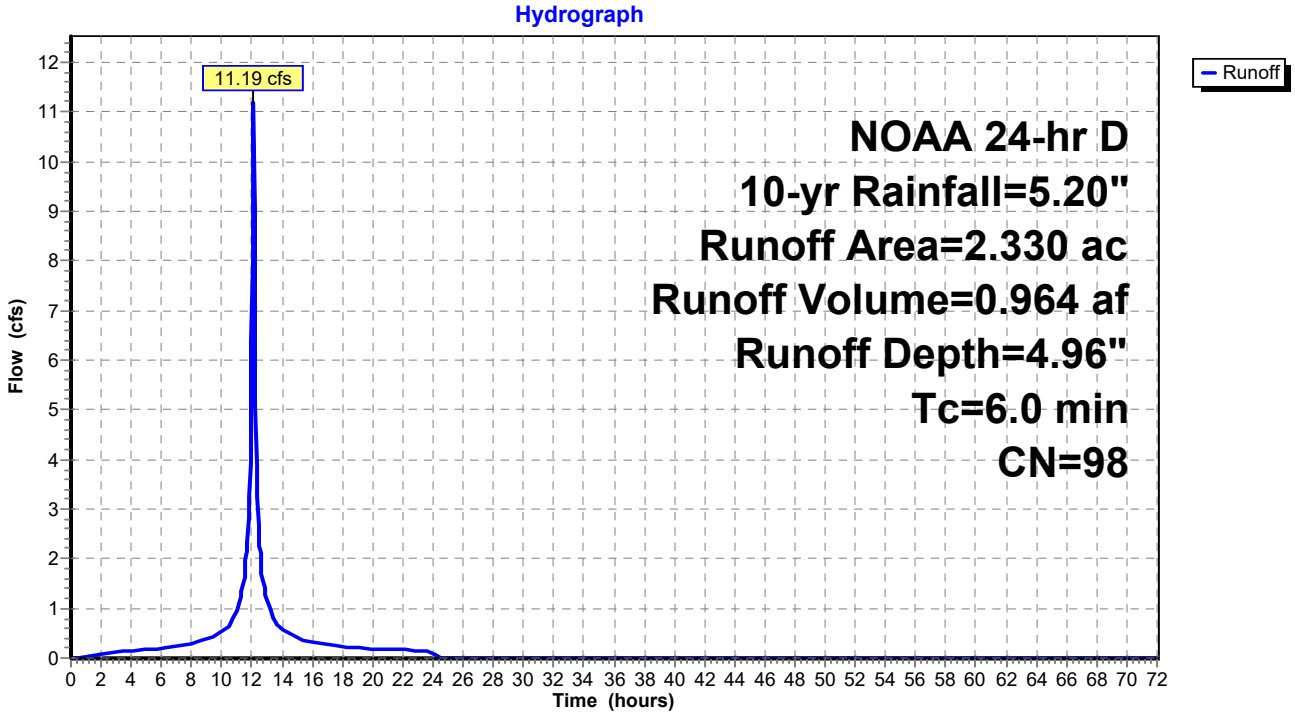
Runoff = 11.19 cfs @ 12.13 hrs, Volume= 0.964 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
2.200	98	Roofs, HSG C
0.130	98	Paved parking, HSG C
2.330	98	Weighted Average
2.330		100.00% Impervious Area

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

Subcatchment 4: On-Site to Basin A to Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 4: On-Site to Basin A to Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.02
2.00	0.12	0.02	0.08
3.00	0.20	0.07	0.11
4.00	0.27	0.12	0.14
5.00	0.36	0.19	0.17
6.00	0.44	0.27	0.19
7.00	0.55	0.36	0.24
8.00	0.67	0.48	0.30
9.00	0.82	0.62	0.36
10.00	1.03	0.82	0.55
11.00	1.35	1.13	0.97
12.00	2.49	2.26	**6.38**
13.00	3.85	3.61	**1.19**
14.00	4.17	3.93	0.60
15.00	4.38	4.14	0.40
16.00	4.53	4.29	0.33
17.00	4.65	4.42	0.28
18.00	4.76	4.52	0.22
19.00	4.84	4.61	0.20
20.00	4.93	4.69	0.19
21.00	5.00	4.77	0.17
22.00	5.08	4.84	0.16
23.00	5.14	4.90	0.15
24.00	**5.20**	**4.96**	0.13
25.00	5.20	4.96	0.00
26.00	5.20	4.96	0.00
27.00	5.20	4.96	0.00
28.00	5.20	4.96	0.00
29.00	5.20	4.96	0.00
30.00	5.20	4.96	0.00
31.00	5.20	4.96	0.00
32.00	5.20	4.96	0.00
33.00	5.20	4.96	0.00
34.00	5.20	4.96	0.00
35.00	5.20	4.96	0.00
36.00	5.20	4.96	0.00
37.00	5.20	4.96	0.00
38.00	5.20	4.96	0.00
39.00	5.20	4.96	0.00
40.00	5.20	4.96	0.00
41.00	5.20	4.96	0.00
42.00	5.20	4.96	0.00
43.00	5.20	4.96	0.00
44.00	5.20	4.96	0.00
45.00	5.20	4.96	0.00
46.00	5.20	4.96	0.00
47.00	5.20	4.96	0.00
48.00	5.20	4.96	0.00
49.00	5.20	4.96	0.00
50.00	5.20	4.96	0.00
51.00	5.20	4.96	0.00
52.00	5.20	4.96	0.00
53.00	5.20	4.96	0.00
54.00	5.20	4.96	0.00
55.00	5.20	4.96	0.00
56.00	5.20	4.96	0.00
57.00	5.20	4.96	0.00
58.00	5.20	4.96	0.00
59.00	5.20	4.96	0.00
60.00	5.20	4.96	0.00
61.00	5.20	4.96	0.00
62.00	5.20	4.96	0.00
63.00	5.20	4.96	0.00
64.00	5.20	4.96	0.00
65.00	5.20	4.96	0.00
66.00	5.20	4.96	0.00
67.00	5.20	4.96	0.00
68.00	5.20	4.96	0.00
69.00	5.20	4.96	0.00
70.00	5.20	4.96	0.00
71.00	5.20	4.96	0.00
72.00	5.20	4.96	0.00

Summary for Subcatchment 5: On-Site to Basin A to Sunset-Bloomfield-Perv

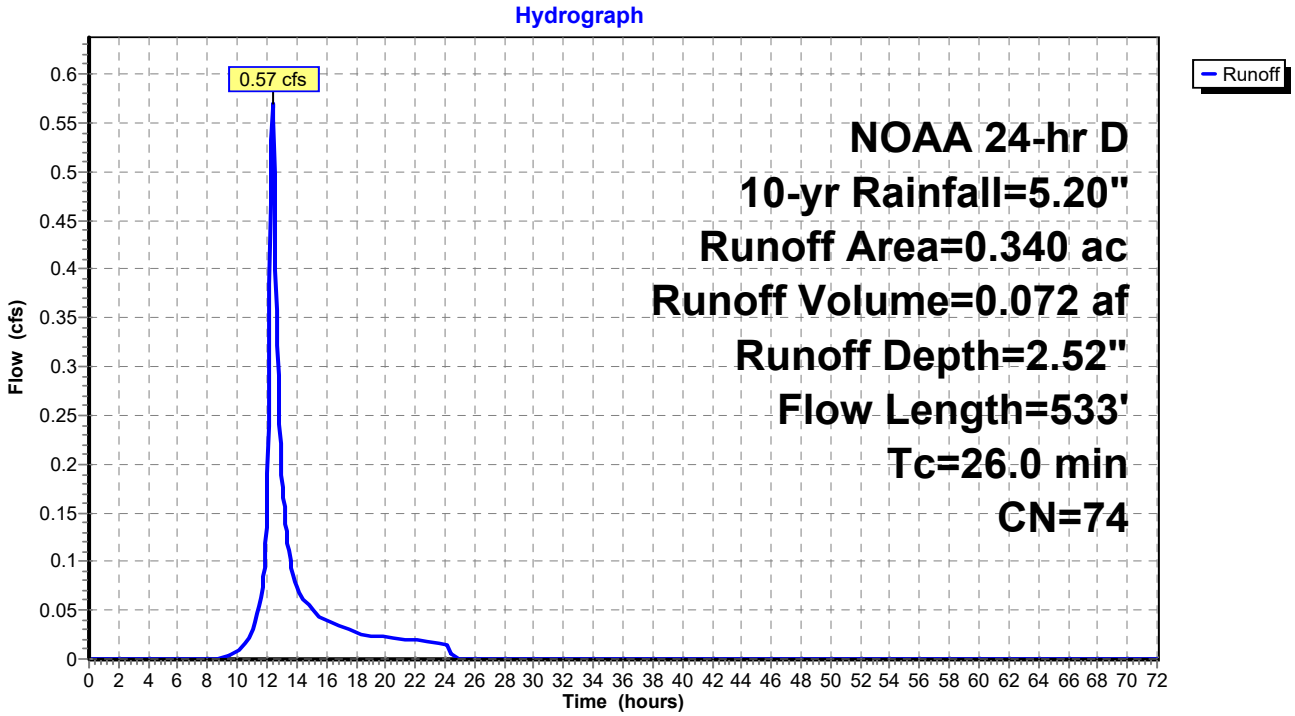
Runoff = 0.57 cfs @ 12.38 hrs, Volume= 0.072 af, Depth= 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.340	74	>75% Grass cover, Good, HSG C
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	100	0.0140	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.2	10	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	38	0.0474	1.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	108	0.0741	1.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	277	0.0200	9.68	11.88	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 Corrugated PE, smooth interior
26.0	533	Total			

Subcatchment 5: On-Site to Basin A to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 5: On-Site to Basin A to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.03	0.01
11.00	1.35	0.10	0.03
12.00	2.49	0.60	**0.16**
13.00	3.85	1.49	**0.19**
14.00	4.17	1.72	0.07
15.00	4.38	1.88	0.05
16.00	4.53	1.99	0.04
17.00	4.65	2.09	0.03
18.00	4.76	2.17	0.03
19.00	4.84	2.24	0.02
20.00	4.93	2.31	0.02
21.00	5.00	2.37	0.02
22.00	5.08	2.42	0.02
23.00	5.14	2.48	0.02
24.00	**5.20**	**2.52**	0.02
25.00	5.20	2.52	0.00
26.00	5.20	2.52	0.00
27.00	5.20	2.52	0.00
28.00	5.20	2.52	0.00
29.00	5.20	2.52	0.00
30.00	5.20	2.52	0.00
31.00	5.20	2.52	0.00
32.00	5.20	2.52	0.00
33.00	5.20	2.52	0.00
34.00	5.20	2.52	0.00
35.00	5.20	2.52	0.00
36.00	5.20	2.52	0.00
37.00	5.20	2.52	0.00
38.00	5.20	2.52	0.00
39.00	5.20	2.52	0.00
40.00	5.20	2.52	0.00
41.00	5.20	2.52	0.00
42.00	5.20	2.52	0.00
43.00	5.20	2.52	0.00
44.00	5.20	2.52	0.00
45.00	5.20	2.52	0.00
46.00	5.20	2.52	0.00
47.00	5.20	2.52	0.00
48.00	5.20	2.52	0.00
49.00	5.20	2.52	0.00
50.00	5.20	2.52	0.00
51.00	5.20	2.52	0.00
52.00	5.20	2.52	0.00
53.00	5.20	2.52	0.00
54.00	5.20	2.52	0.00
55.00	5.20	2.52	0.00
56.00	5.20	2.52	0.00
57.00	5.20	2.52	0.00
58.00	5.20	2.52	0.00
59.00	5.20	2.52	0.00
60.00	5.20	2.52	0.00
61.00	5.20	2.52	0.00
62.00	5.20	2.52	0.00
63.00	5.20	2.52	0.00
64.00	5.20	2.52	0.00
65.00	5.20	2.52	0.00
66.00	5.20	2.52	0.00
67.00	5.20	2.52	0.00
68.00	5.20	2.52	0.00
69.00	5.20	2.52	0.00
70.00	5.20	2.52	0.00
71.00	5.20	2.52	0.00
72.00	5.20	2.52	0.00

Summary for Subcatchment 7: On-Site to Basin B to Sunset-Bloomfield-Imperv

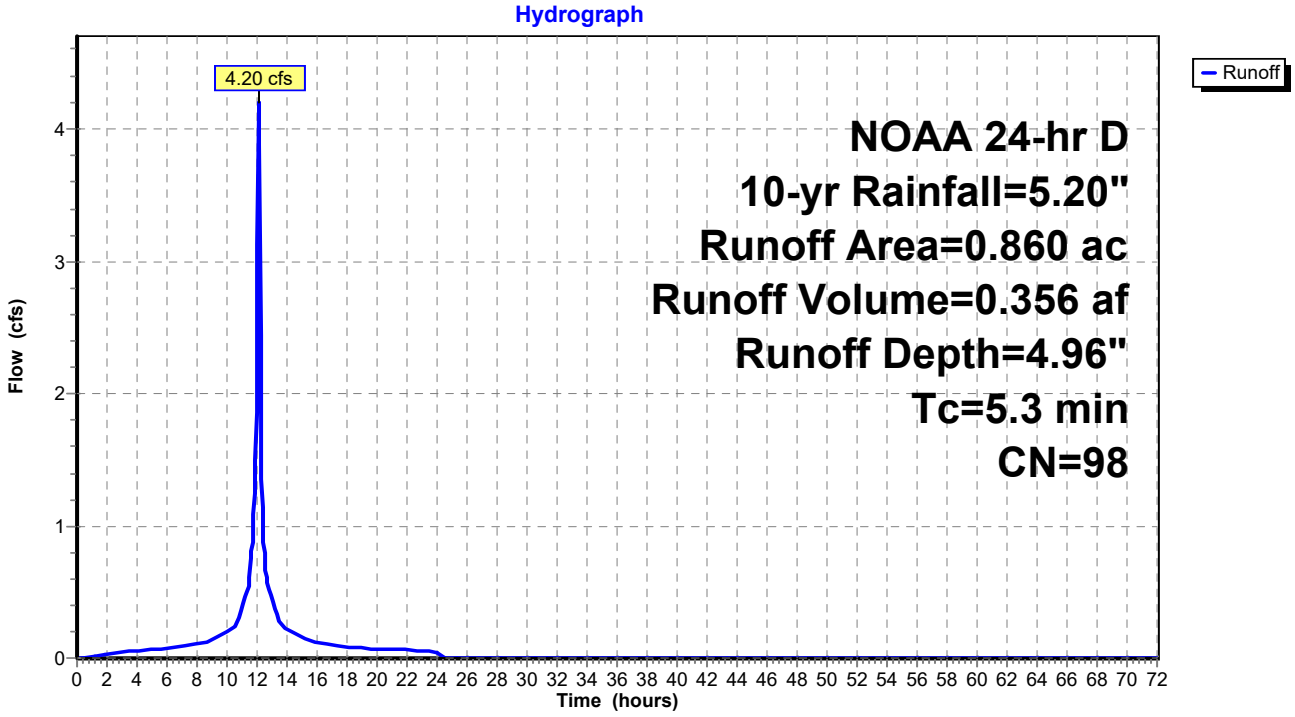
Runoff = 4.20 cfs @ 12.11 hrs, Volume= 0.356 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.390	98	Roofs, HSG C
0.470	98	Paved parking, HSG C
0.860	98	Weighted Average
0.860		100.00% Impervious Area

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

Subcatchment 7: On-Site to Basin B to Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 7: On-Site to Basin B to Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.01
2.00	0.12	0.02	0.03
3.00	0.20	0.07	0.04
4.00	0.27	0.12	0.05
5.00	0.36	0.19	0.06
6.00	0.44	0.27	0.07
7.00	0.55	0.36	0.09
8.00	0.67	0.48	0.11
9.00	0.82	0.62	0.13
10.00	1.03	0.82	0.20
11.00	1.35	1.13	0.36
12.00	2.49	2.26	**2.48**
13.00	3.85	3.61	**0.43**
14.00	4.17	3.93	0.22
15.00	4.38	4.14	0.15
16.00	4.53	4.29	0.12
17.00	4.65	4.42	0.10
18.00	4.76	4.52	0.08
19.00	4.84	4.61	0.07
20.00	4.93	4.69	0.07
21.00	5.00	4.77	0.06
22.00	5.08	4.84	0.06
23.00	5.14	4.90	0.05
24.00	**5.20**	**4.96**	0.05
25.00	5.20	4.96	0.00
26.00	5.20	4.96	0.00
27.00	5.20	4.96	0.00
28.00	5.20	4.96	0.00
29.00	5.20	4.96	0.00
30.00	5.20	4.96	0.00
31.00	5.20	4.96	0.00
32.00	5.20	4.96	0.00
33.00	5.20	4.96	0.00
34.00	5.20	4.96	0.00
35.00	5.20	4.96	0.00
36.00	5.20	4.96	0.00
37.00	5.20	4.96	0.00
38.00	5.20	4.96	0.00
39.00	5.20	4.96	0.00
40.00	5.20	4.96	0.00
41.00	5.20	4.96	0.00
42.00	5.20	4.96	0.00
43.00	5.20	4.96	0.00
44.00	5.20	4.96	0.00
45.00	5.20	4.96	0.00
46.00	5.20	4.96	0.00
47.00	5.20	4.96	0.00
48.00	5.20	4.96	0.00
49.00	5.20	4.96	0.00
50.00	5.20	4.96	0.00
51.00	5.20	4.96	0.00
52.00	5.20	4.96	0.00
53.00	5.20	4.96	0.00
54.00	5.20	4.96	0.00
55.00	5.20	4.96	0.00
56.00	5.20	4.96	0.00
57.00	5.20	4.96	0.00
58.00	5.20	4.96	0.00
59.00	5.20	4.96	0.00
60.00	5.20	4.96	0.00
61.00	5.20	4.96	0.00
62.00	5.20	4.96	0.00
63.00	5.20	4.96	0.00
64.00	5.20	4.96	0.00
65.00	5.20	4.96	0.00
66.00	5.20	4.96	0.00
67.00	5.20	4.96	0.00
68.00	5.20	4.96	0.00
69.00	5.20	4.96	0.00
70.00	5.20	4.96	0.00
71.00	5.20	4.96	0.00
72.00	5.20	4.96	0.00

Summary for Subcatchment 8: On-Site to Basin B to Sunset-Bloomfield-Perv

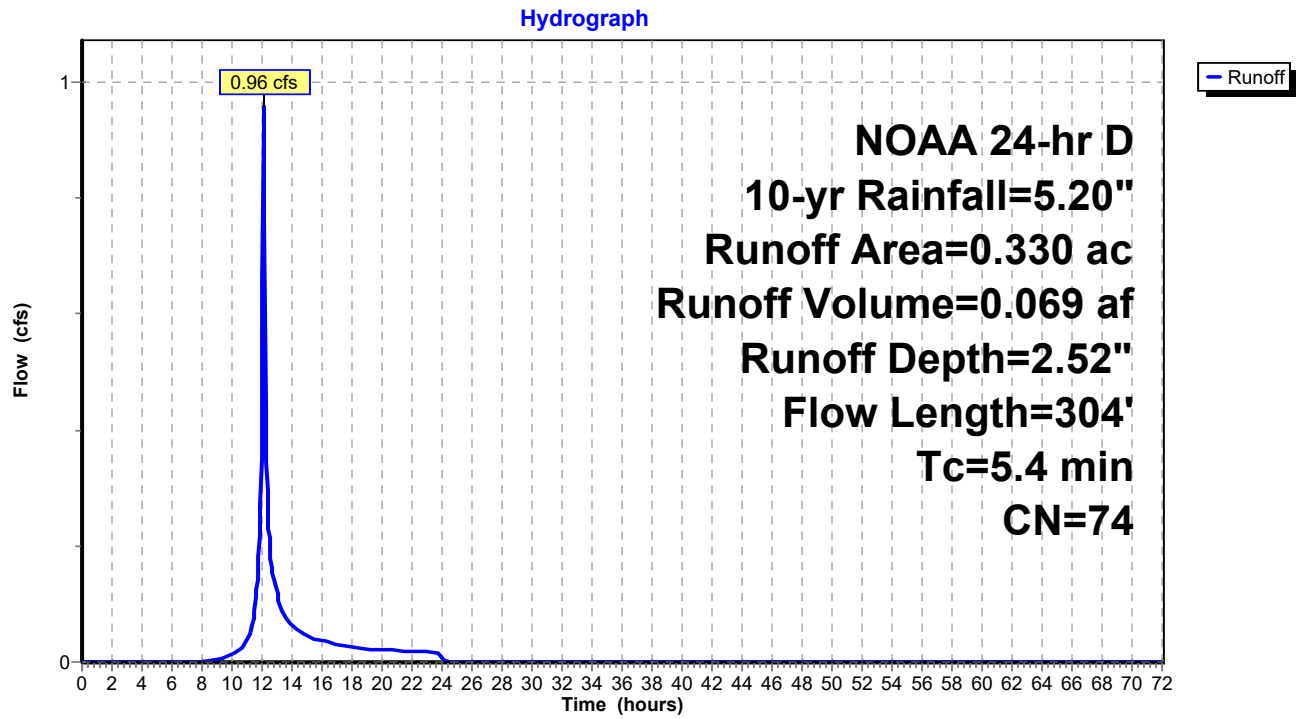
Runoff = 0.96 cfs @ 12.12 hrs, Volume= 0.069 af, Depth= 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.330	74	>75% Grass cover, Good, HSG C
0.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	37	0.0270	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.0	63	0.0109	1.01		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.2	57	0.0623	5.07		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	101	0.0619	5.05		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	46	0.0100	6.84	8.40	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 Corrugated PE, smooth interior
5.4	304	Total			

Subcatchment 8: On-Site to Basin B to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 8: On-Site to Basin B to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.03	0.01
11.00	1.35	0.10	0.04
12.00	2.49	0.60	**0.49**
13.00	3.85	1.49	**0.12**
14.00	4.17	1.72	0.06
15.00	4.38	1.88	0.04
16.00	4.53	1.99	0.04
17.00	4.65	2.09	0.03
18.00	4.76	2.17	0.02
19.00	4.84	2.24	0.02
20.00	4.93	2.31	0.02
21.00	5.00	2.37	0.02
22.00	5.08	2.42	0.02
23.00	5.14	2.48	0.02
24.00	**5.20**	**2.52**	0.02
25.00	5.20	2.52	0.00
26.00	5.20	2.52	0.00
27.00	5.20	2.52	0.00
28.00	5.20	2.52	0.00
29.00	5.20	2.52	0.00
30.00	5.20	2.52	0.00
31.00	5.20	2.52	0.00
32.00	5.20	2.52	0.00
33.00	5.20	2.52	0.00
34.00	5.20	2.52	0.00
35.00	5.20	2.52	0.00
36.00	5.20	2.52	0.00
37.00	5.20	2.52	0.00
38.00	5.20	2.52	0.00
39.00	5.20	2.52	0.00
40.00	5.20	2.52	0.00
41.00	5.20	2.52	0.00
42.00	5.20	2.52	0.00
43.00	5.20	2.52	0.00
44.00	5.20	2.52	0.00
45.00	5.20	2.52	0.00
46.00	5.20	2.52	0.00
47.00	5.20	2.52	0.00
48.00	5.20	2.52	0.00
49.00	5.20	2.52	0.00
50.00	5.20	2.52	0.00
51.00	5.20	2.52	0.00
52.00	5.20	2.52	0.00
53.00	5.20	2.52	0.00
54.00	5.20	2.52	0.00
55.00	5.20	2.52	0.00
56.00	5.20	2.52	0.00
57.00	5.20	2.52	0.00
58.00	5.20	2.52	0.00
59.00	5.20	2.52	0.00
60.00	5.20	2.52	0.00
61.00	5.20	2.52	0.00
62.00	5.20	2.52	0.00
63.00	5.20	2.52	0.00
64.00	5.20	2.52	0.00
65.00	5.20	2.52	0.00
66.00	5.20	2.52	0.00
67.00	5.20	2.52	0.00
68.00	5.20	2.52	0.00
69.00	5.20	2.52	0.00
70.00	5.20	2.52	0.00
71.00	5.20	2.52	0.00
72.00	5.20	2.52	0.00

Summary for Subcatchment 10: Bypass Area #1 to Sunset-Bloomfield-Perv

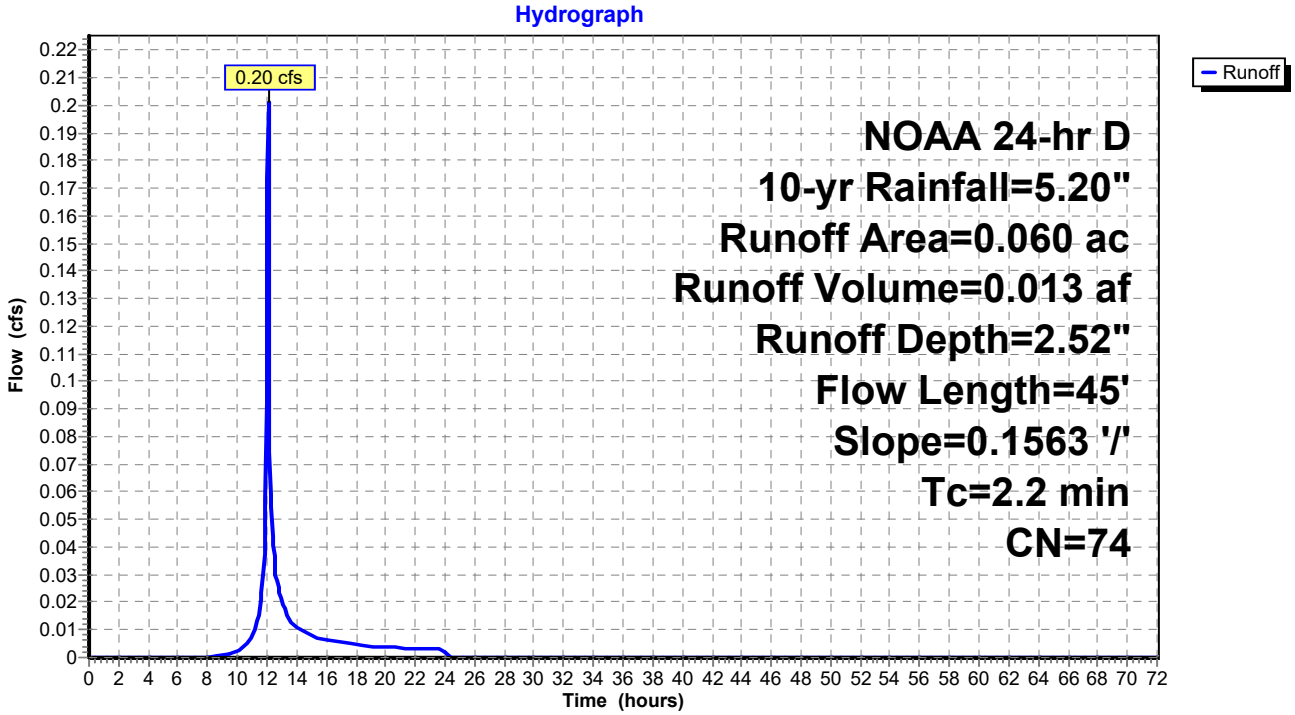
Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.013 af, Depth= 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.060	74	>75% Grass cover, Good, HSG C
0.060		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	45	0.1563	0.34		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 10: Bypass Area #1 to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 10: Bypass Area #1 to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.03	0.00
11.00	1.35	0.10	0.01
12.00	2.49	0.60	**0.11**
13.00	3.85	1.49	**0.02**
14.00	4.17	1.72	0.01
15.00	4.38	1.88	0.01
16.00	4.53	1.99	0.01
17.00	4.65	2.09	0.01
18.00	4.76	2.17	0.00
19.00	4.84	2.24	0.00
20.00	4.93	2.31	0.00
21.00	5.00	2.37	0.00
22.00	5.08	2.42	0.00
23.00	5.14	2.48	0.00
24.00	**5.20**	**2.52**	0.00
25.00	5.20	2.52	0.00
26.00	5.20	2.52	0.00
27.00	5.20	2.52	0.00
28.00	5.20	2.52	0.00
29.00	5.20	2.52	0.00
30.00	5.20	2.52	0.00
31.00	5.20	2.52	0.00
32.00	5.20	2.52	0.00
33.00	5.20	2.52	0.00
34.00	5.20	2.52	0.00
35.00	5.20	2.52	0.00
36.00	5.20	2.52	0.00
37.00	5.20	2.52	0.00
38.00	5.20	2.52	0.00
39.00	5.20	2.52	0.00
40.00	5.20	2.52	0.00
41.00	5.20	2.52	0.00
42.00	5.20	2.52	0.00
43.00	5.20	2.52	0.00
44.00	5.20	2.52	0.00
45.00	5.20	2.52	0.00
46.00	5.20	2.52	0.00
47.00	5.20	2.52	0.00
48.00	5.20	2.52	0.00
49.00	5.20	2.52	0.00
50.00	5.20	2.52	0.00
51.00	5.20	2.52	0.00
52.00	5.20	2.52	0.00
53.00	5.20	2.52	0.00
54.00	5.20	2.52	0.00
55.00	5.20	2.52	0.00
56.00	5.20	2.52	0.00
57.00	5.20	2.52	0.00
58.00	5.20	2.52	0.00
59.00	5.20	2.52	0.00
60.00	5.20	2.52	0.00
61.00	5.20	2.52	0.00
62.00	5.20	2.52	0.00
63.00	5.20	2.52	0.00
64.00	5.20	2.52	0.00
65.00	5.20	2.52	0.00
66.00	5.20	2.52	0.00
67.00	5.20	2.52	0.00
68.00	5.20	2.52	0.00
69.00	5.20	2.52	0.00
70.00	5.20	2.52	0.00
71.00	5.20	2.52	0.00
72.00	5.20	2.52	0.00

Summary for Subcatchment 11: Bypass Area #2 to Sunset-Bloomfield-Perv

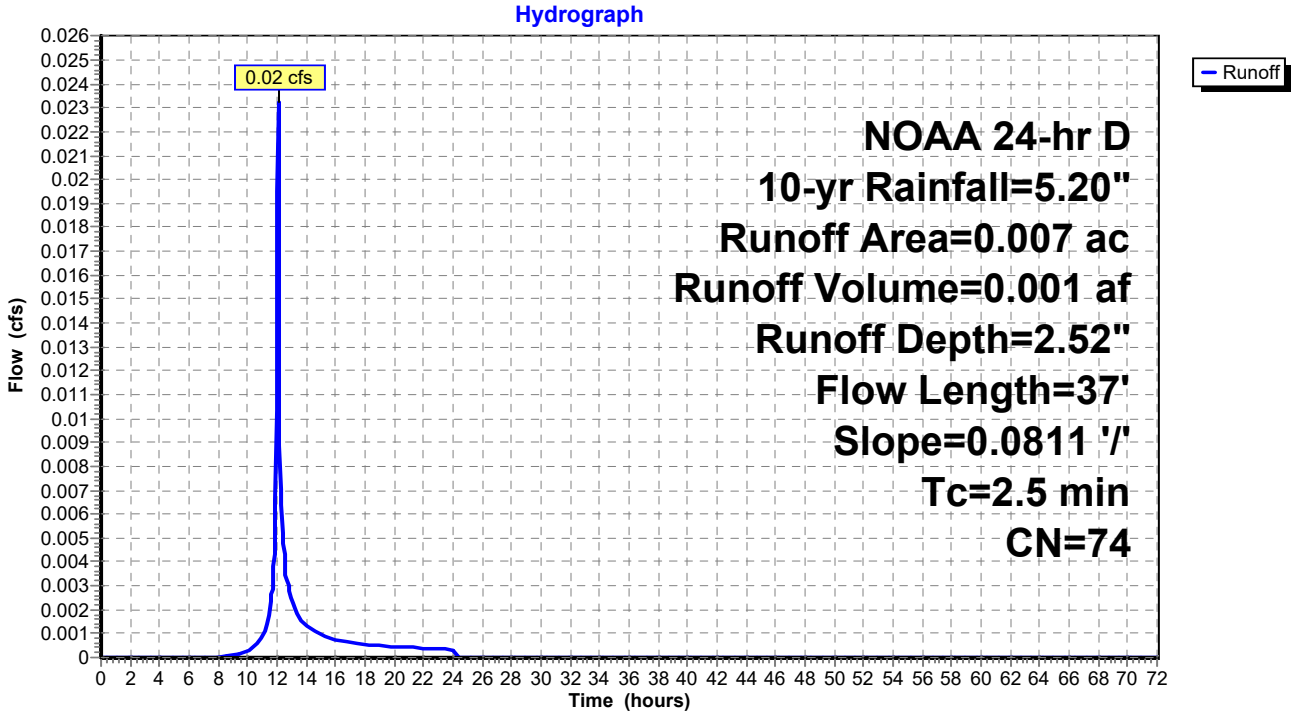
Runoff = 0.02 cfs @ 12.09 hrs, Volume= 0.001 af, Depth= 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.007	74	>75% Grass cover, Good, HSG C
0.007		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0811	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 11: Bypass Area #2 to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 11: Bypass Area #2 to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.03	0.00
11.00	1.35	0.10	0.00
12.00	2.49	0.60	**0.01**
13.00	3.85	1.49	**0.00**
14.00	4.17	1.72	0.00
15.00	4.38	1.88	0.00
16.00	4.53	1.99	0.00
17.00	4.65	2.09	0.00
18.00	4.76	2.17	0.00
19.00	4.84	2.24	0.00
20.00	4.93	2.31	0.00
21.00	5.00	2.37	0.00
22.00	5.08	2.42	0.00
23.00	5.14	2.48	0.00
24.00	**5.20**	**2.52**	0.00
25.00	5.20	2.52	0.00
26.00	5.20	2.52	0.00
27.00	5.20	2.52	0.00
28.00	5.20	2.52	0.00
29.00	5.20	2.52	0.00
30.00	5.20	2.52	0.00
31.00	5.20	2.52	0.00
32.00	5.20	2.52	0.00
33.00	5.20	2.52	0.00
34.00	5.20	2.52	0.00
35.00	5.20	2.52	0.00
36.00	5.20	2.52	0.00
37.00	5.20	2.52	0.00
38.00	5.20	2.52	0.00
39.00	5.20	2.52	0.00
40.00	5.20	2.52	0.00
41.00	5.20	2.52	0.00
42.00	5.20	2.52	0.00
43.00	5.20	2.52	0.00
44.00	5.20	2.52	0.00
45.00	5.20	2.52	0.00
46.00	5.20	2.52	0.00
47.00	5.20	2.52	0.00
48.00	5.20	2.52	0.00
49.00	5.20	2.52	0.00
50.00	5.20	2.52	0.00
51.00	5.20	2.52	0.00
52.00	5.20	2.52	0.00
53.00	5.20	2.52	0.00
54.00	5.20	2.52	0.00
55.00	5.20	2.52	0.00
56.00	5.20	2.52	0.00
57.00	5.20	2.52	0.00
58.00	5.20	2.52	0.00
59.00	5.20	2.52	0.00
60.00	5.20	2.52	0.00
61.00	5.20	2.52	0.00
62.00	5.20	2.52	0.00
63.00	5.20	2.52	0.00
64.00	5.20	2.52	0.00
65.00	5.20	2.52	0.00
66.00	5.20	2.52	0.00
67.00	5.20	2.52	0.00
68.00	5.20	2.52	0.00
69.00	5.20	2.52	0.00
70.00	5.20	2.52	0.00
71.00	5.20	2.52	0.00
72.00	5.20	2.52	0.00

Summary for Subcatchment 12: Bypass Area #2 to Sunset-Bloomfield-Imperv

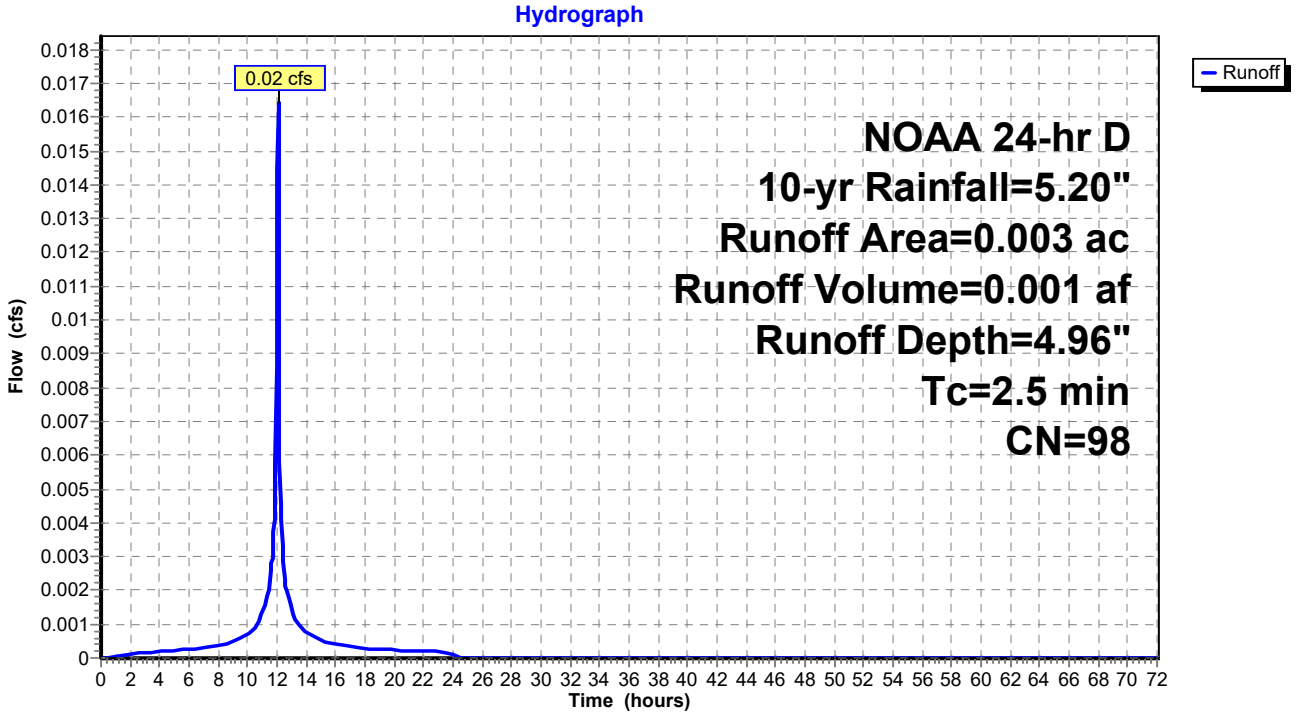
Runoff = 0.02 cfs @ 12.08 hrs, Volume= 0.001 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.003	98	Paved parking, HSG C
0.003		100.00% Impervious Area

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

Subcatchment 12: Bypass Area #2 to Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 12: Bypass Area #2 to Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.00
3.00	0.20	0.07	0.00
4.00	0.27	0.12	0.00
5.00	0.36	0.19	0.00
6.00	0.44	0.27	0.00
7.00	0.55	0.36	0.00
8.00	0.67	0.48	0.00
9.00	0.82	0.62	0.00
10.00	1.03	0.82	0.00
11.00	1.35	1.13	0.00
12.00	2.49	2.26	**0.01**
13.00	3.85	3.61	**0.00**
14.00	4.17	3.93	0.00
15.00	4.38	4.14	0.00
16.00	4.53	4.29	0.00
17.00	4.65	4.42	0.00
18.00	4.76	4.52	0.00
19.00	4.84	4.61	0.00
20.00	4.93	4.69	0.00
21.00	5.00	4.77	0.00
22.00	5.08	4.84	0.00
23.00	5.14	4.90	0.00
24.00	**5.20**	**4.96**	0.00
25.00	5.20	4.96	0.00
26.00	5.20	4.96	0.00
27.00	5.20	4.96	0.00
28.00	5.20	4.96	0.00
29.00	5.20	4.96	0.00
30.00	5.20	4.96	0.00
31.00	5.20	4.96	0.00
32.00	5.20	4.96	0.00
33.00	5.20	4.96	0.00
34.00	5.20	4.96	0.00
35.00	5.20	4.96	0.00
36.00	5.20	4.96	0.00
37.00	5.20	4.96	0.00
38.00	5.20	4.96	0.00
39.00	5.20	4.96	0.00
40.00	5.20	4.96	0.00
41.00	5.20	4.96	0.00
42.00	5.20	4.96	0.00
43.00	5.20	4.96	0.00
44.00	5.20	4.96	0.00
45.00	5.20	4.96	0.00
46.00	5.20	4.96	0.00
47.00	5.20	4.96	0.00
48.00	5.20	4.96	0.00
49.00	5.20	4.96	0.00
50.00	5.20	4.96	0.00
51.00	5.20	4.96	0.00
52.00	5.20	4.96	0.00
53.00	5.20	4.96	0.00
54.00	5.20	4.96	0.00
55.00	5.20	4.96	0.00
56.00	5.20	4.96	0.00
57.00	5.20	4.96	0.00
58.00	5.20	4.96	0.00
59.00	5.20	4.96	0.00
60.00	5.20	4.96	0.00
61.00	5.20	4.96	0.00
62.00	5.20	4.96	0.00
63.00	5.20	4.96	0.00
64.00	5.20	4.96	0.00
65.00	5.20	4.96	0.00
66.00	5.20	4.96	0.00
67.00	5.20	4.96	0.00
68.00	5.20	4.96	0.00
69.00	5.20	4.96	0.00
70.00	5.20	4.96	0.00
71.00	5.20	4.96	0.00
72.00	5.20	4.96	0.00

Summary for Subcatchment 14: Overland to Bloom-perv

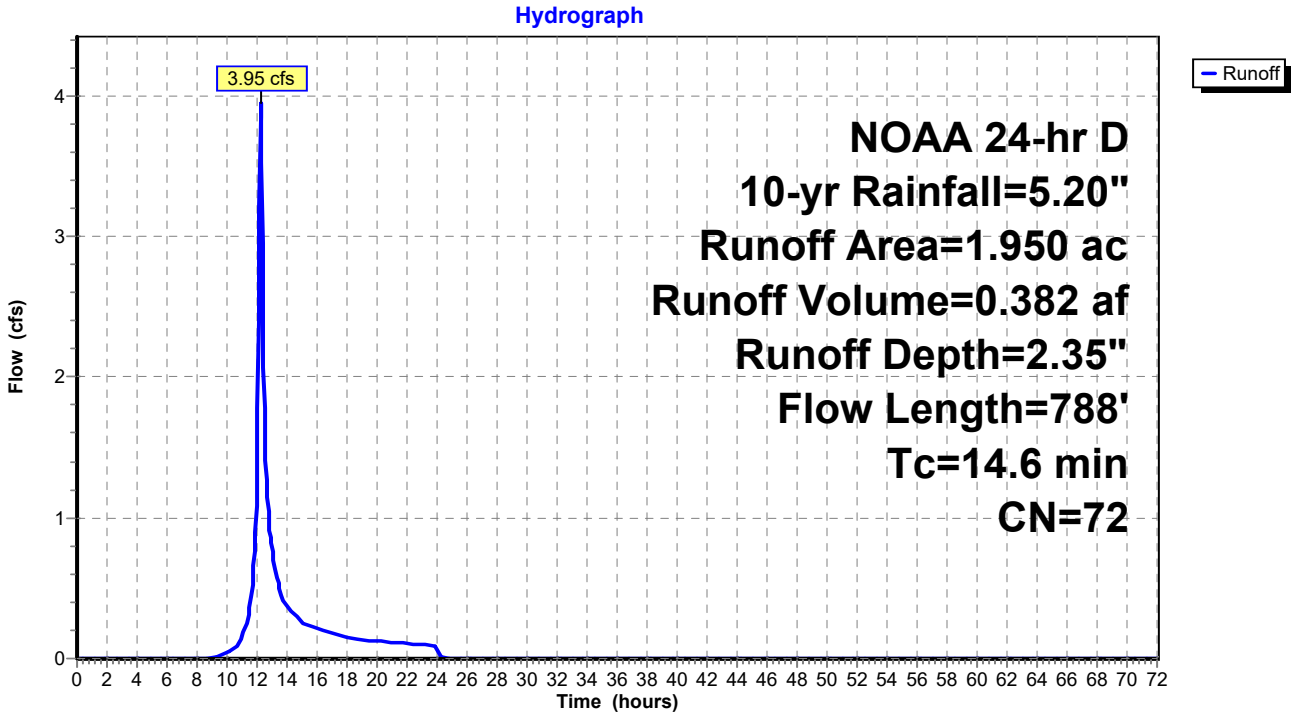
Runoff = 3.95 cfs @ 12.23 hrs, Volume= 0.382 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
1.170	74	>75% Grass cover, Good, HSG C
0.780	70	Woods, Good, HSG C
1.950	72	Weighted Average
1.950		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.0	174	0.0445	1.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.7	300	0.0720	1.88		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	79	0.1012	2.23		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	61	0.0410	1.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	61	0.0738	1.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	13	1.0000	7.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.6	788	Total			

Subcatchment 14: Overland to Bloom-perv



Hydrograph for Subcatchment 14: Overland to Bloom-perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.02	0.04
11.00	1.35	0.07	0.16
12.00	2.49	0.52	**1.36**
13.00	3.85	1.35	**0.78**
14.00	4.17	1.58	0.37
15.00	4.38	1.73	0.26
16.00	4.53	1.84	0.21
17.00	4.65	1.93	0.18
18.00	4.76	2.01	0.14
19.00	4.84	2.08	0.13
20.00	4.93	2.14	0.12
21.00	5.00	2.20	0.11
22.00	5.08	2.26	0.11
23.00	5.14	2.31	0.10
24.00	**5.20**	**2.35**	0.09
25.00	5.20	2.35	0.00
26.00	5.20	2.35	0.00
27.00	5.20	2.35	0.00
28.00	5.20	2.35	0.00
29.00	5.20	2.35	0.00
30.00	5.20	2.35	0.00
31.00	5.20	2.35	0.00
32.00	5.20	2.35	0.00
33.00	5.20	2.35	0.00
34.00	5.20	2.35	0.00
35.00	5.20	2.35	0.00
36.00	5.20	2.35	0.00
37.00	5.20	2.35	0.00
38.00	5.20	2.35	0.00
39.00	5.20	2.35	0.00
40.00	5.20	2.35	0.00
41.00	5.20	2.35	0.00
42.00	5.20	2.35	0.00
43.00	5.20	2.35	0.00
44.00	5.20	2.35	0.00
45.00	5.20	2.35	0.00
46.00	5.20	2.35	0.00
47.00	5.20	2.35	0.00
48.00	5.20	2.35	0.00
49.00	5.20	2.35	0.00
50.00	5.20	2.35	0.00
51.00	5.20	2.35	0.00
52.00	5.20	2.35	0.00
53.00	5.20	2.35	0.00
54.00	5.20	2.35	0.00
55.00	5.20	2.35	0.00
56.00	5.20	2.35	0.00
57.00	5.20	2.35	0.00
58.00	5.20	2.35	0.00
59.00	5.20	2.35	0.00
60.00	5.20	2.35	0.00
61.00	5.20	2.35	0.00
62.00	5.20	2.35	0.00
63.00	5.20	2.35	0.00
64.00	5.20	2.35	0.00
65.00	5.20	2.35	0.00
66.00	5.20	2.35	0.00
67.00	5.20	2.35	0.00
68.00	5.20	2.35	0.00
69.00	5.20	2.35	0.00
70.00	5.20	2.35	0.00
71.00	5.20	2.35	0.00
72.00	5.20	2.35	0.00

Summary for Subcatchment 16: Parkhurst-Perv

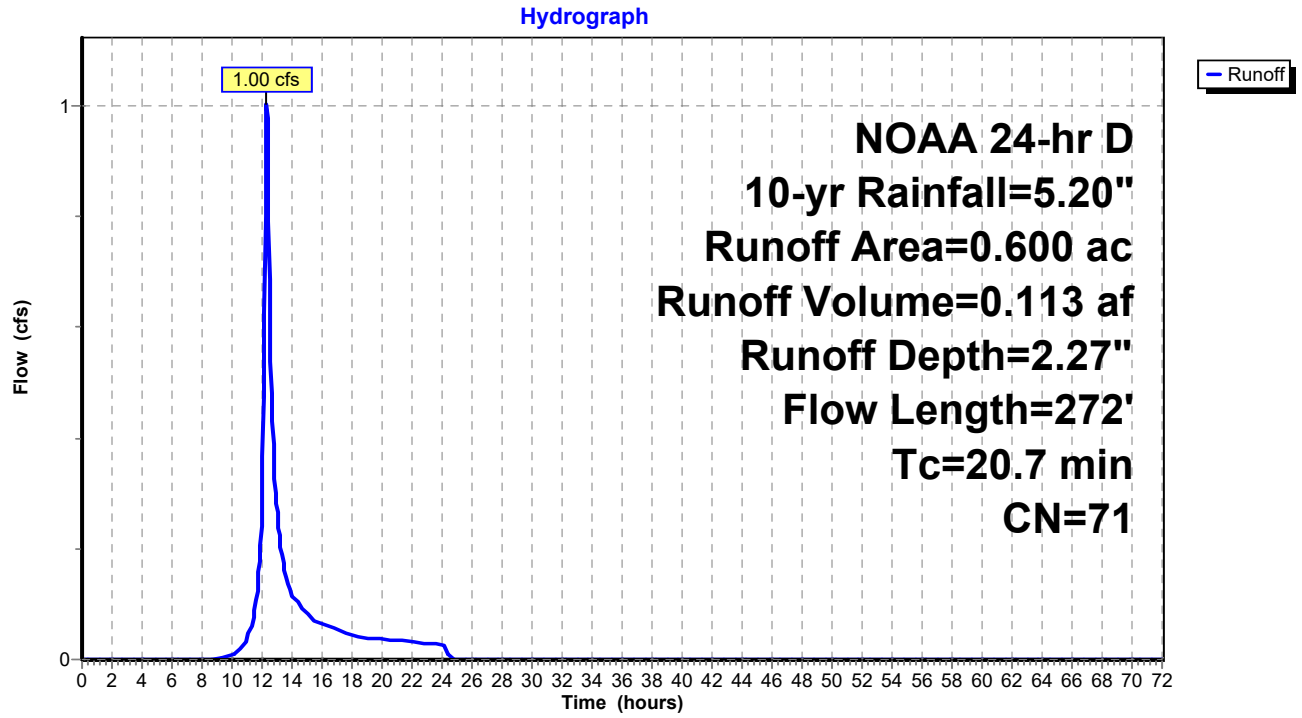
Runoff = 1.00 cfs @ 12.31 hrs, Volume= 0.113 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.140	74	>75% Grass cover, Good, HSG C
0.460	70	Woods, Good, HSG C
0.600	71	Weighted Average
0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.6	53	0.0755	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	52	0.3462	2.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	67	0.1045	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.7	272	Total			

Subcatchment 16: Parkhurst-Perv



Hydrograph for Subcatchment 16: Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.01	0.01
11.00	1.35	0.06	0.04
12.00	2.49	0.49	**0.29**
13.00	3.85	1.29	**0.27**
14.00	4.17	1.51	0.12
15.00	4.38	1.66	0.08
16.00	4.53	1.76	0.06
17.00	4.65	1.86	0.05
18.00	4.76	1.93	0.04
19.00	4.84	2.00	0.04
20.00	4.93	2.06	0.04
21.00	5.00	2.12	0.03
22.00	5.08	2.17	0.03
23.00	5.14	2.22	0.03
24.00	**5.20**	**2.27**	0.03
25.00	5.20	2.27	0.00
26.00	5.20	2.27	0.00
27.00	5.20	2.27	0.00
28.00	5.20	2.27	0.00
29.00	5.20	2.27	0.00
30.00	5.20	2.27	0.00
31.00	5.20	2.27	0.00
32.00	5.20	2.27	0.00
33.00	5.20	2.27	0.00
34.00	5.20	2.27	0.00
35.00	5.20	2.27	0.00
36.00	5.20	2.27	0.00
37.00	5.20	2.27	0.00
38.00	5.20	2.27	0.00
39.00	5.20	2.27	0.00
40.00	5.20	2.27	0.00
41.00	5.20	2.27	0.00
42.00	5.20	2.27	0.00
43.00	5.20	2.27	0.00
44.00	5.20	2.27	0.00
45.00	5.20	2.27	0.00
46.00	5.20	2.27	0.00
47.00	5.20	2.27	0.00
48.00	5.20	2.27	0.00
49.00	5.20	2.27	0.00
50.00	5.20	2.27	0.00
51.00	5.20	2.27	0.00
52.00	5.20	2.27	0.00
53.00	5.20	2.27	0.00
54.00	5.20	2.27	0.00
55.00	5.20	2.27	0.00
56.00	5.20	2.27	0.00
57.00	5.20	2.27	0.00
58.00	5.20	2.27	0.00
59.00	5.20	2.27	0.00
60.00	5.20	2.27	0.00
61.00	5.20	2.27	0.00
62.00	5.20	2.27	0.00
63.00	5.20	2.27	0.00
64.00	5.20	2.27	0.00
65.00	5.20	2.27	0.00
66.00	5.20	2.27	0.00
67.00	5.20	2.27	0.00
68.00	5.20	2.27	0.00
69.00	5.20	2.27	0.00
70.00	5.20	2.27	0.00
71.00	5.20	2.27	0.00
72.00	5.20	2.27	0.00

Summary for Subcatchment 17: Off-Site Parkhurst-Perv

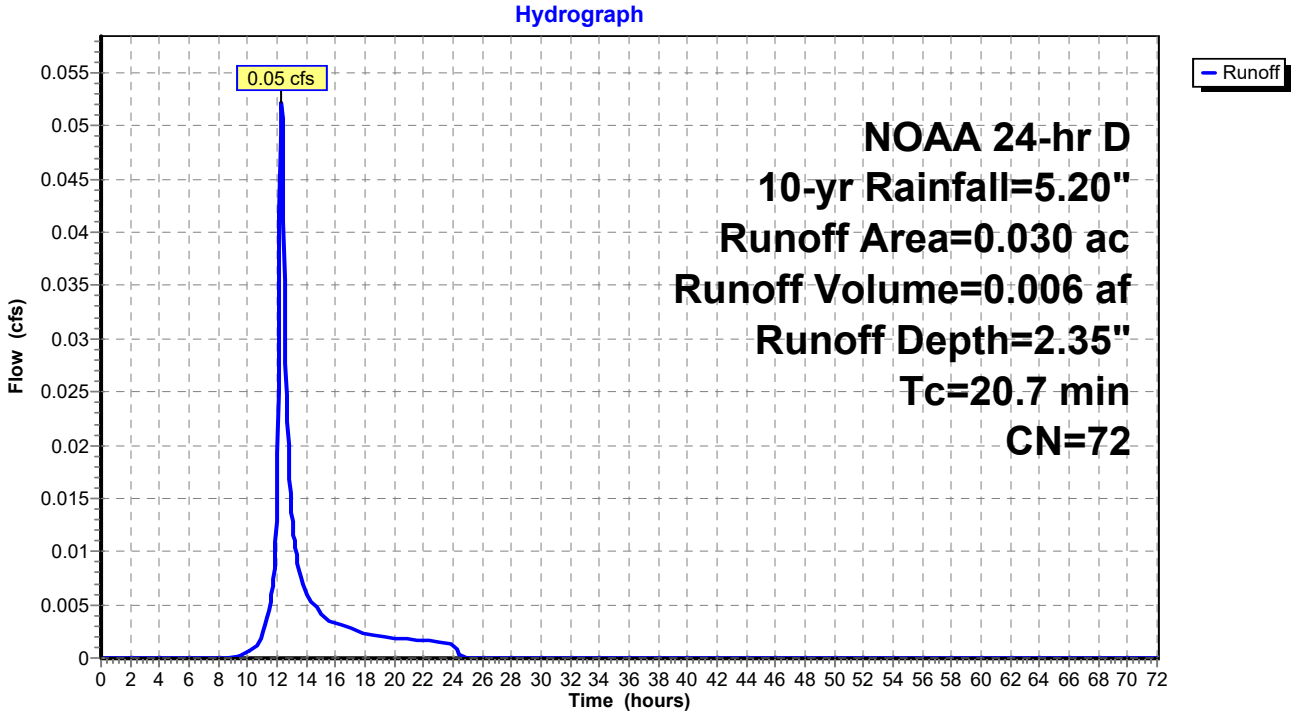
Runoff = 0.05 cfs @ 12.31 hrs, Volume= 0.006 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.030	72	Woods/grass comb., Good, HSG C
0.030		100.00% Pervious Area

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

Subcatchment 17: Off-Site Parkhurst-Perv



Hydrograph for Subcatchment 17: Off-Site Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.02	0.00
11.00	1.35	0.07	0.00
12.00	2.49	0.52	**0.02**
13.00	3.85	1.35	**0.01**
14.00	4.17	1.58	0.01
15.00	4.38	1.73	0.00
16.00	4.53	1.84	0.00
17.00	4.65	1.93	0.00
18.00	4.76	2.01	0.00
19.00	4.84	2.08	0.00
20.00	4.93	2.14	0.00
21.00	5.00	2.20	0.00
22.00	5.08	2.26	0.00
23.00	5.14	2.31	0.00
24.00	**5.20**	**2.35**	0.00
25.00	5.20	2.35	0.00
26.00	5.20	2.35	0.00
27.00	5.20	2.35	0.00
28.00	5.20	2.35	0.00
29.00	5.20	2.35	0.00
30.00	5.20	2.35	0.00
31.00	5.20	2.35	0.00
32.00	5.20	2.35	0.00
33.00	5.20	2.35	0.00
34.00	5.20	2.35	0.00
35.00	5.20	2.35	0.00
36.00	5.20	2.35	0.00
37.00	5.20	2.35	0.00
38.00	5.20	2.35	0.00
39.00	5.20	2.35	0.00
40.00	5.20	2.35	0.00
41.00	5.20	2.35	0.00
42.00	5.20	2.35	0.00
43.00	5.20	2.35	0.00
44.00	5.20	2.35	0.00
45.00	5.20	2.35	0.00
46.00	5.20	2.35	0.00
47.00	5.20	2.35	0.00
48.00	5.20	2.35	0.00
49.00	5.20	2.35	0.00
50.00	5.20	2.35	0.00
51.00	5.20	2.35	0.00
52.00	5.20	2.35	0.00
53.00	5.20	2.35	0.00
54.00	5.20	2.35	0.00
55.00	5.20	2.35	0.00
56.00	5.20	2.35	0.00
57.00	5.20	2.35	0.00
58.00	5.20	2.35	0.00
59.00	5.20	2.35	0.00
60.00	5.20	2.35	0.00
61.00	5.20	2.35	0.00
62.00	5.20	2.35	0.00
63.00	5.20	2.35	0.00
64.00	5.20	2.35	0.00
65.00	5.20	2.35	0.00
66.00	5.20	2.35	0.00
67.00	5.20	2.35	0.00
68.00	5.20	2.35	0.00
69.00	5.20	2.35	0.00
70.00	5.20	2.35	0.00
71.00	5.20	2.35	0.00
72.00	5.20	2.35	0.00

Summary for Subcatchment 23S: Basin C- Impervious

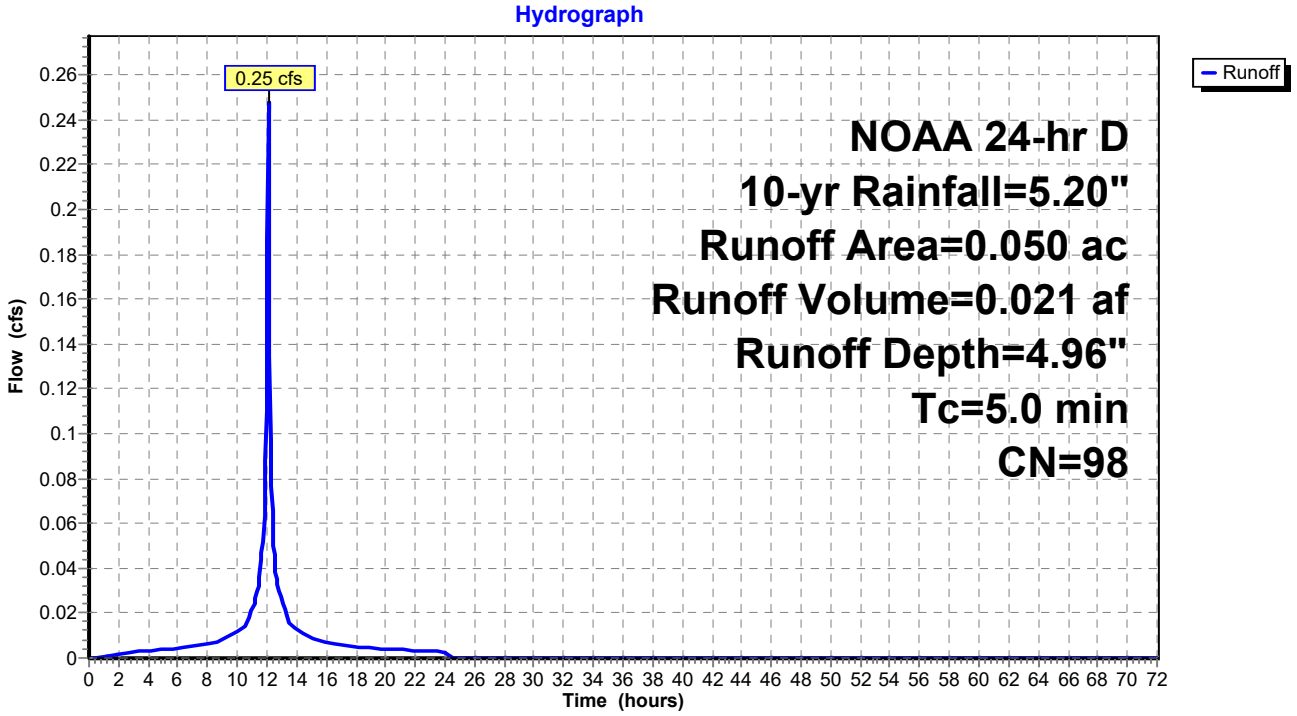
Runoff = 0.25 cfs @ 12.11 hrs, Volume= 0.021 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.050	98	Paved parking, HSG B
0.050		100.00% Impervious Area

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

Subcatchment 23S: Basin C- Impervious



Hydrograph for Subcatchment 23S: Basin C- Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.00
3.00	0.20	0.07	0.00
4.00	0.27	0.12	0.00
5.00	0.36	0.19	0.00
6.00	0.44	0.27	0.00
7.00	0.55	0.36	0.01
8.00	0.67	0.48	0.01
9.00	0.82	0.62	0.01
10.00	1.03	0.82	0.01
11.00	1.35	1.13	0.02
12.00	2.49	2.26	**0.15**
13.00	3.85	3.61	**0.03**
14.00	4.17	3.93	0.01
15.00	4.38	4.14	0.01
16.00	4.53	4.29	0.01
17.00	4.65	4.42	0.01
18.00	4.76	4.52	0.00
19.00	4.84	4.61	0.00
20.00	4.93	4.69	0.00
21.00	5.00	4.77	0.00
22.00	5.08	4.84	0.00
23.00	5.14	4.90	0.00
24.00	**5.20**	**4.96**	0.00
25.00	5.20	4.96	0.00
26.00	5.20	4.96	0.00
27.00	5.20	4.96	0.00
28.00	5.20	4.96	0.00
29.00	5.20	4.96	0.00
30.00	5.20	4.96	0.00
31.00	5.20	4.96	0.00
32.00	5.20	4.96	0.00
33.00	5.20	4.96	0.00
34.00	5.20	4.96	0.00
35.00	5.20	4.96	0.00
36.00	5.20	4.96	0.00
37.00	5.20	4.96	0.00
38.00	5.20	4.96	0.00
39.00	5.20	4.96	0.00
40.00	5.20	4.96	0.00
41.00	5.20	4.96	0.00
42.00	5.20	4.96	0.00
43.00	5.20	4.96	0.00
44.00	5.20	4.96	0.00
45.00	5.20	4.96	0.00
46.00	5.20	4.96	0.00
47.00	5.20	4.96	0.00
48.00	5.20	4.96	0.00
49.00	5.20	4.96	0.00
50.00	5.20	4.96	0.00
51.00	5.20	4.96	0.00
52.00	5.20	4.96	0.00
53.00	5.20	4.96	0.00
54.00	5.20	4.96	0.00
55.00	5.20	4.96	0.00
56.00	5.20	4.96	0.00
57.00	5.20	4.96	0.00
58.00	5.20	4.96	0.00
59.00	5.20	4.96	0.00
60.00	5.20	4.96	0.00
61.00	5.20	4.96	0.00
62.00	5.20	4.96	0.00
63.00	5.20	4.96	0.00
64.00	5.20	4.96	0.00
65.00	5.20	4.96	0.00
66.00	5.20	4.96	0.00
67.00	5.20	4.96	0.00
68.00	5.20	4.96	0.00
69.00	5.20	4.96	0.00
70.00	5.20	4.96	0.00
71.00	5.20	4.96	0.00
72.00	5.20	4.96	0.00

Summary for Subcatchment 24S: Basin C - Pervious

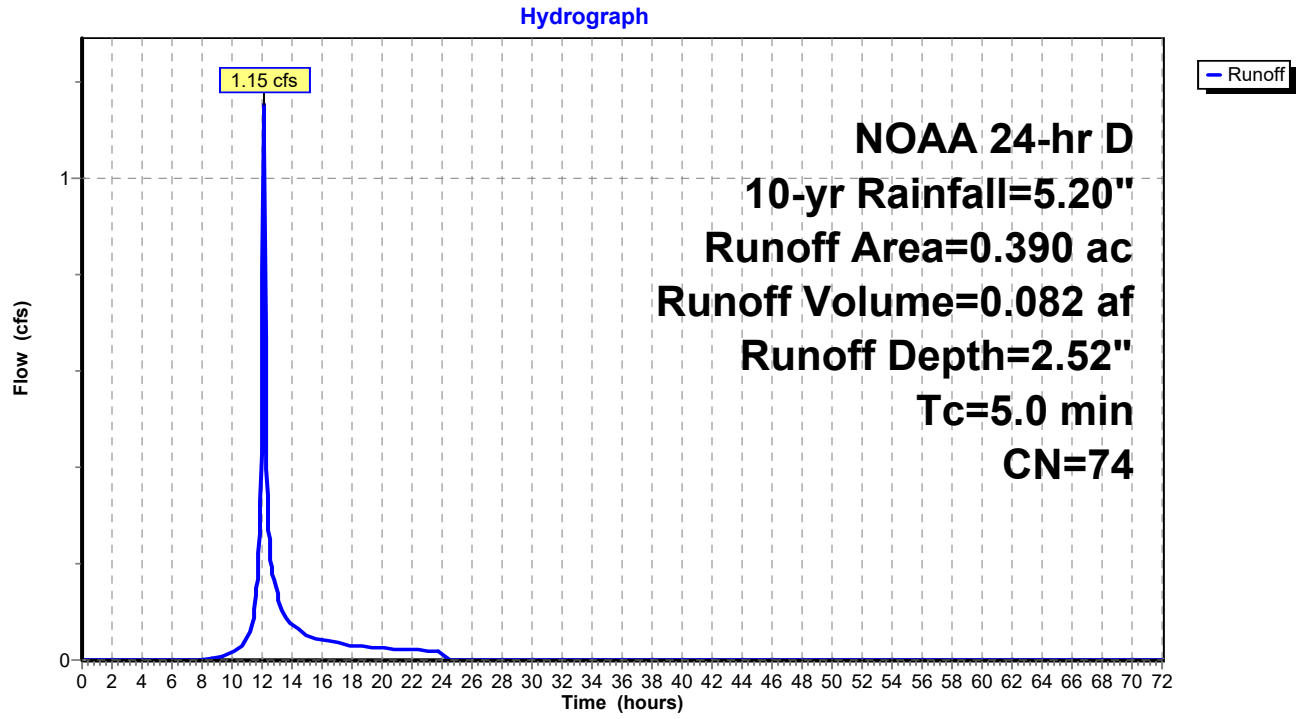
Runoff = 1.15 cfs @ 12.12 hrs, Volume= 0.082 af, Depth= 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-yr Rainfall=5.20"

Area (ac)	CN	Description
0.310	74	>75% Grass cover, Good, HSG C
0.080	72	Woods/grass comb., Good, HSG C
0.390	74	Weighted Average
0.390		100.00% Pervious Area

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

Subcatchment 24S: Basin C - Pervious



Hydrograph for Subcatchment 24S: Basin C - Pervious

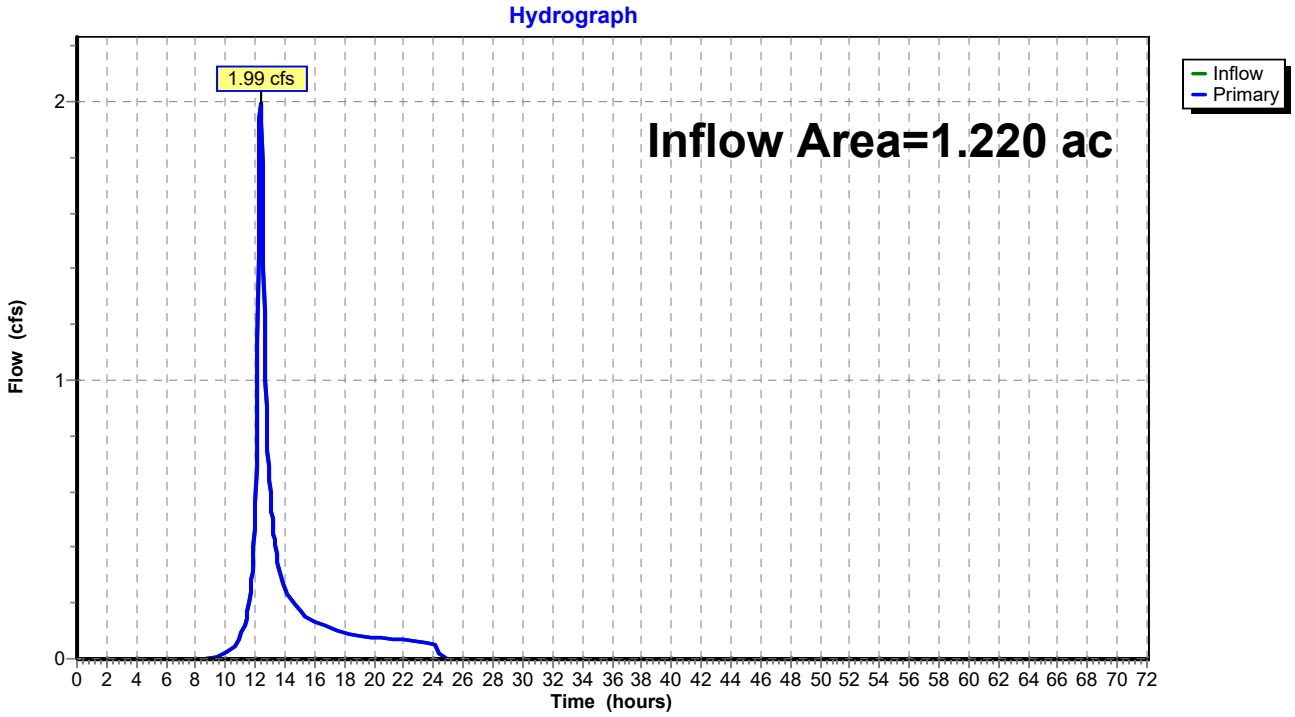
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.20	0.00	0.00
4.00	0.27	0.00	0.00
5.00	0.36	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.55	0.00	0.00
8.00	0.67	0.00	0.00
9.00	0.82	0.00	0.00
10.00	1.03	0.03	0.01
11.00	1.35	0.10	0.05
12.00	2.49	0.60	**0.60**
13.00	3.85	1.49	**0.14**
14.00	4.17	1.72	0.07
15.00	4.38	1.88	0.05
16.00	4.53	1.99	0.04
17.00	4.65	2.09	0.04
18.00	4.76	2.17	0.03
19.00	4.84	2.24	0.03
20.00	4.93	2.31	0.03
21.00	5.00	2.37	0.02
22.00	5.08	2.42	0.02
23.00	5.14	2.48	0.02
24.00	**5.20**	**2.52**	0.02
25.00	5.20	2.52	0.00
26.00	5.20	2.52	0.00
27.00	5.20	2.52	0.00
28.00	5.20	2.52	0.00
29.00	5.20	2.52	0.00
30.00	5.20	2.52	0.00
31.00	5.20	2.52	0.00
32.00	5.20	2.52	0.00
33.00	5.20	2.52	0.00
34.00	5.20	2.52	0.00
35.00	5.20	2.52	0.00
36.00	5.20	2.52	0.00
37.00	5.20	2.52	0.00
38.00	5.20	2.52	0.00
39.00	5.20	2.52	0.00
40.00	5.20	2.52	0.00
41.00	5.20	2.52	0.00
42.00	5.20	2.52	0.00
43.00	5.20	2.52	0.00
44.00	5.20	2.52	0.00
45.00	5.20	2.52	0.00
46.00	5.20	2.52	0.00
47.00	5.20	2.52	0.00
48.00	5.20	2.52	0.00
49.00	5.20	2.52	0.00
50.00	5.20	2.52	0.00
51.00	5.20	2.52	0.00
52.00	5.20	2.52	0.00
53.00	5.20	2.52	0.00
54.00	5.20	2.52	0.00
55.00	5.20	2.52	0.00
56.00	5.20	2.52	0.00
57.00	5.20	2.52	0.00
58.00	5.20	2.52	0.00
59.00	5.20	2.52	0.00
60.00	5.20	2.52	0.00
61.00	5.20	2.52	0.00
62.00	5.20	2.52	0.00
63.00	5.20	2.52	0.00
64.00	5.20	2.52	0.00
65.00	5.20	2.52	0.00
66.00	5.20	2.52	0.00
67.00	5.20	2.52	0.00
68.00	5.20	2.52	0.00
69.00	5.20	2.52	0.00
70.00	5.20	2.52	0.00
71.00	5.20	2.52	0.00
72.00	5.20	2.52	0.00

Summary for Pond 3: Prop. DA-1 Overland to Afterglow

Inflow Area = 1.220 ac, 0.00% Impervious, Inflow Depth = 2.35" for 10-yr event
Inflow = 1.99 cfs @ 12.35 hrs, Volume= 0.239 af
Primary = 1.99 cfs @ 12.35 hrs, Volume= 0.239 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 3: Prop. DA-1 Overland to Afterglow



Hydrograph for Pond 3: Prop. DA-1 Overland to Afterglow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.02		0.02
11.00	0.08		0.08
12.00	**0.56**		**0.56**
13.00	**0.60**		**0.60**
14.00	0.25		0.25
15.00	0.17		0.17
16.00	0.13		0.13
17.00	0.11		0.11
18.00	0.09		0.09
19.00	0.08		0.08
20.00	0.08		0.08
21.00	0.07		0.07
22.00	0.07		0.07
23.00	0.06		0.06
24.00	0.06		0.06
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 6: Basin A to Sunset-Bloomfield

Inflow Area = 3.110 ac, 76.53% Impervious, Inflow Depth = 4.39" for 10-yr event
Inflow = 11.70 cfs @ 12.13 hrs, Volume= 1.138 af
Outflow = 4.80 cfs @ 12.30 hrs, Volume= 1.100 af, Atten= 59%, Lag= 10.5 min
Primary = 4.80 cfs @ 12.30 hrs, Volume= 1.100 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 526.68' @ 12.30 hrs Surf.Area= 0.187 ac Storage= 0.330 af
Flood Elev= 529.00' Surf.Area= 0.187 ac Storage= 0.635 af

Plug-Flow detention time= 129.3 min calculated for 1.100 af (97% of inflow)
Center-of-Mass det. time= 108.0 min (876.7 - 768.7)

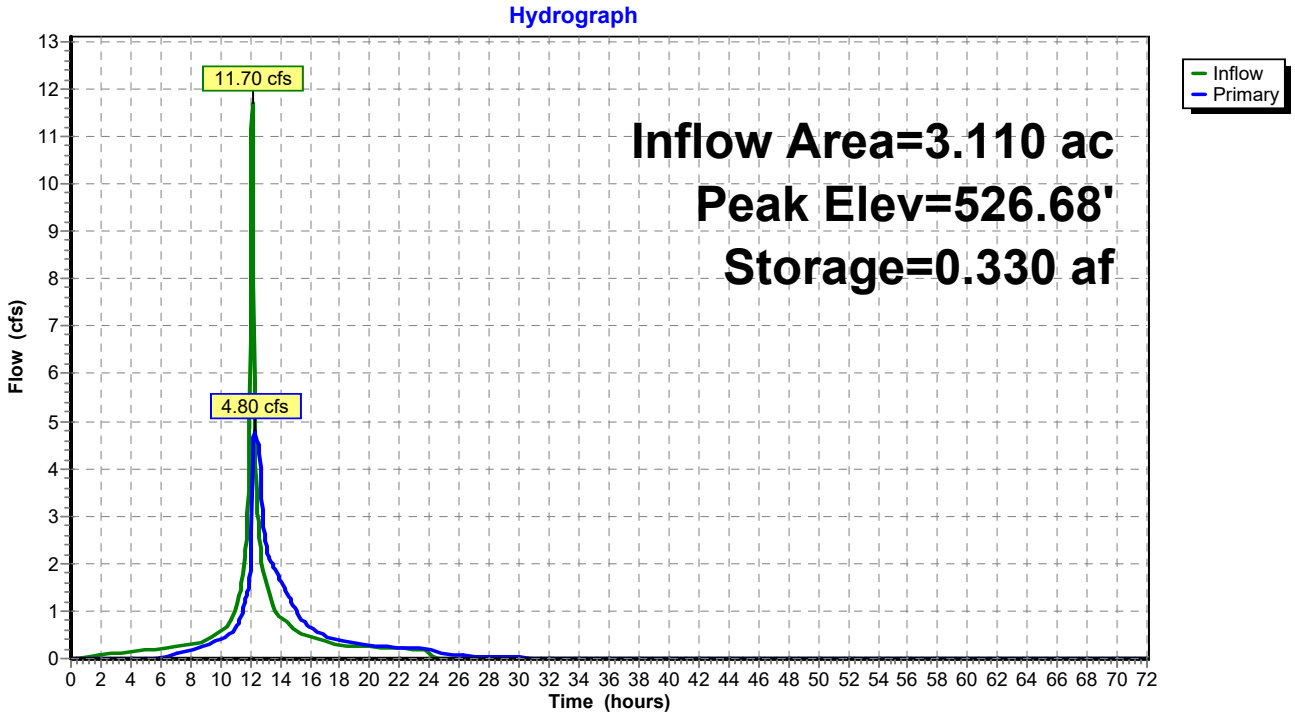
Volume	Invert	Avail.Storage	Storage Description
#1A	524.50'	0.105 af	**42.50'W x 161.00'L x 4.50'H Field A** 0.707 af Overall - 0.443 af Embedded = 0.263 af x 40.0% Voids
#2A	525.00'	0.430 af	**Brentwood StormTank 36"** x 1431 Inside #1 Inside= 18.0"W x 36.0"H => 4.37 sf x 3.00'L = 13.1 cf Outside= 18.0"W x 36.0"H => 4.50 sf x 3.00'L = 13.5 cf 27 Rows of 53 Chambers
#3B	524.50'	0.022 af	**26.00'W x 50.00'L x 4.50'H Field B** 0.134 af Overall - 0.079 af Embedded = 0.055 af x 40.0% Voids
#4B	525.00'	0.077 af	**Brentwood StormTank 36"** x 256 Inside #3 Inside= 18.0"W x 36.0"H => 4.37 sf x 3.00'L = 13.1 cf Outside= 18.0"W x 36.0"H => 4.50 sf x 3.00'L = 13.5 cf 16 Rows of 16 Chambers
		0.635 af	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	525.00'	**15.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 525.00' / 523.00' S= 0.0200 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	525.00'	**9.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	526.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.80 cfs @ 12.30 hrs HW=526.68' (Free Discharge)
└**1=Culvert** (Inlet Controls 4.80 cfs @ 3.91 fps)
└**2=Orifice/Grate** (Passes < 2.69 cfs potential flow)
└**3=Broad-Crested Rectangular Weir** (Passes < 4.00 cfs potential flow)

Pond 6: Basin A to Sunset-Bloomfield



Hydrograph for Pond 6: Basin A to Sunset-Bloomfield

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	524.50	0.00
2.50	0.10	0.008	524.60	0.00
5.00	0.17	0.036	524.98	0.00
7.50	0.28	0.070	525.19	0.13
10.00	**0.57**	**0.096**	**525.34**	**0.40**
12.50	**3.07**	**0.314**	**526.59**	**4.57**
15.00	0.59	0.141	525.60	1.04
17.50	0.32	0.098	525.35	0.42
20.00	0.24	0.085	525.28	0.27
22.50	0.20	0.080	525.25	0.22
25.00	0.01	0.067	525.17	0.11
27.50	0.00	0.054	525.10	0.04
30.00	0.00	0.049	525.07	0.02
32.50	0.00	0.046	525.05	0.01
35.00	0.00	0.044	525.04	0.01
37.50	0.00	0.043	525.03	0.01
40.00	0.00	0.042	525.03	0.00
42.50	0.00	0.041	525.02	0.00
45.00	0.00	0.041	525.02	0.00
47.50	0.00	0.040	525.02	0.00
50.00	0.00	0.040	525.01	0.00
52.50	0.00	0.039	525.01	0.00
55.00	0.00	0.039	525.01	0.00
57.50	0.00	0.039	525.01	0.00
60.00	0.00	0.038	525.01	0.00
62.50	0.00	0.038	525.01	0.00
65.00	0.00	0.038	525.00	0.00
67.50	0.00	0.038	525.00	0.00
70.00	0.00	0.038	525.00	0.00

Summary for Pond 9: Basin B to Sunset-Bloomfield

Inflow Area = 1.190 ac, 72.27% Impervious, Inflow Depth = 4.29" for 10-yr event
Inflow = 5.15 cfs @ 12.12 hrs, Volume= 0.425 af
Outflow = 4.63 cfs @ 12.16 hrs, Volume= 0.417 af, Atten= 10%, Lag= 2.6 min
Primary = 4.63 cfs @ 12.16 hrs, Volume= 0.417 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 515.01' @ 12.16 hrs Surf.Area= 0.039 ac Storage= 0.065 af
Flood Elev= 515.50' Surf.Area= 0.039 ac Storage= 0.080 af

Plug-Flow detention time= 51.1 min calculated for 0.417 af (98% of inflow)
Center-of-Mass det. time= 39.7 min (803.6 - 763.9)

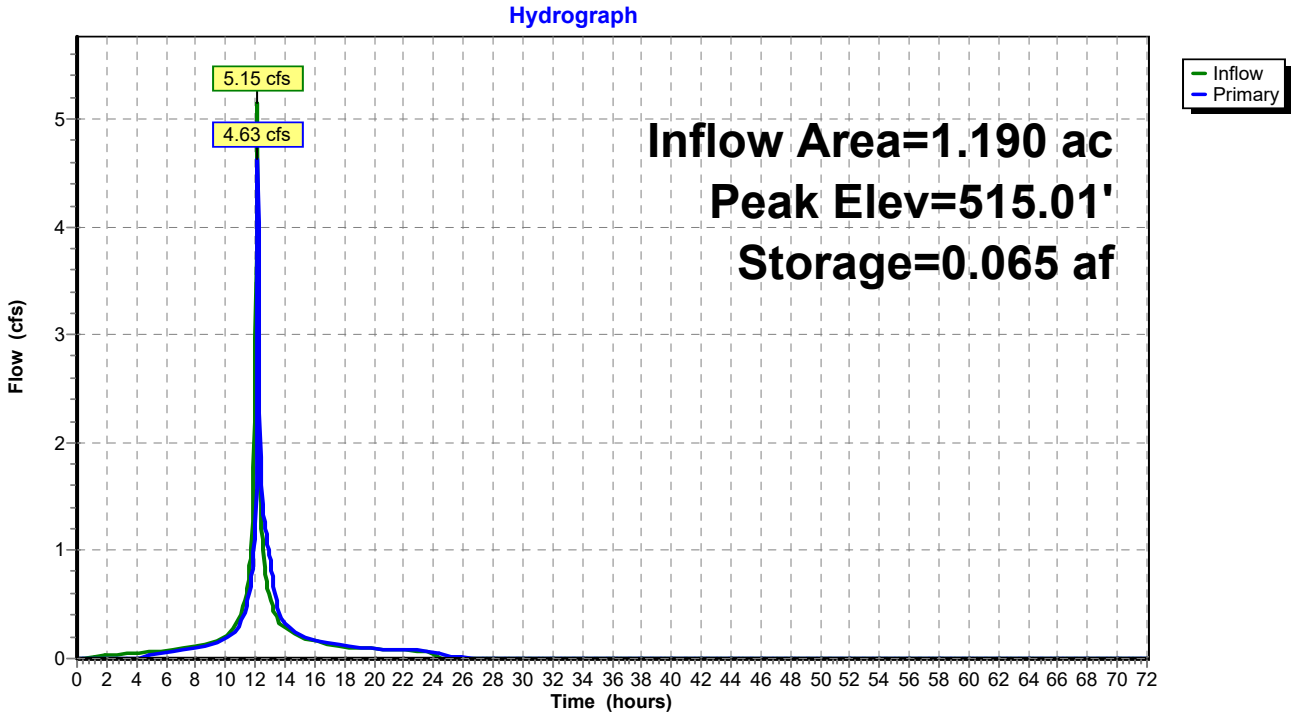
Volume	Invert	Avail.Storage	Storage Description
#1A	512.90'	0.027 af	**30.50'W x 56.00'L x 3.50'H Field A** 0.137 af Overall - 0.071 af Embedded = 0.067 af x 40.0% Voids
#2A	513.40'	0.068 af	**Brentwood StormTank 24"** x 342 Inside #1 Inside= 18.0"W x 24.0"H => 2.89 sf x 3.00'L = 8.7 cf Outside= 18.0"W x 24.0"H => 3.00 sf x 3.00'L = 9.0 cf 19 Rows of 18 Chambers
		0.095 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	510.57'	**15.0" Round Culvert** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 510.57' / 509.73' S= 0.0200 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	513.40'	**7.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	514.61'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.48 cfs @ 12.16 hrs HW=515.00' (Free Discharge)
└**1=Culvert** (Passes 4.48 cfs of 9.10 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.67 cfs @ 5.46 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 2.80 cfs @ 1.81 fps)

Pond 9: Basin B to Sunset-Bloomfield



Hydrograph for Pond 9: Basin B to Sunset-Bloomfield

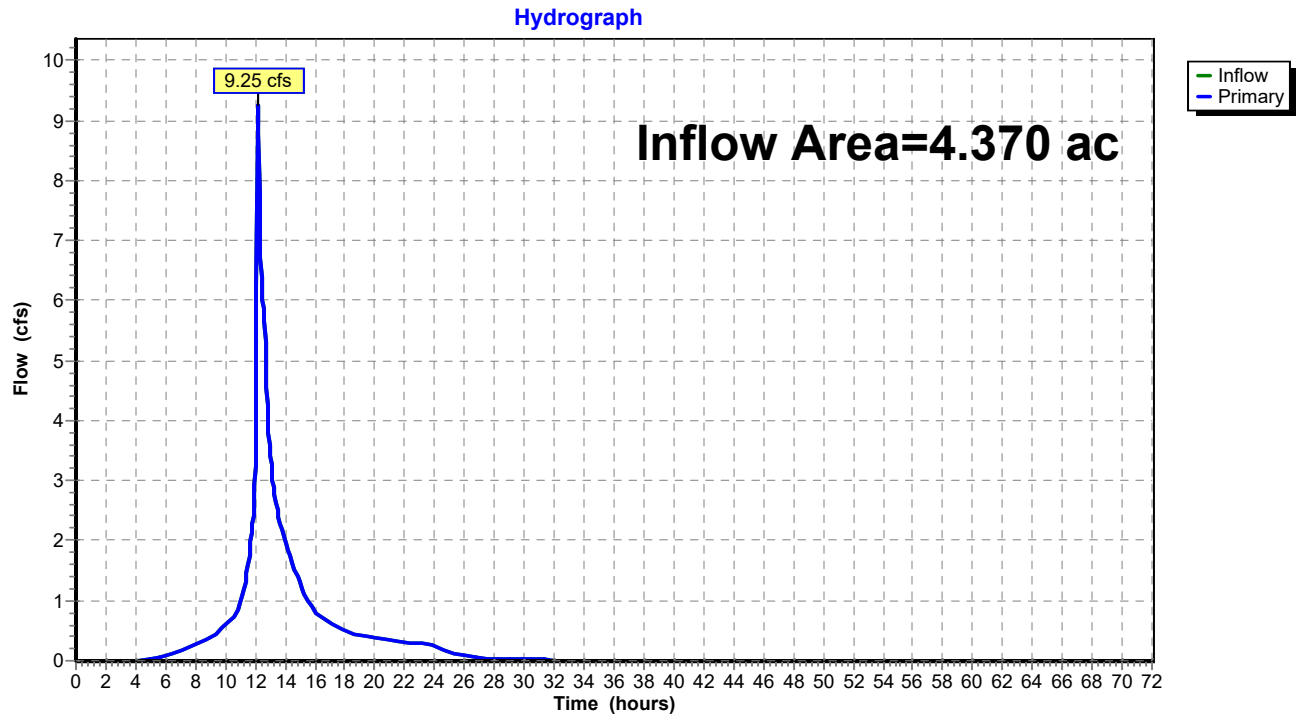
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	512.90	0.00
2.50	0.04	0.003	513.08	0.00
5.00	0.06	0.012	513.51	0.04
7.50	0.10	0.014	513.57	0.09
10.00	**0.21**	**0.017**	**513.65**	**0.19**
12.50	**1.05**	**0.050**	**514.59**	**1.38**
15.00	0.19	0.017	513.67	0.22
17.50	0.12	0.015	513.60	0.13
20.00	0.09	0.014	513.57	0.09
22.50	0.07	0.013	513.55	0.08
25.00	0.00	0.010	513.47	0.02
27.50	0.00	0.009	513.43	0.00
30.00	0.00	0.008	513.42	0.00
32.50	0.00	0.008	513.41	0.00
35.00	0.00	0.008	513.41	0.00
37.50	0.00	0.008	513.40	0.00
40.00	0.00	0.008	513.40	0.00
42.50	0.00	0.008	513.40	0.00
45.00	0.00	0.008	513.40	0.00
47.50	0.00	0.008	513.40	0.00
50.00	0.00	0.008	513.40	0.00
52.50	0.00	0.008	513.40	0.00
55.00	0.00	0.008	513.40	0.00
57.50	0.00	0.008	513.40	0.00
60.00	0.00	0.008	513.40	0.00
62.50	0.00	0.008	513.40	0.00
65.00	0.00	0.008	513.40	0.00
67.50	0.00	0.008	513.40	0.00
70.00	0.00	0.008	513.40	0.00

Summary for Pond 13: Prop. DA-2 Summation to Sunset-Bloomfield

Inflow Area = 4.370 ac, 74.21% Impervious, Inflow Depth = 4.21" for 10-yr event
Inflow = 9.25 cfs @ 12.17 hrs, Volume= 1.533 af
Primary = 9.25 cfs @ 12.17 hrs, Volume= 1.533 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 13: Prop. DA-2 Summation to Sunset-Bloomfield



Hydrograph for Pond 13: Prop. DA-2 Summation to Sunset-Bloomfield

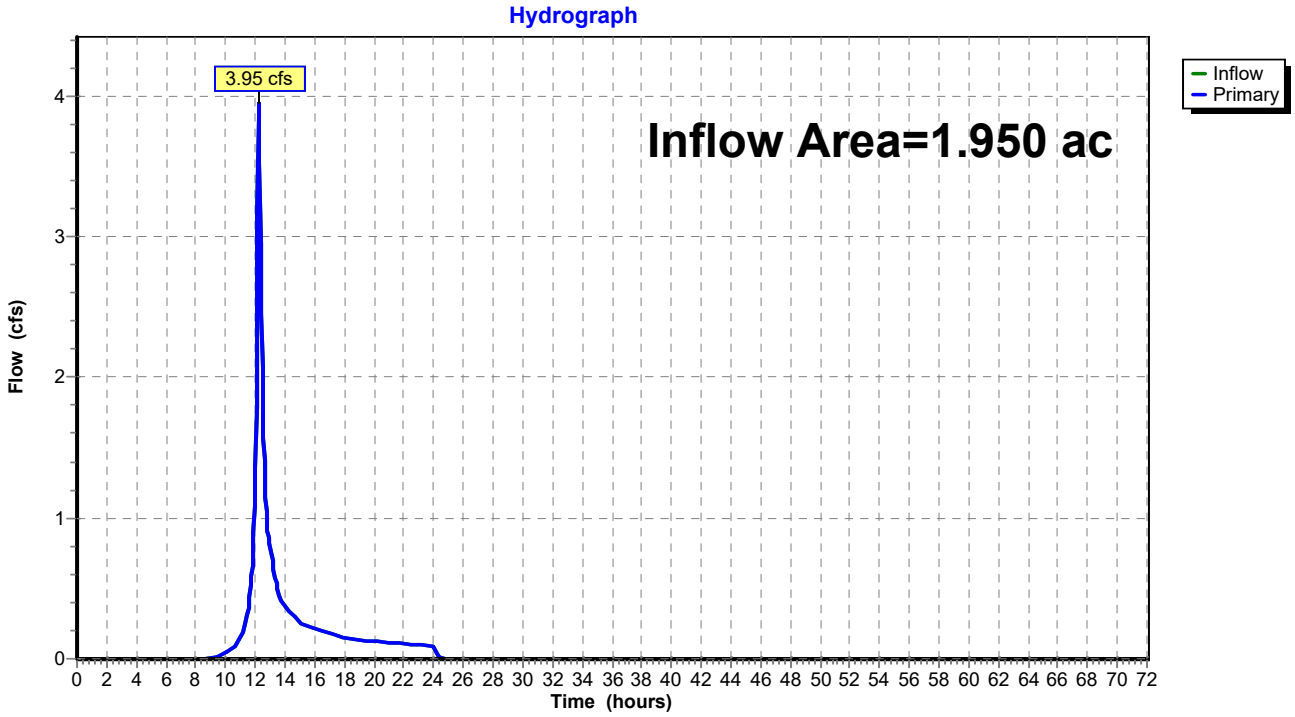
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.04		0.04
6.00	0.09		0.09
7.00	0.17		0.17
8.00	0.28		0.28
9.00	0.40		0.40
10.00	0.59		0.59
11.00	1.00		1.00
12.00	**3.23**		**3.23**
13.00	**3.42**		**3.42**
14.00	2.00		2.00
15.00	1.27		1.27
16.00	0.83		0.83
17.00	0.63		0.63
18.00	0.50		0.50
19.00	0.41		0.41
20.00	0.37		0.37
21.00	0.34		0.34
22.00	0.31		0.31
23.00	0.29		0.29
24.00	0.27		0.27
25.00	0.13		0.13
26.00	0.08		0.08
27.00	0.05		0.05
28.00	0.03		0.03
29.00	0.03		0.03
30.00	0.02		0.02
31.00	0.02		0.02
32.00	0.01		0.01
33.00	0.01		0.01
34.00	0.01		0.01
35.00	0.01		0.01
36.00	0.01		0.01
37.00	0.01		0.01
38.00	0.01		0.01
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 15: Prop. DA-3 Overland to Bloomfield

Inflow Area = 1.950 ac, 0.00% Impervious, Inflow Depth = 2.35" for 10-yr event
Inflow = 3.95 cfs @ 12.23 hrs, Volume= 0.382 af
Primary = 3.95 cfs @ 12.23 hrs, Volume= 0.382 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 15: Prop. DA-3 Overland to Bloomfield



Hydrograph for Pond 15: Prop. DA-3 Overland to Bloomfield

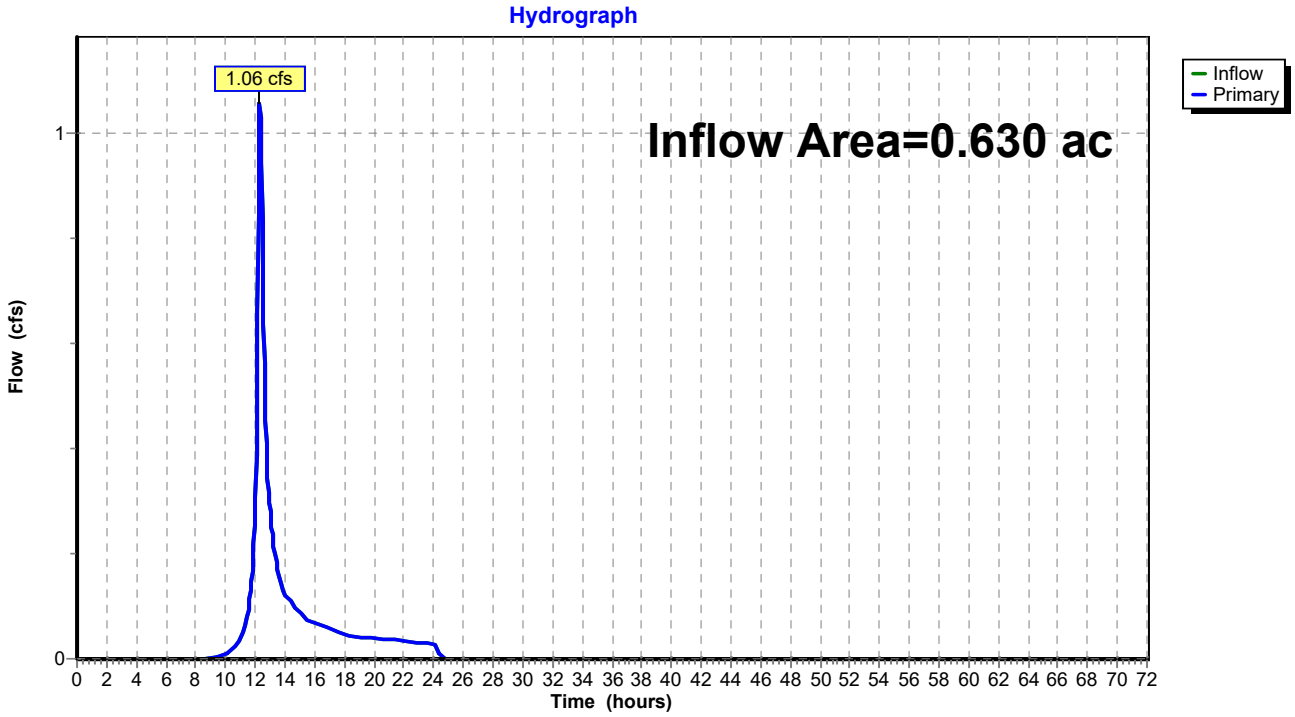
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.04		0.04
11.00	0.16		0.16
12.00	**1.36**		**1.36**
13.00	**0.78**		**0.78**
14.00	0.37		0.37
15.00	0.26		0.26
16.00	0.21		0.21
17.00	0.18		0.18
18.00	0.14		0.14
19.00	0.13		0.13
20.00	0.12		0.12
21.00	0.11		0.11
22.00	0.11		0.11
23.00	0.10		0.10
24.00	0.09		0.09
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 18: Prop. DA-4 Overland to Parkhurst

Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth = 2.27" for 10-yr event
Inflow = 1.06 cfs @ 12.31 hrs, Volume= 0.119 af
Primary = 1.06 cfs @ 12.31 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 18: Prop. DA-4 Overland to Parkhurst



Hydrograph for Pond 18: Prop. DA-4 Overland to Parkhurst

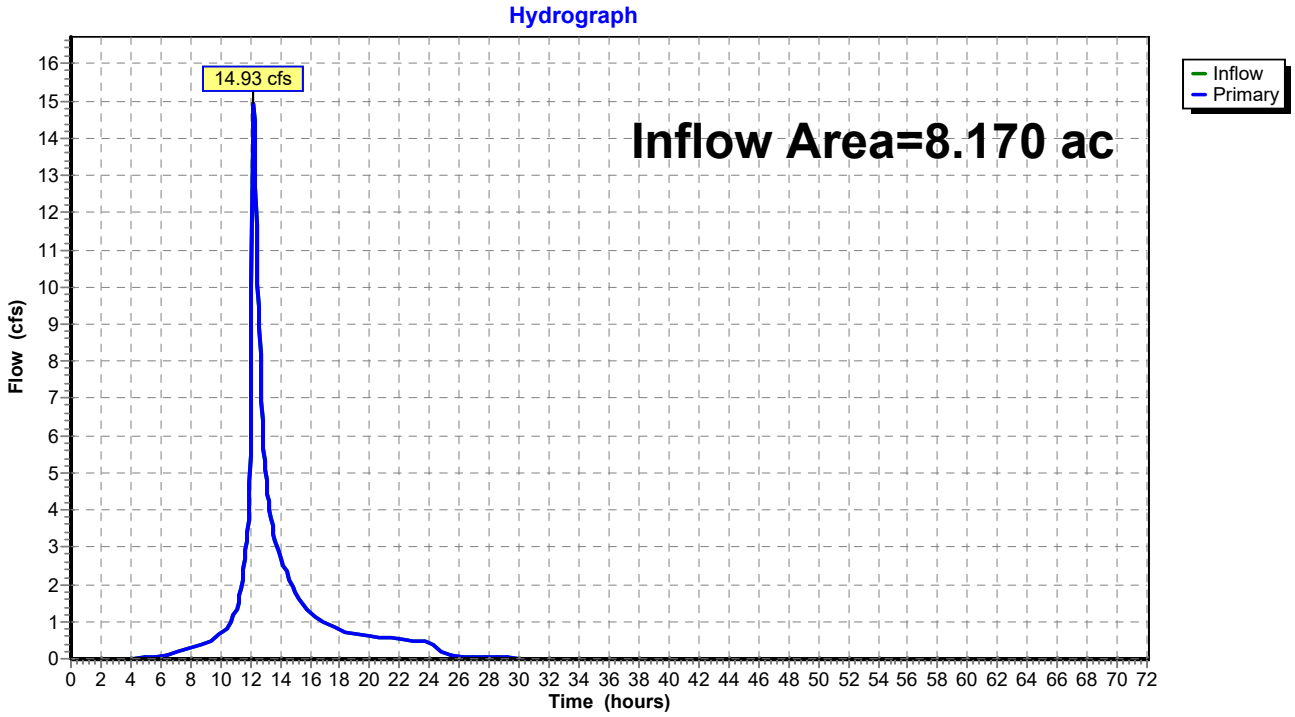
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.00		0.00
9.00	0.00		0.00
10.00	0.01		0.01
11.00	0.04		0.04
12.00	**0.31**		**0.31**
13.00	**0.28**		**0.28**
14.00	0.12		0.12
15.00	0.09		0.09
16.00	0.07		0.07
17.00	0.06		0.06
18.00	0.05		0.05
19.00	0.04		0.04
20.00	0.04		0.04
21.00	0.04		0.04
22.00	0.03		0.03
23.00	0.03		0.03
24.00	0.03		0.03
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 19: Site Sum

Inflow Area = 8.170 ac, 39.69% Impervious, Inflow Depth = 3.34" for 10-yr event
Inflow = 14.93 cfs @ 12.21 hrs, Volume= 2.274 af
Primary = 14.93 cfs @ 12.21 hrs, Volume= 2.274 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 19: Site Sum



Hydrograph for Pond 19: Site Sum

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.04		0.04
6.00	0.09		0.09
7.00	0.17		0.17
8.00	0.28		0.28
9.00	0.40		0.40
10.00	0.67		0.67
11.00	1.28		1.28
12.00	**5.46**		**5.46**
13.00	**5.08**		**5.08**
14.00	2.74		2.74
15.00	1.79		1.79
16.00	1.24		1.24
17.00	0.97		0.97
18.00	0.78		0.78
19.00	0.67		0.67
20.00	0.61		0.61
21.00	0.56		0.56
22.00	0.52		0.52
23.00	0.48		0.48
24.00	0.44		0.44
25.00	0.13		0.13
26.00	0.08		0.08
27.00	0.05		0.05
28.00	0.03		0.03
29.00	0.03		0.03
30.00	0.02		0.02
31.00	0.02		0.02
32.00	0.01		0.01
33.00	0.01		0.01
34.00	0.01		0.01
35.00	0.01		0.01
36.00	0.01		0.01
37.00	0.01		0.01
38.00	0.01		0.01
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 57P: Basin C

Inflow Area = 0.440 ac, 11.36% Impervious, Inflow Depth = 2.80" for 10-yr event
Inflow = 1.40 cfs @ 12.12 hrs, Volume= 0.103 af
Outflow = 0.30 cfs @ 12.52 hrs, Volume= 0.103 af, Atten= 79%, Lag= 24.5 min
Primary = 0.30 cfs @ 12.52 hrs, Volume= 0.103 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 85.25' Surf.Area= 0 sf Storage= 0 cf
Peak Elev= 559.68' @ 12.52 hrs Surf.Area= 2,145 sf Storage= 1,351 cf

Plug-Flow detention time= 64.0 min calculated for 0.103 af (100% of inflow)
Center-of-Mass det. time= 65.1 min (890.5 - 825.5)

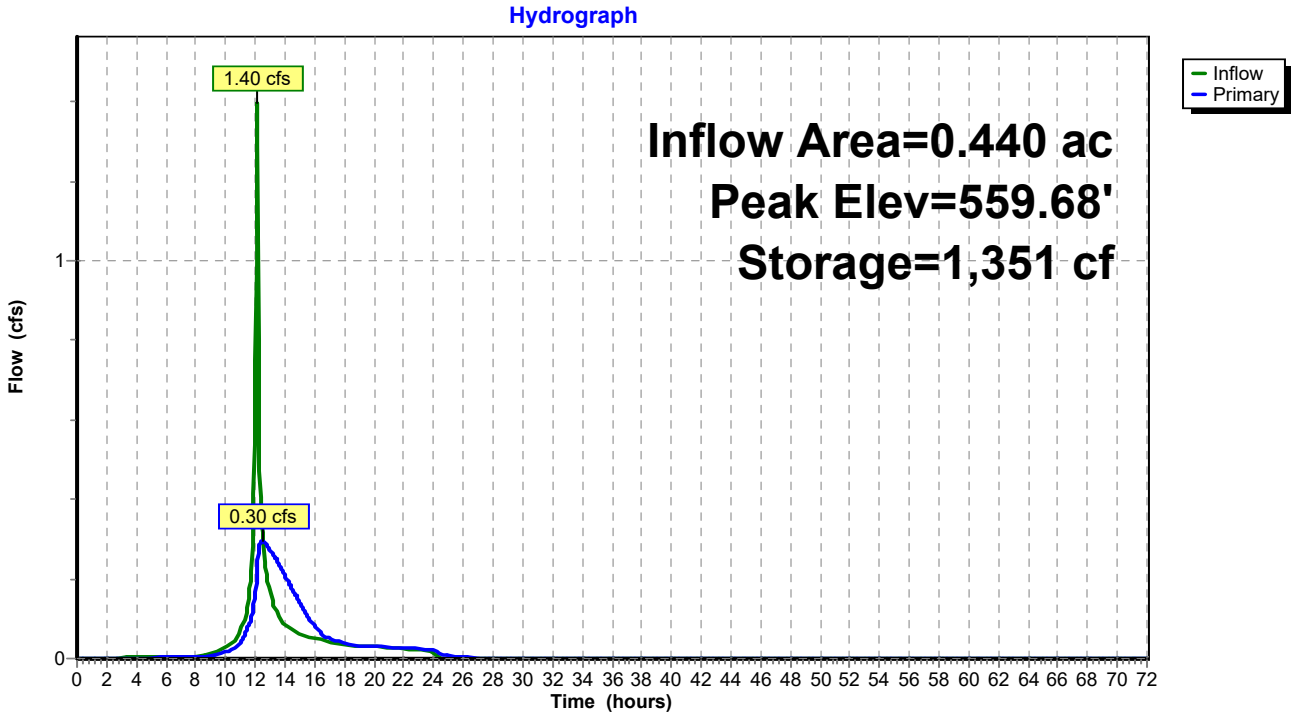
Volume	Invert	Avail.Storage	Storage Description
#1	557.99'	1,980 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
557.99	2,145	0.0	0	0
558.00	2,145	40.0	9	9
558.99	2,145	40.0	849	858
559.00	2,145	37.5	8	866
559.49	2,145	37.5	394	1,260
559.50	2,145	21.7	5	1,265
560.99	2,145	21.7	694	1,958
561.00	2,145	100.0	21	1,980

Device	Routing	Invert	Outlet Devices
#1	Primary	552.99'	**15.0" Round Culvert** L= 59.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 552.99' / 551.12' S= 0.0315 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	557.99'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	560.50'	**3.0' 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
#4	Device 1	562.50'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.30 cfs @ 12.52 hrs HW=559.68' (Free Discharge)
↑└**1=Culvert** (Passes 0.30 cfs of 14.56 cfs potential flow)
↑└**2=Orifice/Grate** (Orifice Controls 0.30 cfs @ 6.03 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 57P: Basin C



Hydrograph for Pond 57P: Basin C

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	557.99	0.00
2.50	0.00	7	558.00	0.00
5.00	0.00	23	558.02	0.00
7.50	0.01	36	558.03	0.00
10.00	**0.03**	75	558.08	0.02
12.50	**0.31**	**1,351**	**559.68**	**0.30**
15.00	0.06	408	558.47	0.14
17.50	0.04	134	558.15	0.04
20.00	0.03	108	558.12	0.03
22.50	0.02	97	558.10	0.03
25.00	0.00	48	558.05	0.01
27.50	0.00	18	558.01	0.00
30.00	0.00	10	558.00	0.00
32.50	0.00	8	558.00	0.00
35.00	0.00	6	558.00	0.00
37.50	0.00	5	558.00	0.00
40.00	0.00	4	557.99	0.00
42.50	0.00	3	557.99	0.00
45.00	0.00	2	557.99	0.00
47.50	0.00	2	557.99	0.00
50.00	0.00	1	557.99	0.00
52.50	0.00	1	557.99	0.00
55.00	0.00	1	557.99	0.00
57.50	0.00	1	557.99	0.00
60.00	0.00	1	557.99	0.00
62.50	0.00	0	557.99	0.00
65.00	0.00	0	557.99	0.00
67.50	0.00	0	557.99	0.00
70.00	0.00	0	557.99	0.00

Summary for Subcatchment 1: Afterglow-Perv

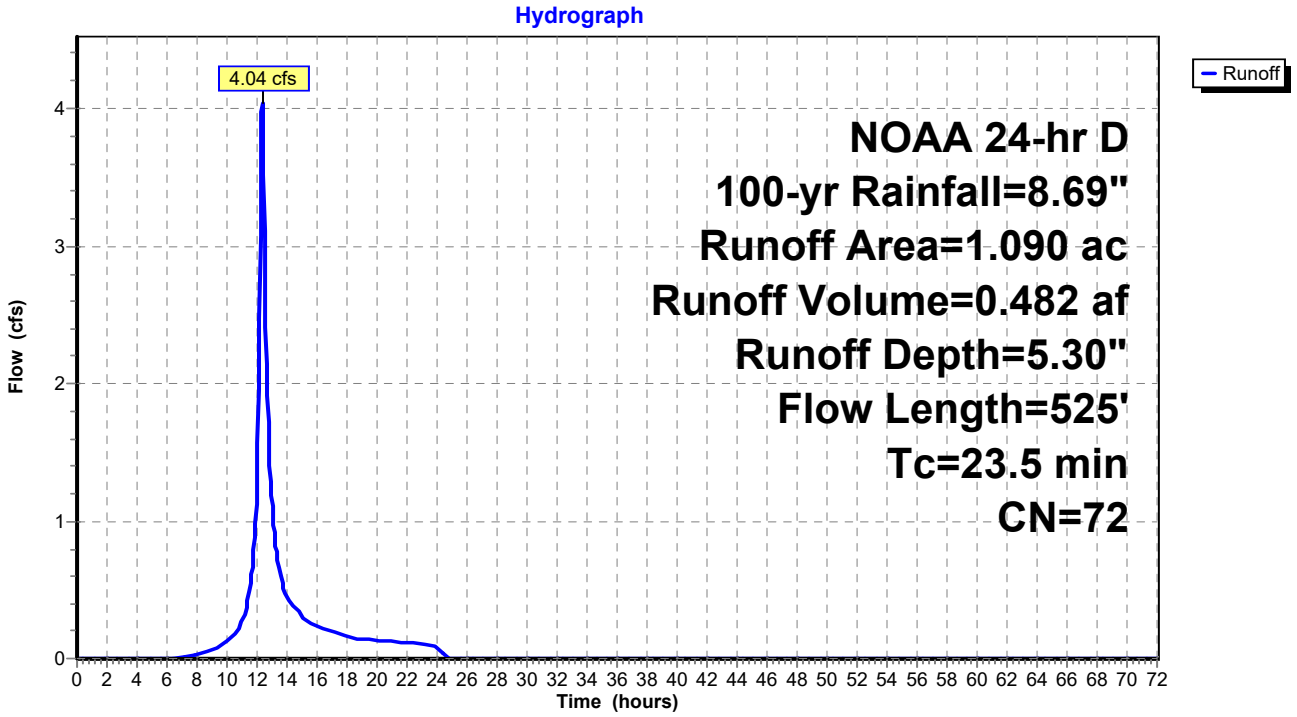
Runoff = 4.04 cfs @ 12.34 hrs, Volume= 0.482 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
1.030	72	Woods/grass comb., Good, HSG C
0.060	74	>75% Grass cover, Good, HSG C
1.090	72	Weighted Average
1.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0230	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	102	0.0775	1.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	131	0.0481	1.54		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	92	0.1957	2.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	46	0.1739	2.09		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	54	0.2037	2.26		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.5	525	Total			

Subcatchment 1: Afterglow-Perv



Hydrograph for Subcatchment 1: Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.00	0.01
8.00	1.13	0.03	0.03
9.00	1.38	0.08	0.06
10.00	1.72	0.18	0.13
11.00	2.26	0.41	0.27
12.00	4.16	1.58	**1.31**
13.00	6.43	3.35	**1.11**
14.00	6.97	3.80	0.44
15.00	7.31	4.10	0.31
16.00	7.56	4.31	0.23
17.00	7.77	4.50	0.20
18.00	7.95	4.65	0.16
19.00	8.10	4.78	0.14
20.00	8.23	4.90	0.13
21.00	8.36	5.01	0.12
22.00	8.48	5.12	0.11
23.00	8.59	5.22	0.11
24.00	**8.69**	**5.30**	0.10
25.00	8.69	5.30	0.00
26.00	8.69	5.30	0.00
27.00	8.69	5.30	0.00
28.00	8.69	5.30	0.00
29.00	8.69	5.30	0.00
30.00	8.69	5.30	0.00
31.00	8.69	5.30	0.00
32.00	8.69	5.30	0.00
33.00	8.69	5.30	0.00
34.00	8.69	5.30	0.00
35.00	8.69	5.30	0.00
36.00	8.69	5.30	0.00
37.00	8.69	5.30	0.00
38.00	8.69	5.30	0.00
39.00	8.69	5.30	0.00
40.00	8.69	5.30	0.00
41.00	8.69	5.30	0.00
42.00	8.69	5.30	0.00
43.00	8.69	5.30	0.00
44.00	8.69	5.30	0.00
45.00	8.69	5.30	0.00
46.00	8.69	5.30	0.00
47.00	8.69	5.30	0.00
48.00	8.69	5.30	0.00
49.00	8.69	5.30	0.00
50.00	8.69	5.30	0.00
51.00	8.69	5.30	0.00
52.00	8.69	5.30	0.00
53.00	8.69	5.30	0.00
54.00	8.69	5.30	0.00
55.00	8.69	5.30	0.00
56.00	8.69	5.30	0.00
57.00	8.69	5.30	0.00
58.00	8.69	5.30	0.00
59.00	8.69	5.30	0.00
60.00	8.69	5.30	0.00
61.00	8.69	5.30	0.00
62.00	8.69	5.30	0.00
63.00	8.69	5.30	0.00
64.00	8.69	5.30	0.00
65.00	8.69	5.30	0.00
66.00	8.69	5.30	0.00
67.00	8.69	5.30	0.00
68.00	8.69	5.30	0.00
69.00	8.69	5.30	0.00
70.00	8.69	5.30	0.00
71.00	8.69	5.30	0.00
72.00	8.69	5.30	0.00

Summary for Subcatchment 2: Off-Site Afterglow-Perv

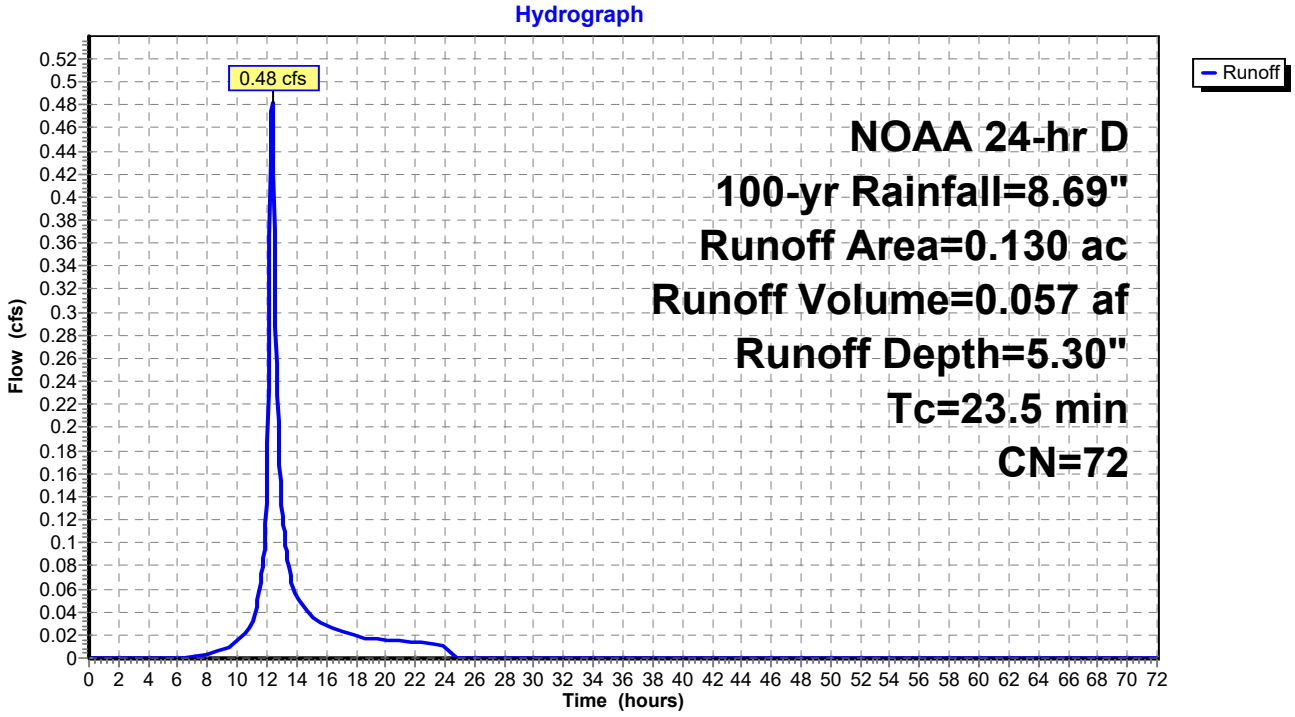
Runoff = 0.48 cfs @ 12.34 hrs, Volume= 0.057 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.090	72	Woods/grass comb., Good, HSG C
0.040	72	Woods/grass comb., Good, HSG C
0.130	72	Weighted Average
0.130		100.00% Pervious Area

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

Subcatchment 2: Off-Site Afterglow-Perv



Hydrograph for Subcatchment 2: Off-Site Afterglow-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	8.69	5.30	0.00
1.00	0.10	0.00	0.00	54.00	8.69	5.30	0.00
2.00	0.21	0.00	0.00	55.00	8.69	5.30	0.00
3.00	0.33	0.00	0.00	56.00	8.69	5.30	0.00
4.00	0.46	0.00	0.00	57.00	8.69	5.30	0.00
5.00	0.59	0.00	0.00	58.00	8.69	5.30	0.00
6.00	0.74	0.00	0.00	59.00	8.69	5.30	0.00
7.00	0.92	0.00	0.00	60.00	8.69	5.30	0.00
8.00	1.13	0.03	0.00	61.00	8.69	5.30	0.00
9.00	1.38	0.08	0.01	62.00	8.69	5.30	0.00
10.00	1.72	0.18	0.01	63.00	8.69	5.30	0.00
11.00	2.26	0.41	0.03	64.00	8.69	5.30	0.00
12.00	4.16	1.58	**0.16**	65.00	8.69	5.30	0.00
13.00	6.43	3.35	**0.13**	66.00	8.69	5.30	0.00
14.00	6.97	3.80	0.05	67.00	8.69	5.30	0.00
15.00	7.31	4.10	0.04	68.00	8.69	5.30	0.00
16.00	7.56	4.31	0.03	69.00	8.69	5.30	0.00
17.00	7.77	4.50	0.02	70.00	8.69	5.30	0.00
18.00	7.95	4.65	0.02	71.00	8.69	5.30	0.00
19.00	8.10	4.78	0.02	72.00	8.69	5.30	0.00
20.00	8.23	4.90	0.02				
21.00	8.36	5.01	0.01				
22.00	8.48	5.12	0.01				
23.00	8.59	5.22	0.01				
24.00	**8.69**	**5.30**	0.01				
25.00	8.69	5.30	0.00				
26.00	8.69	5.30	0.00				
27.00	8.69	5.30	0.00				
28.00	8.69	5.30	0.00				
29.00	8.69	5.30	0.00				
30.00	8.69	5.30	0.00				
31.00	8.69	5.30	0.00				
32.00	8.69	5.30	0.00				
33.00	8.69	5.30	0.00				
34.00	8.69	5.30	0.00				
35.00	8.69	5.30	0.00				
36.00	8.69	5.30	0.00				
37.00	8.69	5.30	0.00				
38.00	8.69	5.30	0.00				
39.00	8.69	5.30	0.00				
40.00	8.69	5.30	0.00				
41.00	8.69	5.30	0.00				
42.00	8.69	5.30	0.00				
43.00	8.69	5.30	0.00				
44.00	8.69	5.30	0.00				
45.00	8.69	5.30	0.00				
46.00	8.69	5.30	0.00				
47.00	8.69	5.30	0.00				
48.00	8.69	5.30	0.00				
49.00	8.69	5.30	0.00				
50.00	8.69	5.30	0.00				
51.00	8.69	5.30	0.00				
52.00	8.69	5.30	0.00				

Summary for Subcatchment 4: On-Site to Basin A to Sunset-Bloomfield-Imperv

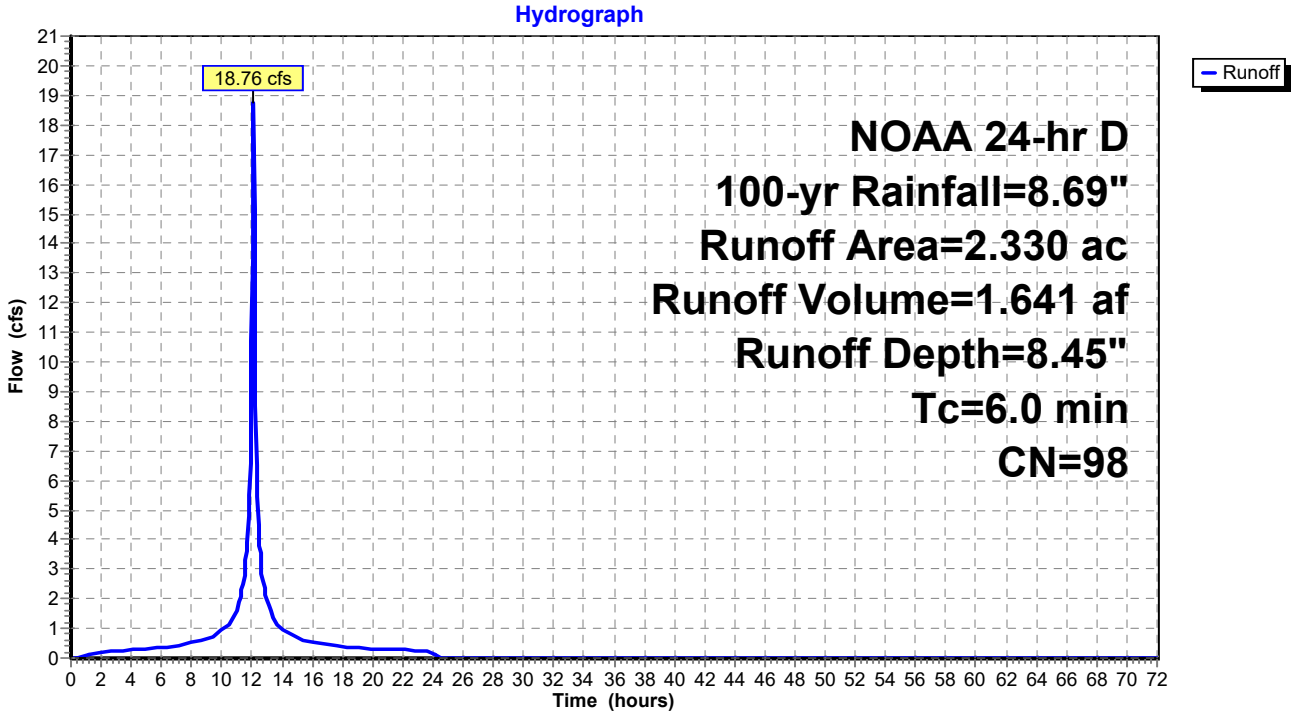
Runoff = 18.76 cfs @ 12.13 hrs, Volume= 1.641 af, Depth= 8.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
2.200	98	Roofs, HSG C
0.130	98	Paved parking, HSG C
2.330	98	Weighted Average
2.330		100.00% Impervious Area

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

Subcatchment 4: On-Site to Basin A to Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 4: On-Site to Basin A to Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.09
2.00	0.21	0.08	0.18
3.00	0.33	0.17	0.24
4.00	0.46	0.28	0.28
5.00	0.59	0.40	0.31
6.00	0.74	0.54	0.34
7.00	0.92	0.71	0.43
8.00	1.13	0.92	0.52
9.00	1.38	1.16	0.62
10.00	1.72	1.50	0.93
11.00	2.26	2.03	1.65
12.00	4.16	3.93	**10.71**
13.00	6.43	6.19	**2.00**
14.00	6.97	6.73	1.00
15.00	7.31	7.07	0.68
16.00	7.56	7.32	0.55
17.00	7.77	7.53	0.46
18.00	7.95	7.71	0.37
19.00	8.10	7.86	0.34
20.00	8.23	7.99	0.32
21.00	8.36	8.12	0.29
22.00	8.48	8.24	0.27
23.00	8.59	8.35	0.25
24.00	**8.69**	**8.45**	0.22
25.00	8.69	8.45	0.00
26.00	8.69	8.45	0.00
27.00	8.69	8.45	0.00
28.00	8.69	8.45	0.00
29.00	8.69	8.45	0.00
30.00	8.69	8.45	0.00
31.00	8.69	8.45	0.00
32.00	8.69	8.45	0.00
33.00	8.69	8.45	0.00
34.00	8.69	8.45	0.00
35.00	8.69	8.45	0.00
36.00	8.69	8.45	0.00
37.00	8.69	8.45	0.00
38.00	8.69	8.45	0.00
39.00	8.69	8.45	0.00
40.00	8.69	8.45	0.00
41.00	8.69	8.45	0.00
42.00	8.69	8.45	0.00
43.00	8.69	8.45	0.00
44.00	8.69	8.45	0.00
45.00	8.69	8.45	0.00
46.00	8.69	8.45	0.00
47.00	8.69	8.45	0.00
48.00	8.69	8.45	0.00
49.00	8.69	8.45	0.00
50.00	8.69	8.45	0.00
51.00	8.69	8.45	0.00
52.00	8.69	8.45	0.00
53.00	8.69	8.45	0.00
54.00	8.69	8.45	0.00
55.00	8.69	8.45	0.00
56.00	8.69	8.45	0.00
57.00	8.69	8.45	0.00
58.00	8.69	8.45	0.00
59.00	8.69	8.45	0.00
60.00	8.69	8.45	0.00
61.00	8.69	8.45	0.00
62.00	8.69	8.45	0.00
63.00	8.69	8.45	0.00
64.00	8.69	8.45	0.00
65.00	8.69	8.45	0.00
66.00	8.69	8.45	0.00
67.00	8.69	8.45	0.00
68.00	8.69	8.45	0.00
69.00	8.69	8.45	0.00
70.00	8.69	8.45	0.00
71.00	8.69	8.45	0.00
72.00	8.69	8.45	0.00

Summary for Subcatchment 5: On-Site to Basin A to Sunset-Bloomfield-Perv

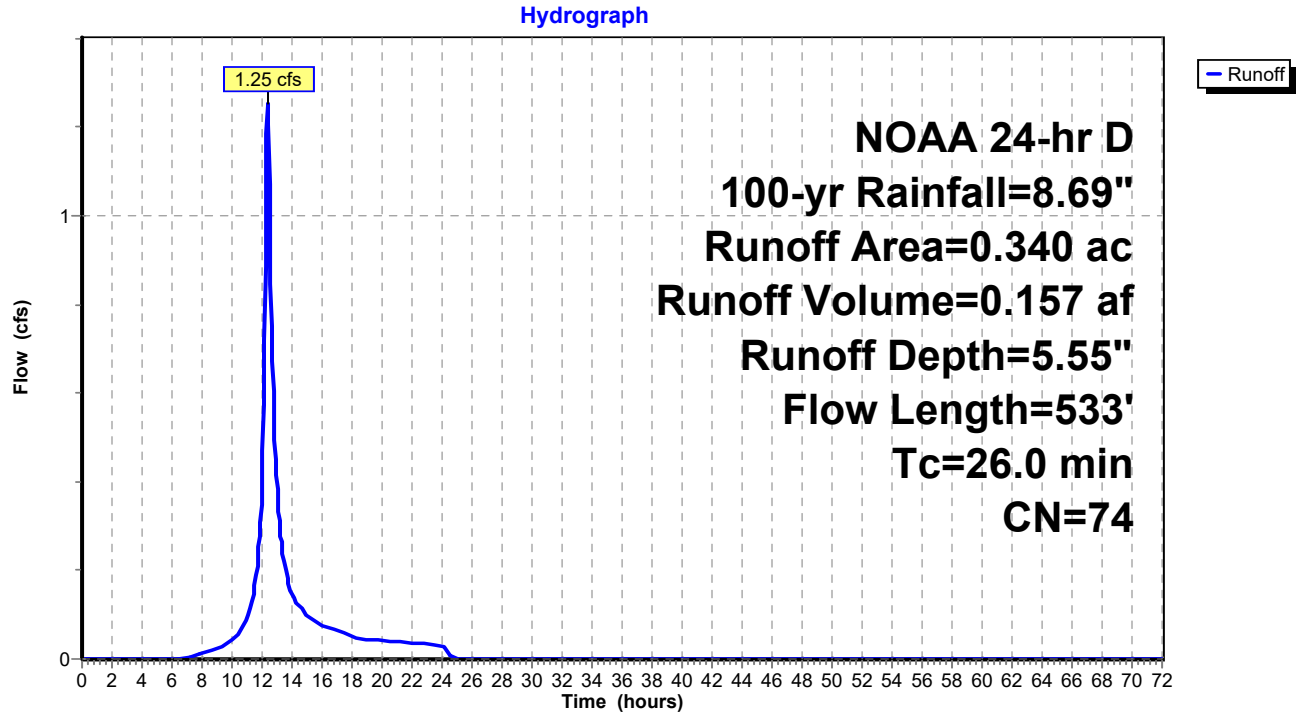
Runoff = 1.25 cfs @ 12.37 hrs, Volume= 0.157 af, Depth= 5.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.340	74	>75% Grass cover, Good, HSG C
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	100	0.0140	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.2	10	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	38	0.0474	1.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	108	0.0741	1.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	277	0.0200	9.68	11.88	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 Corrugated PE, smooth interior
26.0	533	Total			

Subcatchment 5: On-Site to Basin A to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 5: On-Site to Basin A to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.01	0.00
8.00	1.13	0.05	0.01
9.00	1.38	0.11	0.02
10.00	1.72	0.23	0.04
11.00	2.26	0.48	0.09
12.00	4.16	1.72	**0.40**
13.00	6.43	3.55	**0.38**
14.00	6.97	4.01	0.15
15.00	7.31	4.31	0.10
16.00	7.56	4.54	0.07
17.00	7.77	4.72	0.06
18.00	7.95	4.88	0.05
19.00	8.10	5.01	0.05
20.00	8.23	5.14	0.04
21.00	8.36	5.25	0.04
22.00	8.48	5.36	0.04
23.00	8.59	5.46	0.03
24.00	**8.69**	**5.55**	0.03
25.00	8.69	5.55	0.00
26.00	8.69	5.55	0.00
27.00	8.69	5.55	0.00
28.00	8.69	5.55	0.00
29.00	8.69	5.55	0.00
30.00	8.69	5.55	0.00
31.00	8.69	5.55	0.00
32.00	8.69	5.55	0.00
33.00	8.69	5.55	0.00
34.00	8.69	5.55	0.00
35.00	8.69	5.55	0.00
36.00	8.69	5.55	0.00
37.00	8.69	5.55	0.00
38.00	8.69	5.55	0.00
39.00	8.69	5.55	0.00
40.00	8.69	5.55	0.00
41.00	8.69	5.55	0.00
42.00	8.69	5.55	0.00
43.00	8.69	5.55	0.00
44.00	8.69	5.55	0.00
45.00	8.69	5.55	0.00
46.00	8.69	5.55	0.00
47.00	8.69	5.55	0.00
48.00	8.69	5.55	0.00
49.00	8.69	5.55	0.00
50.00	8.69	5.55	0.00
51.00	8.69	5.55	0.00
52.00	8.69	5.55	0.00
53.00	8.69	5.55	0.00
54.00	8.69	5.55	0.00
55.00	8.69	5.55	0.00
56.00	8.69	5.55	0.00
57.00	8.69	5.55	0.00
58.00	8.69	5.55	0.00
59.00	8.69	5.55	0.00
60.00	8.69	5.55	0.00
61.00	8.69	5.55	0.00
62.00	8.69	5.55	0.00
63.00	8.69	5.55	0.00
64.00	8.69	5.55	0.00
65.00	8.69	5.55	0.00
66.00	8.69	5.55	0.00
67.00	8.69	5.55	0.00
68.00	8.69	5.55	0.00
69.00	8.69	5.55	0.00
70.00	8.69	5.55	0.00
71.00	8.69	5.55	0.00
72.00	8.69	5.55	0.00

Summary for Subcatchment 7: On-Site to Basin B to Sunset-Bloomfield-Imperv

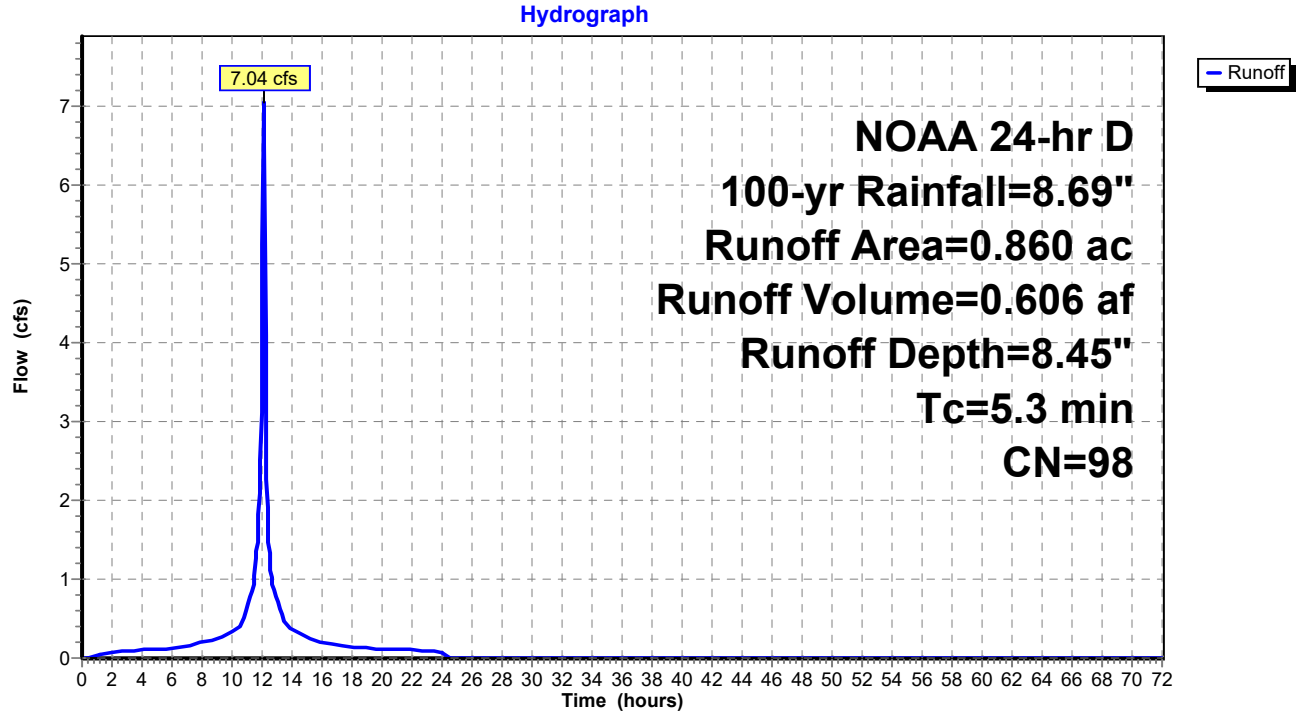
Runoff = 7.04 cfs @ 12.11 hrs, Volume= 0.606 af, Depth= 8.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.390	98	Roofs, HSG C
0.470	98	Paved parking, HSG C
0.860	98	Weighted Average
0.860		100.00% Impervious Area

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

Subcatchment 7: On-Site to Basin B to Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 7: On-Site to Basin B to Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.03
2.00	0.21	0.08	0.07
3.00	0.33	0.17	0.09
4.00	0.46	0.28	0.10
5.00	0.59	0.40	0.11
6.00	0.74	0.54	0.12
7.00	0.92	0.71	0.16
8.00	1.13	0.92	0.19
9.00	1.38	1.16	0.23
10.00	1.72	1.50	0.34
11.00	2.26	2.03	0.61
12.00	4.16	3.93	**4.16**
13.00	6.43	6.19	**0.73**
14.00	6.97	6.73	0.37
15.00	7.31	7.07	0.25
16.00	7.56	7.32	0.20
17.00	7.77	7.53	0.17
18.00	7.95	7.71	0.14
19.00	8.10	7.86	0.12
20.00	8.23	7.99	0.12
21.00	8.36	8.12	0.11
22.00	8.48	8.24	0.10
23.00	8.59	8.35	0.09
24.00	**8.69**	**8.45**	0.08
25.00	8.69	8.45	0.00
26.00	8.69	8.45	0.00
27.00	8.69	8.45	0.00
28.00	8.69	8.45	0.00
29.00	8.69	8.45	0.00
30.00	8.69	8.45	0.00
31.00	8.69	8.45	0.00
32.00	8.69	8.45	0.00
33.00	8.69	8.45	0.00
34.00	8.69	8.45	0.00
35.00	8.69	8.45	0.00
36.00	8.69	8.45	0.00
37.00	8.69	8.45	0.00
38.00	8.69	8.45	0.00
39.00	8.69	8.45	0.00
40.00	8.69	8.45	0.00
41.00	8.69	8.45	0.00
42.00	8.69	8.45	0.00
43.00	8.69	8.45	0.00
44.00	8.69	8.45	0.00
45.00	8.69	8.45	0.00
46.00	8.69	8.45	0.00
47.00	8.69	8.45	0.00
48.00	8.69	8.45	0.00
49.00	8.69	8.45	0.00
50.00	8.69	8.45	0.00
51.00	8.69	8.45	0.00
52.00	8.69	8.45	0.00
53.00	8.69	8.45	0.00
54.00	8.69	8.45	0.00
55.00	8.69	8.45	0.00
56.00	8.69	8.45	0.00
57.00	8.69	8.45	0.00
58.00	8.69	8.45	0.00
59.00	8.69	8.45	0.00
60.00	8.69	8.45	0.00
61.00	8.69	8.45	0.00
62.00	8.69	8.45	0.00
63.00	8.69	8.45	0.00
64.00	8.69	8.45	0.00
65.00	8.69	8.45	0.00
66.00	8.69	8.45	0.00
67.00	8.69	8.45	0.00
68.00	8.69	8.45	0.00
69.00	8.69	8.45	0.00
70.00	8.69	8.45	0.00
71.00	8.69	8.45	0.00
72.00	8.69	8.45	0.00

Summary for Subcatchment 8: On-Site to Basin B to Sunset-Bloomfield-Perv

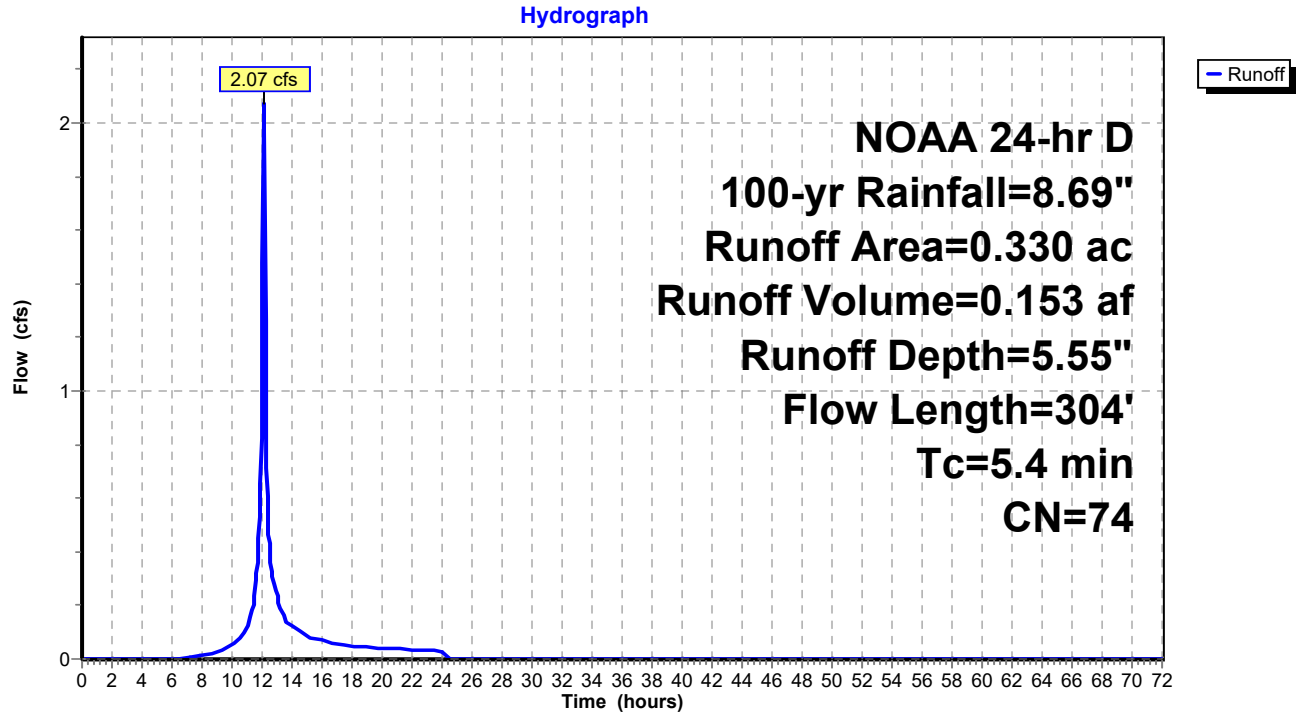
Runoff = 2.07 cfs @ 12.12 hrs, Volume= 0.153 af, Depth= 5.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.330	74	>75% Grass cover, Good, HSG C
0.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	37	0.0270	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.0	63	0.0109	1.01		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.2	57	0.0623	5.07		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	101	0.0619	5.05		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	46	0.0100	6.84	8.40	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 Corrugated PE, smooth interior
5.4	304	Total			

Subcatchment 8: On-Site to Basin B to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 8: On-Site to Basin B to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.01	0.01
8.00	1.13	0.05	0.01
9.00	1.38	0.11	0.03
10.00	1.72	0.23	0.05
11.00	2.26	0.48	0.12
12.00	4.16	1.72	**1.13**
13.00	6.43	3.55	**0.24**
14.00	6.97	4.01	0.12
15.00	7.31	4.31	0.08
16.00	7.56	4.54	0.07
17.00	7.77	4.72	0.06
18.00	7.95	4.88	0.05
19.00	8.10	5.01	0.04
20.00	8.23	5.14	0.04
21.00	8.36	5.25	0.04
22.00	8.48	5.36	0.03
23.00	8.59	5.46	0.03
24.00	**8.69**	**5.55**	0.03
25.00	8.69	5.55	0.00
26.00	8.69	5.55	0.00
27.00	8.69	5.55	0.00
28.00	8.69	5.55	0.00
29.00	8.69	5.55	0.00
30.00	8.69	5.55	0.00
31.00	8.69	5.55	0.00
32.00	8.69	5.55	0.00
33.00	8.69	5.55	0.00
34.00	8.69	5.55	0.00
35.00	8.69	5.55	0.00
36.00	8.69	5.55	0.00
37.00	8.69	5.55	0.00
38.00	8.69	5.55	0.00
39.00	8.69	5.55	0.00
40.00	8.69	5.55	0.00
41.00	8.69	5.55	0.00
42.00	8.69	5.55	0.00
43.00	8.69	5.55	0.00
44.00	8.69	5.55	0.00
45.00	8.69	5.55	0.00
46.00	8.69	5.55	0.00
47.00	8.69	5.55	0.00
48.00	8.69	5.55	0.00
49.00	8.69	5.55	0.00
50.00	8.69	5.55	0.00
51.00	8.69	5.55	0.00
52.00	8.69	5.55	0.00
53.00	8.69	5.55	0.00
54.00	8.69	5.55	0.00
55.00	8.69	5.55	0.00
56.00	8.69	5.55	0.00
57.00	8.69	5.55	0.00
58.00	8.69	5.55	0.00
59.00	8.69	5.55	0.00
60.00	8.69	5.55	0.00
61.00	8.69	5.55	0.00
62.00	8.69	5.55	0.00
63.00	8.69	5.55	0.00
64.00	8.69	5.55	0.00
65.00	8.69	5.55	0.00
66.00	8.69	5.55	0.00
67.00	8.69	5.55	0.00
68.00	8.69	5.55	0.00
69.00	8.69	5.55	0.00
70.00	8.69	5.55	0.00
71.00	8.69	5.55	0.00
72.00	8.69	5.55	0.00

Summary for Subcatchment 10: Bypass Area #1 to Sunset-Bloomfield-Perv

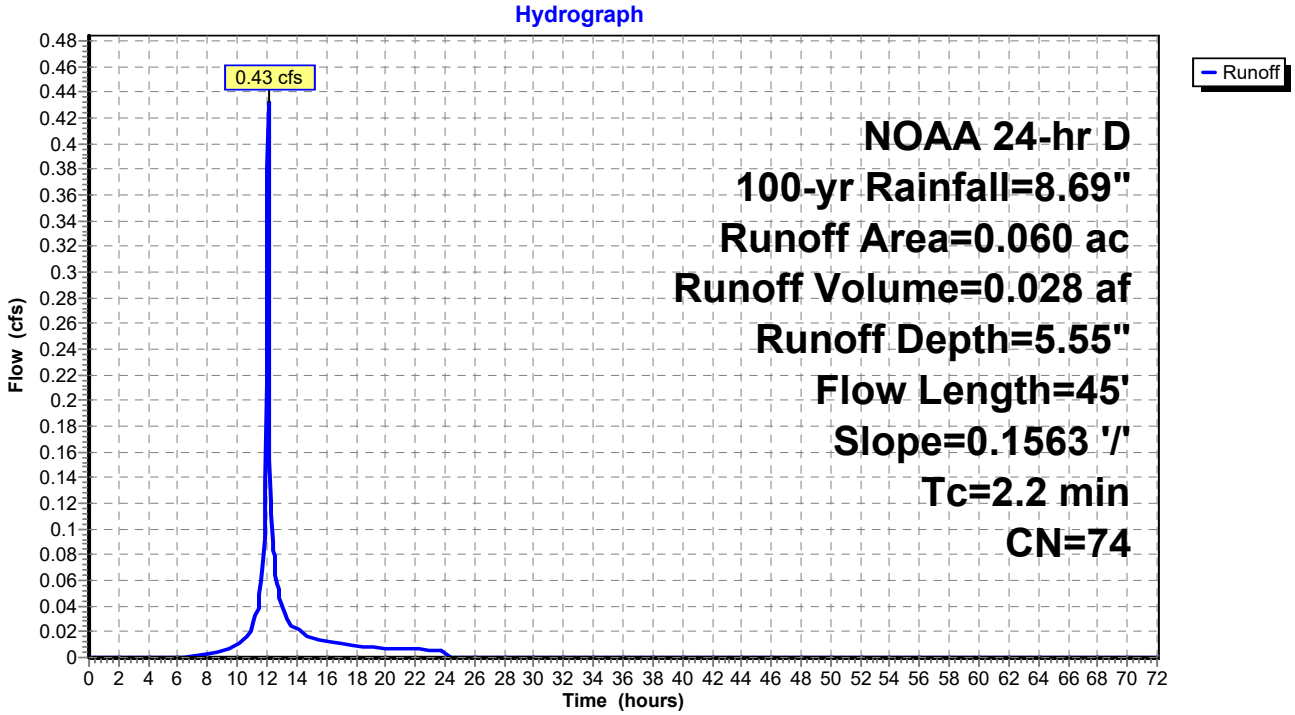
Runoff = 0.43 cfs @ 12.08 hrs, Volume= 0.028 af, Depth= 5.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.060	74	>75% Grass cover, Good, HSG C
0.060		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	45	0.1563	0.34		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 10: Bypass Area #1 to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 10: Bypass Area #1 to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.01	0.00
8.00	1.13	0.05	0.00
9.00	1.38	0.11	0.00
10.00	1.72	0.23	0.01
11.00	2.26	0.48	0.02
12.00	4.16	1.72	**0.25**
13.00	6.43	3.55	**0.04**
14.00	6.97	4.01	0.02
15.00	7.31	4.31	0.01
16.00	7.56	4.54	0.01
17.00	7.77	4.72	0.01
18.00	7.95	4.88	0.01
19.00	8.10	5.01	0.01
20.00	8.23	5.14	0.01
21.00	8.36	5.25	0.01
22.00	8.48	5.36	0.01
23.00	8.59	5.46	0.01
24.00	**8.69**	**5.55**	0.01
25.00	8.69	5.55	0.00
26.00	8.69	5.55	0.00
27.00	8.69	5.55	0.00
28.00	8.69	5.55	0.00
29.00	8.69	5.55	0.00
30.00	8.69	5.55	0.00
31.00	8.69	5.55	0.00
32.00	8.69	5.55	0.00
33.00	8.69	5.55	0.00
34.00	8.69	5.55	0.00
35.00	8.69	5.55	0.00
36.00	8.69	5.55	0.00
37.00	8.69	5.55	0.00
38.00	8.69	5.55	0.00
39.00	8.69	5.55	0.00
40.00	8.69	5.55	0.00
41.00	8.69	5.55	0.00
42.00	8.69	5.55	0.00
43.00	8.69	5.55	0.00
44.00	8.69	5.55	0.00
45.00	8.69	5.55	0.00
46.00	8.69	5.55	0.00
47.00	8.69	5.55	0.00
48.00	8.69	5.55	0.00
49.00	8.69	5.55	0.00
50.00	8.69	5.55	0.00
51.00	8.69	5.55	0.00
52.00	8.69	5.55	0.00
53.00	8.69	5.55	0.00
54.00	8.69	5.55	0.00
55.00	8.69	5.55	0.00
56.00	8.69	5.55	0.00
57.00	8.69	5.55	0.00
58.00	8.69	5.55	0.00
59.00	8.69	5.55	0.00
60.00	8.69	5.55	0.00
61.00	8.69	5.55	0.00
62.00	8.69	5.55	0.00
63.00	8.69	5.55	0.00
64.00	8.69	5.55	0.00
65.00	8.69	5.55	0.00
66.00	8.69	5.55	0.00
67.00	8.69	5.55	0.00
68.00	8.69	5.55	0.00
69.00	8.69	5.55	0.00
70.00	8.69	5.55	0.00
71.00	8.69	5.55	0.00
72.00	8.69	5.55	0.00

Summary for Subcatchment 11: Bypass Area #2 to Sunset-Bloomfield-Perv

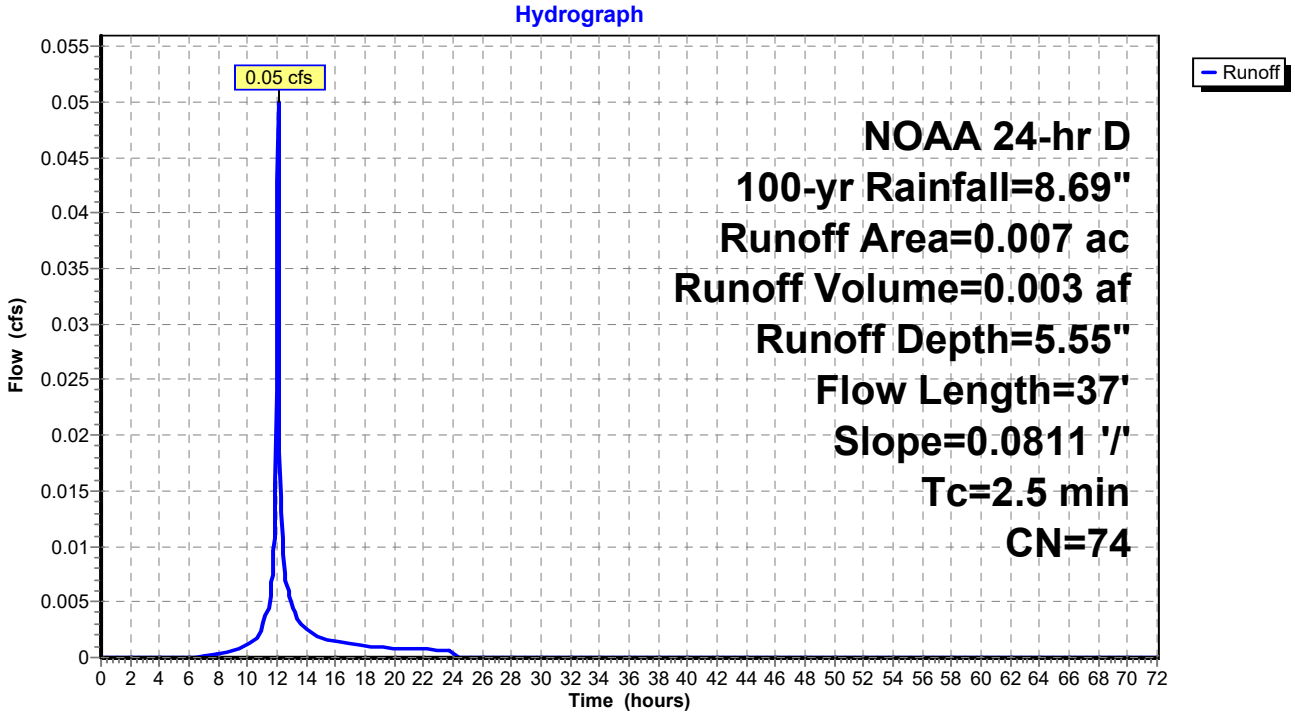
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.003 af, Depth= 5.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.007	74	>75% Grass cover, Good, HSG C
0.007		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0811	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 11: Bypass Area #2 to Sunset-Bloomfield-Perv



Hydrograph for Subcatchment 11: Bypass Area #2 to Sunset-Bloomfield-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.01	0.00
8.00	1.13	0.05	0.00
9.00	1.38	0.11	0.00
10.00	1.72	0.23	0.00
11.00	2.26	0.48	0.00
12.00	4.16	1.72	**0.03**
13.00	6.43	3.55	**0.00**
14.00	6.97	4.01	0.00
15.00	7.31	4.31	0.00
16.00	7.56	4.54	0.00
17.00	7.77	4.72	0.00
18.00	7.95	4.88	0.00
19.00	8.10	5.01	0.00
20.00	8.23	5.14	0.00
21.00	8.36	5.25	0.00
22.00	8.48	5.36	0.00
23.00	8.59	5.46	0.00
24.00	**8.69**	**5.55**	0.00
25.00	8.69	5.55	0.00
26.00	8.69	5.55	0.00
27.00	8.69	5.55	0.00
28.00	8.69	5.55	0.00
29.00	8.69	5.55	0.00
30.00	8.69	5.55	0.00
31.00	8.69	5.55	0.00
32.00	8.69	5.55	0.00
33.00	8.69	5.55	0.00
34.00	8.69	5.55	0.00
35.00	8.69	5.55	0.00
36.00	8.69	5.55	0.00
37.00	8.69	5.55	0.00
38.00	8.69	5.55	0.00
39.00	8.69	5.55	0.00
40.00	8.69	5.55	0.00
41.00	8.69	5.55	0.00
42.00	8.69	5.55	0.00
43.00	8.69	5.55	0.00
44.00	8.69	5.55	0.00
45.00	8.69	5.55	0.00
46.00	8.69	5.55	0.00
47.00	8.69	5.55	0.00
48.00	8.69	5.55	0.00
49.00	8.69	5.55	0.00
50.00	8.69	5.55	0.00
51.00	8.69	5.55	0.00
52.00	8.69	5.55	0.00
53.00	8.69	5.55	0.00
54.00	8.69	5.55	0.00
55.00	8.69	5.55	0.00
56.00	8.69	5.55	0.00
57.00	8.69	5.55	0.00
58.00	8.69	5.55	0.00
59.00	8.69	5.55	0.00
60.00	8.69	5.55	0.00
61.00	8.69	5.55	0.00
62.00	8.69	5.55	0.00
63.00	8.69	5.55	0.00
64.00	8.69	5.55	0.00
65.00	8.69	5.55	0.00
66.00	8.69	5.55	0.00
67.00	8.69	5.55	0.00
68.00	8.69	5.55	0.00
69.00	8.69	5.55	0.00
70.00	8.69	5.55	0.00
71.00	8.69	5.55	0.00
72.00	8.69	5.55	0.00

Summary for Subcatchment 12: Bypass Area #2 to Sunset-Bloomfield-Imperv

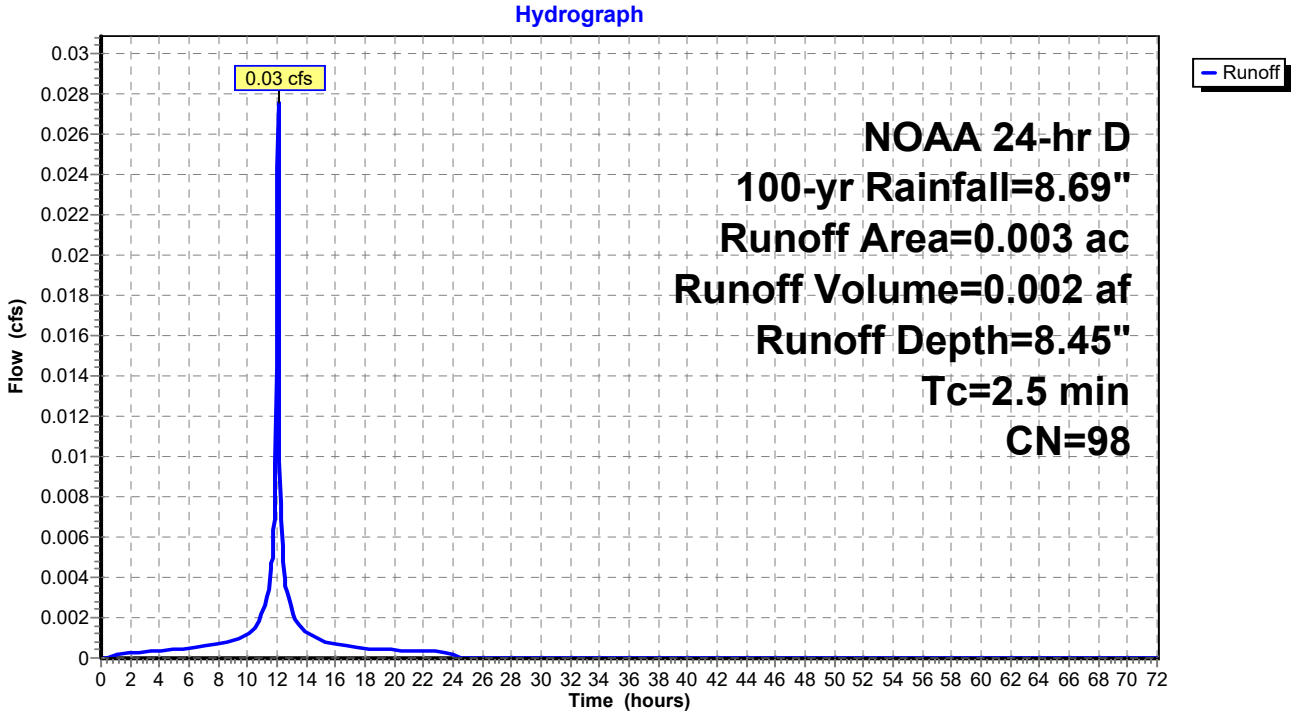
Runoff = 0.03 cfs @ 12.08 hrs, Volume= 0.002 af, Depth= 8.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.003	98	Paved parking, HSG C
0.003		100.00% Impervious Area

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

Subcatchment 12: Bypass Area #2 to Sunset-Bloomfield-Imperv



Hydrograph for Subcatchment 12: Bypass Area #2 to Sunset-Bloomfield-Imperv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.00
2.00	0.21	0.08	0.00
3.00	0.33	0.17	0.00
4.00	0.46	0.28	0.00
5.00	0.59	0.40	0.00
6.00	0.74	0.54	0.00
7.00	0.92	0.71	0.00
8.00	1.13	0.92	0.00
9.00	1.38	1.16	0.00
10.00	1.72	1.50	0.00
11.00	2.26	2.03	0.00
12.00	4.16	3.93	**0.02**
13.00	6.43	6.19	**0.00**
14.00	6.97	6.73	0.00
15.00	7.31	7.07	0.00
16.00	7.56	7.32	0.00
17.00	7.77	7.53	0.00
18.00	7.95	7.71	0.00
19.00	8.10	7.86	0.00
20.00	8.23	7.99	0.00
21.00	8.36	8.12	0.00
22.00	8.48	8.24	0.00
23.00	8.59	8.35	0.00
24.00	**8.69**	**8.45**	0.00
25.00	8.69	8.45	0.00
26.00	8.69	8.45	0.00
27.00	8.69	8.45	0.00
28.00	8.69	8.45	0.00
29.00	8.69	8.45	0.00
30.00	8.69	8.45	0.00
31.00	8.69	8.45	0.00
32.00	8.69	8.45	0.00
33.00	8.69	8.45	0.00
34.00	8.69	8.45	0.00
35.00	8.69	8.45	0.00
36.00	8.69	8.45	0.00
37.00	8.69	8.45	0.00
38.00	8.69	8.45	0.00
39.00	8.69	8.45	0.00
40.00	8.69	8.45	0.00
41.00	8.69	8.45	0.00
42.00	8.69	8.45	0.00
43.00	8.69	8.45	0.00
44.00	8.69	8.45	0.00
45.00	8.69	8.45	0.00
46.00	8.69	8.45	0.00
47.00	8.69	8.45	0.00
48.00	8.69	8.45	0.00
49.00	8.69	8.45	0.00
50.00	8.69	8.45	0.00
51.00	8.69	8.45	0.00
52.00	8.69	8.45	0.00
53.00	8.69	8.45	0.00
54.00	8.69	8.45	0.00
55.00	8.69	8.45	0.00
56.00	8.69	8.45	0.00
57.00	8.69	8.45	0.00
58.00	8.69	8.45	0.00
59.00	8.69	8.45	0.00
60.00	8.69	8.45	0.00
61.00	8.69	8.45	0.00
62.00	8.69	8.45	0.00
63.00	8.69	8.45	0.00
64.00	8.69	8.45	0.00
65.00	8.69	8.45	0.00
66.00	8.69	8.45	0.00
67.00	8.69	8.45	0.00
68.00	8.69	8.45	0.00
69.00	8.69	8.45	0.00
70.00	8.69	8.45	0.00
71.00	8.69	8.45	0.00
72.00	8.69	8.45	0.00

Summary for Subcatchment 14: Overland to Bloom-perv

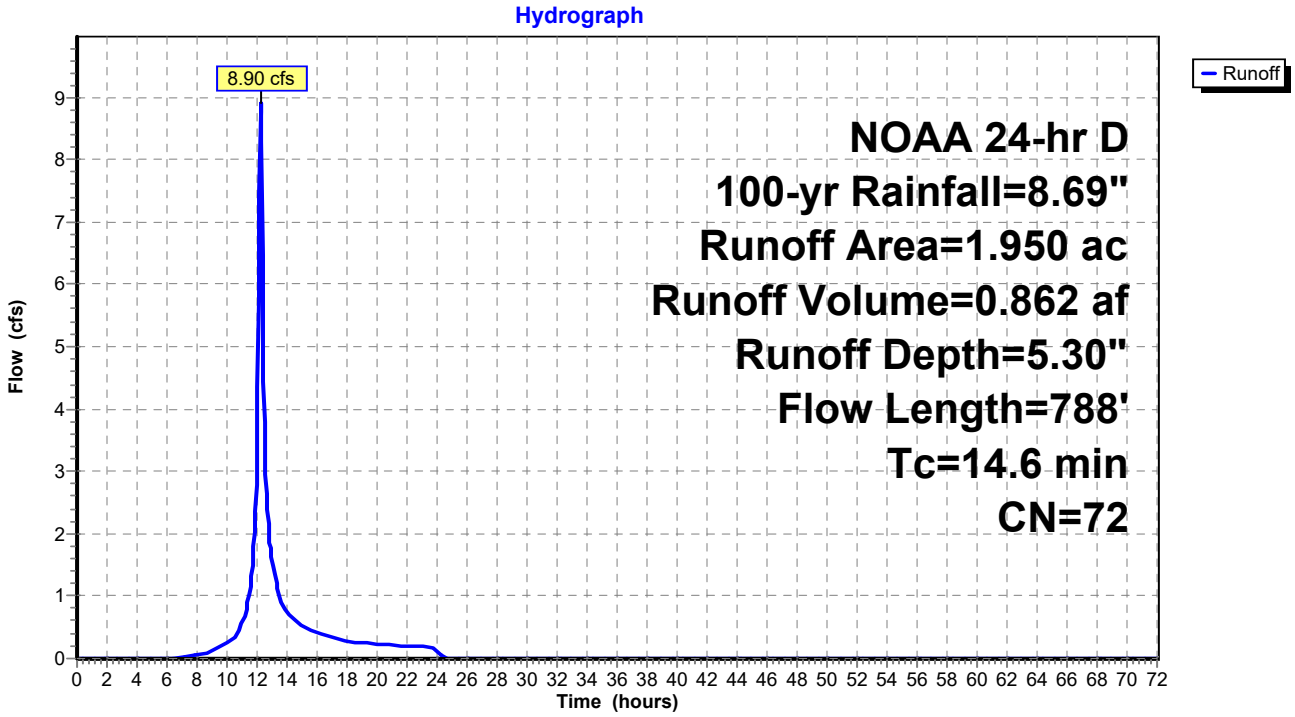
Runoff = 8.90 cfs @ 12.23 hrs, Volume= 0.862 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
1.170	74	>75% Grass cover, Good, HSG C
0.780	70	Woods, Good, HSG C
1.950	72	Weighted Average
1.950		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.0	174	0.0445	1.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.7	300	0.0720	1.88		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	79	0.1012	2.23		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	61	0.0410	1.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	61	0.0738	1.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	13	1.0000	7.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.6	788	Total			

Subcatchment 14: Overland to Bloom-perv



Hydrograph for Subcatchment 14: Overland to Bloom-perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.00	0.02
8.00	1.13	0.03	0.06
9.00	1.38	0.08	0.12
10.00	1.72	0.18	0.25
11.00	2.26	0.41	0.56
12.00	4.16	1.58	**3.42**
13.00	6.43	3.35	**1.59**
14.00	6.97	3.80	0.74
15.00	7.31	4.10	0.52
16.00	7.56	4.31	0.41
17.00	7.77	4.50	0.35
18.00	7.95	4.65	0.28
19.00	8.10	4.78	0.25
20.00	8.23	4.90	0.23
21.00	8.36	5.01	0.22
22.00	8.48	5.12	0.20
23.00	8.59	5.22	0.19
24.00	**8.69**	**5.30**	0.17
25.00	8.69	5.30	0.00
26.00	8.69	5.30	0.00
27.00	8.69	5.30	0.00
28.00	8.69	5.30	0.00
29.00	8.69	5.30	0.00
30.00	8.69	5.30	0.00
31.00	8.69	5.30	0.00
32.00	8.69	5.30	0.00
33.00	8.69	5.30	0.00
34.00	8.69	5.30	0.00
35.00	8.69	5.30	0.00
36.00	8.69	5.30	0.00
37.00	8.69	5.30	0.00
38.00	8.69	5.30	0.00
39.00	8.69	5.30	0.00
40.00	8.69	5.30	0.00
41.00	8.69	5.30	0.00
42.00	8.69	5.30	0.00
43.00	8.69	5.30	0.00
44.00	8.69	5.30	0.00
45.00	8.69	5.30	0.00
46.00	8.69	5.30	0.00
47.00	8.69	5.30	0.00
48.00	8.69	5.30	0.00
49.00	8.69	5.30	0.00
50.00	8.69	5.30	0.00
51.00	8.69	5.30	0.00
52.00	8.69	5.30	0.00
53.00	8.69	5.30	0.00
54.00	8.69	5.30	0.00
55.00	8.69	5.30	0.00
56.00	8.69	5.30	0.00
57.00	8.69	5.30	0.00
58.00	8.69	5.30	0.00
59.00	8.69	5.30	0.00
60.00	8.69	5.30	0.00
61.00	8.69	5.30	0.00
62.00	8.69	5.30	0.00
63.00	8.69	5.30	0.00
64.00	8.69	5.30	0.00
65.00	8.69	5.30	0.00
66.00	8.69	5.30	0.00
67.00	8.69	5.30	0.00
68.00	8.69	5.30	0.00
69.00	8.69	5.30	0.00
70.00	8.69	5.30	0.00
71.00	8.69	5.30	0.00
72.00	8.69	5.30	0.00

Summary for Subcatchment 16: Parkhurst-Perv

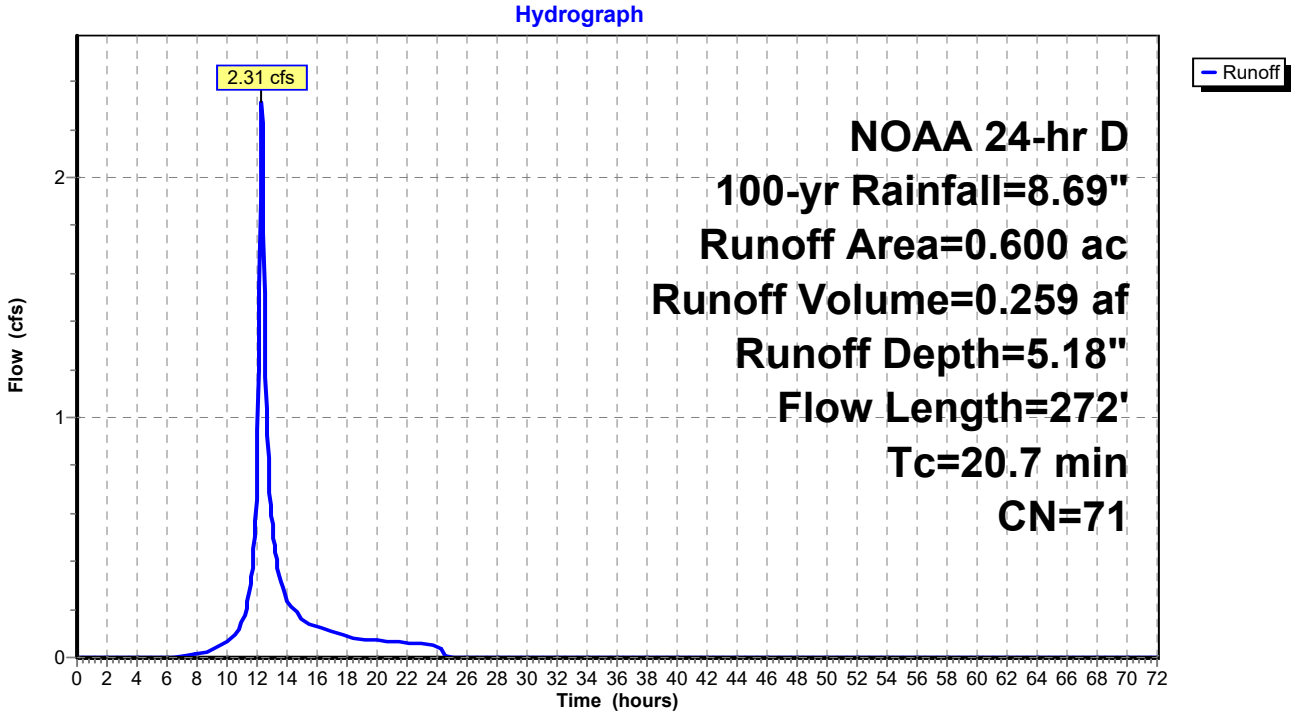
Runoff = 2.31 cfs @ 12.30 hrs, Volume= 0.259 af, Depth= 5.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.140	74	>75% Grass cover, Good, HSG C
0.460	70	Woods, Good, HSG C
0.600	71	Weighted Average
0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.6	53	0.0755	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	52	0.3462	2.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	67	0.1045	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.7	272	Total			

Subcatchment 16: Parkhurst-Perv



Hydrograph for Subcatchment 16: Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.00	0.00
8.00	1.13	0.02	0.01
9.00	1.38	0.07	0.03
10.00	1.72	0.16	0.07
11.00	2.26	0.38	0.15
12.00	4.16	1.51	**0.78**
13.00	6.43	3.25	**0.55**
14.00	6.97	3.70	0.24
15.00	7.31	3.99	0.16
16.00	7.56	4.20	0.13
17.00	7.77	4.38	0.11
18.00	7.95	4.53	0.09
19.00	8.10	4.66	0.08
20.00	8.23	4.78	0.07
21.00	8.36	4.90	0.07
22.00	8.48	5.00	0.06
23.00	8.59	5.10	0.06
24.00	**8.69**	**5.18**	0.05
25.00	8.69	5.18	0.00
26.00	8.69	5.18	0.00
27.00	8.69	5.18	0.00
28.00	8.69	5.18	0.00
29.00	8.69	5.18	0.00
30.00	8.69	5.18	0.00
31.00	8.69	5.18	0.00
32.00	8.69	5.18	0.00
33.00	8.69	5.18	0.00
34.00	8.69	5.18	0.00
35.00	8.69	5.18	0.00
36.00	8.69	5.18	0.00
37.00	8.69	5.18	0.00
38.00	8.69	5.18	0.00
39.00	8.69	5.18	0.00
40.00	8.69	5.18	0.00
41.00	8.69	5.18	0.00
42.00	8.69	5.18	0.00
43.00	8.69	5.18	0.00
44.00	8.69	5.18	0.00
45.00	8.69	5.18	0.00
46.00	8.69	5.18	0.00
47.00	8.69	5.18	0.00
48.00	8.69	5.18	0.00
49.00	8.69	5.18	0.00
50.00	8.69	5.18	0.00
51.00	8.69	5.18	0.00
52.00	8.69	5.18	0.00
53.00	8.69	5.18	0.00
54.00	8.69	5.18	0.00
55.00	8.69	5.18	0.00
56.00	8.69	5.18	0.00
57.00	8.69	5.18	0.00
58.00	8.69	5.18	0.00
59.00	8.69	5.18	0.00
60.00	8.69	5.18	0.00
61.00	8.69	5.18	0.00
62.00	8.69	5.18	0.00
63.00	8.69	5.18	0.00
64.00	8.69	5.18	0.00
65.00	8.69	5.18	0.00
66.00	8.69	5.18	0.00
67.00	8.69	5.18	0.00
68.00	8.69	5.18	0.00
69.00	8.69	5.18	0.00
70.00	8.69	5.18	0.00
71.00	8.69	5.18	0.00
72.00	8.69	5.18	0.00

Summary for Subcatchment 17: Off-Site Parkhurst-Perv

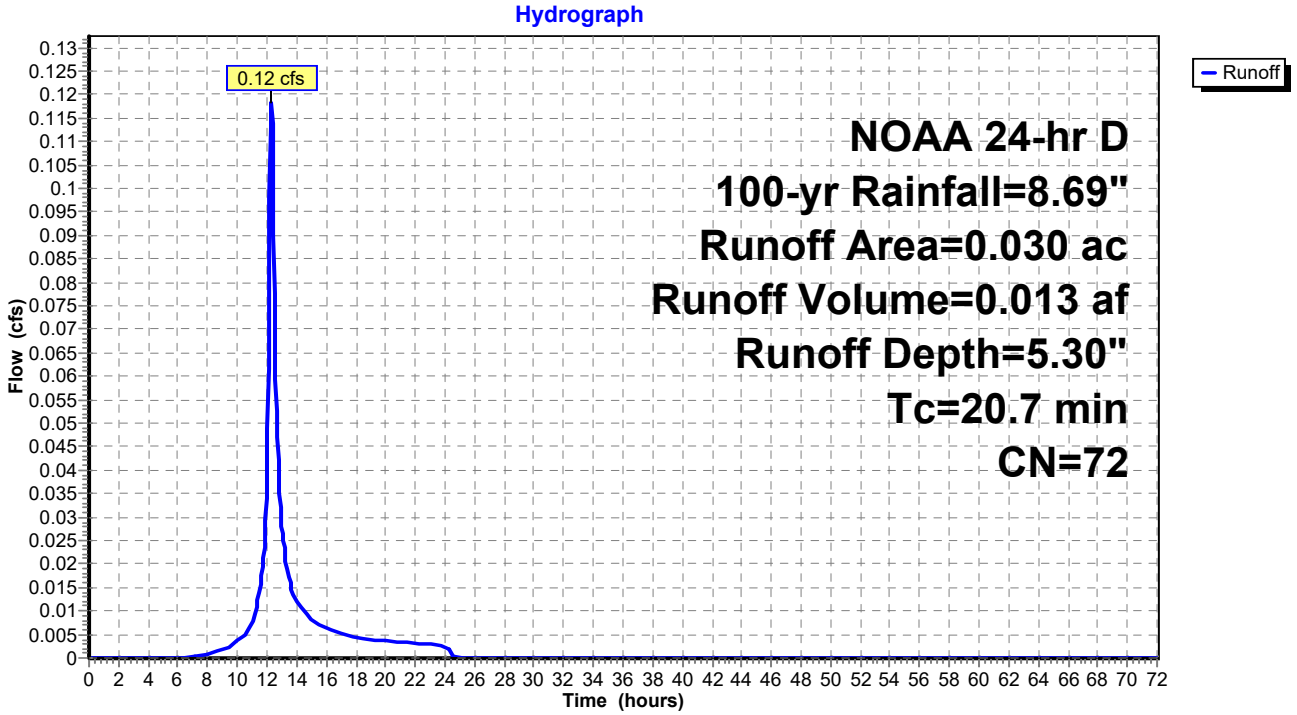
Runoff = 0.12 cfs @ 12.30 hrs, Volume= 0.013 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.030	72	Woods/grass comb., Good, HSG C
0.030		100.00% Pervious Area

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

Subcatchment 17: Off-Site Parkhurst-Perv



Hydrograph for Subcatchment 17: Off-Site Parkhurst-Perv

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.00	0.00
8.00	1.13	0.03	0.00
9.00	1.38	0.08	0.00
10.00	1.72	0.18	0.00
11.00	2.26	0.41	0.01
12.00	4.16	1.58	**0.04**
13.00	6.43	3.35	**0.03**
14.00	6.97	3.80	0.01
15.00	7.31	4.10	0.01
16.00	7.56	4.31	0.01
17.00	7.77	4.50	0.01
18.00	7.95	4.65	0.00
19.00	8.10	4.78	0.00
20.00	8.23	4.90	0.00
21.00	8.36	5.01	0.00
22.00	8.48	5.12	0.00
23.00	8.59	5.22	0.00
24.00	**8.69**	**5.30**	0.00
25.00	8.69	5.30	0.00
26.00	8.69	5.30	0.00
27.00	8.69	5.30	0.00
28.00	8.69	5.30	0.00
29.00	8.69	5.30	0.00
30.00	8.69	5.30	0.00
31.00	8.69	5.30	0.00
32.00	8.69	5.30	0.00
33.00	8.69	5.30	0.00
34.00	8.69	5.30	0.00
35.00	8.69	5.30	0.00
36.00	8.69	5.30	0.00
37.00	8.69	5.30	0.00
38.00	8.69	5.30	0.00
39.00	8.69	5.30	0.00
40.00	8.69	5.30	0.00
41.00	8.69	5.30	0.00
42.00	8.69	5.30	0.00
43.00	8.69	5.30	0.00
44.00	8.69	5.30	0.00
45.00	8.69	5.30	0.00
46.00	8.69	5.30	0.00
47.00	8.69	5.30	0.00
48.00	8.69	5.30	0.00
49.00	8.69	5.30	0.00
50.00	8.69	5.30	0.00
51.00	8.69	5.30	0.00
52.00	8.69	5.30	0.00
53.00	8.69	5.30	0.00
54.00	8.69	5.30	0.00
55.00	8.69	5.30	0.00
56.00	8.69	5.30	0.00
57.00	8.69	5.30	0.00
58.00	8.69	5.30	0.00
59.00	8.69	5.30	0.00
60.00	8.69	5.30	0.00
61.00	8.69	5.30	0.00
62.00	8.69	5.30	0.00
63.00	8.69	5.30	0.00
64.00	8.69	5.30	0.00
65.00	8.69	5.30	0.00
66.00	8.69	5.30	0.00
67.00	8.69	5.30	0.00
68.00	8.69	5.30	0.00
69.00	8.69	5.30	0.00
70.00	8.69	5.30	0.00
71.00	8.69	5.30	0.00
72.00	8.69	5.30	0.00

Summary for Subcatchment 23S: Basin C- Impervious

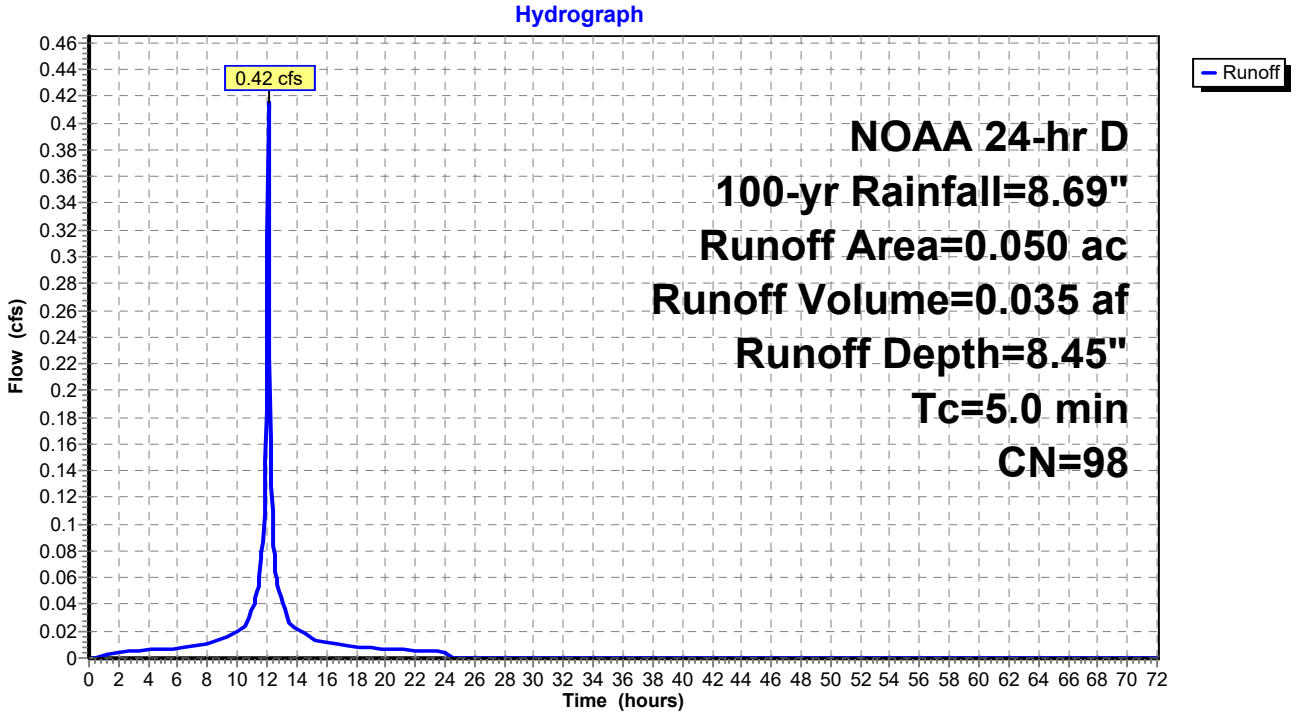
Runoff = 0.42 cfs @ 12.11 hrs, Volume= 0.035 af, Depth= 8.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.050	98	Paved parking, HSG B
0.050		100.00% Impervious Area

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

Subcatchment 23S: Basin C- Impervious



Hydrograph for Subcatchment 23S: Basin C- Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.00
2.00	0.21	0.08	0.00
3.00	0.33	0.17	0.01
4.00	0.46	0.28	0.01
5.00	0.59	0.40	0.01
6.00	0.74	0.54	0.01
7.00	0.92	0.71	0.01
8.00	1.13	0.92	0.01
9.00	1.38	1.16	0.01
10.00	1.72	1.50	0.02
11.00	2.26	2.03	0.04
12.00	4.16	3.93	**0.25**
13.00	6.43	6.19	**0.04**
14.00	6.97	6.73	0.02
15.00	7.31	7.07	0.01
16.00	7.56	7.32	0.01
17.00	7.77	7.53	0.01
18.00	7.95	7.71	0.01
19.00	8.10	7.86	0.01
20.00	8.23	7.99	0.01
21.00	8.36	8.12	0.01
22.00	8.48	8.24	0.01
23.00	8.59	8.35	0.01
24.00	**8.69**	**8.45**	0.00
25.00	8.69	8.45	0.00
26.00	8.69	8.45	0.00
27.00	8.69	8.45	0.00
28.00	8.69	8.45	0.00
29.00	8.69	8.45	0.00
30.00	8.69	8.45	0.00
31.00	8.69	8.45	0.00
32.00	8.69	8.45	0.00
33.00	8.69	8.45	0.00
34.00	8.69	8.45	0.00
35.00	8.69	8.45	0.00
36.00	8.69	8.45	0.00
37.00	8.69	8.45	0.00
38.00	8.69	8.45	0.00
39.00	8.69	8.45	0.00
40.00	8.69	8.45	0.00
41.00	8.69	8.45	0.00
42.00	8.69	8.45	0.00
43.00	8.69	8.45	0.00
44.00	8.69	8.45	0.00
45.00	8.69	8.45	0.00
46.00	8.69	8.45	0.00
47.00	8.69	8.45	0.00
48.00	8.69	8.45	0.00
49.00	8.69	8.45	0.00
50.00	8.69	8.45	0.00
51.00	8.69	8.45	0.00
52.00	8.69	8.45	0.00
53.00	8.69	8.45	0.00
54.00	8.69	8.45	0.00
55.00	8.69	8.45	0.00
56.00	8.69	8.45	0.00
57.00	8.69	8.45	0.00
58.00	8.69	8.45	0.00
59.00	8.69	8.45	0.00
60.00	8.69	8.45	0.00
61.00	8.69	8.45	0.00
62.00	8.69	8.45	0.00
63.00	8.69	8.45	0.00
64.00	8.69	8.45	0.00
65.00	8.69	8.45	0.00
66.00	8.69	8.45	0.00
67.00	8.69	8.45	0.00
68.00	8.69	8.45	0.00
69.00	8.69	8.45	0.00
70.00	8.69	8.45	0.00
71.00	8.69	8.45	0.00
72.00	8.69	8.45	0.00

Summary for Subcatchment 24S: Basin C - Pervious

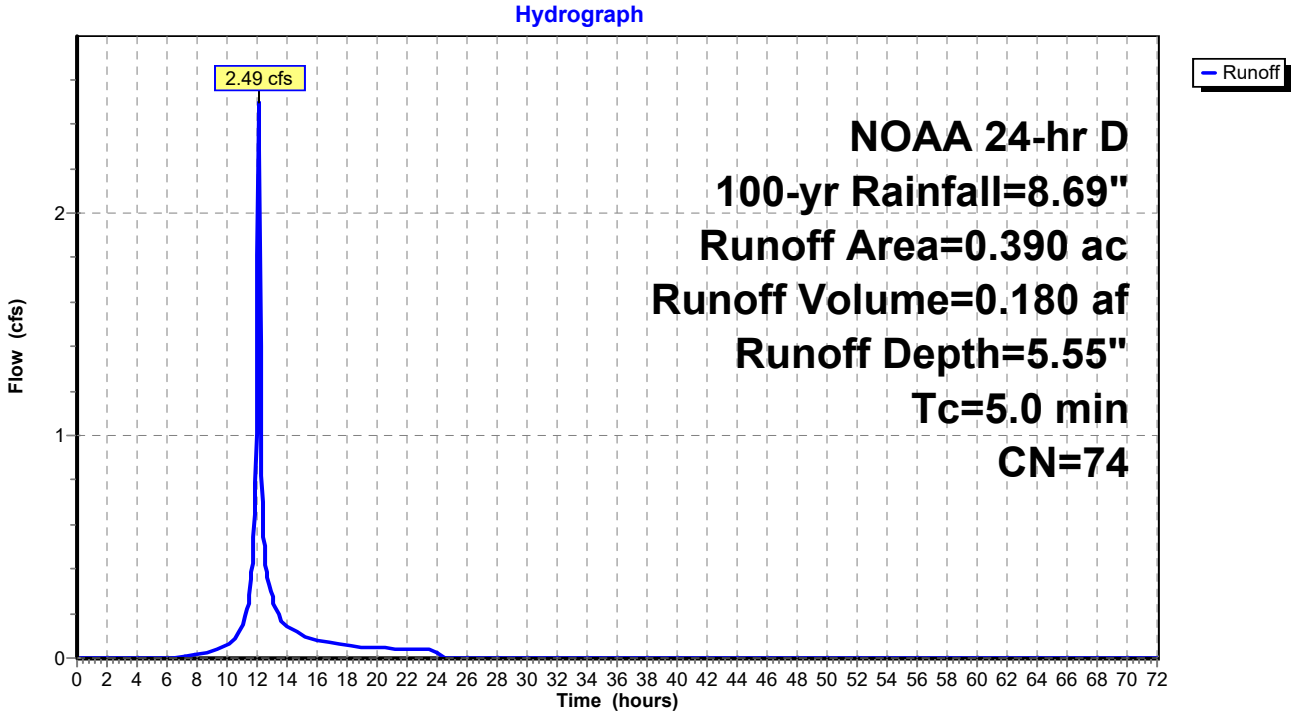
Runoff = 2.49 cfs @ 12.11 hrs, Volume= 0.180 af, Depth= 5.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-yr Rainfall=8.69"

Area (ac)	CN	Description
0.310	74	>75% Grass cover, Good, HSG C
0.080	72	Woods/grass comb., Good, HSG C
0.390	74	Weighted Average
0.390		100.00% Pervious Area

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

Subcatchment 24S: Basin C - Pervious



Hydrograph for Subcatchment 24S: Basin C - Pervious

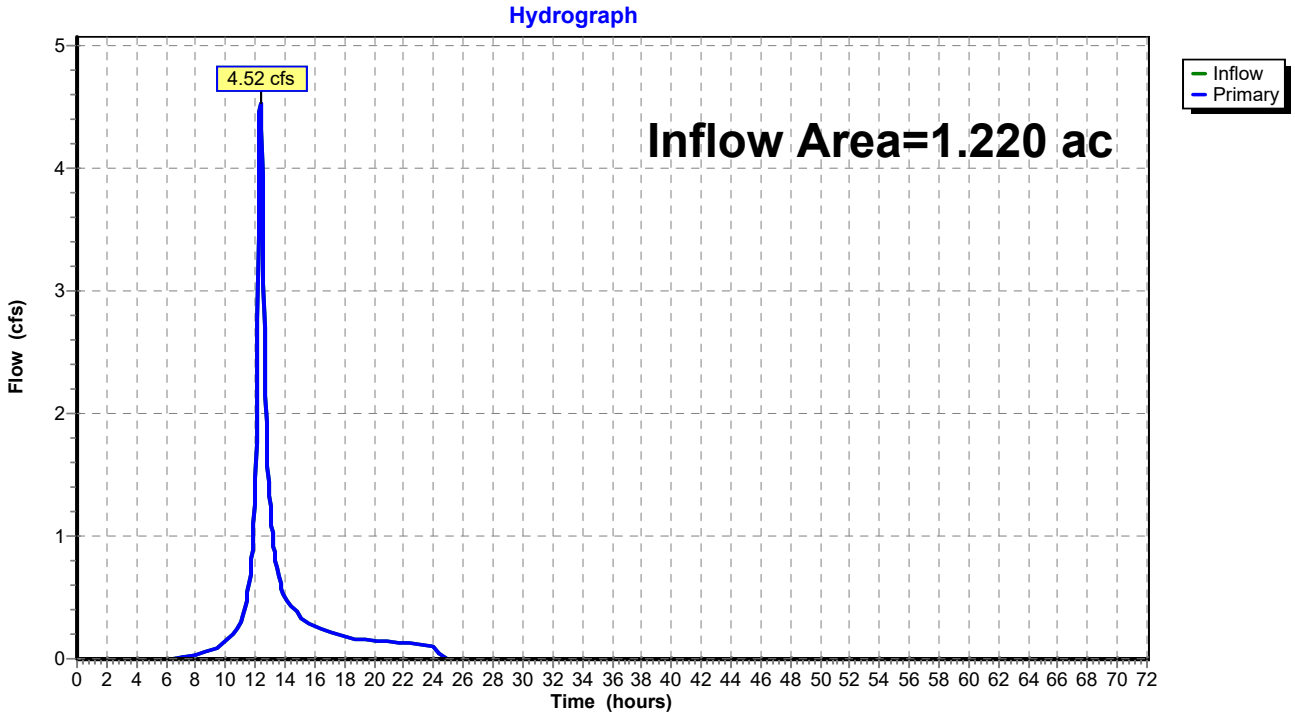
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.46	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.92	0.01	0.01
8.00	1.13	0.05	0.02
9.00	1.38	0.11	0.03
10.00	1.72	0.23	0.06
11.00	2.26	0.48	0.14
12.00	4.16	1.72	**1.38**
13.00	6.43	3.55	**0.28**
14.00	6.97	4.01	0.14
15.00	7.31	4.31	0.10
16.00	7.56	4.54	0.08
17.00	7.77	4.72	0.07
18.00	7.95	4.88	0.06
19.00	8.10	5.01	0.05
20.00	8.23	5.14	0.05
21.00	8.36	5.25	0.04
22.00	8.48	5.36	0.04
23.00	8.59	5.46	0.04
24.00	**8.69**	**5.55**	0.03
25.00	8.69	5.55	0.00
26.00	8.69	5.55	0.00
27.00	8.69	5.55	0.00
28.00	8.69	5.55	0.00
29.00	8.69	5.55	0.00
30.00	8.69	5.55	0.00
31.00	8.69	5.55	0.00
32.00	8.69	5.55	0.00
33.00	8.69	5.55	0.00
34.00	8.69	5.55	0.00
35.00	8.69	5.55	0.00
36.00	8.69	5.55	0.00
37.00	8.69	5.55	0.00
38.00	8.69	5.55	0.00
39.00	8.69	5.55	0.00
40.00	8.69	5.55	0.00
41.00	8.69	5.55	0.00
42.00	8.69	5.55	0.00
43.00	8.69	5.55	0.00
44.00	8.69	5.55	0.00
45.00	8.69	5.55	0.00
46.00	8.69	5.55	0.00
47.00	8.69	5.55	0.00
48.00	8.69	5.55	0.00
49.00	8.69	5.55	0.00
50.00	8.69	5.55	0.00
51.00	8.69	5.55	0.00
52.00	8.69	5.55	0.00
53.00	8.69	5.55	0.00
54.00	8.69	5.55	0.00
55.00	8.69	5.55	0.00
56.00	8.69	5.55	0.00
57.00	8.69	5.55	0.00
58.00	8.69	5.55	0.00
59.00	8.69	5.55	0.00
60.00	8.69	5.55	0.00
61.00	8.69	5.55	0.00
62.00	8.69	5.55	0.00
63.00	8.69	5.55	0.00
64.00	8.69	5.55	0.00
65.00	8.69	5.55	0.00
66.00	8.69	5.55	0.00
67.00	8.69	5.55	0.00
68.00	8.69	5.55	0.00
69.00	8.69	5.55	0.00
70.00	8.69	5.55	0.00
71.00	8.69	5.55	0.00
72.00	8.69	5.55	0.00

Summary for Pond 3: Prop. DA-1 Overland to Afterglow

Inflow Area = 1.220 ac, 0.00% Impervious, Inflow Depth = 5.30" for 100-yr event
Inflow = 4.52 cfs @ 12.34 hrs, Volume= 0.539 af
Primary = 4.52 cfs @ 12.34 hrs, Volume= 0.539 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 3: Prop. DA-1 Overland to Afterglow



Hydrograph for Pond 3: Prop. DA-1 Overland to Afterglow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.01		0.01
8.00	0.03		0.03
9.00	0.07		0.07
10.00	0.14		0.14
11.00	0.30		0.30
12.00	**1.46**		**1.46**
13.00	**1.24**		**1.24**
14.00	0.50		0.50
15.00	0.34		0.34
16.00	0.26		0.26
17.00	0.22		0.22
18.00	0.18		0.18
19.00	0.16		0.16
20.00	0.15		0.15
21.00	0.14		0.14
22.00	0.13		0.13
23.00	0.12		0.12
24.00	0.11		0.11
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 6: Basin A to Sunset-Bloomfield

Inflow Area = 3.110 ac, 76.53% Impervious, Inflow Depth = 7.77" for 100-yr event
Inflow = 22.22 cfs @ 12.13 hrs, Volume= 2.013 af
Outflow = 7.12 cfs @ 12.37 hrs, Volume= 1.975 af, Atten= 68%, Lag= 14.3 min
Primary = 7.12 cfs @ 12.37 hrs, Volume= 1.975 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 527.95' @ 12.37 hrs Surf.Area= 0.187 ac Storage= 0.552 af
Flood Elev= 529.00' Surf.Area= 0.187 ac Storage= 0.635 af

Plug-Flow detention time= 98.7 min calculated for 1.975 af (98% of inflow)
Center-of-Mass det. time= 86.1 min (847.5 - 761.5)

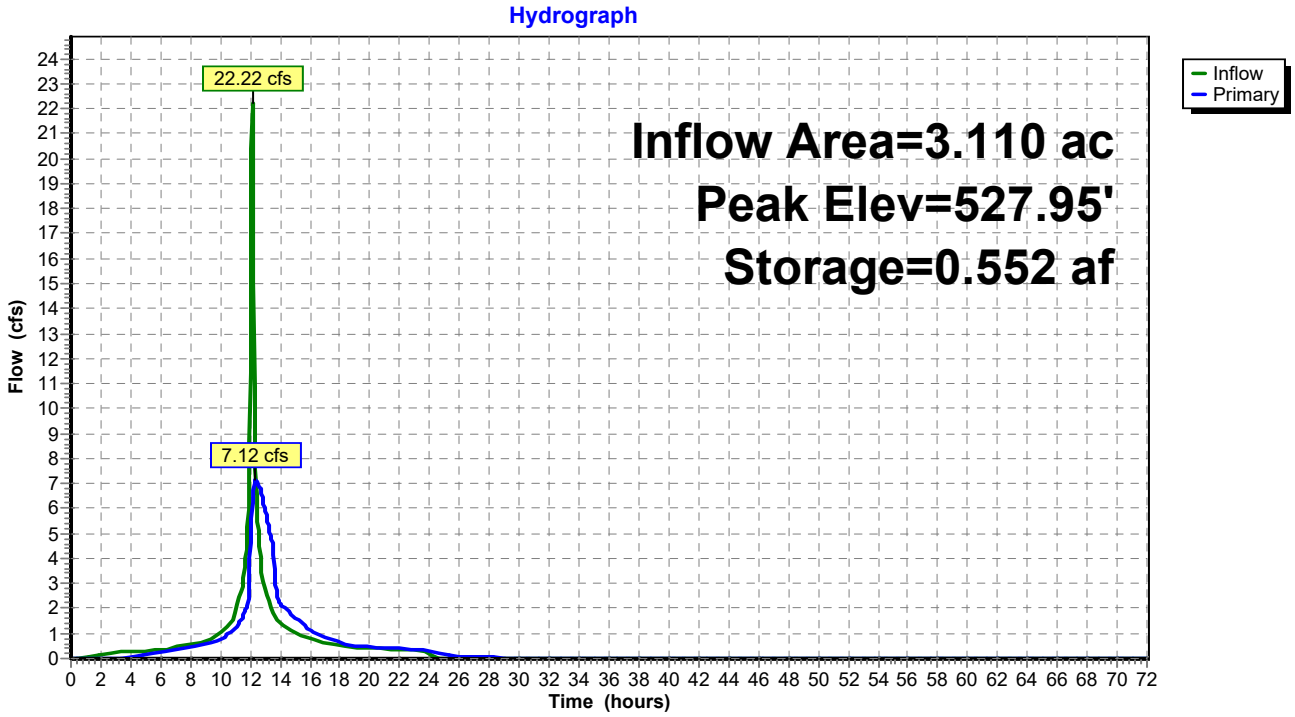
Volume	Invert	Avail.Storage	Storage Description
#1A	524.50'	0.105 af	**42.50'W x 161.00'L x 4.50'H Field A** 0.707 af Overall - 0.443 af Embedded = 0.263 af x 40.0% Voids
#2A	525.00'	0.430 af	**Brentwood StormTank 36"** x 1431 Inside #1 Inside= 18.0"W x 36.0"H => 4.37 sf x 3.00'L = 13.1 cf Outside= 18.0"W x 36.0"H => 4.50 sf x 3.00'L = 13.5 cf 27 Rows of 53 Chambers
#3B	524.50'	0.022 af	**26.00'W x 50.00'L x 4.50'H Field B** 0.134 af Overall - 0.079 af Embedded = 0.055 af x 40.0% Voids
#4B	525.00'	0.077 af	**Brentwood StormTank 36"** x 256 Inside #3 Inside= 18.0"W x 36.0"H => 4.37 sf x 3.00'L = 13.1 cf Outside= 18.0"W x 36.0"H => 4.50 sf x 3.00'L = 13.5 cf 16 Rows of 16 Chambers
		0.635 af	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	525.00'	**15.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 525.00' / 523.00' S= 0.0200 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	525.00'	**9.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	526.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=7.11 cfs @ 12.37 hrs HW=527.95' (Free Discharge)
↑**1=Culvert** (Inlet Controls 7.11 cfs @ 5.80 fps)
↑**2=Orifice/Grate** (Passes < 3.79 cfs potential flow)
3=Broad-Crested Rectangular Weir (Passes < 30.75 cfs potential flow)

Pond 6: Basin A to Sunset-Bloomfield



Hydrograph for Pond 6: Basin A to Sunset-Bloomfield

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	524.50	0.00
2.50	0.21	0.021	524.79	0.00
5.00	0.31	0.070	525.19	0.13
7.50	0.50	0.095	525.33	0.39
10.00	**1.04**	**0.124**	**525.50**	**0.79**
12.50	**5.50**	**0.541**	**527.89**	**7.03**
15.00	1.00	0.191	525.88	1.66
17.50	0.58	0.120	525.48	0.73
20.00	0.41	0.101	525.37	0.46
22.50	0.34	0.094	525.32	0.37
25.00	0.01	0.075	525.21	0.17
27.50	0.00	0.057	525.11	0.05
30.00	0.00	0.050	525.07	0.02
32.50	0.00	0.047	525.05	0.01
35.00	0.00	0.045	525.04	0.01
37.50	0.00	0.043	525.03	0.01
40.00	0.00	0.042	525.03	0.00
42.50	0.00	0.042	525.02	0.00
45.00	0.00	0.041	525.02	0.00
47.50	0.00	0.040	525.02	0.00
50.00	0.00	0.040	525.01	0.00
52.50	0.00	0.039	525.01	0.00
55.00	0.00	0.039	525.01	0.00
57.50	0.00	0.039	525.01	0.00
60.00	0.00	0.039	525.01	0.00
62.50	0.00	0.038	525.01	0.00
65.00	0.00	0.038	525.00	0.00
67.50	0.00	0.038	525.00	0.00
70.00	0.00	0.038	525.00	0.00

Summary for Pond 9: Basin B to Sunset-Bloomfield

Inflow Area = 1.190 ac, 72.27% Impervious, Inflow Depth = 7.64" for 100-yr event
Inflow = 9.11 cfs @ 12.12 hrs, Volume= 0.758 af
Outflow = 8.77 cfs @ 12.14 hrs, Volume= 0.750 af, Atten= 4%, Lag= 1.6 min
Primary = 8.77 cfs @ 12.14 hrs, Volume= 0.750 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 515.28' @ 12.14 hrs Surf.Area= 0.039 ac Storage= 0.075 af
Flood Elev= 515.50' Surf.Area= 0.039 ac Storage= 0.080 af

Plug-Flow detention time= 36.7 min calculated for 0.750 af (99% of inflow)
Center-of-Mass det. time= 29.1 min (785.6 - 756.4)

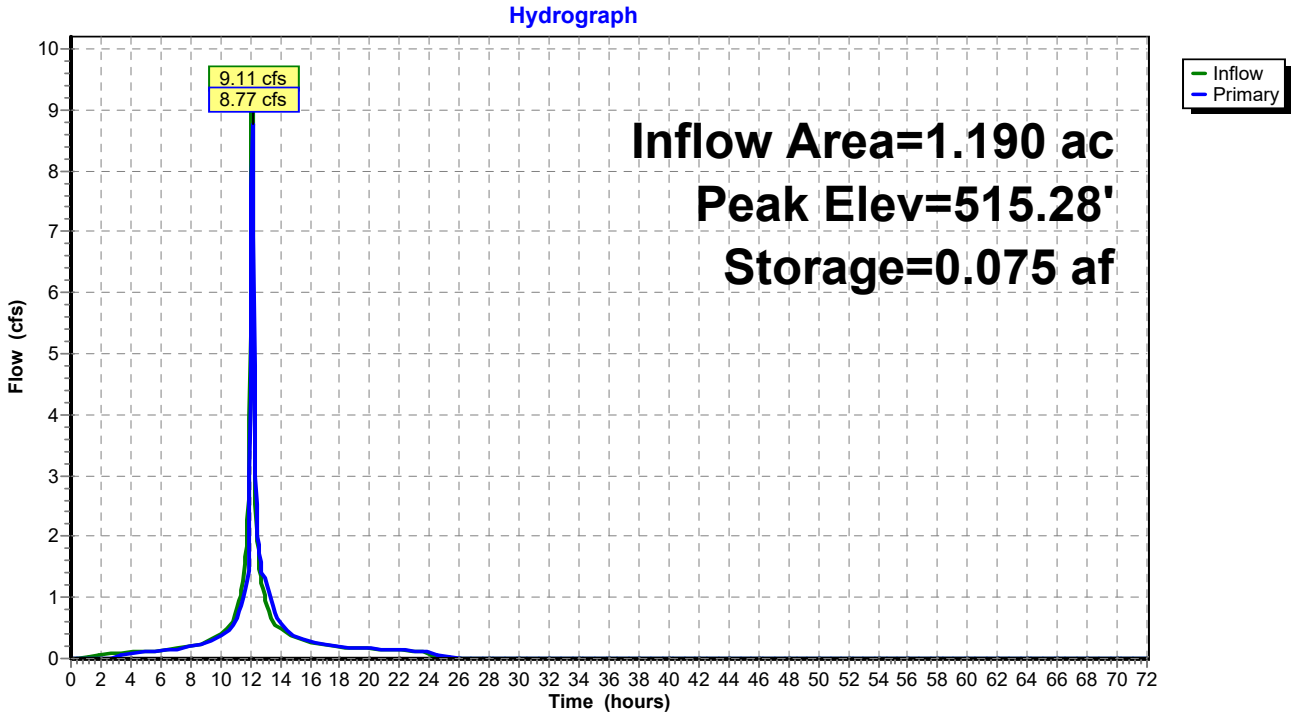
Volume	Invert	Avail.Storage	Storage Description
#1A	512.90'	0.027 af	**30.50'W x 56.00'L x 3.50'H Field A** 0.137 af Overall - 0.071 af Embedded = 0.067 af x 40.0% Voids
#2A	513.40'	0.068 af	**Brentwood StormTank 24"** x 342 Inside #1 Inside= 18.0"W x 24.0"H => 2.89 sf x 3.00'L = 8.7 cf Outside= 18.0"W x 24.0"H => 3.00 sf x 3.00'L = 9.0 cf 19 Rows of 18 Chambers
		0.095 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	510.57'	**15.0" Round Culvert** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 510.57' / 509.73' S= 0.0200 '/' Cc= 0.900 n= 0.010 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	513.40'	**7.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	514.61'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=8.59 cfs @ 12.14 hrs HW=515.27' (Free Discharge)
└**1=Culvert** (Passes 8.59 cfs of 9.42 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.84 cfs @ 6.01 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 6.74 cfs @ 2.56 fps)

Pond 9: Basin B to Sunset-Bloomfield



Hydrograph for Pond 9: Basin B to Sunset-Bloomfield

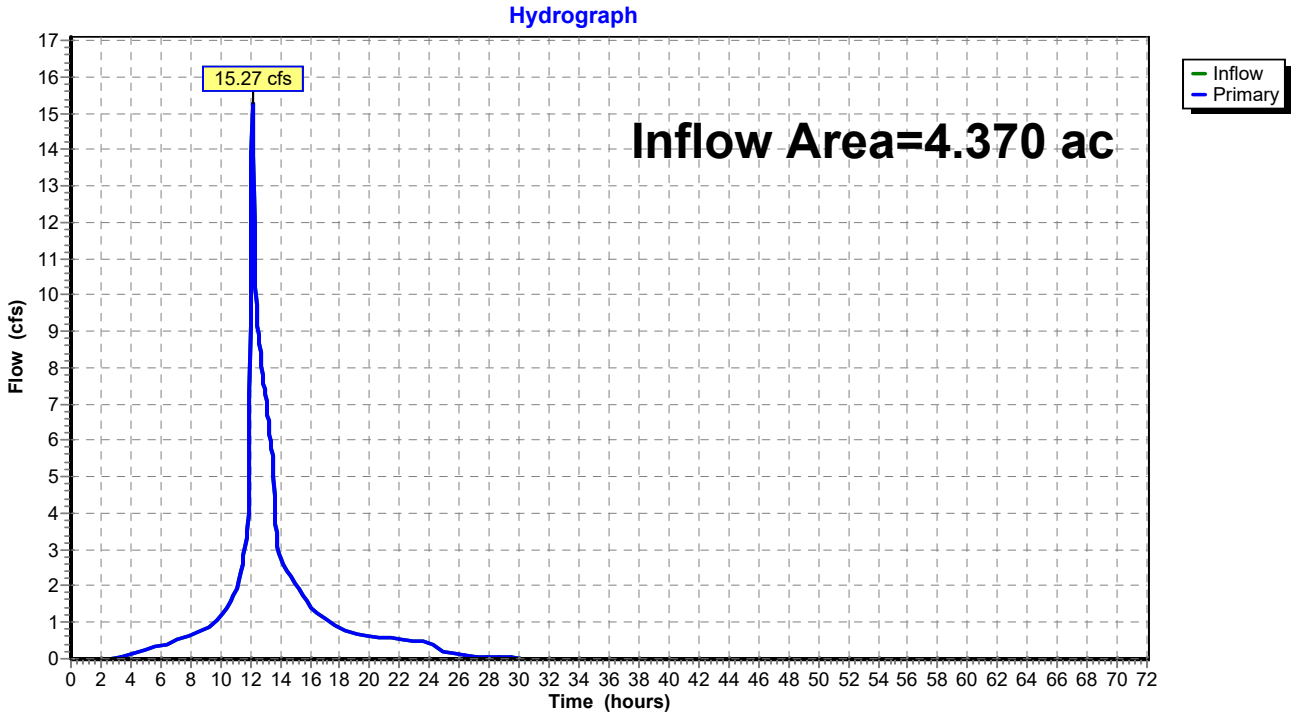
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	512.90	0.00
2.50	0.08	0.008	513.40	0.00
5.00	0.11	0.014	513.58	0.11
7.50	0.19	0.016	513.63	0.17
10.00	**0.40**	**0.020**	**513.75**	**0.36**
12.50	**1.84**	**0.055**	**514.74**	**2.02**
15.00	0.33	0.021	513.76	0.37
17.50	0.21	0.017	513.67	0.22
20.00	0.16	0.016	513.62	0.16
22.50	0.13	0.015	513.60	0.13
25.00	0.00	0.011	513.48	0.02
27.50	0.00	0.009	513.43	0.00
30.00	0.00	0.008	513.42	0.00
32.50	0.00	0.008	513.41	0.00
35.00	0.00	0.008	513.41	0.00
37.50	0.00	0.008	513.40	0.00
40.00	0.00	0.008	513.40	0.00
42.50	0.00	0.008	513.40	0.00
45.00	0.00	0.008	513.40	0.00
47.50	0.00	0.008	513.40	0.00
50.00	0.00	0.008	513.40	0.00
52.50	0.00	0.008	513.40	0.00
55.00	0.00	0.008	513.40	0.00
57.50	0.00	0.008	513.40	0.00
60.00	0.00	0.008	513.40	0.00
62.50	0.00	0.008	513.40	0.00
65.00	0.00	0.008	513.40	0.00
67.50	0.00	0.008	513.40	0.00
70.00	0.00	0.008	513.40	0.00

Summary for Pond 13: Prop. DA-2 Summation to Sunset-Bloomfield

Inflow Area = 4.370 ac, 74.21% Impervious, Inflow Depth = 7.58" for 100-yr event
Inflow = 15.27 cfs @ 12.15 hrs, Volume= 2.759 af
Primary = 15.27 cfs @ 12.15 hrs, Volume= 2.759 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 13: Prop. DA-2 Summation to Sunset-Bloomfield



Hydrograph for Pond 13: Prop. DA-2 Summation to Sunset-Bloomfield

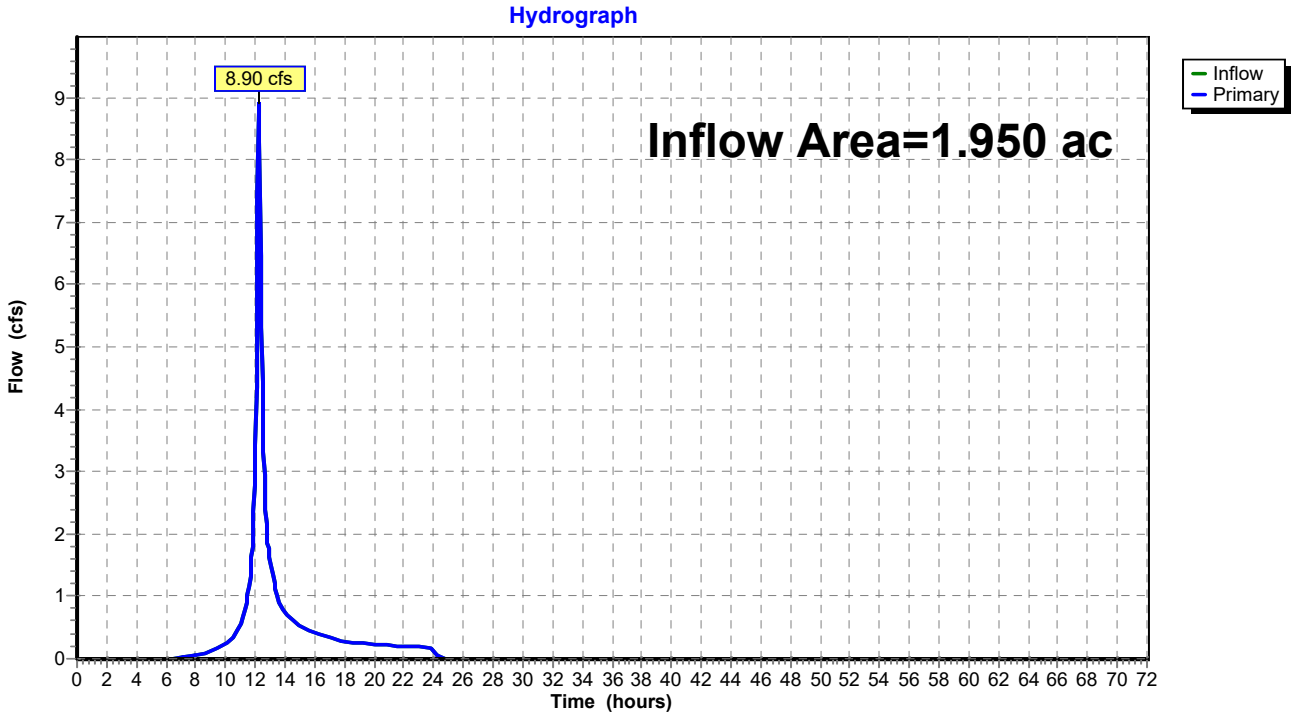
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.03		0.03
4.00	0.12		0.12
5.00	0.24		0.24
6.00	0.36		0.36
7.00	0.49		0.49
8.00	0.64		0.64
9.00	0.81		0.81
10.00	1.16		1.16
11.00	1.88		1.88
12.00	**9.14**		**9.14**
13.00	**7.25**		**7.25**
14.00	2.76		2.76
15.00	2.04		2.04
16.00	1.45		1.45
17.00	1.09		1.09
18.00	0.85		0.85
19.00	0.70		0.70
20.00	0.63		0.63
21.00	0.58		0.58
22.00	0.53		0.53
23.00	0.49		0.49
24.00	0.45		0.45
25.00	0.19		0.19
26.00	0.10		0.10
27.00	0.06		0.06
28.00	0.04		0.04
29.00	0.03		0.03
30.00	0.02		0.02
31.00	0.02		0.02
32.00	0.02		0.02
33.00	0.01		0.01
34.00	0.01		0.01
35.00	0.01		0.01
36.00	0.01		0.01
37.00	0.01		0.01
38.00	0.01		0.01
39.00	0.01		0.01
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 15: Prop. DA-3 Overland to Bloomfield

Inflow Area = 1.950 ac, 0.00% Impervious, Inflow Depth = 5.30" for 100-yr event
Inflow = 8.90 cfs @ 12.23 hrs, Volume= 0.862 af
Primary = 8.90 cfs @ 12.23 hrs, Volume= 0.862 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 15: Prop. DA-3 Overland to Bloomfield



Hydrograph for Pond 15: Prop. DA-3 Overland to Bloomfield

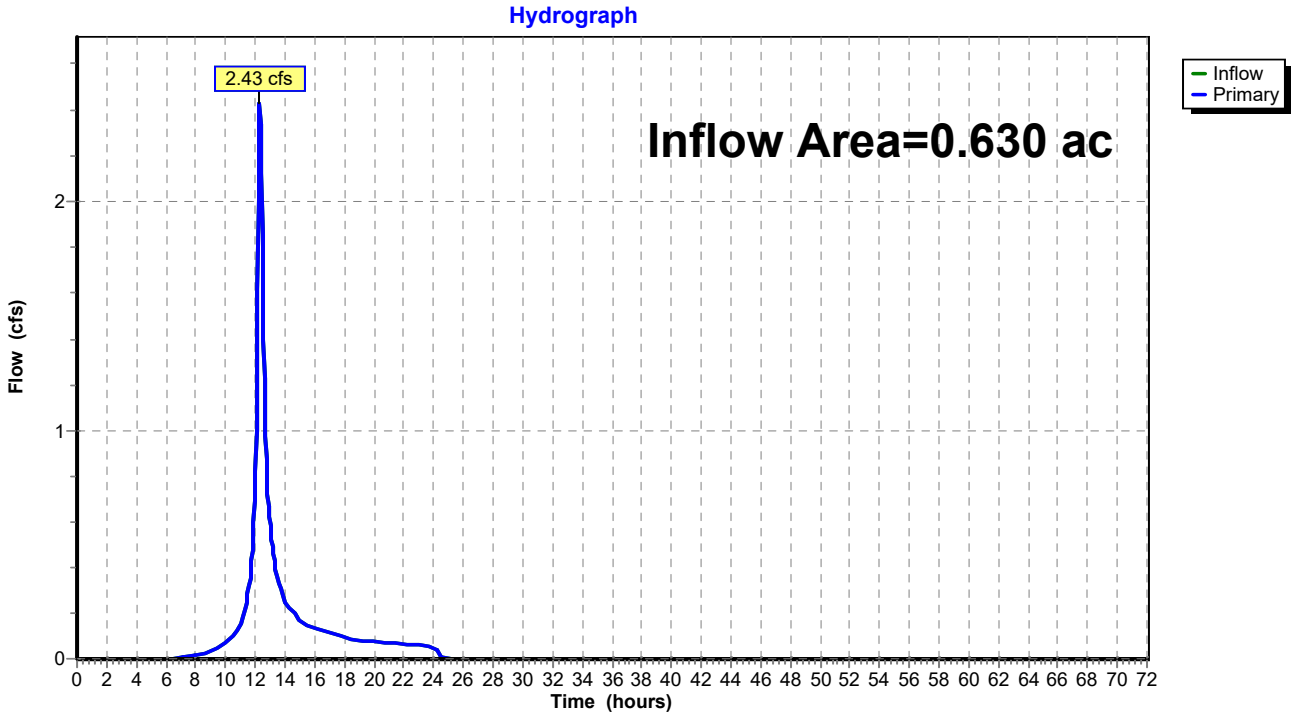
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.02		0.02
8.00	0.06		0.06
9.00	0.12		0.12
10.00	0.25		0.25
11.00	0.56		0.56
12.00	**3.42**		**3.42**
13.00	**1.59**		**1.59**
14.00	0.74		0.74
15.00	0.52		0.52
16.00	0.41		0.41
17.00	0.35		0.35
18.00	0.28		0.28
19.00	0.25		0.25
20.00	0.23		0.23
21.00	0.22		0.22
22.00	0.20		0.20
23.00	0.19		0.19
24.00	0.17		0.17
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 18: Prop. DA-4 Overland to Parkhurst

Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth = 5.19" for 100-yr event
Inflow = 2.43 cfs @ 12.30 hrs, Volume= 0.272 af
Primary = 2.43 cfs @ 12.30 hrs, Volume= 0.272 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 18: Prop. DA-4 Overland to Parkhurst



Hydrograph for Pond 18: Prop. DA-4 Overland to Parkhurst

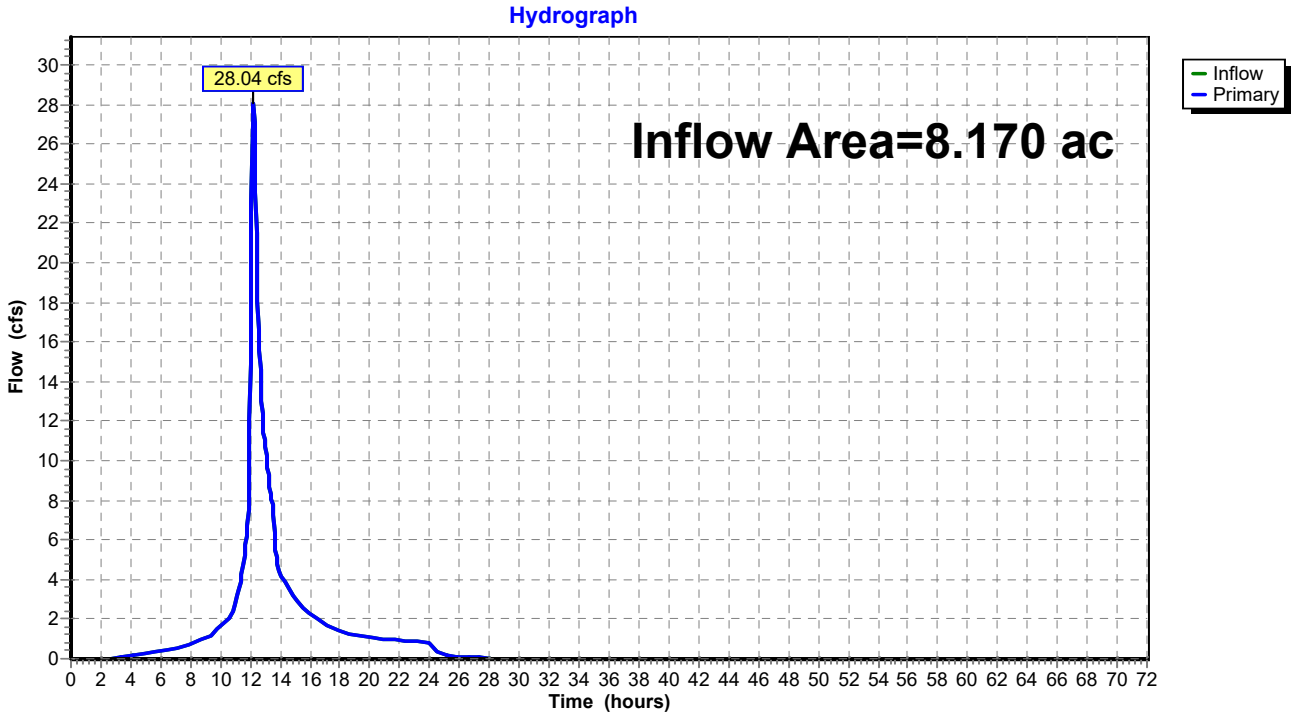
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.00		0.00
4.00	0.00		0.00
5.00	0.00		0.00
6.00	0.00		0.00
7.00	0.00		0.00
8.00	0.02		0.02
9.00	0.03		0.03
10.00	0.07		0.07
11.00	0.16		0.16
12.00	**0.82**		**0.82**
13.00	**0.58**		**0.58**
14.00	0.25		0.25
15.00	0.17		0.17
16.00	0.13		0.13
17.00	0.11		0.11
18.00	0.09		0.09
19.00	0.08		0.08
20.00	0.08		0.08
21.00	0.07		0.07
22.00	0.07		0.07
23.00	0.06		0.06
24.00	0.05		0.05
25.00	0.00		0.00
26.00	0.00		0.00
27.00	0.00		0.00
28.00	0.00		0.00
29.00	0.00		0.00
30.00	0.00		0.00
31.00	0.00		0.00
32.00	0.00		0.00
33.00	0.00		0.00
34.00	0.00		0.00
35.00	0.00		0.00
36.00	0.00		0.00
37.00	0.00		0.00
38.00	0.00		0.00
39.00	0.00		0.00
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 19: Site Sum

Inflow Area = 8.170 ac, 39.69% Impervious, Inflow Depth = 6.51" for 100-yr event
Inflow = 28.04 cfs @ 12.20 hrs, Volume= 4.433 af
Primary = 28.04 cfs @ 12.20 hrs, Volume= 4.433 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 19: Site Sum



Hydrograph for Pond 19: Site Sum

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
1.00	0.00		0.00
2.00	0.00		0.00
3.00	0.03		0.03
4.00	0.12		0.12
5.00	0.24		0.24
6.00	0.36		0.36
7.00	0.51		0.51
8.00	0.75		0.75
9.00	1.03		1.03
10.00	1.62		1.62
11.00	2.89		2.89
12.00	**14.84**		**14.84**
13.00	**10.66**		**10.66**
14.00	4.25		4.25
15.00	3.08		3.08
16.00	2.26		2.26
17.00	1.77		1.77
18.00	1.40		1.40
19.00	1.19		1.19
20.00	1.09		1.09
21.00	1.00		1.00
22.00	0.93		0.93
23.00	0.85		0.85
24.00	0.78		0.78
25.00	0.19		0.19
26.00	0.10		0.10
27.00	0.06		0.06
28.00	0.04		0.04
29.00	0.03		0.03
30.00	0.02		0.02
31.00	0.02		0.02
32.00	0.02		0.02
33.00	0.01		0.01
34.00	0.01		0.01
35.00	0.01		0.01
36.00	0.01		0.01
37.00	0.01		0.01
38.00	0.01		0.01
39.00	0.01		0.01
40.00	0.00		0.00
41.00	0.00		0.00
42.00	0.00		0.00
43.00	0.00		0.00
44.00	0.00		0.00
45.00	0.00		0.00
46.00	0.00		0.00
47.00	0.00		0.00
48.00	0.00		0.00
49.00	0.00		0.00
50.00	0.00		0.00
51.00	0.00		0.00
52.00	0.00		0.00
53.00	0.00		0.00
54.00	0.00		0.00
55.00	0.00		0.00
56.00	0.00		0.00
57.00	0.00		0.00
58.00	0.00		0.00
59.00	0.00		0.00
60.00	0.00		0.00
61.00	0.00		0.00
62.00	0.00		0.00
63.00	0.00		0.00
64.00	0.00		0.00
65.00	0.00		0.00
66.00	0.00		0.00
67.00	0.00		0.00
68.00	0.00		0.00
69.00	0.00		0.00
70.00	0.00		0.00
71.00	0.00		0.00
72.00	0.00		0.00

Summary for Pond 57P: Basin C

Inflow Area = 0.440 ac, 11.36% Impervious, Inflow Depth = 5.88" for 100-yr event
Inflow = 2.91 cfs @ 12.11 hrs, Volume= 0.215 af
Outflow = 2.98 cfs @ 12.15 hrs, Volume= 0.215 af, Atten= 0%, Lag= 2.2 min
Primary = 2.98 cfs @ 12.15 hrs, Volume= 0.215 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 85.25' Surf.Area= 0 sf Storage= 0 cf
Peak Elev= 560.94' @ 12.15 hrs Surf.Area= 2,145 sf Storage= 1,935 cf

Plug-Flow detention time= 54.0 min calculated for 0.215 af (100% of inflow)
Center-of-Mass det. time= 53.6 min (860.5 - 807.0)

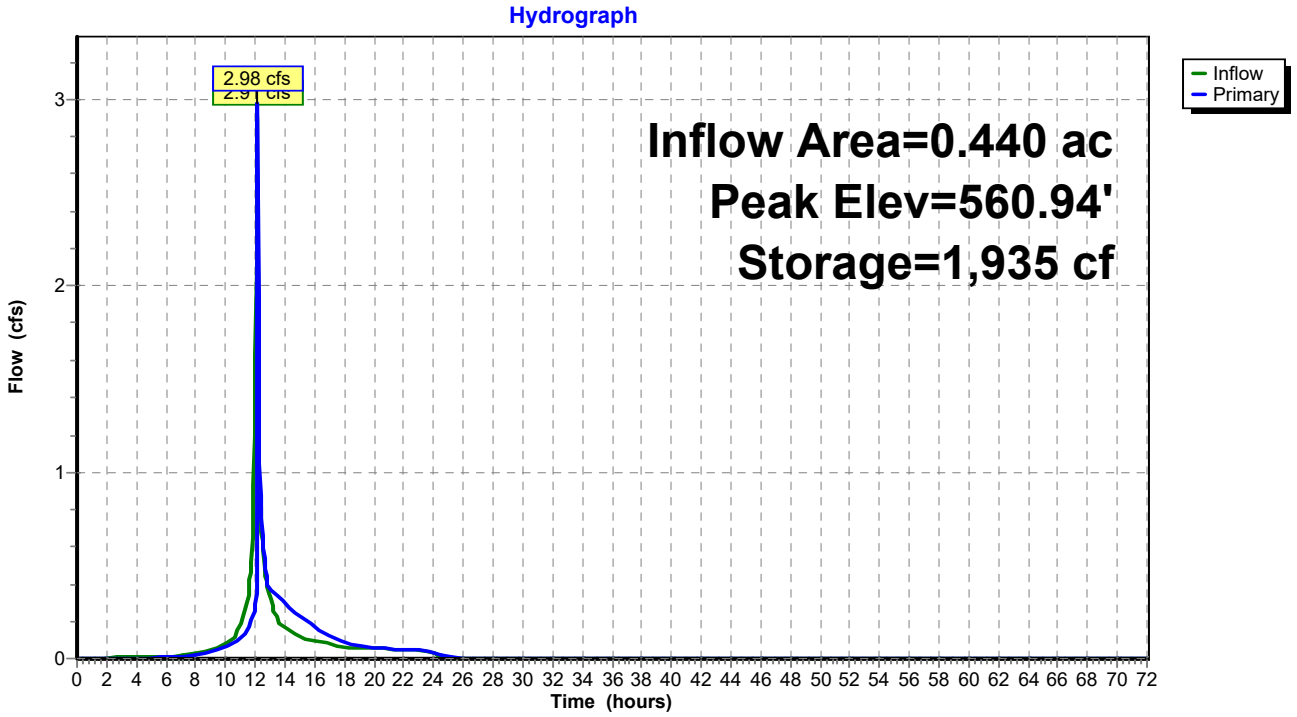
Volume	Invert	Avail.Storage	Storage Description
#1	557.99'	1,980 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
557.99	2,145	0.0	0	0
558.00	2,145	40.0	9	9
558.99	2,145	40.0	849	858
559.00	2,145	37.5	8	866
559.49	2,145	37.5	394	1,260
559.50	2,145	21.7	5	1,265
560.99	2,145	21.7	694	1,958
561.00	2,145	100.0	21	1,980

Device	Routing	Invert	Outlet Devices
#1	Primary	552.99'	**15.0" Round Culvert** L= 59.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 552.99' / 551.12' S= 0.0315 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	557.99'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	560.50'	**3.0' 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
#4	Device 1	562.50'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.96 cfs @ 12.15 hrs HW=560.94' (Free Discharge)
└**1=Culvert** (Passes 2.96 cfs of 15.99 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.40 cfs @ 8.09 fps)
  ├**3=Broad-Crested Rectangular Weir** (Weir Controls 2.57 cfs @ 1.95 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 57P: Basin C



Hydrograph for Pond 57P: Basin C

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	557.99	0.00
2.50	0.00	18	558.01	0.00
5.00	0.01	40	558.04	0.00
7.50	0.02	72	558.07	0.01
10.00	**0.08**	**169**	**558.19**	**0.06**
12.50	**0.60**	**1,775**	**560.60**	**0.62**
15.00	0.11	899	559.04	0.23
17.50	0.07	270	558.30	0.10
20.00	0.05	158	558.17	0.06
22.50	0.04	139	558.15	0.05
25.00	0.00	59	558.06	0.01
27.50	0.00	21	558.01	0.00
30.00	0.00	11	558.00	0.00
32.50	0.00	8	558.00	0.00
35.00	0.00	6	558.00	0.00
37.50	0.00	5	558.00	0.00
40.00	0.00	4	557.99	0.00
42.50	0.00	3	557.99	0.00
45.00	0.00	2	557.99	0.00
47.50	0.00	2	557.99	0.00
50.00	0.00	2	557.99	0.00
52.50	0.00	1	557.99	0.00
55.00	0.00	1	557.99	0.00
57.50	0.00	1	557.99	0.00
60.00	0.00	1	557.99	0.00
62.50	0.00	0	557.99	0.00
65.00	0.00	0	557.99	0.00
67.50	0.00	0	557.99	0.00
70.00	0.00	0	557.99	0.00

APPENDIX F

LOW IMPACT DEVELOPMENT CHECKLIST

New Jersey Stormwater Best Management Practices Manual

February 2004

APPENDIX A

Low Impact Development Checklist

A checklist for identifying nonstructural stormwater management strategies incorporated into proposed land development

According to the NJDEP Stormwater Management Rules at N.J.A.C. 7:8, the groundwater recharge, stormwater quality, and stormwater quantity standards established by the Rules for major land development projects must be met by incorporating nine specific nonstructural stormwater management strategies into the project's design to the maximum extent practicable.

To accomplish this, the Rules require an applicant seeking land development approval from a regulatory board or agency to identify those nonstructural strategies that have been incorporated into the project's design. In addition, if an applicant contends that it is not feasible to incorporate any of the specific strategies into the project's design, particularly for engineering, environmental, or safety reasons, the Rules further require that the applicant provide a basis for that contention.

This checklist has been prepared to assist applicants, site designers, and regulatory boards and agencies in ensuring that the nonstructural stormwater management requirements of the Rules are met. It provides an applicant with a means to identify both the nonstructural strategies incorporated into the development's design and the specific low impact development BMPs (LID-BMPs) that have been used to do so. It can also help an applicant explain the engineering, environmental, and/or safety reasons that a specific nonstructural strategy could not be incorporated into the development's design.

The checklist can also assist municipalities and other land development review agencies in the development of specific requirements for both nonstructural strategies and LID-BMPs in zoning and/or land use ordinances and regulations. As such, where requirements consistent with the Rules have been adopted, they may supersede this checklist.

Finally, the checklist can be used during a pre-design meeting between an applicant and pertinent review personnel to discuss local nonstructural strategies and LID-BMPs requirements in order to optimize the development's nonstructural stormwater management design.

Since this checklist is intended to promote the use of nonstructural stormwater management strategies and provide guidance in their incorporation in land development projects, municipalities are permitted to revise it as necessary to meet the goals and objectives of their specific stormwater management program and plan within the limits of N.J.A.C. 7:8.

Low Impact Development Checklist

A checklist for identifying nonstructural stormwater management strategies incorporated into proposed land development

Municipality: Township of Verona and Township of Montclair

County: Essex County Date: 10/27/2021

Review board or agency:

Proposed land development name: Spectrum 360

Lot(s): Verona- Lot 4/ Montclair- Lots 5 and 1 Block(s): Verona- Block 303/Montclair- Blocks 301 and 401

Project or application number:

Applicant's name: Verona Sunset Urban Renewal, LLC

Applicant's address: 16 Microlab Road, Suite A

Livingston, NJ 07039

Telephone: (973) 992-2443 Fax:

Email address: CThomas@bnerealestate.com

Designer's name: Sean M. Savage, P.E.

Designer's address: 442 State Route 35, Second Floor

Eatontown, NJ 07724

Telephone: (973) 295-3604 Fax:

Email address: ssavage@mnwe.com

Part 1: Description of Nonstructural Approach to Site Design

In narrative form, provide an overall description of the nonstructural stormwater management approach and strategies incorporated into the proposed site's design. Attach additional pages as necessary. Details of each nonstructural strategy are provided in Part 3 below.

The runoff from a majority of the site drains to two (2) on-site underground detention basins (Basin A & Basin B). A bioretention basin (Basin C) is also proposed in the south side of the site prior to discharging to Basin A. This basin is designed with an underdrain system since the on-site permeability rates are poor. The basins are designed in accordance with NJAC 7:8. Based upon geotechnical testing completed, the on-site soils exhibit characteristics of poorly drained soils. The completed permeability testing showed a permeability rate of 0.0 inches/hour. There is also shallow bedrock on site which further decreases any recharge/infiltration. It is noted that the site was previously development with an existing school building with roadways and parking areas. The proposed development results in a decrease in the amount of motor vehicle surfaces from the existing conditions from 1.49 acres to 0.39 acres, therefore the proposed development will improve water quality.

The preservation of the natural areas has been maximized in the proposed design as 33.03% of the site is left undisturbed and in it's natural condition. Also, the impervious coverage allowed by zoning regulations and the redevelopment plan is 75% whereas only 64.09% is proposed.

Part 2: Review of Local Stormwater Management Regulations

Title and date of stormwater management regulations used in development design:

NJAC 7:8, March 2021

Do regulations include nonstructural requirements? Yes: X No: _____

If yes, briefly describe: Site design features that help prevent accumulation and discharge of trash.

List LID-BMPs prohibited by local regulations: NA

Pre-design meeting held? Yes: _____ Date: _____ No: x

Meeting held with: _____

Pre-design site walk held? Yes: _____ Date: _____ No: x

Site walk held with: _____

Other agencies with stormwater review jurisdiction:

Name: Township of Verona

Required approval: Yes

Name: Hudson, Essex, Passaic Soil Conservation District

Required approval: Yes

Name: _____

Required approval: _____

Part 3: Nonstructural Strategies and LID-BMPs in Design

3.1 Vegetation and Landscaping

Effective management of both existing and proposed site vegetation can reduce a development's adverse impacts on groundwater recharges and runoff quality and quantity. This section of the checklist helps identify the vegetation and landscaping strategies and nonstructural LID-BMPs that have been incorporated into the proposed development's design to help maintain existing recharge rates and/or minimize or prevent increases in runoff quantity and pollutant loading.

A. Has an inventory of existing site vegetation been performed? Yes: x No: _____

If yes, was this inventory a factor in the site's layout and design? Yes: x No: _____

B. Does the site design utilize any of the following nonstructural LID-BMPs?

Preservation of natural areas? Yes: x No: _____ If yes, specify % of site: 33.03%

Native ground cover? Yes: x No: _____ If yes, specify % of site: 33.03%

Vegetated buffers? Yes: _____ No: x If yes, specify % of site: _____

C. Do the land development regulations require these nonstructural LID-BMPs?

Preservation of natural areas? Yes: _____ No: x If yes, specify % of site: _____

Native ground cover? Yes: _____ No: x If yes, specify % of site: _____

Vegetated buffers? Yes: _____ No: x If yes, specify % of site: _____

D. If vegetated filter strips or buffers are utilized, specify their functions:

Reduce runoff volume increases through lower runoff coefficient: Yes: _____ No: x

Reduce runoff pollutant loads through runoff treatment: Yes: _____ No: x

Maintain groundwater recharge by preserving natural areas: Yes: _____ No: x

3.2 Minimize Land Disturbance

Minimizing land disturbance is a nonstructural LID-BMP that can be applied during both the development's construction and post-construction phases. This section of the checklist helps identify those land disturbance strategies and nonstructural LID-BMPs that have been incorporated into the proposed development's design to minimize land disturbance and the resultant change in the site's hydrologic character.

A. Have inventories of existing site soils and slopes been performed? Yes: x No: _____

If yes, were these inventories factors in the site's layout and design? Yes: x No: _____

B. Does the development's design utilize any of the following nonstructural LID-BMPs?

Restrict permanent site disturbance by land owners? Yes: _____ No: x

If yes, how: _____

_____

Restrict temporary site disturbance during construction? Yes: x No: _____

If yes, how: Installation of silt fence

_____

Consider soils and slopes in selecting disturbance limits? Yes: x No: _____

If yes, how: The site has shallow underlying bedrock and the proposed development is mostly within the limits of the previous development/use which already disturbed the natural site conditions. There is a woods line within the project site which has largely been maintained within the proposed project.

C. Specify percentage of site to be cleared: 1.35% (new clearing) Regraded: 66.97%

D. Specify percentage of cleared areas done so for buildings: 0.08%

For driveways and parking: 0% For roadways: 0%

E. What design criteria and/or site changes would be required to reduce the percentages in C and D above?

The preservation of the natural areas has been maximized in the design. 33.03% of the site area is left undisturbed and in it's natural condition.

F. Specify site's hydrologic soil group (HSG) percentages:

HSG A: 0% HSG B: 0% HSG C: 100% HSG D: 0%

G. Specify percentage of each HSG that will be permanently disturbed:

HSG A: NA HSG B: NA HSG C: 66.97% HSG D: NA

H. Locating site disturbance within areas with less permeable soils (HSG C and D) and minimizing disturbance within areas with greater permeable soils (HSG A and B) can help maintain groundwater recharge rates and reduce runoff volume increases. In light of the HSG percentages in F and G above, what other practical measures if any can be taken to achieve this?

All of the site area is located within HSG C. The soils on site were tested and yielded no infiltration rate, therefore recharge is not feasible. It is noted that there is shallow bedrock located throughout the site.

I. Does the site include Karst topography? Yes: _____ No: X

If yes, discuss measures taken to limit Karst impacts:

3.3 Impervious Area Management

New impervious surfaces at a development site can have the greatest adverse effect on groundwater recharge and stormwater quality and quantity. This section of the checklist helps identify those nonstructural strategies and LID-BMPs that have been incorporated into a proposed development's design to comprehensively manage the extent and impacts of new impervious surfaces.

A. Specify impervious cover at site: Existing: 2.23 acres Proposed: 3.24 acres

B. Specify maximum site impervious coverage allowed by regulations: 3.80 acres (75% of the lot area)

C. Compare proposed street cartway widths with those required by regulations:

Type of Street	Proposed Cartway Width (feet)	Required Cartway Width (feet)
Residential access – low intensity	NA	
Residential access – medium intensity	NA	
Residential access – high intensity with parking	NA	
Residential access – high intensity without parking	NA	
Neighborhood	NA	
Minor collector – low intensity without parking	NA	
Minor collector – with one parking lane	NA	
Minor collector – with two parking lanes	NA	
Minor collector – without parking	NA	
Major collector	NA	

D. Compare proposed parking space dimensions with those required by regulations:

Proposed: 9'x18' Regulations: 9'x18'

E. Compare proposed number of parking spaces with those required by regulations:

Proposed: 381 Regulations: 381

F. Specify percentage of total site impervious cover created by buildings: 79.94%

By driveways and parking: 11.72% By roadways: NA

G. What design criteria and/or site changes would be required to reduce the percentages in F above?

There are no practical changes that can be made to reduce these numbers. The preservation of natural areas has been maximized with 33.03% of site area is proposed to remain undisturbed in natural condition. The impervious coverage allowed by zoning regulations is 75% whereas only 64.09% impervious coverage is proposed.

H. Specify percentage of total impervious area that will be unconnected:

Total site: 0% Buildings: 0% Driveways and parking: 0% Roads: 0%

I. Specify percentage of total impervious area that will be porous:

Total site: 0% Buildings: 0% Driveways and parking: 0% Roads: 0%

J. Specify percentage of total building roof area that will be vegetated: 0%

K. Specify percentage of total parking area located beneath buildings: 0%

L. Specify percentage of total parking located within multi-level parking deck: 99.97%

3.4 Time of Concentration Modifications

Decreasing a site's time of concentration (Tc) can lead directly to increased site runoff rates which, in turn, can create new and/or aggravate existing erosion and flooding problems downstream. This section of the checklist helps identify those nonstructural strategies and LID-BMPs that have been incorporated into the proposed development's design to effectively minimize such Tc decreases.

When reviewing Tc modification strategies, it is important to remember that a drainage area's Tc should reflect the general conditions throughout the area. As a result, Tc modifications must generally be applied throughout a drainage area, not just along a specific Tc route.

A. Specify percentage of site's total stormwater conveyance system length that will be:

Storm sewer: 61.74% Vegetated swale: 14.05% Natural channel: 0%

Stormwater management facility: 24.21% Other: _____

Note: the total length of the stormwater conveyance system should be measured from the site's downstream property line to the downstream limit of sheet flow at the system's headwaters.

B. What design criteria and/or site changes would be required to reduce the storm sewer percentages and increase the vegetated swale and natural channel percentages in A above?

The preservation of the natural areas has been maximized in the design with 33.03% of the site area left undisturbed and in it's natural condition. Reduction of the storm sewer percentages is not practical without increasing the disturbance limits.

C. In conveyance system subareas that have overland or sheet flow over impervious surfaces or turf grass, what practical and effective site changes can be made to:

Decrease overland flow slope: There is approximately a 55 foot grade change across the site in existing conditions. The slopes in the paved and grass areas have been minimized to the maximum extent practicable in order to work with the existing topography across the site.

Increase overland flow roughness: Use grass mixtures that increase roughness.

3.5 Preventative Source Controls

The most effective way to address water quality concerns is by pollution prevention. This section of the checklist helps identify those nonstructural strategies and LID-BMPs that have been incorporated into the proposed development's design to reduce the exposure of pollutants to prevent their release into the stormwater runoff.

A. Trash Receptacles

Specify the number of trash receptacles provided: Trash receptacles will be provided as required per the Township of Verona ordinance requirements

Specify the spacing between the trash receptacles: _____

Compare trash receptacles proposed with those required by regulations:

Proposed: _____ Regulations: _____

B. Pet Waste Stations

Specify the number of pet waste stations provided: 1

Specify the spacing between the pet waste stations: _____

Compare pet waste stations proposed with those required by regulations:

Proposed: _____ Regulations: _____

C. Inlets, Trash Racks, and Other Devices that Prevent Discharge of Large Trash and Debris

Specify percentage of total inlets that comply with the NJPDES storm drain inlet criteria: 100%

D. Maintenance

Specify the frequency of the following maintenance activities:

Street sweeping: Proposed: Will be provided as required per the Township of Verona requirements. Regulations: _____

Litter collection: Proposed: _____ Regulations: _____

Identify other stormwater management measures on the site that prevent discharge of large trash and debris:

The outlet control structures propose trash racks to be installed. An operations and maintenance manual has also been prepared for the on-site stormwater conveyance system.

E. Prevention and Containment of Spills

Identify locations where pollutants are located on the site, and the features that prevent these pollutants from being exposed to stormwater runoff:

Pollutant: NA Location: _____

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: _____ Location: _____

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: _____ Location: _____

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: _____ Location: _____

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: _____ Location: _____

Part 4: Compliance with Nonstructural Requirements of NJDEP Stormwater Management Rules

1. Based upon the checklist responses above, indicate which nonstructural strategies have been incorporated into the proposed development's design in accordance with N.J.A.C. 7:8-5.3(b):

No.	Nonstructural Strategy	Yes	No
1.	Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss.	X	
2.	Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces.	X	
3.	Maximize the protection of natural drainage features and vegetation.	X	
4.	Minimize the decrease in the pre-construction time of concentration.	X	
5.	Minimize land disturbance including clearing and grading.	X	
6.	Minimize soil compaction.	X	
7.	Provide low maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers, and pesticides.	X	
8.	Provide vegetated open-channel conveyance systems discharge into and through stable vegetated areas.		X
9.	Provide preventative source controls.	X	

2. For those strategies that have not been incorporated into the proposed development's design, provide engineering, environmental, and/or safety reasons. Attached additional pages as necessary.

The preservation of the natural areas has been maximized in the design with 33.03% of the site area left undisturbed and in it's natural condition. The impervious coverage allowed by zoning regulations is 75% whereas only 64% impervious coverage is proposed.

APPENDIX G

PIPE DESIGN CALCULATIONS

FlexTable: Conduit Table

ID	Label	Start Node	Invert (Start) (ft)	Number of Barrels	Stop Node	Invert (Stop) (ft)	Length (User Defined) (ft)	Slope (Calculated) (%)	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Flow / Capacity (Design) (%)
254	6	TD-10	513.66	1	MH-11	513.50	15.8	1.01	15.0	0.012	1.82	4.81	24.2
261	4	INLET 4	525.67	1	BASIN A	525.00	33.5	2.00	15.0	0.012	3.57	7.41	33.9
286	5	TD-8	516.00	1	MH-11	515.65	35.0	1.00	15.0	0.012	1.78	4.77	23.9
287	7	MH-11	513.50	1	BASIN B	513.40	13.7	0.73	15.0	0.012	3.58	5.09	56.2
290	12-B	INLET 12	513.49	1	BASIN B	513.40	8.0	1.13	12.0	0.012	0.54	3.61	12.3
296	1	INLET 1	561.25	1	BASIN C	561.00	34.5	0.72	12.0	0.012	0.94	3.61	26.9
298	3-4	INLET 4	540.62	1	MH-3	538.90	57.5	2.99	15.0	0.012	2.94	2.40	22.8
299	C-3	MH-3	551.99	1	BASIN C	550.12	59.3	3.15	15.0	0.012	2.94	2.40	22.2

APPENDIX H

RECHARGE SPREADSHEET

New Jersey Groundwater Recharge Spreadsheet Version 2.0 November 2003

Annual Groundwater Recharge Analysis (based on GSR-32)

Select Township ↓	Average Annual P (in)	Climatic Factor
ESSEX CO., VERONA BORO	48.9	1.67

Project Name:	Verona
Description:	Recharge Summary
Analysis Date:	11/02/22

Pre-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	2.25	Impervious areas	Urban Land*	0.0	-
2	1.1	Open space	Urban Land*	0.0	-
3	3.35	Woods-grass combination	Urban Land*	0.0	-
4	1.28	Woods	Urban Land*	0.0	-
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
Total =	8.0			Total Annual Recharge (in)	Total Annual Recharge (cu-ft)
				0.0	-

Post-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	3.24	Impervious areas	Urban Land*	0.0	-
2	2.38	Open space	Urban Land*	0.0	-
3	1.11	Woods-grass combination	Urban Land*	0.0	-
4	1.24	Woods	Urban Land*	0.0	-
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
Total =	8.0	Warning: make total area equal to Pre-Developed Condition		Total Annual Recharge (in)	Total Annual Recharge (cu.ft)
				0.0	-

Annual Recharge Requirements Calculation ↓

% of Pre-Developed Annual Recharge to Preserve =	100%	Total Impervious Area (sq.ft)
		141,134
Post-Development Annual Recharge Deficit=	*0*	(cubic feet)

Recharge Efficiency Parameters Calculations (area averages)

RWC=	0.00	(in)	DRWC= 0.00	(in)
ERWC =	0.00	(in)	EDRWC= 0.00	(in)

Procedure to fill the Pre-Development and Post-Development Conditions Tables

For each land segment, first enter the area, then select TR-55 Land Cover, then select Soil. Start from the top of the table and proceed downward. Don't leave blank rows (with A=0) in between your segment entries. Rows with A=0 will not be displayed or used in calculations. For impervious areas outside of standard lots select "Impervious Areas" as the Land Cover. Soil type for impervious areas are only required if an infiltration facility will be built within these areas.

APPENDIX I

CHANNEL STABILITY CALCULATIONS

North American Green
5401 St. Wendel-Cynthiana Rd.
Poseyville, Indiana 47633
Tel. 800.772.2040
>Fax 812.867.0247
www.nagreen.com
ECMDS v7.0

CHANNEL ANALYSIS

> > > Area to Inlet 1

Name	Area to Inlet 1
Discharge	1.6
Channel Slope	0.07
Channel Bottom Width	8
Left Side Slope	6
Right Side Slope	8
Low Flow Liner	
Retardence Class	E <2 in
Vegetation Type	Mix (Sod and Bunch)
Vegetation Density	Excellent > 95%
Soil Type	Silt Loam (SM)

Unreinforced Vegetation

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Unreinforced Vegetation	Straight	1.6 cfs	2.3 ft/s	0.08 ft	0.031	4 lbs/ft2	0.36 lbs/ft2	11.26	STABLE	--
Underlying Substrate	Straight	1.6 cfs	2.3 ft/s	0.08 ft	0.031	1.44 lbs/ft2	0.33 lbs/ft2	4.32	STABLE	--

North American Green
5401 St. Wendel-Cynthiana Rd.
Poseyville, Indiana 47633
Tel. 800.772.2040
>Fax 812.867.0247
www.nagreen.com
ECMDS v7.0

CHANNEL ANALYSIS

> > > Eastern Property Line

Name	Eastern Property Line
Discharge	3.95
Channel Slope	0.1
Channel Bottom Width	10
Left Side Slope	3
Right Side Slope	3
Low Flow Liner	
Retardence Class	E <2 in
Vegetation Type	Mix (Sod and Bunch)
Vegetation Density	Excellent > 95%
Soil Type	Silt Loam (SM)

Unreinforced Vegetation

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Unreinforced Vegetation	Straight	3.95 cfs	4.23 ft/s	0.09 ft	0.022	4 lbs/ft2	0.57 lbs/ft2	7.06	STABLE	--
Underlying Substrate	Straight	3.95 cfs	4.23 ft/s	0.09 ft	0.022	0.74 lbs/ft2	0.55 lbs/ft2	1.34	STABLE	--

North American Green
5401 St. Wendel-Cynthiana Rd.
Poseyville, Indiana 47633
Tel. 800.772.2040
>Fax 812.867.0247
www.nagreen.com
ECMDS v7.0

CHANNEL ANALYSIS

> > > Manhole 3 to Inlet 2

Name	Manhole 3 to Inlet 2
Discharge	0.64
Channel Slope	0.17
Channel Bottom Width	10
Left Side Slope	3
Right Side Slope	3
Low Flow Liner	
Retardence Class	E <2 in
Vegetation Type	Mix (Sod and Bunch)
Vegetation Density	Excellent > 95%
Soil Type	Silt Loam (SM)

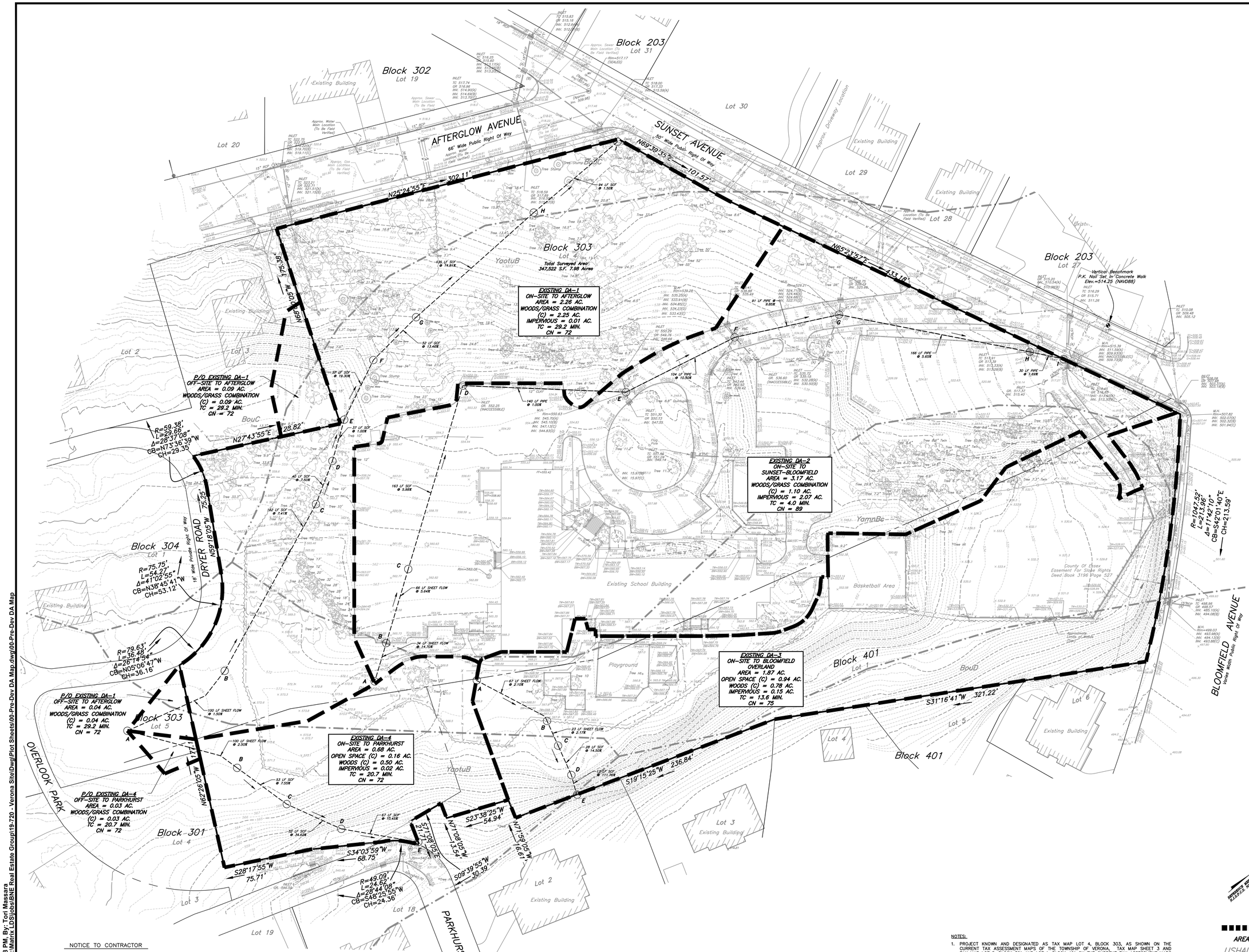
Unreinforced Vegetation

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Unreinforced Vegetation	Straight	0.64 cfs	1.98 ft/s	0.03 ft	0.031	4 lbs/ft2	0.34 lbs/ft2	11.89	STABLE	--
Underlying Substrate	Straight	0.64 cfs	1.98 ft/s	0.03 ft	0.031	1.44 lbs/ft2	0.33 lbs/ft2	4.32	STABLE	--

MATRIXNEWORLD
Engineering Progress

APPENDIX J

DRAINAGE AREA MAPS



NOTICE TO CONTRACTOR

ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE FACT THAT THE APPROXIMATE LOCATIONS OF KNOWN UTILITY STRUCTURES AND FACILITIES THAT MAY BE ENCOUNTERED WITHIN AND ADJACENT TO THE LIMITS OF WORK AREA ARE SHOWN ON THE PLANS. THE ACCURACY AND COMPLETENESS OF THIS INFORMATION IS NOT GUARANTEED BY THE ENGINEER, AND THE CONTRACTOR IS ADVISED TO VERIFY, IN THE FIELD, ALL THE FACTS CONCERNING THE LOCATION OF THESE UTILITIES AND OTHER CONSTRUCTION OBSTACLES PRIOR TO THE START OF CONSTRUCTION. FURTHER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER, IN WRITING, PRIOR TO THE START OF CONSTRUCTION, OF ANY DISCREPANCIES WHICH MAY EFFECT THE PROJECT DESIGN.

THE CONTRACTOR SHALL CONTACT NEW JERSEY ONE CALL (1-800-272-1000 OR LATEST NUMBER) FOR UTILITY MARKOUT PRIOR TO THE START OF CONSTRUCTION.

NOTES:

1. PROJECT KNOWN AND DESIGNATED AS TAX MAP LOT 4, BLOCK 303, AS SHOWN ON THE CURRENT TAX ASSESSMENT MAPS OF THE TOWNSHIP OF VERONA, TAX MAP SHEET 3 AND TAX MAP LOT 5, BLOCK 301 AND LOT 1, BLOCK 401 ON THE CURRENT TAX ASSESSMENT MAPS OF THE TOWNSHIP OF MONTCLAIR, TAX MAP SHEETS 3 AND 4.
2. LOT AND TOPOGRAPHIC SURVEY INFORMATION BASED UPON A SURVEY ENTITLED 'BOUNDARY AND TOPOGRAPHIC SURVEY, TAX MAP OF LOT 4, BLOCK 303, TOWNSHIP OF VERONA, TAX MAP OF LOT 5, BLOCK 301 & LOT 1, BLOCK 401, TOWN OF MONTCLAIR ESSEX COUNTY, NEW JERSEY', PREPARED BY MATRIX NEW WORLD ENGINEERING, AND DATED 09/12/19, WITH ALL REVISIONS.
3. HORIZONTAL DATUM: NAD83; VERTICAL DATUM: NAVD88.
4. SUPPLEMENTAL INFORMATION SHOWN HEREON FOR THE SURROUNDING PROPERTIES BASED UPON LIDAR INFORMATION AND BEST AVAILABLE AERIAL INFORMATION.

REFERENCE MERIDIAN
N73°25'05" AND FIBS

LEGEND

- OVERALL AREA
- AREA — OVERALL AREA DATA
- USHALB — SOIL TYPE
- A ○ — PATH NODES
- DISTANCE — PATH DATA

30 20 10 0 30 60 90

GRAPHIC SCALE
1 inch=30 feet

NO.	DESCRIPTION	DATE:	DES.:	REV.:	REL.:
	REVISIONS				

DESIGNED BY:
REVIEWED BY:
RELEASED BY:

MATRIXNEWORLD
Engineering Progress

Matrix New World Engineering, Land Surveying
and Landscape Architecture, P.C.
442 State Route 35, Second Floor
Eatontown, New Jersey 07724
Certified WBE
NEW JERSEY CERTIFICATE OF AUTHORIZATION No: 24GA27902300
Tel: 732-588-2999
Fax: 973-240-1818
www.matrixnewonl.com

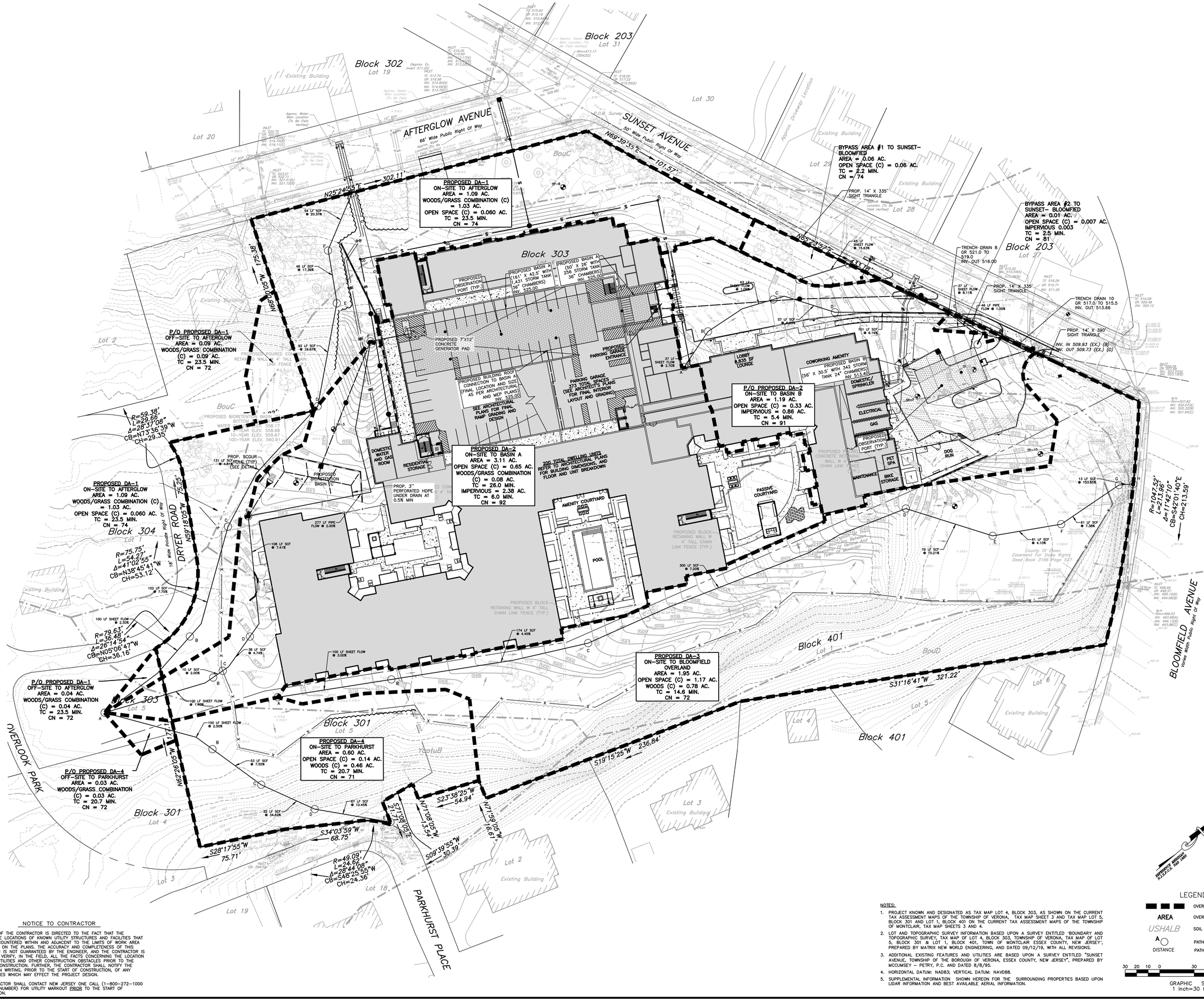
PRE-DEVELOPMENT DRAINAGE AREA MAP

VERONA SUNSET URBAN RENEWAL, LLC
BLOCK 303, LOT 4 - TOWNSHIP OF VERONA
BLOCK 301, LOT 4 AND BLOCK 401, LOT 1 - TOWNSHIP OF MONTCLAIR
ESSEX COUNTY, NEW JERSEY

PROJECT NUMBER:19-720
DATE: 12/10/2021
SCALE: 1" = 30'

SHEET 1 OF 3

Plotted: 5/10/2022 12:48 PM, By: Tori Massara
© MATRIXNEWORLD\M:\Matrix LDS\Jobs\BNE Real Estate Group\19-720 - Verona Site\Dwg\Plot Sheets\00-Pre-Dev DA Map.dwg\00-Pre-Dev DA Map



NOTICE TO CONTRACTOR

ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE FACT THAT THE APPROXIMATE LOCATIONS OF KNOWN UTILITY STRUCTURES AND FACILITIES THAT MAY BE ENCOUNTERED WITHIN AND ADJACENT TO THE LIMITS OF WORK AREA ARE SHOWN ON THE PLANS. THE ACCURACY AND COMPLETENESS OF THIS INFORMATION IS NOT GUARANTEED BY THE ENGINEER, AND THE CONTRACTOR IS ADVISED TO VERIFY, IN THE FIELD, ALL THE FACTS CONCERNING THE LOCATION OF THESE UTILITIES AND OTHER CONSTRUCTION OBSTACLES PRIOR TO THE START OF CONSTRUCTION. FURTHER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER, IN WRITING, PRIOR TO THE START OF CONSTRUCTION, OF ANY DISCREPANCIES WHICH MAY EFFECT THE PROJECT DESIGN.

THE CONTRACTOR SHALL CONTACT NEW JERSEY ONE CALL (1-800-272-1000 OR LATEST NUMBER) FOR UTILITY MARKOUT PRIOR TO THE START OF CONSTRUCTION.

NOTES:

1. PROJECT KNOWN AND DESIGNATED AS TAX MAP LOT 4, BLOCK 303, AS SHOWN ON THE CURRENT TAX ASSESSMENT MAPS OF THE TOWNSHIP OF VERONA, TAX MAP SHEET 3 AND TAX MAP LOT 5, BLOCK 301 AND LOT 1, BLOCK 401 ON THE CURRENT TAX ASSESSMENT MAPS OF THE TOWNSHIP OF MONTCLAIR, TAX MAP SHEETS 3 AND 4.
2. LOT AND TOPOGRAPHIC SURVEY INFORMATION BASED UPON A SURVEY ENTITLED "BOUNDARY AND TOPOGRAPHIC SURVEY, TAX MAP OF LOT 4, BLOCK 303, TOWNSHIP OF VERONA, TAX MAP OF LOT 5, BLOCK 301 & LOT 1, BLOCK 401, TOWN OF MONTCLAIR ESSEX COUNTY, NEW JERSEY", PREPARED BY MATRIX NEW WORLD ENGINEERING, AND DATED 09/12/19, WITH ALL REVISIONS.
3. ADDITIONAL EXISTING FEATURES AND UTILITIES ARE BASED UPON A SURVEY ENTITLED "SUNSET AVENUE, TOWNSHIP OF THE BOROUGH OF VERONA, ESSEX COUNTY, NEW JERSEY", PREPARED BY MCCUMSEY – PETRY, P.C. AND DATED 8/8/95.
4. HORIZONTAL DATUM: NAD83; VERTICAL DATUM: NAVD88.
5. SUPPLEMENTAL INFORMATION SHOWN HEREON FOR THE SURROUNDING PROPERTIES BASED UPON LIDAR INFORMATION AND BEST AVAILABLE AERIAL INFORMATION.

LEGEND

- OVERALL AREA
- AREA — OVERALL AREA DATA
- USHALB — SOIL TYPE
- A ○ DISTANCE — PATH NODES, PATH DATA

GRAPHIC SCALE
30 20 10 0 30 60 90
1 inch=30 feet

NO.	DESCRIPTION	DATE:	DES.:	REV.:	REL.:
REVISIONS					

DESIGNED BY:
REVIEWED BY:
RELEASED BY:

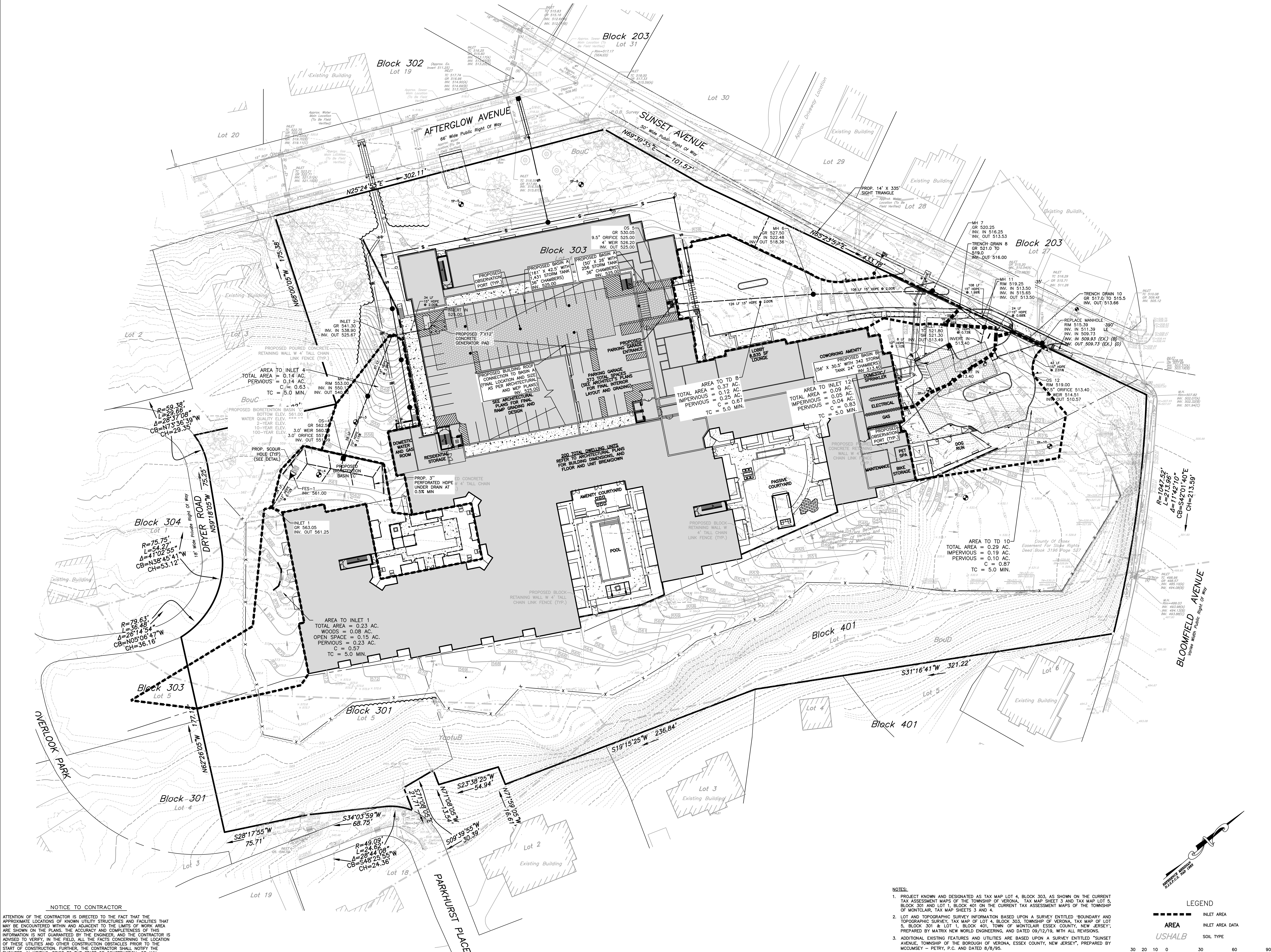
MATRIXNEWORLD
Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
442 State Route 35, Second Floor
Eatontown, New Jersey 07724
Certified WBE
NEW JERSEY CERTIFICATE OF AUTHORIZATION No. 24GA27992300
Tel: 732-588-2999
Fax: 973-240-1818
www.matrixnewworld.com

POST-DEVELOPMENT DRAINAGE AREA MAP

VERONA SUNSET URBAN RENEWAL, LLC
BLOCK 303, LOT 4 - TOWNSHIP OF VERONA
BLOCK 301, LOT 4 AND BLOCK 401, LOT 1 - TOWNSHIP OF MONTCLAIR
ESSEX COUNTY, NEW JERSEY

PROJECT NUMBER: 19-720
DATE: 12/10/2021
SCALE: 1" = 30'
SHEET 2 OF 3

Plotted: 1/12/2023 10:16 AM, By: Tori Massara
© MATRIXNEWORLD\M:\Matrix LDS\Jobs\BNE Real Estate Group\19-720 - Verona Site\Dwg\Plot Sheets\00-Post-Dev DA Map.dwg\00-Post-Dev DA Map



NOTICE TO CONTRACTOR

ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE FACT THAT THE APPROXIMATE LOCATIONS OF KNOWN UTILITY STRUCTURES AND FACILITIES THAT MAY BE ENCOUNTERED WITHIN AND ADJACENT TO THE LIMITS OF WORK AREA ARE SHOWN ON THE PLANS. THE ACCURACY AND COMPLETENESS OF THIS INFORMATION IS NOT GUARANTEED BY THE ENGINEER, AND THE CONTRACTOR IS ADVISED TO VERIFY, IN THE FIELD, ALL THE FACTS CONCERNING THE LOCATION OF THESE UTILITIES AND OTHER CONSTRUCTION OBSTACLES PRIOR TO THE START OF CONSTRUCTION. FURTHER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER, IN WRITING, PRIOR TO THE START OF CONSTRUCTION, OF ANY DISCREPANCIES WHICH MAY EFFECT THE PROJECT DESIGN.

THE CONTRACTOR SHALL CONTACT NEW JERSEY ONE CALL (1-800-272-1000 OR LATEST NUMBER) FOR UTILITY MARKOUT PRIOR TO THE START OF CONSTRUCTION.

NOTES:

1. PROJECT KNOWN AND DESIGNATED AS TAX MAP LOT 4, BLOCK 303, AS SHOWN ON THE CURRENT TAX ASSESSMENT MAPS OF THE TOWNSHIP OF VERONA, TAX MAP SHEET 3 AND TAX MAP LOT 5, BLOCK 301 AND LOT 1, BLOCK 401 ON THE CURRENT TAX ASSESSMENT MAPS OF THE TOWNSHIP OF MONTCLAIR, TAX MAP SHEETS 3 AND 4.
2. LOT AND TOPOGRAPHIC SURVEY INFORMATION BASED UPON A SURVEY ENTITLED "BOUNDARY AND TOPOGRAPHIC SURVEY, TAX MAP OF LOT 4, BLOCK 303, TOWNSHIP OF VERONA, TAX MAP OF LOT 5, BLOCK 301 & LOT 1, BLOCK 401, TOWN OF MONTCLAIR ESSEX COUNTY, NEW JERSEY", PREPARED BY MATRIX NEW WORLD ENGINEERING, AND DATED 09/12/19, WITH ALL REVISIONS.
3. ADDITIONAL EXISTING FEATURES AND UTILITIES ARE BASED UPON A SURVEY ENTITLED "SUNSET AVENUE, TOWNSHIP OF THE BOROUGH OF VERONA, ESSEX COUNTY, NEW JERSEY", PREPARED BY MCCUMSEY – PETRY, P.C. AND DATED 8/8/95.
4. HORIZONTAL DATUM: NAD83; VERTICAL DATUM: NAVD88.
5. SUPPLEMENTAL INFORMATION SHOWN HEREON FOR THE SURROUNDING PROPERTIES BASED UPON LIDAR INFORMATION AND BEST AVAILABLE AERIAL INFORMATION.

NO.	DESCRIPTION	DATE:	DES.:	REV.:	REL.:

REVISIONS

DESIGNED BY:
REVIEWED BY:
RELEASED BY:

MATRIXNEWORLD
Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
442 State Route 35, Second Floor
Eatontown, New Jersey 07724
Certified WBE
Tel: 732-588-2999
Fax: 973-240-1818
www.matrixneworld.com
NEW JERSEY CERTIFICATE OF AUTHORIZATION No. 24GA27962300

POST-DEVELOPMENT INLET AREA MAP

VERONA SUNSET URBAN RENEWAL, LLC
BLOCK 303, LOT 4 - TOWNSHIP OF VERONA
BLOCK 301, LOT 4 AND BLOCK 401, LOT 1 - TOWNSHIP OF MONTCLAIR
ESSEX COUNTY, NEW JERSEY

PROJECT NUMBER: 19-720
DATE: 12/10/2021
SCALE: 1" = 30'

Plotted: 1/12/2023 10:17 AM, By: Tori Massara
© MATRIXNEWORLD\M:\Matrix LDS\jobs\BNE Real Estate Group\19-720 - Verona Site\Dwg\Plot Sheets\00-Post-Dev DA Map.dwg\00-Post-Dev Inlet Map