Appendix C – Stormwater Report

STORMWATER MANAGEMENT REPORT

For the Proposed:

4.975 MW SOLAR PHOTOVOLTAIC ARRAY

Located At:
931 Route 32
North Franklin, Connecticut

Prepared On:
March 1st, 2024

Prepared For:

VERGY

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APPENDIX B: STORMWATER CALCULATIONS

- HydroCAD Reporting
  - Existing & Proposed Calcs for 2-, 25-, 50- & 100- yr storm events)
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- NOAA Atlas Precipitation Data

INTRODUCTION

At the request of Verogy (Petitioner), Solli Engineering (Solli) has prepared this Stormwater Management Report to provide an analysis of the potential stormwater impacts associated with the proposed 4.975± megawatt (MW) alternating current (AC) ground-mounted solar electric generating facility (Project/Facility) located at 931 Route 32 in North Franklin, Connecticut (Site). The proposed stormwater management plan outlined herein has been designed accordance with the following State of Connecticut guidelines as well as other applicable state and federal requirements and regulations:

- General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (Effective Date: December 31, 2020, Modification Date: November 25, 2022)
- 2024 Connecticut Stormwater Quality Manual
- 2024 Connecticut Guidelines for Soil Erosion and Sediment Control
- Connecticut Department of Transportation 2000 Drainage Manual
- CT DEEP Appendix I Stormwater Management at Solar Array Construction Projects

EXISTING SITE CONDITIONS

The Site consists of a single parcel totaling 188.18± acres located at 931 Route 32 within the Town of Franklin, Connecticut. The Site is bound by Route 32 to the west, undeveloped woods to the north and east, and residential uses to the south. The Site is currently developed with a vacant industrial building and access driveway. The area in which the Project is located was previously mined through an Earth Excavation Permit with the Town of Franklin.

The Project area's topography gradually slopes between 1%-14% from the northeast corner of the Facility to the southwest. Four wetland and watercourse areas are present on the Site. All proposed work will remain outside of the 50' upland buffer area from these wetlands and all solar panels will remain outside of the 100' upland buffer area.

For more information regarding the Site, refer to the Existing Conditions Map in Appendix A.

PROPOSED SITE CONDITIONS

The proposed Project area is 19.9± acres, within the quarry area in the northeast region of the Site. Access to the Facility will be provided via an existing driveway off of Route 32 to the west, A new 20' wide, 140'± long gravel road is proposed at the end of the existing gravel drive which connects the Project to the existing access off of Route 32. The Project will be surrounded by a 7-ft tall chain link fence to provide adequate security measures.

As currently designed, the proposed Facility will consist of 12,038 First Solar Series 6 Bi-Facial, 465-Watt modules. The modules will be installed on a post-driven ground-mounted, fixed-tilt system, with no anticipated changes to the existing grades within the array, therefore the post-development site conditions will mimic the pre-development site conditions to the maximum extent possible. As discussed later in this report, an existing stormwater basin will be maintained to assist in mitigating peak runoff flows, as well as to treat the Water Quality Volume (WQv) per CT DEEP requirements.

For more information regarding the Project, refer to the Site Layout Plan (Sheets 2.11-2.14) in Appendix A.

STORMWATER MANAGEMENT

The Project will add approximately 6,400 square feet of impervious/gravel area. The proposed stormwater management design consists of an existing stormwater basin which provides adequate storage for the water quality volume (WQv) that will effectively clean and treat the stormwater runoff prior to discharging into the wetlands in the southeast corner of the Site.

METHODOLOGY

A hydrologic analysis was performed using the HydroCAD stormwater modeling system computer program developed by HydroCAD Software Solutions, LLC. Hydrographs for each watershed were developed using the SCS Synthetic Unit Hydrograph Method with a Type III rainfall distribution.

Rainfall depths for the site were used for calculating the volumes and rates of runoff for this project. The depths were taken from the NOAA Atlas documents (Latitude: 41.6542º, Longitude: -72.1513º) and the rainfall values are listed in Table 1 below.

Table 1: Rainfall Data

Return Period (Storm Event)	24-hr Rainfall Depth (inches)
2-year	3.35
25-year	6.05
50-year	6.82
100-year	7.65

The drainage areas used in the calculations are illustrated on the Existing and Proposed Drainage Area Maps (DA-1 & DA-2). These maps and the corresponding HydroCAD output are attached in Appendices B. Utilizing CT DEEP Appendix I, this hydrologic analysis will reflect an increase of the runoff curve number of the Hydrologic Soil Group ("HSG") present on-site by a half (1/2) step (e.g., half the difference between the runoff curve number for HSG A versus HSG B). This increase, as indicated by CT DEEP, is intended to account for the compaction of soils that results from extensive machinery traffic during construction of the array. The Water Quality Volume ("WQV") for the site will be calculated assuming that the gravel surfaces and concrete equipment pads are effectively impervious cover.

EXISTING CONDITIONS

Approximately 21.99 acres of the Site were analyzed for stormwater management purposes. The areas analyzed contain the contributing areas directly impacted by the proposed redevelopment. Based on existing drainage patterns, the 21.03-acre area was considered as three (3) contributing drainage areas, labeled Existing Drainage Area 1 (EDA-1, Existing Drainage Area 2 (EDA-2), and Existing Drainage Area 3 (EDA-3).

EDA-1 has a contributing drainage area of approximately 2.45 acres. The majority of the runoff from EDA-1 flows from northwest to southeast overland and discharges into an existing stormwater basin in the southwest corner of the Project.

EDA-2 has a contributing drainage area of approximately 6.93 acres. The majority of the runoff from EDA-2 flows from northwest to southeast overland and discharges into an existing stormwater basin in the

southeast corner of the Project before eventually discharging into Cold Brook, located just to the southeast of the Project.

EDA-3 has a contributing drainage area of approximately 12.61 acres. The majority of the runoff from EDA-3 flows northeast overland and discharges into the existing stormwater basin located in the northeast corner of the Project.

Table 2: Existing Drainage Areas

Drainage Area Label	Drainage Area	Curve Number	Time of Concentration
Existing Drainage Area 1 (EDA-1)	**2.45 AC**	31	18.2 Min.
Existing Drainage Area 2 (EDA-2)	**6.93 AC**	30	22.5 Min.
Existing Drainage Area 3 (EDA-3)	**12.61 AC**	30	34.1 Min.

For more information regarding the existing drainage conditions of the project area refer to the Existing Drainage Area Map (DA-1) in Appendix A and the HydroCAD calculations in Appendix B.

PROPOSED CONDITIONS

The Project proposes to maintain existing grades within the solar array to convey stormwater runoff to the existing stormwater basins that will provide storage and treatment of the WQv. Based on soil testing performed by Down to Earth Consulting, LLC in the area of the basin within Drainage Area 3, an infiltration rate of 2.55 in/hr was used for the analysis. Per the 2024 Connecticut Stormwater Quality Manual, a design infiltration rate of 2.41 in/hr should be used for loamy sands (HSG A), therefore this infiltration rate was used for the basins within Drainage Area 1 & 2. Based on the proposed drainage patterns, the 21.99-acre area was divided into three (3) contributing drainage areas, Proposed Drainage Area 1 (PDA-1), Proposed Drainage Area 2 (PDA-2), and Proposed Drainage Area 3 (PDA-3).

PDA-1 has a contributing drainage area of approximately 2.45 acres. Similar to existing conditions, runoff from PDA-1 flows from northwest to southeast overland and discharges into an existing stormwater basin in the southwest corner of the Project.

PDA-2 has a contributing drainage area of approximately 6.93 acres. Similar to existing conditions, runoff from PDA-2 flows from northwest to southeast overland and discharges into an existing stormwater basin in the southeast corner of the Project before eventually discharging into Cold Brook, located just to the southeast of the Project.

PDA-3 has a contributing drainage area of approximately 12.61 acres. Similar to existing conditions, runoff from PDA-3 flows northeast overland and discharges into the existing stormwater basin located in the northeast corner of the Project.

All proposed areas of disturbance within the solar array will be seeded with a Fuzz & Buzz Mix – ERNMX-147 or approved equal.

Table 3: Proposed Drainage Areas

Drainage Area Label	Drainage Area	Curve Number	Time of Concentration
Proposed Drainage Area 1 (PDA-1)	**2.45 AC**	**47**	**18.2 Min.**
Proposed Drainage Area 2 (PDA-2)	**6.93 AC**	**44**	**22.5 Min.**
Proposed Drainage Area 3 (PDA-3)	**12.61 AC**	**44**	**34.1 Min.**

For more information regarding the proposed stormwater management design of the Project area refer to the Proposed Drainage Area Map (DA-2) in Appendix A; and the HydroCAD and Water Quality Volume calculations in Appendix B.

As a result of the proposed stormwater management measures, the peak flows for the 2, 25, 50 and 100-year storm events are reduced from existing conditions as shown in the chart below.

Table 4A: Peak Flow Comparison Table (Drainage Area 1)

Peak Flow (cfs)			
Storm Event	**Total Drainage Areas**		**Percent Reduction in Peak Flow**
	EDA-1	**PDA-1**	
2-Year	No Discharge from Basin	No Discharge from Basin	N/A
25-Year	No Discharge from Basin	No Discharge from Basin	N/A
50-Year	No Discharge from Basin	No Discharge from Basin	N/A
100-Year	No Discharge from Basin	No Discharge from Basin	N/A

Table 4B: Peak Flow Comparison Table (Drainage Area 2)

Peak Flow (cfs)			
Storm Event	**Total Drainage Areas**		**Percent Reduction in Peak Flow**
	EDA-2	**PDA-2**	
2-Year	No Discharge from Basin	No Discharge from Basin	N/A
25-Year	No Discharge from Basin	No Discharge from Basin	N/A
50-Year	No Discharge from Basin	No Discharge from Basin	N/A
100-Year	No Discharge from Basin	No Discharge from Basin	N/A

Table 4C: Peak Flow Comparison Table (Drainage Area 3)

Peak Flow (cfs)			
Storm Event	**Total Drainage Areas**		**Percent Reduction in Peak Flow**
	EDA-3	**PDA-3**	
2-Year	No Discharge from Basin	No Discharge from Basin	N/A
25-Year	No Discharge from Basin	No Discharge from Basin	N/A
50-Year	No Discharge from Basin	No Discharge from Basin	N/A
100-Year	No Discharge from Basin	No Discharge from Basin	N/A

CT DEEP APPENDIX I DESIGN REGULATIONS/COMPLIANCE

The following identifies and details the regulations and proposed compliance measures within CT DEEP Appendix I that pertain specifically to civil, stormwater, and erosion control designs.

I. Design and construction requirements:

1. Roadways, gravel surfaces, transformer pads are considered effective impervious cover for the purposes of calculating the WQV. The proposed solar panels in the array that are within existing and post-construction slopes that are greater than 15% are considered impervious for the purposes of calculating the WQV. The remainder of the proposed solar panels that are proposed within existing and post-construction slopes that are less than 15% are not considered impervious cover for the purposes of calculating the WQV because the following have been met:

    a. Vegetative areas between the rows of solar panels have a width of 14 feet which is greater than the solar panel width of 13.7 feet.

b. The post-development stormwater runoff will be less than that of the pre-development stormwater runoff due to the proposed grassed swales and stormwater management basin.
c. The Project meets (iv) of this requirement as the plan includes specific engineered phased construction plans and detailed erosion control measures.
d. The panels are spaced and provide a minimum height of 3 feet from the ground to provide growth of native vegetation.

2. Setback and buffer requirements have been met following the below:

a. No wetlands or waters are located within 100 feet of the proposed solar facility area. No solar panels are located within the 50-foot setback of any property boundary that is located downgradient of the construction activity.
b. There is a minimum of 50 feet between the limit of construction activity and downgradient wetlands.
c. There is a minimum of 10 feet between the construction activity associated with the installation of the access road and interconnection and downgradient wetlands.

3. The wetlands and water courses were originally delineated by William Kenny Associates on October 12, 2023. The location of delineated resources, as well as buffers, are shown on the Grading & Drainage Plan (Sheet 2.21-2.24) in Appendix A.

II. Design requirements for post-construction stormwater management measures:

1. Post-construction stormwater control measures have been designed and will be constructed to provide permanent stabilization and non-erosive conveyance of runoff from the site.
2. The orientation of the panels follows the existing slopes on the site to the extent practicable.
3. The hydrologic analysis has been completed, as described above, with the following details:

a. The Project evaluates and controls the 2, 25, 50, and 100-year 24-hour rainfall events in accordance with the CT Stormwater Quality Manual. Maximum sheet flow was kept to 100 feet and shallow concentrated flows were calculated using velocity factors per NRCS Part 630 National Engineering Handbook Chapter 15. The proposed swales have been to convey and control stormwater from a 100-year, 24-hr rainfall event.
b. NRCS soil mapping was used for the stormwater design.
c. There are no areas where the grades will change by more than two (2) feet from existing conditions. With the modeled half-drop (1/2) in HSG for the facility area and the change in curve number associated with the ground cover change from existing to proposed conditions, there will be a decrease in post-development runoff in comparison to pre-development runoff.
d. Pre-and post-development drainage area maps & computations are provided in Appendices A and B.
e. The information above and herein demonstrates that the Project will have no net increase in peak flows, erosive velocities or volumes, or adverse impacts to downstream properties.

SOIL EROSION & SEDIMENT CONTROL

The proposed plans for soil erosion and sediment control prepared for this project have been developed in accordance with the 2024 Connecticut Guidelines for Soil Erosion and Sediment Control, prepared by the Connecticut Council on Soil and Water Conservation in cooperation with the Connecticut Department of Environmental Protection.

The soil erosion and sediment control measures that will be proposed as part of this project include geotextile silt fences with wings for areas less than 1 acre, compost filter socks, construction entrance, dust control measures, and temporary sediment basins. The soil erosion and sediment control measures will be implemented in two (2) phases. Phase I measures are associated with the clearing, grubbing and demolition of the existing Site features. Phase II measures are associated with fine grading and installation of the modules, hardscape, and utilities infrastructure.

CONCLUSION

The stormwater management for the proposed site has been designed such that the post-development peak discharges to the waters of the State of Connecticut for the 2-, 25-, 50-, and 100- year storm events are less than the pre-development peak discharges. In addition, the Project adheres to the regulations and guidelines presented by CT DEEP's Appendix I as described above. As a result, the proposed solar array will not result in any adverse conditions to the surrounding areas and properties.

APPENDICES

Appendix A – Figures

Appendix B – Stormwater Calculations

Appendix A – Figures

Existing Conditions Map

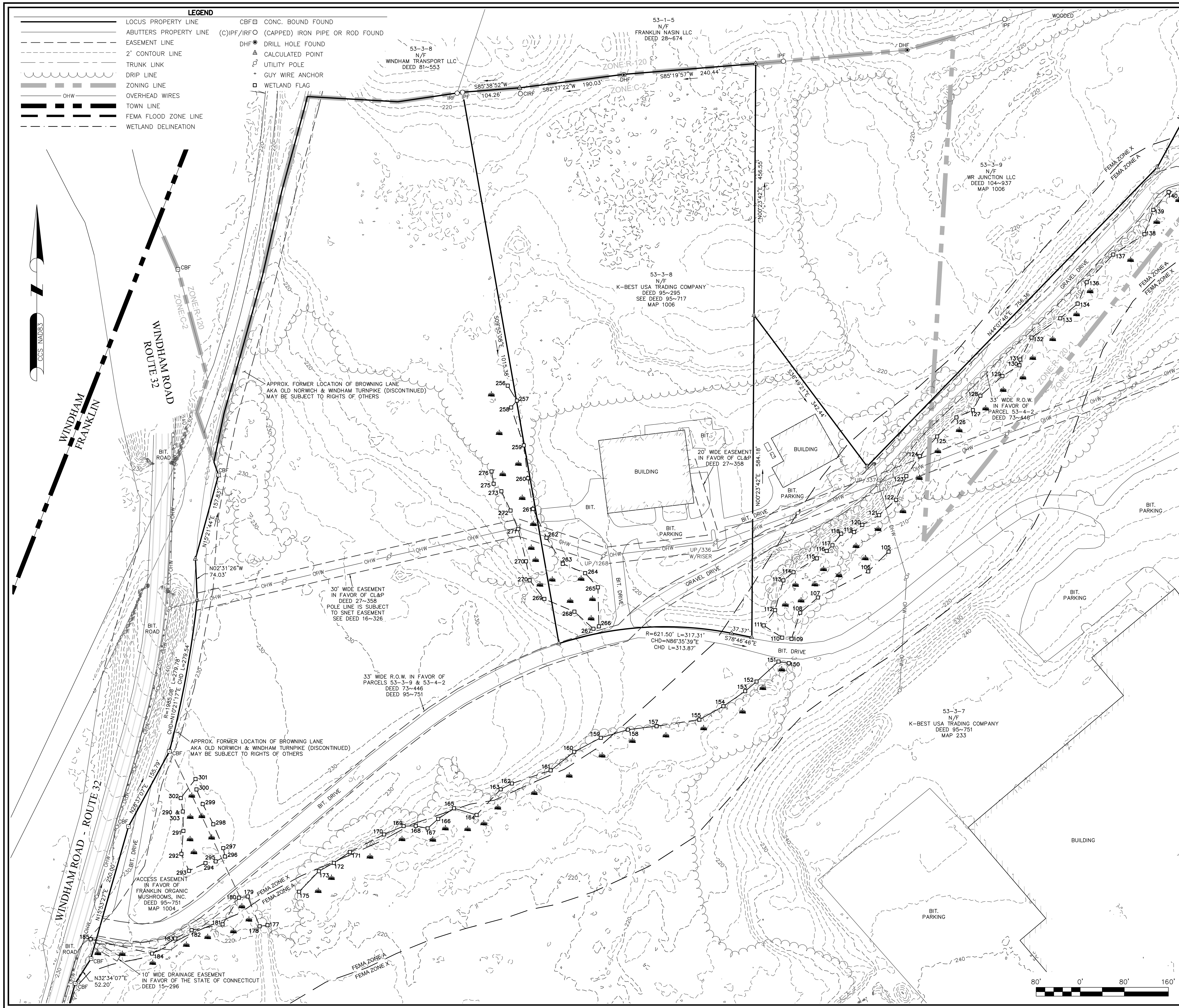
Prepared by Northeast Survey Consultants

NRCS Soil Survey Map

Grading & Drainage Plan (2.21 – 2.24)

Existing Drainage Area Map (DA-1)

Proposed Drainage Area Map (DA-2)



NOTES:

1. FIELD SURVEY BY RTK GPS & RTK DRONE IN AUGUST & NOVEMBER 2023.

2. THE HORIZONTAL DATUM IS NAD83. THE VERTICAL DATUM IS NAVD88. BOTH WERE DERIVED FROM RTK GPS OBSERVATIONS TAKEN ON SITE.

3. THE LOCATIONS OF UTILITIES SHOWN HEREON ARE THE RESULT OF SURFACE EVIDENCE ONLY. THIS PLAN DOES NOT NECESSARILY DEPICT THE EXACT LOCATION OF THESE UTILITIES AND MAY NOT SHOW ALL OF THE UTILITIES WHICH EXIST WITHIN THE PREMISES SURVEYED. CONTACT DIG-SAFE AT 1-888-344-7233 BEFORE EXCAVATION.

4. THE PORTION OF THE LOCUS PARCEL WITHIN THE VIEW OF THIS PLAN IS LOCATED IN THE TOWN OF FRANKLIN C-2 ZONING DISTRICT.

5. ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY MAPS, THE LOCUS PARCEL IS LOCATED IN AREAS DESIGNATED "ZONE A" AND "ZONE X". COMMUNITY PANEL NO. 09011C 0042 G, 09011C 0043 G & 09011C 0044 G, EFFECTIVE ON 7/18/2011.

6. ALL CONTOURS ON SHEET 1 WERE GENERATED IN QGIS FROM DIGITAL ELEVATION MODELS OF THE 2016 CRCOG LIDAR DATA COLLECTED BY USGS AND DISTRIBUTED BY NOAA.

7. WETLANDS WERE DELINEATED BY WILLIAM KENNY ASSOCIATES ON 10/12/2023, 10/15/2023 & 10/26 2023.

THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300B-1 THROUGH 20-300B-20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS INC. ON SEPTEMBER 26, 1997.

TYPE OF SURVEY: IMPROVEMENT LOCATION SURVEY

BOUNDARY SURVEY CATEGORY: DEPENDENT RESURVEY

CLASS OF ACCURACY: HORIZONTAL CLASS A-2
VERTICAL CLASS V-2
TOPOGRAPHIC CLASS T-2

PURPOSE OF SURVEY: PROPOSED SOLAR FACILITY

THIS DOCUMENT AND COPIES THEREOF ARE VALID ONLY IF THEY BEAR THE LIVE SIGNATURE AND EMBOSSED SEAL OF THE DESIGNATED PROFESSIONAL. UNAUTHORIZED ALTERATIONS RENDER ANY DECLARATION NULL AND VOID.

TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

NORTHEAST SURVEY CONSULTANTS
3 FERRY STREET
STUDIO 1 EAST
EASTHAMPTON, MA 01027
(413) 203-5144

EXISTING CONDITIONS

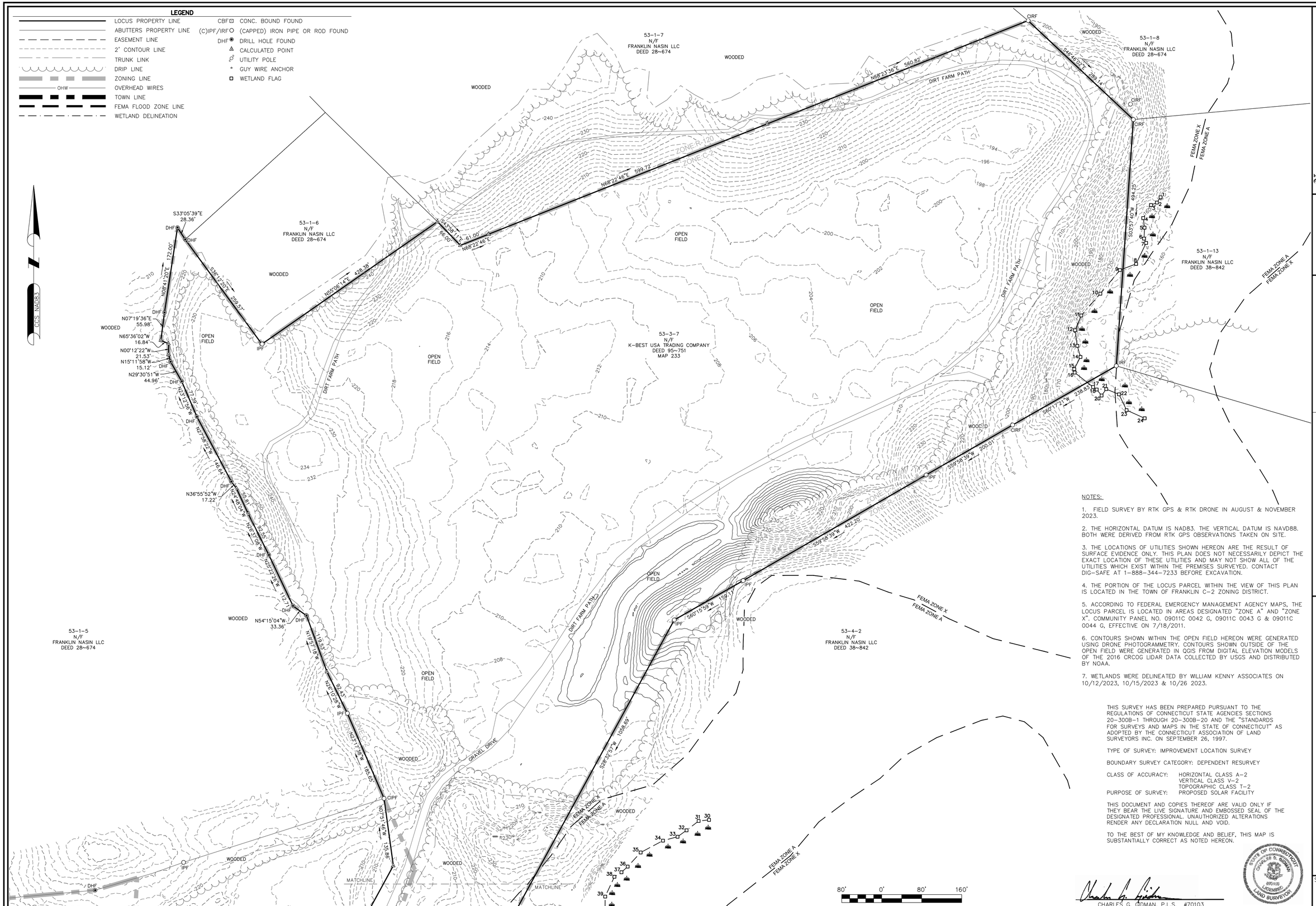
SURVEYOR:	CGG	ENGINEER:	-
DRAFTING:	JDG	DESIGN:	-
FIELD WORK:	KMB NAE NMC	HORZ. SCALE:	1" = 80'
PROJECT NUMBER:	23-157	VERT. SCALE:	-
DRAWING NAME:	23-157.DWG	DATE:	4-1-2024

PLAN OF LAND IN FRANKLIN, CT
931 ROUTE 32
PREPARED FOR
VEROGY

SHEET NO. 1 OF 2

LEGEND

LOCUS PROPERTY LINE	CBF⊡ CONC. BOUND FOUND
ABUTTERS PROPERTY LINE	(C)IPF/IRF○ (CAPPED) IRON PIPE OR ROD FOUND
EASEMENT LINE	DHF◉ DRILL HOLE FOUND
2' CONTOUR LINE	CALCULATED POINT
TRUNK LINK	UTILITY POLE
DRIP LINE	GUY WIRE ANCHOR
ZONING LINE	WETLAND FLAG
OHW OVERHEAD WIRES	
TOWN LINE	
FEMA FLOOD ZONE LINE	
WETLAND DELINEATION	



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5. ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY MAPS, THE LOCUS PARCEL IS LOCATED IN AREAS DESIGNATED "ZONE A" AND "ZONE X". COMMUNITY PANEL NO. 09011C 0042 G, 09011C 0043 G & 09011C 0044 G, EFFECTIVE ON 7/18/2011.

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BOUNDARY SURVEY CATEGORY: DEPENDENT RESURVEY

CLASS OF ACCURACY: HORIZONTAL CLASS A-2
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TOPOGRAPHIC CLASS T-2

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TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

CHARLES G. GIDMAN, P.L.S. #70103

STATE OF CONNECTICUT CHARLES G. GIDMAN LICENSED LAND SURVEYOR

NORTHEAST SURVEY CONSULTANTS
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EASTHAMPTON, MA 01027
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EXISTING CONDITIONS

SURVEYOR:	CGG	ENGINEER:	–
DRAFTING:	JDG	DESIGN:	–
FIELD WORK:	KMB NAE	HORZ. SCALE:	1" = 80'
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DRAWING NAME:	23-157.DWG	DATE:	4-1-2024

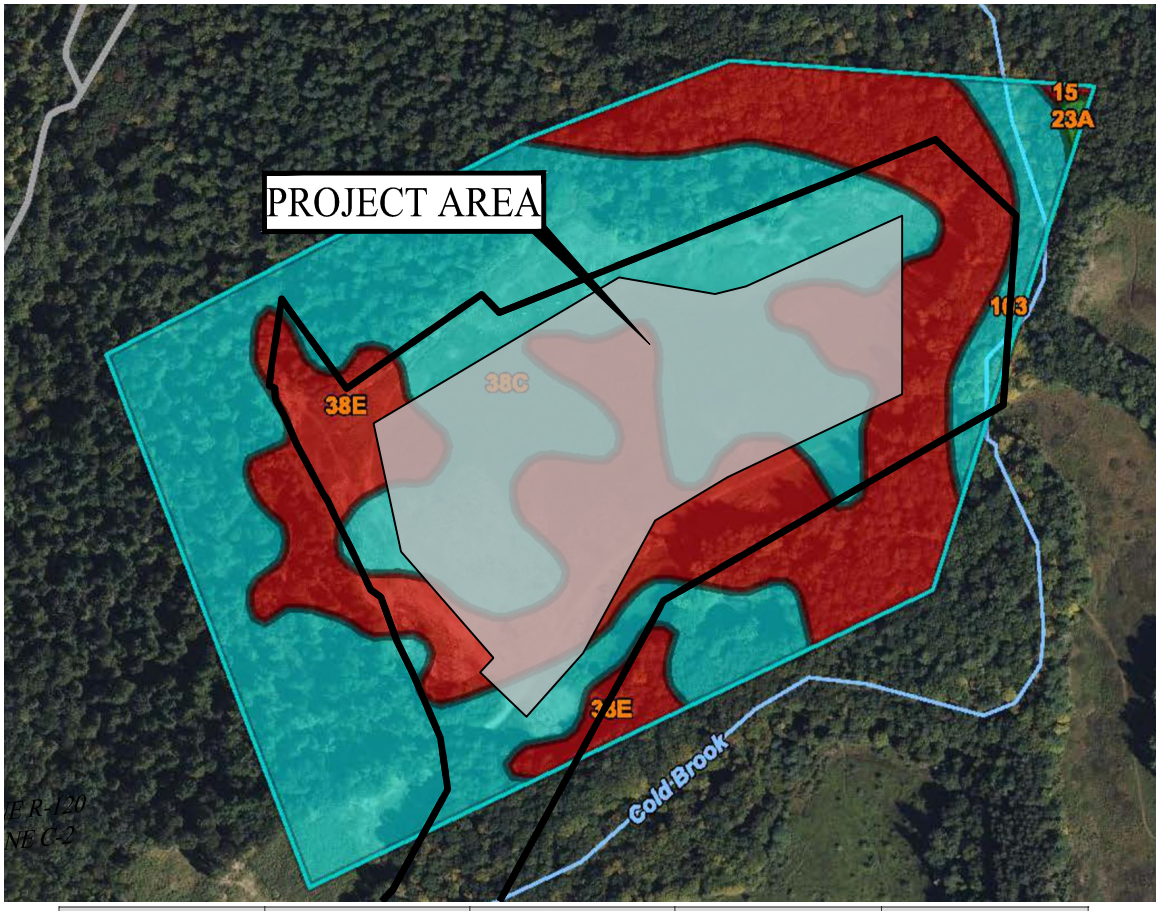
PLAN OF LAND IN FRANKLIN, CT

931 ROUTE 32

PREPARED FOR

VEROGY

SHEET NO. 2 OF 2



Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
15	Scarboro muck, 0 to 3 percent slopes	A/D	1.3	1.1%
23A	Sudbury sandy loam, 0 to 5 percent slopes	A/D	0.0	0.0%
38C	Hinckley loamy sand, 3 to 15 percent slopes	A	60.5	49.8%
38E	Hinckley loamy sand, 15 to 45 percent slopes	A	50.1	41.2%
103	Rippowam fine sandy loam	B/D	9.5	7.9%
Totals for Area of Interest			**121.5**	**100.0%**

NOTE: BASE MAP INFORMATION TAKEN FROM THE NATURAL RESOURCES CONSERVATION SERVICE, URL: https://websoilsurvey.sc.egov.usda.gov

500 0 250 500

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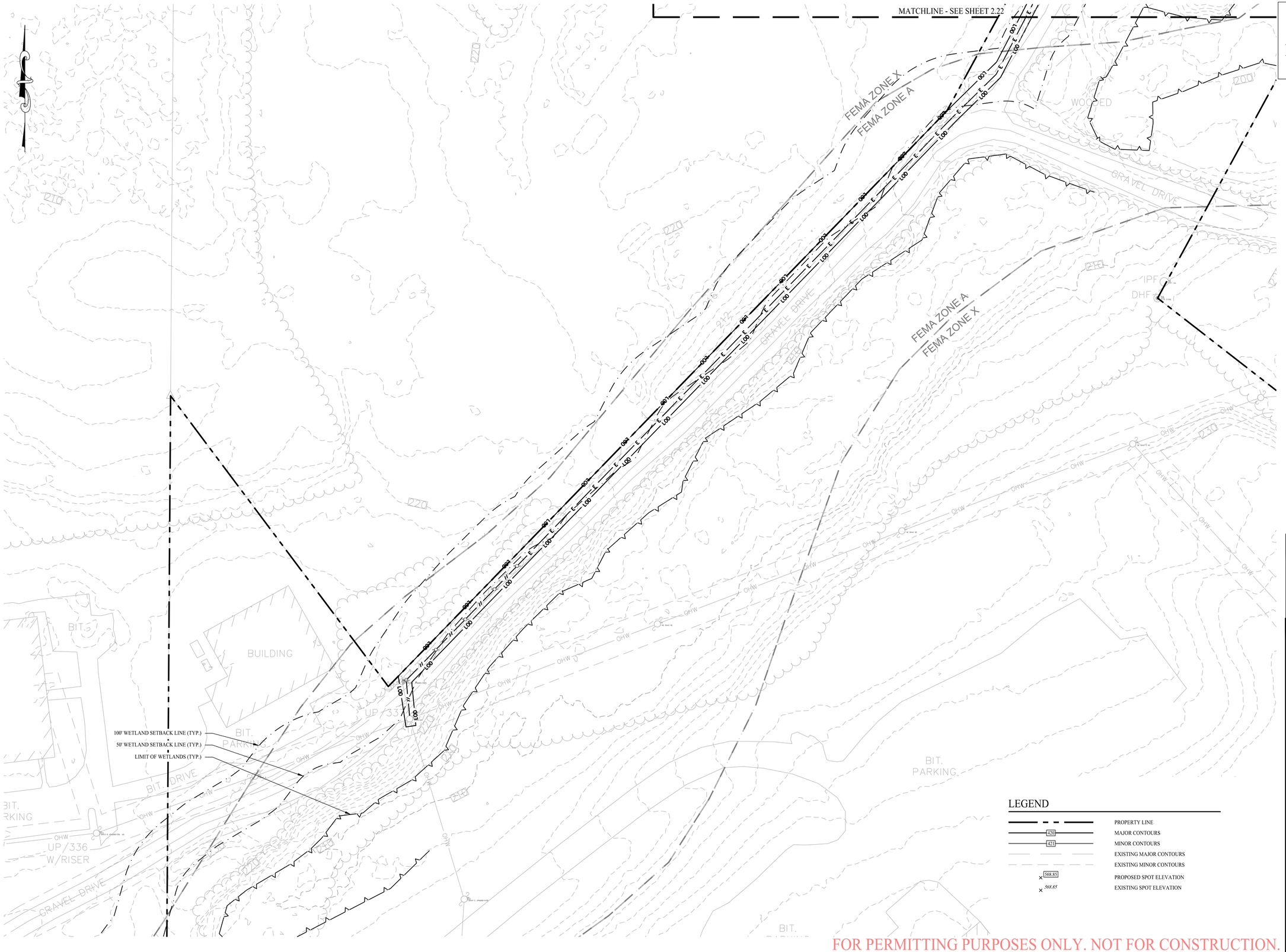
SOIL SURVEY MAP

931 ROUTE 32
NORTH FRANKLIN, CONNECTICUT

Project #:	23112101
Plan Date:	11/01/23
Scale:	1" = 500'
Figure:	

*THERE IS NO GRADING OR DRAINAGE PROPOSED ON THIS SHEET.



LEGEND

- PROPERTY LINE
- 420 MAJOR CONTOURS
- 421 MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- 568.85 PROPOSED SPOT ELEVATION
- 568.85 EXISTING SPOT ELEVATION

FOR PERMITTING PURPOSES ONLY. NOT FOR CONSTRUCTION.

Rev. #:	Date	Description

Graphic Scale: 40 0 40 80

SOLLI ENGINEERING
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Drawn By:	AWC
Checked By:	EEL
Approved By:	KMS
Project #:	23112101
Plan Date:	03/01/24
Scale:	1" = 40'

STATE OF CONNECTICUT · KEVIN M. SOLLI · 25759 · LICENSED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

Project:

PROPOSED SOLAR PHOTOVOLTAIC ARRAY

931 ROUTE 32
NORTH FRANKLIN, CONNECTICUT

Sheet Title:	Sheet #:
GRADING & DRAINAGE PLAN (SHEET 1 OF 4)	2.21

Apr 02, 2024 – 10:31am Anthony
X:\SE Files\Project Data\2023\23112101 – 931 Route 32 – North Franklin, CT\Cadd Data\23112101-2.21.dwg

MATCHLINE - SEE SHEET 2.23

MATCHLINE - SEE SHEET 2.23

MAINTAIN EXISTING GRADES TO THE MAXIMUM EXTENT PRACTICABLE WITHIN PROJECT AREA. FILL DEPRESSIONS AND REMOVE PILES AS NECESSARY TO ENSURE UNINTERRUPTED DRAINAGE WITHIN ARRAY.

EXISTING STORMWATER INFILTRATION BASIN
TOP OF BASIN: 207.00
BOTTOM OF BASIN: 203.00
TOTAL STORAGE CAPACITY: 8,993 CF
REQUIRED WQV CAPACITY: 5,826 CF
100-YEAR WSE: 206.65

EXISTING STORMWATER INFILTRATION BASIN
TOP OF BASIN: 206.00
BOTTOM OF BASIN: 203.00
TOTAL STORAGE CAPACITY: 57,971 CF
REQUIRED WQV CAPACITY: 5,826 CF
100-YEAR WSE: 203.80

100' WETLAND SETBACK LINE (TYP.)
50' WETLAND SETBACK LINE (TYP.)
LIMIT OF WETLANDS (TYP.)

MATCHLINE - SEE SHEET 2.21

FEMA ZONE X
FEMA ZONE A

DIRT FARM PATH

GRAVEL DRIVE

WOODED

OPEN FIELD

DHF

IPF

CIPF

8.0%±

10%±

LEGEND

- PROPERTY LINE
- 420 MAJOR CONTOURS
- 421 MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- 568.85 PROPOSED SPOT ELEVATION
- 568.85 EXISTING SPOT ELEVATION

FOR PERMITTING PURPOSES ONLY. NOT FOR CONSTRUCTION.

Rev. #:	Date	Description

Graphic Scale: 40 0 40 80

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Drawn By:	AWC
Checked By:	EEL
Approved By:	KMS
Project #:	23112101
Plan Date:	03/01/24
Scale:	1" = 40'

STATE OF CONNECTICUT · KEVIN M. SOLLI · 25759 · LICENSED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

Project:

PROPOSED SOLAR PHOTOVOLTAIC ARRAY

931 ROUTE 32
NORTH FRANKLIN, CONNECTICUT

Sheet Title: GRADING & DRAINAGE PLAN (SHEET 2 OF 4)

Sheet #: 2.22

LEGEND

- PROPERTY LINE
- 420 MAJOR CONTOURS
- 421 MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- 568.85 PROPOSED SPOT ELEVATION
- 568.85 EXISTING SPOT ELEVATION

MATCHLINE - SEE SHEET 2.24

MATCHLINE - SEE SHEET 2.22

MAINTAIN EXISTING GRADES TO THE MAXIMUM EXTENT PRACTICABLE WITHIN PROJECT AREA. FILL DEPRESSIONS AND REMOVE PILES AS NECESSARY TO ENSURE UNINTERRUPTED DRAINAGE WITHIN ARRAY

3.0%±

14.0%±

2.0%±

FOR PERMITTING PURPOSES ONLY. NOT FOR CONSTRUCTION.

Rev. #:	Date	Description

Graphic Scale: 40 0 40 80

SOLLI ENGINEERING
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Drawn By:	AWC
Checked By:	EEL
Approved By:	KMS
Project #:	23112101
Plan Date:	03/01/24
Scale:	1" = 40'

STATE OF CONNECTICUT · KEVIN M. SOLLI · 25759 · LICENSED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

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PROPOSED SOLAR PHOTOVOLTAIC ARRAY

931 ROUTE 32
NORTH FRANKLIN, CONNECTICUT

Sheet Title: GRADING & DRAINAGE PLAN (SHEET 3 OF 4)

Sheet #: 2.23

Apr 02, 2024 - 10:31am Anthony
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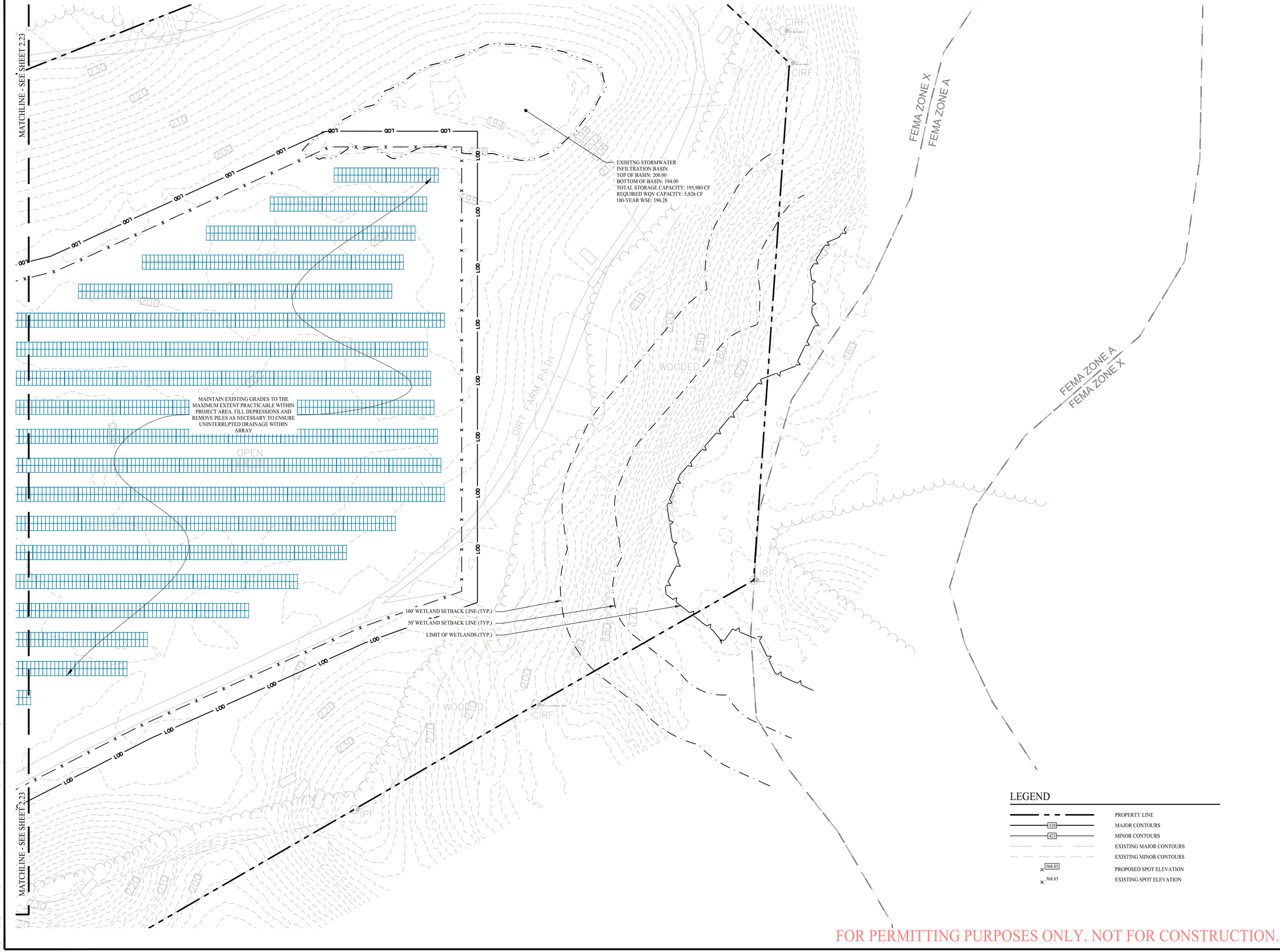

LEGEND

- PROPERTY LINE
- MAJOR CONTOURS
- MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION

FOR PERMITTING PURPOSES ONLY. NOT FOR CONSTRUCTION.

Rev. #:	Date	Description

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PROPOSED SOLAR PHOTOVOLTAIC ARRAY

931 ROUTE 32
NORTH FRANKLIN, CONNECTICUT

Sheet Title:	Sheet #:
GRADING & DRAINAGE PLAN (SHEET 4 OF 4)	2.24

Apr 02, 2024 – 10:31am Anthony
X:\SE Files\Project Data\2023\23112101 – 931 Route 32 – North Franklin, CT\Cadd Data\23112101-2.21.dwg

GENERAL NOTES

1. THE STORMWATER MANAGEMENT PLAN AND DESIGN IS INTENDED TO BE IN COMPLIANCE WITH THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION STORMWATER QUALITY MANUAL AND CT DEEP APPENDIX I.
2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- LIMIT OF DRAINAGE AREA
- FLOW PATH

EXISTING DRAINAGE AREA 2 (EDA-2)
TOTAL DRAINAGE AREA = 12.61 AC
MEADOW (A) = 12.61 AC
CURVE NUMBER = 30
TIME OF CONCENTRATION = 34.1 MIN.

HSG A

EXISTING DRAINAGE AREA 2 (EDA-2)
TOTAL DRAINAGE AREA = 6.93 AC
GRAVEL AREA = 0.05 AC
,MEADOW (A) = 6.88 AC
CURVE NUMBER = 30
TIME OF CONCENTRATION = 22.5 MIN.

EXISTING DRAINAGE AREA 1 (EDA-1)
TOTAL DRAINAGE AREA = 2.45 AC
GRAVEL AREA = 0.03 AC
,MEADOW (A) = 2.42 AC
CURVE NUMBER = 31
TIME OF CONCENTRATION = 18.2 MIN.

FEMA ZONE X
FEMA ZONE A
ZONE C-2
ZONE R-120

Rev. #: Date Description

Graphic Scale: 80 0 80 160

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Plan Date:	03/01/24
Scale:	1" = 80'

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CT 25759

Project:

PROPOSED SOLAR PHOTOVOLTAIC ARRAY

931 ROUTE 32
NORTH FRANKLIN, CONNECTICUT

Sheet Title: EXISTING DRAINAGE AREA MAP

Sheet #: DA-1

Feb 29, 2024 - 2:47pm Anthony
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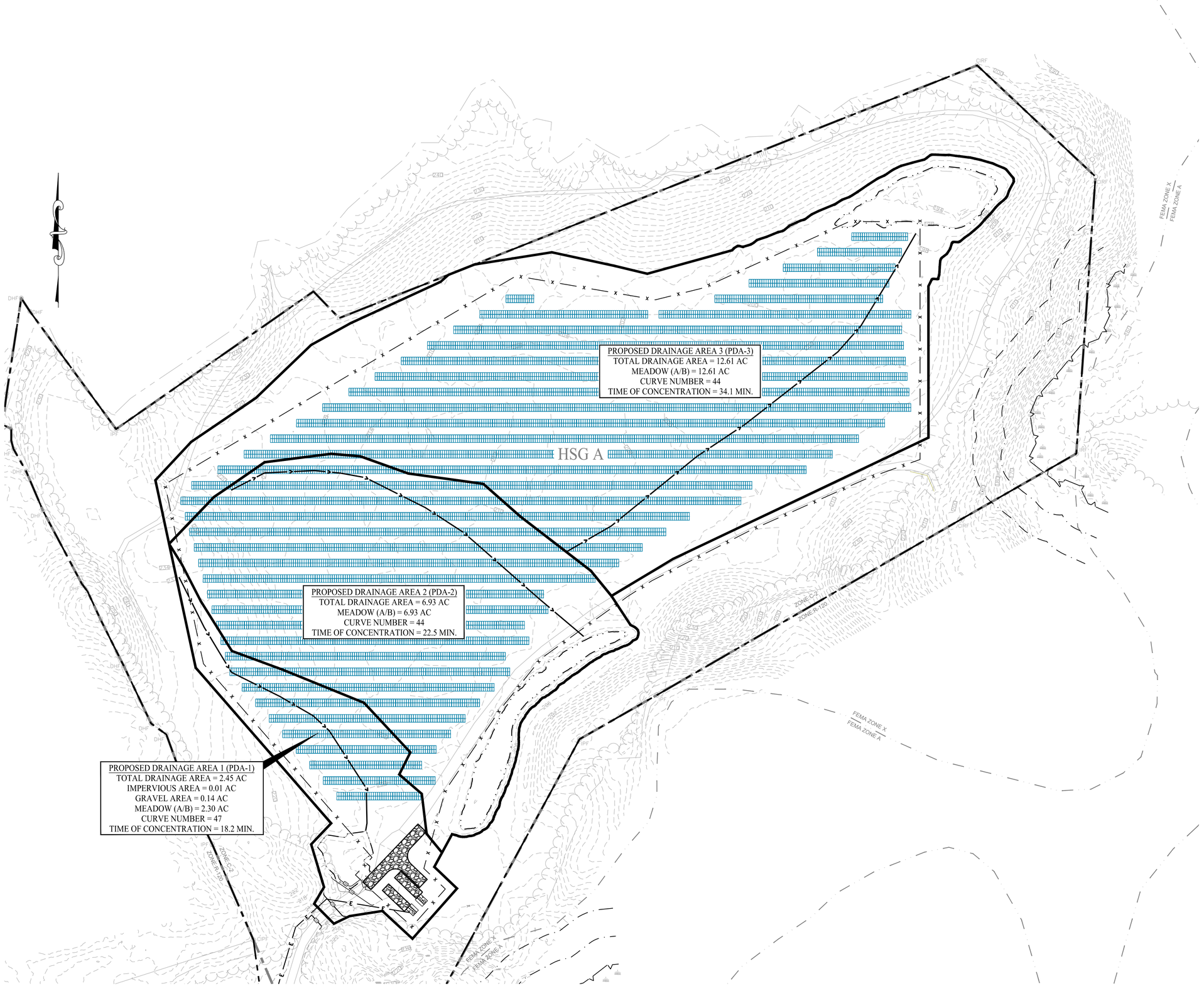

GENERAL NOTES

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2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- LIMIT OF DRAINAGE AREA
- FLOW PATH

Rev. #:	Date	Description

Graphic Scale: 80 0 80 160

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CT 25759

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PROPOSED SOLAR PHOTOVOLTAIC ARRAY

931 ROUTE 32
NORTH FRANKLIN, CONNECTICUT

Sheet Title: PROPOSED DRAINAGE AREA MAP

Sheet #: DA-2

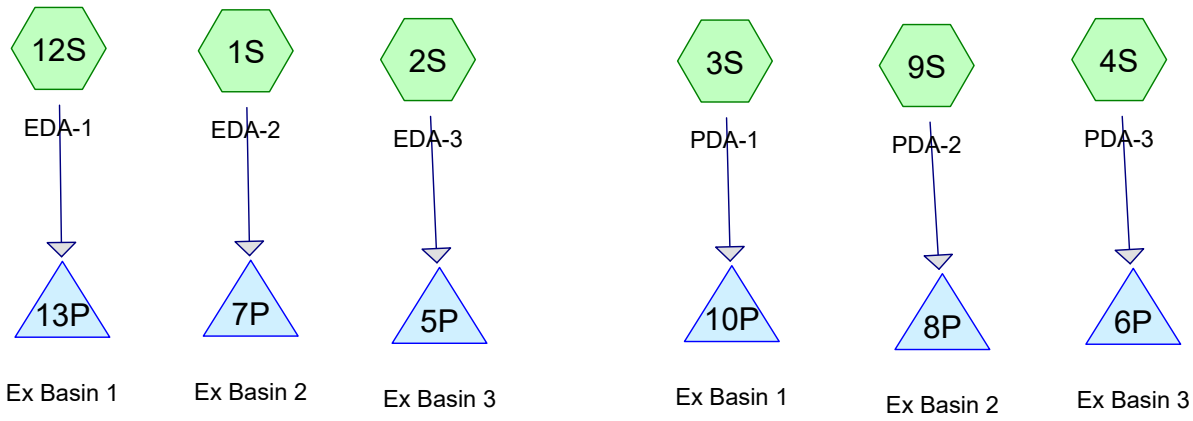
Apr 03, 2024 - 10:11am Anthony
X:\SE Files\Project Data\2023\23112101 - 931 Route 32 - North Franklin, CT\Cadd Data\23112101-da-1.dwg

Appendix B – Stormwater Calculations

Hydrology Calculations (2-, 25-, 50-, 100-year storm events)

Water Quality Volume Calculations

NOAA Atlas Precipitation Data



Subcat Reach Pond Link

Routing Diagram for N Franklin Hydrology
Prepared by Solli Engineering, Printed 2/29/2024

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EDA-2 Runoff Area=6.930 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=730' Tc=22.5 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 2S: EDA-3 Runoff Area=12.610 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=854' Tc=34.1 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment 3S: PDA-1 Runoff Area=2.450 ac 0.41% Impervious Runoff Depth>0.10"
Flow Length=595' Tc=18.2 min CN=47 Runoff=0.03 cfs 0.020 af

Subcatchment 4S: PDA-3 Runoff Area=12.610 ac 0.00% Impervious Runoff Depth>0.05"
Flow Length=854' Tc=34.1 min CN=44 Runoff=0.08 cfs 0.048 af

Subcatchment 9S: PDA-2 Runoff Area=6.930 ac 0.00% Impervious Runoff Depth>0.05"
Flow Length=730' Tc=22.5 min CN=44 Runoff=0.04 cfs 0.027 af

Subcatchment 12S: EDA-1 Runoff Area=2.450 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=595' Tc=18.2 min CN=31 Runoff=0.00 cfs 0.000 af

Pond 5P: Ex Basin 3 Peak Elev=194.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 6P: Ex Basin 3 Peak Elev=194.01' Storage=71 cf Inflow=0.08 cfs 0.048 af
Outflow=0.08 cfs 0.047 af

Pond 7P: Ex Basin 2 Peak Elev=203.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 8P: Ex Basin 2 Peak Elev=203.00' Storage=22 cf Inflow=0.04 cfs 0.027 af
Outflow=0.04 cfs 0.027 af

Pond 10P: Ex Basin 1 Peak Elev=204.34' Storage=93 cf Inflow=0.03 cfs 0.020 af
Outflow=0.03 cfs 0.019 af

Pond 13P: Ex Basin 1 Peak Elev=204.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Summary for Subcatchment 1S: EDA-2

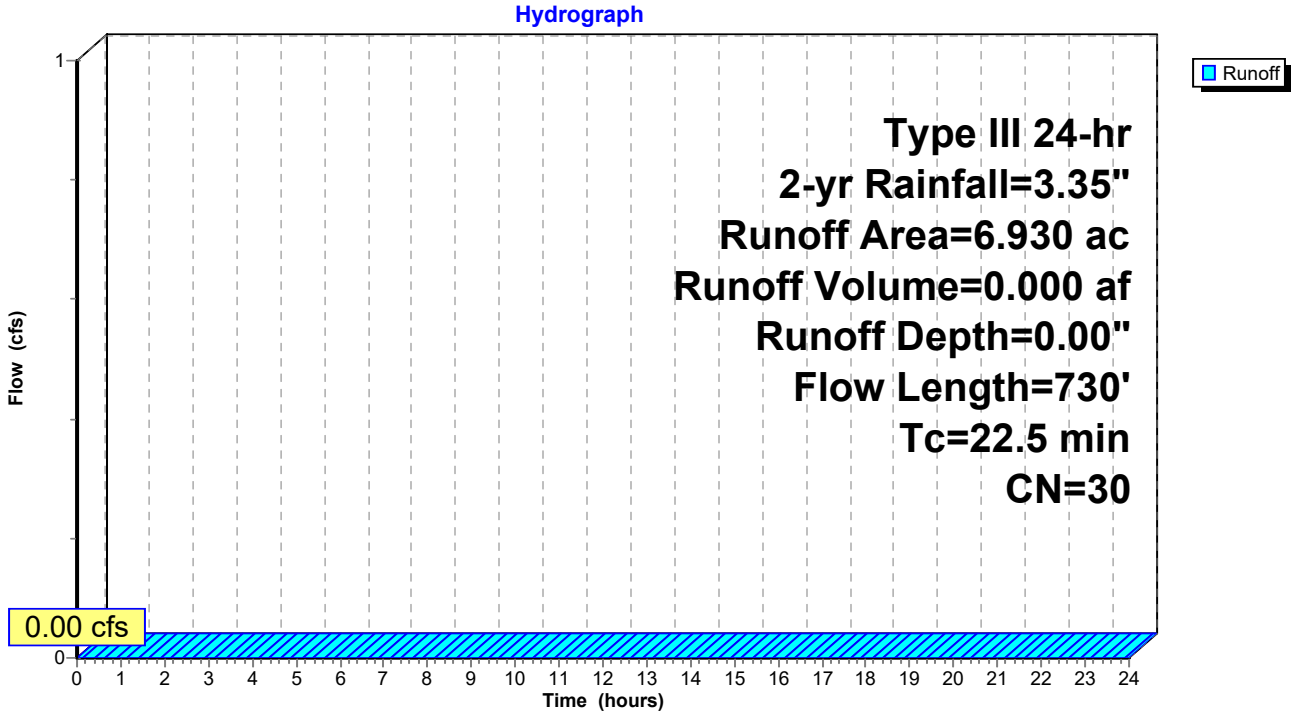
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond 7P : Ex Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.35"

Area (ac)	CN	Description
6.880	30	Meadow, non-grazed, HSG A
0.050	96	Gravel surface, HSG A
6.930	30	Weighted Average
6.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
10.6	630	0.0200	0.99		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
22.5	730	Total			

Subcatchment 1S: EDA-2



Summary for Subcatchment 2S: EDA-3

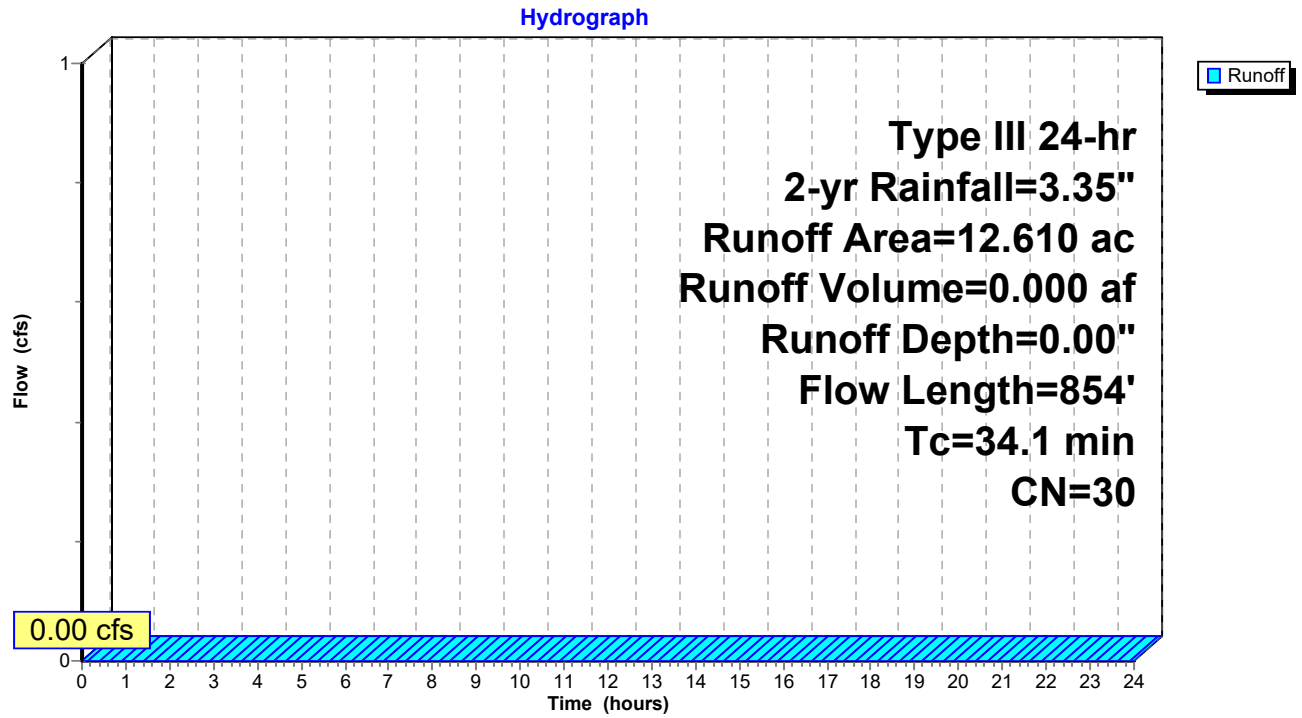
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond 5P : Ex Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.35"

Area (ac)	CN	Description
12.610	30	Meadow, non-grazed, HSG A
12.610		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.4	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
15.7	754	0.0130	0.80		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
34.1	854	Total			

Subcatchment 2S: EDA-3



Summary for Subcatchment 3S: PDA-1

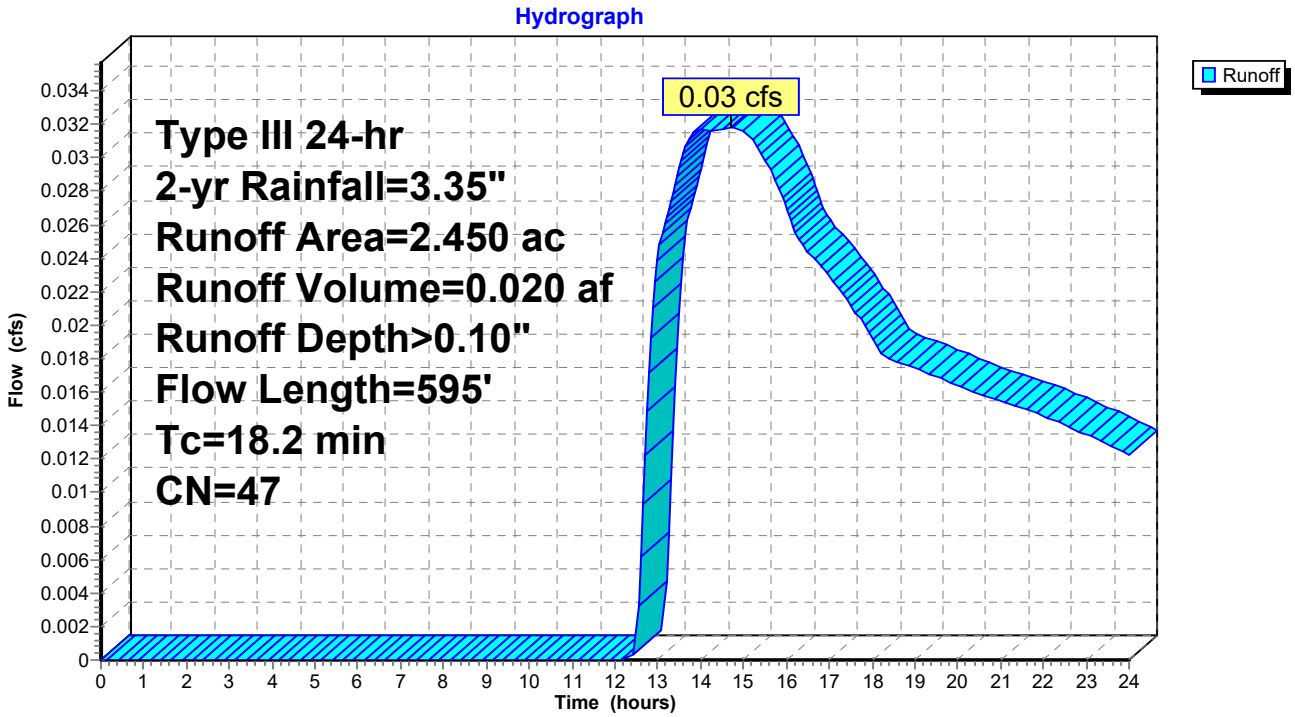
Runoff = 0.03 cfs @ 14.69 hrs, Volume= 0.020 af, Depth> 0.10"
Routed to Pond 10P : Ex Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.35"

	Area (ac)	CN	Description
	0.140	96	Gravel surface, HSG A
	0.010	98	Paved parking, HSG A
*	2.300	44	Meadow, non-grazed, HSG A/B
	2.450	47	Weighted Average
	2.440		99.59% Pervious Area
	0.010		0.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0250	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
5.4	495	0.0480	1.53		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
18.2	595	Total			

Subcatchment 3S: PDA-1



Summary for Subcatchment 4S: PDA-3

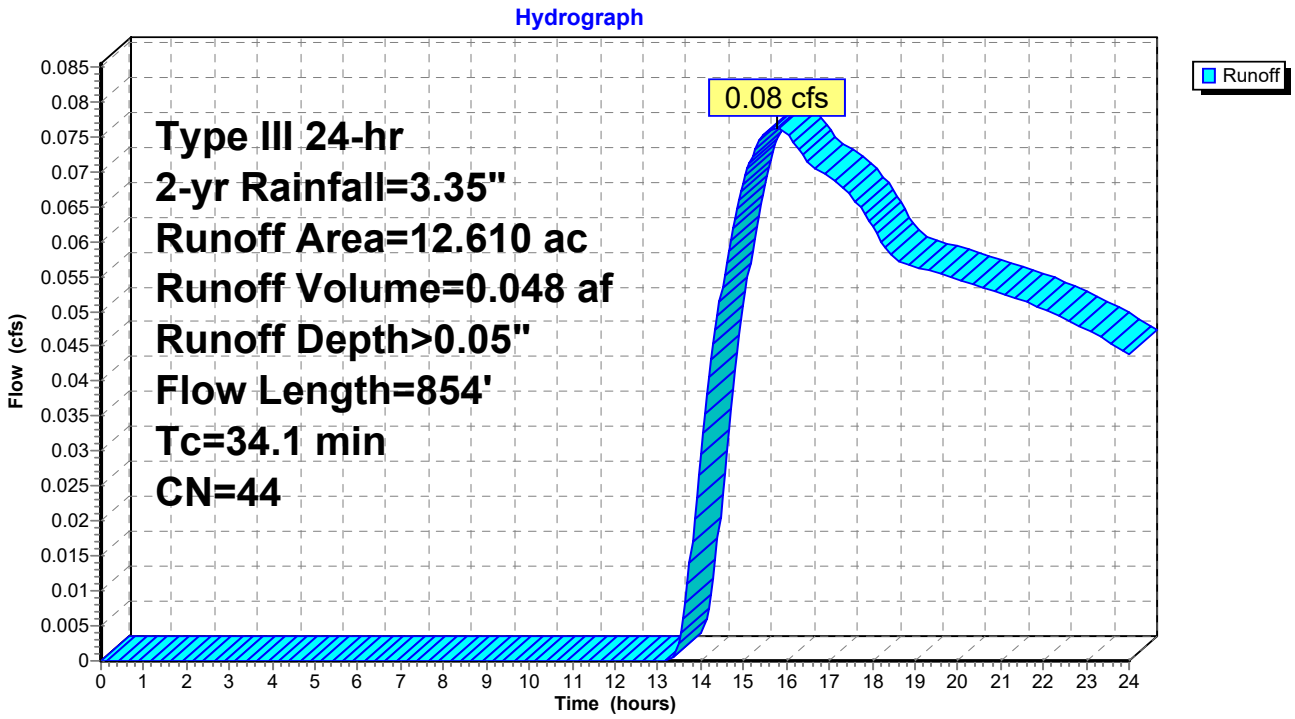
Runoff = 0.08 cfs @ 15.78 hrs, Volume= 0.048 af, Depth> 0.05"
Routed to Pond 6P : Ex Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.35"

	Area (ac)	CN	Description
*	12.610	44	Meadow, non-grazed, HSG A/B
	12.610		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.4	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
15.7	754	0.0130	0.80		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
34.1	854	Total			

Subcatchment 4S: PDA-3



Summary for Subcatchment 9S: PDA-2

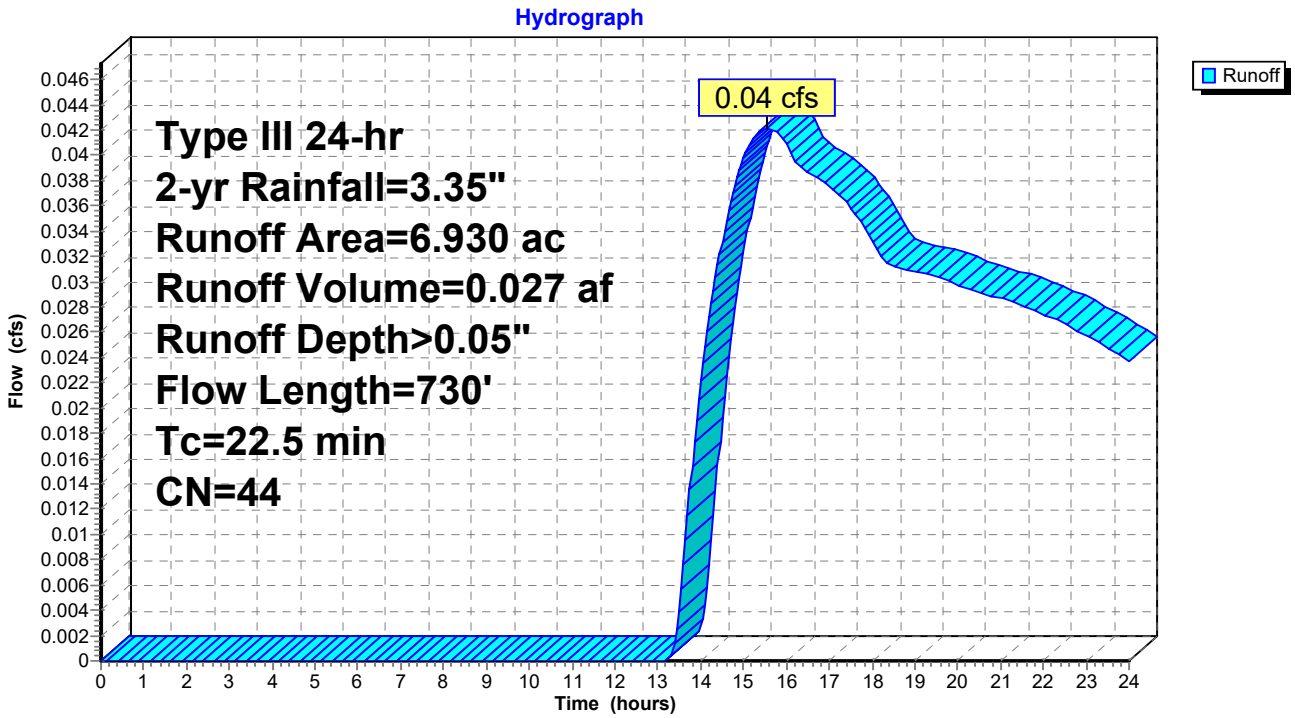
Runoff = 0.04 cfs @ 15.57 hrs, Volume= 0.027 af, Depth> 0.05"
Routed to Pond 8P : Ex Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.35"

	Area (ac)	CN	Description
*	6.930	44	Meadow, non-grazed, HSG A/B
	6.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
10.6	630	0.0200	0.99		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
22.5	730	Total			

Subcatchment 9S: PDA-2



Summary for Subcatchment 12S: EDA-1

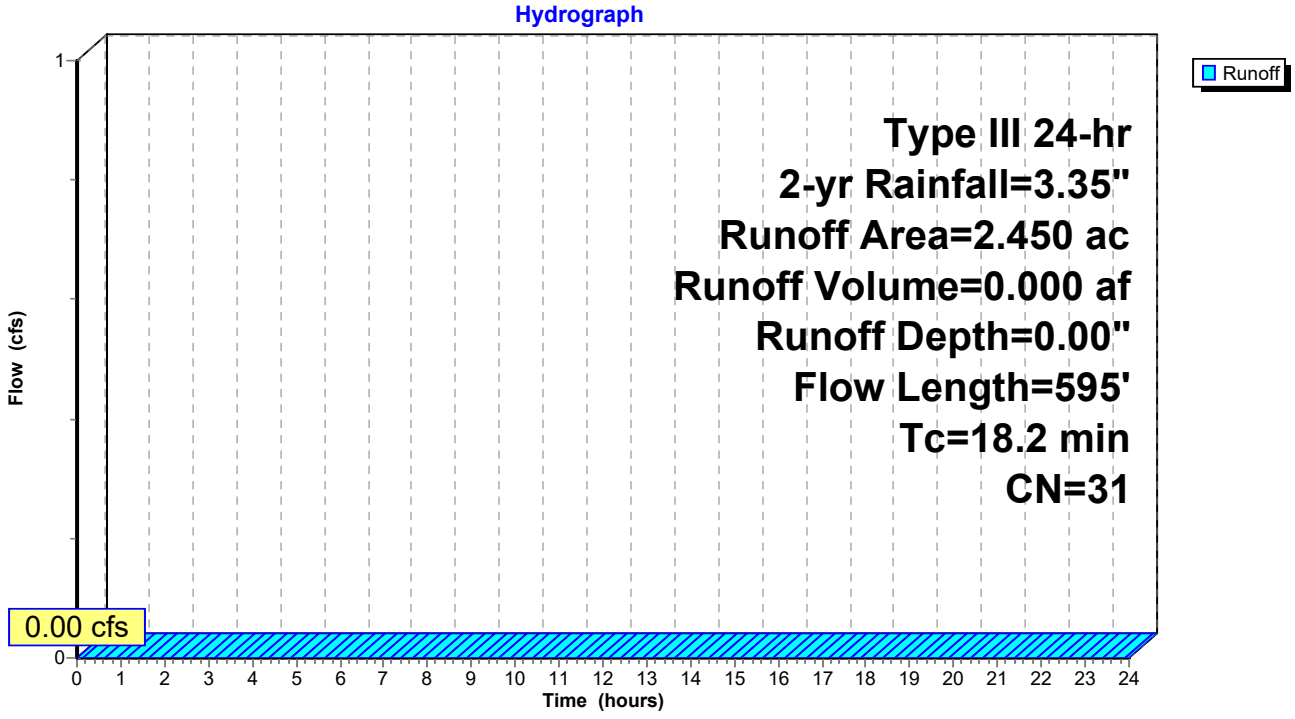
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond 13P : Ex Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.35"

Area (ac)	CN	Description
0.030	96	Gravel surface, HSG A
2.420	30	Meadow, non-grazed, HSG A
2.450	31	Weighted Average
2.450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0250	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
5.4	495	0.0480	1.53		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
18.2	595	Total			

Subcatchment 12S: EDA-1



Summary for Pond 5P: Ex Basin 3

Inflow Area = 12.610 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 194.00' @ 0.00 hrs Surf.Area= 5,094 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

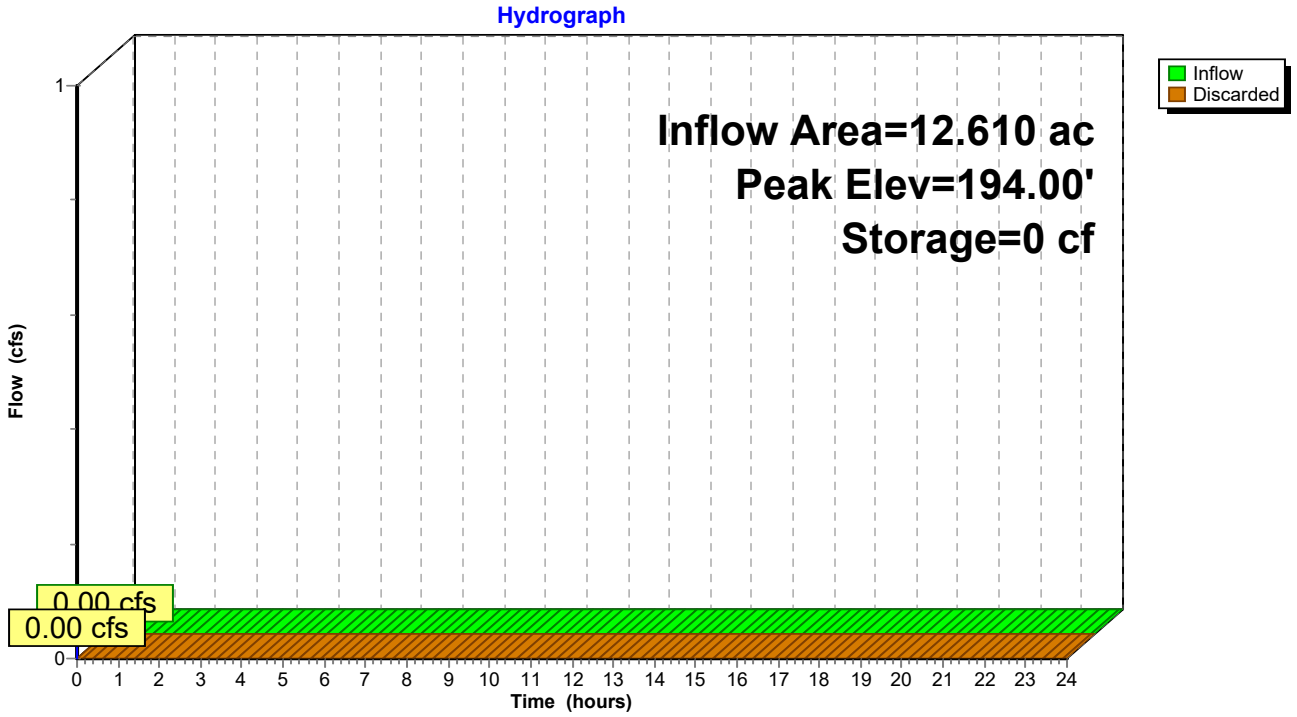
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	195,980 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	5,094	0	0
196.00	18,796	23,890	23,890
198.00	36,499	55,295	79,185
200.00	80,296	116,795	195,980

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**2.550 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 182.00'

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=194.00' (Free Discharge)
↑**1=Exfiltration** (Passes 0.00 cfs of 0.30 cfs potential flow)

Pond 5P: Ex Basin 3



Stage-Discharge for Pond 5P: Ex Basin 3

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
194.00	0.00	196.65	1.62	199.30	4.46
194.05	0.32	196.70	1.66	199.35	4.54
194.10	0.34	196.75	1.69	199.40	4.61
194.15	0.37	196.80	1.72	199.45	4.69
194.20	0.39	196.85	1.75	199.50	4.77
194.25	0.41	196.90	1.78	199.55	4.85
194.30	0.43	196.95	1.82	199.60	4.93
194.35	0.45	197.00	1.85	199.65	5.00
194.40	0.47	197.05	1.88	199.70	5.08
194.45	0.50	197.10	1.91	199.75	5.16
194.50	0.52	197.15	1.95	199.80	5.24
194.55	0.54	197.20	1.98	199.85	5.32
194.60	0.56	197.25	2.01	199.90	5.40
194.65	0.59	197.30	2.04	199.95	5.48
194.70	0.61	197.35	2.08	200.00	**5.56**
194.75	0.63	197.40	2.11		
194.80	0.65	197.45	2.14		
194.85	0.68	197.50	2.18		
194.90	0.70	197.55	2.21		
194.95	0.72	197.60	2.24		
195.00	0.75	197.65	2.27		
195.05	0.77	197.70	2.31		
195.10	0.79	197.75	2.34		
195.15	0.82	197.80	2.38		
195.20	0.84	197.85	2.41		
195.25	0.86	197.90	2.44		
195.30	0.89	197.95	2.48		
195.35	0.91	198.00	2.51		
195.40	0.93	198.05	2.58		
195.45	0.96	198.10	2.66		
195.50	0.98	198.15	2.73		
195.55	1.00	198.20	2.80		
195.60	1.03	198.25	2.87		
195.65	1.05	198.30	2.95		
195.70	1.08	198.35	3.02		
195.75	1.10	198.40	3.10		
195.80	1.12	198.45	3.17		
195.85	1.15	198.50	3.24		
195.90	1.17	198.55	3.32		
195.95	1.20	198.60	3.39		
196.00	1.22	198.65	3.47		
196.05	1.25	198.70	3.54		
196.10	1.28	198.75	3.62		
196.15	1.31	198.80	3.69		
196.20	1.34	198.85	3.77		
196.25	1.37	198.90	3.84		
196.30	1.41	198.95	3.92		
196.35	1.44	199.00	4.00		
196.40	1.47	199.05	4.07		
196.45	1.50	199.10	4.15		
196.50	1.53	199.15	4.23		
196.55	1.56	199.20	4.30		
196.60	1.59	199.25	4.38		

Stage-Area-Storage for Pond 5P: Ex Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	5,094	0
194.10	5,779	544
194.20	6,464	1,156
194.30	7,149	1,836
194.40	7,834	2,586
194.50	8,520	3,403
194.60	9,205	4,290
194.70	9,890	5,244
194.80	10,575	6,268
194.90	11,260	7,359
195.00	11,945	8,520
195.10	12,630	9,748
195.20	13,315	11,046
195.30	14,000	12,411
195.40	14,685	13,846
195.50	15,371	15,348
195.60	16,056	16,920
195.70	16,741	18,559
195.80	17,426	20,268
195.90	18,111	22,045
196.00	18,796	23,890
196.10	19,681	25,814
196.20	20,566	27,826
196.30	21,451	29,927
196.40	22,337	32,117
196.50	23,222	34,394
196.60	24,107	36,761
196.70	24,992	39,216
196.80	25,877	41,759
196.90	26,762	44,391
197.00	27,648	47,112
197.10	28,533	49,921
197.20	29,418	52,818
197.30	30,303	55,804
197.40	31,188	58,879
197.50	32,073	62,042
197.60	32,958	65,294
197.70	33,844	68,634
197.80	34,729	72,062
197.90	35,614	75,579
198.00	36,499	79,185
198.10	38,689	82,944
198.20	40,879	86,923
198.30	43,069	91,120
198.40	45,258	95,536
198.50	47,448	100,172
198.60	49,638	105,026
198.70	51,828	110,099
198.80	54,018	115,392
198.90	56,208	120,903
199.00	58,398	126,633
199.10	60,587	132,582
199.20	62,777	138,751
199.30	64,967	145,138
199.40	67,157	151,744
199.50	69,347	158,569
199.60	71,537	165,613
199.70	73,726	172,877
199.80	75,916	180,359
199.90	78,106	188,060
200.00	**80,296**	**195,980**

Summary for Pond 6P: Ex Basin 3

Inflow Area = 12.610 ac, 0.00% Impervious, Inflow Depth > 0.05" for 2-yr event
Inflow = 0.08 cfs @ 15.78 hrs, Volume= 0.048 af
Outflow = 0.08 cfs @ 16.04 hrs, Volume= 0.047 af, Atten= 1%, Lag= 15.6 min
Discarded = 0.08 cfs @ 16.04 hrs, Volume= 0.047 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 194.01' @ 16.04 hrs Surf.Area= 5,189 sf Storage= 71 cf

Plug-Flow detention time= 16.1 min calculated for 0.047 af (98% of inflow)
Center-of-Mass det. time= 9.4 min (1,126.8 - 1,117.5)

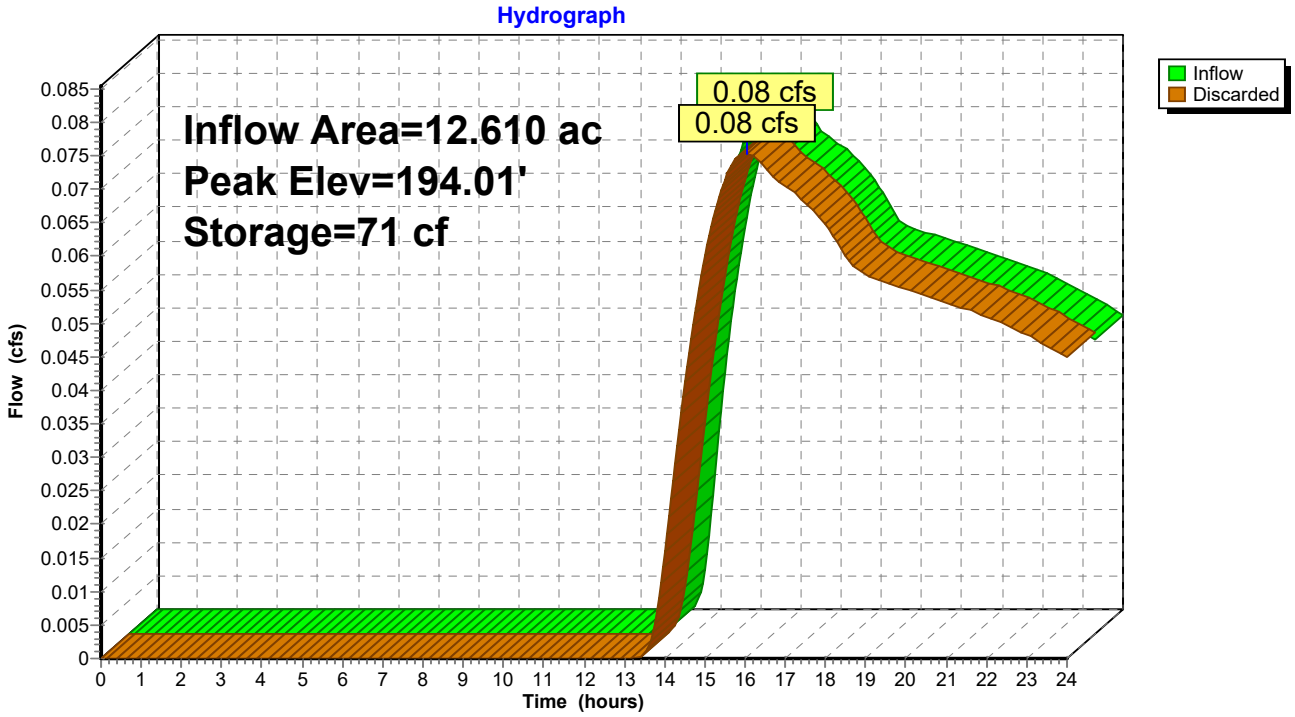
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	195,980 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	5,094	0	0
196.00	18,796	23,890	23,890
198.00	36,499	55,295	79,185
200.00	80,296	116,795	195,980

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**2.550 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 182.00'

Discarded OutFlow Max=0.31 cfs @ 16.04 hrs HW=194.01' (Free Discharge)
↑**1=Exfiltration** (Controls 0.31 cfs)

Pond 6P: Ex Basin 3



Stage-Discharge for Pond 6P: Ex Basin 3

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
194.00	0.00	196.65	1.62	199.30	4.46
194.05	0.32	196.70	1.66	199.35	4.54
194.10	0.34	196.75	1.69	199.40	4.61
194.15	0.37	196.80	1.72	199.45	4.69
194.20	0.39	196.85	1.75	199.50	4.77
194.25	0.41	196.90	1.78	199.55	4.85
194.30	0.43	196.95	1.82	199.60	4.93
194.35	0.45	197.00	1.85	199.65	5.00
194.40	0.47	197.05	1.88	199.70	5.08
194.45	0.50	197.10	1.91	199.75	5.16
194.50	0.52	197.15	1.95	199.80	5.24
194.55	0.54	197.20	1.98	199.85	5.32
194.60	0.56	197.25	2.01	199.90	5.40
194.65	0.59	197.30	2.04	199.95	5.48
194.70	0.61	197.35	2.08	200.00	**5.56**
194.75	0.63	197.40	2.11		
194.80	0.65	197.45	2.14		
194.85	0.68	197.50	2.18		
194.90	0.70	197.55	2.21		
194.95	0.72	197.60	2.24		
195.00	0.75	197.65	2.27		
195.05	0.77	197.70	2.31		
195.10	0.79	197.75	2.34		
195.15	0.82	197.80	2.38		
195.20	0.84	197.85	2.41		
195.25	0.86	197.90	2.44		
195.30	0.89	197.95	2.48		
195.35	0.91	198.00	2.51		
195.40	0.93	198.05	2.58		
195.45	0.96	198.10	2.66		
195.50	0.98	198.15	2.73		
195.55	1.00	198.20	2.80		
195.60	1.03	198.25	2.87		
195.65	1.05	198.30	2.95		
195.70	1.08	198.35	3.02		
195.75	1.10	198.40	3.10		
195.80	1.12	198.45	3.17		
195.85	1.15	198.50	3.24		
195.90	1.17	198.55	3.32		
195.95	1.20	198.60	3.39		
196.00	1.22	198.65	3.47		
196.05	1.25	198.70	3.54		
196.10	1.28	198.75	3.62		
196.15	1.31	198.80	3.69		
196.20	1.34	198.85	3.77		
196.25	1.37	198.90	3.84		
196.30	1.41	198.95	3.92		
196.35	1.44	199.00	4.00		
196.40	1.47	199.05	4.07		
196.45	1.50	199.10	4.15		
196.50	1.53	199.15	4.23		
196.55	1.56	199.20	4.30		
196.60	1.59	199.25	4.38		

Stage-Area-Storage for Pond 6P: Ex Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	5,094	0
194.10	5,779	544
194.20	6,464	1,156
194.30	7,149	1,836
194.40	7,834	2,586
194.50	8,520	3,403
194.60	9,205	4,290
194.70	9,890	5,244
194.80	10,575	6,268
194.90	11,260	7,359
195.00	11,945	8,520
195.10	12,630	9,748
195.20	13,315	11,046
195.30	14,000	12,411
195.40	14,685	13,846
195.50	15,371	15,348
195.60	16,056	16,920
195.70	16,741	18,559
195.80	17,426	20,268
195.90	18,111	22,045
196.00	18,796	23,890
196.10	19,681	25,814
196.20	20,566	27,826
196.30	21,451	29,927
196.40	22,337	32,117
196.50	23,222	34,394
196.60	24,107	36,761
196.70	24,992	39,216
196.80	25,877	41,759
196.90	26,762	44,391
197.00	27,648	47,112
197.10	28,533	49,921
197.20	29,418	52,818
197.30	30,303	55,804
197.40	31,188	58,879
197.50	32,073	62,042
197.60	32,958	65,294
197.70	33,844	68,634
197.80	34,729	72,062
197.90	35,614	75,579
198.00	36,499	79,185
198.10	38,689	82,944
198.20	40,879	86,923
198.30	43,069	91,120
198.40	45,258	95,536
198.50	47,448	100,172
198.60	49,638	105,026
198.70	51,828	110,099
198.80	54,018	115,392
198.90	56,208	120,903
199.00	58,398	126,633
199.10	60,587	132,582
199.20	62,777	138,751
199.30	64,967	145,138
199.40	67,157	151,744
199.50	69,347	158,569
199.60	71,537	165,613
199.70	73,726	172,877
199.80	75,916	180,359
199.90	78,106	188,060
200.00	**80,296**	**195,980**

Summary for Pond 7P: Ex Basin 2

Inflow Area = 6.930 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 203.00' @ 0.00 hrs Surf.Area= 14,476 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

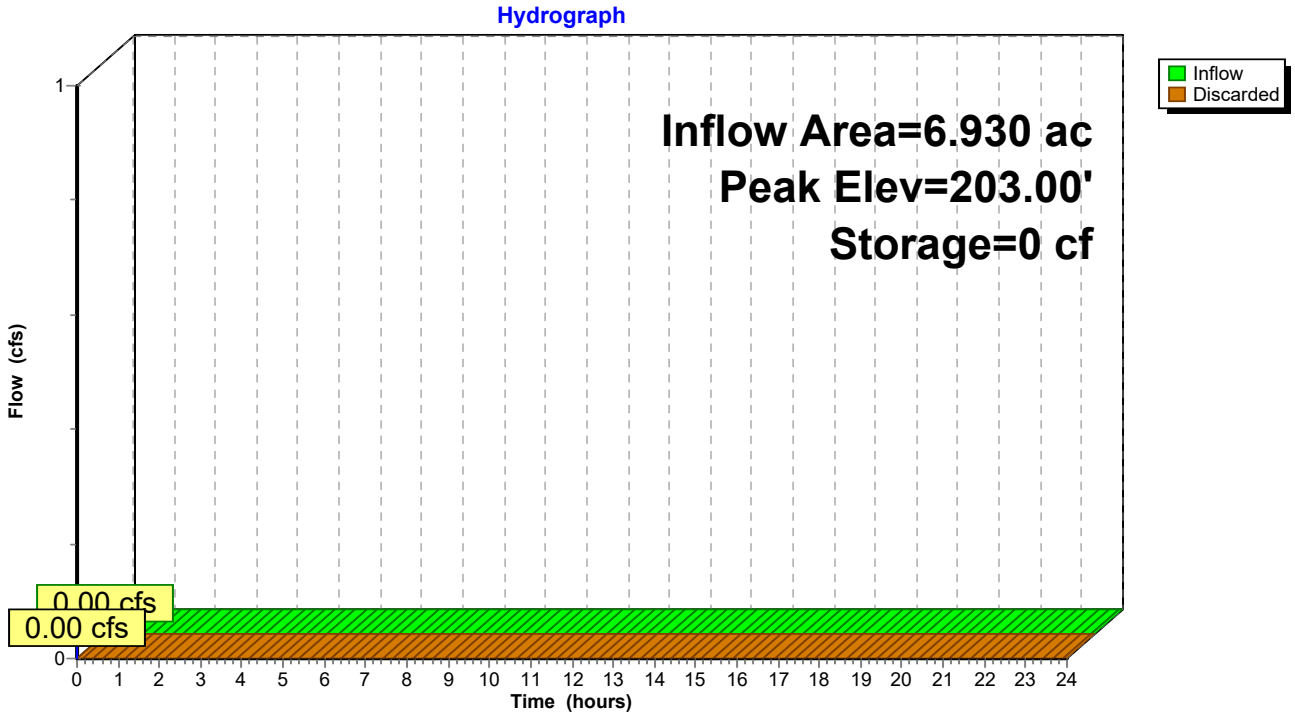
Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	57,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
203.00	14,476	0	0
204.00	17,492	15,984	15,984
205.00	20,565	19,029	35,013
206.00	25,352	22,959	57,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	203.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.00'

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=203.00' (Free Discharge)
↑**1=Exfiltration** (Passes 0.00 cfs of 0.81 cfs potential flow)

Pond 7P: Ex Basin 2



Stage-Discharge for Pond 7P: Ex Basin 2

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
203.00	0.00	204.06	1.08	205.12	1.39
203.02	0.81	204.08	1.09	205.14	1.39
203.04	0.82	204.10	1.09	205.16	1.40
203.06	0.82	204.12	1.10	205.18	1.41
203.08	0.83	204.14	1.10	205.20	1.42
203.10	0.83	204.16	1.11	205.22	1.42
203.12	0.84	204.18	1.11	205.24	1.43
203.14	0.84	204.20	1.12	205.26	1.44
203.16	0.85	204.22	1.12	205.28	1.45
203.18	0.85	204.24	1.13	205.30	1.45
203.20	0.86	204.26	1.13	205.32	1.46
203.22	0.86	204.28	1.14	205.34	1.47
203.24	0.87	204.30	1.15	205.36	1.48
203.26	0.87	204.32	1.15	205.38	1.49
203.28	0.88	204.34	1.16	205.40	1.49
203.30	0.88	204.36	1.16	205.42	1.50
203.32	0.89	204.38	1.17	205.44	1.51
203.34	0.89	204.40	1.17	205.46	1.52
203.36	0.90	204.42	1.18	205.48	1.52
203.38	0.90	204.44	1.18	205.50	1.53
203.40	0.91	204.46	1.19	205.52	1.54
203.42	0.91	204.48	1.19	205.54	1.55
203.44	0.92	204.50	1.20	205.56	1.56
203.46	0.92	204.52	1.21	205.58	1.56
203.48	0.93	204.54	1.21	205.60	1.57
203.50	0.93	204.56	1.22	205.62	1.58
203.52	0.94	204.58	1.22	205.64	1.59
203.54	0.94	204.60	1.23	205.66	1.59
203.56	0.95	204.62	1.23	205.68	1.60
203.58	0.95	204.64	1.24	205.70	1.61
203.60	0.96	204.66	1.24	205.72	1.62
203.62	0.96	204.68	1.25	205.74	1.63
203.64	0.97	204.70	1.26	205.76	1.63
203.66	0.98	204.72	1.26	205.78	1.64
203.68	0.98	204.74	1.27	205.80	1.65
203.70	0.99	204.76	1.27	205.82	1.66
203.72	0.99	204.78	1.28	205.84	1.67
203.74	1.00	204.80	1.28	205.86	1.67
203.76	1.00	204.82	1.29	205.88	1.68
203.78	1.01	204.84	1.29	205.90	1.69
203.80	1.01	204.86	1.30	205.92	1.70
203.82	1.02	204.88	1.31	205.94	1.71
203.84	1.02	204.90	1.31	205.96	1.71
203.86	1.03	204.92	1.32	205.98	1.72
203.88	1.03	204.94	1.32	206.00	**1.73**
203.90	1.04	204.96	1.33		
203.92	1.04	204.98	1.33		
203.94	1.05	205.00	1.34		
203.96	1.05	205.02	1.35		
203.98	1.06	205.04	1.36		
204.00	1.06	205.06	1.36		
204.02	1.07	205.08	1.37		
204.04	1.08	205.10	1.38		

Stage-Area-Storage for Pond 7P: Ex Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	14,476	0
203.05	14,627	728
203.10	14,778	1,463
203.15	14,928	2,205
203.20	15,079	2,956
203.25	15,230	3,713
203.30	15,381	4,479
203.35	15,532	5,251
203.40	15,682	6,032
203.45	15,833	6,820
203.50	15,984	7,615
203.55	16,135	8,418
203.60	16,286	9,228
203.65	16,436	10,047
203.70	16,587	10,872
203.75	16,738	11,705
203.80	16,889	12,546
203.85	17,040	13,394
203.90	17,190	14,250
203.95	17,341	15,113
204.00	17,492	15,984
204.05	17,646	16,862
204.10	17,799	17,749
204.15	17,953	18,642
204.20	18,107	19,544
204.25	18,260	20,453
204.30	18,414	21,370
204.35	18,568	22,294
204.40	18,721	23,227
204.45	18,875	24,167
204.50	19,029	25,114
204.55	19,182	26,069
204.60	19,336	27,032
204.65	19,489	28,003
204.70	19,643	28,981
204.75	19,797	29,967
204.80	19,950	30,961
204.85	20,104	31,962
204.90	20,258	32,971
204.95	20,411	33,988
205.00	20,565	35,013
205.05	20,804	36,047
205.10	21,044	37,093
205.15	21,283	38,151
205.20	21,522	39,221
205.25	21,762	40,303
205.30	22,001	41,397
205.35	22,240	42,503
205.40	22,480	43,621
205.45	22,719	44,751
205.50	22,959	45,893
205.55	23,198	47,047
205.60	23,437	48,213
205.65	23,677	49,391
205.70	23,916	50,581
205.75	24,155	51,783
205.80	24,395	52,996
205.85	24,634	54,222
205.90	24,873	55,460
205.95	25,113	56,709
206.00	**25,352**	**57,971**

Summary for Pond 8P: Ex Basin 2

Inflow Area = 6.930 ac, 0.00% Impervious, Inflow Depth > 0.05" for 2-yr event
Inflow = 0.04 cfs @ 15.57 hrs, Volume= 0.027 af
Outflow = 0.04 cfs @ 15.72 hrs, Volume= 0.027 af, Atten= 0%, Lag= 9.2 min
Discarded = 0.04 cfs @ 15.72 hrs, Volume= 0.027 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 203.00' @ 15.72 hrs Surf.Area= 14,481 sf Storage= 22 cf

Plug-Flow detention time= 8.9 min calculated for 0.027 af (99% of inflow)
Center-of-Mass det. time= 5.3 min (1,116.4 - 1,111.1)

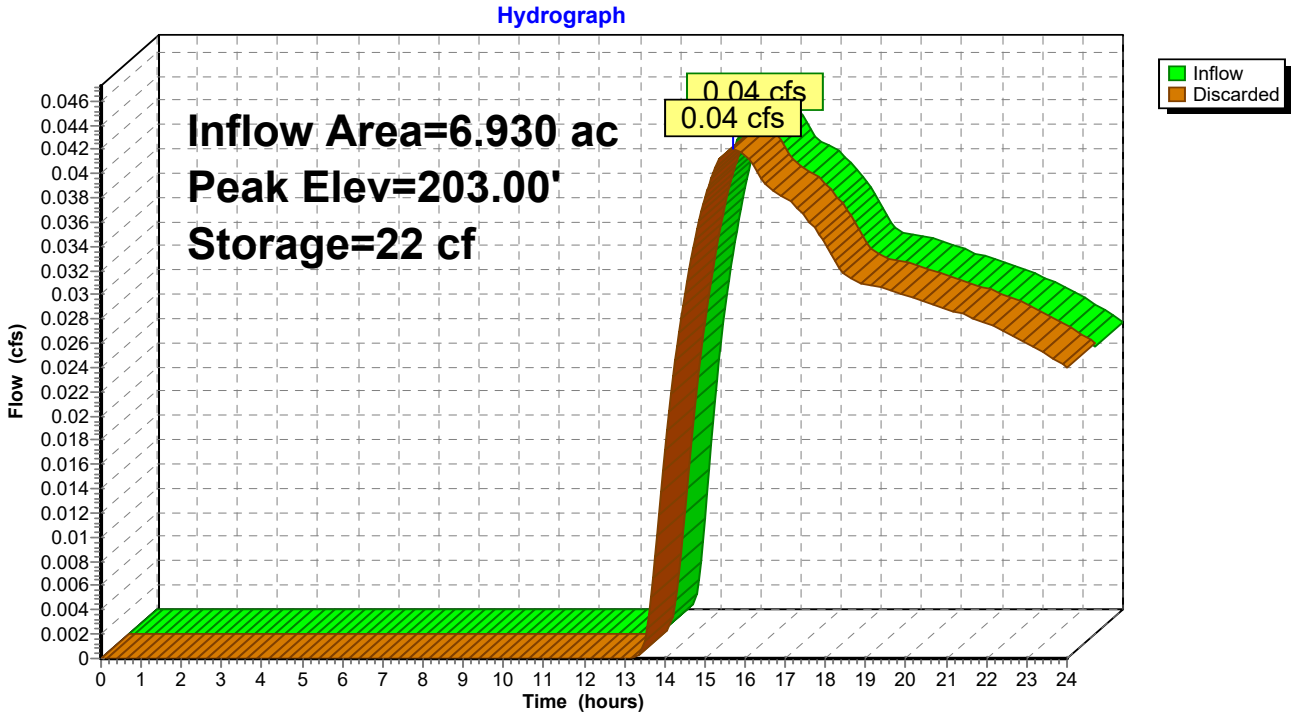
Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	57,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
203.00	14,476	0	0
204.00	17,492	15,984	15,984
205.00	20,565	19,029	35,013
206.00	25,352	22,959	57,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	203.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.00'

Discarded OutFlow Max=0.81 cfs @ 15.72 hrs HW=203.00' (Free Discharge)
↑**1=Exfiltration** (Controls 0.81 cfs)

Pond 8P: Ex Basin 2



Stage-Discharge for Pond 8P: Ex Basin 2

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
203.00	0.00	204.06	1.08	205.12	1.39
203.02	0.81	204.08	1.09	205.14	1.39
203.04	0.82	204.10	1.09	205.16	1.40
203.06	0.82	204.12	1.10	205.18	1.41
203.08	0.83	204.14	1.10	205.20	1.42
203.10	0.83	204.16	1.11	205.22	1.42
203.12	0.84	204.18	1.11	205.24	1.43
203.14	0.84	204.20	1.12	205.26	1.44
203.16	0.85	204.22	1.12	205.28	1.45
203.18	0.85	204.24	1.13	205.30	1.45
203.20	0.86	204.26	1.13	205.32	1.46
203.22	0.86	204.28	1.14	205.34	1.47
203.24	0.87	204.30	1.15	205.36	1.48
203.26	0.87	204.32	1.15	205.38	1.49
203.28	0.88	204.34	1.16	205.40	1.49
203.30	0.88	204.36	1.16	205.42	1.50
203.32	0.89	204.38	1.17	205.44	1.51
203.34	0.89	204.40	1.17	205.46	1.52
203.36	0.90	204.42	1.18	205.48	1.52
203.38	0.90	204.44	1.18	205.50	1.53
203.40	0.91	204.46	1.19	205.52	1.54
203.42	0.91	204.48	1.19	205.54	1.55
203.44	0.92	204.50	1.20	205.56	1.56
203.46	0.92	204.52	1.21	205.58	1.56
203.48	0.93	204.54	1.21	205.60	1.57
203.50	0.93	204.56	1.22	205.62	1.58
203.52	0.94	204.58	1.22	205.64	1.59
203.54	0.94	204.60	1.23	205.66	1.59
203.56	0.95	204.62	1.23	205.68	1.60
203.58	0.95	204.64	1.24	205.70	1.61
203.60	0.96	204.66	1.24	205.72	1.62
203.62	0.96	204.68	1.25	205.74	1.63
203.64	0.97	204.70	1.26	205.76	1.63
203.66	0.98	204.72	1.26	205.78	1.64
203.68	0.98	204.74	1.27	205.80	1.65
203.70	0.99	204.76	1.27	205.82	1.66
203.72	0.99	204.78	1.28	205.84	1.67
203.74	1.00	204.80	1.28	205.86	1.67
203.76	1.00	204.82	1.29	205.88	1.68
203.78	1.01	204.84	1.29	205.90	1.69
203.80	1.01	204.86	1.30	205.92	1.70
203.82	1.02	204.88	1.31	205.94	1.71
203.84	1.02	204.90	1.31	205.96	1.71
203.86	1.03	204.92	1.32	205.98	1.72
203.88	1.03	204.94	1.32	206.00	**1.73**
203.90	1.04	204.96	1.33		
203.92	1.04	204.98	1.33		
203.94	1.05	205.00	1.34		
203.96	1.05	205.02	1.35		
203.98	1.06	205.04	1.36		
204.00	1.06	205.06	1.36		
204.02	1.07	205.08	1.37		
204.04	1.08	205.10	1.38		

Stage-Area-Storage for Pond 8P: Ex Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	14,476	0
203.05	14,627	728
203.10	14,778	1,463
203.15	14,928	2,205
203.20	15,079	2,956
203.25	15,230	3,713
203.30	15,381	4,479
203.35	15,532	5,251
203.40	15,682	6,032
203.45	15,833	6,820
203.50	15,984	7,615
203.55	16,135	8,418
203.60	16,286	9,228
203.65	16,436	10,047
203.70	16,587	10,872
203.75	16,738	11,705
203.80	16,889	12,546
203.85	17,040	13,394
203.90	17,190	14,250
203.95	17,341	15,113
204.00	17,492	15,984
204.05	17,646	16,862
204.10	17,799	17,749
204.15	17,953	18,642
204.20	18,107	19,544
204.25	18,260	20,453
204.30	18,414	21,370
204.35	18,568	22,294
204.40	18,721	23,227
204.45	18,875	24,167
204.50	19,029	25,114
204.55	19,182	26,069
204.60	19,336	27,032
204.65	19,489	28,003
204.70	19,643	28,981
204.75	19,797	29,967
204.80	19,950	30,961
204.85	20,104	31,962
204.90	20,258	32,971
204.95	20,411	33,988
205.00	20,565	35,013
205.05	20,804	36,047
205.10	21,044	37,093
205.15	21,283	38,151
205.20	21,522	39,221
205.25	21,762	40,303
205.30	22,001	41,397
205.35	22,240	42,503
205.40	22,480	43,621
205.45	22,719	44,751
205.50	22,959	45,893
205.55	23,198	47,047
205.60	23,437	48,213
205.65	23,677	49,391
205.70	23,916	50,581
205.75	24,155	51,783
205.80	24,395	52,996
205.85	24,634	54,222
205.90	24,873	55,460
205.95	25,113	56,709
206.00	**25,352**	**57,971**

Summary for Pond 10P: Ex Basin 1

Inflow Area = 2.450 ac, 0.41% Impervious, Inflow Depth > 0.10" for 2-yr event
Inflow = 0.03 cfs @ 14.69 hrs, Volume= 0.020 af
Outflow = 0.03 cfs @ 15.90 hrs, Volume= 0.019 af, Atten= 13%, Lag= 72.4 min
Discarded = 0.03 cfs @ 15.90 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 204.34' @ 15.90 hrs Surf.Area= 487 sf Storage= 93 cf

Plug-Flow detention time= 43.0 min calculated for 0.019 af (97% of inflow)
Center-of-Mass det. time= 33.1 min (1,078.3 - 1,045.1)

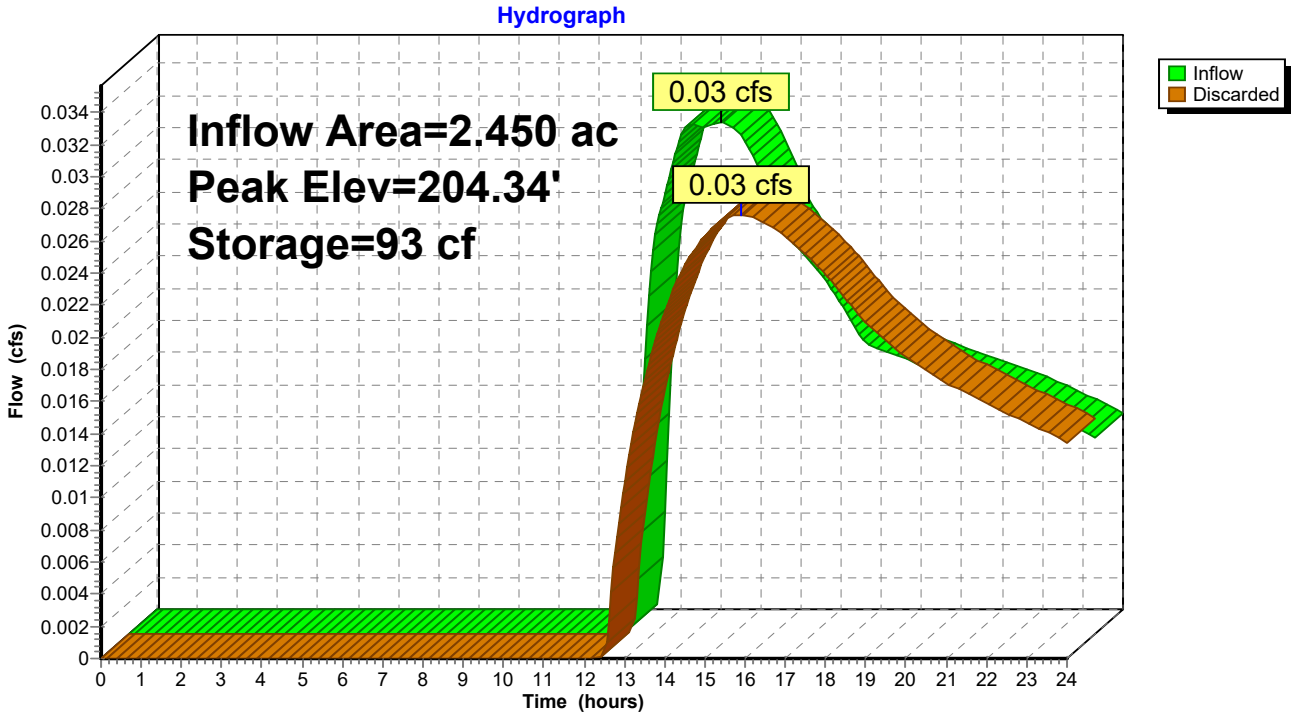
Volume	Invert	Avail.Storage	Storage Description
#1	204.00'	8,993 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
204.00	59	0	0
205.00	1,321	690	690
206.00	3,928	2,625	3,315
207.00	7,428	5,678	8,993

Device	Routing	Invert	Outlet Devices
#1	Discarded	204.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.00'

Discarded OutFlow Max=0.03 cfs @ 15.90 hrs HW=204.34' (Free Discharge)
↑**1=Exfiltration** (Controls 0.03 cfs)

Pond 10P: Ex Basin 1



Stage-Discharge for Pond 10P: Ex Basin 1

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
204.00	0.00	205.06	0.09	206.12	0.26
204.02	0.00	205.08	0.09	206.14	0.27
204.04	0.01	205.10	0.09	206.16	0.27
204.06	0.01	205.12	0.10	206.18	0.27
204.08	0.01	205.14	0.10	206.20	0.28
204.10	0.01	205.16	0.10	206.22	0.28
204.12	0.01	205.18	0.10	206.24	0.29
204.14	0.01	205.20	0.11	206.26	0.29
204.16	0.01	205.22	0.11	206.28	0.30
204.18	0.02	205.24	0.11	206.30	0.30
204.20	0.02	205.26	0.12	206.32	0.31
204.22	0.02	205.28	0.12	206.34	0.31
204.24	0.02	205.30	0.12	206.36	0.31
204.26	0.02	205.32	0.13	206.38	0.32
204.28	0.02	205.34	0.13	206.40	0.32
204.30	0.02	205.36	0.13	206.42	0.33
204.32	0.03	205.38	0.14	206.44	0.33
204.34	0.03	205.40	0.14	206.46	0.34
204.36	0.03	205.42	0.14	206.48	0.34
204.38	0.03	205.44	0.15	206.50	0.35
204.40	0.03	205.46	0.15	206.52	0.35
204.42	0.03	205.48	0.15	206.54	0.35
204.44	0.04	205.50	0.16	206.56	0.36
204.46	0.04	205.52	0.16	206.58	0.36
204.48	0.04	205.54	0.16	206.60	0.37
204.50	0.04	205.56	0.16	206.62	0.37
204.52	0.04	205.58	0.17	206.64	0.38
204.54	0.04	205.60	0.17	206.66	0.38
204.56	0.04	205.62	0.17	206.68	0.39
204.58	0.05	205.64	0.18	206.70	0.39
204.60	0.05	205.66	0.18	206.72	0.39
204.62	0.05	205.68	0.18	206.74	0.40
204.64	0.05	205.70	0.19	206.76	0.40
204.66	0.05	205.72	0.19	206.78	0.41
204.68	0.05	205.74	0.19	206.80	0.41
204.70	0.05	205.76	0.20	206.82	0.42
204.72	0.06	205.78	0.20	206.84	0.42
204.74	0.06	205.80	0.20	206.86	0.43
204.76	0.06	205.82	0.21	206.88	0.43
204.78	0.06	205.84	0.21	206.90	0.44
204.80	0.06	205.86	0.21	206.92	0.44
204.82	0.06	205.88	0.22	206.94	0.44
204.84	0.07	205.90	0.22	206.96	0.45
204.86	0.07	205.92	0.22	206.98	0.45
204.88	0.07	205.94	0.23	207.00	**0.46**
204.90	0.07	205.96	0.23		
204.92	0.07	205.98	0.23		
204.94	0.07	206.00	0.24		
204.96	0.07	206.02	0.24		
204.98	0.08	206.04	0.24		
205.00	0.08	206.06	0.25		
205.02	0.08	206.08	0.25		
205.04	0.08	206.10	0.26		

Stage-Area-Storage for Pond 10P: Ex Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	59	0
204.05	122	5
204.10	185	12
204.15	248	23
204.20	311	37
204.25	375	54
204.30	438	74
204.35	501	98
204.40	564	125
204.45	627	154
204.50	690	187
204.55	753	223
204.60	816	263
204.65	879	305
204.70	942	350
204.75	1,006	399
204.80	1,069	451
204.85	1,132	506
204.90	1,195	564
204.95	1,258	626
205.00	1,321	690
205.05	1,451	759
205.10	1,582	835
205.15	1,712	917
205.20	1,842	1,006
205.25	1,973	1,102
205.30	2,103	1,204
205.35	2,233	1,312
205.40	2,364	1,427
205.45	2,494	1,548
205.50	2,625	1,676
205.55	2,755	1,811
205.60	2,885	1,952
205.65	3,016	2,099
205.70	3,146	2,253
205.75	3,276	2,414
205.80	3,407	2,581
205.85	3,537	2,755
205.90	3,667	2,935
205.95	3,798	3,121
206.00	3,928	3,315
206.05	4,103	3,515
206.10	4,278	3,725
206.15	4,453	3,943
206.20	4,628	4,170
206.25	4,803	4,406
206.30	4,978	4,650
206.35	5,153	4,904
206.40	5,328	5,166
206.45	5,503	5,436
206.50	5,678	5,716
206.55	5,853	6,004
206.60	6,028	6,301
206.65	6,203	6,607
206.70	6,378	6,922
206.75	6,553	7,245
206.80	6,728	7,577
206.85	6,903	7,918
206.90	7,078	8,267
206.95	7,253	8,625
207.00	**7,428**	**8,993**

Summary for Pond 13P: Ex Basin 1

Inflow Area = 2.450 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 204.00' @ 0.00 hrs Surf.Area= 59 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

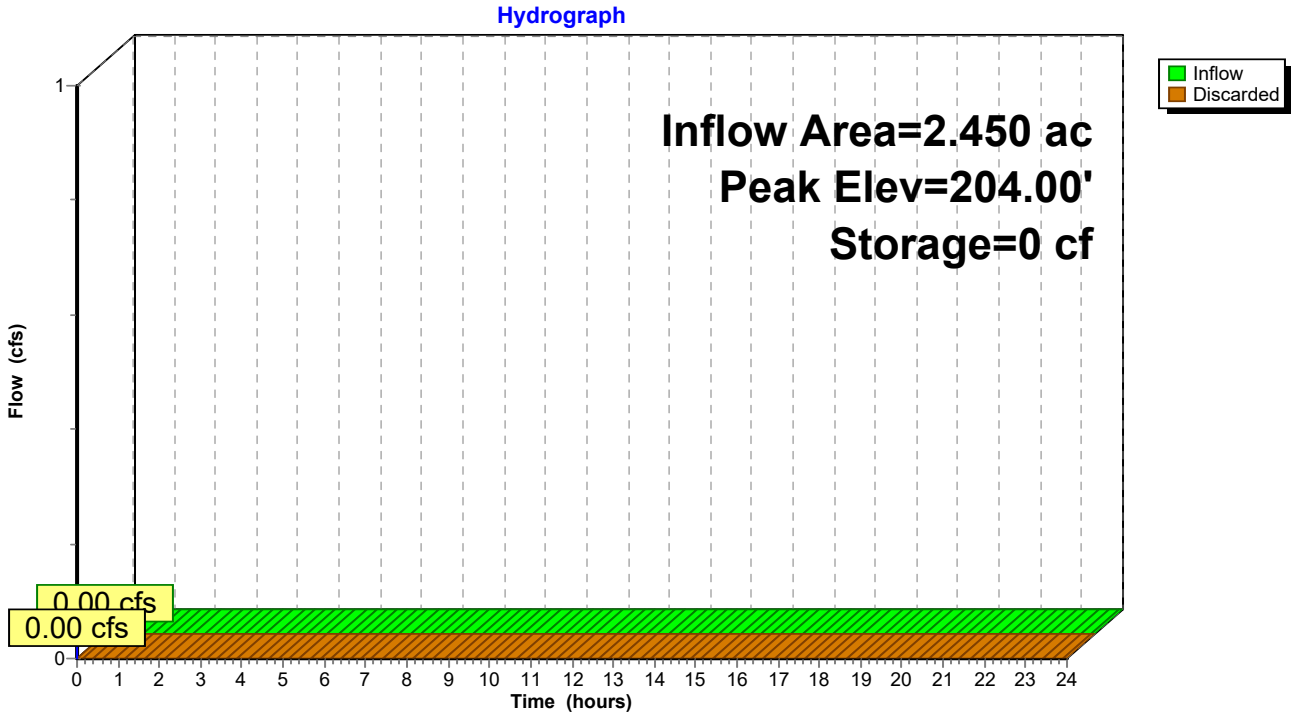
Volume	Invert	Avail.Storage	Storage Description
#1	204.00'	8,993 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
204.00	59	0	0
205.00	1,321	690	690
206.00	3,928	2,625	3,315
207.00	7,428	5,678	8,993

Device	Routing	Invert	Outlet Devices
#1	Discarded	204.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.00'

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=204.00' (Free Discharge)
↑**1=Exfiltration** (Passes 0.00 cfs of 0.00 cfs potential flow)

Pond 13P: Ex Basin 1



Stage-Discharge for Pond 13P: Ex Basin 1

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
204.00	0.00	205.06	0.09	206.12	0.26
204.02	0.00	205.08	0.09	206.14	0.27
204.04	0.01	205.10	0.09	206.16	0.27
204.06	0.01	205.12	0.10	206.18	0.27
204.08	0.01	205.14	0.10	206.20	0.28
204.10	0.01	205.16	0.10	206.22	0.28
204.12	0.01	205.18	0.10	206.24	0.29
204.14	0.01	205.20	0.11	206.26	0.29
204.16	0.01	205.22	0.11	206.28	0.30
204.18	0.02	205.24	0.11	206.30	0.30
204.20	0.02	205.26	0.12	206.32	0.31
204.22	0.02	205.28	0.12	206.34	0.31
204.24	0.02	205.30	0.12	206.36	0.31
204.26	0.02	205.32	0.13	206.38	0.32
204.28	0.02	205.34	0.13	206.40	0.32
204.30	0.02	205.36	0.13	206.42	0.33
204.32	0.03	205.38	0.14	206.44	0.33
204.34	0.03	205.40	0.14	206.46	0.34
204.36	0.03	205.42	0.14	206.48	0.34
204.38	0.03	205.44	0.15	206.50	0.35
204.40	0.03	205.46	0.15	206.52	0.35
204.42	0.03	205.48	0.15	206.54	0.35
204.44	0.04	205.50	0.16	206.56	0.36
204.46	0.04	205.52	0.16	206.58	0.36
204.48	0.04	205.54	0.16	206.60	0.37
204.50	0.04	205.56	0.16	206.62	0.37
204.52	0.04	205.58	0.17	206.64	0.38
204.54	0.04	205.60	0.17	206.66	0.38
204.56	0.04	205.62	0.17	206.68	0.39
204.58	0.05	205.64	0.18	206.70	0.39
204.60	0.05	205.66	0.18	206.72	0.39
204.62	0.05	205.68	0.18	206.74	0.40
204.64	0.05	205.70	0.19	206.76	0.40
204.66	0.05	205.72	0.19	206.78	0.41
204.68	0.05	205.74	0.19	206.80	0.41
204.70	0.05	205.76	0.20	206.82	0.42
204.72	0.06	205.78	0.20	206.84	0.42
204.74	0.06	205.80	0.20	206.86	0.43
204.76	0.06	205.82	0.21	206.88	0.43
204.78	0.06	205.84	0.21	206.90	0.44
204.80	0.06	205.86	0.21	206.92	0.44
204.82	0.06	205.88	0.22	206.94	0.44
204.84	0.07	205.90	0.22	206.96	0.45
204.86	0.07	205.92	0.22	206.98	0.45
204.88	0.07	205.94	0.23	207.00	**0.46**
204.90	0.07	205.96	0.23		
204.92	0.07	205.98	0.23		
204.94	0.07	206.00	0.24		
204.96	0.07	206.02	0.24		
204.98	0.08	206.04	0.24		
205.00	0.08	206.06	0.25		
205.02	0.08	206.08	0.25		
205.04	0.08	206.10	0.26		

Stage-Area-Storage for Pond 13P: Ex Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	59	0
204.05	122	5
204.10	185	12
204.15	248	23
204.20	311	37
204.25	375	54
204.30	438	74
204.35	501	98
204.40	564	125
204.45	627	154
204.50	690	187
204.55	753	223
204.60	816	263
204.65	879	305
204.70	942	350
204.75	1,006	399
204.80	1,069	451
204.85	1,132	506
204.90	1,195	564
204.95	1,258	626
205.00	1,321	690
205.05	1,451	759
205.10	1,582	835
205.15	1,712	917
205.20	1,842	1,006
205.25	1,973	1,102
205.30	2,103	1,204
205.35	2,233	1,312
205.40	2,364	1,427
205.45	2,494	1,548
205.50	2,625	1,676
205.55	2,755	1,811
205.60	2,885	1,952
205.65	3,016	2,099
205.70	3,146	2,253
205.75	3,276	2,414
205.80	3,407	2,581
205.85	3,537	2,755
205.90	3,667	2,935
205.95	3,798	3,121
206.00	3,928	3,315
206.05	4,103	3,515
206.10	4,278	3,725
206.15	4,453	3,943
206.20	4,628	4,170
206.25	4,803	4,406
206.30	4,978	4,650
206.35	5,153	4,904
206.40	5,328	5,166
206.45	5,503	5,436
206.50	5,678	5,716
206.55	5,853	6,004
206.60	6,028	6,301
206.65	6,203	6,607
206.70	6,378	6,922
206.75	6,553	7,245
206.80	6,728	7,577
206.85	6,903	7,918
206.90	7,078	8,267
206.95	7,253	8,625
207.00	**7,428**	**8,993**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EDA-2 Runoff Area=6.930 ac 0.00% Impervious Runoff Depth>0.08"
Flow Length=730' Tc=22.5 min CN=30 Runoff=0.07 cfs 0.044 af

Subcatchment 2S: EDA-3 Runoff Area=12.610 ac 0.00% Impervious Runoff Depth>0.07"
Flow Length=854' Tc=34.1 min CN=30 Runoff=0.12 cfs 0.078 af

Subcatchment 3S: PDA-1 Runoff Area=2.450 ac 0.41% Impervious Runoff Depth>0.95"
Flow Length=595' Tc=18.2 min CN=47 Runoff=1.35 cfs 0.194 af

Subcatchment 4S: PDA-3 Runoff Area=12.610 ac 0.00% Impervious Runoff Depth>0.75"
Flow Length=854' Tc=34.1 min CN=44 Runoff=3.82 cfs 0.784 af

Subcatchment 9S: PDA-2 Runoff Area=6.930 ac 0.00% Impervious Runoff Depth>0.75"
Flow Length=730' Tc=22.5 min CN=44 Runoff=2.46 cfs 0.433 af

Subcatchment 12S: EDA-1 Runoff Area=2.450 ac 0.00% Impervious Runoff Depth>0.11"
Flow Length=595' Tc=18.2 min CN=31 Runoff=0.03 cfs 0.022 af

Pond 5P: Ex Basin 3 Peak Elev=194.02' Storage=114 cf Inflow=0.12 cfs 0.078 af
Outflow=0.12 cfs 0.077 af

Pond 6P: Ex Basin 3 Peak Elev=195.25' Storage=11,693 cf Inflow=3.82 cfs 0.784 af
Outflow=0.86 cfs 0.705 af

Pond 7P: Ex Basin 2 Peak Elev=203.00' Storage=36 cf Inflow=0.07 cfs 0.044 af
Outflow=0.07 cfs 0.043 af

Pond 8P: Ex Basin 2 Peak Elev=203.22' Storage=3,287 cf Inflow=2.46 cfs 0.433 af
Outflow=0.86 cfs 0.431 af

Pond 10P: Ex Basin 1 Peak Elev=205.94' Storage=3,066 cf Inflow=1.35 cfs 0.194 af
Outflow=0.23 cfs 0.173 af

Pond 13P: Ex Basin 1 Peak Elev=204.35' Storage=99 cf Inflow=0.03 cfs 0.022 af
Outflow=0.03 cfs 0.021 af

Summary for Subcatchment 1S: EDA-2

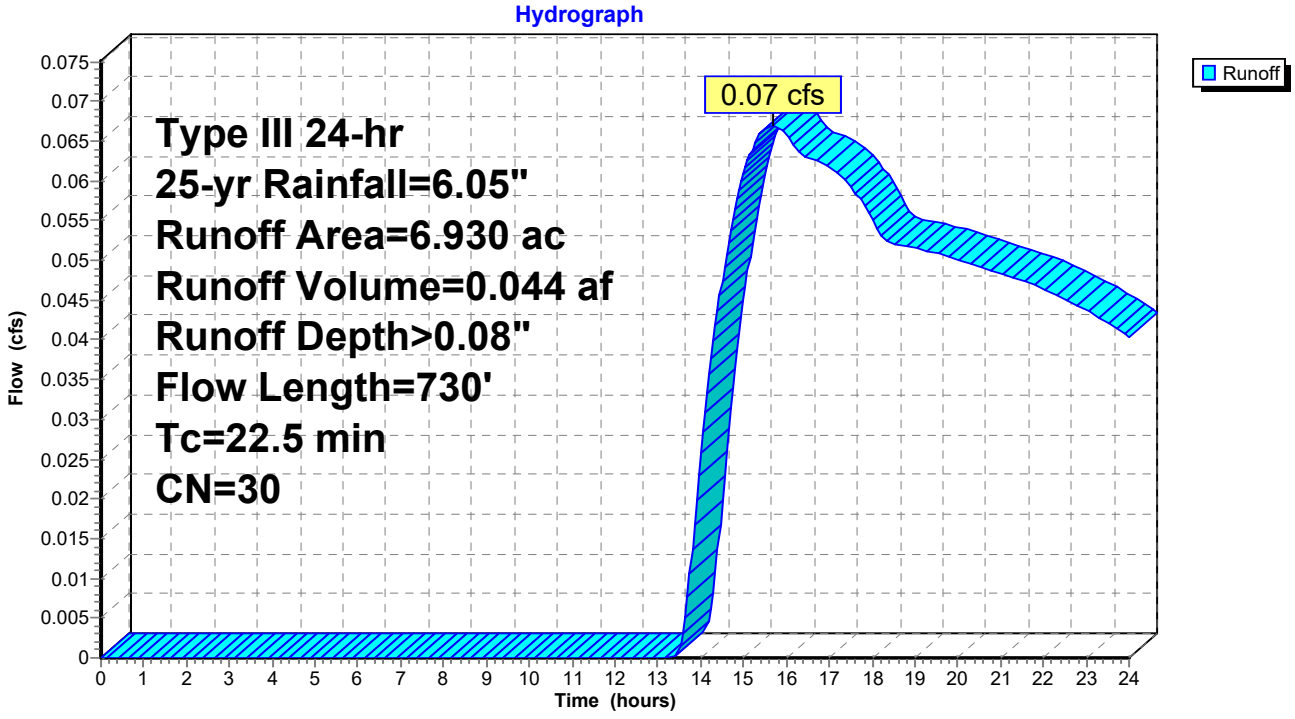
Runoff = 0.07 cfs @ 15.69 hrs, Volume= 0.044 af, Depth> 0.08"
Routed to Pond 7P : Ex Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.05"

Area (ac)	CN	Description
6.880	30	Meadow, non-grazed, HSG A
0.050	96	Gravel surface, HSG A
6.930	30	Weighted Average
6.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
10.6	630	0.0200	0.99		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
22.5	730	Total			

Subcatchment 1S: EDA-2



Summary for Subcatchment 2S: EDA-3

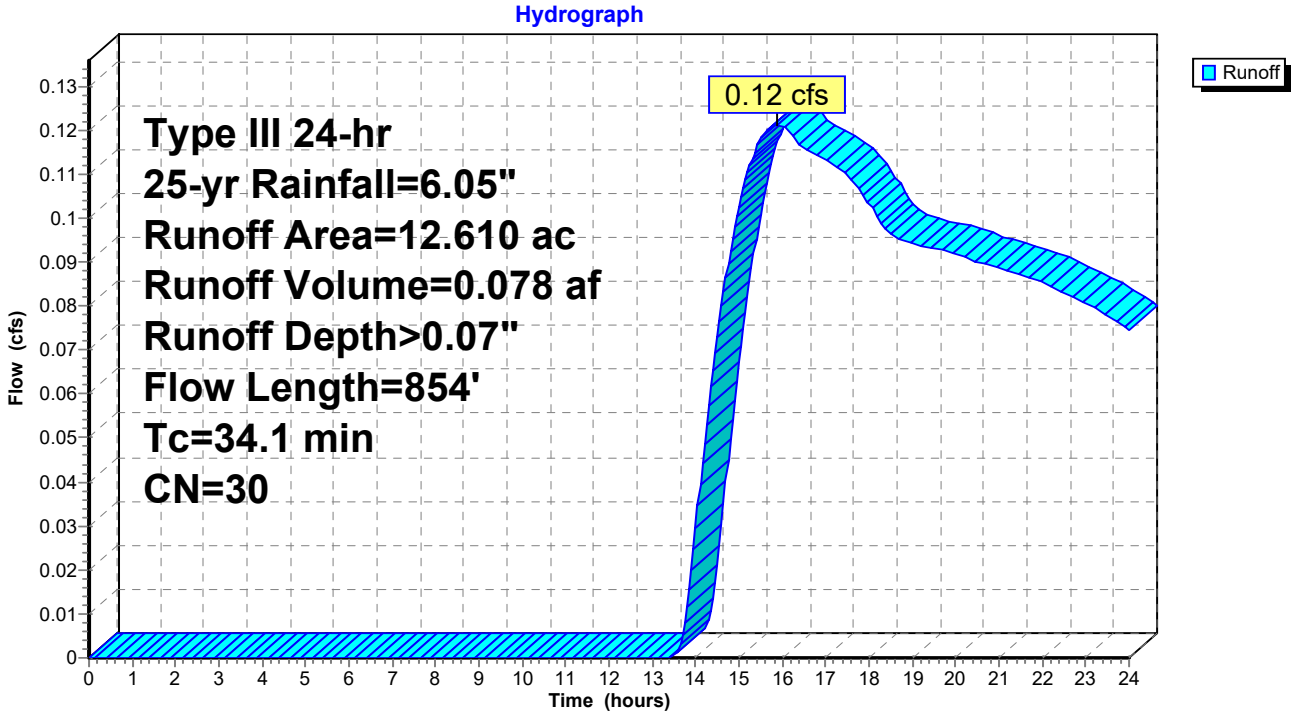
Runoff = 0.12 cfs @ 15.88 hrs, Volume= 0.078 af, Depth> 0.07"
Routed to Pond 5P : Ex Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.05"

Area (ac)	CN	Description
12.610	30	Meadow, non-grazed, HSG A
12.610		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.4	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
15.7	754	0.0130	0.80		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
34.1	854	Total			

Subcatchment 2S: EDA-3



Summary for Subcatchment 3S: PDA-1

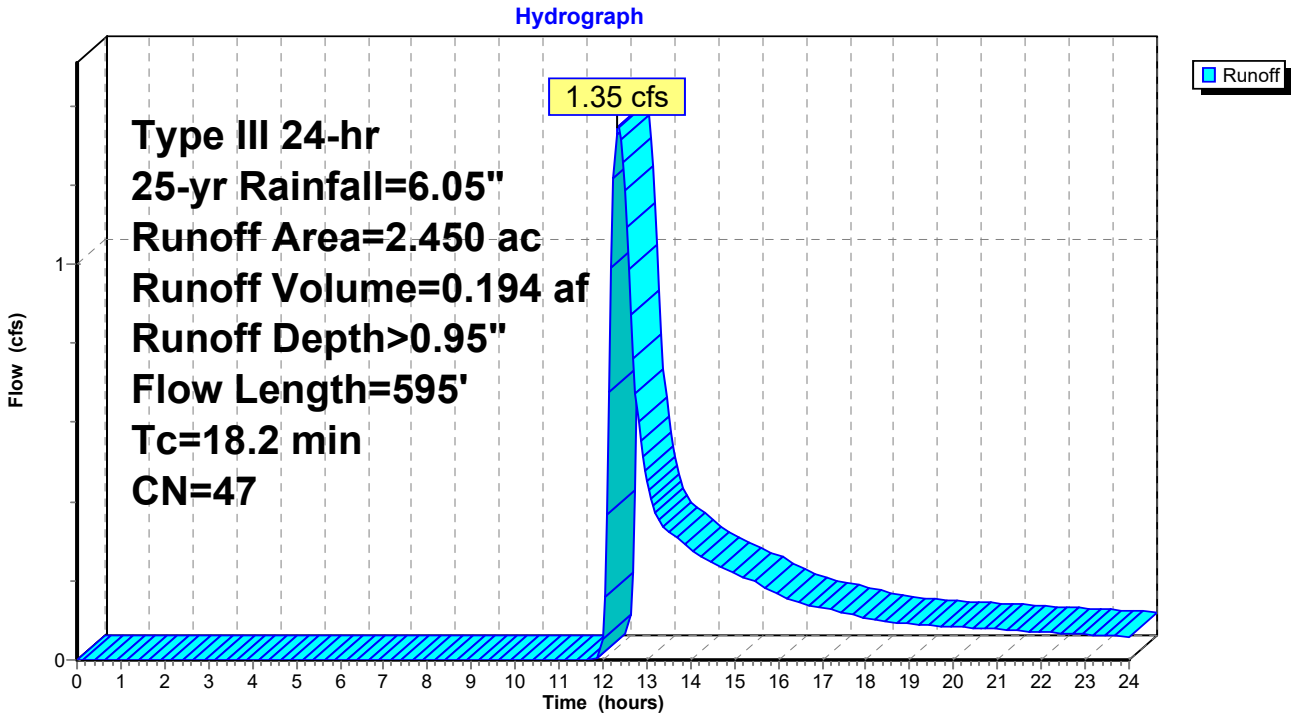
Runoff = 1.35 cfs @ 12.34 hrs, Volume= 0.194 af, Depth> 0.95"
Routed to Pond 10P : Ex Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.05"

	Area (ac)	CN	Description
	0.140	96	Gravel surface, HSG A
	0.010	98	Paved parking, HSG A
*	2.300	44	Meadow, non-grazed, HSG A/B
	2.450	47	Weighted Average
	2.440		99.59% Pervious Area
	0.010		0.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0250	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
5.4	495	0.0480	1.53		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
18.2	595	Total			

Subcatchment 3S: PDA-1



Summary for Subcatchment 4S: PDA-3

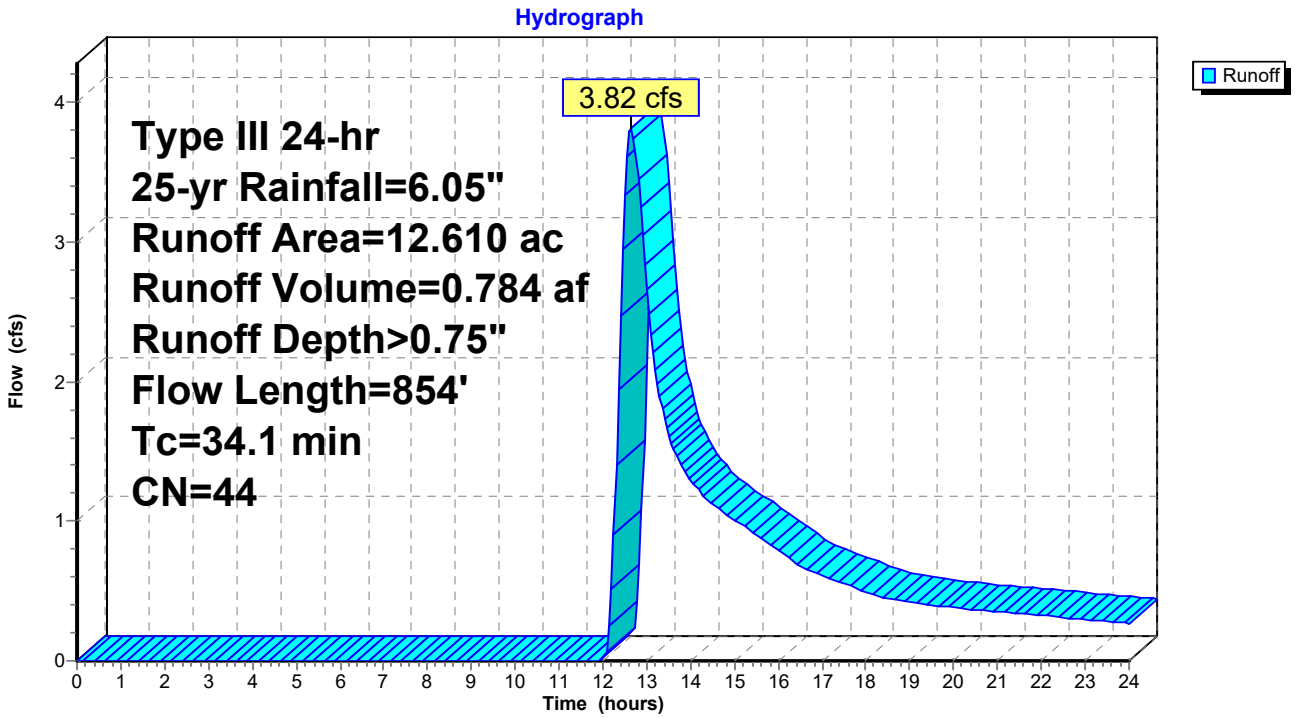
Runoff = 3.82 cfs @ 12.64 hrs, Volume= 0.784 af, Depth> 0.75"
Routed to Pond 6P : Ex Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.05"

	Area (ac)	CN	Description
*	12.610	44	Meadow, non-grazed, HSG A/B
	12.610		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.4	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
15.7	754	0.0130	0.80		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
34.1	854	Total			

Subcatchment 4S: PDA-3



Summary for Subcatchment 9S: PDA-2

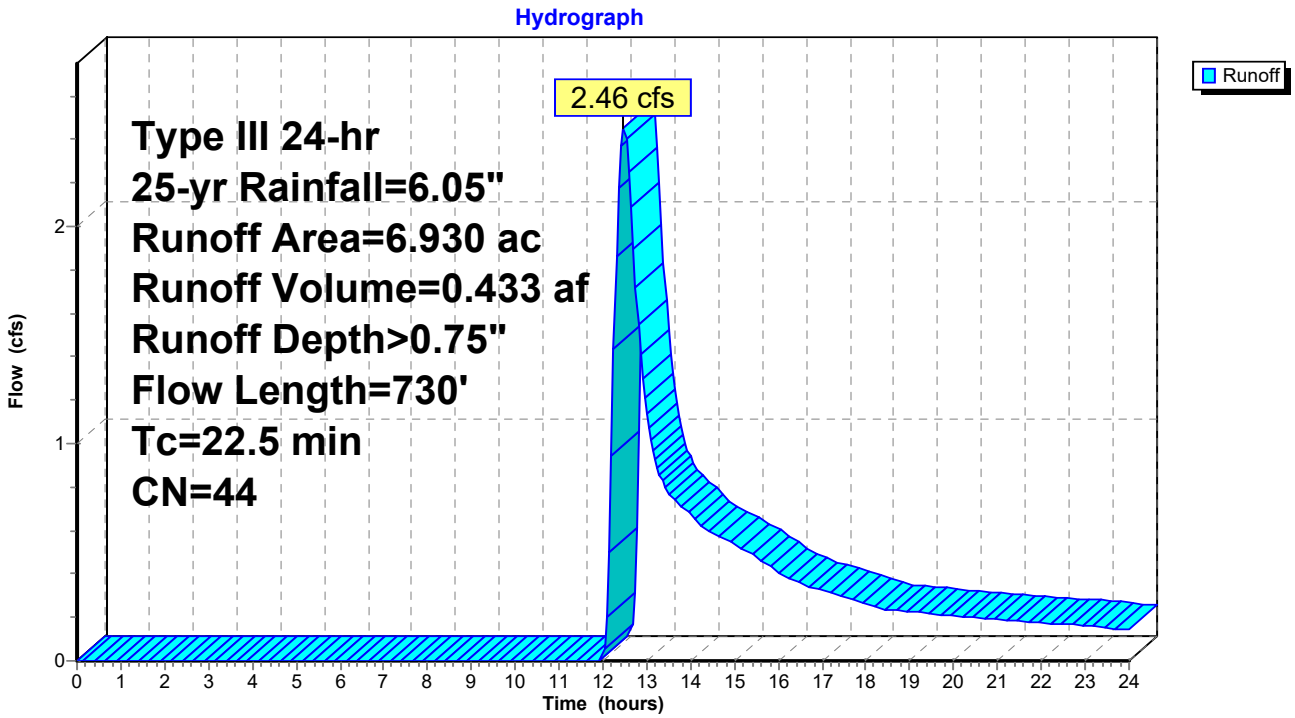
Runoff = 2.46 cfs @ 12.47 hrs, Volume= 0.433 af, Depth> 0.75"
Routed to Pond 8P : Ex Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.05"

	Area (ac)	CN	Description
*	6.930	44	Meadow, non-grazed, HSG A/B
	6.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
10.6	630	0.0200	0.99		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
22.5	730	Total			

Subcatchment 9S: PDA-2



Summary for Subcatchment 12S: EDA-1

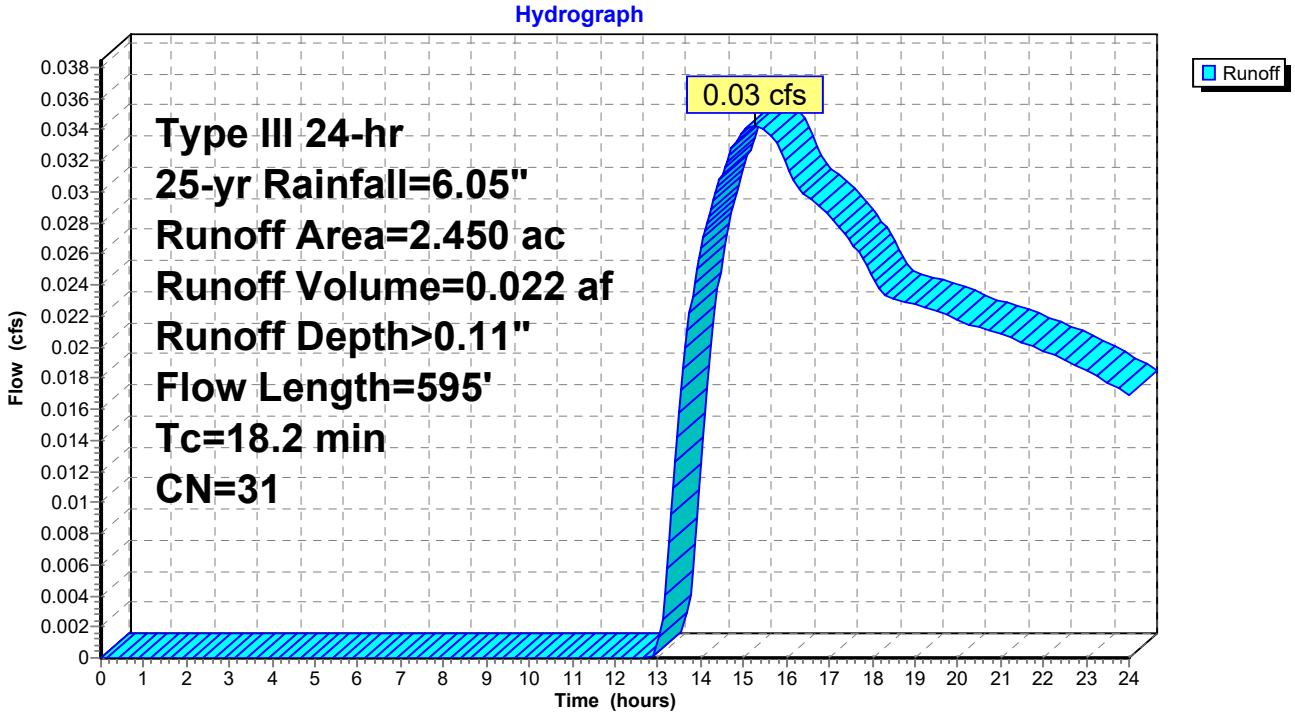
Runoff = 0.03 cfs @ 15.26 hrs, Volume= 0.022 af, Depth> 0.11"
Routed to Pond 13P : Ex Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.05"

Area (ac)	CN	Description
0.030	96	Gravel surface, HSG A
2.420	30	Meadow, non-grazed, HSG A
2.450	31	Weighted Average
2.450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0250	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
5.4	495	0.0480	1.53		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
18.2	595	Total			

Subcatchment 12S: EDA-1



Summary for Pond 5P: Ex Basin 3

Inflow Area = 12.610 ac, 0.00% Impervious, Inflow Depth > 0.07" for 25-yr event
Inflow = 0.12 cfs @ 15.88 hrs, Volume= 0.078 af
Outflow = 0.12 cfs @ 16.16 hrs, Volume= 0.077 af, Atten= 1%, Lag= 17.0 min
Discarded = 0.12 cfs @ 16.16 hrs, Volume= 0.077 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 194.02' @ 16.16 hrs Surf.Area= 5,245 sf Storage= 114 cf

Plug-Flow detention time= 16.0 min calculated for 0.077 af (98% of inflow)
Center-of-Mass det. time= 9.2 min (1,136.5 - 1,127.2)

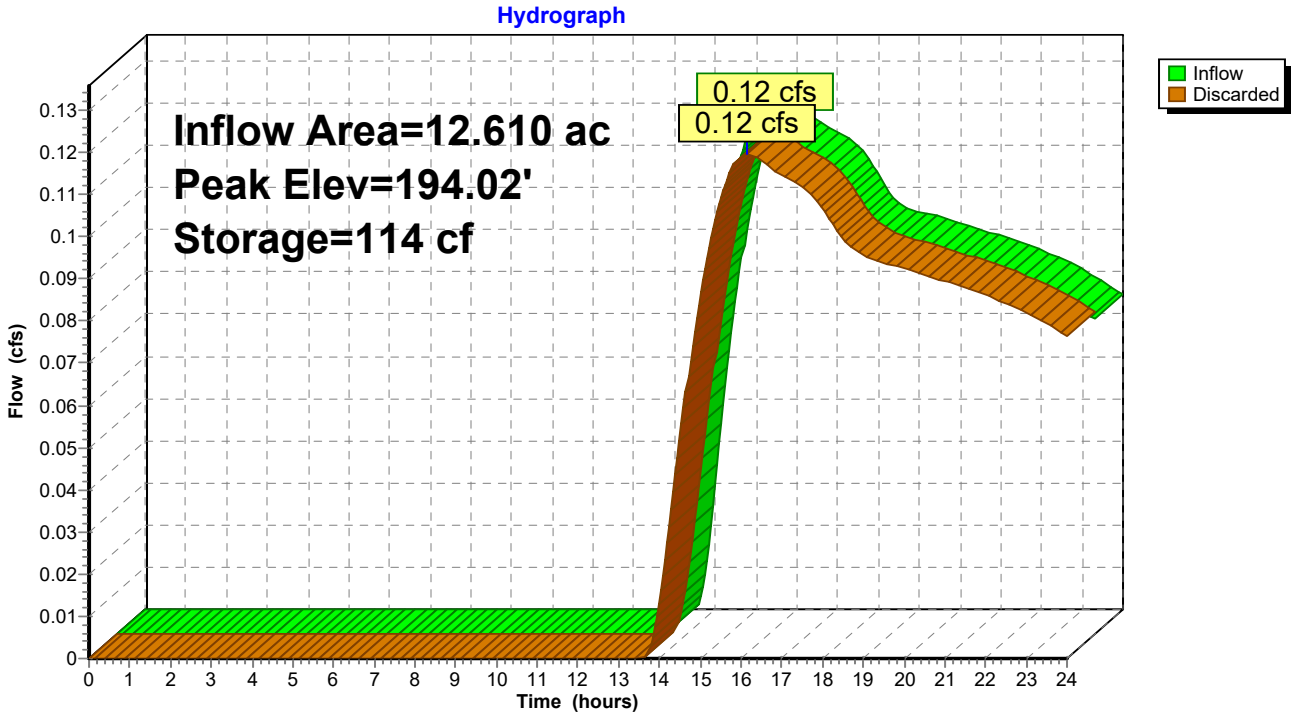
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	195,980 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	5,094	0	0
196.00	18,796	23,890	23,890
198.00	36,499	55,295	79,185
200.00	80,296	116,795	195,980

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**2.550 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 182.00'

Discarded OutFlow Max=0.31 cfs @ 16.16 hrs HW=194.02' (Free Discharge)
↑**1=Exfiltration** (Controls 0.31 cfs)

Pond 5P: Ex Basin 3



Stage-Discharge for Pond 5P: Ex Basin 3

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
194.00	0.00	196.65	1.62	199.30	4.46
194.05	0.32	196.70	1.66	199.35	4.54
194.10	0.34	196.75	1.69	199.40	4.61
194.15	0.37	196.80	1.72	199.45	4.69
194.20	0.39	196.85	1.75	199.50	4.77
194.25	0.41	196.90	1.78	199.55	4.85
194.30	0.43	196.95	1.82	199.60	4.93
194.35	0.45	197.00	1.85	199.65	5.00
194.40	0.47	197.05	1.88	199.70	5.08
194.45	0.50	197.10	1.91	199.75	5.16
194.50	0.52	197.15	1.95	199.80	5.24
194.55	0.54	197.20	1.98	199.85	5.32
194.60	0.56	197.25	2.01	199.90	5.40
194.65	0.59	197.30	2.04	199.95	5.48
194.70	0.61	197.35	2.08	200.00	**5.56**
194.75	0.63	197.40	2.11		
194.80	0.65	197.45	2.14		
194.85	0.68	197.50	2.18		
194.90	0.70	197.55	2.21		
194.95	0.72	197.60	2.24		
195.00	0.75	197.65	2.27		
195.05	0.77	197.70	2.31		
195.10	0.79	197.75	2.34		
195.15	0.82	197.80	2.38		
195.20	0.84	197.85	2.41		
195.25	0.86	197.90	2.44		
195.30	0.89	197.95	2.48		
195.35	0.91	198.00	2.51		
195.40	0.93	198.05	2.58		
195.45	0.96	198.10	2.66		
195.50	0.98	198.15	2.73		
195.55	1.00	198.20	2.80		
195.60	1.03	198.25	2.87		
195.65	1.05	198.30	2.95		
195.70	1.08	198.35	3.02		
195.75	1.10	198.40	3.10		
195.80	1.12	198.45	3.17		
195.85	1.15	198.50	3.24		
195.90	1.17	198.55	3.32		
195.95	1.20	198.60	3.39		
196.00	1.22	198.65	3.47		
196.05	1.25	198.70	3.54		
196.10	1.28	198.75	3.62		
196.15	1.31	198.80	3.69		
196.20	1.34	198.85	3.77		
196.25	1.37	198.90	3.84		
196.30	1.41	198.95	3.92		
196.35	1.44	199.00	4.00		
196.40	1.47	199.05	4.07		
196.45	1.50	199.10	4.15		
196.50	1.53	199.15	4.23		
196.55	1.56	199.20	4.30		
196.60	1.59	199.25	4.38		

Stage-Area-Storage for Pond 5P: Ex Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	5,094	0
194.10	5,779	544
194.20	6,464	1,156
194.30	7,149	1,836
194.40	7,834	2,586
194.50	8,520	3,403
194.60	9,205	4,290
194.70	9,890	5,244
194.80	10,575	6,268
194.90	11,260	7,359
195.00	11,945	8,520
195.10	12,630	9,748
195.20	13,315	11,046
195.30	14,000	12,411
195.40	14,685	13,846
195.50	15,371	15,348
195.60	16,056	16,920
195.70	16,741	18,559
195.80	17,426	20,268
195.90	18,111	22,045
196.00	18,796	23,890
196.10	19,681	25,814
196.20	20,566	27,826
196.30	21,451	29,927
196.40	22,337	32,117
196.50	23,222	34,394
196.60	24,107	36,761
196.70	24,992	39,216
196.80	25,877	41,759
196.90	26,762	44,391
197.00	27,648	47,112
197.10	28,533	49,921
197.20	29,418	52,818
197.30	30,303	55,804
197.40	31,188	58,879
197.50	32,073	62,042
197.60	32,958	65,294
197.70	33,844	68,634
197.80	34,729	72,062
197.90	35,614	75,579
198.00	36,499	79,185
198.10	38,689	82,944
198.20	40,879	86,923
198.30	43,069	91,120
198.40	45,258	95,536
198.50	47,448	100,172
198.60	49,638	105,026
198.70	51,828	110,099
198.80	54,018	115,392
198.90	56,208	120,903
199.00	58,398	126,633
199.10	60,587	132,582
199.20	62,777	138,751
199.30	64,967	145,138
199.40	67,157	151,744
199.50	69,347	158,569
199.60	71,537	165,613
199.70	73,726	172,877
199.80	75,916	180,359
199.90	78,106	188,060
200.00	**80,296**	**195,980**

Summary for Pond 6P: Ex Basin 3

Inflow Area = 12.610 ac, 0.00% Impervious, Inflow Depth > 0.75" for 25-yr event
Inflow = 3.82 cfs @ 12.64 hrs, Volume= 0.784 af
Outflow = 0.86 cfs @ 15.70 hrs, Volume= 0.705 af, Atten= 77%, Lag= 183.5 min
Discarded = 0.86 cfs @ 15.70 hrs, Volume= 0.705 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 195.25' @ 15.70 hrs Surf.Area= 13,644 sf Storage= 11,693 cf

Plug-Flow detention time= 177.1 min calculated for 0.703 af (90% of inflow)
Center-of-Mass det. time= 131.6 min (1,072.4 - 940.7)

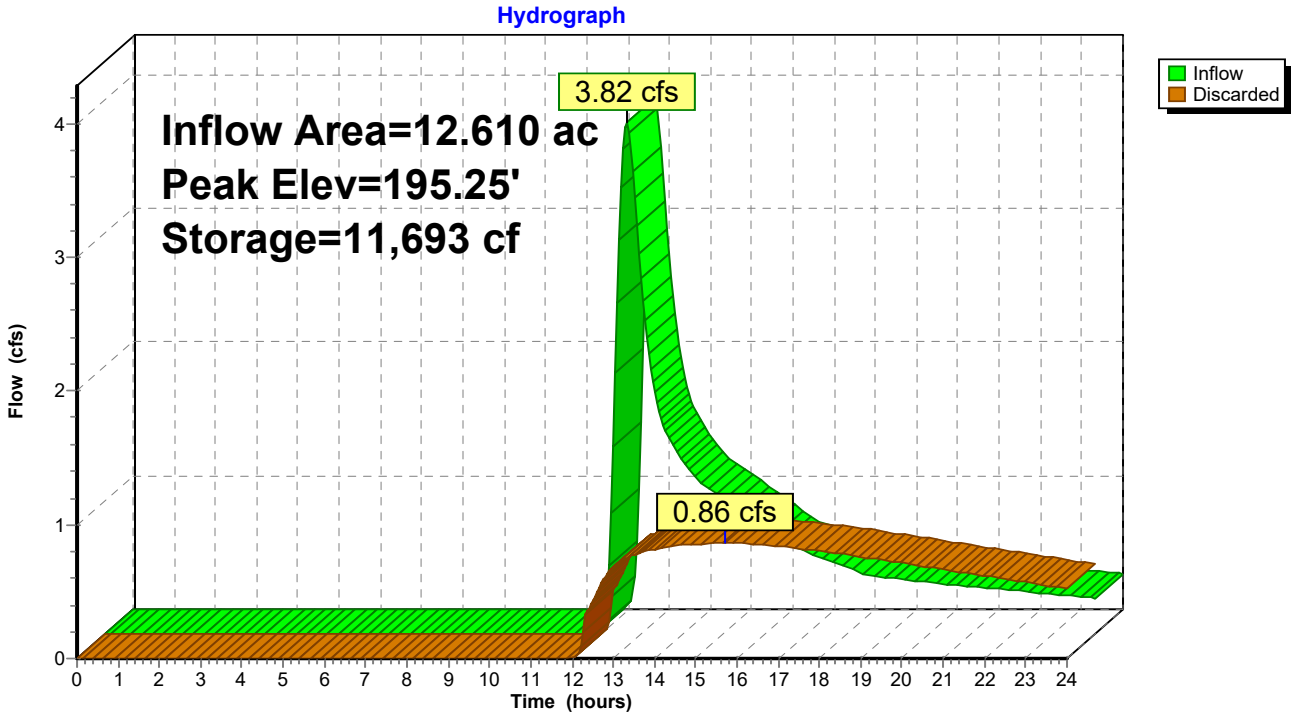
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	195,980 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	5,094	0	0
196.00	18,796	23,890	23,890
198.00	36,499	55,295	79,185
200.00	80,296	116,795	195,980

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**2.550 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 182.00'

Discarded OutFlow Max=0.86 cfs @ 15.70 hrs HW=195.25' (Free Discharge)
↑**1=Exfiltration** (Controls 0.86 cfs)

Pond 6P: Ex Basin 3



Stage-Discharge for Pond 6P: Ex Basin 3

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
194.00	0.00	196.65	1.62	199.30	4.46
194.05	0.32	196.70	1.66	199.35	4.54
194.10	0.34	196.75	1.69	199.40	4.61
194.15	0.37	196.80	1.72	199.45	4.69
194.20	0.39	196.85	1.75	199.50	4.77
194.25	0.41	196.90	1.78	199.55	4.85
194.30	0.43	196.95	1.82	199.60	4.93
194.35	0.45	197.00	1.85	199.65	5.00
194.40	0.47	197.05	1.88	199.70	5.08
194.45	0.50	197.10	1.91	199.75	5.16
194.50	0.52	197.15	1.95	199.80	5.24
194.55	0.54	197.20	1.98	199.85	5.32
194.60	0.56	197.25	2.01	199.90	5.40
194.65	0.59	197.30	2.04	199.95	5.48
194.70	0.61	197.35	2.08	200.00	**5.56**
194.75	0.63	197.40	2.11		
194.80	0.65	197.45	2.14		
194.85	0.68	197.50	2.18		
194.90	0.70	197.55	2.21		
194.95	0.72	197.60	2.24		
195.00	0.75	197.65	2.27		
195.05	0.77	197.70	2.31		
195.10	0.79	197.75	2.34		
195.15	0.82	197.80	2.38		
195.20	0.84	197.85	2.41		
195.25	0.86	197.90	2.44		
195.30	0.89	197.95	2.48		
195.35	0.91	198.00	2.51		
195.40	0.93	198.05	2.58		
195.45	0.96	198.10	2.66		
195.50	0.98	198.15	2.73		
195.55	1.00	198.20	2.80		
195.60	1.03	198.25	2.87		
195.65	1.05	198.30	2.95		
195.70	1.08	198.35	3.02		
195.75	1.10	198.40	3.10		
195.80	1.12	198.45	3.17		
195.85	1.15	198.50	3.24		
195.90	1.17	198.55	3.32		
195.95	1.20	198.60	3.39		
196.00	1.22	198.65	3.47		
196.05	1.25	198.70	3.54		
196.10	1.28	198.75	3.62		
196.15	1.31	198.80	3.69		
196.20	1.34	198.85	3.77		
196.25	1.37	198.90	3.84		
196.30	1.41	198.95	3.92		
196.35	1.44	199.00	4.00		
196.40	1.47	199.05	4.07		
196.45	1.50	199.10	4.15		
196.50	1.53	199.15	4.23		
196.55	1.56	199.20	4.30		
196.60	1.59	199.25	4.38		

Stage-Area-Storage for Pond 6P: Ex Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	5,094	0
194.10	5,779	544
194.20	6,464	1,156
194.30	7,149	1,836
194.40	7,834	2,586
194.50	8,520	3,403
194.60	9,205	4,290
194.70	9,890	5,244
194.80	10,575	6,268
194.90	11,260	7,359
195.00	11,945	8,520
195.10	12,630	9,748
195.20	13,315	11,046
195.30	14,000	12,411
195.40	14,685	13,846
195.50	15,371	15,348
195.60	16,056	16,920
195.70	16,741	18,559
195.80	17,426	20,268
195.90	18,111	22,045
196.00	18,796	23,890
196.10	19,681	25,814
196.20	20,566	27,826
196.30	21,451	29,927
196.40	22,337	32,117
196.50	23,222	34,394
196.60	24,107	36,761
196.70	24,992	39,216
196.80	25,877	41,759
196.90	26,762	44,391
197.00	27,648	47,112
197.10	28,533	49,921
197.20	29,418	52,818
197.30	30,303	55,804
197.40	31,188	58,879
197.50	32,073	62,042
197.60	32,958	65,294
197.70	33,844	68,634
197.80	34,729	72,062
197.90	35,614	75,579
198.00	36,499	79,185
198.10	38,689	82,944
198.20	40,879	86,923
198.30	43,069	91,120
198.40	45,258	95,536
198.50	47,448	100,172
198.60	49,638	105,026
198.70	51,828	110,099
198.80	54,018	115,392
198.90	56,208	120,903
199.00	58,398	126,633
199.10	60,587	132,582
199.20	62,777	138,751
199.30	64,967	145,138
199.40	67,157	151,744
199.50	69,347	158,569
199.60	71,537	165,613
199.70	73,726	172,877
199.80	75,916	180,359
199.90	78,106	188,060
200.00	**80,296**	**195,980**

Summary for Pond 7P: Ex Basin 2

Inflow Area = 6.930 ac, 0.00% Impervious, Inflow Depth > 0.08" for 25-yr event
Inflow = 0.07 cfs @ 15.69 hrs, Volume= 0.044 af
Outflow = 0.07 cfs @ 15.84 hrs, Volume= 0.043 af, Atten= 0%, Lag= 9.2 min
Discarded = 0.07 cfs @ 15.84 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 203.00' @ 15.84 hrs Surf.Area= 14,483 sf Storage= 36 cf

Plug-Flow detention time= 8.9 min calculated for 0.043 af (99% of inflow)
Center-of-Mass det. time= 5.2 min (1,126.2 - 1,121.0)

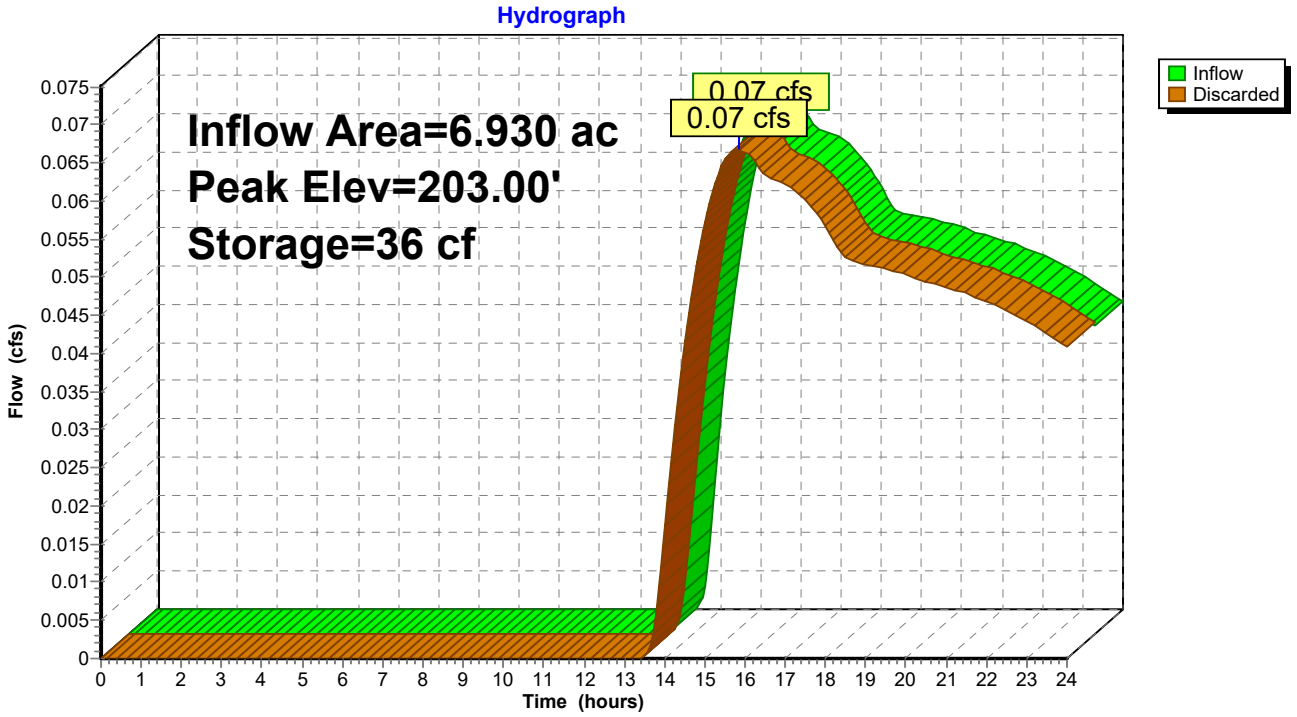
Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	57,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
203.00	14,476	0	0
204.00	17,492	15,984	15,984
205.00	20,565	19,029	35,013
206.00	25,352	22,959	57,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	203.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.00'

Discarded OutFlow Max=0.81 cfs @ 15.84 hrs HW=203.00' (Free Discharge)
↑**1=Exfiltration** (Controls 0.81 cfs)

Pond 7P: Ex Basin 2



Stage-Discharge for Pond 7P: Ex Basin 2

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
203.00	0.00	204.06	1.08	205.12	1.39
203.02	0.81	204.08	1.09	205.14	1.39
203.04	0.82	204.10	1.09	205.16	1.40
203.06	0.82	204.12	1.10	205.18	1.41
203.08	0.83	204.14	1.10	205.20	1.42
203.10	0.83	204.16	1.11	205.22	1.42
203.12	0.84	204.18	1.11	205.24	1.43
203.14	0.84	204.20	1.12	205.26	1.44
203.16	0.85	204.22	1.12	205.28	1.45
203.18	0.85	204.24	1.13	205.30	1.45
203.20	0.86	204.26	1.13	205.32	1.46
203.22	0.86	204.28	1.14	205.34	1.47
203.24	0.87	204.30	1.15	205.36	1.48
203.26	0.87	204.32	1.15	205.38	1.49
203.28	0.88	204.34	1.16	205.40	1.49
203.30	0.88	204.36	1.16	205.42	1.50
203.32	0.89	204.38	1.17	205.44	1.51
203.34	0.89	204.40	1.17	205.46	1.52
203.36	0.90	204.42	1.18	205.48	1.52
203.38	0.90	204.44	1.18	205.50	1.53
203.40	0.91	204.46	1.19	205.52	1.54
203.42	0.91	204.48	1.19	205.54	1.55
203.44	0.92	204.50	1.20	205.56	1.56
203.46	0.92	204.52	1.21	205.58	1.56
203.48	0.93	204.54	1.21	205.60	1.57
203.50	0.93	204.56	1.22	205.62	1.58
203.52	0.94	204.58	1.22	205.64	1.59
203.54	0.94	204.60	1.23	205.66	1.59
203.56	0.95	204.62	1.23	205.68	1.60
203.58	0.95	204.64	1.24	205.70	1.61
203.60	0.96	204.66	1.24	205.72	1.62
203.62	0.96	204.68	1.25	205.74	1.63
203.64	0.97	204.70	1.26	205.76	1.63
203.66	0.98	204.72	1.26	205.78	1.64
203.68	0.98	204.74	1.27	205.80	1.65
203.70	0.99	204.76	1.27	205.82	1.66
203.72	0.99	204.78	1.28	205.84	1.67
203.74	1.00	204.80	1.28	205.86	1.67
203.76	1.00	204.82	1.29	205.88	1.68
203.78	1.01	204.84	1.29	205.90	1.69
203.80	1.01	204.86	1.30	205.92	1.70
203.82	1.02	204.88	1.31	205.94	1.71
203.84	1.02	204.90	1.31	205.96	1.71
203.86	1.03	204.92	1.32	205.98	1.72
203.88	1.03	204.94	1.32	206.00	**1.73**
203.90	1.04	204.96	1.33		
203.92	1.04	204.98	1.33		
203.94	1.05	205.00	1.34		
203.96	1.05	205.02	1.35		
203.98	1.06	205.04	1.36		
204.00	1.06	205.06	1.36		
204.02	1.07	205.08	1.37		
204.04	1.08	205.10	1.38		

Stage-Area-Storage for Pond 7P: Ex Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	14,476	0
203.05	14,627	728
203.10	14,778	1,463
203.15	14,928	2,205
203.20	15,079	2,956
203.25	15,230	3,713
203.30	15,381	4,479
203.35	15,532	5,251
203.40	15,682	6,032
203.45	15,833	6,820
203.50	15,984	7,615
203.55	16,135	8,418
203.60	16,286	9,228
203.65	16,436	10,047
203.70	16,587	10,872
203.75	16,738	11,705
203.80	16,889	12,546
203.85	17,040	13,394
203.90	17,190	14,250
203.95	17,341	15,113
204.00	17,492	15,984
204.05	17,646	16,862
204.10	17,799	17,749
204.15	17,953	18,642
204.20	18,107	19,544
204.25	18,260	20,453
204.30	18,414	21,370
204.35	18,568	22,294
204.40	18,721	23,227
204.45	18,875	24,167
204.50	19,029	25,114
204.55	19,182	26,069
204.60	19,336	27,032
204.65	19,489	28,003
204.70	19,643	28,981
204.75	19,797	29,967
204.80	19,950	30,961
204.85	20,104	31,962
204.90	20,258	32,971
204.95	20,411	33,988
205.00	20,565	35,013
205.05	20,804	36,047
205.10	21,044	37,093
205.15	21,283	38,151
205.20	21,522	39,221
205.25	21,762	40,303
205.30	22,001	41,397
205.35	22,240	42,503
205.40	22,480	43,621
205.45	22,719	44,751
205.50	22,959	45,893
205.55	23,198	47,047
205.60	23,437	48,213
205.65	23,677	49,391
205.70	23,916	50,581
205.75	24,155	51,783
205.80	24,395	52,996
205.85	24,634	54,222
205.90	24,873	55,460
205.95	25,113	56,709
206.00	**25,352**	**57,971**

Summary for Pond 8P: Ex Basin 2

Inflow Area = 6.930 ac, 0.00% Impervious, Inflow Depth > 0.75" for 25-yr event
Inflow = 2.46 cfs @ 12.47 hrs, Volume= 0.433 af
Outflow = 0.86 cfs @ 13.29 hrs, Volume= 0.431 af, Atten= 65%, Lag= 49.0 min
Discarded = 0.86 cfs @ 13.29 hrs, Volume= 0.431 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 203.22' @ 13.29 hrs Surf.Area= 15,145 sf Storage= 3,287 cf

Plug-Flow detention time= 31.5 min calculated for 0.430 af (99% of inflow)
Center-of-Mass det. time= 29.3 min (961.9 - 932.5)

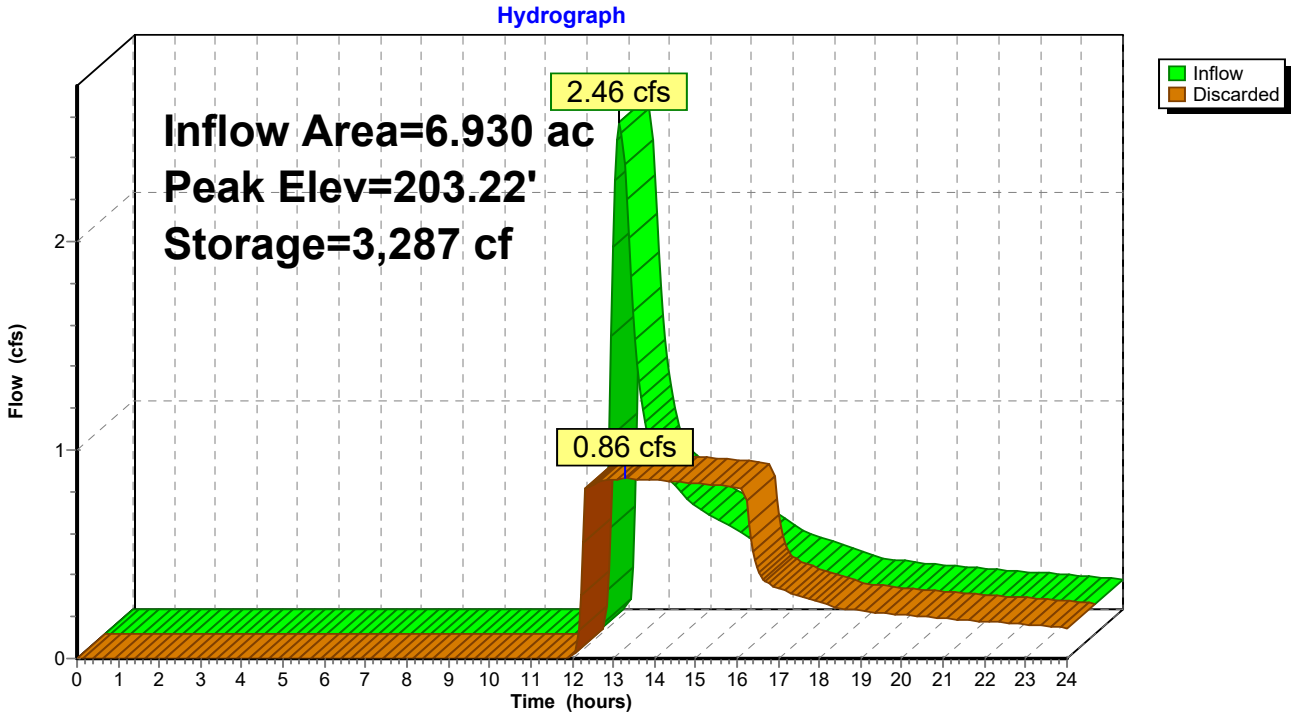
Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	57,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
203.00	14,476	0	0
204.00	17,492	15,984	15,984
205.00	20,565	19,029	35,013
206.00	25,352	22,959	57,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	203.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.00'

Discarded OutFlow Max=0.86 cfs @ 13.29 hrs HW=203.22' (Free Discharge)
↑**1=Exfiltration** (Controls 0.86 cfs)

Pond 8P: Ex Basin 2



Stage-Discharge for Pond 8P: Ex Basin 2

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
203.00	0.00	204.06	1.08	205.12	1.39
203.02	0.81	204.08	1.09	205.14	1.39
203.04	0.82	204.10	1.09	205.16	1.40
203.06	0.82	204.12	1.10	205.18	1.41
203.08	0.83	204.14	1.10	205.20	1.42
203.10	0.83	204.16	1.11	205.22	1.42
203.12	0.84	204.18	1.11	205.24	1.43
203.14	0.84	204.20	1.12	205.26	1.44
203.16	0.85	204.22	1.12	205.28	1.45
203.18	0.85	204.24	1.13	205.30	1.45
203.20	0.86	204.26	1.13	205.32	1.46
203.22	0.86	204.28	1.14	205.34	1.47
203.24	0.87	204.30	1.15	205.36	1.48
203.26	0.87	204.32	1.15	205.38	1.49
203.28	0.88	204.34	1.16	205.40	1.49
203.30	0.88	204.36	1.16	205.42	1.50
203.32	0.89	204.38	1.17	205.44	1.51
203.34	0.89	204.40	1.17	205.46	1.52
203.36	0.90	204.42	1.18	205.48	1.52
203.38	0.90	204.44	1.18	205.50	1.53
203.40	0.91	204.46	1.19	205.52	1.54
203.42	0.91	204.48	1.19	205.54	1.55
203.44	0.92	204.50	1.20	205.56	1.56
203.46	0.92	204.52	1.21	205.58	1.56
203.48	0.93	204.54	1.21	205.60	1.57
203.50	0.93	204.56	1.22	205.62	1.58
203.52	0.94	204.58	1.22	205.64	1.59
203.54	0.94	204.60	1.23	205.66	1.59
203.56	0.95	204.62	1.23	205.68	1.60
203.58	0.95	204.64	1.24	205.70	1.61
203.60	0.96	204.66	1.24	205.72	1.62
203.62	0.96	204.68	1.25	205.74	1.63
203.64	0.97	204.70	1.26	205.76	1.63
203.66	0.98	204.72	1.26	205.78	1.64
203.68	0.98	204.74	1.27	205.80	1.65
203.70	0.99	204.76	1.27	205.82	1.66
203.72	0.99	204.78	1.28	205.84	1.67
203.74	1.00	204.80	1.28	205.86	1.67
203.76	1.00	204.82	1.29	205.88	1.68
203.78	1.01	204.84	1.29	205.90	1.69
203.80	1.01	204.86	1.30	205.92	1.70
203.82	1.02	204.88	1.31	205.94	1.71
203.84	1.02	204.90	1.31	205.96	1.71
203.86	1.03	204.92	1.32	205.98	1.72
203.88	1.03	204.94	1.32	206.00	**1.73**
203.90	1.04	204.96	1.33		
203.92	1.04	204.98	1.33		
203.94	1.05	205.00	1.34		
203.96	1.05	205.02	1.35		
203.98	1.06	205.04	1.36		
204.00	1.06	205.06	1.36		
204.02	1.07	205.08	1.37		
204.04	1.08	205.10	1.38		

Stage-Area-Storage for Pond 8P: Ex Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	14,476	0
203.05	14,627	728
203.10	14,778	1,463
203.15	14,928	2,205
203.20	15,079	2,956
203.25	15,230	3,713
203.30	15,381	4,479
203.35	15,532	5,251
203.40	15,682	6,032
203.45	15,833	6,820
203.50	15,984	7,615
203.55	16,135	8,418
203.60	16,286	9,228
203.65	16,436	10,047
203.70	16,587	10,872
203.75	16,738	11,705
203.80	16,889	12,546
203.85	17,040	13,394
203.90	17,190	14,250
203.95	17,341	15,113
204.00	17,492	15,984
204.05	17,646	16,862
204.10	17,799	17,749
204.15	17,953	18,642
204.20	18,107	19,544
204.25	18,260	20,453
204.30	18,414	21,370
204.35	18,568	22,294
204.40	18,721	23,227
204.45	18,875	24,167
204.50	19,029	25,114
204.55	19,182	26,069
204.60	19,336	27,032
204.65	19,489	28,003
204.70	19,643	28,981
204.75	19,797	29,967
204.80	19,950	30,961
204.85	20,104	31,962
204.90	20,258	32,971
204.95	20,411	33,988
205.00	20,565	35,013
205.05	20,804	36,047
205.10	21,044	37,093
205.15	21,283	38,151
205.20	21,522	39,221
205.25	21,762	40,303
205.30	22,001	41,397
205.35	22,240	42,503
205.40	22,480	43,621
205.45	22,719	44,751
205.50	22,959	45,893
205.55	23,198	47,047
205.60	23,437	48,213
205.65	23,677	49,391
205.70	23,916	50,581
205.75	24,155	51,783
205.80	24,395	52,996
205.85	24,634	54,222
205.90	24,873	55,460
205.95	25,113	56,709
206.00	**25,352**	**57,971**

Summary for Pond 10P: Ex Basin 1

Inflow Area = 2.450 ac, 0.41% Impervious, Inflow Depth > 0.95" for 25-yr event
Inflow = 1.35 cfs @ 12.34 hrs, Volume= 0.194 af
Outflow = 0.23 cfs @ 14.90 hrs, Volume= 0.173 af, Atten= 83%, Lag= 153.5 min
Discarded = 0.23 cfs @ 14.90 hrs, Volume= 0.173 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 205.94' @ 14.90 hrs Surf.Area= 3,759 sf Storage= 3,066 cf

Plug-Flow detention time= 186.3 min calculated for 0.173 af (89% of inflow)
Center-of-Mass det. time= 135.8 min (1,050.1 - 914.3)

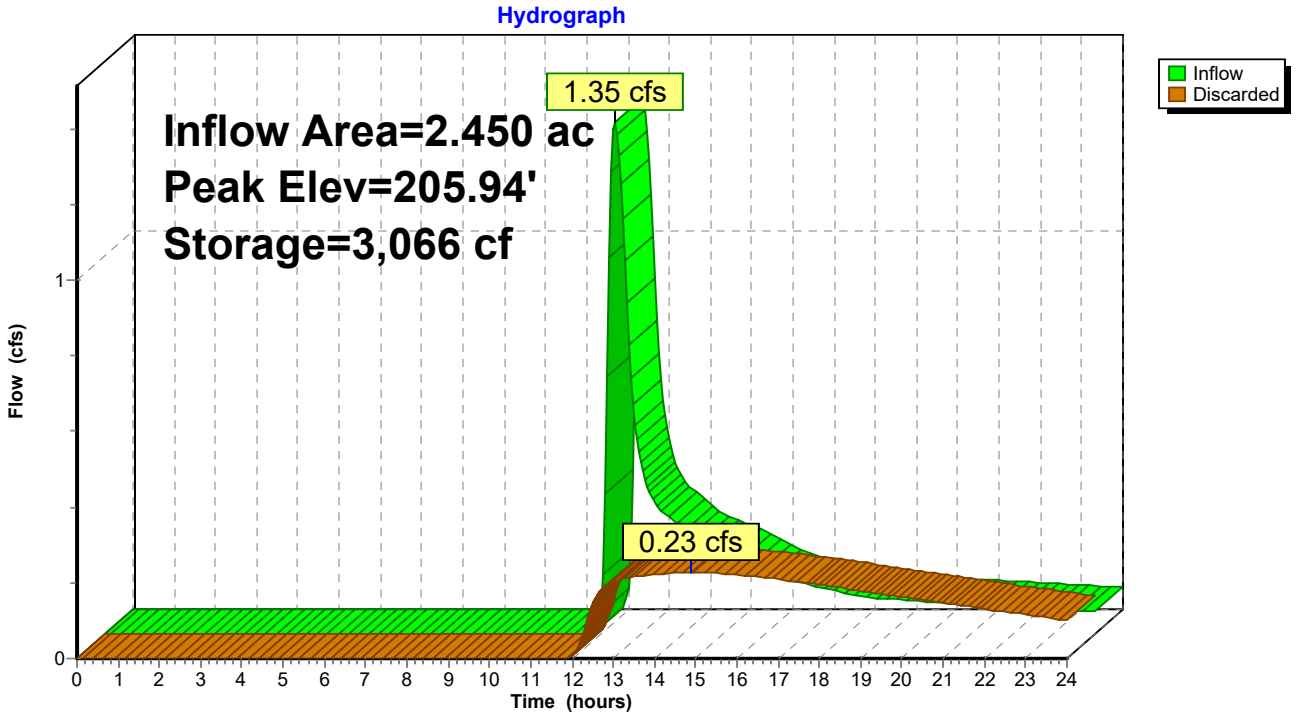
Volume	Invert	Avail.Storage	Storage Description
#1	204.00'	8,993 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
204.00	59	0	0
205.00	1,321	690	690
206.00	3,928	2,625	3,315
207.00	7,428	5,678	8,993

Device	Routing	Invert	Outlet Devices
#1	Discarded	204.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.00'

Discarded OutFlow Max=0.23 cfs @ 14.90 hrs HW=205.94' (Free Discharge)
↑**1=Exfiltration** (Controls 0.23 cfs)

Pond 10P: Ex Basin 1



Stage-Discharge for Pond 10P: Ex Basin 1

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
204.00	0.00	205.06	0.09	206.12	0.26
204.02	0.00	205.08	0.09	206.14	0.27
204.04	0.01	205.10	0.09	206.16	0.27
204.06	0.01	205.12	0.10	206.18	0.27
204.08	0.01	205.14	0.10	206.20	0.28
204.10	0.01	205.16	0.10	206.22	0.28
204.12	0.01	205.18	0.10	206.24	0.29
204.14	0.01	205.20	0.11	206.26	0.29
204.16	0.01	205.22	0.11	206.28	0.30
204.18	0.02	205.24	0.11	206.30	0.30
204.20	0.02	205.26	0.12	206.32	0.31
204.22	0.02	205.28	0.12	206.34	0.31
204.24	0.02	205.30	0.12	206.36	0.31
204.26	0.02	205.32	0.13	206.38	0.32
204.28	0.02	205.34	0.13	206.40	0.32
204.30	0.02	205.36	0.13	206.42	0.33
204.32	0.03	205.38	0.14	206.44	0.33
204.34	0.03	205.40	0.14	206.46	0.34
204.36	0.03	205.42	0.14	206.48	0.34
204.38	0.03	205.44	0.15	206.50	0.35
204.40	0.03	205.46	0.15	206.52	0.35
204.42	0.03	205.48	0.15	206.54	0.35
204.44	0.04	205.50	0.16	206.56	0.36
204.46	0.04	205.52	0.16	206.58	0.36
204.48	0.04	205.54	0.16	206.60	0.37
204.50	0.04	205.56	0.16	206.62	0.37
204.52	0.04	205.58	0.17	206.64	0.38
204.54	0.04	205.60	0.17	206.66	0.38
204.56	0.04	205.62	0.17	206.68	0.39
204.58	0.05	205.64	0.18	206.70	0.39
204.60	0.05	205.66	0.18	206.72	0.39
204.62	0.05	205.68	0.18	206.74	0.40
204.64	0.05	205.70	0.19	206.76	0.40
204.66	0.05	205.72	0.19	206.78	0.41
204.68	0.05	205.74	0.19	206.80	0.41
204.70	0.05	205.76	0.20	206.82	0.42
204.72	0.06	205.78	0.20	206.84	0.42
204.74	0.06	205.80	0.20	206.86	0.43
204.76	0.06	205.82	0.21	206.88	0.43
204.78	0.06	205.84	0.21	206.90	0.44
204.80	0.06	205.86	0.21	206.92	0.44
204.82	0.06	205.88	0.22	206.94	0.44
204.84	0.07	205.90	0.22	206.96	0.45
204.86	0.07	205.92	0.22	206.98	0.45
204.88	0.07	205.94	0.23	207.00	**0.46**
204.90	0.07	205.96	0.23		
204.92	0.07	205.98	0.23		
204.94	0.07	206.00	0.24		
204.96	0.07	206.02	0.24		
204.98	0.08	206.04	0.24		
205.00	0.08	206.06	0.25		
205.02	0.08	206.08	0.25		
205.04	0.08	206.10	0.26		

Stage-Area-Storage for Pond 10P: Ex Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	59	0
204.05	122	5
204.10	185	12
204.15	248	23
204.20	311	37
204.25	375	54
204.30	438	74
204.35	501	98
204.40	564	125
204.45	627	154
204.50	690	187
204.55	753	223
204.60	816	263
204.65	879	305
204.70	942	350
204.75	1,006	399
204.80	1,069	451
204.85	1,132	506
204.90	1,195	564
204.95	1,258	626
205.00	1,321	690
205.05	1,451	759
205.10	1,582	835
205.15	1,712	917
205.20	1,842	1,006
205.25	1,973	1,102
205.30	2,103	1,204
205.35	2,233	1,312
205.40	2,364	1,427
205.45	2,494	1,548
205.50	2,625	1,676
205.55	2,755	1,811
205.60	2,885	1,952
205.65	3,016	2,099
205.70	3,146	2,253
205.75	3,276	2,414
205.80	3,407	2,581
205.85	3,537	2,755
205.90	3,667	2,935
205.95	3,798	3,121
206.00	3,928	3,315
206.05	4,103	3,515
206.10	4,278	3,725
206.15	4,453	3,943
206.20	4,628	4,170
206.25	4,803	4,406
206.30	4,978	4,650
206.35	5,153	4,904
206.40	5,328	5,166
206.45	5,503	5,436
206.50	5,678	5,716
206.55	5,853	6,004
206.60	6,028	6,301
206.65	6,203	6,607
206.70	6,378	6,922
206.75	6,553	7,245
206.80	6,728	7,577
206.85	6,903	7,918
206.90	7,078	8,267
206.95	7,253	8,625
207.00	**7,428**	**8,993**

Summary for Pond 13P: Ex Basin 1

Inflow Area = 2.450 ac, 0.00% Impervious, Inflow Depth > 0.11" for 25-yr event
Inflow = 0.03 cfs @ 15.26 hrs, Volume= 0.022 af
Outflow = 0.03 cfs @ 16.96 hrs, Volume= 0.021 af, Atten= 17%, Lag= 102.1 min
Discarded = 0.03 cfs @ 16.96 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 204.35' @ 16.96 hrs Surf.Area= 504 sf Storage= 99 cf

Plug-Flow detention time= 47.5 min calculated for 0.021 af (95% of inflow)
Center-of-Mass det. time= 31.6 min (1,121.0 - 1,089.3)

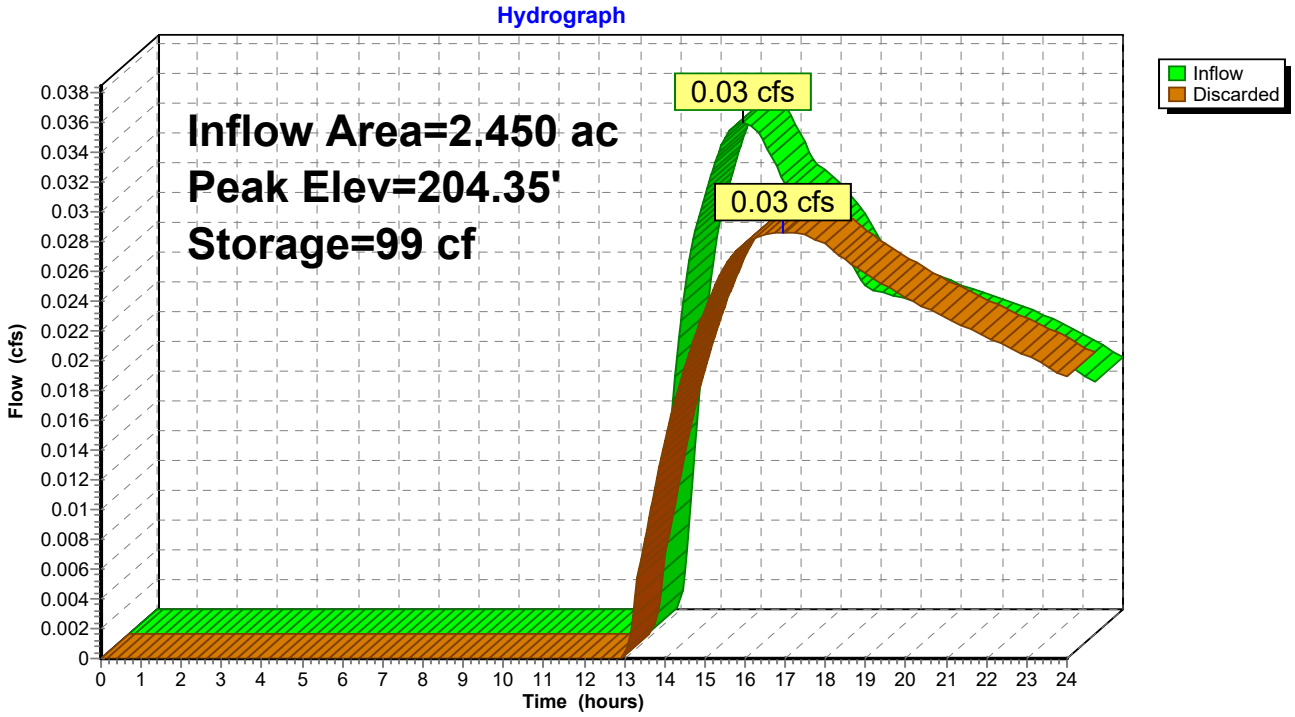
Volume	Invert	Avail.Storage	Storage Description
#1	204.00'	8,993 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
204.00	59	0	0
205.00	1,321	690	690
206.00	3,928	2,625	3,315
207.00	7,428	5,678	8,993

Device	Routing	Invert	Outlet Devices
#1	Discarded	204.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.00'

Discarded OutFlow Max=0.03 cfs @ 16.96 hrs HW=204.35' (Free Discharge)
↑**1=Exfiltration** (Controls 0.03 cfs)

Pond 13P: Ex Basin 1



Stage-Discharge for Pond 13P: Ex Basin 1

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
204.00	0.00	205.06	0.09	206.12	0.26
204.02	0.00	205.08	0.09	206.14	0.27
204.04	0.01	205.10	0.09	206.16	0.27
204.06	0.01	205.12	0.10	206.18	0.27
204.08	0.01	205.14	0.10	206.20	0.28
204.10	0.01	205.16	0.10	206.22	0.28
204.12	0.01	205.18	0.10	206.24	0.29
204.14	0.01	205.20	0.11	206.26	0.29
204.16	0.01	205.22	0.11	206.28	0.30
204.18	0.02	205.24	0.11	206.30	0.30
204.20	0.02	205.26	0.12	206.32	0.31
204.22	0.02	205.28	0.12	206.34	0.31
204.24	0.02	205.30	0.12	206.36	0.31
204.26	0.02	205.32	0.13	206.38	0.32
204.28	0.02	205.34	0.13	206.40	0.32
204.30	0.02	205.36	0.13	206.42	0.33
204.32	0.03	205.38	0.14	206.44	0.33
204.34	0.03	205.40	0.14	206.46	0.34
204.36	0.03	205.42	0.14	206.48	0.34
204.38	0.03	205.44	0.15	206.50	0.35
204.40	0.03	205.46	0.15	206.52	0.35
204.42	0.03	205.48	0.15	206.54	0.35
204.44	0.04	205.50	0.16	206.56	0.36
204.46	0.04	205.52	0.16	206.58	0.36
204.48	0.04	205.54	0.16	206.60	0.37
204.50	0.04	205.56	0.16	206.62	0.37
204.52	0.04	205.58	0.17	206.64	0.38
204.54	0.04	205.60	0.17	206.66	0.38
204.56	0.04	205.62	0.17	206.68	0.39
204.58	0.05	205.64	0.18	206.70	0.39
204.60	0.05	205.66	0.18	206.72	0.39
204.62	0.05	205.68	0.18	206.74	0.40
204.64	0.05	205.70	0.19	206.76	0.40
204.66	0.05	205.72	0.19	206.78	0.41
204.68	0.05	205.74	0.19	206.80	0.41
204.70	0.05	205.76	0.20	206.82	0.42
204.72	0.06	205.78	0.20	206.84	0.42
204.74	0.06	205.80	0.20	206.86	0.43
204.76	0.06	205.82	0.21	206.88	0.43
204.78	0.06	205.84	0.21	206.90	0.44
204.80	0.06	205.86	0.21	206.92	0.44
204.82	0.06	205.88	0.22	206.94	0.44
204.84	0.07	205.90	0.22	206.96	0.45
204.86	0.07	205.92	0.22	206.98	0.45
204.88	0.07	205.94	0.23	207.00	**0.46**
204.90	0.07	205.96	0.23		
204.92	0.07	205.98	0.23		
204.94	0.07	206.00	0.24		
204.96	0.07	206.02	0.24		
204.98	0.08	206.04	0.24		
205.00	0.08	206.06	0.25		
205.02	0.08	206.08	0.25		
205.04	0.08	206.10	0.26		

Stage-Area-Storage for Pond 13P: Ex Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	59	0
204.05	122	5
204.10	185	12
204.15	248	23
204.20	311	37
204.25	375	54
204.30	438	74
204.35	501	98
204.40	564	125
204.45	627	154
204.50	690	187
204.55	753	223
204.60	816	263
204.65	879	305
204.70	942	350
204.75	1,006	399
204.80	1,069	451
204.85	1,132	506
204.90	1,195	564
204.95	1,258	626
205.00	1,321	690
205.05	1,451	759
205.10	1,582	835
205.15	1,712	917
205.20	1,842	1,006
205.25	1,973	1,102
205.30	2,103	1,204
205.35	2,233	1,312
205.40	2,364	1,427
205.45	2,494	1,548
205.50	2,625	1,676
205.55	2,755	1,811
205.60	2,885	1,952
205.65	3,016	2,099
205.70	3,146	2,253
205.75	3,276	2,414
205.80	3,407	2,581
205.85	3,537	2,755
205.90	3,667	2,935
205.95	3,798	3,121
206.00	3,928	3,315
206.05	4,103	3,515
206.10	4,278	3,725
206.15	4,453	3,943
206.20	4,628	4,170
206.25	4,803	4,406
206.30	4,978	4,650
206.35	5,153	4,904
206.40	5,328	5,166
206.45	5,503	5,436
206.50	5,678	5,716
206.55	5,853	6,004
206.60	6,028	6,301
206.65	6,203	6,607
206.70	6,378	6,922
206.75	6,553	7,245
206.80	6,728	7,577
206.85	6,903	7,918
206.90	7,078	8,267
206.95	7,253	8,625
207.00	**7,428**	**8,993**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EDA-2 Runoff Area=6.930 ac 0.00% Impervious Runoff Depth>0.18"
Flow Length=730' Tc=22.5 min CN=30 Runoff=0.17 cfs 0.103 af

Subcatchment 2S: EDA-3 Runoff Area=12.610 ac 0.00% Impervious Runoff Depth>0.18"
Flow Length=854' Tc=34.1 min CN=30 Runoff=0.31 cfs 0.186 af

Subcatchment 3S: PDA-1 Runoff Area=2.450 ac 0.41% Impervious Runoff Depth>1.31"
Flow Length=595' Tc=18.2 min CN=47 Runoff=2.08 cfs 0.267 af

Subcatchment 4S: PDA-3 Runoff Area=12.610 ac 0.00% Impervious Runoff Depth>1.06"
Flow Length=854' Tc=34.1 min CN=44 Runoff=6.21 cfs 1.115 af

Subcatchment 9S: PDA-2 Runoff Area=6.930 ac 0.00% Impervious Runoff Depth>1.07"
Flow Length=730' Tc=22.5 min CN=44 Runoff=4.02 cfs 0.616 af

Subcatchment 12S: EDA-1 Runoff Area=2.450 ac 0.00% Impervious Runoff Depth>0.23"
Flow Length=595' Tc=18.2 min CN=31 Runoff=0.08 cfs 0.046 af

Pond 5P: Ex Basin 3 Peak Elev=194.06' Storage=296 cf Inflow=0.31 cfs 0.186 af
Outflow=0.30 cfs 0.183 af

Pond 6P: Ex Basin 3 Peak Elev=195.75' Storage=19,476 cf Inflow=6.21 cfs 1.115 af
Outflow=1.10 cfs 0.926 af

Pond 7P: Ex Basin 2 Peak Elev=203.01' Storage=90 cf Inflow=0.17 cfs 0.103 af
Outflow=0.17 cfs 0.102 af

Pond 8P: Ex Basin 2 Peak Elev=203.47' Storage=7,151 cf Inflow=4.02 cfs 0.616 af
Outflow=0.93 cfs 0.613 af

Pond 10P: Ex Basin 1 Peak Elev=206.29' Storage=4,617 cf Inflow=2.08 cfs 0.267 af
Outflow=0.30 cfs 0.232 af

Pond 13P: Ex Basin 1 Peak Elev=204.72' Storage=370 cf Inflow=0.08 cfs 0.046 af
Outflow=0.06 cfs 0.043 af

Summary for Subcatchment 1S: EDA-2

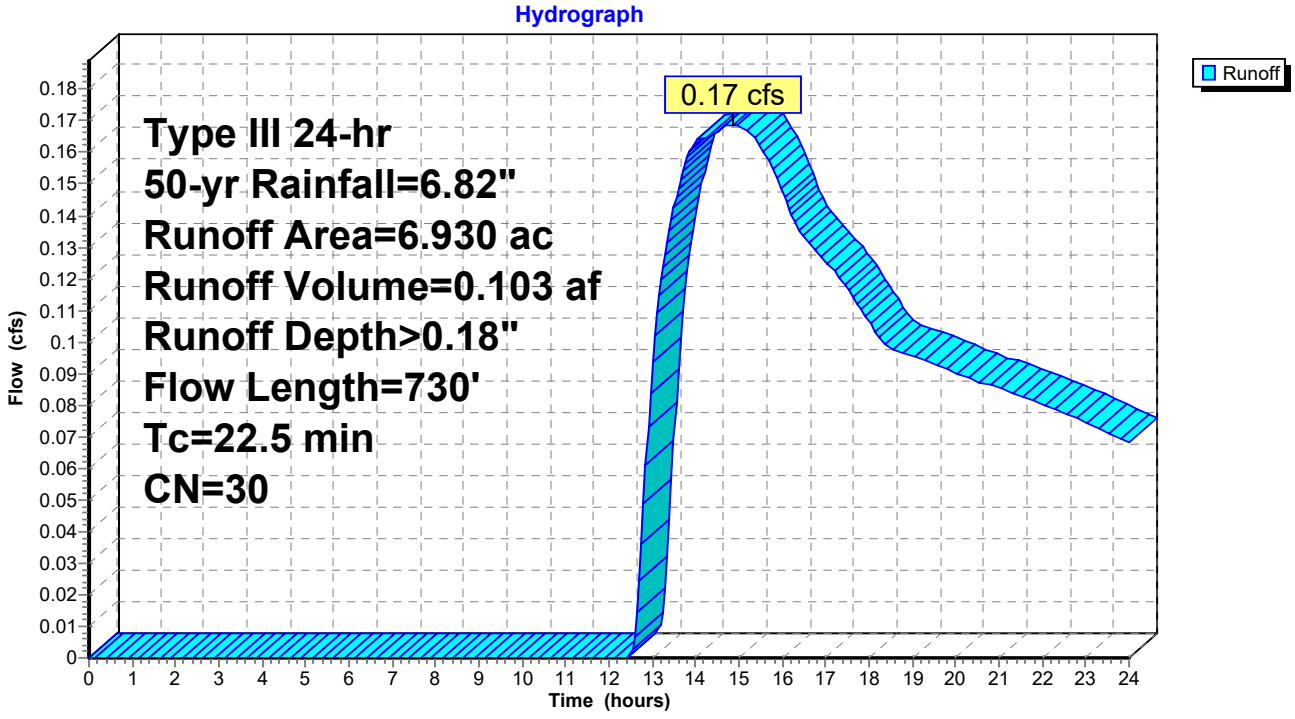
Runoff = 0.17 cfs @ 14.86 hrs, Volume= 0.103 af, Depth> 0.18"
Routed to Pond 7P : Ex Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=6.82"

Area (ac)	CN	Description
6.880	30	Meadow, non-grazed, HSG A
0.050	96	Gravel surface, HSG A
6.930	30	Weighted Average
6.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
10.6	630	0.0200	0.99		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
22.5	730	Total			

Subcatchment 1S: EDA-2



Summary for Subcatchment 2S: EDA-3

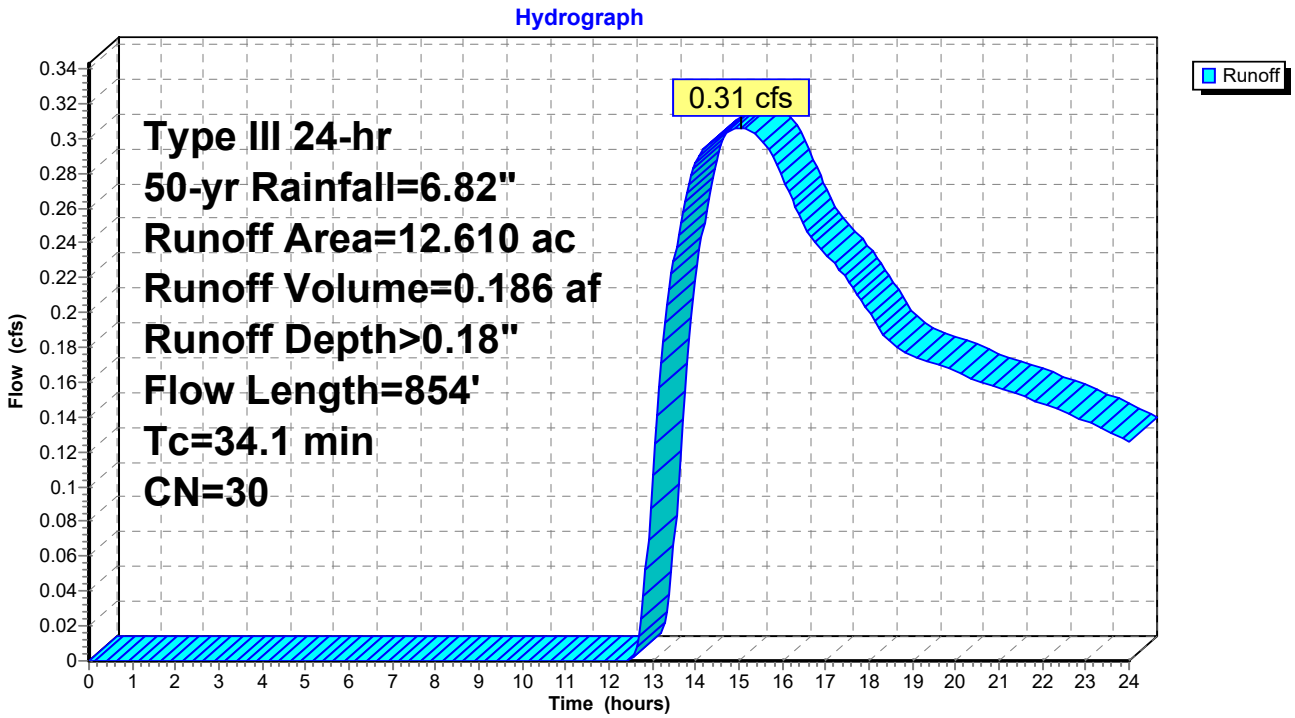
Runoff = 0.31 cfs @ 15.04 hrs, Volume= 0.186 af, Depth> 0.18"
Routed to Pond 5P : Ex Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=6.82"

Area (ac)	CN	Description
12.610	30	Meadow, non-grazed, HSG A
12.610		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.4	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
15.7	754	0.0130	0.80		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
34.1	854	Total			

Subcatchment 2S: EDA-3



Summary for Subcatchment 3S: PDA-1

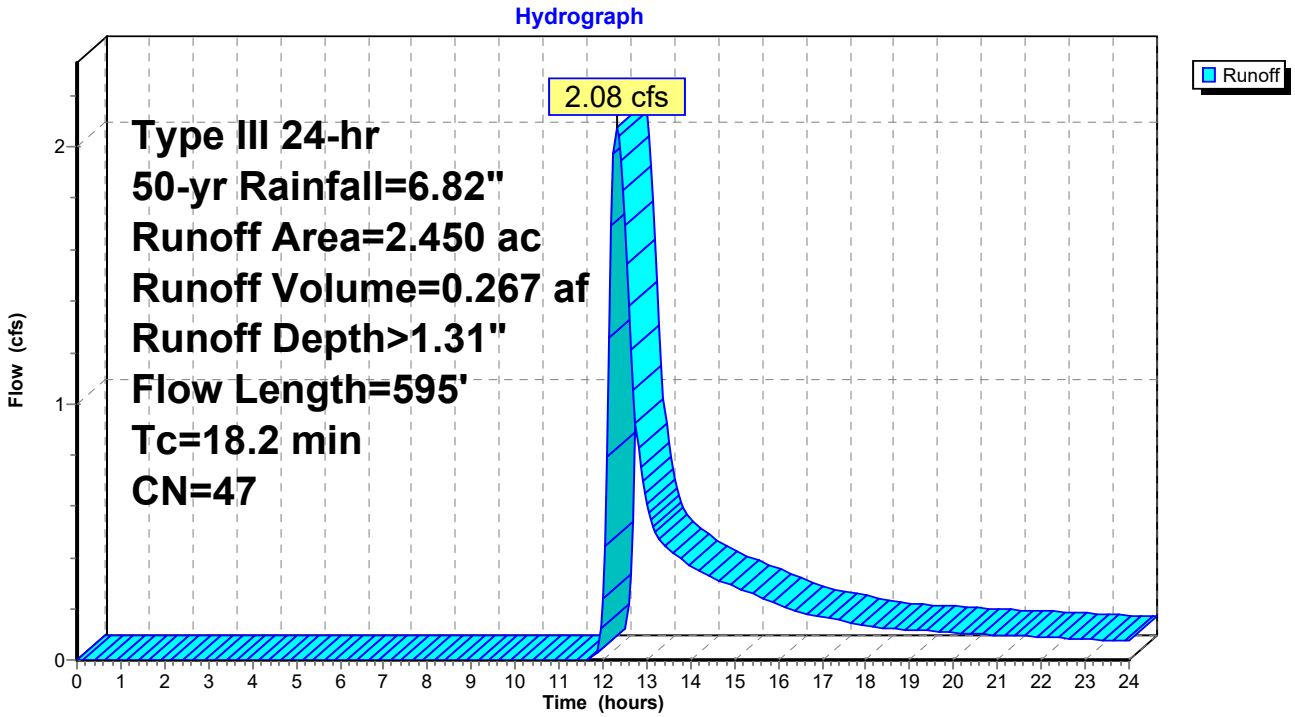
Runoff = 2.08 cfs @ 12.31 hrs, Volume= 0.267 af, Depth> 1.31"
Routed to Pond 10P : Ex Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=6.82"

	Area (ac)	CN	Description
	0.140	96	Gravel surface, HSG A
	0.010	98	Paved parking, HSG A
*	2.300	44	Meadow, non-grazed, HSG A/B
	2.450	47	Weighted Average
	2.440		99.59% Pervious Area
	0.010		0.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0250	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
5.4	495	0.0480	1.53		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
18.2	595	Total			

Subcatchment 3S: PDA-1



Summary for Subcatchment 4S: PDA-3

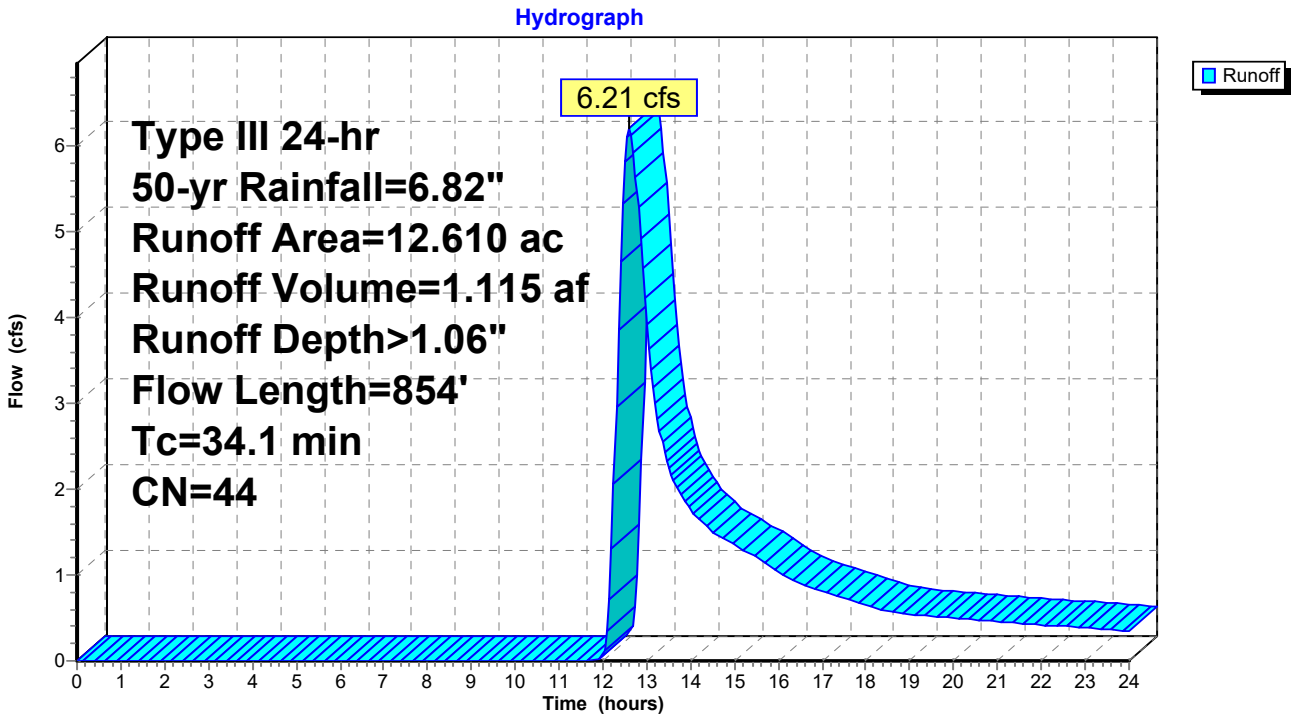
Runoff = 6.21 cfs @ 12.60 hrs, Volume= 1.115 af, Depth> 1.06"
Routed to Pond 6P : Ex Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=6.82"

	Area (ac)	CN	Description
*	12.610	44	Meadow, non-grazed, HSG A/B
	12.610		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.4	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
15.7	754	0.0130	0.80		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
34.1	854	Total			

Subcatchment 4S: PDA-3



Summary for Subcatchment 9S: PDA-2

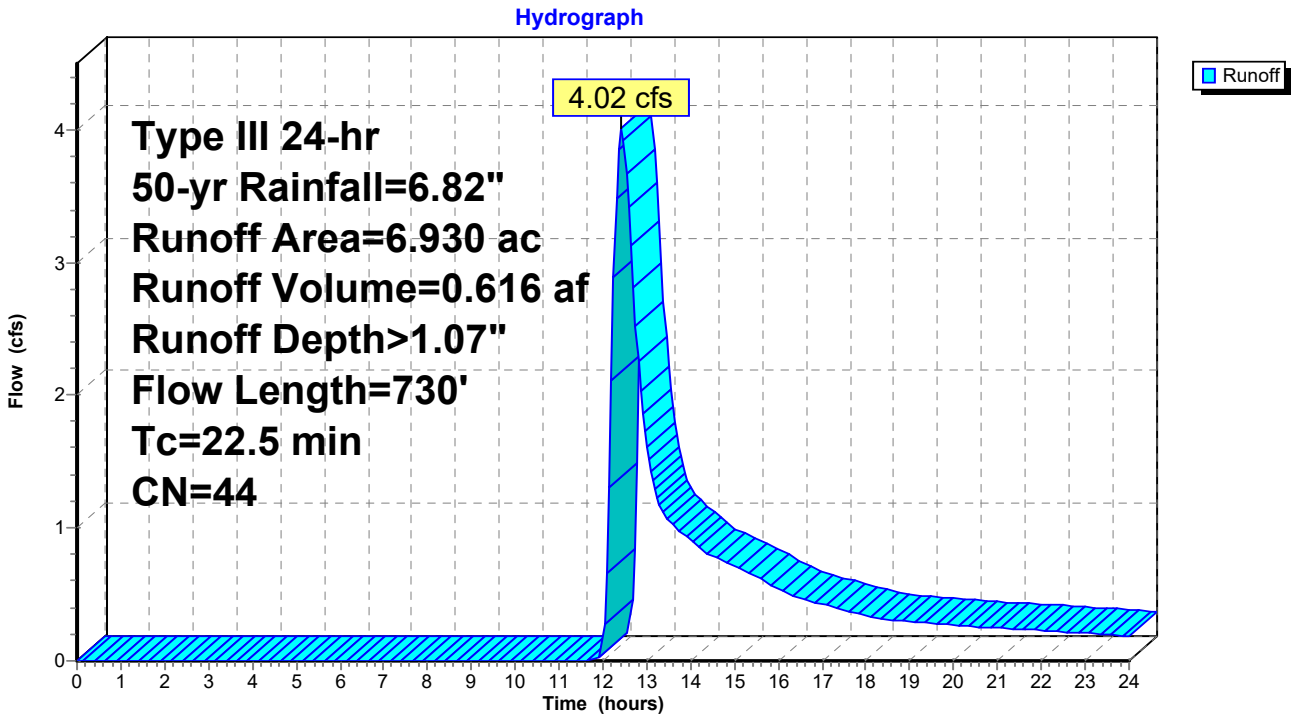
Runoff = 4.02 cfs @ 12.42 hrs, Volume= 0.616 af, Depth> 1.07"
Routed to Pond 8P : Ex Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=6.82"

	Area (ac)	CN	Description
*	6.930	44	Meadow, non-grazed, HSG A/B
	6.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
10.6	630	0.0200	0.99		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
22.5	730	Total			

Subcatchment 9S: PDA-2



Summary for Subcatchment 12S: EDA-1

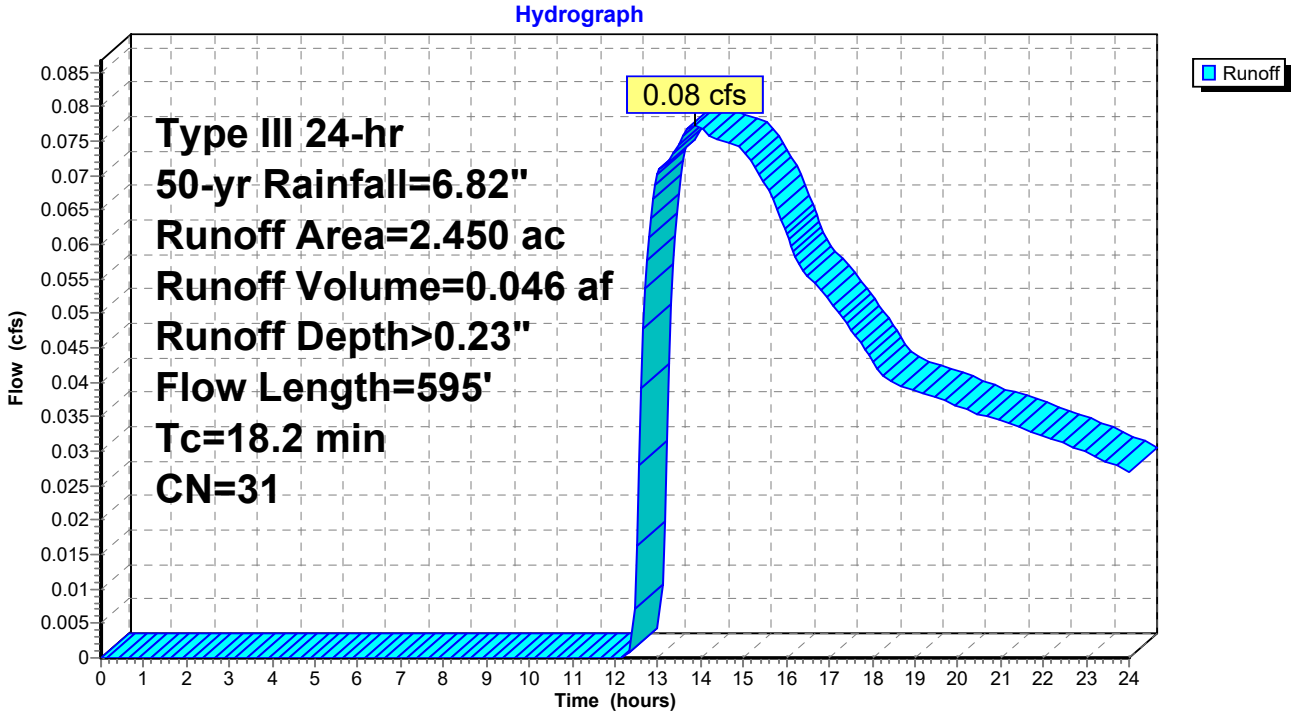
Runoff = 0.08 cfs @ 13.87 hrs, Volume= 0.046 af, Depth> 0.23"
Routed to Pond 13P : Ex Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=6.82"

Area (ac)	CN	Description
0.030	96	Gravel surface, HSG A
2.420	30	Meadow, non-grazed, HSG A
2.450	31	Weighted Average
2.450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0250	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
5.4	495	0.0480	1.53		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
18.2	595	Total			

Subcatchment 12S: EDA-1



Summary for Pond 5P: Ex Basin 3

Inflow Area = 12.610 ac, 0.00% Impervious, Inflow Depth > 0.18" for 50-yr event
Inflow = 0.31 cfs @ 15.04 hrs, Volume= 0.186 af
Outflow = 0.30 cfs @ 15.27 hrs, Volume= 0.183 af, Atten= 1%, Lag= 13.4 min
Discarded = 0.30 cfs @ 15.27 hrs, Volume= 0.183 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 194.06' @ 15.27 hrs Surf.Area= 5,477 sf Storage= 296 cf

Plug-Flow detention time= 16.1 min calculated for 0.183 af (98% of inflow)
Center-of-Mass det. time= 10.3 min (1,072.0 - 1,061.8)

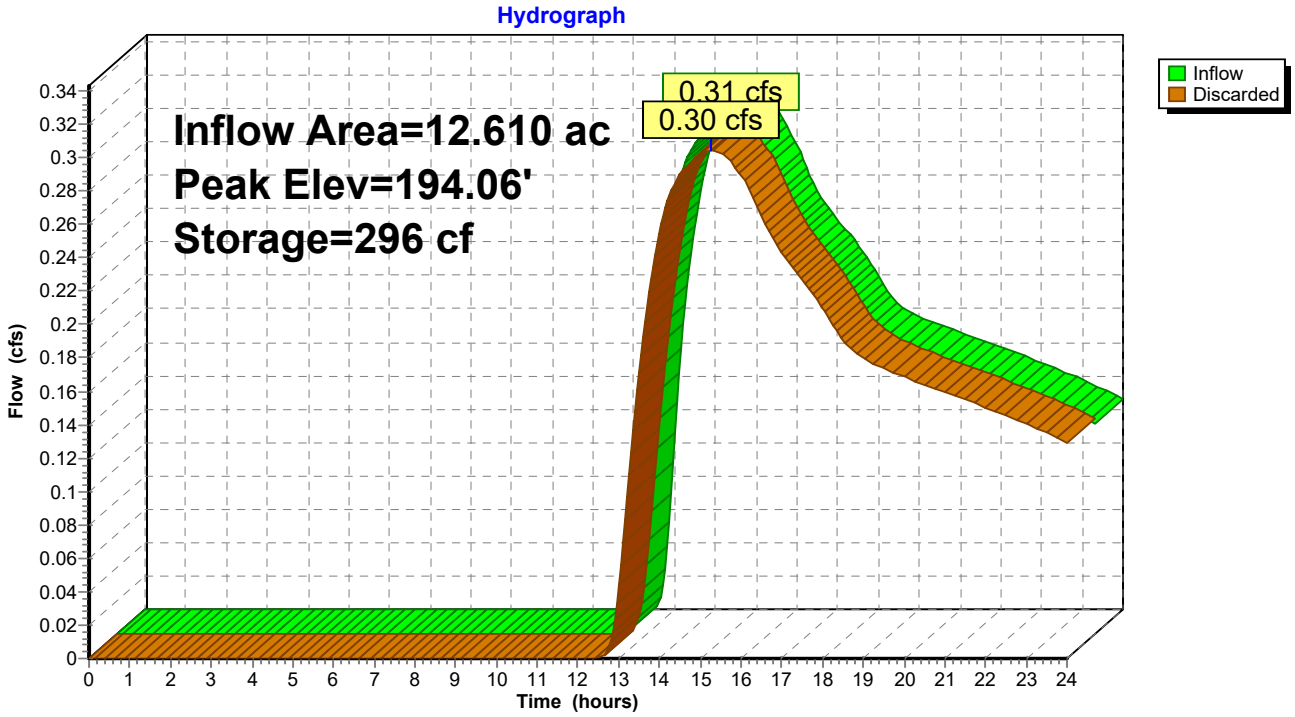
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	195,980 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	5,094	0	0
196.00	18,796	23,890	23,890
198.00	36,499	55,295	79,185
200.00	80,296	116,795	195,980

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**2.550 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 182.00'

Discarded OutFlow Max=0.32 cfs @ 15.27 hrs HW=194.06' (Free Discharge)
↑**1=Exfiltration** (Controls 0.32 cfs)

Pond 5P: Ex Basin 3



Stage-Discharge for Pond 5P: Ex Basin 3

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
194.00	0.00	196.65	1.62	199.30	4.46
194.05	0.32	196.70	1.66	199.35	4.54
194.10	0.34	196.75	1.69	199.40	4.61
194.15	0.37	196.80	1.72	199.45	4.69
194.20	0.39	196.85	1.75	199.50	4.77
194.25	0.41	196.90	1.78	199.55	4.85
194.30	0.43	196.95	1.82	199.60	4.93
194.35	0.45	197.00	1.85	199.65	5.00
194.40	0.47	197.05	1.88	199.70	5.08
194.45	0.50	197.10	1.91	199.75	5.16
194.50	0.52	197.15	1.95	199.80	5.24
194.55	0.54	197.20	1.98	199.85	5.32
194.60	0.56	197.25	2.01	199.90	5.40
194.65	0.59	197.30	2.04	199.95	5.48
194.70	0.61	197.35	2.08	200.00	**5.56**
194.75	0.63	197.40	2.11		
194.80	0.65	197.45	2.14		
194.85	0.68	197.50	2.18		
194.90	0.70	197.55	2.21		
194.95	0.72	197.60	2.24		
195.00	0.75	197.65	2.27		
195.05	0.77	197.70	2.31		
195.10	0.79	197.75	2.34		
195.15	0.82	197.80	2.38		
195.20	0.84	197.85	2.41		
195.25	0.86	197.90	2.44		
195.30	0.89	197.95	2.48		
195.35	0.91	198.00	2.51		
195.40	0.93	198.05	2.58		
195.45	0.96	198.10	2.66		
195.50	0.98	198.15	2.73		
195.55	1.00	198.20	2.80		
195.60	1.03	198.25	2.87		
195.65	1.05	198.30	2.95		
195.70	1.08	198.35	3.02		
195.75	1.10	198.40	3.10		
195.80	1.12	198.45	3.17		
195.85	1.15	198.50	3.24		
195.90	1.17	198.55	3.32		
195.95	1.20	198.60	3.39		
196.00	1.22	198.65	3.47		
196.05	1.25	198.70	3.54		
196.10	1.28	198.75	3.62		
196.15	1.31	198.80	3.69		
196.20	1.34	198.85	3.77		
196.25	1.37	198.90	3.84		
196.30	1.41	198.95	3.92		
196.35	1.44	199.00	4.00		
196.40	1.47	199.05	4.07		
196.45	1.50	199.10	4.15		
196.50	1.53	199.15	4.23		
196.55	1.56	199.20	4.30		
196.60	1.59	199.25	4.38		

Stage-Area-Storage for Pond 5P: Ex Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	5,094	0
194.10	5,779	544
194.20	6,464	1,156
194.30	7,149	1,836
194.40	7,834	2,586
194.50	8,520	3,403
194.60	9,205	4,290
194.70	9,890	5,244
194.80	10,575	6,268
194.90	11,260	7,359
195.00	11,945	8,520
195.10	12,630	9,748
195.20	13,315	11,046
195.30	14,000	12,411
195.40	14,685	13,846
195.50	15,371	15,348
195.60	16,056	16,920
195.70	16,741	18,559
195.80	17,426	20,268
195.90	18,111	22,045
196.00	18,796	23,890
196.10	19,681	25,814
196.20	20,566	27,826
196.30	21,451	29,927
196.40	22,337	32,117
196.50	23,222	34,394
196.60	24,107	36,761
196.70	24,992	39,216
196.80	25,877	41,759
196.90	26,762	44,391
197.00	27,648	47,112
197.10	28,533	49,921
197.20	29,418	52,818
197.30	30,303	55,804
197.40	31,188	58,879
197.50	32,073	62,042
197.60	32,958	65,294
197.70	33,844	68,634
197.80	34,729	72,062
197.90	35,614	75,579
198.00	36,499	79,185
198.10	38,689	82,944
198.20	40,879	86,923
198.30	43,069	91,120
198.40	45,258	95,536
198.50	47,448	100,172
198.60	49,638	105,026
198.70	51,828	110,099
198.80	54,018	115,392
198.90	56,208	120,903
199.00	58,398	126,633
199.10	60,587	132,582
199.20	62,777	138,751
199.30	64,967	145,138
199.40	67,157	151,744
199.50	69,347	158,569
199.60	71,537	165,613
199.70	73,726	172,877
199.80	75,916	180,359
199.90	78,106	188,060
200.00	**80,296**	**195,980**

Summary for Pond 6P: Ex Basin 3

Inflow Area = 12.610 ac, 0.00% Impervious, Inflow Depth > 1.06" for 50-yr event
Inflow = 6.21 cfs @ 12.60 hrs, Volume= 1.115 af
Outflow = 1.10 cfs @ 15.83 hrs, Volume= 0.926 af, Atten= 82%, Lag= 193.4 min
Discarded = 1.10 cfs @ 15.83 hrs, Volume= 0.926 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 195.75' @ 15.83 hrs Surf.Area= 17,112 sf Storage= 19,476 cf

Plug-Flow detention time= 222.3 min calculated for 0.924 af (83% of inflow)
Center-of-Mass det. time= 151.3 min (1,077.2 - 925.9)

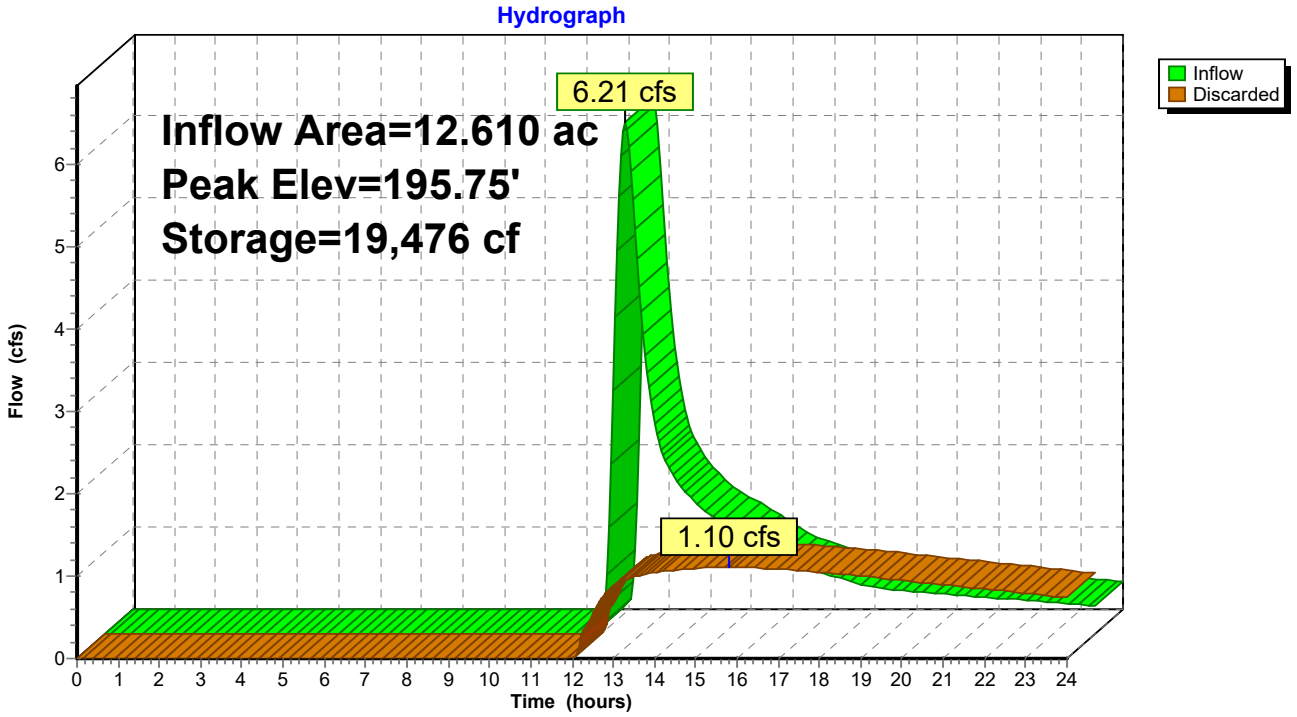
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	195,980 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	5,094	0	0
196.00	18,796	23,890	23,890
198.00	36,499	55,295	79,185
200.00	80,296	116,795	195,980

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**2.550 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 182.00'

Discarded OutFlow Max=1.10 cfs @ 15.83 hrs HW=195.75' (Free Discharge)
↑**1=Exfiltration** (Controls 1.10 cfs)

Pond 6P: Ex Basin 3



Stage-Discharge for Pond 6P: Ex Basin 3

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
194.00	0.00	196.65	1.62	199.30	4.46
194.05	0.32	196.70	1.66	199.35	4.54
194.10	0.34	196.75	1.69	199.40	4.61
194.15	0.37	196.80	1.72	199.45	4.69
194.20	0.39	196.85	1.75	199.50	4.77
194.25	0.41	196.90	1.78	199.55	4.85
194.30	0.43	196.95	1.82	199.60	4.93
194.35	0.45	197.00	1.85	199.65	5.00
194.40	0.47	197.05	1.88	199.70	5.08
194.45	0.50	197.10	1.91	199.75	5.16
194.50	0.52	197.15	1.95	199.80	5.24
194.55	0.54	197.20	1.98	199.85	5.32
194.60	0.56	197.25	2.01	199.90	5.40
194.65	0.59	197.30	2.04	199.95	5.48
194.70	0.61	197.35	2.08	200.00	**5.56**
194.75	0.63	197.40	2.11		
194.80	0.65	197.45	2.14		
194.85	0.68	197.50	2.18		
194.90	0.70	197.55	2.21		
194.95	0.72	197.60	2.24		
195.00	0.75	197.65	2.27		
195.05	0.77	197.70	2.31		
195.10	0.79	197.75	2.34		
195.15	0.82	197.80	2.38		
195.20	0.84	197.85	2.41		
195.25	0.86	197.90	2.44		
195.30	0.89	197.95	2.48		
195.35	0.91	198.00	2.51		
195.40	0.93	198.05	2.58		
195.45	0.96	198.10	2.66		
195.50	0.98	198.15	2.73		
195.55	1.00	198.20	2.80		
195.60	1.03	198.25	2.87		
195.65	1.05	198.30	2.95		
195.70	1.08	198.35	3.02		
195.75	1.10	198.40	3.10		
195.80	1.12	198.45	3.17		
195.85	1.15	198.50	3.24		
195.90	1.17	198.55	3.32		
195.95	1.20	198.60	3.39		
196.00	1.22	198.65	3.47		
196.05	1.25	198.70	3.54		
196.10	1.28	198.75	3.62		
196.15	1.31	198.80	3.69		
196.20	1.34	198.85	3.77		
196.25	1.37	198.90	3.84		
196.30	1.41	198.95	3.92		
196.35	1.44	199.00	4.00		
196.40	1.47	199.05	4.07		
196.45	1.50	199.10	4.15		
196.50	1.53	199.15	4.23		
196.55	1.56	199.20	4.30		
196.60	1.59	199.25	4.38		

Stage-Area-Storage for Pond 6P: Ex Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	5,094	0
194.10	5,779	544
194.20	6,464	1,156
194.30	7,149	1,836
194.40	7,834	2,586
194.50	8,520	3,403
194.60	9,205	4,290
194.70	9,890	5,244
194.80	10,575	6,268
194.90	11,260	7,359
195.00	11,945	8,520
195.10	12,630	9,748
195.20	13,315	11,046
195.30	14,000	12,411
195.40	14,685	13,846
195.50	15,371	15,348
195.60	16,056	16,920
195.70	16,741	18,559
195.80	17,426	20,268
195.90	18,111	22,045
196.00	18,796	23,890
196.10	19,681	25,814
196.20	20,566	27,826
196.30	21,451	29,927
196.40	22,337	32,117
196.50	23,222	34,394
196.60	24,107	36,761
196.70	24,992	39,216
196.80	25,877	41,759
196.90	26,762	44,391
197.00	27,648	47,112
197.10	28,533	49,921
197.20	29,418	52,818
197.30	30,303	55,804
197.40	31,188	58,879
197.50	32,073	62,042
197.60	32,958	65,294
197.70	33,844	68,634
197.80	34,729	72,062
197.90	35,614	75,579
198.00	36,499	79,185
198.10	38,689	82,944
198.20	40,879	86,923
198.30	43,069	91,120
198.40	45,258	95,536
198.50	47,448	100,172
198.60	49,638	105,026
198.70	51,828	110,099
198.80	54,018	115,392
198.90	56,208	120,903
199.00	58,398	126,633
199.10	60,587	132,582
199.20	62,777	138,751
199.30	64,967	145,138
199.40	67,157	151,744
199.50	69,347	158,569
199.60	71,537	165,613
199.70	73,726	172,877
199.80	75,916	180,359
199.90	78,106	188,060
200.00	**80,296**	**195,980**

Summary for Pond 7P: Ex Basin 2

Inflow Area = 6.930 ac, 0.00% Impervious, Inflow Depth > 0.18" for 50-yr event
Inflow = 0.17 cfs @ 14.86 hrs, Volume= 0.103 af
Outflow = 0.17 cfs @ 15.00 hrs, Volume= 0.102 af, Atten= 0%, Lag= 8.2 min
Discarded = 0.17 cfs @ 15.00 hrs, Volume= 0.102 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 203.01' @ 15.00 hrs Surf.Area= 14,495 sf Storage= 90 cf

Plug-Flow detention time= 8.9 min calculated for 0.102 af (99% of inflow)
Center-of-Mass det. time= 5.7 min (1,060.6 - 1,054.9)

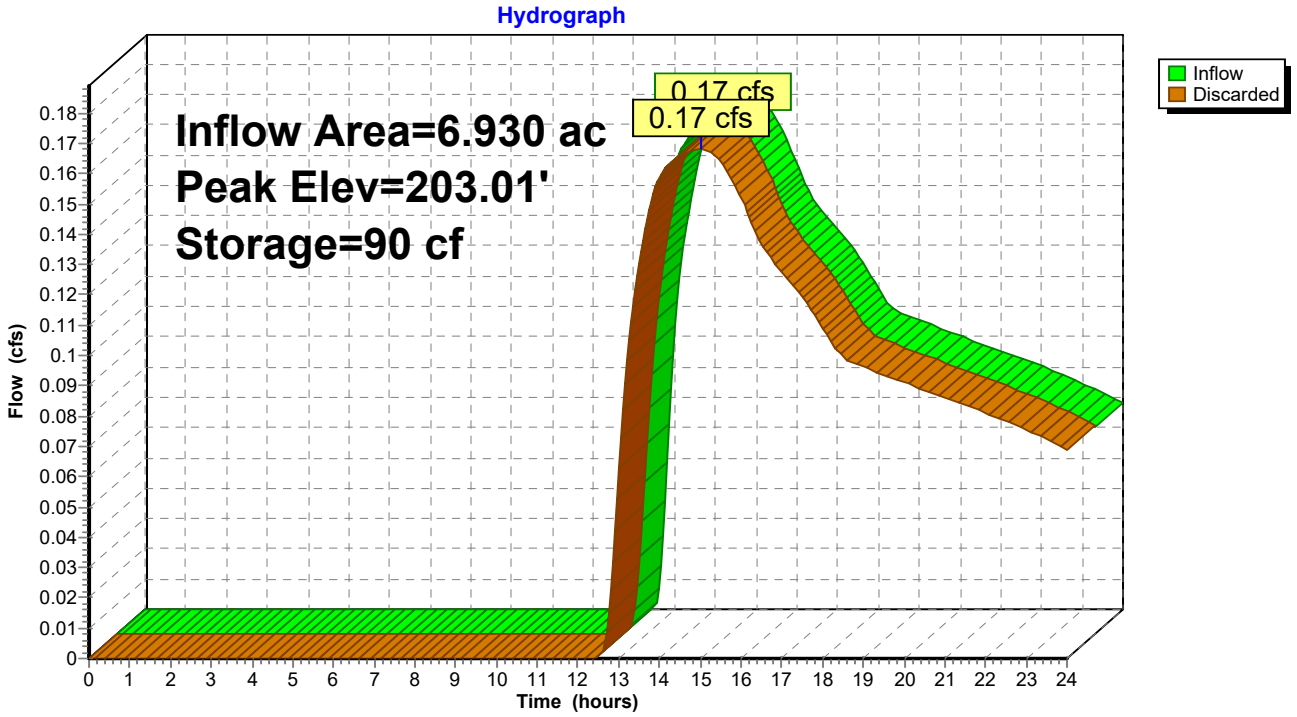
Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	57,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
203.00	14,476	0	0
204.00	17,492	15,984	15,984
205.00	20,565	19,029	35,013
206.00	25,352	22,959	57,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	203.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.00'

Discarded OutFlow Max=0.81 cfs @ 15.00 hrs HW=203.01' (Free Discharge)
↑**1=Exfiltration** (Controls 0.81 cfs)

Pond 7P: Ex Basin 2



Stage-Discharge for Pond 7P: Ex Basin 2

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
203.00	0.00	204.06	1.08	205.12	1.39
203.02	0.81	204.08	1.09	205.14	1.39
203.04	0.82	204.10	1.09	205.16	1.40
203.06	0.82	204.12	1.10	205.18	1.41
203.08	0.83	204.14	1.10	205.20	1.42
203.10	0.83	204.16	1.11	205.22	1.42
203.12	0.84	204.18	1.11	205.24	1.43
203.14	0.84	204.20	1.12	205.26	1.44
203.16	0.85	204.22	1.12	205.28	1.45
203.18	0.85	204.24	1.13	205.30	1.45
203.20	0.86	204.26	1.13	205.32	1.46
203.22	0.86	204.28	1.14	205.34	1.47
203.24	0.87	204.30	1.15	205.36	1.48
203.26	0.87	204.32	1.15	205.38	1.49
203.28	0.88	204.34	1.16	205.40	1.49
203.30	0.88	204.36	1.16	205.42	1.50
203.32	0.89	204.38	1.17	205.44	1.51
203.34	0.89	204.40	1.17	205.46	1.52
203.36	0.90	204.42	1.18	205.48	1.52
203.38	0.90	204.44	1.18	205.50	1.53
203.40	0.91	204.46	1.19	205.52	1.54
203.42	0.91	204.48	1.19	205.54	1.55
203.44	0.92	204.50	1.20	205.56	1.56
203.46	0.92	204.52	1.21	205.58	1.56
203.48	0.93	204.54	1.21	205.60	1.57
203.50	0.93	204.56	1.22	205.62	1.58
203.52	0.94	204.58	1.22	205.64	1.59
203.54	0.94	204.60	1.23	205.66	1.59
203.56	0.95	204.62	1.23	205.68	1.60
203.58	0.95	204.64	1.24	205.70	1.61
203.60	0.96	204.66	1.24	205.72	1.62
203.62	0.96	204.68	1.25	205.74	1.63
203.64	0.97	204.70	1.26	205.76	1.63
203.66	0.98	204.72	1.26	205.78	1.64
203.68	0.98	204.74	1.27	205.80	1.65
203.70	0.99	204.76	1.27	205.82	1.66
203.72	0.99	204.78	1.28	205.84	1.67
203.74	1.00	204.80	1.28	205.86	1.67
203.76	1.00	204.82	1.29	205.88	1.68
203.78	1.01	204.84	1.29	205.90	1.69
203.80	1.01	204.86	1.30	205.92	1.70
203.82	1.02	204.88	1.31	205.94	1.71
203.84	1.02	204.90	1.31	205.96	1.71
203.86	1.03	204.92	1.32	205.98	1.72
203.88	1.03	204.94	1.32	206.00	**1.73**
203.90	1.04	204.96	1.33		
203.92	1.04	204.98	1.33		
203.94	1.05	205.00	1.34		
203.96	1.05	205.02	1.35		
203.98	1.06	205.04	1.36		
204.00	1.06	205.06	1.36		
204.02	1.07	205.08	1.37		
204.04	1.08	205.10	1.38		

Stage-Area-Storage for Pond 7P: Ex Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	14,476	0
203.05	14,627	728
203.10	14,778	1,463
203.15	14,928	2,205
203.20	15,079	2,956
203.25	15,230	3,713
203.30	15,381	4,479
203.35	15,532	5,251
203.40	15,682	6,032
203.45	15,833	6,820
203.50	15,984	7,615
203.55	16,135	8,418
203.60	16,286	9,228
203.65	16,436	10,047
203.70	16,587	10,872
203.75	16,738	11,705
203.80	16,889	12,546
203.85	17,040	13,394
203.90	17,190	14,250
203.95	17,341	15,113
204.00	17,492	15,984
204.05	17,646	16,862
204.10	17,799	17,749
204.15	17,953	18,642
204.20	18,107	19,544
204.25	18,260	20,453
204.30	18,414	21,370
204.35	18,568	22,294
204.40	18,721	23,227
204.45	18,875	24,167
204.50	19,029	25,114
204.55	19,182	26,069
204.60	19,336	27,032
204.65	19,489	28,003
204.70	19,643	28,981
204.75	19,797	29,967
204.80	19,950	30,961
204.85	20,104	31,962
204.90	20,258	32,971
204.95	20,411	33,988
205.00	20,565	35,013
205.05	20,804	36,047
205.10	21,044	37,093
205.15	21,283	38,151
205.20	21,522	39,221
205.25	21,762	40,303
205.30	22,001	41,397
205.35	22,240	42,503
205.40	22,480	43,621
205.45	22,719	44,751
205.50	22,959	45,893
205.55	23,198	47,047
205.60	23,437	48,213
205.65	23,677	49,391
205.70	23,916	50,581
205.75	24,155	51,783
205.80	24,395	52,996
205.85	24,634	54,222
205.90	24,873	55,460
205.95	25,113	56,709
206.00	**25,352**	**57,971**

Summary for Pond 8P: Ex Basin 2

Inflow Area = 6.930 ac, 0.00% Impervious, Inflow Depth > 1.07" for 50-yr event
Inflow = 4.02 cfs @ 12.42 hrs, Volume= 0.616 af
Outflow = 0.93 cfs @ 13.94 hrs, Volume= 0.613 af, Atten= 77%, Lag= 91.3 min
Discarded = 0.93 cfs @ 13.94 hrs, Volume= 0.613 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 203.47' @ 13.94 hrs Surf.Area= 15,896 sf Storage= 7,151 cf

Plug-Flow detention time= 76.1 min calculated for 0.612 af (99% of inflow)
Center-of-Mass det. time= 74.0 min (991.5 - 917.5)

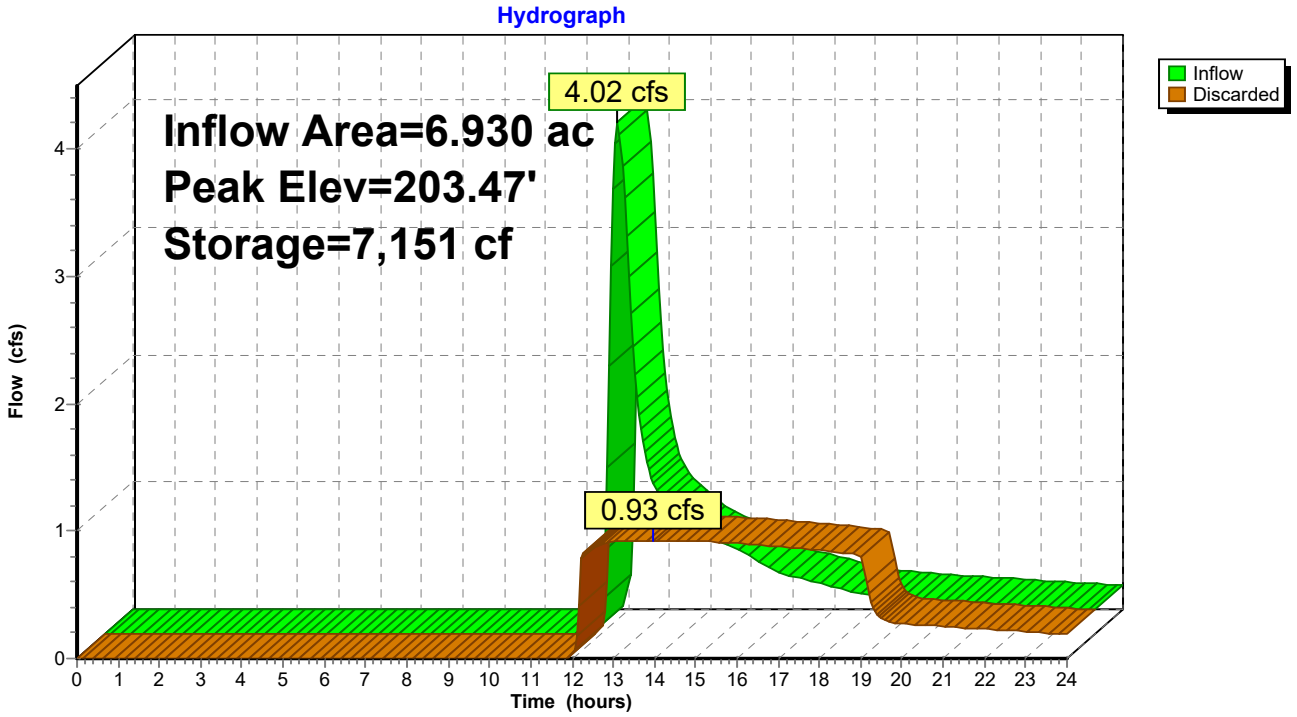
Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	57,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
203.00	14,476	0	0
204.00	17,492	15,984	15,984
205.00	20,565	19,029	35,013
206.00	25,352	22,959	57,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	203.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.00'

Discarded OutFlow Max=0.93 cfs @ 13.94 hrs HW=203.47' (Free Discharge)
↑**1=Exfiltration** (Controls 0.93 cfs)

Pond 8P: Ex Basin 2



Stage-Discharge for Pond 8P: Ex Basin 2

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
203.00	0.00	204.06	1.08	205.12	1.39
203.02	0.81	204.08	1.09	205.14	1.39
203.04	0.82	204.10	1.09	205.16	1.40
203.06	0.82	204.12	1.10	205.18	1.41
203.08	0.83	204.14	1.10	205.20	1.42
203.10	0.83	204.16	1.11	205.22	1.42
203.12	0.84	204.18	1.11	205.24	1.43
203.14	0.84	204.20	1.12	205.26	1.44
203.16	0.85	204.22	1.12	205.28	1.45
203.18	0.85	204.24	1.13	205.30	1.45
203.20	0.86	204.26	1.13	205.32	1.46
203.22	0.86	204.28	1.14	205.34	1.47
203.24	0.87	204.30	1.15	205.36	1.48
203.26	0.87	204.32	1.15	205.38	1.49
203.28	0.88	204.34	1.16	205.40	1.49
203.30	0.88	204.36	1.16	205.42	1.50
203.32	0.89	204.38	1.17	205.44	1.51
203.34	0.89	204.40	1.17	205.46	1.52
203.36	0.90	204.42	1.18	205.48	1.52
203.38	0.90	204.44	1.18	205.50	1.53
203.40	0.91	204.46	1.19	205.52	1.54
203.42	0.91	204.48	1.19	205.54	1.55
203.44	0.92	204.50	1.20	205.56	1.56
203.46	0.92	204.52	1.21	205.58	1.56
203.48	0.93	204.54	1.21	205.60	1.57
203.50	0.93	204.56	1.22	205.62	1.58
203.52	0.94	204.58	1.22	205.64	1.59
203.54	0.94	204.60	1.23	205.66	1.59
203.56	0.95	204.62	1.23	205.68	1.60
203.58	0.95	204.64	1.24	205.70	1.61
203.60	0.96	204.66	1.24	205.72	1.62
203.62	0.96	204.68	1.25	205.74	1.63
203.64	0.97	204.70	1.26	205.76	1.63
203.66	0.98	204.72	1.26	205.78	1.64
203.68	0.98	204.74	1.27	205.80	1.65
203.70	0.99	204.76	1.27	205.82	1.66
203.72	0.99	204.78	1.28	205.84	1.67
203.74	1.00	204.80	1.28	205.86	1.67
203.76	1.00	204.82	1.29	205.88	1.68
203.78	1.01	204.84	1.29	205.90	1.69
203.80	1.01	204.86	1.30	205.92	1.70
203.82	1.02	204.88	1.31	205.94	1.71
203.84	1.02	204.90	1.31	205.96	1.71
203.86	1.03	204.92	1.32	205.98	1.72
203.88	1.03	204.94	1.32	206.00	**1.73**
203.90	1.04	204.96	1.33		
203.92	1.04	204.98	1.33		
203.94	1.05	205.00	1.34		
203.96	1.05	205.02	1.35		
203.98	1.06	205.04	1.36		
204.00	1.06	205.06	1.36		
204.02	1.07	205.08	1.37		
204.04	1.08	205.10	1.38		

Stage-Area-Storage for Pond 8P: Ex Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	14,476	0
203.05	14,627	728
203.10	14,778	1,463
203.15	14,928	2,205
203.20	15,079	2,956
203.25	15,230	3,713
203.30	15,381	4,479
203.35	15,532	5,251
203.40	15,682	6,032
203.45	15,833	6,820
203.50	15,984	7,615
203.55	16,135	8,418
203.60	16,286	9,228
203.65	16,436	10,047
203.70	16,587	10,872
203.75	16,738	11,705
203.80	16,889	12,546
203.85	17,040	13,394
203.90	17,190	14,250
203.95	17,341	15,113
204.00	17,492	15,984
204.05	17,646	16,862
204.10	17,799	17,749
204.15	17,953	18,642
204.20	18,107	19,544
204.25	18,260	20,453
204.30	18,414	21,370
204.35	18,568	22,294
204.40	18,721	23,227
204.45	18,875	24,167
204.50	19,029	25,114
204.55	19,182	26,069
204.60	19,336	27,032
204.65	19,489	28,003
204.70	19,643	28,981
204.75	19,797	29,967
204.80	19,950	30,961
204.85	20,104	31,962
204.90	20,258	32,971
204.95	20,411	33,988
205.00	20,565	35,013
205.05	20,804	36,047
205.10	21,044	37,093
205.15	21,283	38,151
205.20	21,522	39,221
205.25	21,762	40,303
205.30	22,001	41,397
205.35	22,240	42,503
205.40	22,480	43,621
205.45	22,719	44,751
205.50	22,959	45,893
205.55	23,198	47,047
205.60	23,437	48,213
205.65	23,677	49,391
205.70	23,916	50,581
205.75	24,155	51,783
205.80	24,395	52,996
205.85	24,634	54,222
205.90	24,873	55,460
205.95	25,113	56,709
206.00	**25,352**	**57,971**

Summary for Pond 10P: Ex Basin 1

Inflow Area = 2.450 ac, 0.41% Impervious, Inflow Depth > 1.31" for 50-yr event
Inflow = 2.08 cfs @ 12.31 hrs, Volume= 0.267 af
Outflow = 0.30 cfs @ 14.79 hrs, Volume= 0.232 af, Atten= 86%, Lag= 148.8 min
Discarded = 0.30 cfs @ 14.79 hrs, Volume= 0.232 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 206.29' @ 14.79 hrs Surf.Area= 4,955 sf Storage= 4,617 cf

Plug-Flow detention time= 209.5 min calculated for 0.231 af (87% of inflow)
Center-of-Mass det. time= 150.2 min (1,052.0 - 901.8)

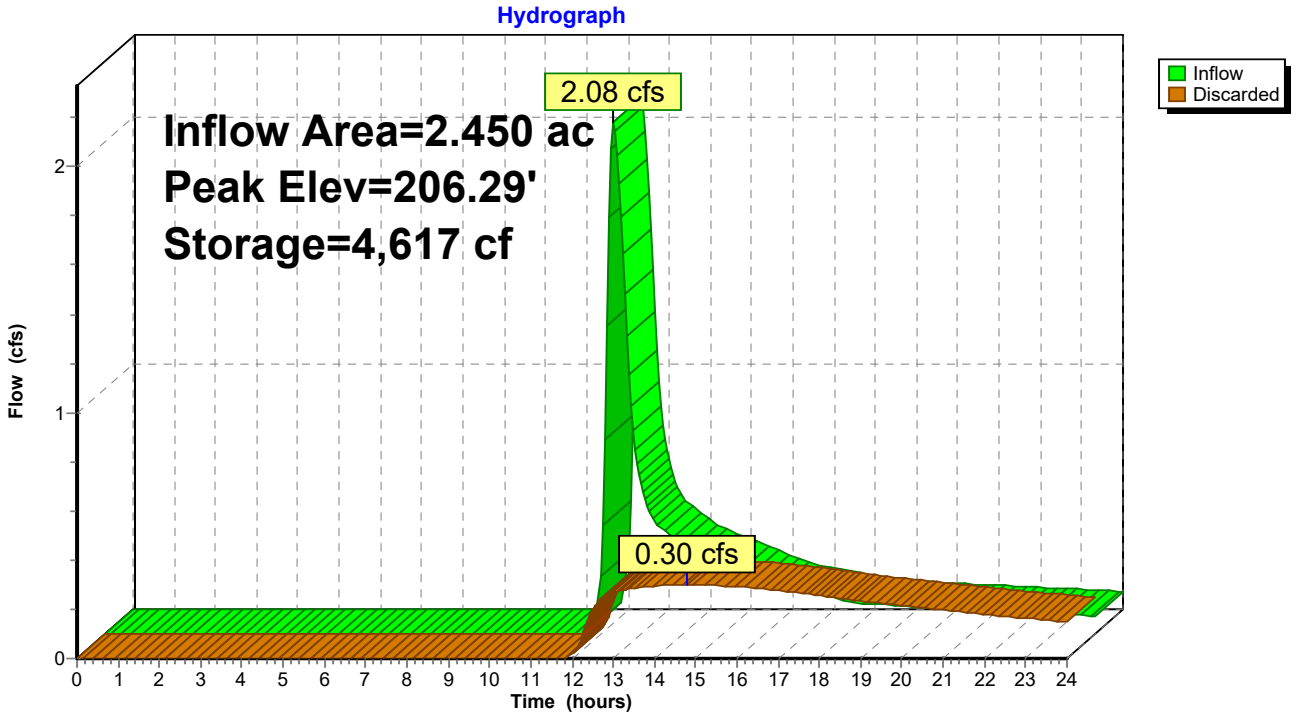
Volume	Invert	Avail.Storage	Storage Description
#1	204.00'	8,993 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
204.00	59	0	0
205.00	1,321	690	690
206.00	3,928	2,625	3,315
207.00	7,428	5,678	8,993

Device	Routing	Invert	Outlet Devices
#1	Discarded	204.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.00'

Discarded OutFlow Max=0.30 cfs @ 14.79 hrs HW=206.29' (Free Discharge)
↑**1=Exfiltration** (Controls 0.30 cfs)

Pond 10P: Ex Basin 1



Stage-Discharge for Pond 10P: Ex Basin 1

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
204.00	0.00	205.06	0.09	206.12	0.26
204.02	0.00	205.08	0.09	206.14	0.27
204.04	0.01	205.10	0.09	206.16	0.27
204.06	0.01	205.12	0.10	206.18	0.27
204.08	0.01	205.14	0.10	206.20	0.28
204.10	0.01	205.16	0.10	206.22	0.28
204.12	0.01	205.18	0.10	206.24	0.29
204.14	0.01	205.20	0.11	206.26	0.29
204.16	0.01	205.22	0.11	206.28	0.30
204.18	0.02	205.24	0.11	206.30	0.30
204.20	0.02	205.26	0.12	206.32	0.31
204.22	0.02	205.28	0.12	206.34	0.31
204.24	0.02	205.30	0.12	206.36	0.31
204.26	0.02	205.32	0.13	206.38	0.32
204.28	0.02	205.34	0.13	206.40	0.32
204.30	0.02	205.36	0.13	206.42	0.33
204.32	0.03	205.38	0.14	206.44	0.33
204.34	0.03	205.40	0.14	206.46	0.34
204.36	0.03	205.42	0.14	206.48	0.34
204.38	0.03	205.44	0.15	206.50	0.35
204.40	0.03	205.46	0.15	206.52	0.35
204.42	0.03	205.48	0.15	206.54	0.35
204.44	0.04	205.50	0.16	206.56	0.36
204.46	0.04	205.52	0.16	206.58	0.36
204.48	0.04	205.54	0.16	206.60	0.37
204.50	0.04	205.56	0.16	206.62	0.37
204.52	0.04	205.58	0.17	206.64	0.38
204.54	0.04	205.60	0.17	206.66	0.38
204.56	0.04	205.62	0.17	206.68	0.39
204.58	0.05	205.64	0.18	206.70	0.39
204.60	0.05	205.66	0.18	206.72	0.39
204.62	0.05	205.68	0.18	206.74	0.40
204.64	0.05	205.70	0.19	206.76	0.40
204.66	0.05	205.72	0.19	206.78	0.41
204.68	0.05	205.74	0.19	206.80	0.41
204.70	0.05	205.76	0.20	206.82	0.42
204.72	0.06	205.78	0.20	206.84	0.42
204.74	0.06	205.80	0.20	206.86	0.43
204.76	0.06	205.82	0.21	206.88	0.43
204.78	0.06	205.84	0.21	206.90	0.44
204.80	0.06	205.86	0.21	206.92	0.44
204.82	0.06	205.88	0.22	206.94	0.44
204.84	0.07	205.90	0.22	206.96	0.45
204.86	0.07	205.92	0.22	206.98	0.45
204.88	0.07	205.94	0.23	207.00	**0.46**
204.90	0.07	205.96	0.23		
204.92	0.07	205.98	0.23		
204.94	0.07	206.00	0.24		
204.96	0.07	206.02	0.24		
204.98	0.08	206.04	0.24		
205.00	0.08	206.06	0.25		
205.02	0.08	206.08	0.25		
205.04	0.08	206.10	0.26		

Stage-Area-Storage for Pond 10P: Ex Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	59	0
204.05	122	5
204.10	185	12
204.15	248	23
204.20	311	37
204.25	375	54
204.30	438	74
204.35	501	98
204.40	564	125
204.45	627	154
204.50	690	187
204.55	753	223
204.60	816	263
204.65	879	305
204.70	942	350
204.75	1,006	399
204.80	1,069	451
204.85	1,132	506
204.90	1,195	564
204.95	1,258	626
205.00	1,321	690
205.05	1,451	759
205.10	1,582	835
205.15	1,712	917
205.20	1,842	1,006
205.25	1,973	1,102
205.30	2,103	1,204
205.35	2,233	1,312
205.40	2,364	1,427
205.45	2,494	1,548
205.50	2,625	1,676
205.55	2,755	1,811
205.60	2,885	1,952
205.65	3,016	2,099
205.70	3,146	2,253
205.75	3,276	2,414
205.80	3,407	2,581
205.85	3,537	2,755
205.90	3,667	2,935
205.95	3,798	3,121
206.00	3,928	3,315
206.05	4,103	3,515
206.10	4,278	3,725
206.15	4,453	3,943
206.20	4,628	4,170
206.25	4,803	4,406
206.30	4,978	4,650
206.35	5,153	4,904
206.40	5,328	5,166
206.45	5,503	5,436
206.50	5,678	5,716
206.55	5,853	6,004
206.60	6,028	6,301
206.65	6,203	6,607
206.70	6,378	6,922
206.75	6,553	7,245
206.80	6,728	7,577
206.85	6,903	7,918
206.90	7,078	8,267
206.95	7,253	8,625
207.00	**7,428**	**8,993**

Summary for Pond 13P: Ex Basin 1

Inflow Area = 2.450 ac, 0.00% Impervious, Inflow Depth > 0.23" for 50-yr event
Inflow = 0.08 cfs @ 13.87 hrs, Volume= 0.046 af
Outflow = 0.06 cfs @ 16.41 hrs, Volume= 0.043 af, Atten= 28%, Lag= 152.6 min
Discarded = 0.06 cfs @ 16.41 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 204.72' @ 16.41 hrs Surf.Area= 969 sf Storage= 370 cf

Plug-Flow detention time= 90.1 min calculated for 0.043 af (93% of inflow)
Center-of-Mass det. time= 62.4 min (1,094.8 - 1,032.4)

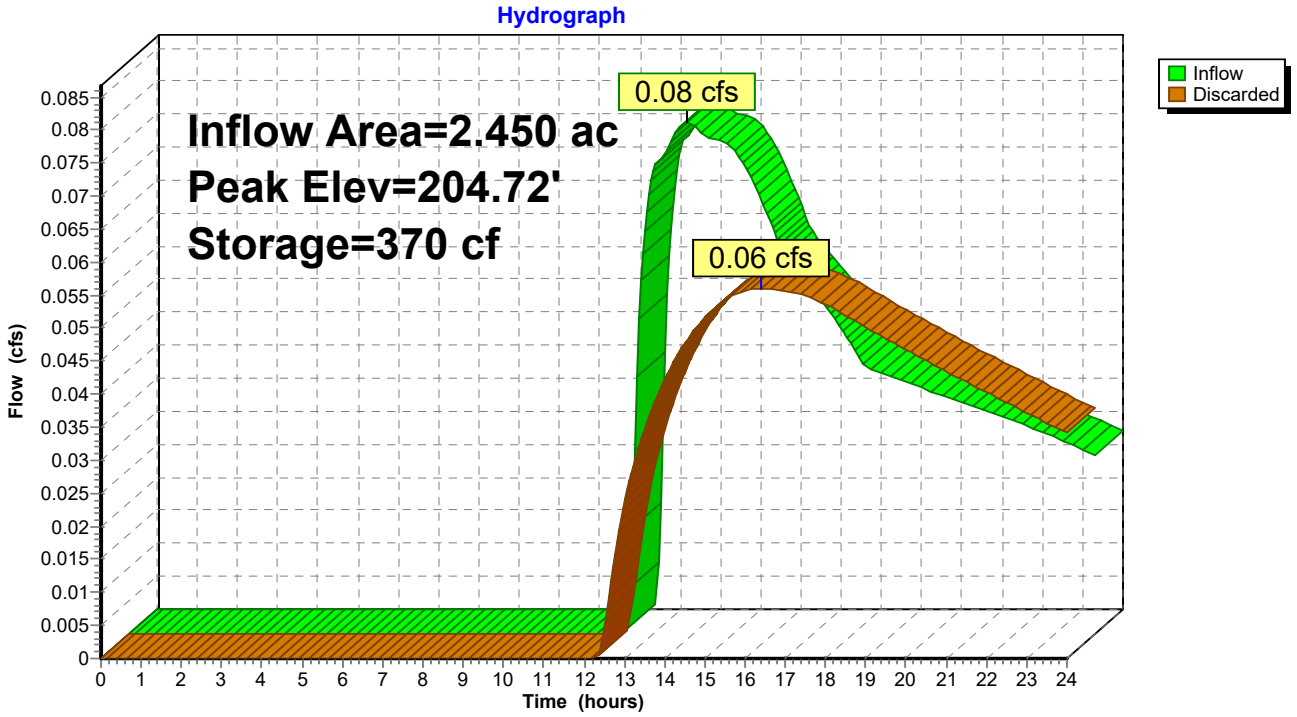
Volume	Invert	Avail.Storage	Storage Description
#1	204.00'	8,993 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
204.00	59	0	0
205.00	1,321	690	690
206.00	3,928	2,625	3,315
207.00	7,428	5,678	8,993

Device	Routing	Invert	Outlet Devices
#1	Discarded	204.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.00'

Discarded OutFlow Max=0.06 cfs @ 16.41 hrs HW=204.72' (Free Discharge)
↑**1=Exfiltration** (Controls 0.06 cfs)

Pond 13P: Ex Basin 1



Stage-Discharge for Pond 13P: Ex Basin 1

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
204.00	0.00	205.06	0.09	206.12	0.26
204.02	0.00	205.08	0.09	206.14	0.27
204.04	0.01	205.10	0.09	206.16	0.27
204.06	0.01	205.12	0.10	206.18	0.27
204.08	0.01	205.14	0.10	206.20	0.28
204.10	0.01	205.16	0.10	206.22	0.28
204.12	0.01	205.18	0.10	206.24	0.29
204.14	0.01	205.20	0.11	206.26	0.29
204.16	0.01	205.22	0.11	206.28	0.30
204.18	0.02	205.24	0.11	206.30	0.30
204.20	0.02	205.26	0.12	206.32	0.31
204.22	0.02	205.28	0.12	206.34	0.31
204.24	0.02	205.30	0.12	206.36	0.31
204.26	0.02	205.32	0.13	206.38	0.32
204.28	0.02	205.34	0.13	206.40	0.32
204.30	0.02	205.36	0.13	206.42	0.33
204.32	0.03	205.38	0.14	206.44	0.33
204.34	0.03	205.40	0.14	206.46	0.34
204.36	0.03	205.42	0.14	206.48	0.34
204.38	0.03	205.44	0.15	206.50	0.35
204.40	0.03	205.46	0.15	206.52	0.35
204.42	0.03	205.48	0.15	206.54	0.35
204.44	0.04	205.50	0.16	206.56	0.36
204.46	0.04	205.52	0.16	206.58	0.36
204.48	0.04	205.54	0.16	206.60	0.37
204.50	0.04	205.56	0.16	206.62	0.37
204.52	0.04	205.58	0.17	206.64	0.38
204.54	0.04	205.60	0.17	206.66	0.38
204.56	0.04	205.62	0.17	206.68	0.39
204.58	0.05	205.64	0.18	206.70	0.39
204.60	0.05	205.66	0.18	206.72	0.39
204.62	0.05	205.68	0.18	206.74	0.40
204.64	0.05	205.70	0.19	206.76	0.40
204.66	0.05	205.72	0.19	206.78	0.41
204.68	0.05	205.74	0.19	206.80	0.41
204.70	0.05	205.76	0.20	206.82	0.42
204.72	0.06	205.78	0.20	206.84	0.42
204.74	0.06	205.80	0.20	206.86	0.43
204.76	0.06	205.82	0.21	206.88	0.43
204.78	0.06	205.84	0.21	206.90	0.44
204.80	0.06	205.86	0.21	206.92	0.44
204.82	0.06	205.88	0.22	206.94	0.44
204.84	0.07	205.90	0.22	206.96	0.45
204.86	0.07	205.92	0.22	206.98	0.45
204.88	0.07	205.94	0.23	207.00	**0.46**
204.90	0.07	205.96	0.23		
204.92	0.07	205.98	0.23		
204.94	0.07	206.00	0.24		
204.96	0.07	206.02	0.24		
204.98	0.08	206.04	0.24		
205.00	0.08	206.06	0.25		
205.02	0.08	206.08	0.25		
205.04	0.08	206.10	0.26		

Stage-Area-Storage for Pond 13P: Ex Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	59	0
204.05	122	5
204.10	185	12
204.15	248	23
204.20	311	37
204.25	375	54
204.30	438	74
204.35	501	98
204.40	564	125
204.45	627	154
204.50	690	187
204.55	753	223
204.60	816	263
204.65	879	305
204.70	942	350
204.75	1,006	399
204.80	1,069	451
204.85	1,132	506
204.90	1,195	564
204.95	1,258	626
205.00	1,321	690
205.05	1,451	759
205.10	1,582	835
205.15	1,712	917
205.20	1,842	1,006
205.25	1,973	1,102
205.30	2,103	1,204
205.35	2,233	1,312
205.40	2,364	1,427
205.45	2,494	1,548
205.50	2,625	1,676
205.55	2,755	1,811
205.60	2,885	1,952
205.65	3,016	2,099
205.70	3,146	2,253
205.75	3,276	2,414
205.80	3,407	2,581
205.85	3,537	2,755
205.90	3,667	2,935
205.95	3,798	3,121
206.00	3,928	3,315
206.05	4,103	3,515
206.10	4,278	3,725
206.15	4,453	3,943
206.20	4,628	4,170
206.25	4,803	4,406
206.30	4,978	4,650
206.35	5,153	4,904
206.40	5,328	5,166
206.45	5,503	5,436
206.50	5,678	5,716
206.55	5,853	6,004
206.60	6,028	6,301
206.65	6,203	6,607
206.70	6,378	6,922
206.75	6,553	7,245
206.80	6,728	7,577
206.85	6,903	7,918
206.90	7,078	8,267
206.95	7,253	8,625
207.00	**7,428**	**8,993**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EDA-2 Runoff Area=6.930 ac 0.00% Impervious Runoff Depth>0.33"
Flow Length=730' Tc=22.5 min CN=30 Runoff=0.40 cfs 0.193 af

Subcatchment 2S: EDA-3 Runoff Area=12.610 ac 0.00% Impervious Runoff Depth>0.33"
Flow Length=854' Tc=34.1 min CN=30 Runoff=0.67 cfs 0.348 af

Subcatchment 3S: PDA-1 Runoff Area=2.450 ac 0.41% Impervious Runoff Depth>1.74"
Flow Length=595' Tc=18.2 min CN=47 Runoff=2.97 cfs 0.355 af

Subcatchment 4S: PDA-3 Runoff Area=12.610 ac 0.00% Impervious Runoff Depth>1.44"
Flow Length=854' Tc=34.1 min CN=44 Runoff=9.25 cfs 1.518 af

Subcatchment 9S: PDA-2 Runoff Area=6.930 ac 0.00% Impervious Runoff Depth>1.45"
Flow Length=730' Tc=22.5 min CN=44 Runoff=6.02 cfs 0.838 af

Subcatchment 12S: EDA-1 Runoff Area=2.450 ac 0.00% Impervious Runoff Depth>0.40"
Flow Length=595' Tc=18.2 min CN=31 Runoff=0.23 cfs 0.081 af

Pond 5P: Ex Basin 3 Peak Elev=194.36' Storage=2,268 cf Inflow=0.67 cfs 0.348 af
Outflow=0.46 cfs 0.344 af

Pond 6P: Ex Basin 3 Peak Elev=196.28' Storage=29,397 cf Inflow=9.25 cfs 1.518 af
Outflow=1.39 cfs 1.175 af

Pond 7P: Ex Basin 2 Peak Elev=203.01' Storage=200 cf Inflow=0.40 cfs 0.193 af
Outflow=0.37 cfs 0.191 af

Pond 8P: Ex Basin 2 Peak Elev=203.80' Storage=12,615 cf Inflow=6.02 cfs 0.838 af
Outflow=1.01 cfs 0.835 af

Pond 10P: Ex Basin 1 Peak Elev=206.65' Storage=6,593 cf Inflow=2.97 cfs 0.355 af
Outflow=0.38 cfs 0.299 af

Pond 13P: Ex Basin 1 Peak Elev=205.13' Storage=881 cf Inflow=0.23 cfs 0.081 af
Outflow=0.10 cfs 0.073 af

Summary for Subcatchment 1S: EDA-2

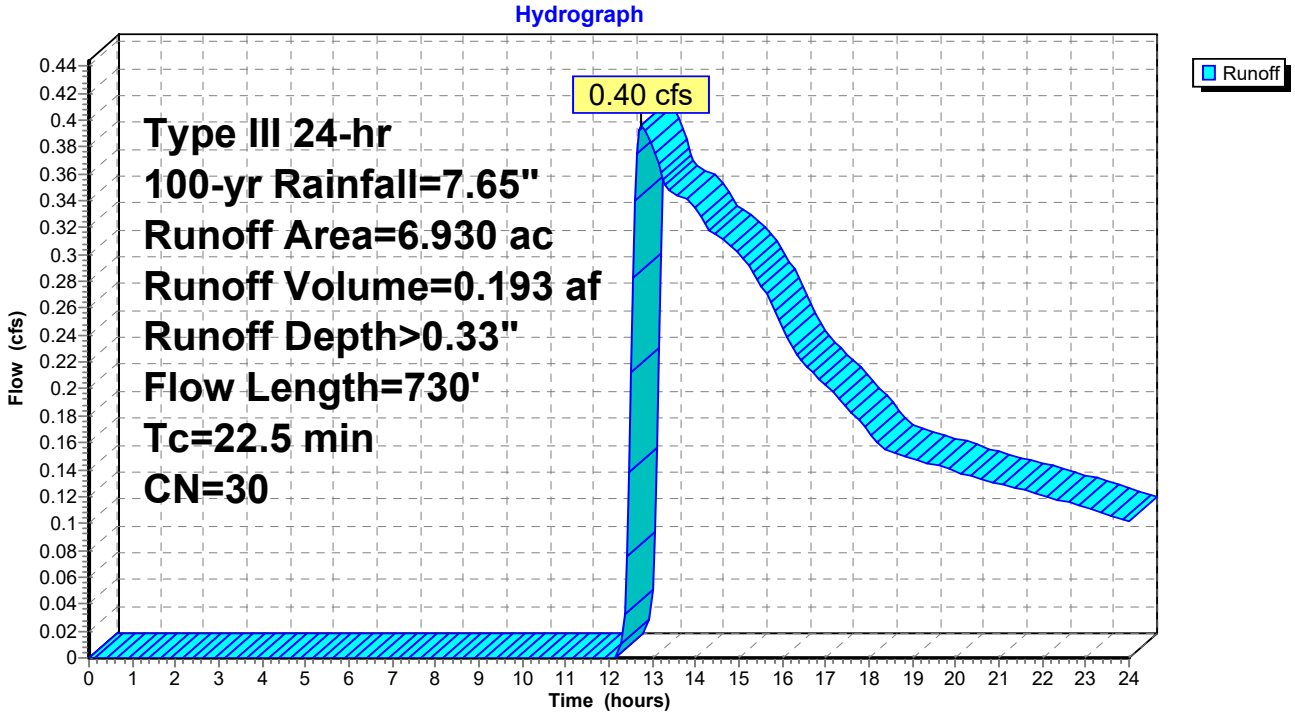
Runoff = 0.40 cfs @ 12.76 hrs, Volume= 0.193 af, Depth> 0.33"
Routed to Pond 7P : Ex Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.65"

Area (ac)	CN	Description
6.880	30	Meadow, non-grazed, HSG A
0.050	96	Gravel surface, HSG A
6.930	30	Weighted Average
6.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
10.6	630	0.0200	0.99		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
22.5	730	Total			

Subcatchment 1S: EDA-2



Summary for Subcatchment 2S: EDA-3

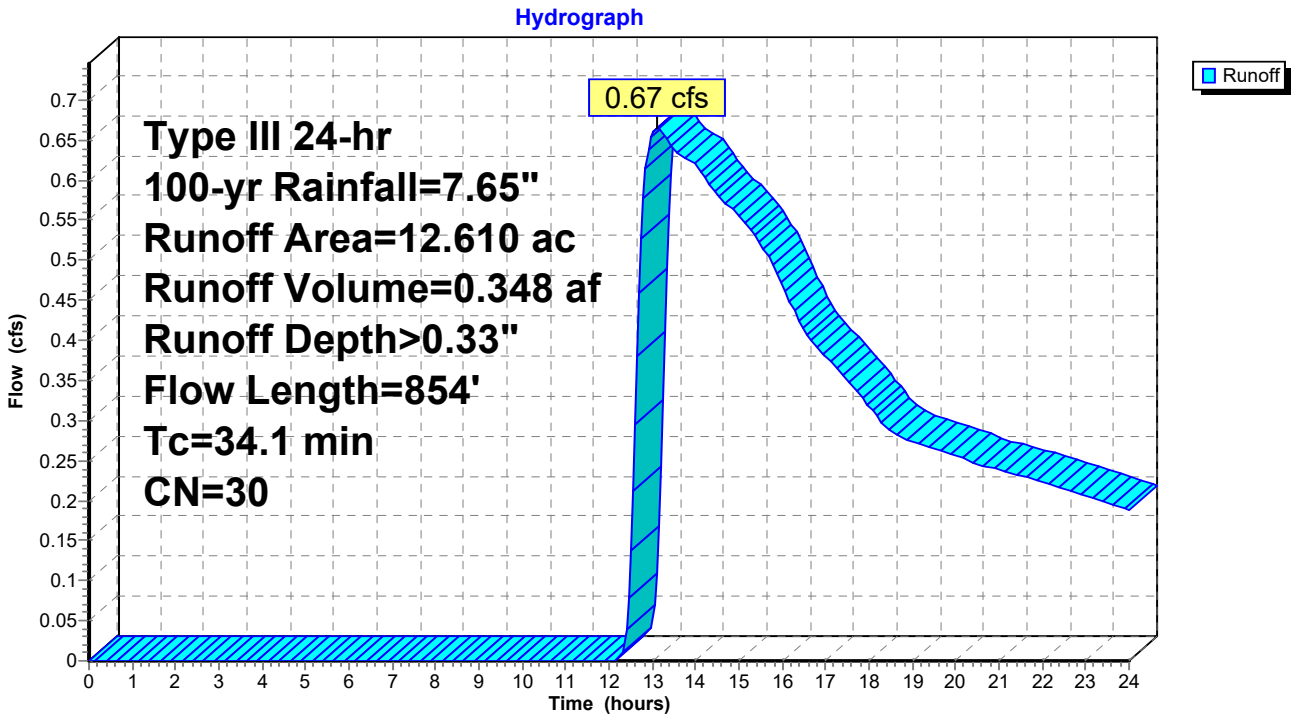
Runoff = 0.67 cfs @ 13.12 hrs, Volume= 0.348 af, Depth> 0.33"
Routed to Pond 5P : Ex Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.65"

Area (ac)	CN	Description
12.610	30	Meadow, non-grazed, HSG A
12.610		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.4	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
15.7	754	0.0130	0.80		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
34.1	854	Total			

Subcatchment 2S: EDA-3



Summary for Subcatchment 3S: PDA-1

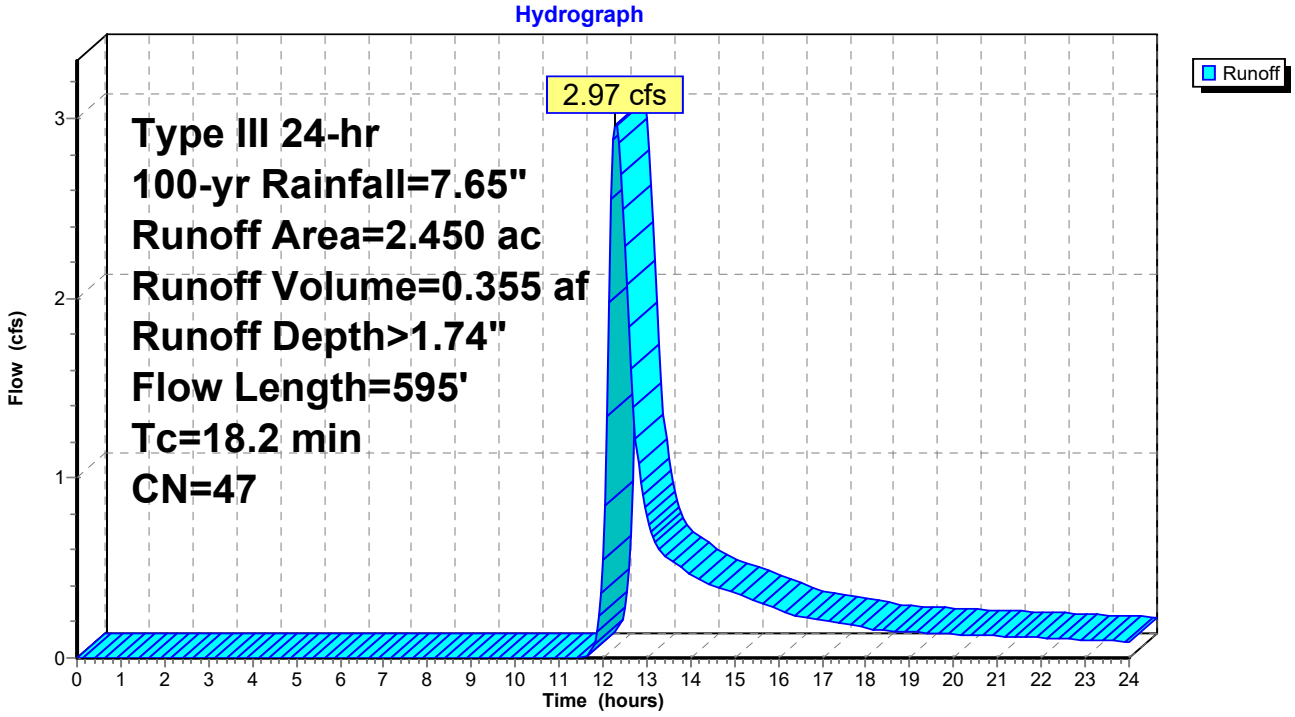
Runoff = 2.97 cfs @ 12.30 hrs, Volume= 0.355 af, Depth> 1.74"
Routed to Pond 10P : Ex Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.65"

	Area (ac)	CN	Description
	0.140	96	Gravel surface, HSG A
	0.010	98	Paved parking, HSG A
*	2.300	44	Meadow, non-grazed, HSG A/B
	2.450	47	Weighted Average
	2.440		99.59% Pervious Area
	0.010		0.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0250	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
5.4	495	0.0480	1.53		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
18.2	595	Total			

Subcatchment 3S: PDA-1



Summary for Subcatchment 4S: PDA-3

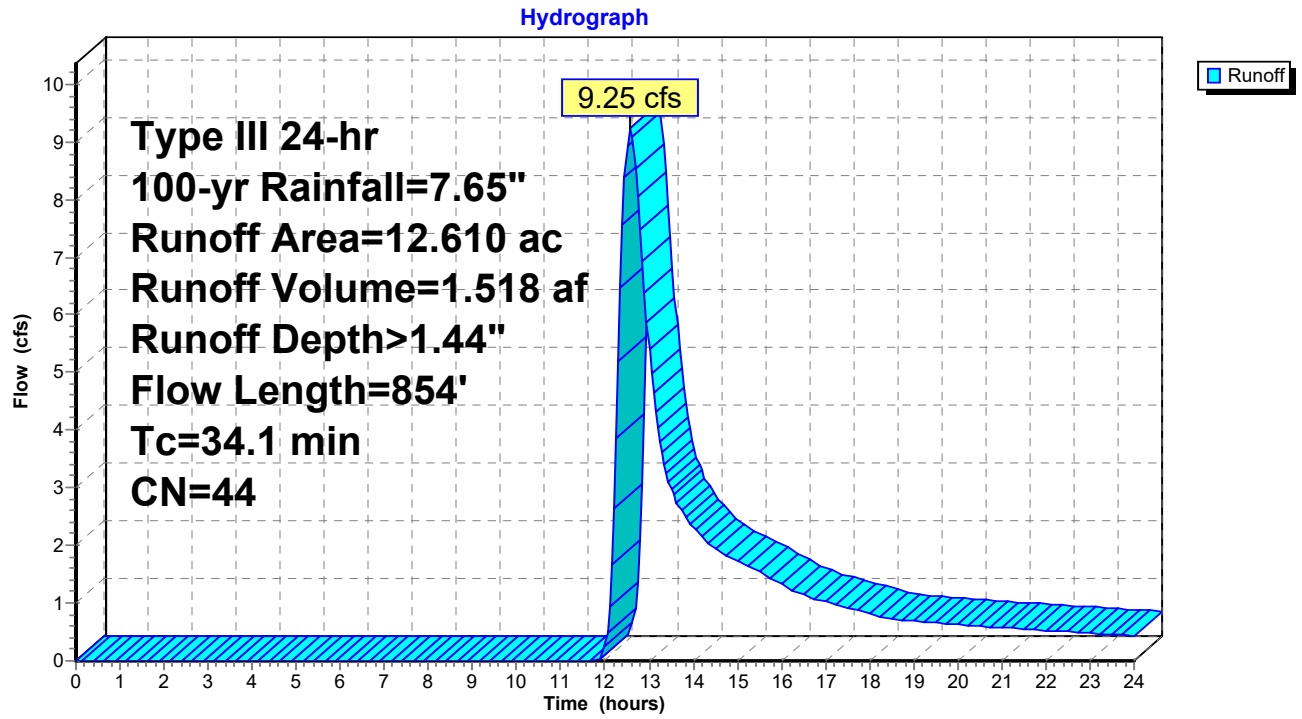
Runoff = 9.25 cfs @ 12.57 hrs, Volume= 1.518 af, Depth> 1.44"
Routed to Pond 6P : Ex Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.65"

	Area (ac)	CN	Description
*	12.610	44	Meadow, non-grazed, HSG A/B
	12.610		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.4	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
15.7	754	0.0130	0.80		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
34.1	854	Total			

Subcatchment 4S: PDA-3



Summary for Subcatchment 9S: PDA-2

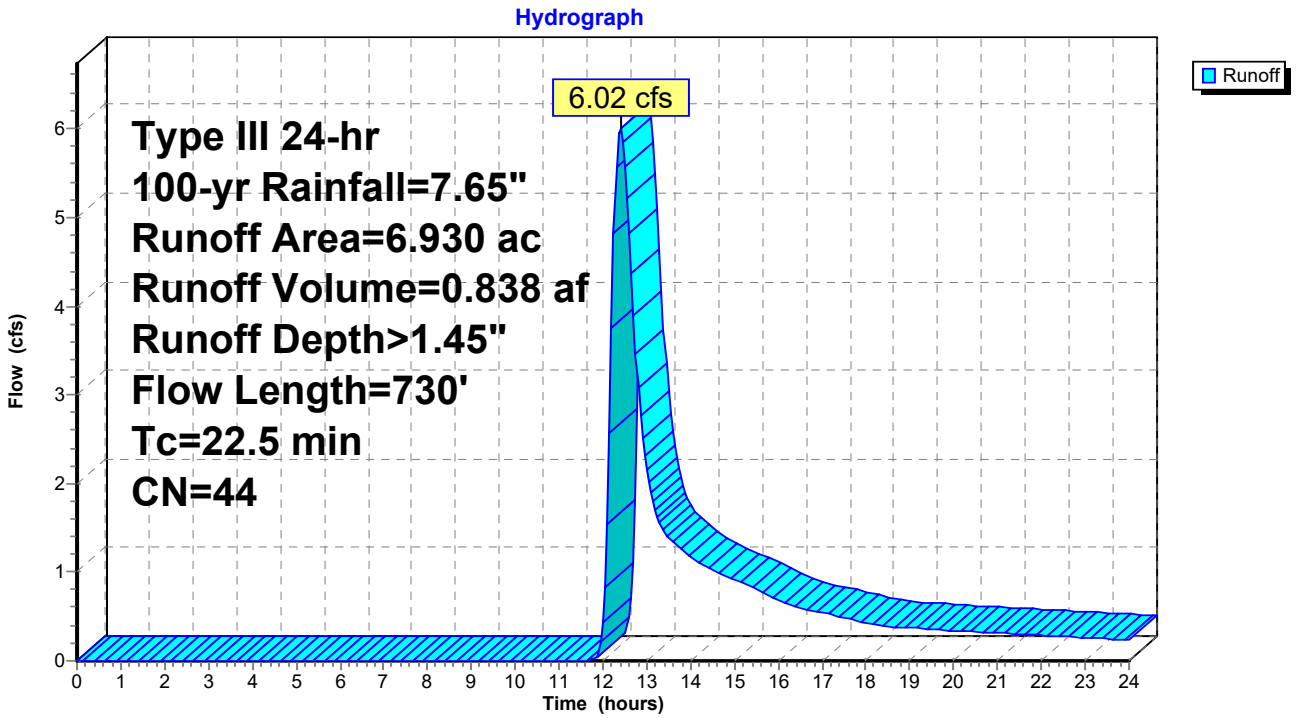
Runoff = 6.02 cfs @ 12.39 hrs, Volume= 0.838 af, Depth> 1.45"
Routed to Pond 8P : Ex Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.65"

	Area (ac)	CN	Description
*	6.930	44	Meadow, non-grazed, HSG A/B
	6.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
10.6	630	0.0200	0.99		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
22.5	730	Total			

Subcatchment 9S: PDA-2



Summary for Subcatchment 12S: EDA-1

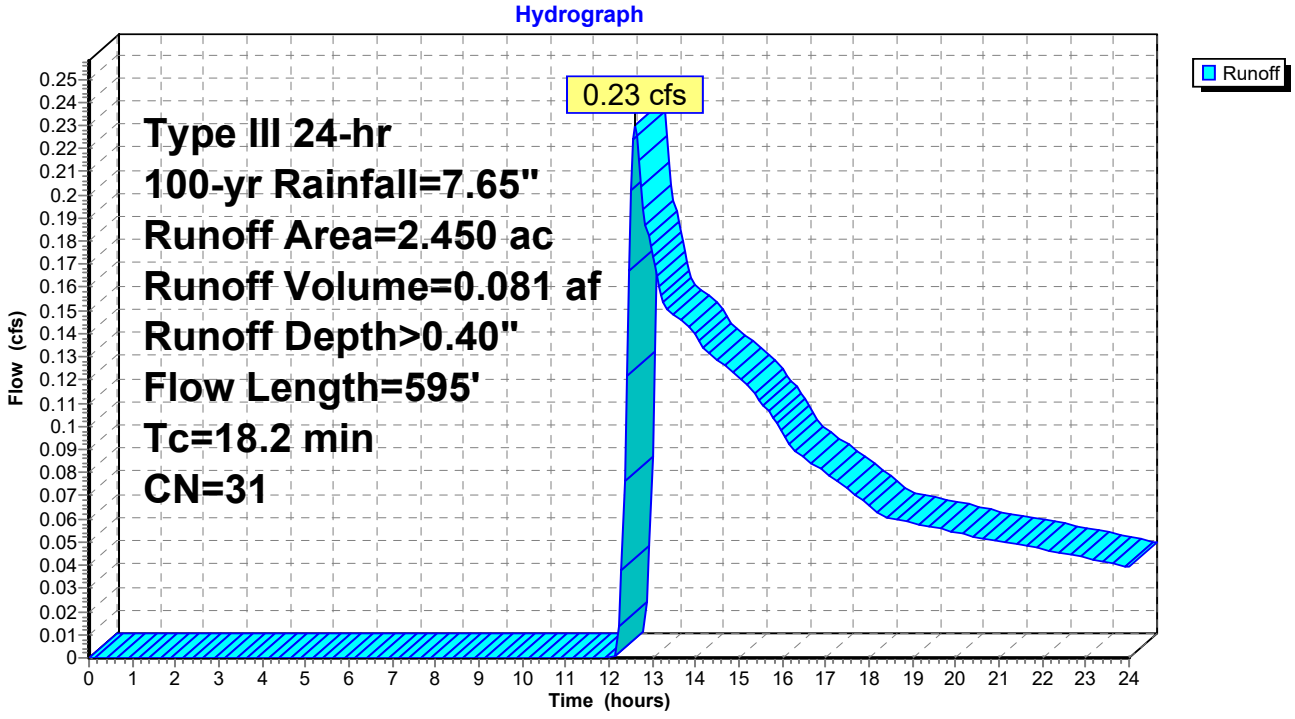
Runoff = 0.23 cfs @ 12.60 hrs, Volume= 0.081 af, Depth> 0.40"
Routed to Pond 13P : Ex Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.65"

Area (ac)	CN	Description
0.030	96	Gravel surface, HSG A
2.420	30	Meadow, non-grazed, HSG A
2.450	31	Weighted Average
2.450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0250	0.13		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.35"
5.4	495	0.0480	1.53		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
18.2	595	Total			

Subcatchment 12S: EDA-1



Summary for Pond 5P: Ex Basin 3

Inflow Area = 12.610 ac, 0.00% Impervious, Inflow Depth > 0.33" for 100-yr event
Inflow = 0.67 cfs @ 13.12 hrs, Volume= 0.348 af
Outflow = 0.46 cfs @ 16.11 hrs, Volume= 0.344 af, Atten= 31%, Lag= 179.6 min
Discarded = 0.46 cfs @ 16.11 hrs, Volume= 0.344 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 194.36' @ 16.11 hrs Surf.Area= 7,551 sf Storage= 2,268 cf

Plug-Flow detention time= 54.1 min calculated for 0.344 af (99% of inflow)
Center-of-Mass det. time= 48.9 min (1,067.3 - 1,018.4)

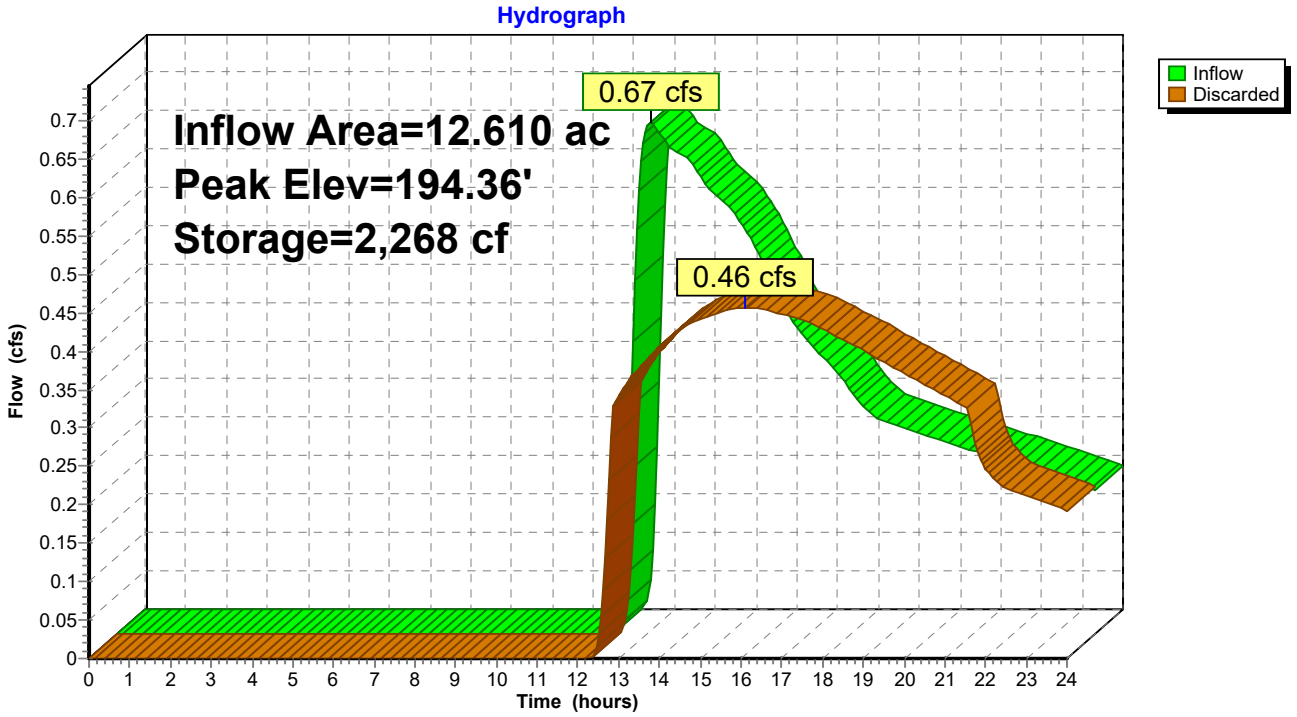
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	195,980 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	5,094	0	0
196.00	18,796	23,890	23,890
198.00	36,499	55,295	79,185
200.00	80,296	116,795	195,980

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**2.550 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 182.00'

Discarded OutFlow Max=0.46 cfs @ 16.11 hrs HW=194.36' (Free Discharge)
↑**1=Exfiltration** (Controls 0.46 cfs)

Pond 5P: Ex Basin 3



Stage-Discharge for Pond 5P: Ex Basin 3

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
194.00	0.00	196.65	1.62	199.30	4.46
194.05	0.32	196.70	1.66	199.35	4.54
194.10	0.34	196.75	1.69	199.40	4.61
194.15	0.37	196.80	1.72	199.45	4.69
194.20	0.39	196.85	1.75	199.50	4.77
194.25	0.41	196.90	1.78	199.55	4.85
194.30	0.43	196.95	1.82	199.60	4.93
194.35	0.45	197.00	1.85	199.65	5.00
194.40	0.47	197.05	1.88	199.70	5.08
194.45	0.50	197.10	1.91	199.75	5.16
194.50	0.52	197.15	1.95	199.80	5.24
194.55	0.54	197.20	1.98	199.85	5.32
194.60	0.56	197.25	2.01	199.90	5.40
194.65	0.59	197.30	2.04	199.95	5.48
194.70	0.61	197.35	2.08	200.00	**5.56**
194.75	0.63	197.40	2.11		
194.80	0.65	197.45	2.14		
194.85	0.68	197.50	2.18		
194.90	0.70	197.55	2.21		
194.95	0.72	197.60	2.24		
195.00	0.75	197.65	2.27		
195.05	0.77	197.70	2.31		
195.10	0.79	197.75	2.34		
195.15	0.82	197.80	2.38		
195.20	0.84	197.85	2.41		
195.25	0.86	197.90	2.44		
195.30	0.89	197.95	2.48		
195.35	0.91	198.00	2.51		
195.40	0.93	198.05	2.58		
195.45	0.96	198.10	2.66		
195.50	0.98	198.15	2.73		
195.55	1.00	198.20	2.80		
195.60	1.03	198.25	2.87		
195.65	1.05	198.30	2.95		
195.70	1.08	198.35	3.02		
195.75	1.10	198.40	3.10		
195.80	1.12	198.45	3.17		
195.85	1.15	198.50	3.24		
195.90	1.17	198.55	3.32		
195.95	1.20	198.60	3.39		
196.00	1.22	198.65	3.47		
196.05	1.25	198.70	3.54		
196.10	1.28	198.75	3.62		
196.15	1.31	198.80	3.69		
196.20	1.34	198.85	3.77		
196.25	1.37	198.90	3.84		
196.30	1.41	198.95	3.92		
196.35	1.44	199.00	4.00		
196.40	1.47	199.05	4.07		
196.45	1.50	199.10	4.15		
196.50	1.53	199.15	4.23		
196.55	1.56	199.20	4.30		
196.60	1.59	199.25	4.38		

Stage-Area-Storage for Pond 5P: Ex Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	5,094	0
194.10	5,779	544
194.20	6,464	1,156
194.30	7,149	1,836
194.40	7,834	2,586
194.50	8,520	3,403
194.60	9,205	4,290
194.70	9,890	5,244
194.80	10,575	6,268
194.90	11,260	7,359
195.00	11,945	8,520
195.10	12,630	9,748
195.20	13,315	11,046
195.30	14,000	12,411
195.40	14,685	13,846
195.50	15,371	15,348
195.60	16,056	16,920
195.70	16,741	18,559
195.80	17,426	20,268
195.90	18,111	22,045
196.00	18,796	23,890
196.10	19,681	25,814
196.20	20,566	27,826
196.30	21,451	29,927
196.40	22,337	32,117
196.50	23,222	34,394
196.60	24,107	36,761
196.70	24,992	39,216
196.80	25,877	41,759
196.90	26,762	44,391
197.00	27,648	47,112
197.10	28,533	49,921
197.20	29,418	52,818
197.30	30,303	55,804
197.40	31,188	58,879
197.50	32,073	62,042
197.60	32,958	65,294
197.70	33,844	68,634
197.80	34,729	72,062
197.90	35,614	75,579
198.00	36,499	79,185
198.10	38,689	82,944
198.20	40,879	86,923
198.30	43,069	91,120
198.40	45,258	95,536
198.50	47,448	100,172
198.60	49,638	105,026
198.70	51,828	110,099
198.80	54,018	115,392
198.90	56,208	120,903
199.00	58,398	126,633
199.10	60,587	132,582
199.20	62,777	138,751
199.30	64,967	145,138
199.40	67,157	151,744
199.50	69,347	158,569
199.60	71,537	165,613
199.70	73,726	172,877
199.80	75,916	180,359
199.90	78,106	188,060
200.00	**80,296**	**195,980**

Summary for Pond 6P: Ex Basin 3

Inflow Area = 12.610 ac, 0.00% Impervious, Inflow Depth > 1.44" for 100-yr event
Inflow = 9.25 cfs @ 12.57 hrs, Volume= 1.518 af
Outflow = 1.39 cfs @ 15.87 hrs, Volume= 1.175 af, Atten= 85%, Lag= 197.8 min
Discarded = 1.39 cfs @ 15.87 hrs, Volume= 1.175 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 196.28' @ 15.87 hrs Surf.Area= 21,232 sf Storage= 29,397 cf

Plug-Flow detention time= 252.9 min calculated for 1.175 af (77% of inflow)
Center-of-Mass det. time= 164.9 min (1,079.0 - 914.1)

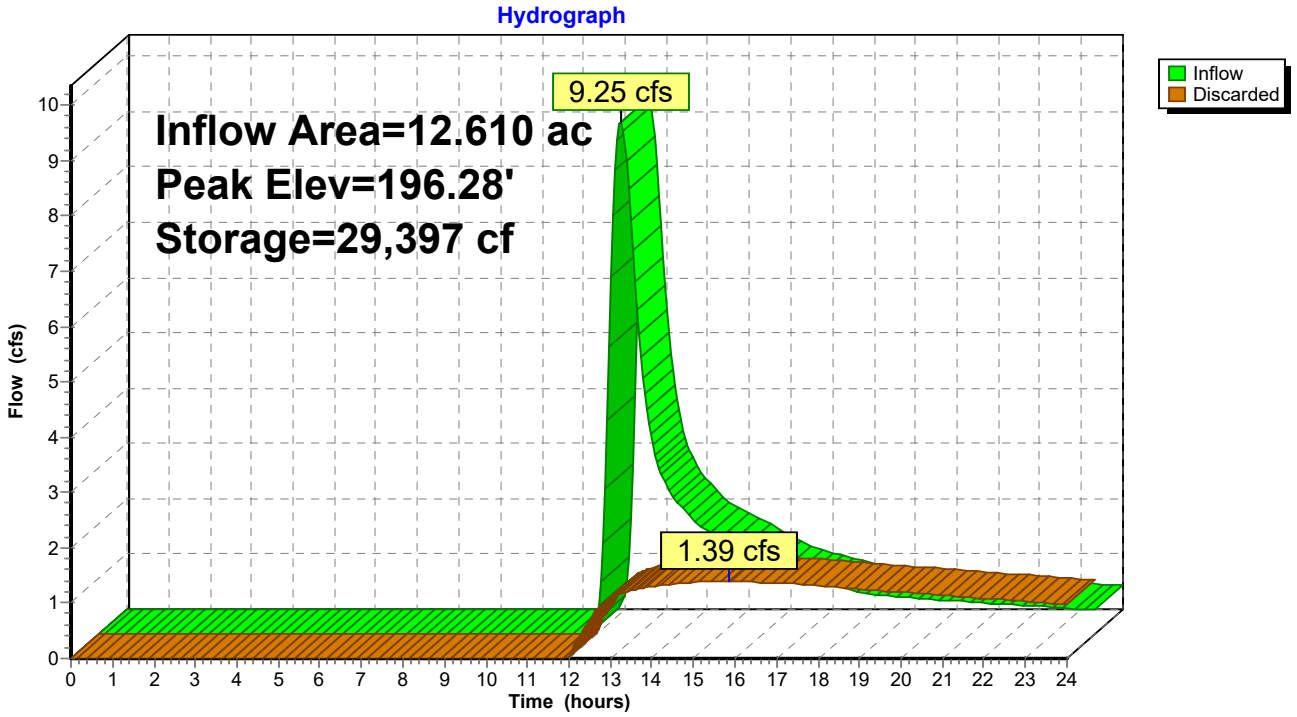
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	195,980 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	5,094	0	0
196.00	18,796	23,890	23,890
198.00	36,499	55,295	79,185
200.00	80,296	116,795	195,980

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**2.550 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 182.00'

Discarded OutFlow Max=1.39 cfs @ 15.87 hrs HW=196.28' (Free Discharge)
↑**1=Exfiltration** (Controls 1.39 cfs)

Pond 6P: Ex Basin 3



Stage-Discharge for Pond 6P: Ex Basin 3

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
194.00	0.00	196.65	1.62	199.30	4.46
194.05	0.32	196.70	1.66	199.35	4.54
194.10	0.34	196.75	1.69	199.40	4.61
194.15	0.37	196.80	1.72	199.45	4.69
194.20	0.39	196.85	1.75	199.50	4.77
194.25	0.41	196.90	1.78	199.55	4.85
194.30	0.43	196.95	1.82	199.60	4.93
194.35	0.45	197.00	1.85	199.65	5.00
194.40	0.47	197.05	1.88	199.70	5.08
194.45	0.50	197.10	1.91	199.75	5.16
194.50	0.52	197.15	1.95	199.80	5.24
194.55	0.54	197.20	1.98	199.85	5.32
194.60	0.56	197.25	2.01	199.90	5.40
194.65	0.59	197.30	2.04	199.95	5.48
194.70	0.61	197.35	2.08	200.00	**5.56**
194.75	0.63	197.40	2.11		
194.80	0.65	197.45	2.14		
194.85	0.68	197.50	2.18		
194.90	0.70	197.55	2.21		
194.95	0.72	197.60	2.24		
195.00	0.75	197.65	2.27		
195.05	0.77	197.70	2.31		
195.10	0.79	197.75	2.34		
195.15	0.82	197.80	2.38		
195.20	0.84	197.85	2.41		
195.25	0.86	197.90	2.44		
195.30	0.89	197.95	2.48		
195.35	0.91	198.00	2.51		
195.40	0.93	198.05	2.58		
195.45	0.96	198.10	2.66		
195.50	0.98	198.15	2.73		
195.55	1.00	198.20	2.80		
195.60	1.03	198.25	2.87		
195.65	1.05	198.30	2.95		
195.70	1.08	198.35	3.02		
195.75	1.10	198.40	3.10		
195.80	1.12	198.45	3.17		
195.85	1.15	198.50	3.24		
195.90	1.17	198.55	3.32		
195.95	1.20	198.60	3.39		
196.00	1.22	198.65	3.47		
196.05	1.25	198.70	3.54		
196.10	1.28	198.75	3.62		
196.15	1.31	198.80	3.69		
196.20	1.34	198.85	3.77		
196.25	1.37	198.90	3.84		
196.30	1.41	198.95	3.92		
196.35	1.44	199.00	4.00		
196.40	1.47	199.05	4.07		
196.45	1.50	199.10	4.15		
196.50	1.53	199.15	4.23		
196.55	1.56	199.20	4.30		
196.60	1.59	199.25	4.38		

Stage-Area-Storage for Pond 6P: Ex Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	5,094	0
194.10	5,779	544
194.20	6,464	1,156
194.30	7,149	1,836
194.40	7,834	2,586
194.50	8,520	3,403
194.60	9,205	4,290
194.70	9,890	5,244
194.80	10,575	6,268
194.90	11,260	7,359
195.00	11,945	8,520
195.10	12,630	9,748
195.20	13,315	11,046
195.30	14,000	12,411
195.40	14,685	13,846
195.50	15,371	15,348
195.60	16,056	16,920
195.70	16,741	18,559
195.80	17,426	20,268
195.90	18,111	22,045
196.00	18,796	23,890
196.10	19,681	25,814
196.20	20,566	27,826
196.30	21,451	29,927
196.40	22,337	32,117
196.50	23,222	34,394
196.60	24,107	36,761
196.70	24,992	39,216
196.80	25,877	41,759
196.90	26,762	44,391
197.00	27,648	47,112
197.10	28,533	49,921
197.20	29,418	52,818
197.30	30,303	55,804
197.40	31,188	58,879
197.50	32,073	62,042
197.60	32,958	65,294
197.70	33,844	68,634
197.80	34,729	72,062
197.90	35,614	75,579
198.00	36,499	79,185
198.10	38,689	82,944
198.20	40,879	86,923
198.30	43,069	91,120
198.40	45,258	95,536
198.50	47,448	100,172
198.60	49,638	105,026
198.70	51,828	110,099
198.80	54,018	115,392
198.90	56,208	120,903
199.00	58,398	126,633
199.10	60,587	132,582
199.20	62,777	138,751
199.30	64,967	145,138
199.40	67,157	151,744
199.50	69,347	158,569
199.60	71,537	165,613
199.70	73,726	172,877
199.80	75,916	180,359
199.90	78,106	188,060
200.00	**80,296**	**195,980**

Summary for Pond 7P: Ex Basin 2

Inflow Area = 6.930 ac, 0.00% Impervious, Inflow Depth > 0.33" for 100-yr event
Inflow = 0.40 cfs @ 12.76 hrs, Volume= 0.193 af
Outflow = 0.37 cfs @ 13.08 hrs, Volume= 0.191 af, Atten= 6%, Lag= 19.2 min
Discarded = 0.37 cfs @ 13.08 hrs, Volume= 0.191 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 203.01' @ 13.08 hrs Surf.Area= 14,518 sf Storage= 200 cf

Plug-Flow detention time= 8.9 min calculated for 0.191 af (99% of inflow)
Center-of-Mass det. time= 6.1 min (1,017.1 - 1,011.0)

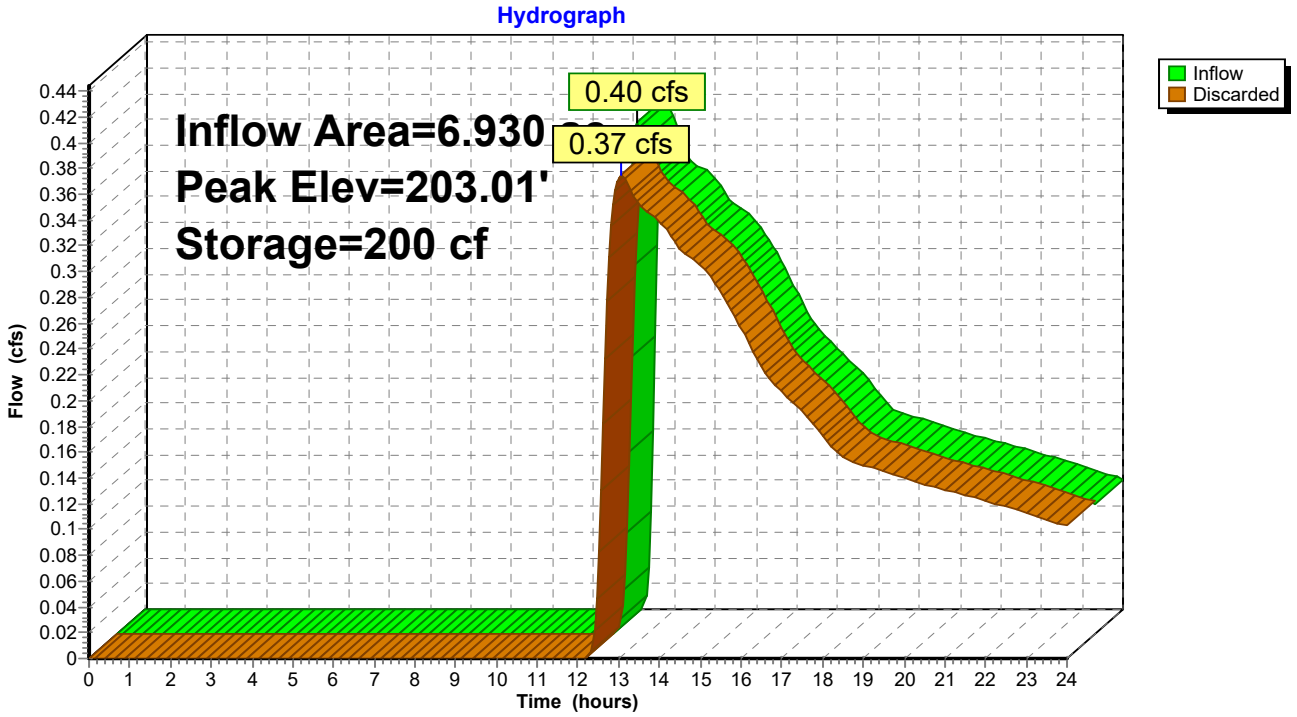
Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	57,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
203.00	14,476	0	0
204.00	17,492	15,984	15,984
205.00	20,565	19,029	35,013
206.00	25,352	22,959	57,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	203.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.00'

Discarded OutFlow Max=0.81 cfs @ 13.08 hrs HW=203.01' (Free Discharge)
↑**1=Exfiltration** (Controls 0.81 cfs)

Pond 7P: Ex Basin 2



Stage-Discharge for Pond 7P: Ex Basin 2

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
203.00	0.00	204.06	1.08	205.12	1.39
203.02	0.81	204.08	1.09	205.14	1.39
203.04	0.82	204.10	1.09	205.16	1.40
203.06	0.82	204.12	1.10	205.18	1.41
203.08	0.83	204.14	1.10	205.20	1.42
203.10	0.83	204.16	1.11	205.22	1.42
203.12	0.84	204.18	1.11	205.24	1.43
203.14	0.84	204.20	1.12	205.26	1.44
203.16	0.85	204.22	1.12	205.28	1.45
203.18	0.85	204.24	1.13	205.30	1.45
203.20	0.86	204.26	1.13	205.32	1.46
203.22	0.86	204.28	1.14	205.34	1.47
203.24	0.87	204.30	1.15	205.36	1.48
203.26	0.87	204.32	1.15	205.38	1.49
203.28	0.88	204.34	1.16	205.40	1.49
203.30	0.88	204.36	1.16	205.42	1.50
203.32	0.89	204.38	1.17	205.44	1.51
203.34	0.89	204.40	1.17	205.46	1.52
203.36	0.90	204.42	1.18	205.48	1.52
203.38	0.90	204.44	1.18	205.50	1.53
203.40	0.91	204.46	1.19	205.52	1.54
203.42	0.91	204.48	1.19	205.54	1.55
203.44	0.92	204.50	1.20	205.56	1.56
203.46	0.92	204.52	1.21	205.58	1.56
203.48	0.93	204.54	1.21	205.60	1.57
203.50	0.93	204.56	1.22	205.62	1.58
203.52	0.94	204.58	1.22	205.64	1.59
203.54	0.94	204.60	1.23	205.66	1.59
203.56	0.95	204.62	1.23	205.68	1.60
203.58	0.95	204.64	1.24	205.70	1.61
203.60	0.96	204.66	1.24	205.72	1.62
203.62	0.96	204.68	1.25	205.74	1.63
203.64	0.97	204.70	1.26	205.76	1.63
203.66	0.98	204.72	1.26	205.78	1.64
203.68	0.98	204.74	1.27	205.80	1.65
203.70	0.99	204.76	1.27	205.82	1.66
203.72	0.99	204.78	1.28	205.84	1.67
203.74	1.00	204.80	1.28	205.86	1.67
203.76	1.00	204.82	1.29	205.88	1.68
203.78	1.01	204.84	1.29	205.90	1.69
203.80	1.01	204.86	1.30	205.92	1.70
203.82	1.02	204.88	1.31	205.94	1.71
203.84	1.02	204.90	1.31	205.96	1.71
203.86	1.03	204.92	1.32	205.98	1.72
203.88	1.03	204.94	1.32	206.00	**1.73**
203.90	1.04	204.96	1.33		
203.92	1.04	204.98	1.33		
203.94	1.05	205.00	1.34		
203.96	1.05	205.02	1.35		
203.98	1.06	205.04	1.36		
204.00	1.06	205.06	1.36		
204.02	1.07	205.08	1.37		
204.04	1.08	205.10	1.38		

Stage-Area-Storage for Pond 7P: Ex Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	14,476	0
203.05	14,627	728
203.10	14,778	1,463
203.15	14,928	2,205
203.20	15,079	2,956
203.25	15,230	3,713
203.30	15,381	4,479
203.35	15,532	5,251
203.40	15,682	6,032
203.45	15,833	6,820
203.50	15,984	7,615
203.55	16,135	8,418
203.60	16,286	9,228
203.65	16,436	10,047
203.70	16,587	10,872
203.75	16,738	11,705
203.80	16,889	12,546
203.85	17,040	13,394
203.90	17,190	14,250
203.95	17,341	15,113
204.00	17,492	15,984
204.05	17,646	16,862
204.10	17,799	17,749
204.15	17,953	18,642
204.20	18,107	19,544
204.25	18,260	20,453
204.30	18,414	21,370
204.35	18,568	22,294
204.40	18,721	23,227
204.45	18,875	24,167
204.50	19,029	25,114
204.55	19,182	26,069
204.60	19,336	27,032
204.65	19,489	28,003
204.70	19,643	28,981
204.75	19,797	29,967
204.80	19,950	30,961
204.85	20,104	31,962
204.90	20,258	32,971
204.95	20,411	33,988
205.00	20,565	35,013
205.05	20,804	36,047
205.10	21,044	37,093
205.15	21,283	38,151
205.20	21,522	39,221
205.25	21,762	40,303
205.30	22,001	41,397
205.35	22,240	42,503
205.40	22,480	43,621
205.45	22,719	44,751
205.50	22,959	45,893
205.55	23,198	47,047
205.60	23,437	48,213
205.65	23,677	49,391
205.70	23,916	50,581
205.75	24,155	51,783
205.80	24,395	52,996
205.85	24,634	54,222
205.90	24,873	55,460
205.95	25,113	56,709
206.00	**25,352**	**57,971**

Summary for Pond 8P: Ex Basin 2

Inflow Area = 6.930 ac, 0.00% Impervious, Inflow Depth > 1.45" for 100-yr event
Inflow = 6.02 cfs @ 12.39 hrs, Volume= 0.838 af
Outflow = 1.01 cfs @ 14.52 hrs, Volume= 0.835 af, Atten= 83%, Lag= 127.9 min
Discarded = 1.01 cfs @ 14.52 hrs, Volume= 0.835 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 203.80' @ 14.52 hrs Surf.Area= 16,901 sf Storage= 12,615 cf

Plug-Flow detention time= 136.0 min calculated for 0.835 af (100% of inflow)
Center-of-Mass det. time= 134.2 min (1,039.8 - 905.6)

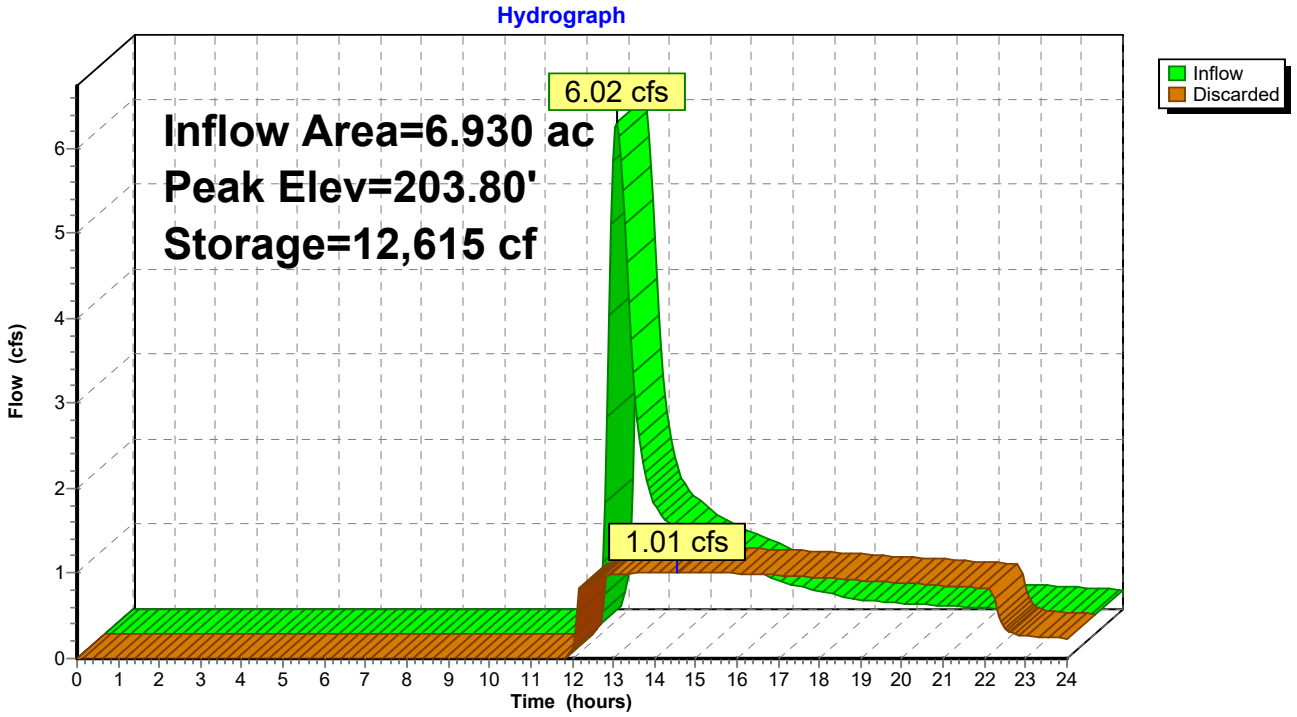
Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	57,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
203.00	14,476	0	0
204.00	17,492	15,984	15,984
205.00	20,565	19,029	35,013
206.00	25,352	22,959	57,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	203.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.00'

Discarded OutFlow Max=1.01 cfs @ 14.52 hrs HW=203.80' (Free Discharge)
↑**1=Exfiltration** (Controls 1.01 cfs)

Pond 8P: Ex Basin 2



Stage-Discharge for Pond 8P: Ex Basin 2

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
203.00	0.00	204.06	1.08	205.12	1.39
203.02	0.81	204.08	1.09	205.14	1.39
203.04	0.82	204.10	1.09	205.16	1.40
203.06	0.82	204.12	1.10	205.18	1.41
203.08	0.83	204.14	1.10	205.20	1.42
203.10	0.83	204.16	1.11	205.22	1.42
203.12	0.84	204.18	1.11	205.24	1.43
203.14	0.84	204.20	1.12	205.26	1.44
203.16	0.85	204.22	1.12	205.28	1.45
203.18	0.85	204.24	1.13	205.30	1.45
203.20	0.86	204.26	1.13	205.32	1.46
203.22	0.86	204.28	1.14	205.34	1.47
203.24	0.87	204.30	1.15	205.36	1.48
203.26	0.87	204.32	1.15	205.38	1.49
203.28	0.88	204.34	1.16	205.40	1.49
203.30	0.88	204.36	1.16	205.42	1.50
203.32	0.89	204.38	1.17	205.44	1.51
203.34	0.89	204.40	1.17	205.46	1.52
203.36	0.90	204.42	1.18	205.48	1.52
203.38	0.90	204.44	1.18	205.50	1.53
203.40	0.91	204.46	1.19	205.52	1.54
203.42	0.91	204.48	1.19	205.54	1.55
203.44	0.92	204.50	1.20	205.56	1.56
203.46	0.92	204.52	1.21	205.58	1.56
203.48	0.93	204.54	1.21	205.60	1.57
203.50	0.93	204.56	1.22	205.62	1.58
203.52	0.94	204.58	1.22	205.64	1.59
203.54	0.94	204.60	1.23	205.66	1.59
203.56	0.95	204.62	1.23	205.68	1.60
203.58	0.95	204.64	1.24	205.70	1.61
203.60	0.96	204.66	1.24	205.72	1.62
203.62	0.96	204.68	1.25	205.74	1.63
203.64	0.97	204.70	1.26	205.76	1.63
203.66	0.98	204.72	1.26	205.78	1.64
203.68	0.98	204.74	1.27	205.80	1.65
203.70	0.99	204.76	1.27	205.82	1.66
203.72	0.99	204.78	1.28	205.84	1.67
203.74	1.00	204.80	1.28	205.86	1.67
203.76	1.00	204.82	1.29	205.88	1.68
203.78	1.01	204.84	1.29	205.90	1.69
203.80	1.01	204.86	1.30	205.92	1.70
203.82	1.02	204.88	1.31	205.94	1.71
203.84	1.02	204.90	1.31	205.96	1.71
203.86	1.03	204.92	1.32	205.98	1.72
203.88	1.03	204.94	1.32	206.00	**1.73**
203.90	1.04	204.96	1.33		
203.92	1.04	204.98	1.33		
203.94	1.05	205.00	1.34		
203.96	1.05	205.02	1.35		
203.98	1.06	205.04	1.36		
204.00	1.06	205.06	1.36		
204.02	1.07	205.08	1.37		
204.04	1.08	205.10	1.38		

Stage-Area-Storage for Pond 8P: Ex Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	14,476	0
203.05	14,627	728
203.10	14,778	1,463
203.15	14,928	2,205
203.20	15,079	2,956
203.25	15,230	3,713
203.30	15,381	4,479
203.35	15,532	5,251
203.40	15,682	6,032
203.45	15,833	6,820
203.50	15,984	7,615
203.55	16,135	8,418
203.60	16,286	9,228
203.65	16,436	10,047
203.70	16,587	10,872
203.75	16,738	11,705
203.80	16,889	12,546
203.85	17,040	13,394
203.90	17,190	14,250
203.95	17,341	15,113
204.00	17,492	15,984
204.05	17,646	16,862
204.10	17,799	17,749
204.15	17,953	18,642
204.20	18,107	19,544
204.25	18,260	20,453
204.30	18,414	21,370
204.35	18,568	22,294
204.40	18,721	23,227
204.45	18,875	24,167
204.50	19,029	25,114
204.55	19,182	26,069
204.60	19,336	27,032
204.65	19,489	28,003
204.70	19,643	28,981
204.75	19,797	29,967
204.80	19,950	30,961
204.85	20,104	31,962
204.90	20,258	32,971
204.95	20,411	33,988
205.00	20,565	35,013
205.05	20,804	36,047
205.10	21,044	37,093
205.15	21,283	38,151
205.20	21,522	39,221
205.25	21,762	40,303
205.30	22,001	41,397
205.35	22,240	42,503
205.40	22,480	43,621
205.45	22,719	44,751
205.50	22,959	45,893
205.55	23,198	47,047
205.60	23,437	48,213
205.65	23,677	49,391
205.70	23,916	50,581
205.75	24,155	51,783
205.80	24,395	52,996
205.85	24,634	54,222
205.90	24,873	55,460
205.95	25,113	56,709
206.00	**25,352**	**57,971**

Summary for Pond 10P: Ex Basin 1

Inflow Area = 2.450 ac, 0.41% Impervious, Inflow Depth > 1.74" for 100-yr event
Inflow = 2.97 cfs @ 12.30 hrs, Volume= 0.355 af
Outflow = 0.38 cfs @ 14.79 hrs, Volume= 0.299 af, Atten= 87%, Lag= 149.6 min
Discarded = 0.38 cfs @ 14.79 hrs, Volume= 0.299 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 206.65' @ 14.79 hrs Surf.Area= 6,195 sf Storage= 6,593 cf

Plug-Flow detention time= 229.6 min calculated for 0.299 af (84% of inflow)
Center-of-Mass det. time= 161.4 min (1,053.1 - 891.7)

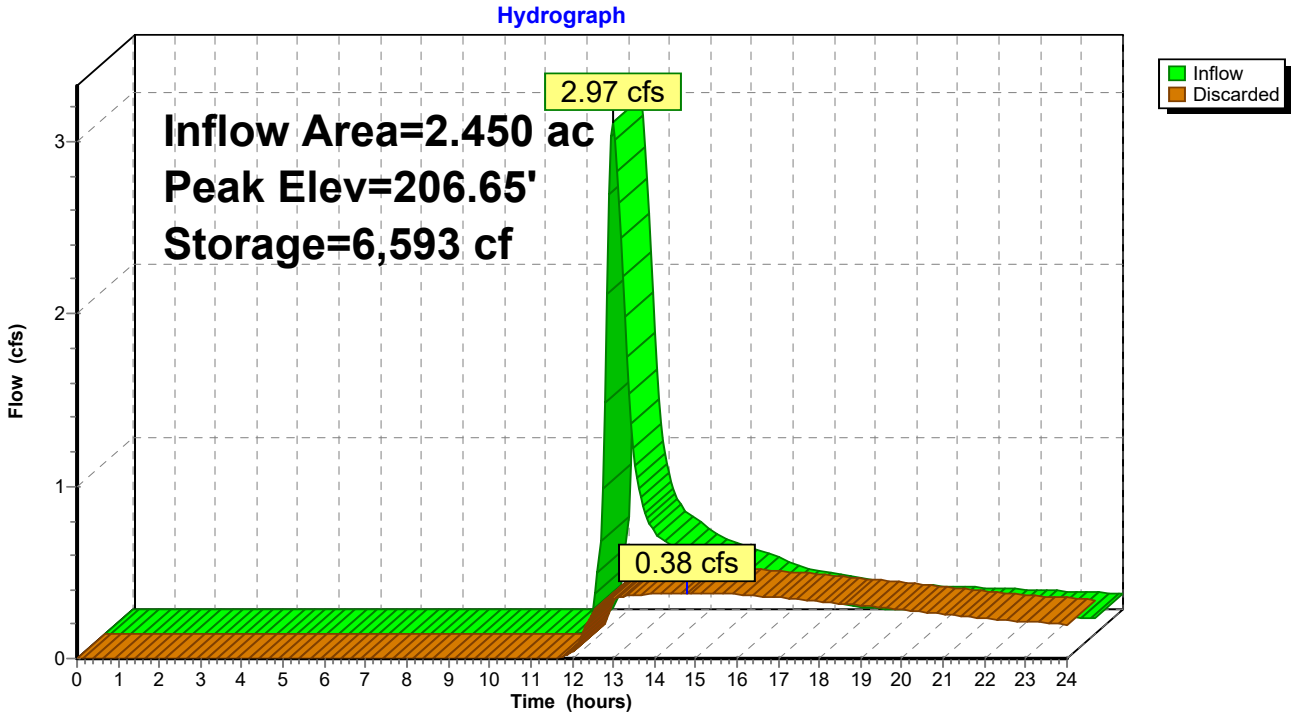
Volume	Invert	Avail.Storage	Storage Description
#1	204.00'	8,993 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
204.00	59	0	0
205.00	1,321	690	690
206.00	3,928	2,625	3,315
207.00	7,428	5,678	8,993

Device	Routing	Invert	Outlet Devices
#1	Discarded	204.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.00'

Discarded OutFlow Max=0.38 cfs @ 14.79 hrs HW=206.65' (Free Discharge)
↑**1=Exfiltration** (Controls 0.38 cfs)

Pond 10P: Ex Basin 1



Stage-Discharge for Pond 10P: Ex Basin 1

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
204.00	0.00	205.06	0.09	206.12	0.26
204.02	0.00	205.08	0.09	206.14	0.27
204.04	0.01	205.10	0.09	206.16	0.27
204.06	0.01	205.12	0.10	206.18	0.27
204.08	0.01	205.14	0.10	206.20	0.28
204.10	0.01	205.16	0.10	206.22	0.28
204.12	0.01	205.18	0.10	206.24	0.29
204.14	0.01	205.20	0.11	206.26	0.29
204.16	0.01	205.22	0.11	206.28	0.30
204.18	0.02	205.24	0.11	206.30	0.30
204.20	0.02	205.26	0.12	206.32	0.31
204.22	0.02	205.28	0.12	206.34	0.31
204.24	0.02	205.30	0.12	206.36	0.31
204.26	0.02	205.32	0.13	206.38	0.32
204.28	0.02	205.34	0.13	206.40	0.32
204.30	0.02	205.36	0.13	206.42	0.33
204.32	0.03	205.38	0.14	206.44	0.33
204.34	0.03	205.40	0.14	206.46	0.34
204.36	0.03	205.42	0.14	206.48	0.34
204.38	0.03	205.44	0.15	206.50	0.35
204.40	0.03	205.46	0.15	206.52	0.35
204.42	0.03	205.48	0.15	206.54	0.35
204.44	0.04	205.50	0.16	206.56	0.36
204.46	0.04	205.52	0.16	206.58	0.36
204.48	0.04	205.54	0.16	206.60	0.37
204.50	0.04	205.56	0.16	206.62	0.37
204.52	0.04	205.58	0.17	206.64	0.38
204.54	0.04	205.60	0.17	206.66	0.38
204.56	0.04	205.62	0.17	206.68	0.39
204.58	0.05	205.64	0.18	206.70	0.39
204.60	0.05	205.66	0.18	206.72	0.39
204.62	0.05	205.68	0.18	206.74	0.40
204.64	0.05	205.70	0.19	206.76	0.40
204.66	0.05	205.72	0.19	206.78	0.41
204.68	0.05	205.74	0.19	206.80	0.41
204.70	0.05	205.76	0.20	206.82	0.42
204.72	0.06	205.78	0.20	206.84	0.42
204.74	0.06	205.80	0.20	206.86	0.43
204.76	0.06	205.82	0.21	206.88	0.43
204.78	0.06	205.84	0.21	206.90	0.44
204.80	0.06	205.86	0.21	206.92	0.44
204.82	0.06	205.88	0.22	206.94	0.44
204.84	0.07	205.90	0.22	206.96	0.45
204.86	0.07	205.92	0.22	206.98	0.45
204.88	0.07	205.94	0.23	207.00	**0.46**
204.90	0.07	205.96	0.23		
204.92	0.07	205.98	0.23		
204.94	0.07	206.00	0.24		
204.96	0.07	206.02	0.24		
204.98	0.08	206.04	0.24		
205.00	0.08	206.06	0.25		
205.02	0.08	206.08	0.25		
205.04	0.08	206.10	0.26		

Stage-Area-Storage for Pond 10P: Ex Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	59	0
204.05	122	5
204.10	185	12
204.15	248	23
204.20	311	37
204.25	375	54
204.30	438	74
204.35	501	98
204.40	564	125
204.45	627	154
204.50	690	187
204.55	753	223
204.60	816	263
204.65	879	305
204.70	942	350
204.75	1,006	399
204.80	1,069	451
204.85	1,132	506
204.90	1,195	564
204.95	1,258	626
205.00	1,321	690
205.05	1,451	759
205.10	1,582	835
205.15	1,712	917
205.20	1,842	1,006
205.25	1,973	1,102
205.30	2,103	1,204
205.35	2,233	1,312
205.40	2,364	1,427
205.45	2,494	1,548
205.50	2,625	1,676
205.55	2,755	1,811
205.60	2,885	1,952
205.65	3,016	2,099
205.70	3,146	2,253
205.75	3,276	2,414
205.80	3,407	2,581
205.85	3,537	2,755
205.90	3,667	2,935
205.95	3,798	3,121
206.00	3,928	3,315
206.05	4,103	3,515
206.10	4,278	3,725
206.15	4,453	3,943
206.20	4,628	4,170
206.25	4,803	4,406
206.30	4,978	4,650
206.35	5,153	4,904
206.40	5,328	5,166
206.45	5,503	5,436
206.50	5,678	5,716
206.55	5,853	6,004
206.60	6,028	6,301
206.65	6,203	6,607
206.70	6,378	6,922
206.75	6,553	7,245
206.80	6,728	7,577
206.85	6,903	7,918
206.90	7,078	8,267
206.95	7,253	8,625
207.00	**7,428**	**8,993**

Summary for Pond 13P: Ex Basin 1

Inflow Area = 2.450 ac, 0.00% Impervious, Inflow Depth > 0.40" for 100-yr event
Inflow = 0.23 cfs @ 12.60 hrs, Volume= 0.081 af
Outflow = 0.10 cfs @ 16.01 hrs, Volume= 0.073 af, Atten= 58%, Lag= 204.4 min
Discarded = 0.10 cfs @ 16.01 hrs, Volume= 0.073 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 205.13' @ 16.01 hrs Surf.Area= 1,656 sf Storage= 881 cf

Plug-Flow detention time= 131.2 min calculated for 0.073 af (89% of inflow)
Center-of-Mass det. time= 87.6 min (1,081.6 - 994.0)

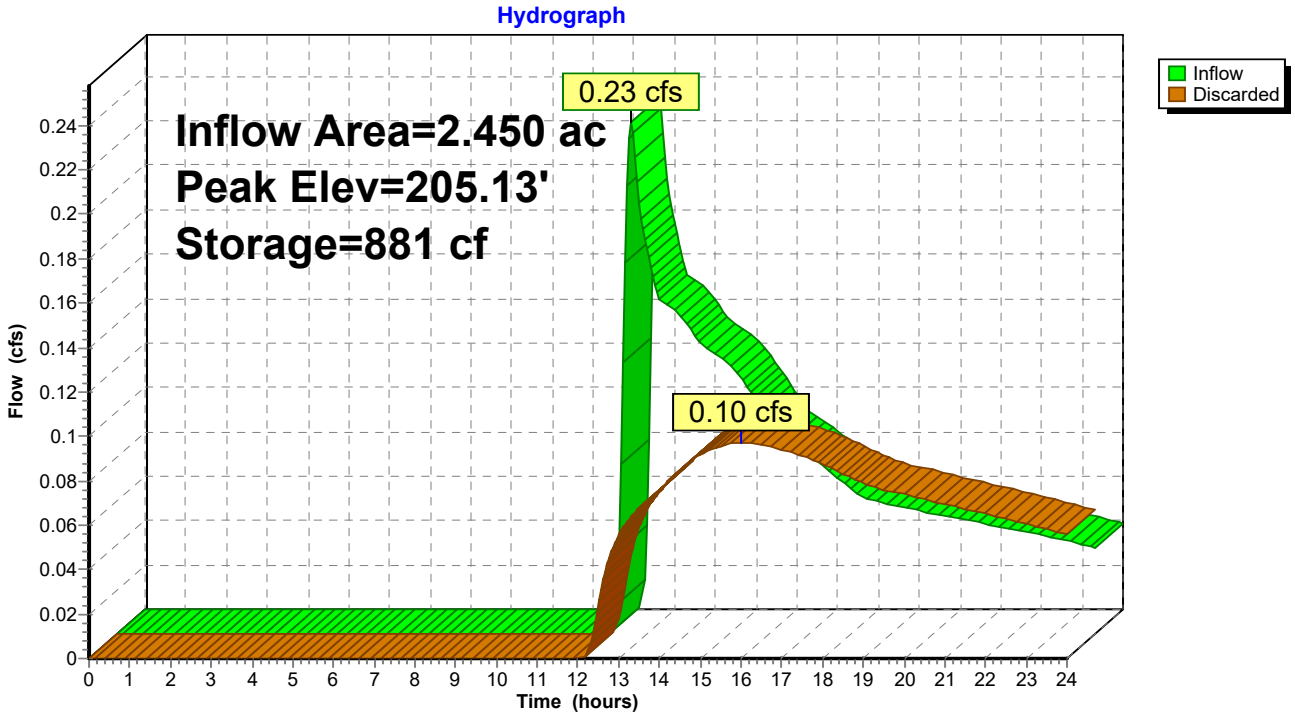
Volume	Invert	Avail.Storage	Storage Description
#1	204.00'	8,993 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
204.00	59	0	0
205.00	1,321	690	690
206.00	3,928	2,625	3,315
207.00	7,428	5,678	8,993

Device	Routing	Invert	Outlet Devices
#1	Discarded	204.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.00'

Discarded OutFlow Max=0.10 cfs @ 16.01 hrs HW=205.13' (Free Discharge)
↑**1=Exfiltration** (Controls 0.10 cfs)

Pond 13P: Ex Basin 1



Stage-Discharge for Pond 13P: Ex Basin 1

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
204.00	0.00	205.06	0.09	206.12	0.26
204.02	0.00	205.08	0.09	206.14	0.27
204.04	0.01	205.10	0.09	206.16	0.27
204.06	0.01	205.12	0.10	206.18	0.27
204.08	0.01	205.14	0.10	206.20	0.28
204.10	0.01	205.16	0.10	206.22	0.28
204.12	0.01	205.18	0.10	206.24	0.29
204.14	0.01	205.20	0.11	206.26	0.29
204.16	0.01	205.22	0.11	206.28	0.30
204.18	0.02	205.24	0.11	206.30	0.30
204.20	0.02	205.26	0.12	206.32	0.31
204.22	0.02	205.28	0.12	206.34	0.31
204.24	0.02	205.30	0.12	206.36	0.31
204.26	0.02	205.32	0.13	206.38	0.32
204.28	0.02	205.34	0.13	206.40	0.32
204.30	0.02	205.36	0.13	206.42	0.33
204.32	0.03	205.38	0.14	206.44	0.33
204.34	0.03	205.40	0.14	206.46	0.34
204.36	0.03	205.42	0.14	206.48	0.34
204.38	0.03	205.44	0.15	206.50	0.35
204.40	0.03	205.46	0.15	206.52	0.35
204.42	0.03	205.48	0.15	206.54	0.35
204.44	0.04	205.50	0.16	206.56	0.36
204.46	0.04	205.52	0.16	206.58	0.36
204.48	0.04	205.54	0.16	206.60	0.37
204.50	0.04	205.56	0.16	206.62	0.37
204.52	0.04	205.58	0.17	206.64	0.38
204.54	0.04	205.60	0.17	206.66	0.38
204.56	0.04	205.62	0.17	206.68	0.39
204.58	0.05	205.64	0.18	206.70	0.39
204.60	0.05	205.66	0.18	206.72	0.39
204.62	0.05	205.68	0.18	206.74	0.40
204.64	0.05	205.70	0.19	206.76	0.40
204.66	0.05	205.72	0.19	206.78	0.41
204.68	0.05	205.74	0.19	206.80	0.41
204.70	0.05	205.76	0.20	206.82	0.42
204.72	0.06	205.78	0.20	206.84	0.42
204.74	0.06	205.80	0.20	206.86	0.43
204.76	0.06	205.82	0.21	206.88	0.43
204.78	0.06	205.84	0.21	206.90	0.44
204.80	0.06	205.86	0.21	206.92	0.44
204.82	0.06	205.88	0.22	206.94	0.44
204.84	0.07	205.90	0.22	206.96	0.45
204.86	0.07	205.92	0.22	206.98	0.45
204.88	0.07	205.94	0.23	207.00	**0.46**
204.90	0.07	205.96	0.23		
204.92	0.07	205.98	0.23		
204.94	0.07	206.00	0.24		
204.96	0.07	206.02	0.24		
204.98	0.08	206.04	0.24		
205.00	0.08	206.06	0.25		
205.02	0.08	206.08	0.25		
205.04	0.08	206.10	0.26		

Stage-Area-Storage for Pond 13P: Ex Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	59	0
204.05	122	5
204.10	185	12
204.15	248	23
204.20	311	37
204.25	375	54
204.30	438	74
204.35	501	98
204.40	564	125
204.45	627	154
204.50	690	187
204.55	753	223
204.60	816	263
204.65	879	305
204.70	942	350
204.75	1,006	399
204.80	1,069	451
204.85	1,132	506
204.90	1,195	564
204.95	1,258	626
205.00	1,321	690
205.05	1,451	759
205.10	1,582	835
205.15	1,712	917
205.20	1,842	1,006
205.25	1,973	1,102
205.30	2,103	1,204
205.35	2,233	1,312
205.40	2,364	1,427
205.45	2,494	1,548
205.50	2,625	1,676
205.55	2,755	1,811
205.60	2,885	1,952
205.65	3,016	2,099
205.70	3,146	2,253
205.75	3,276	2,414
205.80	3,407	2,581
205.85	3,537	2,755
205.90	3,667	2,935
205.95	3,798	3,121
206.00	3,928	3,315
206.05	4,103	3,515
206.10	4,278	3,725
206.15	4,453	3,943
206.20	4,628	4,170
206.25	4,803	4,406
206.30	4,978	4,650
206.35	5,153	4,904
206.40	5,328	5,166
206.45	5,503	5,436
206.50	5,678	5,716
206.55	5,853	6,004
206.60	6,028	6,301
206.65	6,203	6,607
206.70	6,378	6,922
206.75	6,553	7,245
206.80	6,728	7,577
206.85	6,903	7,918
206.90	7,078	8,267
206.95	7,253	8,625
207.00	**7,428**	**8,993**

WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR PDA

Project: Proposed Solar Photovoltaic Array
Location: 931 Route 32, N Franklin, CT
Date: 03/01/24

Water Quality Volume Calculations:

$$WQV = \frac{(1.3")(R)(A)}{12}$$

Where:
WQV = water quality volume (ac-ft)
R = volumentric runoff coefficient = 0.05+0.009(I)
I = percent impervious cover (see below)
A = site area in acres

$$I = \frac{A_{IMP}}{A_{TOT}} \times 100$$

Where:
I = percent impervious cover
A_{IMP} = area of impervious cover
A_{TOT} = total area of watershed

Watershed Description:	PDA		
Area of impervious coverage, A_{IMP}	0.15	Acres	
Total area of watershed, A_{TOT}	21.99	Acres	
Percent impverious cover, I	0.68	%	
Volumentric runoff coefficient, R	0.06		
Water Quality Volume, WQV	0.134	ac-ft	5,826 cf

NOAA Atlas 14, Volume 10, Version 3
Location name: North Franklin, Connecticut, USA*
Latitude: 41.6542°, Longitude: -72.1513°
Elevation: 244 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.332** (0.256-0.428)	**0.397** (0.306-0.512)	**0.503** (0.386-0.650)	**0.591** (0.452-0.768)	**0.712** (0.528-0.957)	**0.804** (0.584-1.10)	**0.899** (0.635-1.26)	**1.00** (0.675-1.44)	**1.15** (0.747-1.70)	**1.28** (0.807-1.91)
10-min	**0.470** (0.363-0.606)	**0.562** (0.433-0.725)	**0.712** (0.548-0.923)	**0.837** (0.640-1.09)	**1.01** (0.748-1.36)	**1.14** (0.827-1.56)	**1.27** (0.899-1.79)	**1.42** (0.956-2.04)	**1.63** (1.06-2.41)	**1.81** (1.14-2.70)
15-min	**0.553** (0.427-0.713)	**0.661** (0.510-0.853)	**0.838** (0.644-1.08)	**0.984** (0.752-1.28)	**1.19** (0.879-1.60)	**1.34** (0.973-1.83)	**1.50** (1.06-2.11)	**1.67** (1.12-2.40)	**1.92** (1.24-2.83)	**2.12** (1.34-3.18)
30-min	**0.760** (0.587-0.980)	**0.909** (0.701-1.17)	**1.15** (0.886-1.49)	**1.35** (1.04-1.76)	**1.63** (1.21-2.19)	**1.84** (1.34-2.52)	**2.06** (1.46-2.90)	**2.30** (1.55-3.29)	**2.64** (1.71-3.89)	**2.92** (1.85-4.37)
60-min	**0.968** (0.747-1.25)	**1.16** (0.892-1.49)	**1.47** (1.13-1.90)	**1.72** (1.32-2.24)	**2.08** (1.54-2.79)	**2.34** (1.70-3.20)	**2.62** (1.85-3.69)	**2.93** (1.97-4.19)	**3.36** (2.18-4.95)	**3.72** (2.35-5.56)
2-hr	**1.25** (0.973-1.61)	**1.49** (1.16-1.92)	**1.89** (1.46-2.42)	**2.21** (1.70-2.86)	**2.66** (1.98-3.56)	**2.99** (2.19-4.08)	**3.35** (2.39-4.72)	**3.76** (2.54-5.36)	**4.38** (2.84-6.40)	**4.89** (3.11-7.27)
3-hr	**1.46** (1.13-1.86)	**1.73** (1.35-2.21)	**2.18** (1.69-2.79)	**2.56** (1.97-3.29)	**3.07** (2.30-4.10)	**3.45** (2.54-4.70)	**3.86** (2.77-5.43)	**4.35** (2.94-6.17)	**5.08** (3.31-7.40)	**5.70** (3.63-8.44)
6-hr	**1.87** (1.46-2.37)	**2.22** (1.74-2.82)	**2.79** (2.18-3.55)	**3.27** (2.53-4.18)	**3.92** (2.95-5.21)	**4.41** (3.26-5.96)	**4.94** (3.56-6.90)	**5.56** (3.77-7.83)	**6.50** (4.24-9.41)	**7.31** (4.66-10.7)
12-hr	**2.36** (1.85-2.97)	**2.80** (2.20-3.53)	**3.53** (2.77-4.47)	**4.14** (3.22-5.25)	**4.97** (3.76-6.55)	**5.59** (4.15-7.50)	**6.26** (4.52-8.67)	**7.04** (4.79-9.84)	**8.20** (5.37-11.8)	**9.18** (5.88-13.4)
24-hr	**2.80** (2.21-3.50)	**3.35** (2.65-4.20)	**4.26** (3.35-5.35)	**5.02** (3.93-6.32)	**6.05** (4.60-7.92)	**6.82** (5.08-9.09)	**7.65** (5.55-10.5)	**8.62** (5.89-12.0)	**10.1** (6.61-14.4)	**11.3** (7.24-16.3)
2-day	**3.14** (2.50-3.90)	**3.80** (3.02-4.73)	**4.89** (3.87-6.10)	**5.80** (4.56-7.26)	**7.04** (5.38-9.16)	**7.96** (5.96-10.6)	**8.95** (6.54-12.3)	**10.1** (6.95-14.0)	**12.0** (7.88-16.9)	**13.5** (8.69-19.4)
3-day	**3.40** (2.71-4.21)	**4.12** (3.29-5.11)	**5.31** (4.22-6.60)	**6.29** (4.97-7.85)	**7.65** (5.86-9.92)	**8.65** (6.50-11.4)	**9.73** (7.14-13.3)	**11.0** (7.58-15.2)	**13.0** (8.62-18.4)	**14.8** (9.53-21.2)
4-day	**3.64** (2.91-4.50)	**4.41** (3.52-5.45)	**5.66** (4.51-7.02)	**6.71** (5.30-8.34)	**8.14** (6.25-10.5)	**9.20** (6.93-12.1)	**10.4** (7.61-14.1)	**11.8** (8.08-16.1)	**13.9** (9.18-19.5)	**15.7** (10.2-22.5)
7-day	**4.32** (3.47-5.30)	**5.18** (4.15-6.36)	**6.58** (5.26-8.11)	**7.75** (6.15-9.59)	**9.35** (7.21-12.0)	**10.5** (7.97-13.8)	**11.8** (8.71-16.0)	**13.4** (9.23-18.2)	**15.8** (10.4-22.0)	**17.8** (11.5-25.3)
10-day	**5.00** (4.02-6.12)	**5.91** (4.75-7.24)	**7.40** (5.93-9.08)	**8.63** (6.87-10.6)	**10.3** (7.98-13.2)	**11.6** (8.77-15.1)	**12.9** (9.53-17.4)	**14.6** (10.1-19.8)	**17.0** (11.3-23.7)	**19.0** (12.4-26.9)
20-day	**7.12** (5.76-8.66)	**8.10** (6.55-9.85)	**9.69** (7.80-11.8)	**11.0** (8.82-13.5)	**12.8** (9.92-16.2)	**14.2** (10.7-18.2)	**15.6** (11.4-20.6)	**17.2** (12.0-23.1)	**19.4** (12.9-26.8)	**21.1** (13.7-29.7)
30-day	**8.91** (7.23-10.8)	**9.91** (8.04-12.0)	**11.5** (9.33-14.0)	**12.9** (10.4-15.7)	**14.8** (11.4-18.5)	**16.2** (12.3-20.6)	**17.7** (12.9-23.0)	**19.1** (13.3-25.6)	**21.0** (14.1-28.9)	**22.5** (14.6-31.4)
45-day	**11.1** (9.06-13.4)	**12.2** (9.89-14.7)	**13.9** (11.2-16.8)	**15.3** (12.3-18.5)	**17.2** (13.3-21.4)	**18.7** (14.2-23.6)	**20.2** (14.7-25.9)	**21.5** (15.1-28.6)	**23.1** (15.5-31.7)	**24.2** (15.8-33.8)
60-day	**13.0** (10.6-15.6)	**14.0** (11.4-16.9)	**15.8** (12.8-19.0)	**17.2** (13.9-20.9)	**19.2** (14.9-23.8)	**20.8** (15.8-26.1)	**22.3** (16.2-28.5)	**23.5** (16.5-31.2)	**25.0** (16.8-34.1)	**25.9** (17.0-36.0)

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

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

Please refer to NOAA Atlas 14 document for more information.

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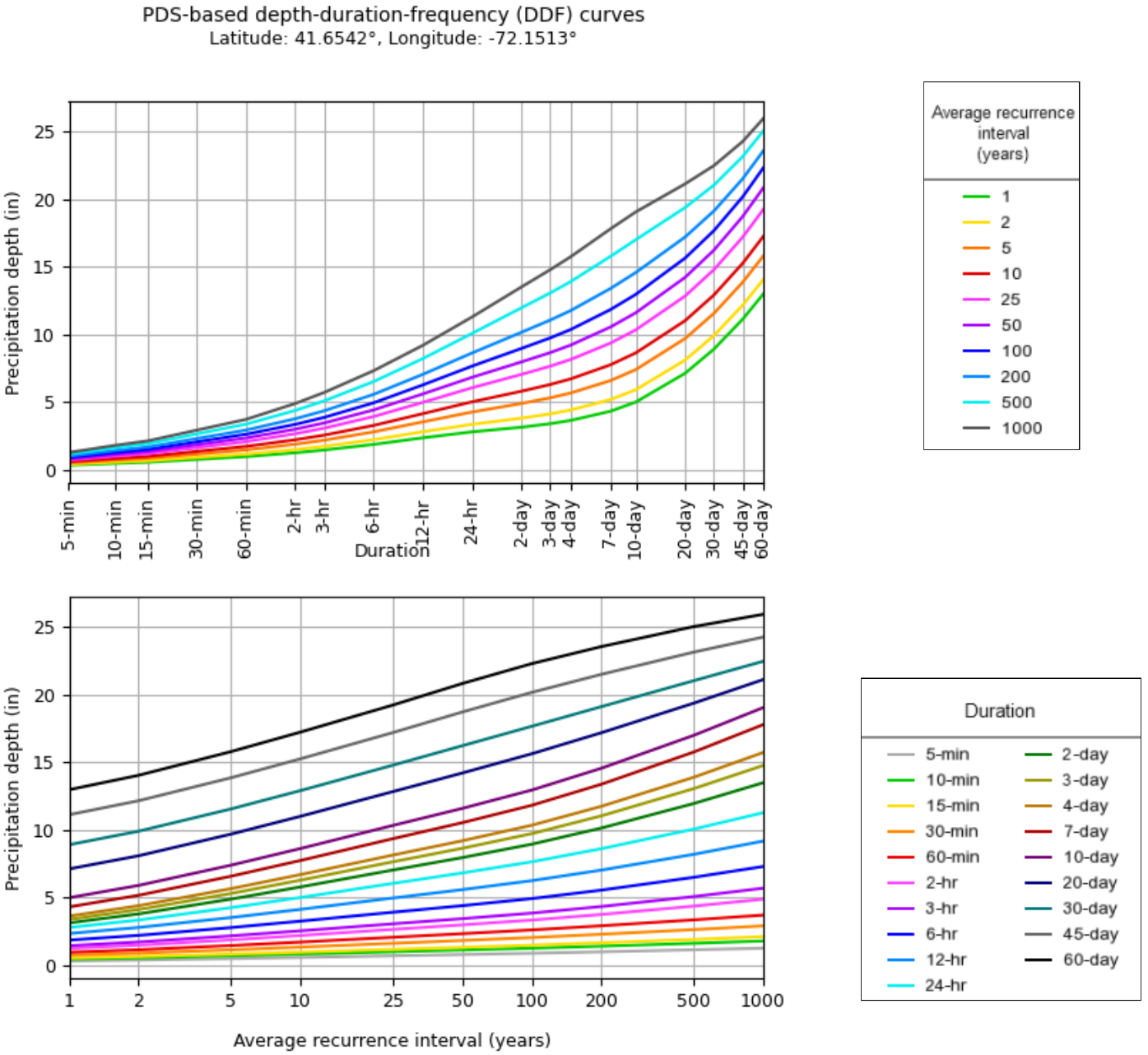
PF graphical



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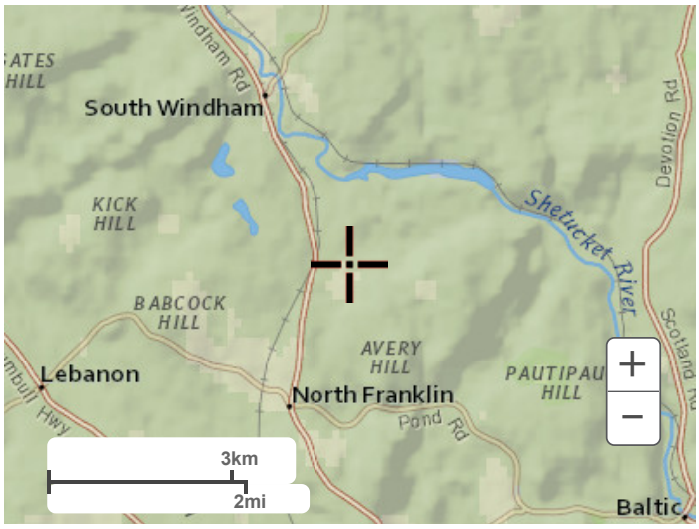
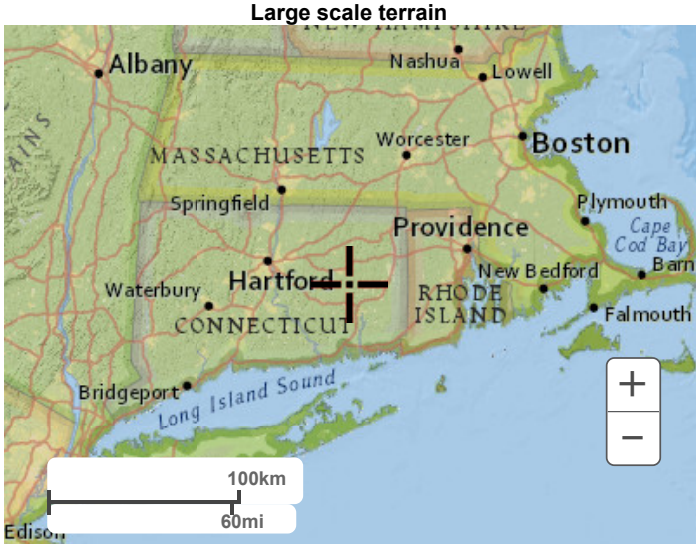
Maps & aerials

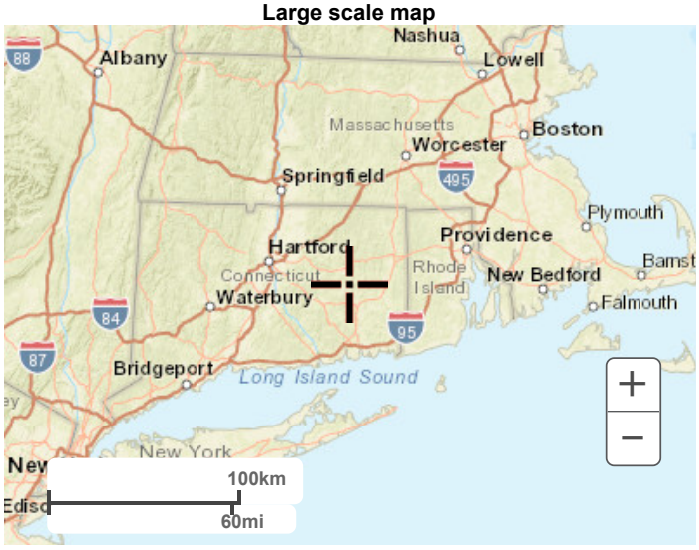
Small scale terrain



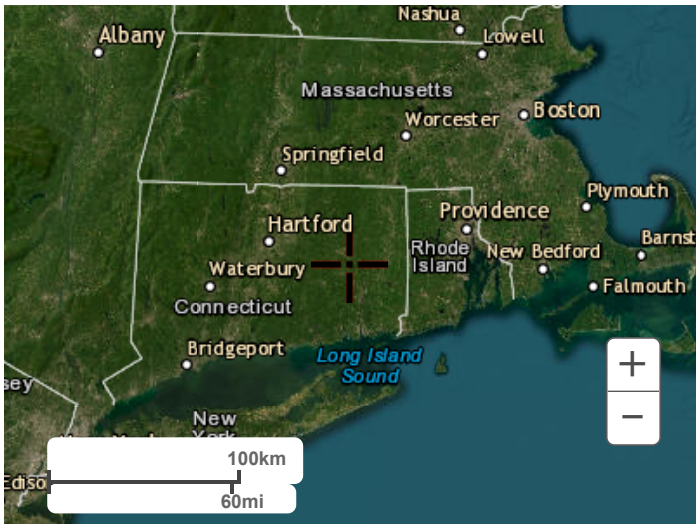
Large scale terrain



Large scale map



Large scale aerial



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