

Issued for Permit

Preliminary Drainage Assessment

Stonington Civil Design

Silicon Ranch Corporation

North Stonington, Connecticut

May 24, 2021

(Revision 2)





Version	Date	Description/Summary of Changes
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Revision 2	5-28-21	

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1. Narrative

1.1. Project Description

Silicon Ranch Corporation intends to develop a photovoltaic solar site consisting of solar panels, racking, inverters, switchgear, and associated infrastructure necessary for a solar farm. The project site is located on portions of 4 contiguous parcels totaling just over 156 acres. The site location is under 2 miles west of the Connecticut and Rhode Island state line and north of I-95. This report summarizes the proposed facilities and impacts to the stormwater runoff.

1.2. Existing Conditions

Of the four parcels utilized for this project, the two parcels on the north are vacant and wooded and the two parcels to the south are hilly and surrounded by fields previously used for farming, wooded areas, and residential properties. For this project, the existing area was divided into four drainage study areas based on areas of developable land for optimal solar panel orientation and placement. Analysis points were chosen for each of these areas to analyze drainage such that existing flow patterns are maintained and offsite flows do not enter the study areas.

The site consists of type A, B, C, and D soils, but primarily consists of soil type “B”. The primary existing land cover is wooded area. The existing site is sparsely covered in trees with forest litter covering the soil; therefore, a fair hydrologic condition was used to compute the curve number. For both existing and proposed conditions, the 2-year (24 hour), 10-year (24 hour), 25-year (24 hour), 50-year (24 hour), and 100-year (24 hour) storms were analyzed.

1.3. Proposed Conditions

Under post-developed conditions, the overland drainage pattern will remain essentially the same. Within the 4 study areas, a total of 6 stormwater basins were designed for the 6 primary existing drainage areas. Ditch conveyance is proposed to divert runoff into the proposed stormwater BMPs. The ground cover within the limits of disturbance will change from wooded areas to grassed open space in good hydrologic condition, reducing the curve number and impacting the peak flows. The existing site requires minimal grading. Therefore, the time of concentration for runoff in these drainage areas will remain mostly the same. The slight changes in time of concentration for post-developed runoff are due to a lower Manning’s N number due to the change in land cover. Refer to the drainage area map in **Appendix D**. Peak outflows for pre-developed and post-developed design storms are summarized in **Tables 1-5**.

2. Stormwater Calculations

2.1. Stormwater Peak Flow Calculations

The SCS method was used to calculate runoff flows for existing conditions (details for this methodology can be found in the NRCS National Engineering Handbook, Section 4). Weighted Curve Numbers (CN) and Time of Concentrations were generated using the TR-55 method. This data, along with the drainage area, were input into HydroCAD to generate hydrographs and calculate peak flows.

Drainage areas were delineated for each solar array area and can be seen on the drainage area map in **Appendix D**. Composite curve numbers were calculated for each sub-drainage area utilizing the

proposed land cover and the hydrologic soil groups for the site found in the Soil Survey of Stonington, Connecticut. The Soil Resource Report for the site can be found in **Appendix A**. The curve number calculations can be found in **Appendix E**. The time of concentration for each sub-drainage area was calculated using the NRCS TR-55 method. The time of concentration calculations can be found in **Appendix F**. The procedure for determining the CN and time of concentration can be found in the NRCS, TR-55, Second Edition, June 1986.

A hydrologic routing model was completed using the HydroCAD software program. The calculated drainage area size, composite curve number and time of concentration for each sub-drainage area were entered into the software. The total rainfall depths for the 2-year (24 hour), 10-year (24 hour), 25-year (24 hour), 50-year (24 hour), and 100-year (24 hour) storm events were obtained from the National Oceanic and Atmospheric Administration's website and can be found in **Appendix C**. The total rainfall depth was entered into the model and ran utilizing the NRCS Type III rainfall distribution with a 0.05-hour time interval. The HydroCAD results and full storm water peak flow calculations can be found in **Appendix D** of this report. **Tables 1-5** below summarize the peak flows for existing and proposed conditions in different design storms.

Table 1: Pre- and Post-developed peak flows for the 2-yr, 24-hr storm

Name	Area (ac)	Pre-Inflow Q2 (cfs)	Post-Inflow Q2 (cfs)	Pre-Inflow vs. Post-Inflow Q2	Post-Outflow Q2 (cfs)	Pre-Inflow vs. Post-Outflow Q2
1A	4.69	0.88	3.50	2.62	0.67	-0.21
1B	10.54	2.23	8.76	6.53	1.57	-0.66
1C	8.58	1.78	8.62	6.84	3.21	1.43
2	4.80	3.14	5.98	2.84	4.13	0.99
4	9.02	3.10	7.95	4.85	0.38	-2.72
5	15.23	8.59	19.66	11.07	11.86	3.27

Table 2: Pre- and Post-developed peak flows for the 10-yr, 24-hr storm

Name	Area (ac)	Pre-Inflow Q10 (cfs)	Post-Inflow Q10 (cfs)	Pre-Inflow vs. Post-Inflow Q10	Post-Outflow Q10 (cfs)	Pre-Inflow vs. Post-Outflow Q10
1A	4.69	3.05	7.03	3.02	0.92	-2.13
1B	10.54	7.34	16.94	5.30	4.73	-2.61
1C	8.58	6.18	16.10	4.19	5.14	-1.04
2	4.80	7.37	16.59	3.79	7.09	-0.28
4	9.02	9.30	11.17	5.99	1.45	-7.85
5	15.23	20.10	34.49	7.03	17.27	-1.53

Table 3: Pre- and Post-developed peak flows for the 25-yr, 24-hr storm

Name	Area (ac)	Pre-Inflow Q25 (cfs)	Post-Inflow Q25 (cfs)	Pre-Inflow vs. Post-Inflow Q25	Post-Outflow Q25 (cfs)	Pre-Inflow vs. Post-Outflow Q25
1A	4.69	4.74	9.36	3.56	3.83	-0.91
1B	10.54	12.24	22.30	5.30	11.52	-0.72
1C	8.58	9.59	20.91	5.03	7.27	-2.32

2	4.80	10.33	14.51	4.41	8.43	-1.90
4	9.02	13.90	22.37	7.00	4.72	-9.18
5	15.23	28.09	43.82	8.01	27.24	-0.85

Table 4: Pre- and Post-developed peak flows for the 50-yr, 24-hr storm

Name	Area (ac)	Pre-Inflow Q50 (cfs)	Post-Inflow Q50 (cfs)	Pre-Inflow vs. Post-Inflow Q50	Post-Outflow Q50 (cfs)	Pre-Inflow vs. Post-Outflow Q50
1A	4.69	6.10	11.13	3.92	4.88	-1.22
1B	10.54	14.39	26.35	6.96	12.97	-1.42
1C	8.58	12.35	24.54	5.59	8.44	-3.91
2	4.80	12.63	17.03	4.80	9.33	-3.30
4	9.02	17.61	26.79	7.61	9.44	-8.17
5	15.23	34.33	50.80	8.60	33.36	-0.97

Table 5: Pre- and Post-developed peak flows for the 100-yr, 24-hr storm

Name	Area (ac)	Pre-Inflow Q100 (cfs)	Post-Inflow Q100 (cfs)	Pre-Inflow vs. Post-Inflow Q100	Post-Outflow Q100 (cfs)	Pre-Inflow vs. Post-Outflow Q100
1A	4.69	7.64	13.05	4.25	7.60	-0.04
1B	10.54	17.92	30.69	7.57	13.77	-4.15
1C	8.58	15.45	28.41	6.12	14.42	-1.03
2	9.60	15.13	19.71	5.17	10.19	-4.94
4	9.02	21.71	31.57	8.20	15.39	-6.32
5	15.23	41.13	58.22	9.15	35.40	-5.73

2.2. Pond, Culvert, and Ditch Calculations

In every drainage area, the post-development peak discharge was greater than the pre-development peak discharge. To mitigate this increase, ponds are designed to retain water and ensure the post-development flows remain at or below the pre-development flows. These ponds were designed to attenuate the 100-year storm discharge. The pond outlet control consists of an outfall structure with a weir and an emergency spillway for 100-year storm discharge. Pond calculations can be found in **Appendix D** of this report.

In addition to the attenuating the peak flows, ponds were designed with consideration for water quality requirements. The culvert elevation is set at the water surface elevation for the water quality volume to ensure it's fully retained and treated. Water quality calculations can be found in **Appendix I** of this report.

Access to the site will be from four different driveways, two of which will require culverts for wetland and stream crossings. Three new culverts were designed using AutoCAD Hydraflow Hydrographs Extension. These culverts were designed in accordance with CT DEEP Stream Crossing Guidelines and USACE Openness Ratio Calculations. For additional information on the culvert design calculations see **Appendix I**.

Each drainage area will require permanent ditches to capture and convey flows to the ponds. The ditches were designed using AutoCAD Hydraflow Express using a 10-yr storm event and CT DEEP conveyance criteria. The flows were calculated as a percentage of the overall subbasin flows per the proposed HydroCAD modeling results. These ditches consist of both trapezoidal and triangular channels. For additional information on ditch design calculations see **Appendix I**.

2.3. Wetlands, FEMA Floodplains, and Coastal Boundaries

2.3.1. Wetlands

Wetlands have been delineated for the site and a map of the wetlands can be found in **Appendix G**. Design has been considered in a way to reduce impacts as much as possible.

2.3.2. FEMA Floodplains

FEMA Floodplains are not located on the site. FEMA Maps of the site can be found in **Appendix B**.

2.3.3. Coastal Boundaries

Coastal Boundaries are not located near the site and were not a necessary consideration for this project. See FEMA Maps located in **Appendix B**.

3. Erosion and Sediment Control

3.1. Erosion and Sediment Control Plans

An Erosion and Sediment (E&S) Control Plan has been developed to mitigate the short-term impacts of the site improvements during construction and includes the following information: descriptive specifications concerning land grading, top soiling, temporary vegetative cover, permanent vegetative cover, vegetative cover selection and mulching, and erosion checks. Details can be found in the E&S plans and have been provided for all erosion controls as necessary. E&S controls will be installed and maintained throughout the construction in accordance with local, state, and federal requirements.

3.2. Temporary Stabilization

Temporary stabilization for the site includes silt fence, wattles, ditch checks, bio-rolls, sediment basins, sediment traps, riprap outlet protection, and construction entrances to reduce vehicular tracking of sediment. Sediment basins are designed to retain the 10-year, 24-hour storm with a retention time of 10 hours. One sediment trap was designed to provide 134 cubic yards of wet and dry storage per acre of drainage area. All E&S control measures are designed in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control. See **Appendix H** for the Erosion and Sediment Control calculations for the sediment basins and traps. These stabilization practices shall be installed and reinforced on the site per the E&S plans before any construction occurs and in accordance with the progressing phases of the project.

3.3. Permanent Stabilization

Permanent stabilization practice on the site will include permanent seeding. Stabilization and permanent seed will be in accordance with the project specifications and plans.

Appendix A

Soil Resource Report



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **State of Connecticut**



August 10, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

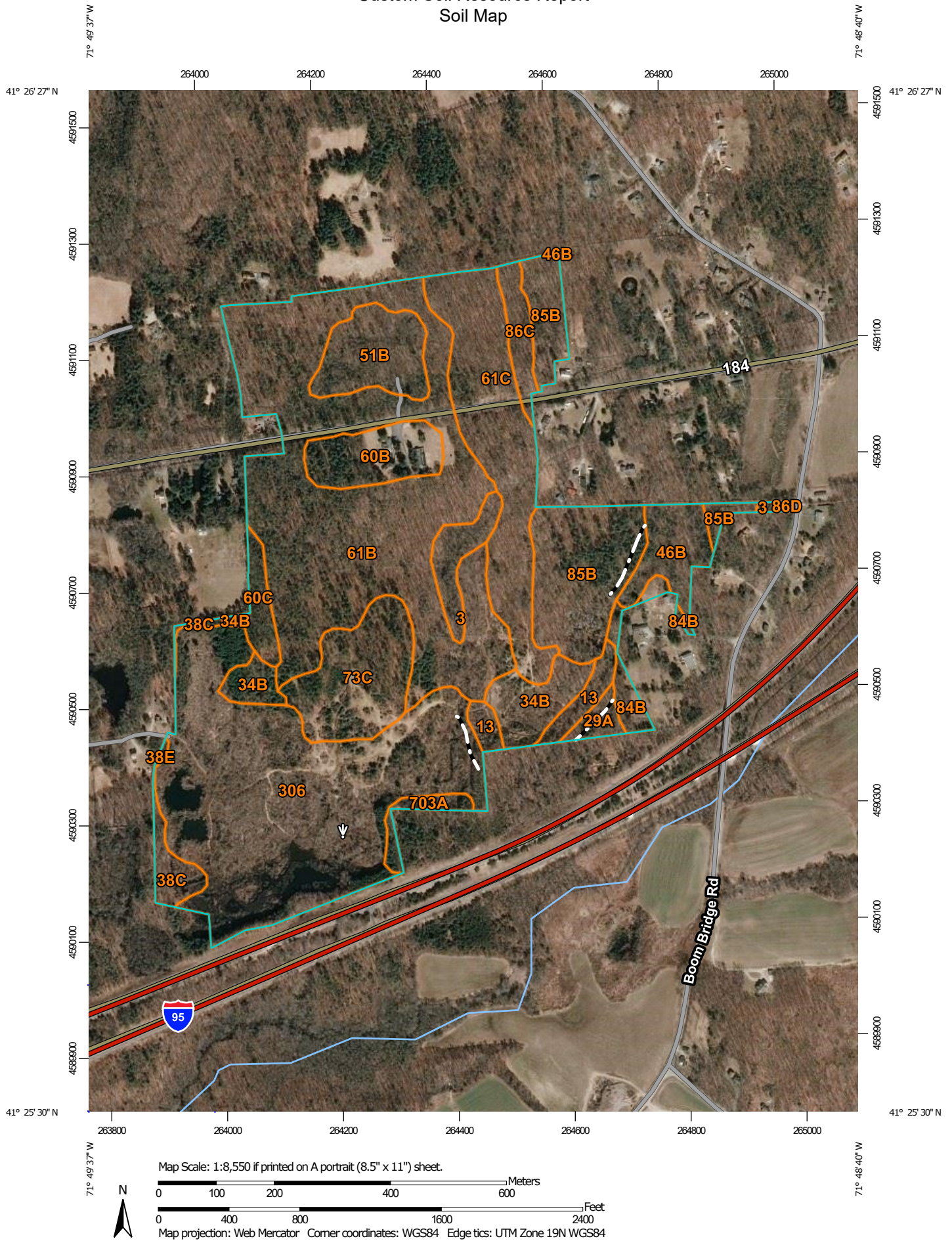
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: State of Connecticut

Survey Area Data: Version 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Mar 20, 2019—Mar 27, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	3.0	1.9%
13	Walpole sandy loam, 0 to 3 percent slopes	2.6	1.6%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	1.2	0.7%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	5.7	3.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	2.2	1.3%
38E	Hinckley loamy sand, 15 to 45 percent slopes	0.1	0.1%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	4.3	2.6%
51B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	6.1	3.7%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	5.3	3.2%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	2.0	1.2%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	45.5	27.7%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	15.8	9.7%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	9.2	5.6%
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	2.0	1.2%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	14.2	8.7%
86C	Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony	2.4	1.5%
86D	Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony	0.1	0.0%
306	Udorthents-Urban land complex	40.9	24.9%
703A	Haven silt loam, 0 to 3 percent slopes	1.3	0.8%
Totals for Area of Interest		164.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas

shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

State of Connecticut

3—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2t2qt

Elevation: 0 to 1,480 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Ridgebury, extremely stony, and similar soils: 40 percent

Leicester, extremely stony, and similar soils: 35 percent

Whitman, extremely stony, and similar soils: 17 percent

Minor components: 8 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ridgebury, Extremely Stony

Setting

Landform: Drumlins, depressions, drainageways, hills, ground moraines

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Base slope, head slope

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 6 inches: fine sandy loam

Bw - 6 to 10 inches: sandy loam

Bg - 10 to 19 inches: gravelly sandy loam

Cd - 19 to 66 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent

Surface area covered with cobbles, stones or boulders: 9.0 percent

Depth to restrictive feature: 15 to 35 inches to densic material

Drainage class: Poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Custom Soil Resource Report

Hydrologic Soil Group: D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Description of Leicester, Extremely Stony

Setting

Landform: Ground moraines, depressions, drainageways, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 7 inches: fine sandy loam
Bg - 7 to 18 inches: fine sandy loam
BC - 18 to 24 inches: fine sandy loam
C1 - 24 to 39 inches: gravelly fine sandy loam
C2 - 39 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B/D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Description of Whitman, Extremely Stony

Setting

Landform: Depressions, drainageways, hills, ground moraines, drumlins
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 1 inches: peat

Custom Soil Resource Report

A - 1 to 10 inches: fine sandy loam
Bg - 10 to 17 inches: gravelly fine sandy loam
Cdg - 17 to 61 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 7 to 38 inches to densic material
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Minor Components

Woodbridge, extremely stony

Percent of map unit: 6 percent
Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Swansea

Percent of map unit: 2 percent
Landform: Swamps, bogs
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

13—Walpole sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkl
Elevation: 0 to 1,020 feet

Custom Soil Resource Report

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 250 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Walpole and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Walpole

Setting

Landform: Outwash terraces, outwash plains, depressions, deltas, depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread, dip, talf

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Sandy glaciofluvial deposits derived from igneous, metamorphic and sedimentary rock

Typical profile

Oe - 0 to 1 inches: mucky peat

A - 1 to 7 inches: sandy loam

Bg - 7 to 21 inches: sandy loam

BC - 21 to 25 inches: gravelly sandy loam

C - 25 to 65 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)

Depth to water table: About 0 to 4 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: B/D

Ecological site: F144AY028MA - Wet Outwash

Hydric soil rating: Yes

Minor Components

Sudbury

Percent of map unit: 10 percent

Landform: Deltas, outwash plains, terraces

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread, dip

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Scarboro

Percent of map unit: 10 percent

Landform: Outwash terraces, deltas, outwash plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread, dip

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

29A—Agawam fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tyqw

Elevation: 0 to 1,040 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 250 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Agawam and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Agawam

Setting

Landform: Outwash plains, kame terraces, kames, moraines, outwash terraces

Landform position (two-dimensional): Backslope, shoulder, footslope, summit

Landform position (three-dimensional): Side slope, crest, tread, riser, rise, dip

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from gneiss, granite, schist, and/or phyllite

Typical profile

Ap - 0 to 11 inches: fine sandy loam

Bw1 - 11 to 16 inches: fine sandy loam

Bw2 - 16 to 26 inches: fine sandy loam

2C1 - 26 to 39 inches: loamy fine sand

2C2 - 39 to 55 inches: loamy fine sand

2C3 - 55 to 65 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 15 to 35 inches to strongly contrasting textural stratification

Drainage class: Well drained

Runoff class: Very low

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: B

Ecological site: F145XY008MA - Dry Outwash

Hydric soil rating: No

Minor Components

Ninigret

Percent of map unit: 5 percent

Landform: Terraces

Down-slope shape: Linear

Across-slope shape: Concave

Hydric soil rating: No

Windsor

Percent of map unit: 4 percent

Landform: Outwash plains, outwash terraces, deltas, dunes

Landform position (three-dimensional): Tread, riser

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Hydric soil rating: No

Walpole

Percent of map unit: 3 percent

Landform: Outwash plains, depressions, outwash terraces, depressions, deltas

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread, dip, talf

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Hinckley

Percent of map unit: 3 percent

Landform: Outwash plains, eskers, kames, deltas

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Nose slope, side slope, crest, head slope,
rise

Down-slope shape: Convex

Across-slope shape: Linear, convex

Hydric soil rating: No

34B—Merrimac fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tyqs
Elevation: 0 to 1,290 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Merrimac and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Merrimac

Setting

Landform: Kames, eskers, moraines, outwash terraces, outwash plains
Landform position (two-dimensional): Backslope, footslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

Typical profile

Ap - 0 to 10 inches: fine sandy loam
Bw1 - 10 to 22 inches: fine sandy loam
Bw2 - 22 to 26 inches: stratified gravel to gravelly loamy sand
2C - 26 to 65 inches: stratified gravel to very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.0 to 1.4 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water capacity: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Sudbury

Percent of map unit: 5 percent
Landform: Outwash plains, terraces, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Hinckley

Percent of map unit: 5 percent
Landform: Deltas, outwash plains, eskers, kames
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, rise
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Windsor

Percent of map unit: 3 percent
Landform: Outwash plains, deltas, dunes, outwash terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Agawam

Percent of map unit: 2 percent
Landform: Outwash terraces, outwash plains, kames, eskers, stream terraces, moraines
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

38C—Hinckley loamy sand, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svmb
Elevation: 0 to 1,290 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F

Custom Soil Resource Report

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Moraines, outwash terraces, outwash deltas, kame terraces, outwash plains, kames, eskers

Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope, summit

Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser, tread

Down-slope shape: Convex, linear, concave

Across-slope shape: Linear, convex, concave

Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: loamy sand

Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand

BC - 16 to 19 inches: very gravelly loamy sand

C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent

Landform: Outwash plains, kames, eskers, moraines, outwash terraces

Landform position (two-dimensional): Backslope, footslope, shoulder, toeslope, summit

Custom Soil Resource Report

Landform position (three-dimensional): Side slope, crest, head slope, nose slope, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Windsor

Percent of map unit: 5 percent
Landform: Eskers, moraines, kame terraces, outwash plains, outwash terraces, outwash deltas, kames
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope, summit
Landform position (three-dimensional): Crest, head slope, nose slope, side slope, riser, tread
Down-slope shape: Convex, concave, linear
Across-slope shape: Concave, linear, convex
Hydric soil rating: No

Agawam

Percent of map unit: 3 percent
Landform: Outwash deltas, kame terraces, outwash plains, kames, eskers, moraines, outwash terraces
Landform position (two-dimensional): Footslope, backslope, shoulder, toeslope, summit
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser, tread
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury

Percent of map unit: 2 percent
Landform: Outwash plains, moraines, outwash deltas, outwash terraces, kame terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

38E—Hinckley loamy sand, 15 to 45 percent slopes

Map Unit Setting

National map unit symbol: 2svmj
Elevation: 0 to 1,280 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Kames, eskers, kame terraces, outwash plains, moraines, outwash terraces, outwash deltas

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser

Down-slope shape: Linear, convex, concave

Across-slope shape: Convex, linear, concave

Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: loamy sand

Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand

BC - 16 to 19 inches: very gravelly loamy sand

C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 15 to 45 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent

Landform: Kames, eskers, moraines, outwash terraces, outwash plains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope, crest, head slope, nose slope, riser

Down-slope shape: Convex

Across-slope shape: Convex

Custom Soil Resource Report

Hydric soil rating: No

Windsor

Percent of map unit: 5 percent

Landform: Outwash deltas, moraines, kames, eskers, kame terraces, outwash plains, outwash terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser

Down-slope shape: Concave, linear, convex

Across-slope shape: Linear, concave, convex

Hydric soil rating: No

Agawam

Percent of map unit: 3 percent

Landform: Kames, moraines, outwash terraces, outwash deltas, kame terraces, eskers, outwash plains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser

Down-slope shape: Linear, convex, concave

Across-slope shape: Convex, linear, concave

Hydric soil rating: No

Sudbury

Percent of map unit: 2 percent

Landform: Eskers, kames, moraines, outwash terraces, kame terraces, outwash plains, outwash deltas

Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Base slope, tread

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Hydric soil rating: No

46B—Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2t2qr

Elevation: 0 to 1,440 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Woodbridge, very stony, and similar soils: 82 percent

Minor components: 18 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge, Very Stony

Setting

Landform: Hills, ground moraines, drumlins

Landform position (two-dimensional): Backslope, footslope, summit

Landform position (three-dimensional): Side slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 9 inches: fine sandy loam

Bw1 - 9 to 20 inches: fine sandy loam

Bw2 - 20 to 32 inches: fine sandy loam

Cd - 32 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: 20 to 43 inches to densic material

Drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 19 to 27 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: C/D

Ecological site: F144AY037MA - Moist Dense Till Uplands

Hydric soil rating: No

Minor Components

Paxton, very stony

Percent of map unit: 10 percent

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Shoulder, backslope, summit

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Hydric soil rating: No

Ridgebury, very stony

Percent of map unit: 8 percent

Landform: Ground moraines, depressions, drumlins, drainageways, hills

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Head slope, base slope

Down-slope shape: Concave

Across-slope shape: Concave
Hydric soil rating: Yes

51B—Sutton fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2xfff
Elevation: 0 to 1,410 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Sutton, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sutton, Very Stony

Setting

Landform: Hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 7 inches: fine sandy loam
Bw1 - 7 to 19 inches: fine sandy loam
Bw2 - 19 to 27 inches: sandy loam
C1 - 27 to 41 inches: gravelly sandy loam
C2 - 41 to 62 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 12 to 27 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: B/D

Ecological site: F144AY008CT - Moist Till Uplands

Hydric soil rating: No

Minor Components

Charlton, very stony

Percent of map unit: 7 percent

Landform: Hills, ground moraines, ridges

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Hydric soil rating: No

Canton, very stony

Percent of map unit: 4 percent

Landform: Ridges, hills, moraines

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Convex, linear

Across-slope shape: Convex

Hydric soil rating: No

Leicester, very stony

Percent of map unit: 3 percent

Landform: Hills, drainageways, ground moraines, depressions

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Concave

Hydric soil rating: Yes

Whitman, very stony

Percent of map unit: 1 percent

Landform: Drainageways, hills, ground moraines, drumlins, depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

60B—Canton and Charlton fine sandy loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w81s

Elevation: 0 to 1,460 feet

Custom Soil Resource Report

Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Canton and similar soils: 50 percent
Charlton and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Ridges, moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, nose slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex

Custom Soil Resource Report

Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam

Bw - 7 to 22 inches: gravelly fine sandy loam

C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands

Hydric soil rating: No

Minor Components

Sutton

Percent of map unit: 5 percent

Landform: Hills, ridges, ground moraines

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Leicester

Percent of map unit: 5 percent

Landform: Drainageways, ground moraines, hills, depressions

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear, concave

Across-slope shape: Concave

Hydric soil rating: Yes

Chatfield

Percent of map unit: 5 percent

Landform: Ridges, hills

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Crest, side slope, nose slope

Down-slope shape: Convex

Across-slope shape: Linear, convex

Hydric soil rating: No

60C—Canton and Charlton fine sandy loams, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w81z

Elevation: 0 to 1,620 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Canton and similar soils: 50 percent

Charlton and similar soils: 35 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Ridges, moraines, hills

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Side slope, nose slope, crest

Down-slope shape: Convex, linear

Across-slope shape: Convex

Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam

Bw1 - 7 to 15 inches: fine sandy loam

Bw2 - 15 to 26 inches: gravelly fine sandy loam

2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Custom Soil Resource Report

Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands

Hydric soil rating: No

Description of Charlton

Setting

Landform: Hills, ground moraines, ridges

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam

Bw - 7 to 22 inches: gravelly fine sandy loam

C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands

Hydric soil rating: No

Minor Components

Chatfield

Percent of map unit: 5 percent

Landform: Hills, ridges

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Crest, side slope, nose slope

Down-slope shape: Convex

Across-slope shape: Linear, convex

Hydric soil rating: No

Leicester

Percent of map unit: 5 percent

Landform: Hills, depressions, drainageways, ground moraines

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Custom Soil Resource Report

Across-slope shape: Concave

Hydric soil rating: Yes

Sutton

Percent of map unit: 5 percent

Landform: Ground moraines, hills, ridges

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

61B—Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w81v

Elevation: 0 to 1,480 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Canton, very stony, and similar soils: 50 percent

Charlton, very stony, and similar soils: 35 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton, Very Stony

Setting

Landform: Ridges, hills, moraines

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Crest, nose slope, side slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material

A - 2 to 5 inches: fine sandy loam

Bw1 - 5 to 16 inches: fine sandy loam

Bw2 - 16 to 22 inches: gravelly fine sandy loam

2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent

Custom Soil Resource Report

Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton, Very Stony

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Leicester, very stony

Percent of map unit: 5 percent
Landform: Ground moraines, depressions, drainageways, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Chatfield, very stony

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Nose slope, crest, side slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Sutton, very stony

Percent of map unit: 5 percent
Landform: Hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

61C—Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w820
Elevation: 0 to 1,540 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Canton, very stony, and similar soils: 50 percent
Charlton, very stony, and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton, Very Stony

Setting

Landform: Ridges, hills, moraines

Landform position (two-dimensional): Backslope, summit, shoulder

Landform position (three-dimensional): Side slope, crest, nose slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material

A - 2 to 5 inches: fine sandy loam

Bw1 - 5 to 16 inches: fine sandy loam

Bw2 - 16 to 22 inches: gravelly fine sandy loam

2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands

Hydric soil rating: No

Description of Charlton, Very Stony

Setting

Landform: Hills, ground moraines, ridges

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 4 inches: fine sandy loam

Bw - 4 to 27 inches: gravelly fine sandy loam

C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Chatfield, very stony

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester, very stony

Percent of map unit: 5 percent
Landform: Hills, ground moraines, depressions, drainageways
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Sutton, very stony

Percent of map unit: 5 percent
Landform: Hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

73C—Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 2w698

Elevation: 0 to 1,550 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Charlton, very stony, and similar soils: 50 percent

Chatfield, very stony, and similar soils: 30 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton, Very Stony

Setting

Landform: Hills, ridges

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Crest, side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 4 inches: fine sandy loam

Bw - 4 to 27 inches: gravelly fine sandy loam

C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 15 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Chatfield, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Sutton, very stony

Percent of map unit: 5 percent
Landform: Ground moraines, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: No

Hollis, very stony

Percent of map unit: 5 percent

Landform: Ridges, hills

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Crest, side slope, nose slope

Down-slope shape: Convex

Across-slope shape: Linear, convex

Hydric soil rating: No

Leicester, very stony

Percent of map unit: 5 percent

Landform: Drainageways, depressions

Down-slope shape: Linear

Across-slope shape: Concave

Hydric soil rating: Yes

84B—Paxton and Montauk fine sandy loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t2qn

Elevation: 0 to 1,570 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Paxton and similar soils: 55 percent

Montauk and similar soils: 30 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Hills, drumlins, ground moraines

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Side slope, crest, nose slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 8 inches: fine sandy loam

Bw1 - 8 to 15 inches: fine sandy loam

Bw2 - 15 to 26 inches: fine sandy loam

Cd - 26 to 65 inches: gravelly fine sandy loam

Custom Soil Resource Report

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 39 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Description of Montauk

Setting

Landform: Drumlins, hills
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

A - 0 to 4 inches: fine sandy loam
Bw1 - 4 to 14 inches: fine sandy loam
Bw2 - 14 to 25 inches: sandy loam
2Cd1 - 25 to 39 inches: gravelly loamy coarse sand
2Cd2 - 39 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 38 inches to densic material
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 24 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Ridgebury

Percent of map unit: 5 percent
Landform: Hills, ground moraines, depressions, drainageways
Landform position (two-dimensional): Toeslope, backslope, footslope
Landform position (three-dimensional): Base slope, head slope, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Woodbridge

Percent of map unit: 5 percent
Landform: Hills, drumlins, ground moraines
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Charlton

Percent of map unit: 5 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

85B—Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w679
Elevation: 0 to 1,530 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Paxton, very stony, and similar soils: 55 percent
Montauk, very stony, and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton, Very Stony

Setting

Landform: Drumlins, ground moraines, hills

Custom Soil Resource Report

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 10 inches: fine sandy loam

Bw1 - 10 to 17 inches: fine sandy loam

Bw2 - 17 to 28 inches: fine sandy loam

Cd - 28 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: 20 to 43 inches to densic material

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 18 to 37 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: C

Ecological site: F144AY007CT - Well Drained Dense Till Uplands

Hydric soil rating: No

Description of Montauk, Very Stony

Setting

Landform: Ground moraines, recessional moraines, drumlins, hills

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 6 inches: fine sandy loam

Bw1 - 6 to 28 inches: fine sandy loam

Bw2 - 28 to 36 inches: sandy loam

2Cd - 36 to 74 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: 20 to 43 inches to densic material

Custom Soil Resource Report

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)

Depth to water table: About 18 to 37 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: C

Ecological site: F144AY007CT - Well Drained Dense Till Uplands

Hydric soil rating: No

Minor Components

Woodbridge, very stony

Percent of map unit: 8 percent

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Backslope, summit, footslope

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Charlton, very stony

Percent of map unit: 3 percent

Landform: Hills

Landform position (two-dimensional): Shoulder, summit, backslope

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Ridgebury, very stony

Percent of map unit: 3 percent

Landform: Ground moraines, depressions, drumlins, drainageways, hills

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope, head slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Stockbridge, very stony

Percent of map unit: 1 percent

Landform: Hills

Landform position (two-dimensional): Shoulder, backslope, summit

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

86C—Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w67d

Elevation: 20 to 1,490 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Paxton, extremely stony, and similar soils: 55 percent

Montauk, extremely stony, and similar soils: 30 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton, Extremely Stony

Setting

Landform: Ground moraines, drumlins, hills

Landform position (two-dimensional): Summit, backslope, shoulder

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 10 inches: fine sandy loam

Bw1 - 10 to 17 inches: fine sandy loam

Bw2 - 17 to 28 inches: fine sandy loam

Cd - 28 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 15 percent

Surface area covered with cobbles, stones or boulders: 9.0 percent

Depth to restrictive feature: 20 to 43 inches to densic material

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 18 to 37 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Description of Montauk, Extremely Stony

Setting

Landform: Drumlins, hills, ground moraines, recessional moraines
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 6 inches: fine sandy loam
Bw1 - 6 to 28 inches: fine sandy loam
Bw2 - 28 to 36 inches: sandy loam
2Cd - 36 to 74 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Charlton, extremely stony

Percent of map unit: 6 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Woodbridge, extremely stony

Percent of map unit: 5 percent

Landform: Hills, ground moraines, drumlins

Landform position (two-dimensional): Backslope, footslope, summit

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Ridgebury, extremely stony

Percent of map unit: 3 percent

Landform: Drainageways, hills, ground moraines, depressions, drumlins

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope, head slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Stockbridge, extremely stony

Percent of map unit: 1 percent

Landform: Hills

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

86D—Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w67c

Elevation: 0 to 1,400 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Paxton, extremely stony, and similar soils: 55 percent

Montauk, extremely stony, and similar soils: 30 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton, Extremely Stony

Setting

Landform: Drumlins, hills, ground moraines

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Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 10 inches: fine sandy loam

Bw1 - 10 to 17 inches: fine sandy loam

Bw2 - 17 to 28 inches: fine sandy loam

Cd - 28 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 15 to 35 percent

Surface area covered with cobbles, stones or boulders: 9.0 percent

Depth to restrictive feature: 20 to 43 inches to densic material

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 18 to 37 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Ecological site: F144AY007CT - Well Drained Dense Till Uplands

Hydric soil rating: No

Description of Montauk, Extremely Stony

Setting

Landform: Drumlins, ground moraines, recessional moraines, hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 6 inches: fine sandy loam

Bw1 - 6 to 28 inches: fine sandy loam

Bw2 - 28 to 36 inches: sandy loam

2Cd - 36 to 74 inches: gravelly loamy sand

Properties and qualities

Slope: 15 to 35 percent

Surface area covered with cobbles, stones or boulders: 9.0 percent

Depth to restrictive feature: 20 to 43 inches to densic material

Custom Soil Resource Report

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)

Depth to water table: About 18 to 37 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Ecological site: F144AY007CT - Well Drained Dense Till Uplands

Hydric soil rating: No

Minor Components

Charlton, extremely stony

Percent of map unit: 6 percent

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Woodbridge, extremely stony

Percent of map unit: 5 percent

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Backslope, footslope, summit

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Ridgebury, extremely stony

Percent of map unit: 3 percent

Landform: Drainageways, hills, ground moraines, depressions, drumlins

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Base slope, head slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Stockbridge, extremely stony

Percent of map unit: 1 percent

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

306—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9lmg

Elevation: 0 to 2,000 feet

Mean annual precipitation: 43 to 56 inches

Mean annual air temperature: 45 to 55 degrees F

Frost-free period: 120 to 185 days

Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 50 percent

Urban land: 35 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Drift

Typical profile

A - 0 to 5 inches: loam

C1 - 5 to 21 inches: gravelly loam

C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 25 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)

Depth to water table: About 54 to 72 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Hydric soil rating: No

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Hydric soil rating: Unranked

Minor Components

Unnamed, undisturbed soils

Percent of map unit: 8 percent

Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 5 percent

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent

Hydric soil rating: No

703A—Haven silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y07k

Elevation: 0 to 1,200 feet

Mean annual precipitation: 43 to 54 inches

Mean annual air temperature: 45 to 55 degrees F

Frost-free period: 140 to 185 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Haven and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Haven

Setting

Landform: Outwash terraces, outwash plains

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Custom Soil Resource Report

Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 7 inches: silt loam
Bw1 - 7 to 14 inches: silt loam
Bw2 - 14 to 20 inches: silt loam
BC - 20 to 24 inches: fine sandy loam
2C - 24 to 60 inches: stratified very gravelly sand to gravelly fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F144AY023CT - Well Drained Outwash
Hydric soil rating: No

Minor Components

Enfield

Percent of map unit: 5 percent
Landform: Outwash plains, outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Tisbury

Percent of map unit: 5 percent
Landform: Deltas, valley trains, outwash terraces, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Agawam

Percent of map unit: 3 percent
Landform: Moraines, outwash terraces, outwash plains, kame terraces, kames
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Side slope, crest, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Raypol

Percent of map unit: 2 percent

Landform: Depressions, drainageways

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

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Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

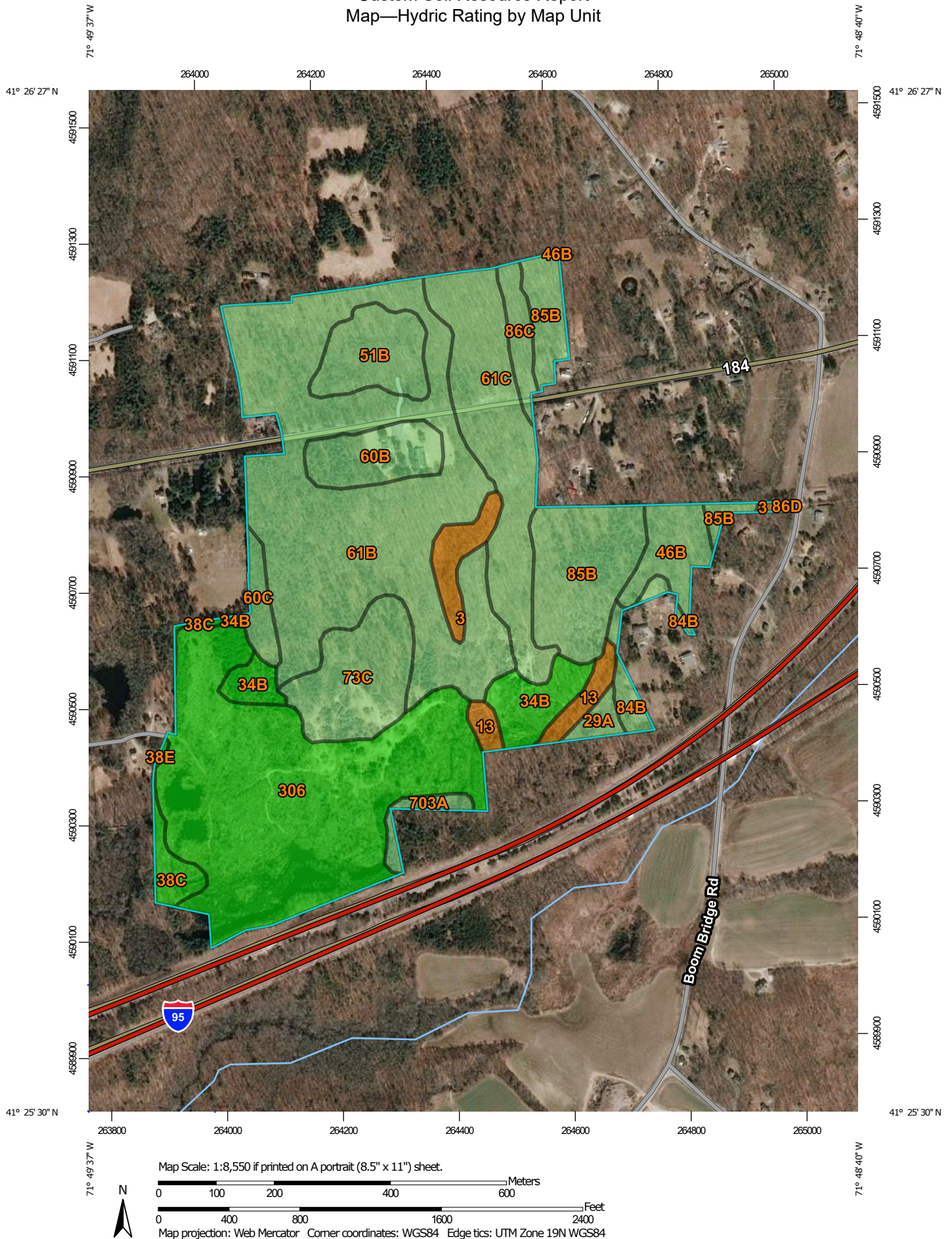
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Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Custom Soil Resource Report Map—Hydric Rating by Map Unit



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 Hydric (100%)
 Hydric (66 to 99%)
 Hydric (33 to 65%)
 Hydric (1 to 32%)
 Not Hydric (0%)
 Not rated or not available

Soil Rating Lines

 Hydric (100%)
 Hydric (66 to 99%)
 Hydric (33 to 65%)
 Hydric (1 to 32%)
 Not Hydric (0%)
 Not rated or not available

Soil Rating Points

 Hydric (100%)
 Hydric (66 to 99%)
 Hydric (33 to 65%)
 Hydric (1 to 32%)
 Not Hydric (0%)
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: State of Connecticut
 Survey Area Data: Version 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Mar 20, 2019—Mar 27, 2019

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

Table—Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	94	3.0	1.9%
13	Walpole sandy loam, 0 to 3 percent slopes	90	2.6	1.6%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	3	1.2	0.7%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	0	5.7	3.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	0	2.2	1.3%
38E	Hinckley loamy sand, 15 to 45 percent slopes	0	0.1	0.1%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	8	4.3	2.6%
51B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	4	6.1	3.7%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	5	5.3	3.2%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	5	2.0	1.2%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	5	45.5	27.7%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	5	15.8	9.7%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	5	9.2	5.6%
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	5	2.0	1.2%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	3	14.2	8.7%

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Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
86C	Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony	3	2.4	1.5%
86D	Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony	3	0.1	0.0%
306	Udorthents-Urban land complex	0	40.9	24.9%
703A	Haven silt loam, 0 to 3 percent slopes	2	1.3	0.8%
Totals for Area of Interest			164.1	100.0%

Rating Options—Hydric Rating by Map Unit

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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

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

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

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

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

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at

Custom Soil Resource Report

or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

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

71° 48' 40" W



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: State of Connecticut

Survey Area Data: Version 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Mar 20, 2019—Mar 27, 2019

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

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D	3.0	1.9%
13	Walpole sandy loam, 0 to 3 percent slopes	B/D	2.6	1.6%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	B	1.2	0.7%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	A	5.7	3.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	A	2.2	1.3%
38E	Hinckley loamy sand, 15 to 45 percent slopes	A	0.1	0.1%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	C/D	4.3	2.6%
51B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	B/D	6.1	3.7%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	B	5.3	3.2%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	B	2.0	1.2%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	B	45.5	27.7%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	B	15.8	9.7%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	9.2	5.6%
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	C	2.0	1.2%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	C	14.2	8.7%

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Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
86C	Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony	C	2.4	1.5%
86D	Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony	C	0.1	0.0%
306	Udorthents-Urban land complex	B	40.9	24.9%
703A	Haven silt loam, 0 to 3 percent slopes	B	1.3	0.8%
Totals for Area of Interest			164.1	100.0%

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

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Custom Soil Resource Report

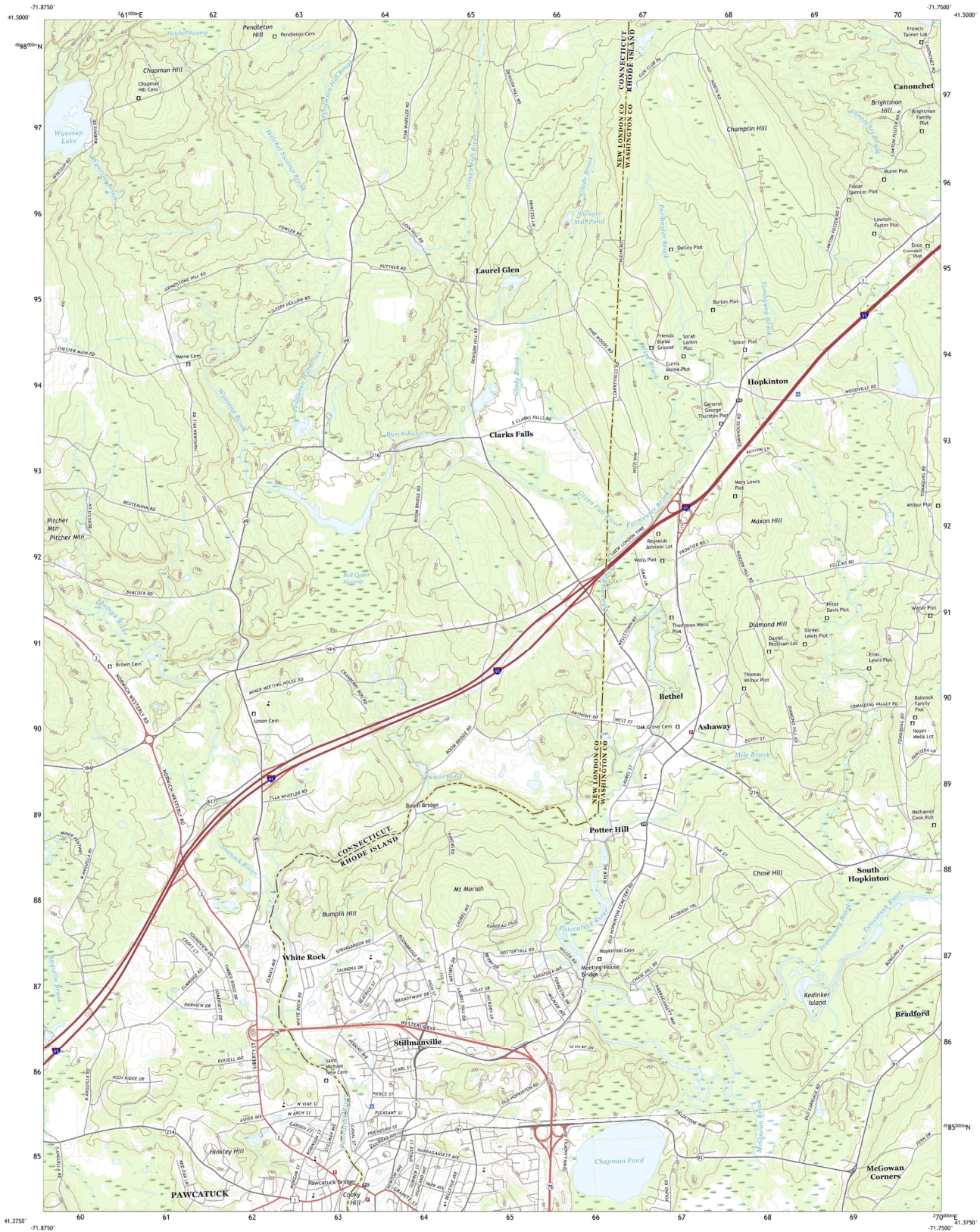
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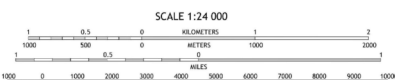
Appendix B

USGS & FEMA Firm Maps

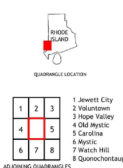


Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
100-meter grid interval. Transverse Mercator, Zone 18T
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
jurisdiction may not be shown. Obtain permission before
entering private lands.

Imagery: NADP, July 2016 - September 2016
Roads: U.S. Census Bureau, 2016
Names: GNS, 1979 - 2016
Hydrography: National Hydrography Dataset, 2004 - 2017
Contours: National Elevation Dataset, 2004 - 2012
Boundaries: Multiple sources; see metadata file 2016 - 2017
Wetlands: FWS National Wetlands Inventory 2010



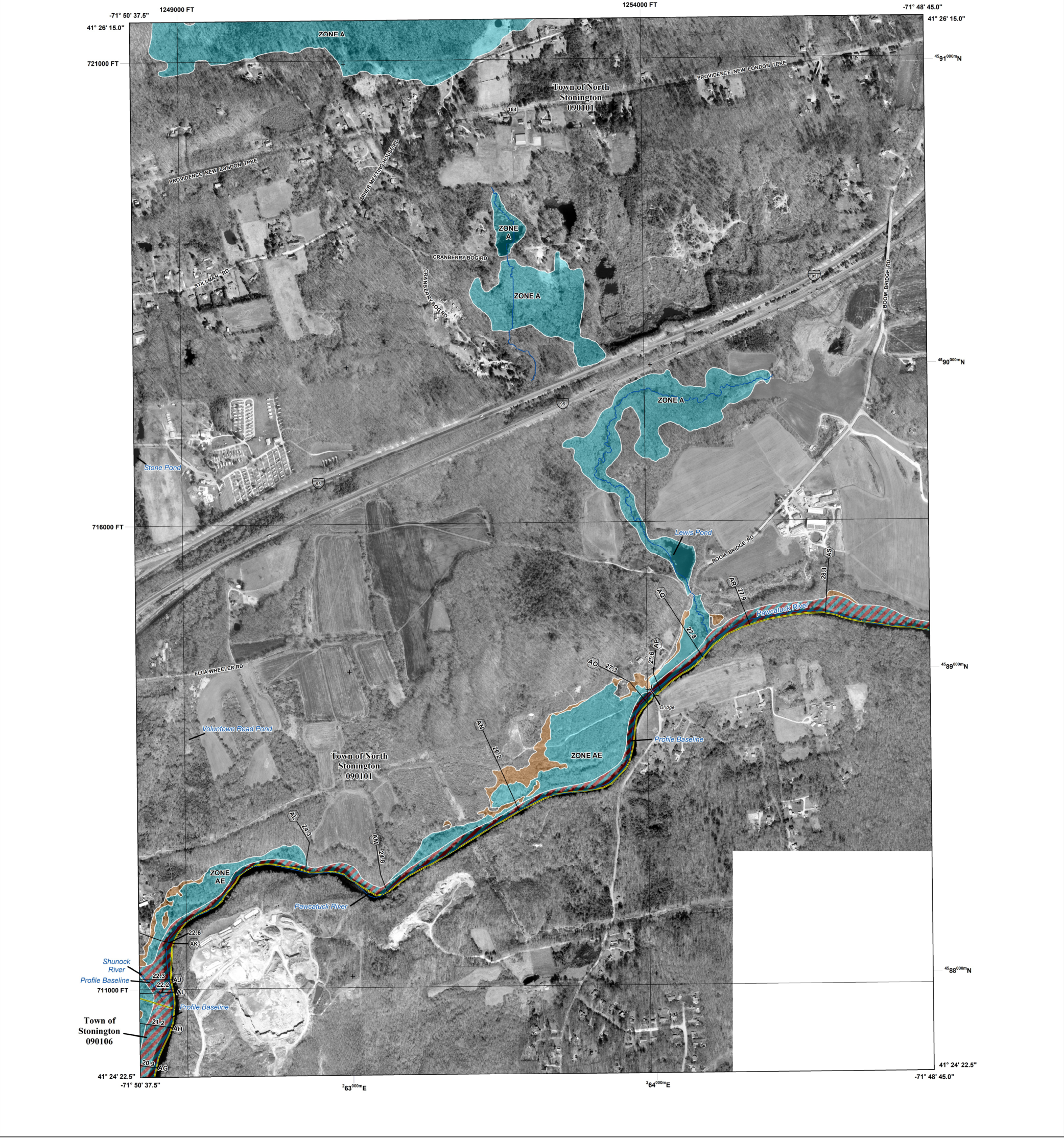
SCALE 1:24 000
CONTOUR INTERVAL 10 FEET
NORTH AMERICAN HORIZONTAL DATUM OF 1983
This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.8.18



ROAD CLASSIFICATION

Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD
Interstate Route	US Route
	State Route

ASHAWAY, RI, CT
2018



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING
DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
[HTTP://MSC.FEMA.GOV](http://msc.fema.gov)

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD		Regulatory Floodway
		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee See Notes. Zone X
OTHER AREAS		NO SCREEN
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer Accredited or Provisionally Accredited Levee, Dike, or Floodwall
		Non-accredited Levee, Dike, or Floodwall
OTHER FEATURES		Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
		Coastal Transect
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

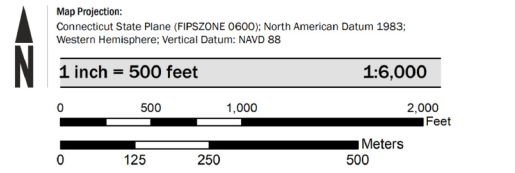
Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

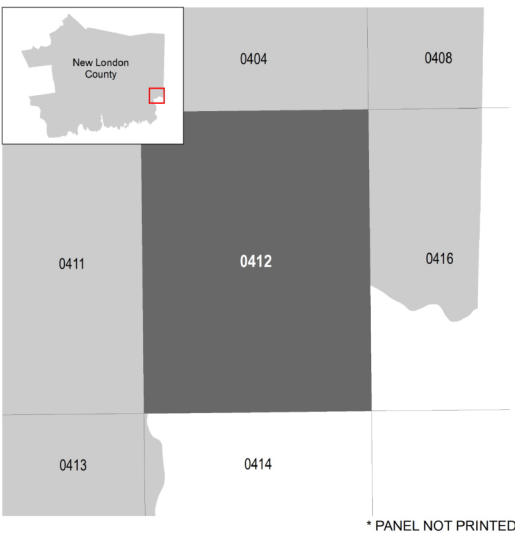
To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6820.

Base map information shown on this FIRM was provided in digital format in 2016 by the Capitol Region Council of Governments of Connecticut at a 0.25-foot resolution.

SCALE



PANEL LOCATOR



National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

NEW LONDON COUNTY, CT
(ALL JURISDICTIONS)

PANEL **412** of 554

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFI
NORTH STONINGTON, TOWN OF	090101	0412	H
STONINGTON, TOWN OF	090106	0412	H

VERSION NUMBER
2.3.3.2

MAP NUMBER
09011C0412H

MAP REVISED
April 3, 2020

Appendix C

NOAA Precipitation Data



NOAA Atlas 14, Volume 10, Version 3
Location name: North Stonington, Connecticut,
USA*

Latitude: 41.4343°, Longitude: -71.8216°

Elevation: 137.53 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

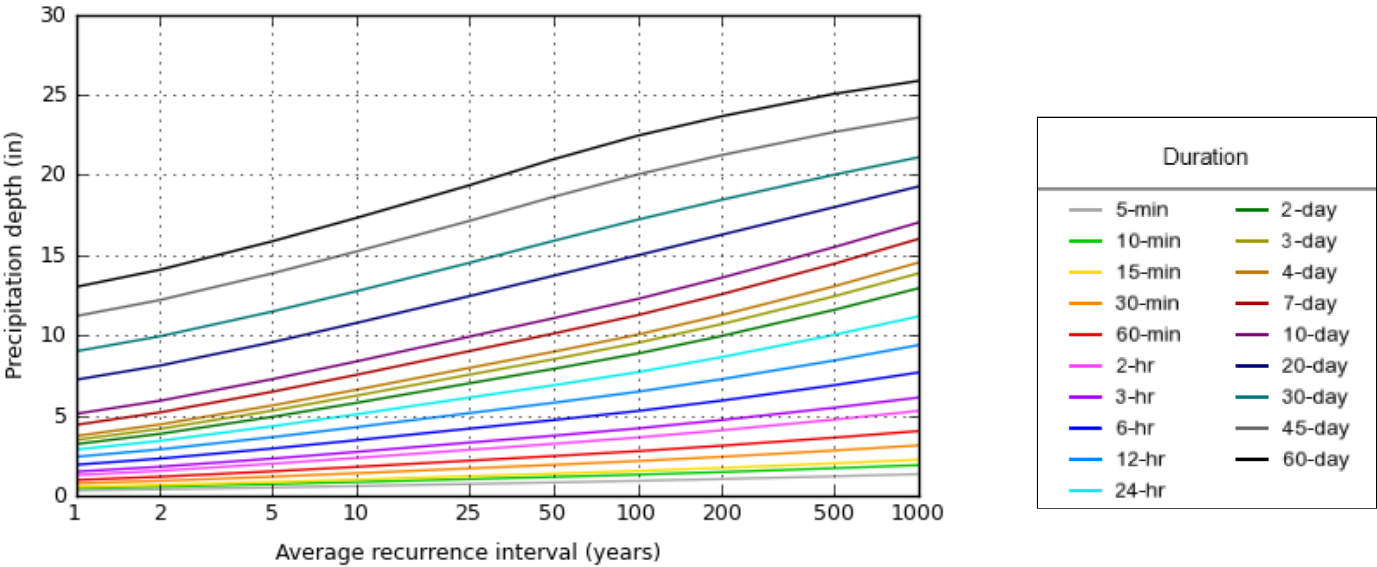
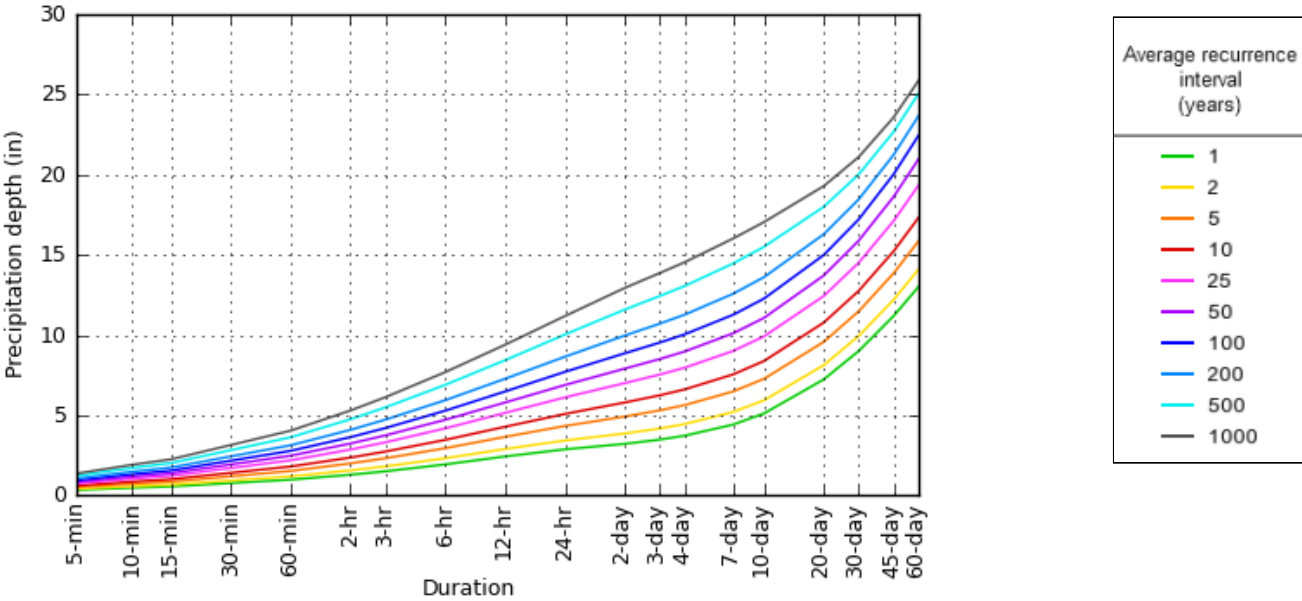
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.331 (0.255-0.430)	0.399 (0.307-0.518)	0.511 (0.391-0.665)	0.603 (0.460-0.789)	0.731 (0.541-0.987)	0.826 (0.600-1.13)	0.927 (0.656-1.31)	1.04 (0.699-1.49)	1.21 (0.782-1.77)	1.35 (0.853-2.00)
10-min	0.469 (0.361-0.609)	0.566 (0.435-0.735)	0.724 (0.554-0.942)	0.855 (0.651-1.12)	1.03 (0.766-1.40)	1.17 (0.850-1.61)	1.31 (0.930-1.86)	1.48 (0.990-2.11)	1.71 (1.11-2.51)	1.91 (1.21-2.84)
15-min	0.552 (0.424-0.716)	0.666 (0.511-0.864)	0.852 (0.652-1.11)	1.01 (0.766-1.31)	1.22 (0.901-1.65)	1.38 (0.999-1.89)	1.55 (1.09-2.18)	1.74 (1.17-2.48)	2.02 (1.30-2.95)	2.25 (1.42-3.34)
30-min	0.764 (0.588-0.992)	0.924 (0.710-1.20)	1.19 (0.908-1.54)	1.40 (1.07-1.83)	1.70 (1.26-2.30)	1.92 (1.40-2.64)	2.16 (1.53-3.05)	2.43 (1.63-3.47)	2.82 (1.82-4.13)	3.14 (1.99-4.66)
60-min	0.977 (0.751-1.27)	1.18 (0.909-1.54)	1.52 (1.16-1.98)	1.80 (1.37-2.35)	2.18 (1.61-2.95)	2.47 (1.79-3.39)	2.78 (1.96-3.92)	3.12 (2.09-4.45)	3.62 (2.34-5.30)	4.03 (2.55-5.99)
2-hr	1.28 (0.993-1.66)	1.55 (1.20-2.01)	1.99 (1.53-2.58)	2.36 (1.80-3.06)	2.86 (2.12-3.84)	3.23 (2.36-4.41)	3.63 (2.58-5.10)	4.08 (2.75-5.79)	4.74 (3.08-6.90)	5.29 (3.36-7.80)
3-hr	1.50 (1.16-1.93)	1.81 (1.40-2.33)	2.31 (1.79-2.98)	2.73 (2.10-3.54)	3.31 (2.47-4.43)	3.74 (2.74-5.09)	4.20 (2.99-5.88)	4.72 (3.19-6.67)	5.49 (3.57-7.94)	6.12 (3.90-8.99)
6-hr	1.93 (1.50-2.47)	2.31 (1.80-2.96)	2.94 (2.28-3.77)	3.46 (2.67-4.46)	4.18 (3.13-5.56)	4.71 (3.46-6.37)	5.28 (3.78-7.35)	5.93 (4.02-8.32)	6.89 (4.50-9.90)	7.69 (4.91-11.2)
12-hr	2.42 (1.90-3.09)	2.89 (2.26-3.68)	3.65 (2.84-4.66)	4.28 (3.32-5.48)	5.14 (3.87-6.81)	5.79 (4.28-7.78)	6.48 (4.66-8.95)	7.27 (4.95-10.1)	8.43 (5.53-12.0)	9.39 (6.03-13.6)
24-hr	2.87 (2.26-3.63)	3.42 (2.69-4.34)	4.33 (3.39-5.49)	5.08 (3.96-6.47)	6.11 (4.62-8.04)	6.88 (5.11-9.19)	7.70 (5.57-10.6)	8.65 (5.91-12.0)	10.0 (6.61-14.2)	11.2 (7.21-16.1)
2-day	3.21 (2.54-4.04)	3.86 (3.05-4.86)	4.92 (3.87-6.21)	5.79 (4.54-7.34)	7.00 (5.32-9.16)	7.90 (5.89-10.5)	8.86 (6.44-12.1)	9.97 (6.85-13.7)	11.6 (7.67-16.3)	12.9 (8.37-18.4)
3-day	3.48 (2.76-4.36)	4.17 (3.30-5.24)	5.30 (4.19-6.67)	6.24 (4.90-7.88)	7.54 (5.74-9.82)	8.50 (6.36-11.2)	9.53 (6.94-12.9)	10.7 (7.37-14.7)	12.4 (8.25-17.4)	13.9 (8.99-19.7)
4-day	3.72 (2.96-4.66)	4.44 (3.53-5.57)	5.63 (4.45-7.07)	6.61 (5.20-8.33)	7.96 (6.08-10.3)	8.97 (6.72-11.8)	10.0 (7.32-13.6)	11.3 (7.77-15.4)	13.1 (8.68-18.2)	14.5 (9.44-20.6)
7-day	4.41 (3.52-5.50)	5.20 (4.14-6.48)	6.48 (5.15-8.10)	7.54 (5.96-9.46)	9.00 (6.90-11.6)	10.1 (7.59-13.2)	11.3 (8.23-15.1)	12.6 (8.70-17.0)	14.5 (9.64-20.1)	16.0 (10.4-22.5)
10-day	5.10 (4.08-6.34)	5.92 (4.73-7.37)	7.26 (5.79-9.05)	8.37 (6.63-10.5)	9.90 (7.60-12.7)	11.1 (8.32-14.4)	12.3 (8.96-16.4)	13.6 (9.44-18.4)	15.5 (10.4-21.4)	17.0 (11.1-23.9)
20-day	7.23 (5.81-8.94)	8.12 (6.52-10.0)	9.57 (7.66-11.9)	10.8 (8.58-13.4)	12.4 (9.57-15.8)	13.7 (10.3-17.6)	15.0 (10.9-19.7)	16.3 (11.4-21.8)	18.0 (12.1-24.7)	19.3 (12.6-26.8)
30-day	9.00 (7.26-11.1)	9.94 (8.01-12.3)	11.5 (9.22-14.2)	12.8 (10.2-15.8)	14.5 (11.2-18.3)	15.9 (12.0-20.3)	17.2 (12.5-22.3)	18.5 (12.9-24.6)	20.0 (13.5-27.3)	21.1 (13.9-29.2)
45-day	11.2 (9.06-13.8)	12.2 (9.87-15.0)	13.9 (11.2-17.1)	15.2 (12.2-18.8)	17.1 (13.2-21.5)	18.6 (14.1-23.6)	20.0 (14.5-25.8)	21.2 (15.0-28.2)	22.7 (15.4-30.8)	23.6 (15.5-32.5)
60-day	13.0 (10.6-16.0)	14.1 (11.4-17.3)	15.9 (12.8-19.5)	17.3 (13.9-21.4)	19.3 (15.0-24.2)	21.0 (15.8-26.5)	22.5 (16.3-28.7)	23.7 (16.7-31.3)	25.1 (17.0-33.9)	25.9 (17.1-35.5)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
 Please refer to NOAA Atlas 14 document for more information.

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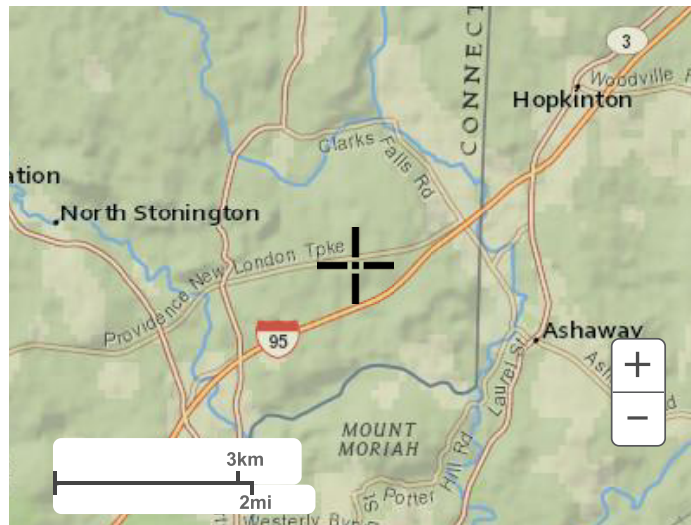
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 41.4343°, Longitude: -71.8216°



Maps & aerials

Small scale terrain



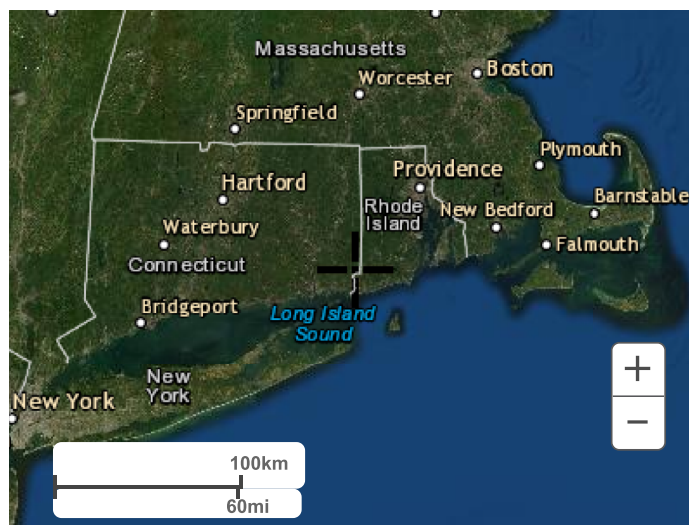
Large scale terrain



Large scale map



Large scale aerial



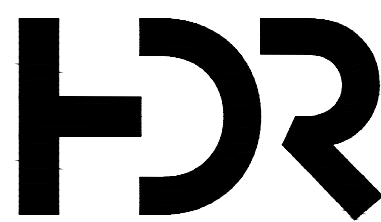
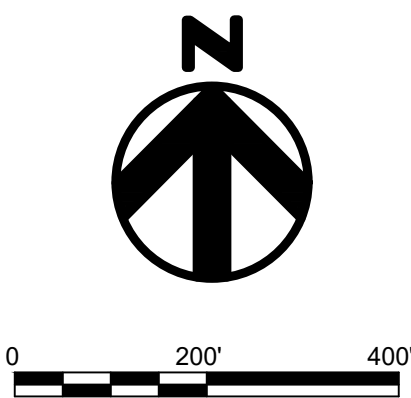
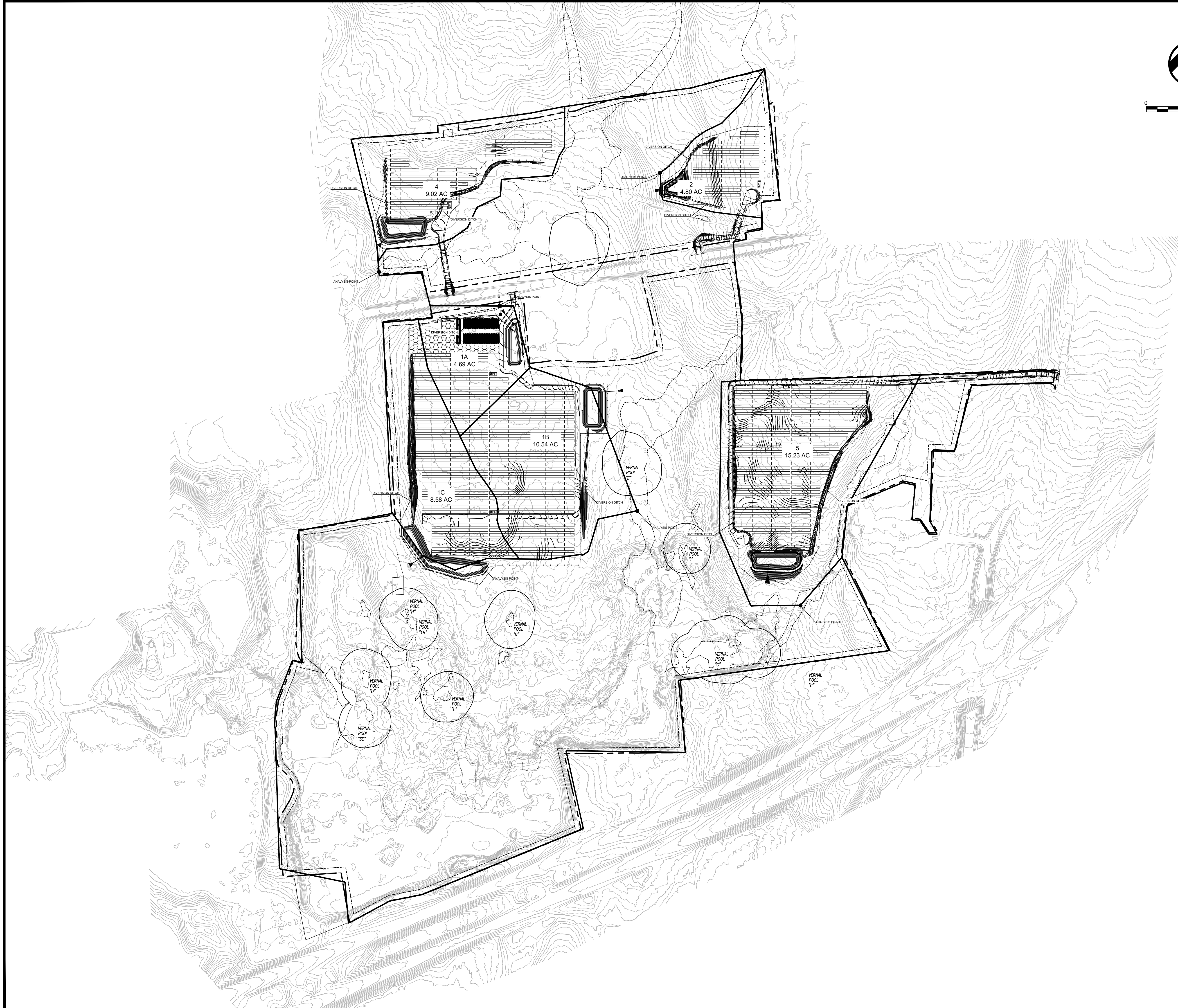
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[US Department of Commerce](#)
[National Oceanic and Atmospheric Administration](#)
[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

[Disclaimer](#)

Appendix D

Stormwater Drainage Area
Map, Peak Flow Calculations,
and Pond Design



NOT FOR
CONSTRUCTION

STONINGTON SOLAR

428, PROVIDENCE-NEW LONDON TURNPIKE
NORTH STONINGTON, CT 06359, USA
LAT: 41.431830°N
LON: 71.821514°W

STONINGTON, CT

REV. NO	DESCRIPTION	DATE
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1	RE-ISSUED FOR PERMIT	02/19/21
0	ISSUED FOR PERMIT	09/30/20

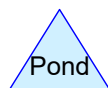
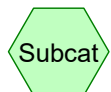
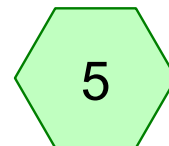
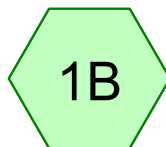
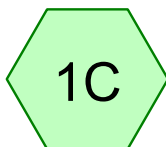
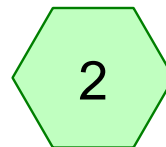
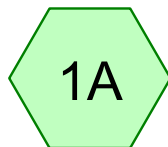
SHEET TITLE:

**DRAINAGE AREA EXHIBIT
POST-DEVELOPMENT**

PROJ. MGR. WK	PROJ. ENGR. MB	DATE: 5/28/21
DRAWN BY: NC	CHECKED BY: CP	SCALE: 1:200

DRAWING NO.

EXHIBIT



Routing Diagram for HydroCAD North Stonington Existing_Rev 5-21

Prepared by HDR, Inc, Printed 5/20/2021

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HydroCAD North Stonington Existing_Rev 5-21

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
13.270	60	(1A, 1C)
10.540	61	(1B)
20.030	70	(2, 5)
9.020	63	(4)
52.860	65	TOTAL AREA

HydroCAD North Stonington Existing_Rev 5-Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Prepared by HDR, Inc

Printed 5/20/2021

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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 1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>0.49"
Tc=45.9 min CN=60 Runoff=0.88 cfs 0.191 af

Subcatchment 1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>0.53"
Tc=45.5 min CN=61 Runoff=2.23 cfs 0.464 af

Subcatchment 1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>0.49"
Tc=37.9 min CN=60 Runoff=1.78 cfs 0.351 af

Subcatchment 2: Runoff Area=4.800 ac 0.00% Impervious Runoff Depth>0.95"
Tc=22.6 min CN=70 Runoff=3.14 cfs 0.381 af

Subcatchment 4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>0.62"
Tc=25.7 min CN=63 Runoff=3.10 cfs 0.463 af

Subcatchment 5: Runoff Area=15.230 ac 0.00% Impervious Runoff Depth>0.95"
Tc=32.0 min CN=70 Runoff=8.59 cfs 1.206 af

Total Runoff Area = 52.860 ac Runoff Volume = 3.056 af Average Runoff Depth = 0.69"
100.00% Pervious = 52.860 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

Runoff = 0.88 cfs @ 12.79 hrs, Volume= 0.191 af, Depth> 0.49"

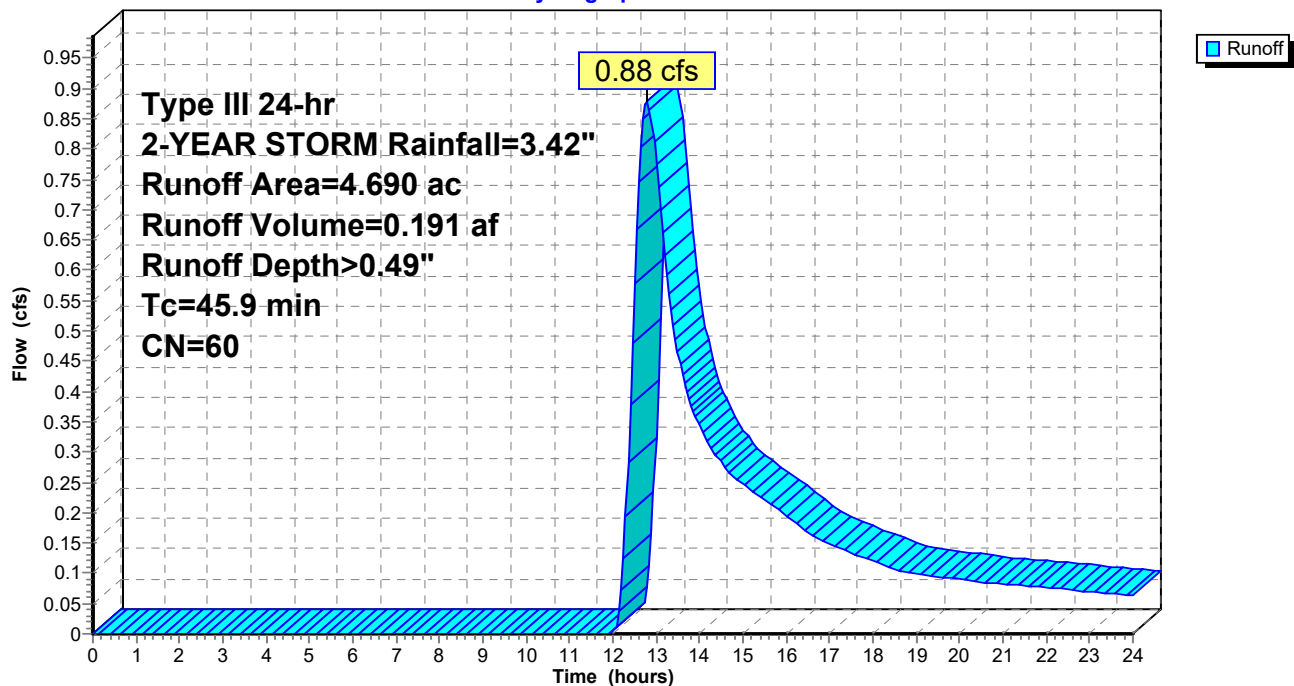
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 4.690	60	
4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9					Direct Entry, SCS TR-55

Subcatchment 1A:

Hydrograph



HydroCAD North Stonington Existing_Rev 5-Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Prepared by HDR, Inc

Printed 5/20/2021

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Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	0.21	0.59
0.25	0.01	0.00	0.00	13.50	2.68	0.23	0.47
0.50	0.02	0.00	0.00	13.75	2.73	0.24	0.39
0.75	0.03	0.00	0.00	14.00	2.77	0.26	0.34
1.00	0.03	0.00	0.00	14.25	2.81	0.27	0.31
1.25	0.04	0.00	0.00	14.50	2.85	0.28	0.28
1.50	0.05	0.00	0.00	14.75	2.89	0.29	0.26
1.75	0.06	0.00	0.00	15.00	2.92	0.31	0.25
2.00	0.07	0.00	0.00	15.25	2.95	0.32	0.23
2.25	0.08	0.00	0.00	15.50	2.98	0.33	0.22
2.50	0.09	0.00	0.00	15.75	3.01	0.34	0.21
2.75	0.10	0.00	0.00	16.00	3.03	0.34	0.19
3.00	0.11	0.00	0.00	16.25	3.05	0.35	0.18
3.25	0.12	0.00	0.00	16.50	3.07	0.36	0.17
3.50	0.13	0.00	0.00	16.75	3.09	0.37	0.16
3.75	0.14	0.00	0.00	17.00	3.11	0.37	0.15
4.00	0.15	0.00	0.00	17.25	3.13	0.38	0.14
4.25	0.16	0.00	0.00	17.50	3.14	0.39	0.13
4.50	0.17	0.00	0.00	17.75	3.16	0.39	0.13
4.75	0.18	0.00	0.00	18.00	3.17	0.40	0.12
5.00	0.19	0.00	0.00	18.25	3.19	0.40	0.11
5.25	0.21	0.00	0.00	18.50	3.20	0.41	0.11
5.50	0.22	0.00	0.00	18.75	3.21	0.41	0.10
5.75	0.23	0.00	0.00	19.00	3.23	0.42	0.10
6.00	0.25	0.00	0.00	19.25	3.24	0.42	0.10
6.25	0.26	0.00	0.00	19.50	3.25	0.43	0.09
6.50	0.28	0.00	0.00	19.75	3.26	0.43	0.09
6.75	0.29	0.00	0.00	20.00	3.27	0.44	0.09
7.00	0.31	0.00	0.00	20.25	3.28	0.44	0.09
7.25	0.33	0.00	0.00	20.50	3.29	0.45	0.09
7.50	0.35	0.00	0.00	20.75	3.31	0.45	0.08
7.75	0.37	0.00	0.00	21.00	3.32	0.45	0.08
8.00	0.39	0.00	0.00	21.25	3.33	0.46	0.08
8.25	0.41	0.00	0.00	21.50	3.34	0.46	0.08
8.50	0.44	0.00	0.00	21.75	3.34	0.47	0.08
8.75	0.47	0.00	0.00	22.00	3.35	0.47	0.08
9.00	0.50	0.00	0.00	22.25	3.36	0.47	0.07
9.25	0.53	0.00	0.00	22.50	3.37	0.48	0.07
9.50	0.57	0.00	0.00	22.75	3.38	0.48	0.07
9.75	0.61	0.00	0.00	23.00	3.39	0.48	0.07
10.00	0.65	0.00	0.00	23.25	3.40	0.49	0.07
10.25	0.69	0.00	0.00	23.50	3.40	0.49	0.07
10.50	0.74	0.00	0.00	23.75	3.41	0.49	0.06
10.75	0.80	0.00	0.00	24.00	3.42	0.50	0.06
11.00	0.85	0.00	0.00				
11.25	0.93	0.00	0.00				
11.50	1.02	0.00	0.00				
11.75	1.21	0.00	0.00				
12.00	1.71	0.02	0.00				
12.25	2.21	0.10	0.12				
12.50	2.40	0.15	0.58				
12.75	2.49	0.17	0.87				
13.00	2.56	0.19	0.78				

Summary for Subcatchment 1B:

Runoff = 2.23 cfs @ 12.77 hrs, Volume= 0.464 af, Depth> 0.53"

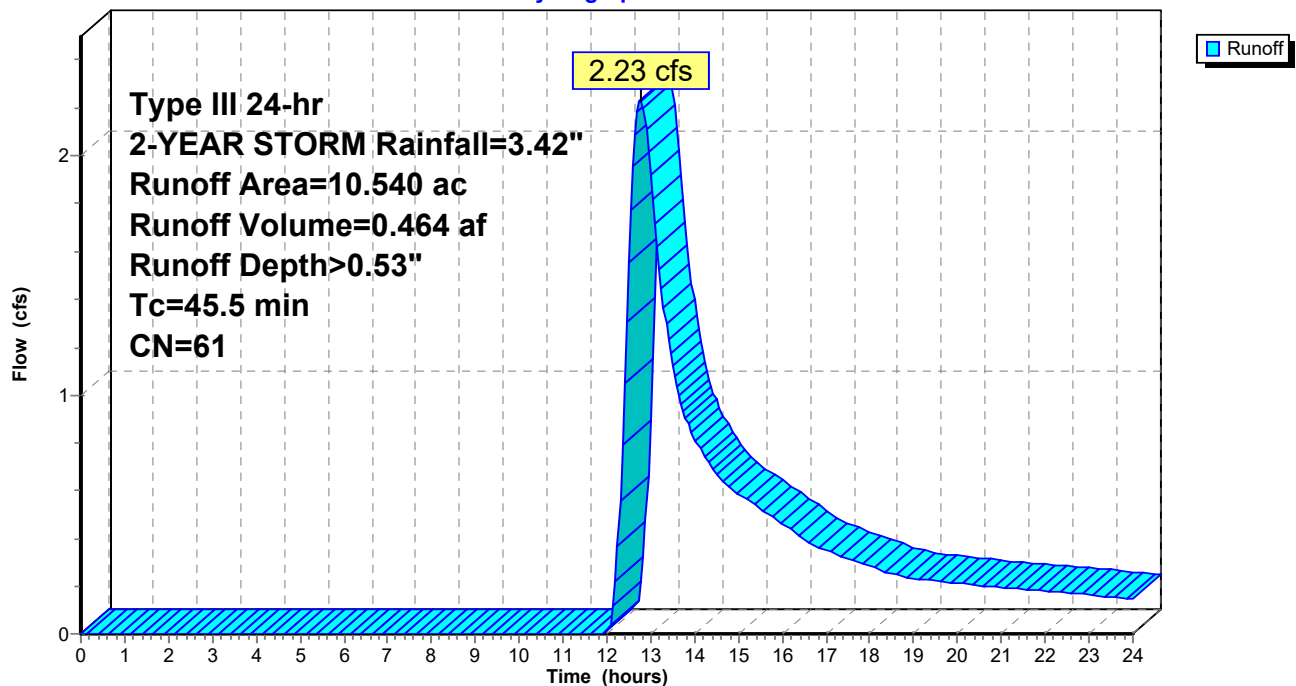
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 10.540	61	
10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.5					Direct Entry, SCS TR-55

Subcatchment 1B:

Hydrograph



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	0.23	1.44
0.25	0.01	0.00	0.00	13.50	2.68	0.25	1.12
0.50	0.02	0.00	0.00	13.75	2.73	0.27	0.93
0.75	0.03	0.00	0.00	14.00	2.77	0.28	0.82
1.00	0.03	0.00	0.00	14.25	2.81	0.30	0.74
1.25	0.04	0.00	0.00	14.50	2.85	0.31	0.67
1.50	0.05	0.00	0.00	14.75	2.89	0.32	0.62
1.75	0.06	0.00	0.00	15.00	2.92	0.34	0.59
2.00	0.07	0.00	0.00	15.25	2.95	0.35	0.56
2.25	0.08	0.00	0.00	15.50	2.98	0.36	0.52
2.50	0.09	0.00	0.00	15.75	3.01	0.37	0.49
2.75	0.10	0.00	0.00	16.00	3.03	0.38	0.46
3.00	0.11	0.00	0.00	16.25	3.05	0.38	0.43
3.25	0.12	0.00	0.00	16.50	3.07	0.39	0.39
3.50	0.13	0.00	0.00	16.75	3.09	0.40	0.37
3.75	0.14	0.00	0.00	17.00	3.11	0.41	0.35
4.00	0.15	0.00	0.00	17.25	3.13	0.41	0.33
4.25	0.16	0.00	0.00	17.50	3.14	0.42	0.32
4.50	0.17	0.00	0.00	17.75	3.16	0.43	0.30
4.75	0.18	0.00	0.00	18.00	3.17	0.43	0.28
5.00	0.19	0.00	0.00	18.25	3.19	0.44	0.27
5.25	0.21	0.00	0.00	18.50	3.20	0.44	0.25
5.50	0.22	0.00	0.00	18.75	3.21	0.45	0.24
5.75	0.23	0.00	0.00	19.00	3.23	0.45	0.23
6.00	0.25	0.00	0.00	19.25	3.24	0.46	0.23
6.25	0.26	0.00	0.00	19.50	3.25	0.46	0.22
6.50	0.28	0.00	0.00	19.75	3.26	0.47	0.22
6.75	0.29	0.00	0.00	20.00	3.27	0.47	0.21
7.00	0.31	0.00	0.00	20.25	3.28	0.48	0.21
7.25	0.33	0.00	0.00	20.50	3.29	0.48	0.20
7.50	0.35	0.00	0.00	20.75	3.31	0.49	0.20
7.75	0.37	0.00	0.00	21.00	3.32	0.49	0.19
8.00	0.39	0.00	0.00	21.25	3.33	0.50	0.19
8.25	0.41	0.00	0.00	21.50	3.34	0.50	0.19
8.50	0.44	0.00	0.00	21.75	3.34	0.50	0.18
8.75	0.47	0.00	0.00	22.00	3.35	0.51	0.18
9.00	0.50	0.00	0.00	22.25	3.36	0.51	0.17
9.25	0.53	0.00	0.00	22.50	3.37	0.52	0.17
9.50	0.57	0.00	0.00	22.75	3.38	0.52	0.17
9.75	0.61	0.00	0.00	23.00	3.39	0.52	0.16
10.00	0.65	0.00	0.00	23.25	3.40	0.53	0.16
10.25	0.69	0.00	0.00	23.50	3.40	0.53	0.16
10.50	0.74	0.00	0.00	23.75	3.41	0.53	0.15
10.75	0.80	0.00	0.00	24.00	3.42	0.54	0.15
11.00	0.85	0.00	0.00				
11.25	0.93	0.00	0.00				
11.50	1.02	0.00	0.00				
11.75	1.21	0.00	0.00				
12.00	1.71	0.03	0.01				
12.25	2.21	0.12	0.37				
12.50	2.40	0.17	1.55				
12.75	2.49	0.19	2.23				
13.00	2.56	0.22	1.92				

Summary for Subcatchment 1C:

Runoff = 1.78 cfs @ 12.67 hrs, Volume= 0.351 af, Depth> 0.49"

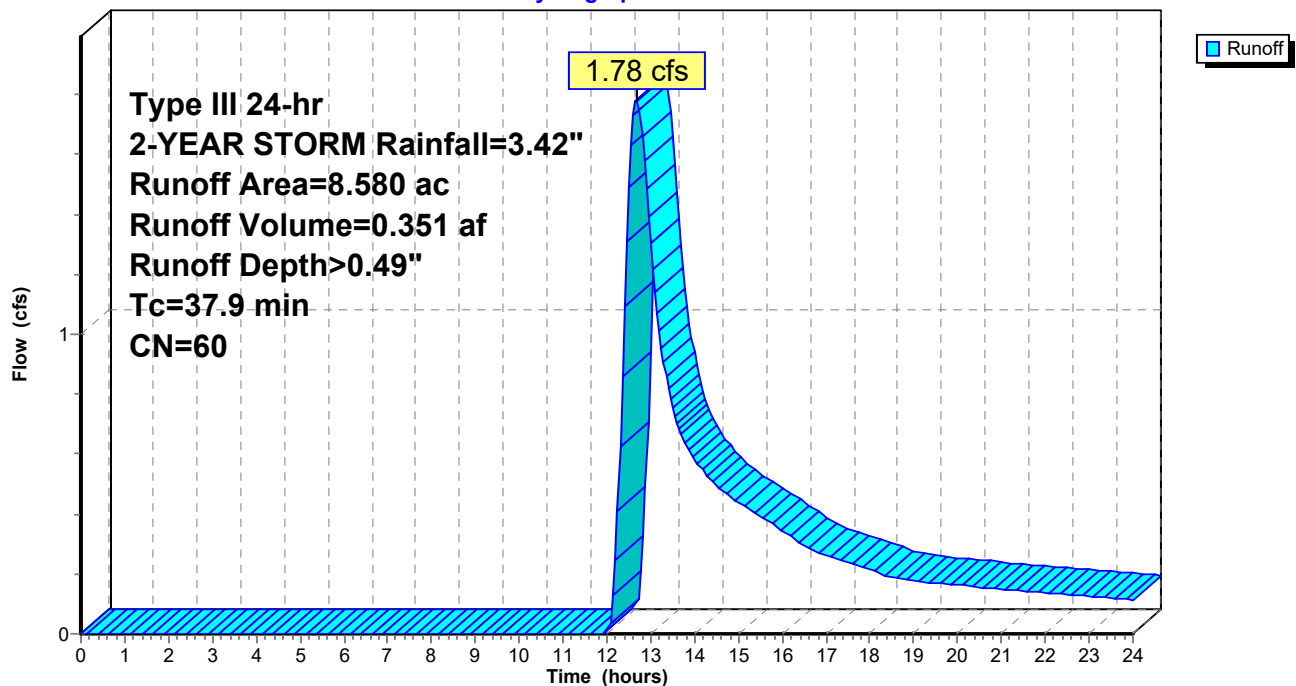
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 8.580	60	
8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.9					Direct Entry, SCS TR-55

Subcatchment 1C:

Hydrograph



HydroCAD North Stonington Existing_Rev 5-Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Prepared by HDR, Inc

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Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	0.21	0.95
0.25	0.01	0.00	0.00	13.50	2.68	0.23	0.75
0.50	0.02	0.00	0.00	13.75	2.73	0.24	0.65
0.75	0.03	0.00	0.00	14.00	2.77	0.26	0.58
1.00	0.03	0.00	0.00	14.25	2.81	0.27	0.53
1.25	0.04	0.00	0.00	14.50	2.85	0.28	0.49
1.50	0.05	0.00	0.00	14.75	2.89	0.29	0.46
1.75	0.06	0.00	0.00	15.00	2.92	0.31	0.44
2.00	0.07	0.00	0.00	15.25	2.95	0.32	0.42
2.25	0.08	0.00	0.00	15.50	2.98	0.33	0.39
2.50	0.09	0.00	0.00	15.75	3.01	0.34	0.37
2.75	0.10	0.00	0.00	16.00	3.03	0.34	0.34
3.00	0.11	0.00	0.00	16.25	3.05	0.35	0.32
3.25	0.12	0.00	0.00	16.50	3.07	0.36	0.29
3.50	0.13	0.00	0.00	16.75	3.09	0.37	0.28
3.75	0.14	0.00	0.00	17.00	3.11	0.37	0.26
4.00	0.15	0.00	0.00	17.25	3.13	0.38	0.25
4.25	0.16	0.00	0.00	17.50	3.14	0.39	0.24
4.50	0.17	0.00	0.00	17.75	3.16	0.39	0.23
4.75	0.18	0.00	0.00	18.00	3.17	0.40	0.21
5.00	0.19	0.00	0.00	18.25	3.19	0.40	0.20
5.25	0.21	0.00	0.00	18.50	3.20	0.41	0.19
5.50	0.22	0.00	0.00	18.75	3.21	0.41	0.18
5.75	0.23	0.00	0.00	19.00	3.23	0.42	0.18
6.00	0.25	0.00	0.00	19.25	3.24	0.42	0.17
6.25	0.26	0.00	0.00	19.50	3.25	0.43	0.17
6.50	0.28	0.00	0.00	19.75	3.26	0.43	0.17
6.75	0.29	0.00	0.00	20.00	3.27	0.44	0.16
7.00	0.31	0.00	0.00	20.25	3.28	0.44	0.16
7.25	0.33	0.00	0.00	20.50	3.29	0.45	0.16
7.50	0.35	0.00	0.00	20.75	3.31	0.45	0.15
7.75	0.37	0.00	0.00	21.00	3.32	0.45	0.15
8.00	0.39	0.00	0.00	21.25	3.33	0.46	0.15
8.25	0.41	0.00	0.00	21.50	3.34	0.46	0.14
8.50	0.44	0.00	0.00	21.75	3.34	0.47	0.14
8.75	0.47	0.00	0.00	22.00	3.35	0.47	0.14
9.00	0.50	0.00	0.00	22.25	3.36	0.47	0.13
9.25	0.53	0.00	0.00	22.50	3.37	0.48	0.13
9.50	0.57	0.00	0.00	22.75	3.38	0.48	0.13
9.75	0.61	0.00	0.00	23.00	3.39	0.48	0.13
10.00	0.65	0.00	0.00	23.25	3.40	0.49	0.12
10.25	0.69	0.00	0.00	23.50	3.40	0.49	0.12
10.50	0.74	0.00	0.00	23.75	3.41	0.49	0.12
10.75	0.80	0.00	0.00	24.00	3.42	0.50	0.11
11.00	0.85	0.00	0.00				
11.25	0.93	0.00	0.00				
11.50	1.02	0.00	0.00				
11.75	1.21	0.00	0.00				
12.00	1.71	0.02	0.00				
12.25	2.21	0.10	0.41				
12.50	2.40	0.15	1.49				
12.75	2.49	0.17	1.73				
13.00	2.56	0.19	1.30				

Summary for Subcatchment 2:

Runoff = 3.14 cfs @ 12.35 hrs, Volume= 0.381 af, Depth> 0.95"

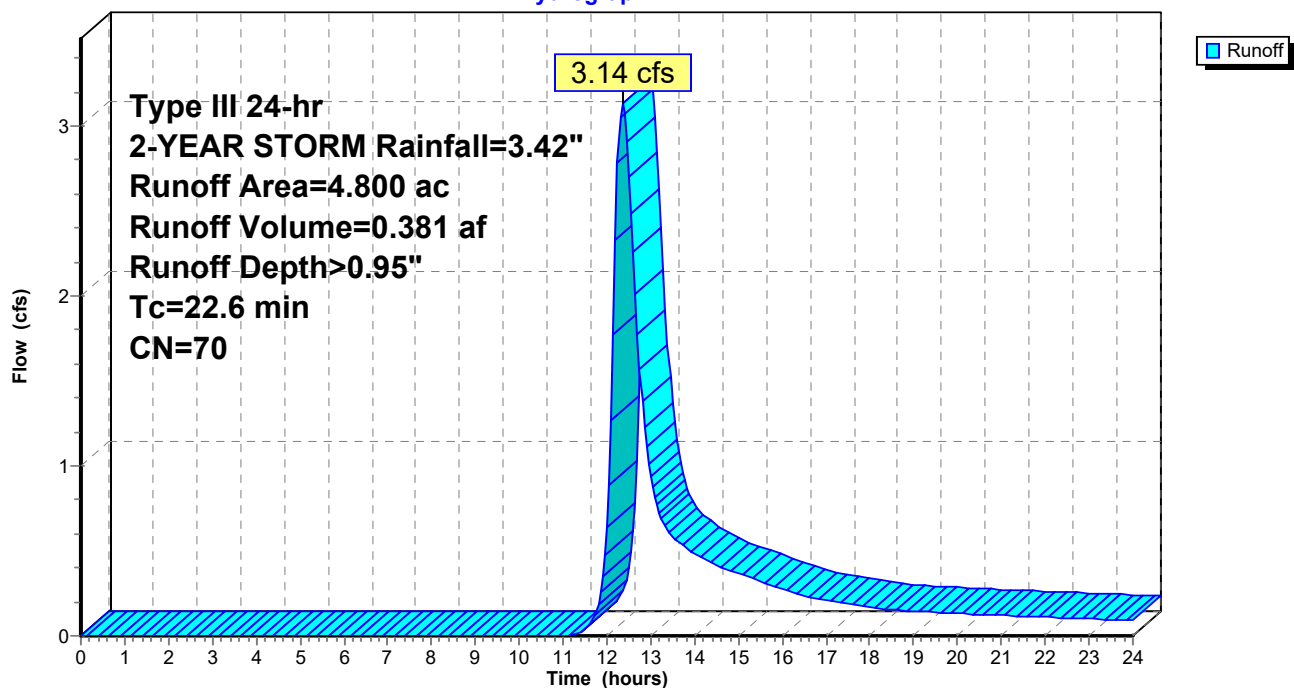
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 4.800	70	
4.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6					Direct Entry, SCS TR-55

Subcatchment 2:

Hydrograph



HydroCAD North Stonington Existing_Rev 5-Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Prepared by HDR, Inc

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Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	0.52	0.69
0.25	0.01	0.00	0.00	13.50	2.68	0.54	0.58
0.50	0.02	0.00	0.00	13.75	2.73	0.57	0.53
0.75	0.03	0.00	0.00	14.00	2.77	0.59	0.49
1.00	0.03	0.00	0.00	14.25	2.81	0.61	0.44
1.25	0.04	0.00	0.00	14.50	2.85	0.63	0.41
1.50	0.05	0.00	0.00	14.75	2.89	0.65	0.39
1.75	0.06	0.00	0.00	15.00	2.92	0.67	0.37
2.00	0.07	0.00	0.00	15.25	2.95	0.69	0.35
2.25	0.08	0.00	0.00	15.50	2.98	0.70	0.32
2.50	0.09	0.00	0.00	15.75	3.01	0.72	0.30
2.75	0.10	0.00	0.00	16.00	3.03	0.73	0.28
3.00	0.11	0.00	0.00	16.25	3.05	0.74	0.25
3.25	0.12	0.00	0.00	16.50	3.07	0.75	0.24
3.50	0.13	0.00	0.00	16.75	3.09	0.77	0.22
3.75	0.14	0.00	0.00	17.00	3.11	0.78	0.21
4.00	0.15	0.00	0.00	17.25	3.13	0.79	0.20
4.25	0.16	0.00	0.00	17.50	3.14	0.80	0.19
4.50	0.17	0.00	0.00	17.75	3.16	0.80	0.18
4.75	0.18	0.00	0.00	18.00	3.17	0.81	0.17
5.00	0.19	0.00	0.00	18.25	3.19	0.82	0.16
5.25	0.21	0.00	0.00	18.50	3.20	0.83	0.15
5.50	0.22	0.00	0.00	18.75	3.21	0.84	0.15
5.75	0.23	0.00	0.00	19.00	3.23	0.84	0.14
6.00	0.25	0.00	0.00	19.25	3.24	0.85	0.14
6.25	0.26	0.00	0.00	19.50	3.25	0.86	0.14
6.50	0.28	0.00	0.00	19.75	3.26	0.86	0.14
6.75	0.29	0.00	0.00	20.00	3.27	0.87	0.13
7.00	0.31	0.00	0.00	20.25	3.28	0.88	0.13
7.25	0.33	0.00	0.00	20.50	3.29	0.88	0.13
7.50	0.35	0.00	0.00	20.75	3.31	0.89	0.12
7.75	0.37	0.00	0.00	21.00	3.32	0.90	0.12
8.00	0.39	0.00	0.00	21.25	3.33	0.90	0.12
8.25	0.41	0.00	0.00	21.50	3.34	0.91	0.12
8.50	0.44	0.00	0.00	21.75	3.34	0.91	0.11
8.75	0.47	0.00	0.00	22.00	3.35	0.92	0.11
9.00	0.50	0.00	0.00	22.25	3.36	0.92	0.11
9.25	0.53	0.00	0.00	22.50	3.37	0.93	0.11
9.50	0.57	0.00	0.00	22.75	3.38	0.94	0.10
9.75	0.61	0.00	0.00	23.00	3.39	0.94	0.10
10.00	0.65	0.00	0.00	23.25	3.40	0.95	0.10
10.25	0.69	0.00	0.00	23.50	3.40	0.95	0.09
10.50	0.74	0.00	0.00	23.75	3.41	0.95	0.09
10.75	0.80	0.00	0.00	24.00	3.42	0.96	0.09
11.00	0.85	0.00	0.00				
11.25	0.93	0.00	0.00				
11.50	1.02	0.01	0.04				
11.75	1.21	0.03	0.14				
12.00	1.71	0.14	0.64				
12.25	2.21	0.32	2.78				
12.50	2.40	0.41	2.70				
12.75	2.49	0.45	1.56				
13.00	2.56	0.49	0.94				

Summary for Subcatchment 4:

Runoff = 3.10 cfs @ 12.45 hrs, Volume= 0.463 af, Depth> 0.62"

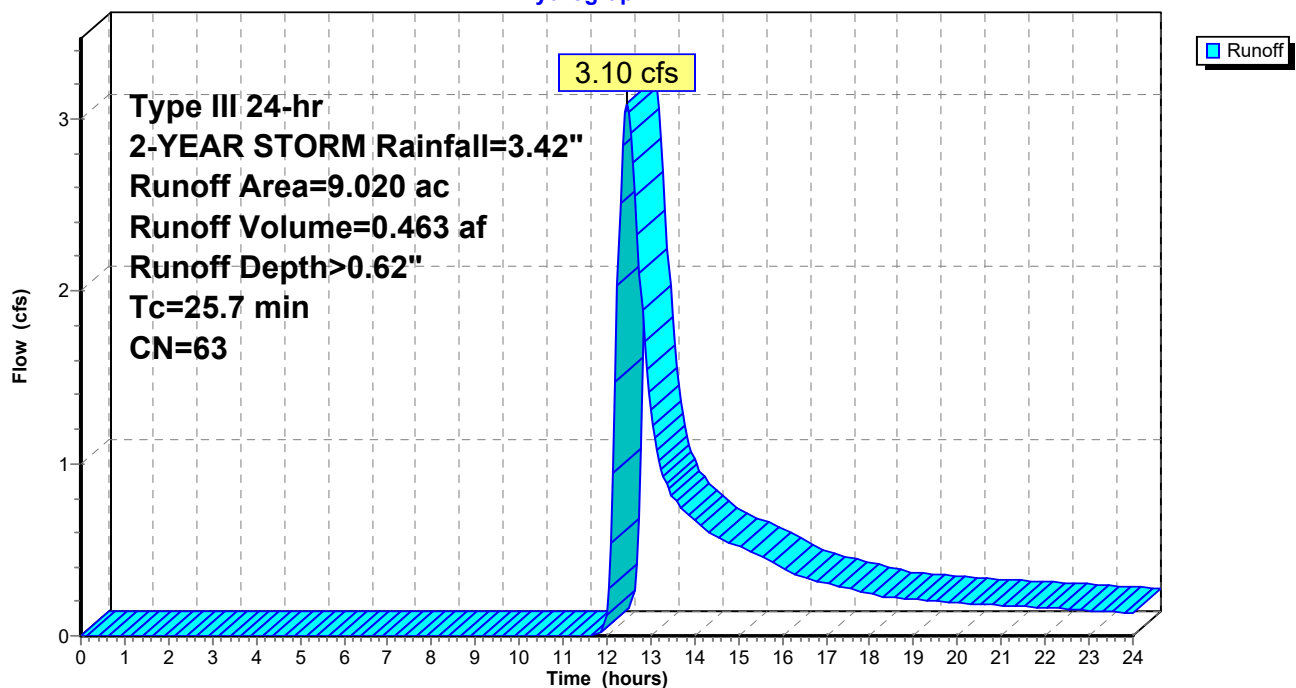
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 9.020	63	
9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7					Direct Entry, SCS TR-55

Subcatchment 4:

Hydrograph



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	0.29	0.97
0.25	0.01	0.00	0.00	13.50	2.68	0.31	0.80
0.50	0.02	0.00	0.00	13.75	2.73	0.33	0.73
0.75	0.03	0.00	0.00	14.00	2.77	0.34	0.67
1.00	0.03	0.00	0.00	14.25	2.81	0.36	0.62
1.25	0.04	0.00	0.00	14.50	2.85	0.37	0.58
1.50	0.05	0.00	0.00	14.75	2.89	0.39	0.55
1.75	0.06	0.00	0.00	15.00	2.92	0.40	0.52
2.00	0.07	0.00	0.00	15.25	2.95	0.41	0.49
2.25	0.08	0.00	0.00	15.50	2.98	0.42	0.46
2.50	0.09	0.00	0.00	15.75	3.01	0.44	0.43
2.75	0.10	0.00	0.00	16.00	3.03	0.45	0.40
3.00	0.11	0.00	0.00	16.25	3.05	0.45	0.36
3.25	0.12	0.00	0.00	16.50	3.07	0.46	0.34
3.50	0.13	0.00	0.00	16.75	3.09	0.47	0.32
3.75	0.14	0.00	0.00	17.00	3.11	0.48	0.31
4.00	0.15	0.00	0.00	17.25	3.13	0.49	0.29
4.25	0.16	0.00	0.00	17.50	3.14	0.49	0.28
4.50	0.17	0.00	0.00	17.75	3.16	0.50	0.26
4.75	0.18	0.00	0.00	18.00	3.17	0.51	0.25
5.00	0.19	0.00	0.00	18.25	3.19	0.51	0.23
5.25	0.21	0.00	0.00	18.50	3.20	0.52	0.22
5.50	0.22	0.00	0.00	18.75	3.21	0.53	0.22
5.75	0.23	0.00	0.00	19.00	3.23	0.53	0.21
6.00	0.25	0.00	0.00	19.25	3.24	0.54	0.21
6.25	0.26	0.00	0.00	19.50	3.25	0.54	0.20
6.50	0.28	0.00	0.00	19.75	3.26	0.55	0.20
6.75	0.29	0.00	0.00	20.00	3.27	0.55	0.19
7.00	0.31	0.00	0.00	20.25	3.28	0.56	0.19
7.25	0.33	0.00	0.00	20.50	3.29	0.56	0.18
7.50	0.35	0.00	0.00	20.75	3.31	0.57	0.18
7.75	0.37	0.00	0.00	21.00	3.32	0.57	0.18
8.00	0.39	0.00	0.00	21.25	3.33	0.58	0.17
8.25	0.41	0.00	0.00	21.50	3.34	0.58	0.17
8.50	0.44	0.00	0.00	21.75	3.34	0.59	0.17
8.75	0.47	0.00	0.00	22.00	3.35	0.59	0.16
9.00	0.50	0.00	0.00	22.25	3.36	0.59	0.16
9.25	0.53	0.00	0.00	22.50	3.37	0.60	0.15
9.50	0.57	0.00	0.00	22.75	3.38	0.60	0.15
9.75	0.61	0.00	0.00	23.00	3.39	0.61	0.15
10.00	0.65	0.00	0.00	23.25	3.40	0.61	0.14
10.25	0.69	0.00	0.00	23.50	3.40	0.61	0.14
10.50	0.74	0.00	0.00	23.75	3.41	0.62	0.14
10.75	0.80	0.00	0.00	24.00	3.42	0.62	0.13
11.00	0.85	0.00	0.00				
11.25	0.93	0.00	0.00				
11.50	1.02	0.00	0.00				
11.75	1.21	0.00	0.00				
12.00	1.71	0.04	0.12				
12.25	2.21	0.15	2.03				
12.50	2.40	0.21	3.04				
12.75	2.49	0.24	2.10				
13.00	2.56	0.27	1.31				

Summary for Subcatchment 5:

Runoff = 8.59 cfs @ 12.50 hrs, Volume= 1.206 af, Depth> 0.95"

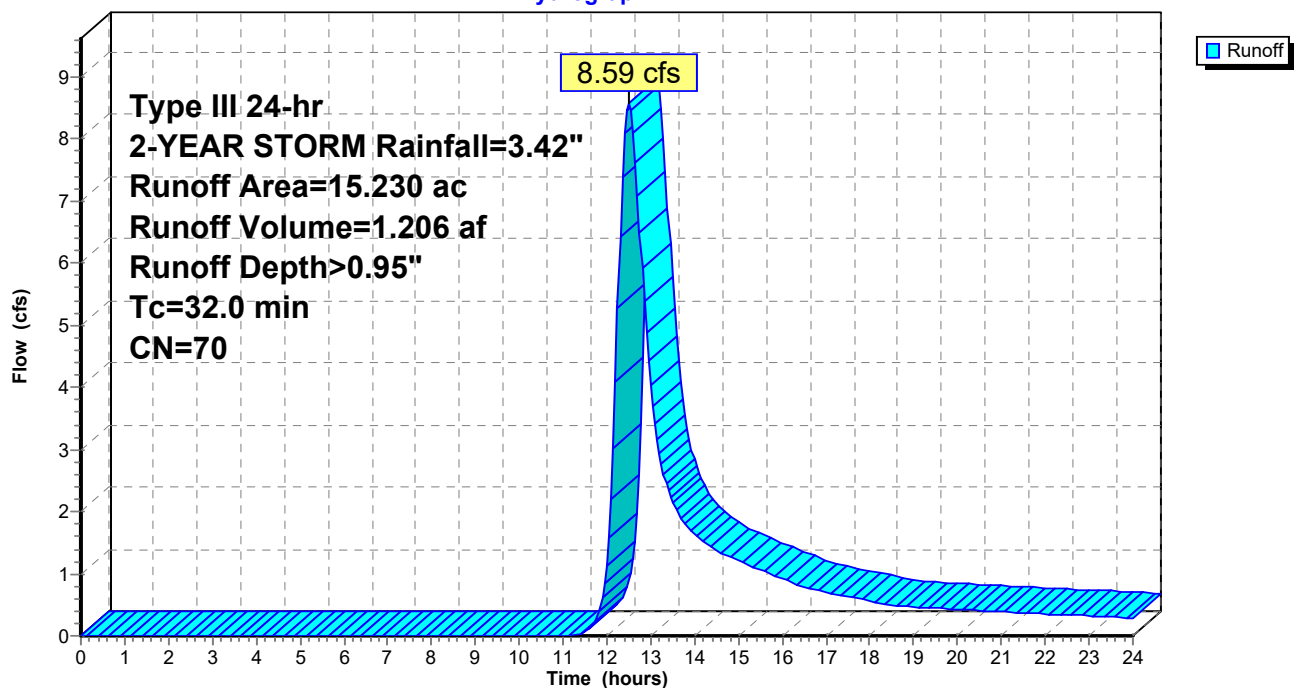
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 15.230	70	
15.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.0					Direct Entry, SCS TR-55

Subcatchment 5:

Hydrograph



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	0.52	2.76
0.25	0.01	0.00	0.00	13.50	2.68	0.54	2.13
0.50	0.02	0.00	0.00	13.75	2.73	0.57	1.83
0.75	0.03	0.00	0.00	14.00	2.77	0.59	1.64
1.00	0.03	0.00	0.00	14.25	2.81	0.61	1.49
1.25	0.04	0.00	0.00	14.50	2.85	0.63	1.37
1.50	0.05	0.00	0.00	14.75	2.89	0.65	1.29
1.75	0.06	0.00	0.00	15.00	2.92	0.67	1.21
2.00	0.07	0.00	0.00	15.25	2.95	0.69	1.14
2.25	0.08	0.00	0.00	15.50	2.98	0.70	1.07
2.50	0.09	0.00	0.00	15.75	3.01	0.72	1.00
2.75	0.10	0.00	0.00	16.00	3.03	0.73	0.92
3.00	0.11	0.00	0.00	16.25	3.05	0.74	0.84
3.25	0.12	0.00	0.00	16.50	3.07	0.75	0.78
3.50	0.13	0.00	0.00	16.75	3.09	0.77	0.74
3.75	0.14	0.00	0.00	17.00	3.11	0.78	0.70
4.00	0.15	0.00	0.00	17.25	3.13	0.79	0.66
4.25	0.16	0.00	0.00	17.50	3.14	0.80	0.63
4.50	0.17	0.00	0.00	17.75	3.16	0.80	0.59
4.75	0.18	0.00	0.00	18.00	3.17	0.81	0.56
5.00	0.19	0.00	0.00	18.25	3.19	0.82	0.52
5.25	0.21	0.00	0.00	18.50	3.20	0.83	0.50
5.50	0.22	0.00	0.00	18.75	3.21	0.84	0.48
5.75	0.23	0.00	0.00	19.00	3.23	0.84	0.47
6.00	0.25	0.00	0.00	19.25	3.24	0.85	0.46
6.25	0.26	0.00	0.00	19.50	3.25	0.86	0.45
6.50	0.28	0.00	0.00	19.75	3.26	0.86	0.44
6.75	0.29	0.00	0.00	20.00	3.27	0.87	0.42
7.00	0.31	0.00	0.00	20.25	3.28	0.88	0.41
7.25	0.33	0.00	0.00	20.50	3.29	0.88	0.40
7.50	0.35	0.00	0.00	20.75	3.31	0.89	0.40
7.75	0.37	0.00	0.00	21.00	3.32	0.90	0.39
8.00	0.39	0.00	0.00	21.25	3.33	0.90	0.38
8.25	0.41	0.00	0.00	21.50	3.34	0.91	0.37
8.50	0.44	0.00	0.00	21.75	3.34	0.91	0.36
8.75	0.47	0.00	0.00	22.00	3.35	0.92	0.36
9.00	0.50	0.00	0.00	22.25	3.36	0.92	0.35
9.25	0.53	0.00	0.00	22.50	3.37	0.93	0.34
9.50	0.57	0.00	0.00	22.75	3.38	0.94	0.33
9.75	0.61	0.00	0.00	23.00	3.39	0.94	0.32
10.00	0.65	0.00	0.00	23.25	3.40	0.95	0.31
10.25	0.69	0.00	0.00	23.50	3.40	0.95	0.31
10.50	0.74	0.00	0.00	23.75	3.41	0.95	0.30
10.75	0.80	0.00	0.00	24.00	3.42	0.96	0.29
11.00	0.85	0.00	0.00				
11.25	0.93	0.00	0.00				
11.50	1.02	0.01	0.06				
11.75	1.21	0.03	0.25				
12.00	1.71	0.14	1.14				
12.25	2.21	0.32	5.28				
12.50	2.40	0.41	8.59				
12.75	2.49	0.45	6.49				
13.00	2.56	0.49	4.03				

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 1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>1.33"
Tc=45.9 min CN=60 Runoff=3.05 cfs 0.520 af

Subcatchment 1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>1.40"
Tc=45.5 min CN=61 Runoff=7.34 cfs 1.229 af

Subcatchment 1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>1.33"
Tc=37.9 min CN=60 Runoff=6.18 cfs 0.953 af

Subcatchment 2: Runoff Area=4.800 ac 0.00% Impervious Runoff Depth>2.09"
Tc=22.6 min CN=70 Runoff=7.37 cfs 0.834 af

Subcatchment 4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>1.55"
Tc=25.7 min CN=63 Runoff=9.30 cfs 1.164 af

Subcatchment 5: Runoff Area=15.230 ac 0.00% Impervious Runoff Depth>2.08"
Tc=32.0 min CN=70 Runoff=20.10 cfs 2.640 af

Total Runoff Area = 52.860 ac Runoff Volume = 7.340 af Average Runoff Depth = 1.67"
100.00% Pervious = 52.860 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

Runoff = 3.05 cfs @ 12.70 hrs, Volume= 0.520 af, Depth> 1.33"

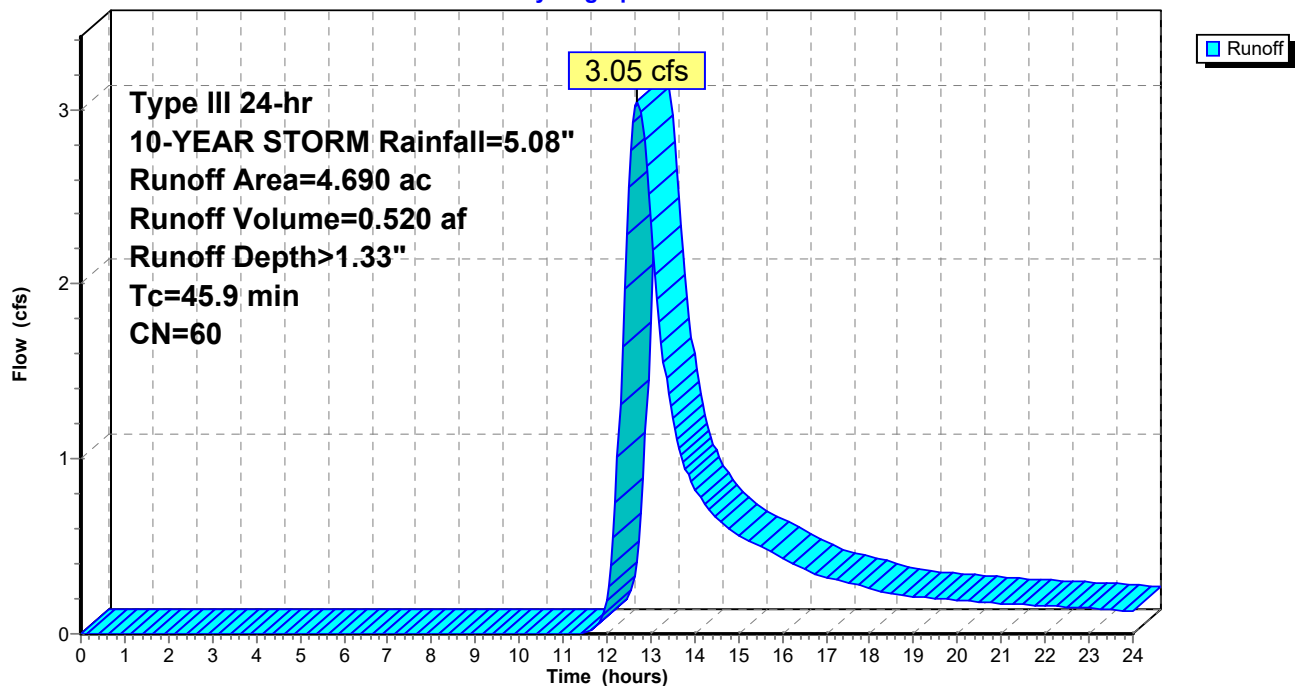
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 4.690	60	
4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9					Direct Entry, SCS TR-55

Subcatchment 1A:

Hydrograph



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	0.71	1.66
0.25	0.01	0.00	0.00	13.50	3.98	0.75	1.23
0.50	0.03	0.00	0.00	13.75	4.05	0.79	0.98
0.75	0.04	0.00	0.00	14.00	4.12	0.82	0.84
1.00	0.05	0.00	0.00	14.25	4.18	0.85	0.74
1.25	0.06	0.00	0.00	14.50	4.24	0.88	0.66
1.50	0.08	0.00	0.00	14.75	4.29	0.91	0.61
1.75	0.09	0.00	0.00	15.00	4.34	0.93	0.57
2.00	0.10	0.00	0.00	15.25	4.39	0.96	0.53
2.25	0.11	0.00	0.00	15.50	4.43	0.98	0.50
2.50	0.13	0.00	0.00	15.75	4.47	1.00	0.47
2.75	0.14	0.00	0.00	16.00	4.50	1.02	0.43
3.00	0.16	0.00	0.00	16.25	4.53	1.04	0.40
3.25	0.17	0.00	0.00	16.50	4.56	1.05	0.37
3.50	0.19	0.00	0.00	16.75	4.59	1.07	0.34
3.75	0.20	0.00	0.00	17.00	4.62	1.09	0.32
4.00	0.22	0.00	0.00	17.25	4.65	1.10	0.31
4.25	0.24	0.00	0.00	17.50	4.67	1.11	0.29
4.50	0.25	0.00	0.00	17.75	4.69	1.13	0.28
4.75	0.27	0.00	0.00	18.00	4.71	1.14	0.26
5.00	0.29	0.00	0.00	18.25	4.73	1.15	0.24
5.25	0.31	0.00	0.00	18.50	4.75	1.16	0.23
5.50	0.33	0.00	0.00	18.75	4.77	1.17	0.22
5.75	0.35	0.00	0.00	19.00	4.79	1.18	0.21
6.00	0.37	0.00	0.00	19.25	4.81	1.19	0.21
6.25	0.39	0.00	0.00	19.50	4.83	1.20	0.20
6.50	0.41	0.00	0.00	19.75	4.84	1.21	0.20
6.75	0.43	0.00	0.00	20.00	4.86	1.22	0.19
7.00	0.46	0.00	0.00	20.25	4.88	1.23	0.19
7.25	0.49	0.00	0.00	20.50	4.89	1.24	0.18
7.50	0.52	0.00	0.00	20.75	4.91	1.25	0.18
7.75	0.55	0.00	0.00	21.00	4.92	1.26	0.17
8.00	0.58	0.00	0.00	21.25	4.94	1.27	0.17
8.25	0.61	0.00	0.00	21.50	4.95	1.27	0.17
8.50	0.65	0.00	0.00	21.75	4.97	1.28	0.16
8.75	0.69	0.00	0.00	22.00	4.98	1.29	0.16
9.00	0.74	0.00	0.00	22.25	5.00	1.30	0.16
9.25	0.79	0.00	0.00	22.50	5.01	1.31	0.15
9.50	0.84	0.00	0.00	22.75	5.02	1.31	0.15
9.75	0.90	0.00	0.00	23.00	5.03	1.32	0.15
10.00	0.96	0.00	0.00	23.25	5.05	1.33	0.14
10.25	1.03	0.00	0.00	23.50	5.06	1.33	0.14
10.50	1.10	0.00	0.00	23.75	5.07	1.34	0.13
10.75	1.18	0.00	0.00	24.00	5.08	1.35	0.13
11.00	1.27	0.00	0.00				
11.25	1.38	0.00	0.00				
11.50	1.51	0.00	0.00				
11.75	1.80	0.03	0.03				
12.00	2.54	0.18	0.19				
12.25	3.28	0.44	1.01				
12.50	3.57	0.56	2.56				
12.75	3.70	0.62	3.02				
13.00	3.81	0.67	2.36				

Summary for Subcatchment 1B:

Runoff = 7.34 cfs @ 12.69 hrs, Volume= 1.229 af, Depth> 1.40"

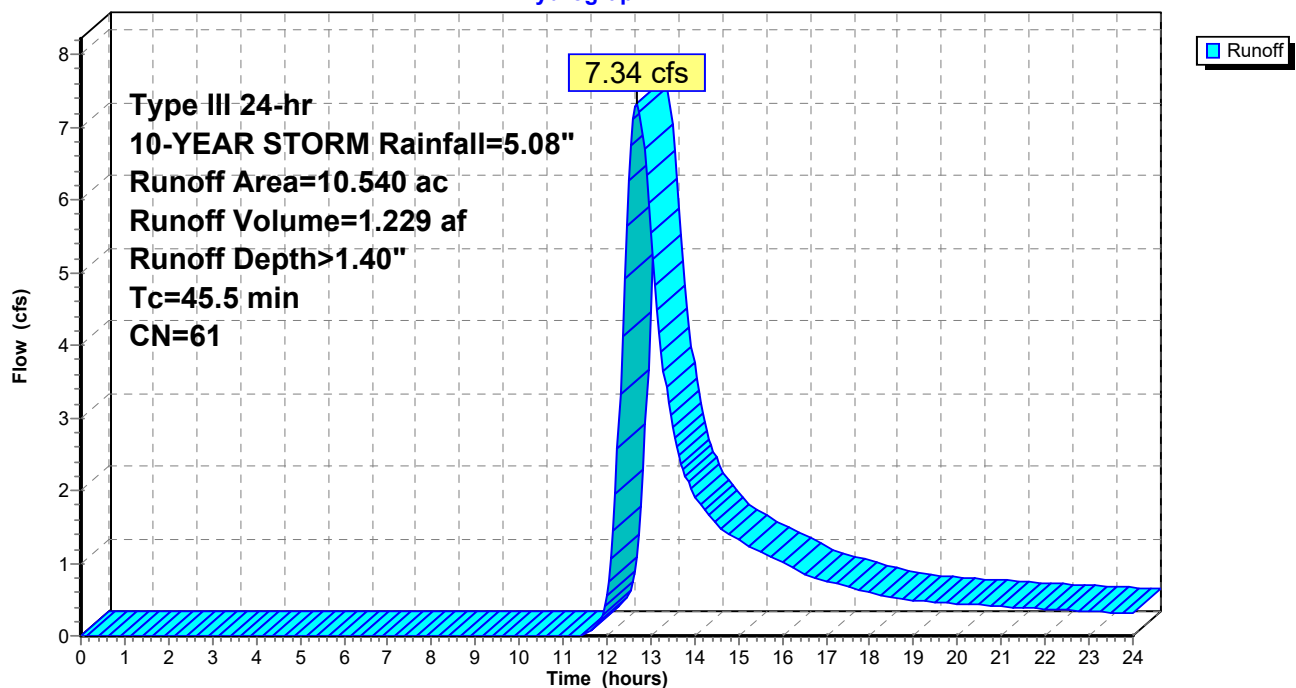
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 10.540	61	
10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.5					Direct Entry, SCS TR-55

Subcatchment 1B:

Hydrograph



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	0.76	3.90
0.25	0.01	0.00	0.00	13.50	3.98	0.80	2.87
0.50	0.03	0.00	0.00	13.75	4.05	0.84	2.28
0.75	0.04	0.00	0.00	14.00	4.12	0.87	1.94
1.00	0.05	0.00	0.00	14.25	4.18	0.91	1.71
1.25	0.06	0.00	0.00	14.50	4.24	0.94	1.54
1.50	0.08	0.00	0.00	14.75	4.29	0.96	1.41
1.75	0.09	0.00	0.00	15.00	4.34	0.99	1.31
2.00	0.10	0.00	0.00	15.25	4.39	1.02	1.23
2.25	0.11	0.00	0.00	15.50	4.43	1.04	1.16
2.50	0.13	0.00	0.00	15.75	4.47	1.06	1.08
2.75	0.14	0.00	0.00	16.00	4.50	1.08	1.01
3.00	0.16	0.00	0.00	16.25	4.53	1.10	0.93
3.25	0.17	0.00	0.00	16.50	4.56	1.12	0.86
3.50	0.19	0.00	0.00	16.75	4.59	1.13	0.80
3.75	0.20	0.00	0.00	17.00	4.62	1.15	0.75
4.00	0.22	0.00	0.00	17.25	4.65	1.16	0.71
4.25	0.24	0.00	0.00	17.50	4.67	1.18	0.67
4.50	0.25	0.00	0.00	17.75	4.69	1.19	0.64
4.75	0.27	0.00	0.00	18.00	4.71	1.20	0.60
5.00	0.29	0.00	0.00	18.25	4.73	1.21	0.57
5.25	0.31	0.00	0.00	18.50	4.75	1.22	0.53
5.50	0.33	0.00	0.00	18.75	4.77	1.23	0.51
5.75	0.35	0.00	0.00	19.00	4.79	1.25	0.49
6.00	0.37	0.00	0.00	19.25	4.81	1.26	0.48
6.25	0.39	0.00	0.00	19.50	4.83	1.27	0.47
6.50	0.41	0.00	0.00	19.75	4.84	1.28	0.46
6.75	0.43	0.00	0.00	20.00	4.86	1.29	0.44
7.00	0.46	0.00	0.00	20.25	4.88	1.30	0.43
7.25	0.49	0.00	0.00	20.50	4.89	1.31	0.42
7.50	0.52	0.00	0.00	20.75	4.91	1.32	0.41
7.75	0.55	0.00	0.00	21.00	4.92	1.32	0.40
8.00	0.58	0.00	0.00	21.25	4.94	1.33	0.40
8.25	0.61	0.00	0.00	21.50	4.95	1.34	0.39
8.50	0.65	0.00	0.00	21.75	4.97	1.35	0.38
8.75	0.69	0.00	0.00	22.00	4.98	1.36	0.37
9.00	0.74	0.00	0.00	22.25	5.00	1.37	0.36
9.25	0.79	0.00	0.00	22.50	5.01	1.37	0.35
9.50	0.84	0.00	0.00	22.75	5.02	1.38	0.35
9.75	0.90	0.00	0.00	23.00	5.03	1.39	0.34
10.00	0.96	0.00	0.00	23.25	5.05	1.40	0.33
10.25	1.03	0.00	0.00	23.50	5.06	1.40	0.32
10.50	1.10	0.00	0.00	23.75	5.07	1.41	0.31
10.75	1.18	0.00	0.00	24.00	5.08	1.42	0.30
11.00	1.27	0.00	0.00				
11.25	1.38	0.00	0.00				
11.50	1.51	0.01	0.02				
11.75	1.80	0.04	0.12				
12.00	2.54	0.21	0.55				
12.25	3.28	0.48	2.59				
12.50	3.57	0.60	6.27				
12.75	3.70	0.67	7.25				
13.00	3.81	0.72	5.56				

Summary for Subcatchment 1C:

Runoff = 6.18 cfs @ 12.59 hrs, Volume= 0.953 af, Depth> 1.33"

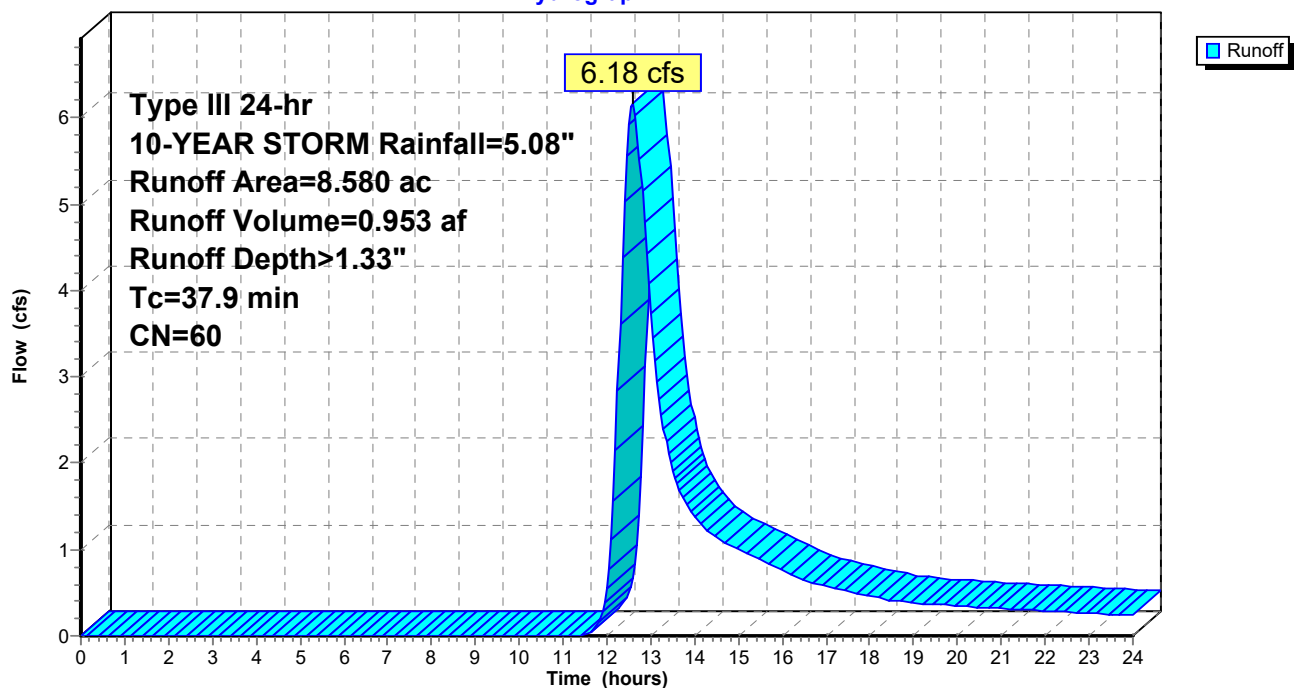
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 8.580	60	
8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.9					Direct Entry, SCS TR-55

Subcatchment 1C:

Hydrograph



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	0.71	2.55
0.25	0.01	0.00	0.00	13.50	3.98	0.75	1.91
0.50	0.03	0.00	0.00	13.75	4.05	0.79	1.59
0.75	0.04	0.00	0.00	14.00	4.12	0.82	1.39
1.00	0.05	0.00	0.00	14.25	4.18	0.85	1.25
1.25	0.06	0.00	0.00	14.50	4.24	0.88	1.14
1.50	0.08	0.00	0.00	14.75	4.29	0.91	1.06
1.75	0.09	0.00	0.00	15.00	4.34	0.93	1.00
2.00	0.10	0.00	0.00	15.25	4.39	0.96	0.94
2.25	0.11	0.00	0.00	15.50	4.43	0.98	0.88
2.50	0.13	0.00	0.00	15.75	4.47	1.00	0.82
2.75	0.14	0.00	0.00	16.00	4.50	1.02	0.76
3.00	0.16	0.00	0.00	16.25	4.53	1.04	0.70
3.25	0.17	0.00	0.00	16.50	4.56	1.05	0.65
3.50	0.19	0.00	0.00	16.75	4.59	1.07	0.61
3.75	0.20	0.00	0.00	17.00	4.62	1.09	0.58
4.00	0.22	0.00	0.00	17.25	4.65	1.10	0.55
4.25	0.24	0.00	0.00	17.50	4.67	1.11	0.52
4.50	0.25	0.00	0.00	17.75	4.69	1.13	0.49
4.75	0.27	0.00	0.00	18.00	4.71	1.14	0.46
5.00	0.29	0.00	0.00	18.25	4.73	1.15	0.43
5.25	0.31	0.00	0.00	18.50	4.75	1.16	0.41
5.50	0.33	0.00	0.00	18.75	4.77	1.17	0.39
5.75	0.35	0.00	0.00	19.00	4.79	1.18	0.38
6.00	0.37	0.00	0.00	19.25	4.81	1.19	0.37
6.25	0.39	0.00	0.00	19.50	4.83	1.20	0.36
6.50	0.41	0.00	0.00	19.75	4.84	1.21	0.36
6.75	0.43	0.00	0.00	20.00	4.86	1.22	0.35
7.00	0.46	0.00	0.00	20.25	4.88	1.23	0.34
7.25	0.49	0.00	0.00	20.50	4.89	1.24	0.33
7.50	0.52	0.00	0.00	20.75	4.91	1.25	0.32
7.75	0.55	0.00	0.00	21.00	4.92	1.26	0.32
8.00	0.58	0.00	0.00	21.25	4.94	1.27	0.31
8.25	0.61	0.00	0.00	21.50	4.95	1.27	0.30
8.50	0.65	0.00	0.00	21.75	4.97	1.28	0.30
8.75	0.69	0.00	0.00	22.00	4.98	1.29	0.29
9.00	0.74	0.00	0.00	22.25	5.00	1.30	0.28
9.25	0.79	0.00	0.00	22.50	5.01	1.31	0.28
9.50	0.84	0.00	0.00	22.75	5.02	1.31	0.27
9.75	0.90	0.00	0.00	23.00	5.03	1.32	0.26
10.00	0.96	0.00	0.00	23.25	5.05	1.33	0.26
10.25	1.03	0.00	0.00	23.50	5.06	1.33	0.25
10.50	1.10	0.00	0.00	23.75	5.07	1.34	0.24
10.75	1.18	0.00	0.00	24.00	5.08	1.35	0.24
11.00	1.27	0.00	0.00				
11.25	1.38	0.00	0.00				
11.50	1.51	0.00	0.01				
11.75	1.80	0.03	0.09				
12.00	2.54	0.18	0.55				
12.25	3.28	0.44	2.85				
12.50	3.57	0.56	5.93				
12.75	3.70	0.62	5.52				
13.00	3.81	0.67	3.74				

Summary for Subcatchment 2:

Runoff = 7.37 cfs @ 12.33 hrs, Volume= 0.834 af, Depth> 2.09"

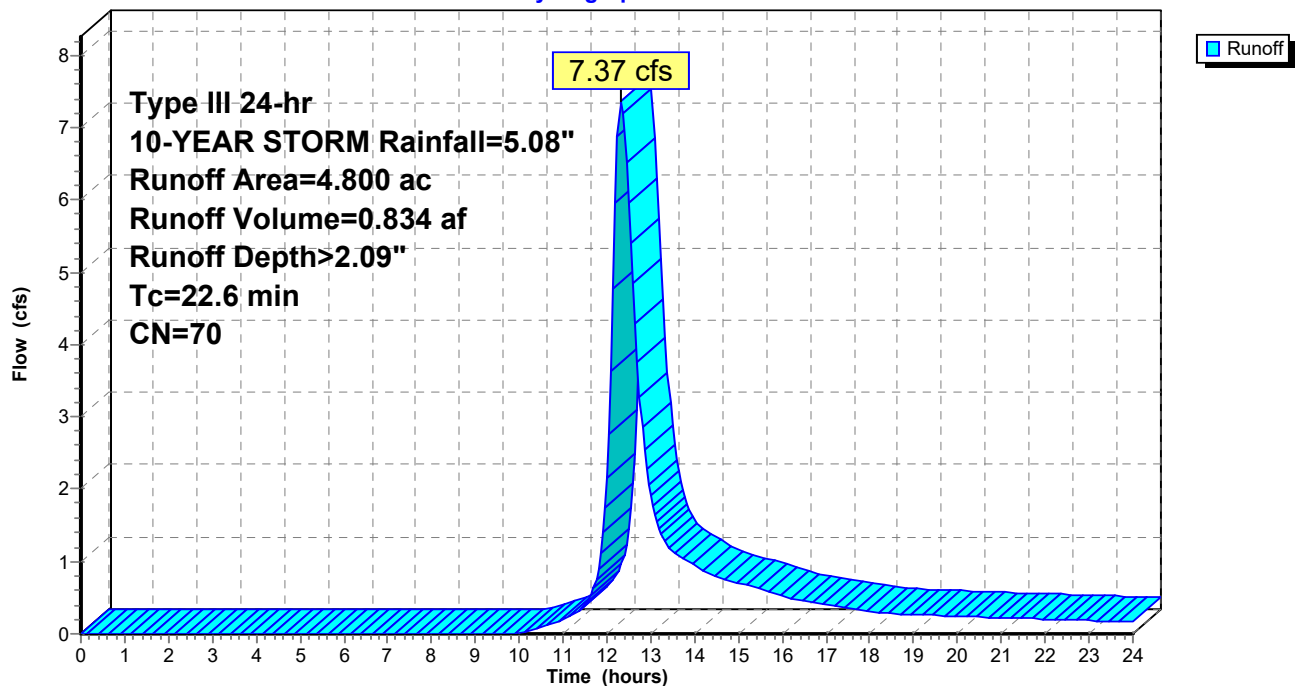
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 4.800	70	
4.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6					Direct Entry, SCS TR-55

Subcatchment 2:

Hydrograph



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	1.26	1.37
0.25	0.01	0.00	0.00	13.50	3.98	1.32	1.15
0.50	0.03	0.00	0.00	13.75	4.05	1.37	1.04
0.75	0.04	0.00	0.00	14.00	4.12	1.41	0.94
1.00	0.05	0.00	0.00	14.25	4.18	1.45	0.86
1.25	0.06	0.00	0.00	14.50	4.24	1.49	0.80
1.50	0.08	0.00	0.00	14.75	4.29	1.53	0.75
1.75	0.09	0.00	0.00	15.00	4.34	1.56	0.70
2.00	0.10	0.00	0.00	15.25	4.39	1.59	0.66
2.25	0.11	0.00	0.00	15.50	4.43	1.62	0.61
2.50	0.13	0.00	0.00	15.75	4.47	1.65	0.57
2.75	0.14	0.00	0.00	16.00	4.50	1.67	0.52
3.00	0.16	0.00	0.00	16.25	4.53	1.70	0.47
3.25	0.17	0.00	0.00	16.50	4.56	1.72	0.44
3.50	0.19	0.00	0.00	16.75	4.59	1.74	0.42
3.75	0.20	0.00	0.00	17.00	4.62	1.76	0.40
4.00	0.22	0.00	0.00	17.25	4.65	1.78	0.38
4.25	0.24	0.00	0.00	17.50	4.67	1.80	0.36
4.50	0.25	0.00	0.00	17.75	4.69	1.81	0.34
4.75	0.27	0.00	0.00	18.00	4.71	1.83	0.31
5.00	0.29	0.00	0.00	18.25	4.73	1.84	0.29
5.25	0.31	0.00	0.00	18.50	4.75	1.86	0.28
5.50	0.33	0.00	0.00	18.75	4.77	1.87	0.27
5.75	0.35	0.00	0.00	19.00	4.79	1.88	0.27
6.00	0.37	0.00	0.00	19.25	4.81	1.90	0.26
6.25	0.39	0.00	0.00	19.50	4.83	1.91	0.26
6.50	0.41	0.00	0.00	19.75	4.84	1.92	0.25
6.75	0.43	0.00	0.00	20.00	4.86	1.93	0.24
7.00	0.46	0.00	0.00	20.25	4.88	1.95	0.24
7.25	0.49	0.00	0.00	20.50	4.89	1.96	0.23
7.50	0.52	0.00	0.00	20.75	4.91	1.97	0.23
7.75	0.55	0.00	0.00	21.00	4.92	1.98	0.22
8.00	0.58	0.00	0.00	21.25	4.94	1.99	0.22
8.25	0.61	0.00	0.00	21.50	4.95	2.00	0.21
8.50	0.65	0.00	0.00	21.75	4.97	2.01	0.21
8.75	0.69	0.00	0.00	22.00	4.98	2.02	0.20
9.00	0.74	0.00	0.00	22.25	5.00	2.03	0.20
9.25	0.79	0.00	0.00	22.50	5.01	2.04	0.19
9.50	0.84	0.00	0.00	22.75	5.02	2.05	0.19
9.75	0.90	0.00	0.00	23.00	5.03	2.06	0.18
10.00	0.96	0.00	0.01	23.25	5.05	2.07	0.18
10.25	1.03	0.01	0.04	23.50	5.06	2.08	0.17
10.50	1.10	0.01	0.08	23.75	5.07	2.09	0.17
10.75	1.18	0.02	0.14	24.00	5.08	2.10	0.16
11.00	1.27	0.04	0.20				
11.25	1.38	0.06	0.28				
11.50	1.51	0.09	0.42				
11.75	1.80	0.17	0.74				
12.00	2.54	0.47	2.16				
12.25	3.28	0.87	6.87				
12.50	3.57	1.05	5.97				
12.75	3.70	1.14	3.28				
13.00	3.81	1.20	1.90				

Summary for Subcatchment 4:

Runoff = 9.30 cfs @ 12.39 hrs, Volume= 1.164 af, Depth> 1.55"

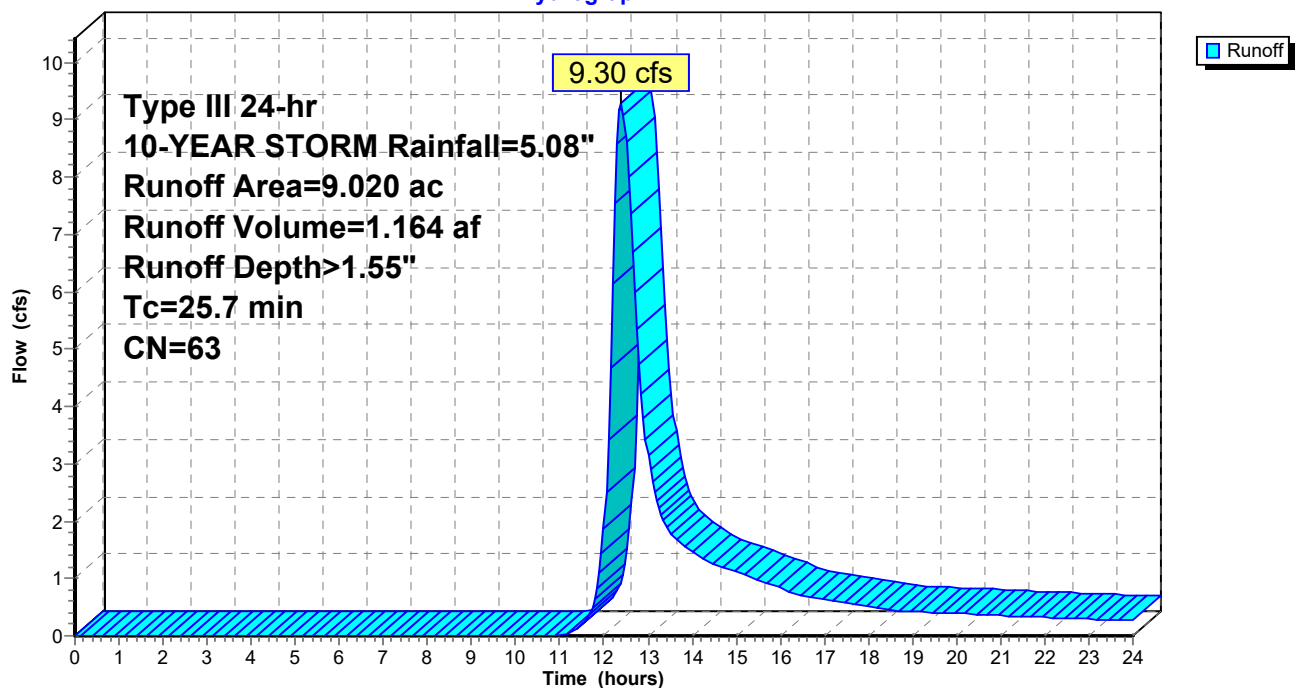
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 9.020	63	
9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7					Direct Entry, SCS TR-55

Subcatchment 4:

Hydrograph



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	0.86	2.22
0.25	0.01	0.00	0.00	13.50	3.98	0.91	1.81
0.50	0.03	0.00	0.00	13.75	4.05	0.95	1.62
0.75	0.04	0.00	0.00	14.00	4.12	0.98	1.48
1.00	0.05	0.00	0.00	14.25	4.18	1.02	1.34
1.25	0.06	0.00	0.00	14.50	4.24	1.05	1.25
1.50	0.08	0.00	0.00	14.75	4.29	1.08	1.17
1.75	0.09	0.00	0.00	15.00	4.34	1.11	1.11
2.00	0.10	0.00	0.00	15.25	4.39	1.13	1.04
2.25	0.11	0.00	0.00	15.50	4.43	1.16	0.97
2.50	0.13	0.00	0.00	15.75	4.47	1.18	0.90
2.75	0.14	0.00	0.00	16.00	4.50	1.20	0.83
3.00	0.16	0.00	0.00	16.25	4.53	1.22	0.76
3.25	0.17	0.00	0.00	16.50	4.56	1.24	0.71
3.50	0.19	0.00	0.00	16.75	4.59	1.26	0.67
3.75	0.20	0.00	0.00	17.00	4.62	1.27	0.64
4.00	0.22	0.00	0.00	17.25	4.65	1.29	0.60
4.25	0.24	0.00	0.00	17.50	4.67	1.30	0.57
4.50	0.25	0.00	0.00	17.75	4.69	1.32	0.54
4.75	0.27	0.00	0.00	18.00	4.71	1.33	0.51
5.00	0.29	0.00	0.00	18.25	4.73	1.34	0.47
5.25	0.31	0.00	0.00	18.50	4.75	1.36	0.45
5.50	0.33	0.00	0.00	18.75	4.77	1.37	0.44
5.75	0.35	0.00	0.00	19.00	4.79	1.38	0.43
6.00	0.37	0.00	0.00	19.25	4.81	1.39	0.42
6.25	0.39	0.00	0.00	19.50	4.83	1.40	0.41
6.50	0.41	0.00	0.00	19.75	4.84	1.41	0.40
6.75	0.43	0.00	0.00	20.00	4.86	1.42	0.39
7.00	0.46	0.00	0.00	20.25	4.88	1.43	0.38
7.25	0.49	0.00	0.00	20.50	4.89	1.44	0.37
7.50	0.52	0.00	0.00	20.75	4.91	1.45	0.36
7.75	0.55	0.00	0.00	21.00	4.92	1.46	0.36
8.00	0.58	0.00	0.00	21.25	4.94	1.47	0.35
8.25	0.61	0.00	0.00	21.50	4.95	1.48	0.34
8.50	0.65	0.00	0.00	21.75	4.97	1.49	0.33
8.75	0.69	0.00	0.00	22.00	4.98	1.50	0.33
9.00	0.74	0.00	0.00	22.25	5.00	1.51	0.32
9.25	0.79	0.00	0.00	22.50	5.01	1.51	0.31
9.50	0.84	0.00	0.00	22.75	5.02	1.52	0.30
9.75	0.90	0.00	0.00	23.00	5.03	1.53	0.30
10.00	0.96	0.00	0.00	23.25	5.05	1.54	0.29
10.25	1.03	0.00	0.00	23.50	5.06	1.55	0.28
10.50	1.10	0.00	0.00	23.75	5.07	1.55	0.27
10.75	1.18	0.00	0.00	24.00	5.08	1.56	0.26
11.00	1.27	0.00	0.01				
11.25	1.38	0.01	0.06				
11.50	1.51	0.02	0.20				
11.75	1.80	0.06	0.50				
12.00	2.54	0.26	1.87				
12.25	3.28	0.55	7.54				
12.50	3.57	0.69	8.61				
12.75	3.70	0.76	5.33				
13.00	3.81	0.82	3.13				

Summary for Subcatchment 5:

Runoff = 20.10 cfs @ 12.47 hrs, Volume= 2.640 af, Depth> 2.08"

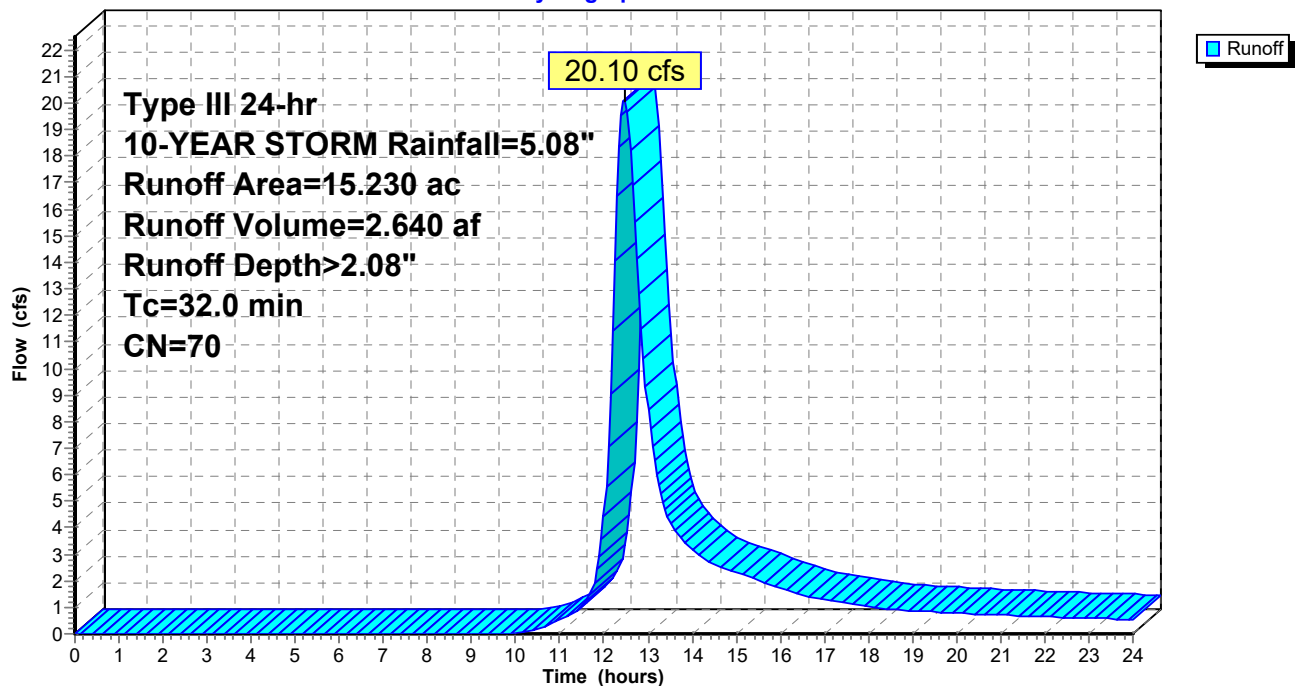
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 15.230	70	
15.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.0					Direct Entry, SCS TR-55

Subcatchment 5:

Hydrograph



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	1.26	5.62
0.25	0.01	0.00	0.00	13.50	3.98	1.32	4.25
0.50	0.03	0.00	0.00	13.75	4.05	1.37	3.59
0.75	0.04	0.00	0.00	14.00	4.12	1.41	3.19
1.00	0.05	0.00	0.00	14.25	4.18	1.45	2.88
1.25	0.06	0.00	0.00	14.50	4.24	1.49	2.64
1.50	0.08	0.00	0.00	14.75	4.29	1.53	2.47
1.75	0.09	0.00	0.00	15.00	4.34	1.56	2.32
2.00	0.10	0.00	0.00	15.25	4.39	1.59	2.18
2.25	0.11	0.00	0.00	15.50	4.43	1.62	2.03
2.50	0.13	0.00	0.00	15.75	4.47	1.65	1.88
2.75	0.14	0.00	0.00	16.00	4.50	1.67	1.74
3.00	0.16	0.00	0.00	16.25	4.53	1.70	1.59
3.25	0.17	0.00	0.00	16.50	4.56	1.72	1.46
3.50	0.19	0.00	0.00	16.75	4.59	1.74	1.38
3.75	0.20	0.00	0.00	17.00	4.62	1.76	1.31
4.00	0.22	0.00	0.00	17.25	4.65	1.78	1.24
4.25	0.24	0.00	0.00	17.50	4.67	1.80	1.17
4.50	0.25	0.00	0.00	17.75	4.69	1.81	1.11
4.75	0.27	0.00	0.00	18.00	4.71	1.83	1.04
5.00	0.29	0.00	0.00	18.25	4.73	1.84	0.97
5.25	0.31	0.00	0.00	18.50	4.75	1.86	0.92
5.50	0.33	0.00	0.00	18.75	4.77	1.87	0.89
5.75	0.35	0.00	0.00	19.00	4.79	1.88	0.86
6.00	0.37	0.00	0.00	19.25	4.81	1.90	0.84
6.25	0.39	0.00	0.00	19.50	4.83	1.91	0.82
6.50	0.41	0.00	0.00	19.75	4.84	1.92	0.80
6.75	0.43	0.00	0.00	20.00	4.86	1.93	0.78
7.00	0.46	0.00	0.00	20.25	4.88	1.95	0.76
7.25	0.49	0.00	0.00	20.50	4.89	1.96	0.74
7.50	0.52	0.00	0.00	20.75	4.91	1.97	0.73
7.75	0.55	0.00	0.00	21.00	4.92	1.98	0.71
8.00	0.58	0.00	0.00	21.25	4.94	1.99	0.70
8.25	0.61	0.00	0.00	21.50	4.95	2.00	0.68
8.50	0.65	0.00	0.00	21.75	4.97	2.01	0.67
8.75	0.69	0.00	0.00	22.00	4.98	2.02	0.65
9.00	0.74	0.00	0.00	22.25	5.00	2.03	0.64
9.25	0.79	0.00	0.00	22.50	5.01	2.04	0.62
9.50	0.84	0.00	0.00	22.75	5.02	2.05	0.60
9.75	0.90	0.00	0.00	23.00	5.03	2.06	0.59
10.00	0.96	0.00	0.02	23.25	5.05	2.07	0.57
10.25	1.03	0.01	0.09	23.50	5.06	2.08	0.56
10.50	1.10	0.01	0.20	23.75	5.07	2.09	0.54
10.75	1.18	0.02	0.34	24.00	5.08	2.10	0.53
11.00	1.27	0.04	0.52				
11.25	1.38	0.06	0.74				
11.50	1.51	0.09	1.08				
11.75	1.80	0.17	1.76				
12.00	2.54	0.47	4.39				
12.25	3.28	0.87	14.05				
12.50	3.57	1.05	19.98				
12.75	3.70	1.14	14.14				
13.00	3.81	1.20	8.45				

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 1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>1.97"
Tc=45.9 min CN=60 Runoff=4.74 cfs 0.770 af

Subcatchment 1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>2.05"
Tc=45.5 min CN=61 Runoff=11.24 cfs 1.804 af

Subcatchment 1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>1.97"
Tc=37.9 min CN=60 Runoff=9.59 cfs 1.411 af

Subcatchment 2: Runoff Area=4.800 ac 0.00% Impervious Runoff Depth>2.88"
Tc=22.6 min CN=70 Runoff=10.33 cfs 1.152 af

Subcatchment 4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>2.24"
Tc=25.7 min CN=63 Runoff=13.90 cfs 1.683 af

Subcatchment 5: Runoff Area=15.230 ac 0.00% Impervious Runoff Depth>2.87"
Tc=32.0 min CN=70 Runoff=28.09 cfs 3.646 af

Total Runoff Area = 52.860 ac Runoff Volume = 10.466 af Average Runoff Depth = 2.38"
100.00% Pervious = 52.860 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

Runoff = 4.74 cfs @ 12.68 hrs, Volume= 0.770 af, Depth> 1.97"

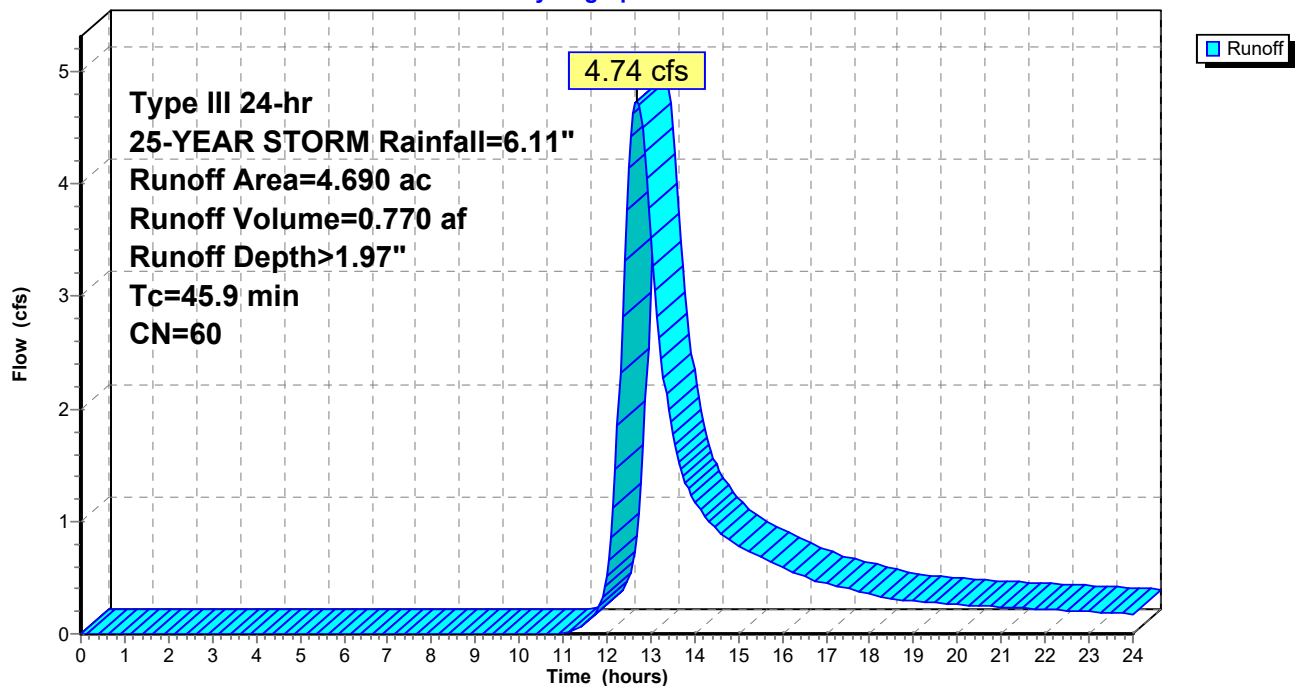
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 4.690	60	
4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9					Direct Entry, SCS TR-55

Subcatchment 1A:

Hydrograph



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	1.12	2.44
0.25	0.02	0.00	0.00	13.50	4.79	1.18	1.78
0.50	0.03	0.00	0.00	13.75	4.88	1.23	1.40
0.75	0.05	0.00	0.00	14.00	4.96	1.28	1.18
1.00	0.06	0.00	0.00	14.25	5.03	1.32	1.03
1.25	0.08	0.00	0.00	14.50	5.10	1.36	0.92
1.50	0.09	0.00	0.00	14.75	5.16	1.40	0.84
1.75	0.11	0.00	0.00	15.00	5.22	1.43	0.78
2.00	0.12	0.00	0.00	15.25	5.27	1.46	0.74
2.25	0.14	0.00	0.00	15.50	5.33	1.50	0.69
2.50	0.15	0.00	0.00	15.75	5.37	1.52	0.64
2.75	0.17	0.00	0.00	16.00	5.41	1.55	0.60
3.00	0.19	0.00	0.00	16.25	5.45	1.57	0.55
3.25	0.21	0.00	0.00	16.50	5.49	1.60	0.51
3.50	0.22	0.00	0.00	16.75	5.52	1.62	0.47
3.75	0.24	0.00	0.00	17.00	5.56	1.64	0.44
4.00	0.26	0.00	0.00	17.25	5.59	1.66	0.42
4.25	0.28	0.00	0.00	17.50	5.62	1.68	0.40
4.50	0.30	0.00	0.00	17.75	5.64	1.69	0.38
4.75	0.32	0.00	0.00	18.00	5.67	1.71	0.35
5.00	0.35	0.00	0.00	18.25	5.69	1.72	0.33
5.25	0.37	0.00	0.00	18.50	5.72	1.74	0.31
5.50	0.39	0.00	0.00	18.75	5.74	1.75	0.30
5.75	0.42	0.00	0.00	19.00	5.76	1.77	0.29
6.00	0.44	0.00	0.00	19.25	5.79	1.78	0.28
6.25	0.47	0.00	0.00	19.50	5.81	1.80	0.27
6.50	0.49	0.00	0.00	19.75	5.83	1.81	0.27
6.75	0.52	0.00	0.00	20.00	5.85	1.82	0.26
7.00	0.55	0.00	0.00	20.25	5.87	1.84	0.25
7.25	0.59	0.00	0.00	20.50	5.89	1.85	0.25
7.50	0.62	0.00	0.00	20.75	5.90	1.86	0.24
7.75	0.66	0.00	0.00	21.00	5.92	1.87	0.24
8.00	0.70	0.00	0.00	21.25	5.94	1.88	0.23
8.25	0.74	0.00	0.00	21.50	5.96	1.89	0.23
8.50	0.78	0.00	0.00	21.75	5.98	1.91	0.22
8.75	0.84	0.00	0.00	22.00	5.99	1.92	0.22
9.00	0.89	0.00	0.00	22.25	6.01	1.93	0.21
9.25	0.95	0.00	0.00	22.50	6.02	1.94	0.21
9.50	1.01	0.00	0.00	22.75	6.04	1.95	0.20
9.75	1.08	0.00	0.00	23.00	6.05	1.96	0.20
10.00	1.15	0.00	0.00	23.25	6.07	1.97	0.19
10.25	1.23	0.00	0.00	23.50	6.08	1.98	0.19
10.50	1.32	0.00	0.00	23.75	6.10	1.99	0.18
10.75	1.42	0.00	0.00	24.00	6.11	1.99	0.18
11.00	1.53	0.01	0.01				
11.25	1.66	0.01	0.03				
11.50	1.82	0.03	0.09				
11.75	2.17	0.09	0.19				
12.00	3.05	0.35	0.52				
12.25	3.94	0.73	1.86				
12.50	4.29	0.91	4.14				
12.75	4.45	0.99	4.65				
13.00	4.58	1.06	3.52				

Summary for Subcatchment 1B:

Runoff = 11.24 cfs @ 12.67 hrs, Volume= 1.804 af, Depth> 2.05"

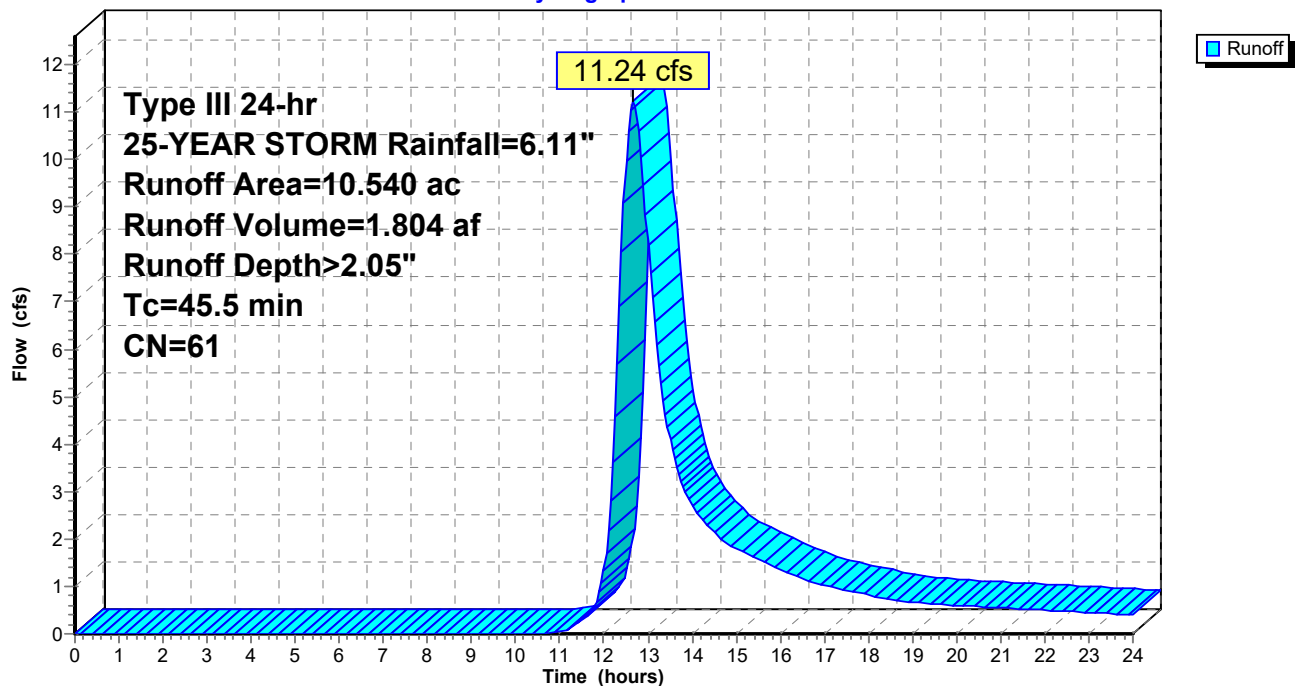
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 10.540	61	
10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.5					Direct Entry, SCS TR-55

Subcatchment 1B:

Hydrograph



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	1.19	5.65
0.25	0.02	0.00	0.00	13.50	4.79	1.24	4.11
0.50	0.03	0.00	0.00	13.75	4.88	1.30	3.22
0.75	0.05	0.00	0.00	14.00	4.96	1.34	2.72
1.00	0.06	0.00	0.00	14.25	5.03	1.39	2.38
1.25	0.08	0.00	0.00	14.50	5.10	1.43	2.13
1.50	0.09	0.00	0.00	14.75	5.16	1.47	1.94
1.75	0.11	0.00	0.00	15.00	5.22	1.50	1.81
2.00	0.12	0.00	0.00	15.25	5.27	1.54	1.70
2.25	0.14	0.00	0.00	15.50	5.33	1.57	1.59
2.50	0.15	0.00	0.00	15.75	5.37	1.60	1.48
2.75	0.17	0.00	0.00	16.00	5.41	1.62	1.38
3.00	0.19	0.00	0.00	16.25	5.45	1.65	1.27
3.25	0.21	0.00	0.00	16.50	5.49	1.67	1.17
3.50	0.22	0.00	0.00	16.75	5.52	1.69	1.09
3.75	0.24	0.00	0.00	17.00	5.56	1.72	1.02
4.00	0.26	0.00	0.00	17.25	5.59	1.74	0.97
4.25	0.28	0.00	0.00	17.50	5.62	1.75	0.92
4.50	0.30	0.00	0.00	17.75	5.64	1.77	0.87
4.75	0.32	0.00	0.00	18.00	5.67	1.79	0.81
5.00	0.35	0.00	0.00	18.25	5.69	1.80	0.77
5.25	0.37	0.00	0.00	18.50	5.72	1.82	0.72
5.50	0.39	0.00	0.00	18.75	5.74	1.83	0.69
5.75	0.42	0.00	0.00	19.00	5.76	1.85	0.66
6.00	0.44	0.00	0.00	19.25	5.79	1.86	0.65
6.25	0.47	0.00	0.00	19.50	5.81	1.88	0.63
6.50	0.49	0.00	0.00	19.75	5.83	1.89	0.61
6.75	0.52	0.00	0.00	20.00	5.85	1.90	0.60
7.00	0.55	0.00	0.00	20.25	5.87	1.92	0.58
7.25	0.59	0.00	0.00	20.50	5.89	1.93	0.57
7.50	0.62	0.00	0.00	20.75	5.90	1.94	0.56
7.75	0.66	0.00	0.00	21.00	5.92	1.95	0.54
8.00	0.70	0.00	0.00	21.25	5.94	1.97	0.53
8.25	0.74	0.00	0.00	21.50	5.96	1.98	0.52
8.50	0.78	0.00	0.00	21.75	5.98	1.99	0.51
8.75	0.84	0.00	0.00	22.00	5.99	2.00	0.50
9.00	0.89	0.00	0.00	22.25	6.01	2.01	0.49
9.25	0.95	0.00	0.00	22.50	6.02	2.02	0.48
9.50	1.01	0.00	0.00	22.75	6.04	2.03	0.46
9.75	1.08	0.00	0.00	23.00	6.05	2.04	0.45
10.00	1.15	0.00	0.00	23.25	6.07	2.05	0.44
10.25	1.23	0.00	0.00	23.50	6.08	2.06	0.43
10.50	1.32	0.00	0.00	23.75	6.10	2.07	0.42
10.75	1.42	0.00	0.01	24.00	6.11	2.08	0.41
11.00	1.53	0.01	0.04				
11.25	1.66	0.02	0.12				
11.50	1.82	0.04	0.27				
11.75	2.17	0.11	0.53				
12.00	3.05	0.39	1.34				
12.25	3.94	0.78	4.59				
12.50	4.29	0.96	9.96				
12.75	4.45	1.05	10.99				
13.00	4.58	1.13	8.21				

Summary for Subcatchment 1C:

Runoff = 9.59 cfs @ 12.57 hrs, Volume= 1.411 af, Depth> 1.97"

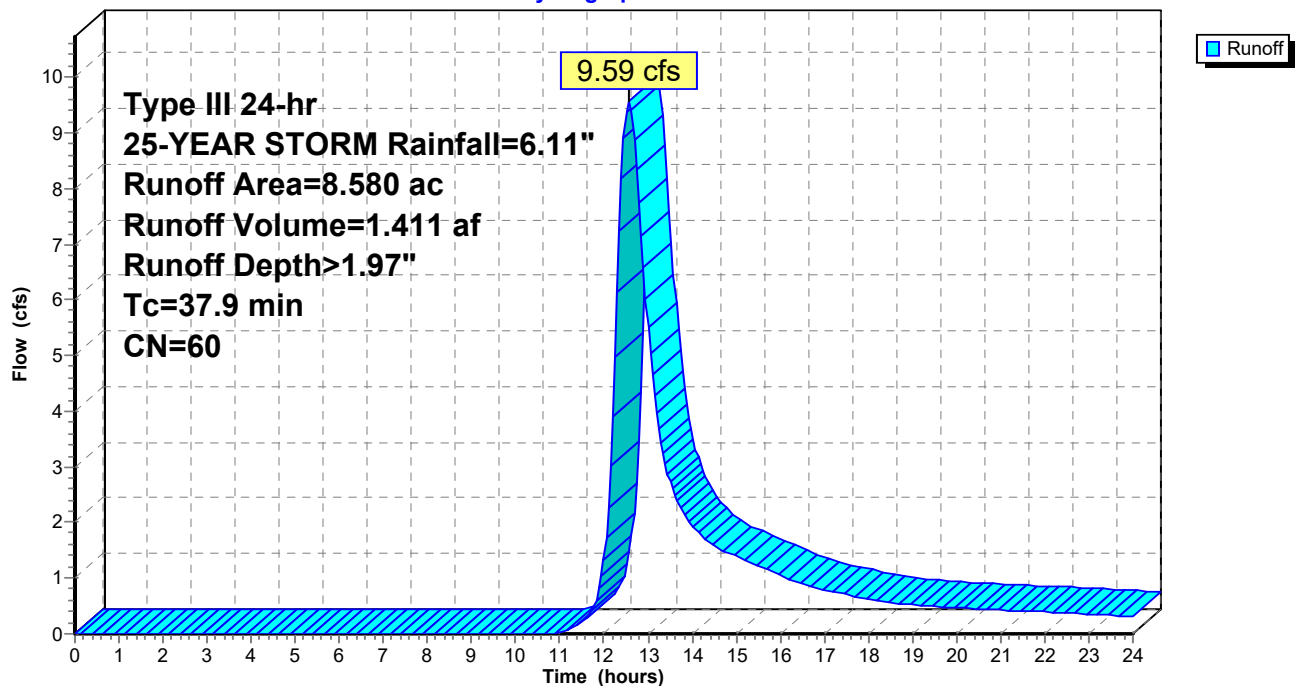
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 8.580	60	
8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.9					Direct Entry, SCS TR-55

Subcatchment 1C:

Hydrograph



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	1.12	3.69
0.25	0.02	0.00	0.00	13.50	4.79	1.18	2.73
0.50	0.03	0.00	0.00	13.75	4.88	1.23	2.24
0.75	0.05	0.00	0.00	14.00	4.96	1.28	1.95
1.00	0.06	0.00	0.00	14.25	5.03	1.32	1.74
1.25	0.08	0.00	0.00	14.50	5.10	1.36	1.58
1.50	0.09	0.00	0.00	14.75	5.16	1.40	1.47
1.75	0.11	0.00	0.00	15.00	5.22	1.43	1.38
2.00	0.12	0.00	0.00	15.25	5.27	1.46	1.30
2.25	0.14	0.00	0.00	15.50	5.33	1.50	1.22
2.50	0.15	0.00	0.00	15.75	5.37	1.52	1.13
2.75	0.17	0.00	0.00	16.00	5.41	1.55	1.05
3.00	0.19	0.00	0.00	16.25	5.45	1.57	0.96
3.25	0.21	0.00	0.00	16.50	5.49	1.60	0.89
3.50	0.22	0.00	0.00	16.75	5.52	1.62	0.83
3.75	0.24	0.00	0.00	17.00	5.56	1.64	0.79
4.00	0.26	0.00	0.00	17.25	5.59	1.66	0.75
4.25	0.28	0.00	0.00	17.50	5.62	1.68	0.71
4.50	0.30	0.00	0.00	17.75	5.64	1.69	0.67
4.75	0.32	0.00	0.00	18.00	5.67	1.71	0.63
5.00	0.35	0.00	0.00	18.25	5.69	1.72	0.59
5.25	0.37	0.00	0.00	18.50	5.72	1.74	0.56
5.50	0.39	0.00	0.00	18.75	5.74	1.75	0.53
5.75	0.42	0.00	0.00	19.00	5.76	1.77	0.52
6.00	0.44	0.00	0.00	19.25	5.79	1.78	0.51
6.25	0.47	0.00	0.00	19.50	5.81	1.80	0.49
6.50	0.49	0.00	0.00	19.75	5.83	1.81	0.48
6.75	0.52	0.00	0.00	20.00	5.85	1.82	0.47
7.00	0.55	0.00	0.00	20.25	5.87	1.84	0.46
7.25	0.59	0.00	0.00	20.50	5.89	1.85	0.45
7.50	0.62	0.00	0.00	20.75	5.90	1.86	0.44
7.75	0.66	0.00	0.00	21.00	5.92	1.87	0.43
8.00	0.70	0.00	0.00	21.25	5.94	1.88	0.42
8.25	0.74	0.00	0.00	21.50	5.96	1.89	0.41
8.50	0.78	0.00	0.00	21.75	5.98	1.91	0.40
8.75	0.84	0.00	0.00	22.00	5.99	1.92	0.39
9.00	0.89	0.00	0.00	22.25	6.01	1.93	0.38
9.25	0.95	0.00	0.00	22.50	6.02	1.94	0.37
9.50	1.01	0.00	0.00	22.75	6.04	1.95	0.37
9.75	1.08	0.00	0.00	23.00	6.05	1.96	0.36
10.00	1.15	0.00	0.00	23.25	6.07	1.97	0.35
10.25	1.23	0.00	0.00	23.50	6.08	1.98	0.34
10.50	1.32	0.00	0.00	23.75	6.10	1.99	0.33
10.75	1.42	0.00	0.00	24.00	6.11	1.99	0.32
11.00	1.53	0.01	0.02				
11.25	1.66	0.01	0.09				
11.50	1.82	0.03	0.21				
11.75	2.17	0.09	0.46				
12.00	3.05	0.35	1.34				
12.25	3.94	0.73	4.99				
12.50	4.29	0.91	9.37				
12.75	4.45	0.99	8.33				
13.00	4.58	1.06	5.51				

Summary for Subcatchment 2:

Runoff = 10.33 cfs @ 12.32 hrs, Volume= 1.152 af, Depth> 2.88"

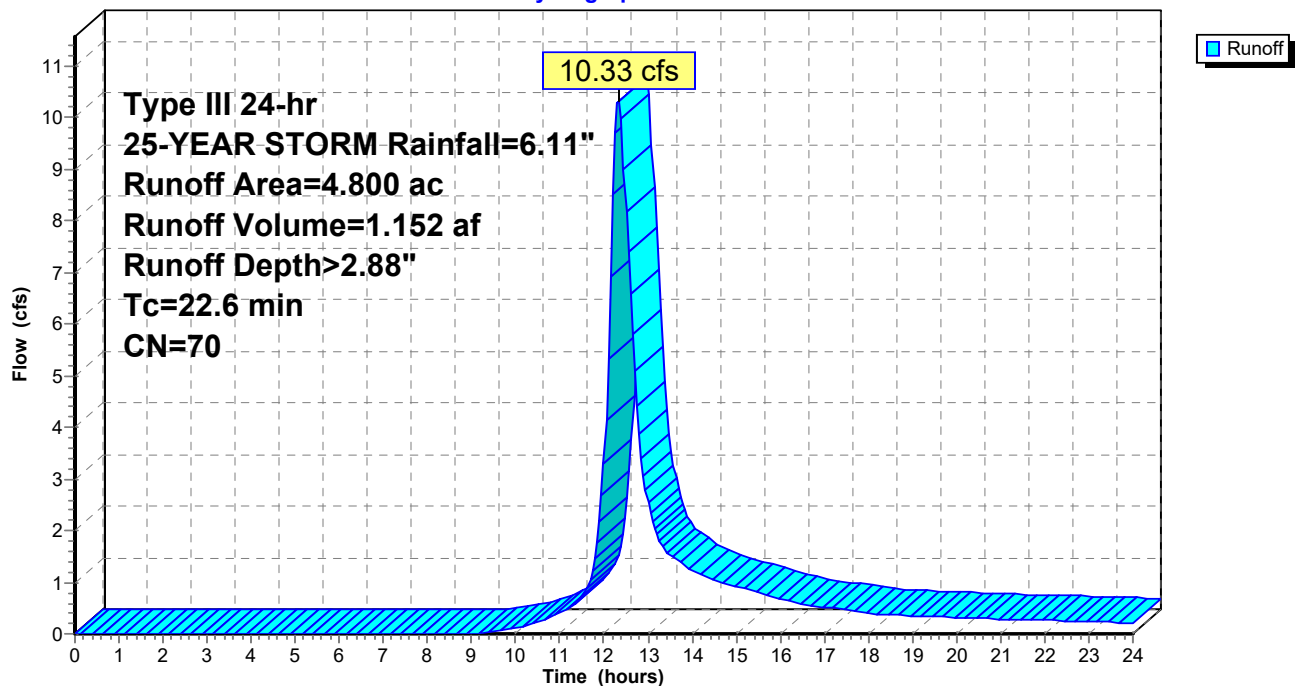
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 4.800	70	
4.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6					Direct Entry, SCS TR-55

Subcatchment 2:

Hydrograph



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	1.81	1.81
0.25	0.02	0.00	0.00	13.50	4.79	1.88	1.51
0.50	0.03	0.00	0.00	13.75	4.88	1.94	1.36
0.75	0.05	0.00	0.00	14.00	4.96	2.00	1.24
1.00	0.06	0.00	0.00	14.25	5.03	2.06	1.12
1.25	0.08	0.00	0.00	14.50	5.10	2.11	1.04
1.50	0.09	0.00	0.00	14.75	5.16	2.16	0.98
1.75	0.11	0.00	0.00	15.00	5.22	2.20	0.92
2.00	0.12	0.00	0.00	15.25	5.27	2.24	0.86
2.25	0.14	0.00	0.00	15.50	5.33	2.28	0.80
2.50	0.15	0.00	0.00	15.75	5.37	2.32	0.74
2.75	0.17	0.00	0.00	16.00	5.41	2.35	0.68
3.00	0.19	0.00	0.00	16.25	5.45	2.38	0.62
3.25	0.21	0.00	0.00	16.50	5.49	2.41	0.58
3.50	0.22	0.00	0.00	16.75	5.52	2.43	0.55
3.75	0.24	0.00	0.00	17.00	5.56	2.46	0.52
4.00	0.26	0.00	0.00	17.25	5.59	2.48	0.49
4.25	0.28	0.00	0.00	17.50	5.62	2.50	0.46
4.50	0.30	0.00	0.00	17.75	5.64	2.53	0.44
4.75	0.32	0.00	0.00	18.00	5.67	2.55	0.41
5.00	0.35	0.00	0.00	18.25	5.69	2.56	0.38
5.25	0.37	0.00	0.00	18.50	5.72	2.58	0.37
5.50	0.39	0.00	0.00	18.75	5.74	2.60	0.36
5.75	0.42	0.00	0.00	19.00	5.76	2.62	0.35
6.00	0.44	0.00	0.00	19.25	5.79	2.64	0.34
6.25	0.47	0.00	0.00	19.50	5.81	2.65	0.33
6.50	0.49	0.00	0.00	19.75	5.83	2.67	0.32
6.75	0.52	0.00	0.00	20.00	5.85	2.68	0.31
7.00	0.55	0.00	0.00	20.25	5.87	2.70	0.31
7.25	0.59	0.00	0.00	20.50	5.89	2.72	0.30
7.50	0.62	0.00	0.00	20.75	5.90	2.73	0.29
7.75	0.66	0.00	0.00	21.00	5.92	2.74	0.29
8.00	0.70	0.00	0.00	21.25	5.94	2.76	0.28
8.25	0.74	0.00	0.00	21.50	5.96	2.77	0.27
8.50	0.78	0.00	0.00	21.75	5.98	2.79	0.27
8.75	0.84	0.00	0.00	22.00	5.99	2.80	0.26
9.00	0.89	0.00	0.00	22.25	6.01	2.81	0.25
9.25	0.95	0.00	0.01	22.50	6.02	2.82	0.25
9.50	1.01	0.01	0.04	22.75	6.04	2.84	0.24
9.75	1.08	0.01	0.07	23.00	6.05	2.85	0.24
10.00	1.15	0.02	0.12	23.25	6.07	2.86	0.23
10.25	1.23	0.03	0.16	23.50	6.08	2.87	0.22
10.50	1.32	0.05	0.23	23.75	6.10	2.88	0.22
10.75	1.42	0.07	0.30	24.00	6.11	2.89	0.21
11.00	1.53	0.09	0.40				
11.25	1.66	0.13	0.51				
11.50	1.82	0.18	0.73				
11.75	2.17	0.31	1.21				
12.00	3.05	0.75	3.28				
12.25	3.94	1.29	9.72				
12.50	4.29	1.53	8.18				
12.75	4.45	1.64	4.42				
13.00	4.58	1.73	2.54				

Summary for Subcatchment 4:

Runoff = 13.90 cfs @ 12.38 hrs, Volume= 1.683 af, Depth> 2.24"

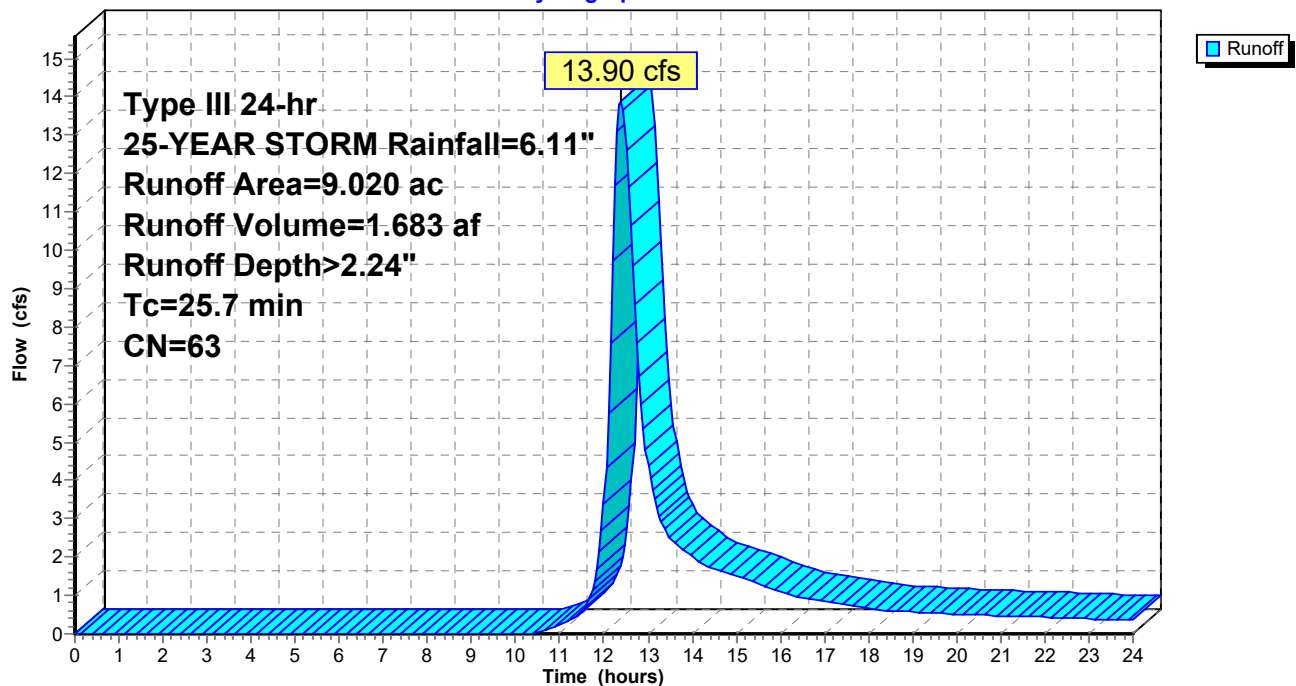
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 9.020	63	
9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7					Direct Entry, SCS TR-55

Subcatchment 4:

Hydrograph



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	1.32	3.08
0.25	0.02	0.00	0.00	13.50	4.79	1.38	2.49
0.50	0.03	0.00	0.00	13.75	4.88	1.43	2.21
0.75	0.05	0.00	0.00	14.00	4.96	1.48	2.02
1.00	0.06	0.00	0.00	14.25	5.03	1.53	1.83
1.25	0.08	0.00	0.00	14.50	5.10	1.57	1.70
1.50	0.09	0.00	0.00	14.75	5.16	1.61	1.60
1.75	0.11	0.00	0.00	15.00	5.22	1.65	1.50
2.00	0.12	0.00	0.00	15.25	5.27	1.69	1.41
2.25	0.14	0.00	0.00	15.50	5.33	1.72	1.31
2.50	0.15	0.00	0.00	15.75	5.37	1.75	1.22
2.75	0.17	0.00	0.00	16.00	5.41	1.78	1.12
3.00	0.19	0.00	0.00	16.25	5.45	1.80	1.02
3.25	0.21	0.00	0.00	16.50	5.49	1.83	0.95
3.50	0.22	0.00	0.00	16.75	5.52	1.85	0.90
3.75	0.24	0.00	0.00	17.00	5.56	1.87	0.85
4.00	0.26	0.00	0.00	17.25	5.59	1.89	0.81
4.25	0.28	0.00	0.00	17.50	5.62	1.91	0.77
4.50	0.30	0.00	0.00	17.75	5.64	1.93	0.72
4.75	0.32	0.00	0.00	18.00	5.67	1.95	0.68
5.00	0.35	0.00	0.00	18.25	5.69	1.97	0.63
5.25	0.37	0.00	0.00	18.50	5.72	1.98	0.60
5.50	0.39	0.00	0.00	18.75	5.74	2.00	0.59
5.75	0.42	0.00	0.00	19.00	5.76	2.01	0.57
6.00	0.44	0.00	0.00	19.25	5.79	2.03	0.56
6.25	0.47	0.00	0.00	19.50	5.81	2.04	0.55
6.50	0.49	0.00	0.00	19.75	5.83	2.06	0.53
6.75	0.52	0.00	0.00	20.00	5.85	2.07	0.52
7.00	0.55	0.00	0.00	20.25	5.87	2.08	0.51
7.25	0.59	0.00	0.00	20.50	5.89	2.10	0.49
7.50	0.62	0.00	0.00	20.75	5.90	2.11	0.48
7.75	0.66	0.00	0.00	21.00	5.92	2.12	0.47
8.00	0.70	0.00	0.00	21.25	5.94	2.14	0.46
8.25	0.74	0.00	0.00	21.50	5.96	2.15	0.45
8.50	0.78	0.00	0.00	21.75	5.98	2.16	0.44
8.75	0.84	0.00	0.00	22.00	5.99	2.17	0.43
9.00	0.89	0.00	0.00	22.25	6.01	2.18	0.42
9.25	0.95	0.00	0.00	22.50	6.02	2.19	0.41
9.50	1.01	0.00	0.00	22.75	6.04	2.20	0.40
9.75	1.08	0.00	0.00	23.00	6.05	2.21	0.39
10.00	1.15	0.00	0.00	23.25	6.07	2.22	0.38
10.25	1.23	0.00	0.00	23.50	6.08	2.23	0.37
10.50	1.32	0.00	0.03	23.75	6.10	2.24	0.36
10.75	1.42	0.01	0.11	24.00	6.11	2.25	0.35
11.00	1.53	0.02	0.22				
11.25	1.66	0.04	0.37				
11.50	1.82	0.06	0.61				
11.75	2.17	0.14	1.13				
12.00	3.05	0.46	3.38				
12.25	3.94	0.88	11.68				
12.50	4.29	1.08	12.61				
12.75	4.45	1.17	7.60				
13.00	4.58	1.25	4.39				

Summary for Subcatchment 5:

Runoff = 28.09 cfs @ 12.46 hrs, Volume= 3.646 af, Depth> 2.87"

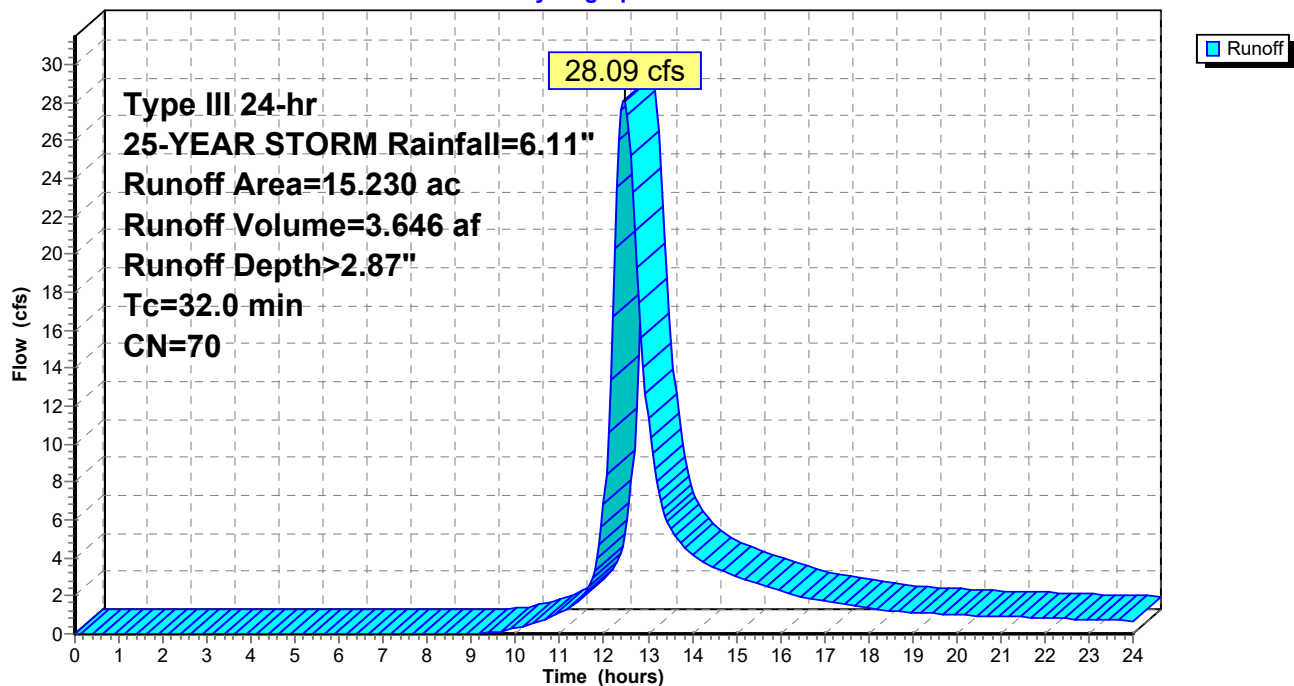
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 15.230	70	
15.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.0					Direct Entry, SCS TR-55

Subcatchment 5:

Hydrograph



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	1.81	7.50
0.25	0.02	0.00	0.00	13.50	4.79	1.88	5.64
0.50	0.03	0.00	0.00	13.75	4.88	1.94	4.74
0.75	0.05	0.00	0.00	14.00	4.96	2.00	4.20
1.00	0.06	0.00	0.00	14.25	5.03	2.06	3.79
1.25	0.08	0.00	0.00	14.50	5.10	2.11	3.47
1.50	0.09	0.00	0.00	14.75	5.16	2.16	3.23
1.75	0.11	0.00	0.00	15.00	5.22	2.20	3.03
2.00	0.12	0.00	0.00	15.25	5.27	2.24	2.84
2.25	0.14	0.00	0.00	15.50	5.33	2.28	2.65
2.50	0.15	0.00	0.00	15.75	5.37	2.32	2.46
2.75	0.17	0.00	0.00	16.00	5.41	2.35	2.26
3.00	0.19	0.00	0.00	16.25	5.45	2.38	2.07
3.25	0.21	0.00	0.00	16.50	5.49	2.41	1.90
3.50	0.22	0.00	0.00	16.75	5.52	2.43	1.79
3.75	0.24	0.00	0.00	17.00	5.56	2.46	1.70
4.00	0.26	0.00	0.00	17.25	5.59	2.48	1.61
4.25	0.28	0.00	0.00	17.50	5.62	2.50	1.52
4.50	0.30	0.00	0.00	17.75	5.64	2.53	1.43
4.75	0.32	0.00	0.00	18.00	5.67	2.55	1.34
5.00	0.35	0.00	0.00	18.25	5.69	2.56	1.26
5.25	0.37	0.00	0.00	18.50	5.72	2.58	1.19
5.50	0.39	0.00	0.00	18.75	5.74	2.60	1.15
5.75	0.42	0.00	0.00	19.00	5.76	2.62	1.12
6.00	0.44	0.00	0.00	19.25	5.79	2.64	1.09
6.25	0.47	0.00	0.00	19.50	5.81	2.65	1.06
6.50	0.49	0.00	0.00	19.75	5.83	2.67	1.04
6.75	0.52	0.00	0.00	20.00	5.85	2.68	1.01
7.00	0.55	0.00	0.00	20.25	5.87	2.70	0.99
7.25	0.59	0.00	0.00	20.50	5.89	2.72	0.96
7.50	0.62	0.00	0.00	20.75	5.90	2.73	0.94
7.75	0.66	0.00	0.00	21.00	5.92	2.74	0.92
8.00	0.70	0.00	0.00	21.25	5.94	2.76	0.90
8.25	0.74	0.00	0.00	21.50	5.96	2.77	0.88
8.50	0.78	0.00	0.00	21.75	5.98	2.79	0.86
8.75	0.84	0.00	0.00	22.00	5.99	2.80	0.84
9.00	0.89	0.00	0.00	22.25	6.01	2.81	0.82
9.25	0.95	0.00	0.02	22.50	6.02	2.82	0.80
9.50	1.01	0.01	0.08	22.75	6.04	2.84	0.78
9.75	1.08	0.01	0.17	23.00	6.05	2.85	0.76
10.00	1.15	0.02	0.29	23.25	6.07	2.86	0.74
10.25	1.23	0.03	0.43	23.50	6.08	2.87	0.72
10.50	1.32	0.05	0.61	23.75	6.10	2.88	0.70
10.75	1.42	0.07	0.83	24.00	6.11	2.89	0.68
11.00	1.53	0.09	1.09				
11.25	1.66	0.13	1.41				
11.50	1.82	0.18	1.93				
11.75	2.17	0.31	2.94				
12.00	3.05	0.75	6.83				
12.25	3.94	1.29	20.29				
12.50	4.29	1.53	27.81				
12.75	4.45	1.64	19.30				
13.00	4.58	1.73	11.39				

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 1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>2.49"
Tc=45.9 min CN=60 Runoff=6.10 cfs 0.973 af

Subcatchment 1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>2.59"
Tc=45.5 min CN=61 Runoff=14.39 cfs 2.271 af

Subcatchment 1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>2.49"
Tc=37.9 min CN=60 Runoff=12.35 cfs 1.784 af

Subcatchment 2: Runoff Area=4.800 ac 0.00% Impervious Runoff Depth>3.50"
Tc=22.6 min CN=70 Runoff=12.63 cfs 1.401 af

Subcatchment 4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>2.79"
Tc=25.7 min CN=63 Runoff=17.61 cfs 2.101 af

Subcatchment 5: Runoff Area=15.230 ac 0.00% Impervious Runoff Depth>3.50"
Tc=32.0 min CN=70 Runoff=34.33 cfs 4.436 af

Total Runoff Area = 52.860 ac Runoff Volume = 12.966 af Average Runoff Depth = 2.94"
100.00% Pervious = 52.860 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

Runoff = 6.10 cfs @ 12.67 hrs, Volume= 0.973 af, Depth> 2.49"

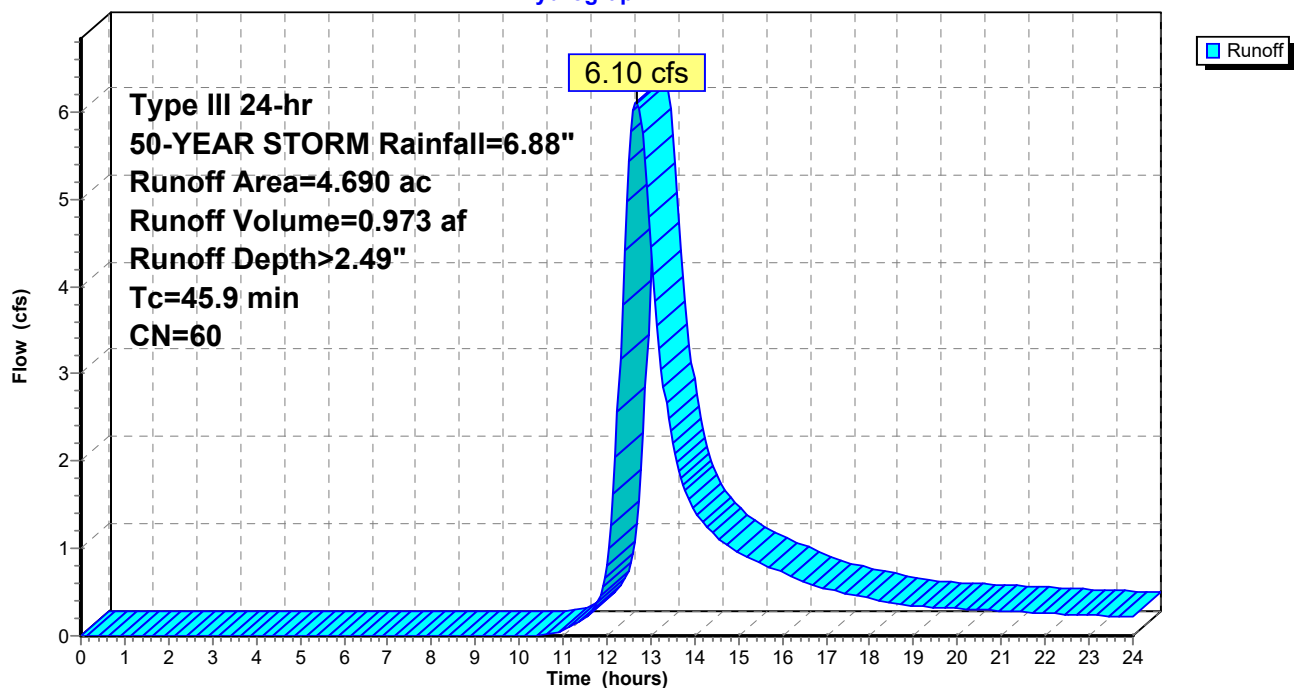
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 4.690	60	
4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9					Direct Entry, SCS TR-55

Subcatchment 1A:

Hydrograph



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	1.47	3.06
0.25	0.02	0.00	0.00	13.50	5.39	1.53	2.21
0.50	0.03	0.00	0.00	13.75	5.49	1.60	1.72
0.75	0.05	0.00	0.00	14.00	5.58	1.65	1.45
1.00	0.07	0.00	0.00	14.25	5.66	1.70	1.26
1.25	0.09	0.00	0.00	14.50	5.74	1.75	1.12
1.50	0.10	0.00	0.00	14.75	5.81	1.80	1.02
1.75	0.12	0.00	0.00	15.00	5.88	1.84	0.95
2.00	0.14	0.00	0.00	15.25	5.94	1.88	0.89
2.25	0.16	0.00	0.00	15.50	6.00	1.92	0.84
2.50	0.17	0.00	0.00	15.75	6.05	1.95	0.78
2.75	0.19	0.00	0.00	16.00	6.10	1.98	0.72
3.00	0.21	0.00	0.00	16.25	6.14	2.01	0.67
3.25	0.23	0.00	0.00	16.50	6.18	2.04	0.61
3.50	0.25	0.00	0.00	16.75	6.22	2.07	0.57
3.75	0.27	0.00	0.00	17.00	6.26	2.09	0.54
4.00	0.30	0.00	0.00	17.25	6.29	2.12	0.51
4.25	0.32	0.00	0.00	17.50	6.33	2.14	0.48
4.50	0.34	0.00	0.00	17.75	6.36	2.16	0.45
4.75	0.37	0.00	0.00	18.00	6.38	2.18	0.43
5.00	0.39	0.00	0.00	18.25	6.41	2.20	0.40
5.25	0.42	0.00	0.00	18.50	6.44	2.21	0.38
5.50	0.44	0.00	0.00	18.75	6.46	2.23	0.36
5.75	0.47	0.00	0.00	19.00	6.49	2.25	0.35
6.00	0.50	0.00	0.00	19.25	6.51	2.27	0.34
6.25	0.52	0.00	0.00	19.50	6.54	2.28	0.33
6.50	0.55	0.00	0.00	19.75	6.56	2.30	0.32
6.75	0.59	0.00	0.00	20.00	6.58	2.31	0.31
7.00	0.62	0.00	0.00	20.25	6.61	2.33	0.31
7.25	0.66	0.00	0.00	20.50	6.63	2.34	0.30
7.50	0.70	0.00	0.00	20.75	6.65	2.36	0.29
7.75	0.74	0.00	0.00	21.00	6.67	2.37	0.28
8.00	0.78	0.00	0.00	21.25	6.69	2.39	0.28
8.25	0.83	0.00	0.00	21.50	6.71	2.40	0.27
8.50	0.88	0.00	0.00	21.75	6.73	2.41	0.27
8.75	0.94	0.00	0.00	22.00	6.75	2.43	0.26
9.00	1.00	0.00	0.00	22.25	6.77	2.44	0.25
9.25	1.07	0.00	0.00	22.50	6.78	2.45	0.25
9.50	1.14	0.00	0.00	22.75	6.80	2.46	0.24
9.75	1.22	0.00	0.00	23.00	6.82	2.48	0.24
10.00	1.30	0.00	0.00	23.25	6.83	2.49	0.23
10.25	1.39	0.00	0.00	23.50	6.85	2.50	0.22
10.50	1.49	0.00	0.00	23.75	6.87	2.51	0.22
10.75	1.60	0.01	0.02	24.00	6.88	2.52	0.21
11.00	1.72	0.02	0.06				
11.25	1.87	0.04	0.12				
11.50	2.05	0.07	0.20				
11.75	2.44	0.16	0.36				
12.00	3.44	0.51	0.81				
12.25	4.44	0.99	2.57				
12.50	4.83	1.20	5.43				
12.75	5.01	1.31	5.97				
13.00	5.16	1.40	4.45				

Summary for Subcatchment 1B:

Runoff = 14.39 cfs @ 12.66 hrs, Volume= 2.271 af, Depth> 2.59"

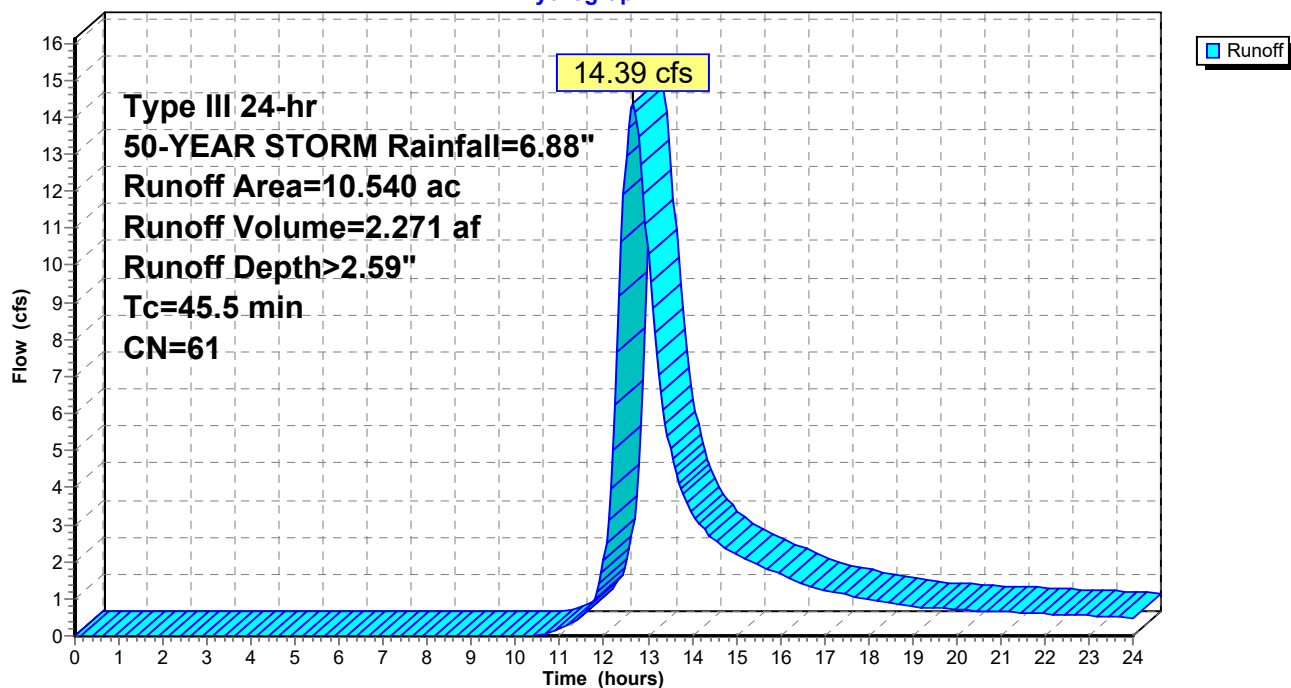
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 10.540	61	
10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.5					Direct Entry, SCS TR-55

Subcatchment 1B:

Hydrograph



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	1.54	7.04
0.25	0.02	0.00	0.00	13.50	5.39	1.61	5.08
0.50	0.03	0.00	0.00	13.75	5.49	1.67	3.96
0.75	0.05	0.00	0.00	14.00	5.58	1.73	3.33
1.00	0.07	0.00	0.00	14.25	5.66	1.78	2.90
1.25	0.09	0.00	0.00	14.50	5.74	1.83	2.58
1.50	0.10	0.00	0.00	14.75	5.81	1.88	2.35
1.75	0.12	0.00	0.00	15.00	5.88	1.92	2.19
2.00	0.14	0.00	0.00	15.25	5.94	1.96	2.05
2.25	0.16	0.00	0.00	15.50	6.00	2.00	1.92
2.50	0.17	0.00	0.00	15.75	6.05	2.04	1.79
2.75	0.19	0.00	0.00	16.00	6.10	2.07	1.66
3.00	0.21	0.00	0.00	16.25	6.14	2.10	1.53
3.25	0.23	0.00	0.00	16.50	6.18	2.13	1.40
3.50	0.25	0.00	0.00	16.75	6.22	2.15	1.31
3.75	0.27	0.00	0.00	17.00	6.26	2.18	1.23
4.00	0.30	0.00	0.00	17.25	6.29	2.20	1.16
4.25	0.32	0.00	0.00	17.50	6.33	2.23	1.10
4.50	0.34	0.00	0.00	17.75	6.36	2.25	1.04
4.75	0.37	0.00	0.00	18.00	6.38	2.27	0.98
5.00	0.39	0.00	0.00	18.25	6.41	2.29	0.92
5.25	0.42	0.00	0.00	18.50	6.44	2.30	0.86
5.50	0.44	0.00	0.00	18.75	6.46	2.32	0.82
5.75	0.47	0.00	0.00	19.00	6.49	2.34	0.80
6.00	0.50	0.00	0.00	19.25	6.51	2.36	0.77
6.25	0.52	0.00	0.00	19.50	6.54	2.37	0.75
6.50	0.55	0.00	0.00	19.75	6.56	2.39	0.74
6.75	0.59	0.00	0.00	20.00	6.58	2.41	0.72
7.00	0.62	0.00	0.00	20.25	6.61	2.42	0.70
7.25	0.66	0.00	0.00	20.50	6.63	2.44	0.68
7.50	0.70	0.00	0.00	20.75	6.65	2.45	0.67
7.75	0.74	0.00	0.00	21.00	6.67	2.47	0.65
8.00	0.78	0.00	0.00	21.25	6.69	2.48	0.64
8.25	0.83	0.00	0.00	21.50	6.71	2.49	0.62
8.50	0.88	0.00	0.00	21.75	6.73	2.51	0.61
8.75	0.94	0.00	0.00	22.00	6.75	2.52	0.60
9.00	1.00	0.00	0.00	22.25	6.77	2.53	0.58
9.25	1.07	0.00	0.00	22.50	6.78	2.55	0.57
9.50	1.14	0.00	0.00	22.75	6.80	2.56	0.55
9.75	1.22	0.00	0.00	23.00	6.82	2.57	0.54
10.00	1.30	0.00	0.00	23.25	6.83	2.58	0.53
10.25	1.39	0.00	0.00	23.50	6.85	2.59	0.51
10.50	1.49	0.01	0.02	23.75	6.87	2.61	0.50
10.75	1.60	0.02	0.09	24.00	6.88	2.62	0.49
11.00	1.72	0.03	0.20				
11.25	1.87	0.05	0.35				
11.50	2.05	0.08	0.56				
11.75	2.44	0.18	0.92				
12.00	3.44	0.55	2.03				
12.25	4.44	1.04	6.25				
12.50	4.83	1.27	12.96				
12.75	5.01	1.38	13.99				
13.00	5.16	1.47	10.32				

Summary for Subcatchment 1C:

Runoff = 12.35 cfs @ 12.56 hrs, Volume= 1.784 af, Depth> 2.49"

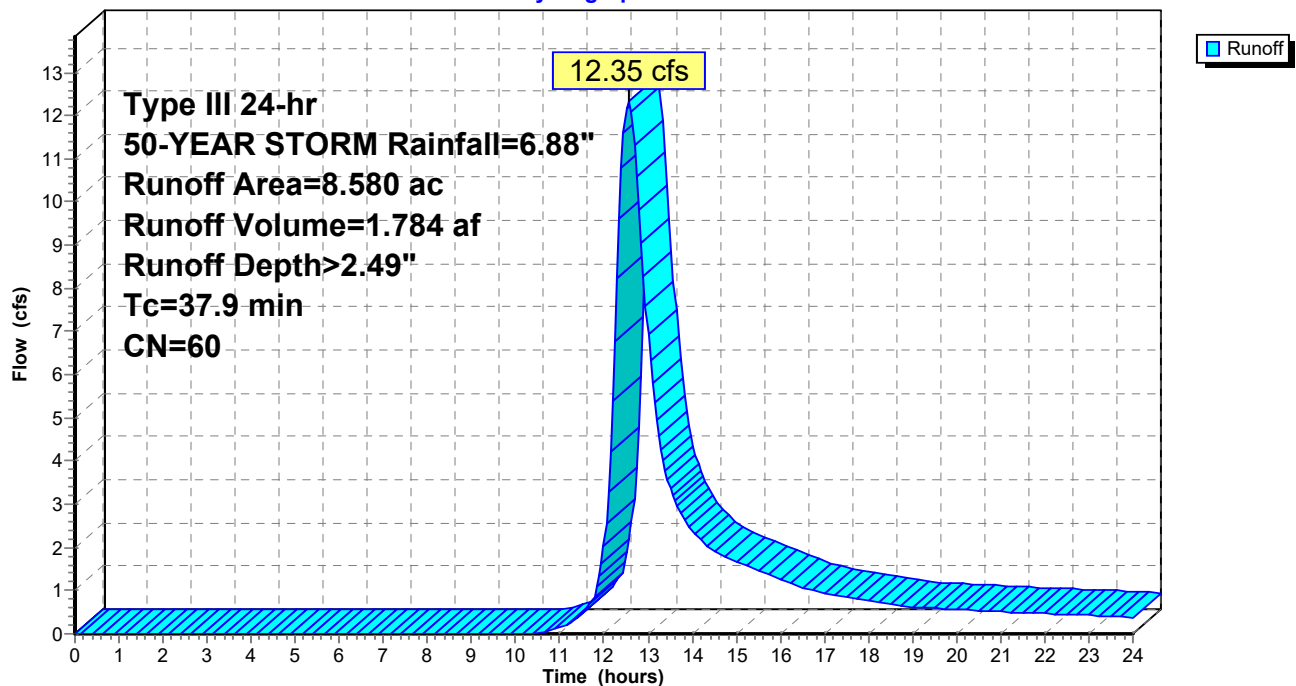
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 8.580	60	
8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.9					Direct Entry, SCS TR-55

Subcatchment 1C:

Hydrograph



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	1.47	4.59
0.25	0.02	0.00	0.00	13.50	5.39	1.53	3.37
0.50	0.03	0.00	0.00	13.75	5.49	1.60	2.75
0.75	0.05	0.00	0.00	14.00	5.58	1.65	2.39
1.00	0.07	0.00	0.00	14.25	5.66	1.70	2.12
1.25	0.09	0.00	0.00	14.50	5.74	1.75	1.93
1.50	0.10	0.00	0.00	14.75	5.81	1.80	1.79
1.75	0.12	0.00	0.00	15.00	5.88	1.84	1.68
2.00	0.14	0.00	0.00	15.25	5.94	1.88	1.58
2.25	0.16	0.00	0.00	15.50	6.00	1.92	1.48
2.50	0.17	0.00	0.00	15.75	6.05	1.95	1.37
2.75	0.19	0.00	0.00	16.00	6.10	1.98	1.27
3.00	0.21	0.00	0.00	16.25	6.14	2.01	1.17
3.25	0.23	0.00	0.00	16.50	6.18	2.04	1.07
3.50	0.25	0.00	0.00	16.75	6.22	2.07	1.00
3.75	0.27	0.00	0.00	17.00	6.26	2.09	0.95
4.00	0.30	0.00	0.00	17.25	6.29	2.12	0.90
4.25	0.32	0.00	0.00	17.50	6.33	2.14	0.85
4.50	0.34	0.00	0.00	17.75	6.36	2.16	0.81
4.75	0.37	0.00	0.00	18.00	6.38	2.18	0.76
5.00	0.39	0.00	0.00	18.25	6.41	2.20	0.71
5.25	0.42	0.00	0.00	18.50	6.44	2.21	0.67
5.50	0.44	0.00	0.00	18.75	6.46	2.23	0.64
5.75	0.47	0.00	0.00	19.00	6.49	2.25	0.62
6.00	0.50	0.00	0.00	19.25	6.51	2.27	0.61
6.25	0.52	0.00	0.00	19.50	6.54	2.28	0.59
6.50	0.55	0.00	0.00	19.75	6.56	2.30	0.58
6.75	0.59	0.00	0.00	20.00	6.58	2.31	0.57
7.00	0.62	0.00	0.00	20.25	6.61	2.33	0.55
7.25	0.66	0.00	0.00	20.50	6.63	2.34	0.54
7.50	0.70	0.00	0.00	20.75	6.65	2.36	0.53
7.75	0.74	0.00	0.00	21.00	6.67	2.37	0.51
8.00	0.78	0.00	0.00	21.25	6.69	2.39	0.50
8.25	0.83	0.00	0.00	21.50	6.71	2.40	0.49
8.50	0.88	0.00	0.00	21.75	6.73	2.41	0.48
8.75	0.94	0.00	0.00	22.00	6.75	2.43	0.47
9.00	1.00	0.00	0.00	22.25	6.77	2.44	0.46
9.25	1.07	0.00	0.00	22.50	6.78	2.45	0.45
9.50	1.14	0.00	0.00	22.75	6.80	2.46	0.44
9.75	1.22	0.00	0.00	23.00	6.82	2.48	0.43
10.00	1.30	0.00	0.00	23.25	6.83	2.49	0.42
10.25	1.39	0.00	0.00	23.50	6.85	2.50	0.40
10.50	1.49	0.00	0.01	23.75	6.87	2.51	0.39
10.75	1.60	0.01	0.06	24.00	6.88	2.52	0.38
11.00	1.72	0.02	0.15				
11.25	1.87	0.04	0.27				
11.50	2.05	0.07	0.46				
11.75	2.44	0.16	0.81				
12.00	3.44	0.51	2.02				
12.25	4.44	0.99	6.76				
12.50	4.83	1.20	12.16				
12.75	5.01	1.31	10.58				
13.00	5.16	1.40	6.92				

Summary for Subcatchment 2:

Runoff = 12.63 cfs @ 12.32 hrs, Volume= 1.401 af, Depth> 3.50"

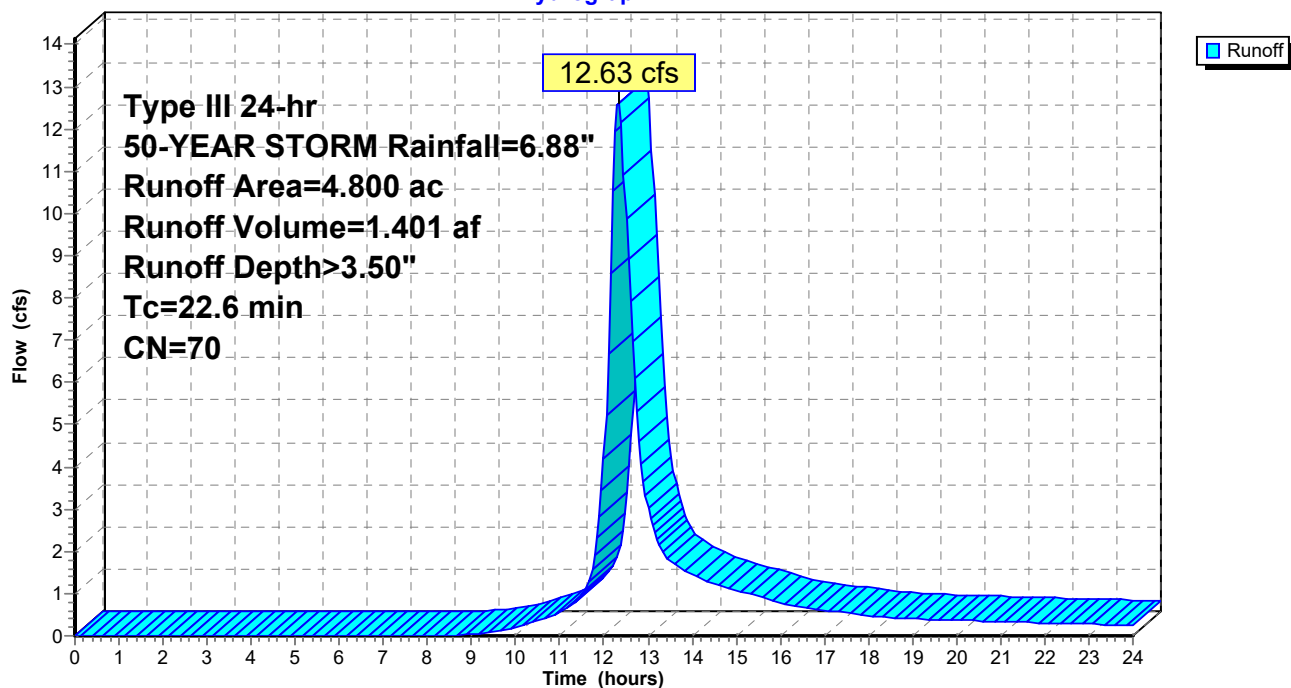
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 4.800	70	
4.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6					Direct Entry, SCS TR-55

Subcatchment 2:

Hydrograph



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	2.25	2.15
0.25	0.02	0.00	0.00	13.50	5.39	2.33	1.79
0.50	0.03	0.00	0.00	13.75	5.49	2.41	1.61
0.75	0.05	0.00	0.00	14.00	5.58	2.48	1.47
1.00	0.07	0.00	0.00	14.25	5.66	2.54	1.33
1.25	0.09	0.00	0.00	14.50	5.74	2.60	1.23
1.50	0.10	0.00	0.00	14.75	5.81	2.66	1.15
1.75	0.12	0.00	0.00	15.00	5.88	2.71	1.08
2.00	0.14	0.00	0.00	15.25	5.94	2.76	1.01
2.25	0.16	0.00	0.00	15.50	6.00	2.80	0.94
2.50	0.17	0.00	0.00	15.75	6.05	2.84	0.87
2.75	0.19	0.00	0.00	16.00	6.10	2.88	0.79
3.00	0.21	0.00	0.00	16.25	6.14	2.92	0.72
3.25	0.23	0.00	0.00	16.50	6.18	2.95	0.68
3.50	0.25	0.00	0.00	16.75	6.22	2.98	0.64
3.75	0.27	0.00	0.00	17.00	6.26	3.01	0.61
4.00	0.30	0.00	0.00	17.25	6.29	3.04	0.58
4.25	0.32	0.00	0.00	17.50	6.33	3.07	0.54
4.50	0.34	0.00	0.00	17.75	6.36	3.09	0.51
4.75	0.37	0.00	0.00	18.00	6.38	3.11	0.48
5.00	0.39	0.00	0.00	18.25	6.41	3.14	0.45
5.25	0.42	0.00	0.00	18.50	6.44	3.16	0.43
5.50	0.44	0.00	0.00	18.75	6.46	3.18	0.42
5.75	0.47	0.00	0.00	19.00	6.49	3.20	0.41
6.00	0.50	0.00	0.00	19.25	6.51	3.22	0.40
6.25	0.52	0.00	0.00	19.50	6.54	3.24	0.39
6.50	0.55	0.00	0.00	19.75	6.56	3.26	0.38
6.75	0.59	0.00	0.00	20.00	6.58	3.28	0.37
7.00	0.62	0.00	0.00	20.25	6.61	3.29	0.36
7.25	0.66	0.00	0.00	20.50	6.63	3.31	0.35
7.50	0.70	0.00	0.00	20.75	6.65	3.33	0.34
7.75	0.74	0.00	0.00	21.00	6.67	3.35	0.33
8.00	0.78	0.00	0.00	21.25	6.69	3.36	0.33
8.25	0.83	0.00	0.00	21.50	6.71	3.38	0.32
8.50	0.88	0.00	0.00	21.75	6.73	3.39	0.31
8.75	0.94	0.00	0.01	22.00	6.75	3.41	0.30
9.00	1.00	0.00	0.03	22.25	6.77	3.42	0.30
9.25	1.07	0.01	0.07	22.50	6.78	3.44	0.29
9.50	1.14	0.02	0.11	22.75	6.80	3.45	0.28
9.75	1.22	0.03	0.15	23.00	6.82	3.47	0.27
10.00	1.30	0.04	0.21	23.25	6.83	3.48	0.27
10.25	1.39	0.06	0.27	23.50	6.85	3.49	0.26
10.50	1.49	0.08	0.35	23.75	6.87	3.51	0.25
10.75	1.60	0.11	0.45	24.00	6.88	3.52	0.24
11.00	1.72	0.14	0.56				
11.25	1.87	0.19	0.71				
11.50	2.05	0.26	0.98				
11.75	2.44	0.43	1.59				
12.00	3.44	0.97	4.18				
12.25	4.44	1.63	11.94				
12.50	4.83	1.91	9.89				
12.75	5.01	2.05	5.29				
13.00	5.16	2.16	3.02				

Summary for Subcatchment 4:

Runoff = 17.61 cfs @ 12.37 hrs, Volume= 2.101 af, Depth> 2.79"

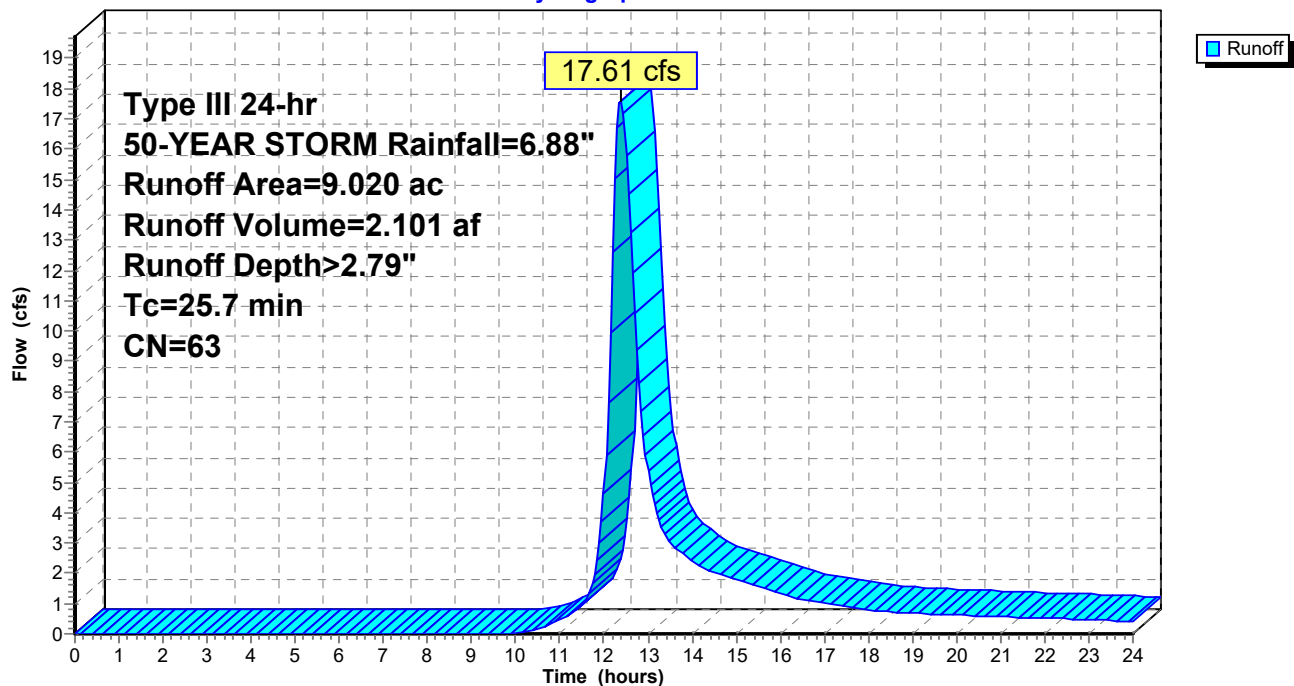
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 9.020	63	
9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7					Direct Entry, SCS TR-55

Subcatchment 4:

Hydrograph



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	1.69	3.75
0.25	0.02	0.00	0.00	13.50	5.39	1.76	3.01
0.50	0.03	0.00	0.00	13.75	5.49	1.83	2.68
0.75	0.05	0.00	0.00	14.00	5.58	1.89	2.43
1.00	0.07	0.00	0.00	14.25	5.66	1.94	2.21
1.25	0.09	0.00	0.00	14.50	5.74	2.00	2.04
1.50	0.10	0.00	0.00	14.75	5.81	2.04	1.92
1.75	0.12	0.00	0.00	15.00	5.88	2.09	1.80
2.00	0.14	0.00	0.00	15.25	5.94	2.13	1.69
2.25	0.16	0.00	0.00	15.50	6.00	2.17	1.57
2.50	0.17	0.00	0.00	15.75	6.05	2.21	1.46
2.75	0.19	0.00	0.00	16.00	6.10	2.24	1.34
3.00	0.21	0.00	0.00	16.25	6.14	2.27	1.22
3.25	0.23	0.00	0.00	16.50	6.18	2.30	1.14
3.50	0.25	0.00	0.00	16.75	6.22	2.33	1.07
3.75	0.27	0.00	0.00	17.00	6.26	2.36	1.02
4.00	0.30	0.00	0.00	17.25	6.29	2.38	0.97
4.25	0.32	0.00	0.00	17.50	6.33	2.41	0.91
4.50	0.34	0.00	0.00	17.75	6.36	2.43	0.86
4.75	0.37	0.00	0.00	18.00	6.38	2.45	0.81
5.00	0.39	0.00	0.00	18.25	6.41	2.47	0.75
5.25	0.42	0.00	0.00	18.50	6.44	2.49	0.72
5.50	0.44	0.00	0.00	18.75	6.46	2.51	0.70
5.75	0.47	0.00	0.00	19.00	6.49	2.52	0.68
6.00	0.50	0.00	0.00	19.25	6.51	2.54	0.67
6.25	0.52	0.00	0.00	19.50	6.54	2.56	0.65
6.50	0.55	0.00	0.00	19.75	6.56	2.58	0.63
6.75	0.59	0.00	0.00	20.00	6.58	2.59	0.62
7.00	0.62	0.00	0.00	20.25	6.61	2.61	0.60
7.25	0.66	0.00	0.00	20.50	6.63	2.63	0.59
7.50	0.70	0.00	0.00	20.75	6.65	2.64	0.58
7.75	0.74	0.00	0.00	21.00	6.67	2.66	0.56
8.00	0.78	0.00	0.00	21.25	6.69	2.67	0.55
8.25	0.83	0.00	0.00	21.50	6.71	2.69	0.54
8.50	0.88	0.00	0.00	21.75	6.73	2.70	0.53
8.75	0.94	0.00	0.00	22.00	6.75	2.71	0.52
9.00	1.00	0.00	0.00	22.25	6.77	2.73	0.50
9.25	1.07	0.00	0.00	22.50	6.78	2.74	0.49
9.50	1.14	0.00	0.00	22.75	6.80	2.75	0.48
9.75	1.22	0.00	0.00	23.00	6.82	2.77	0.47
10.00	1.30	0.00	0.02	23.25	6.83	2.78	0.45
10.25	1.39	0.01	0.08	23.50	6.85	2.79	0.44
10.50	1.49	0.02	0.18	23.75	6.87	2.80	0.43
10.75	1.60	0.03	0.30	24.00	6.88	2.81	0.42
11.00	1.72	0.05	0.45				
11.25	1.87	0.07	0.64				
11.50	2.05	0.11	0.97				
11.75	2.44	0.23	1.66				
12.00	3.44	0.63	4.63				
12.25	4.44	1.16	15.02				
12.50	4.83	1.40	15.78				
12.75	5.01	1.52	9.38				
13.00	5.16	1.61	5.38				

Summary for Subcatchment 5:

Runoff = 34.33 cfs @ 12.45 hrs, Volume= 4.436 af, Depth> 3.50"

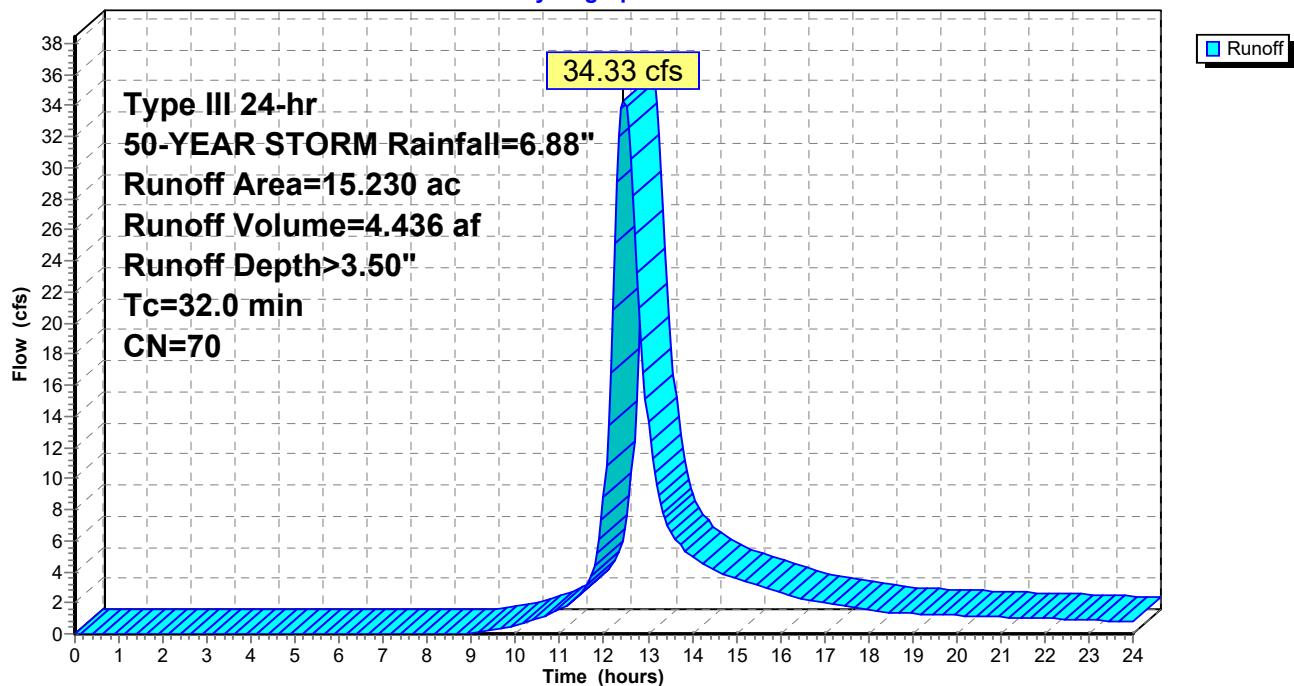
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 15.230	70	
15.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.0					Direct Entry, SCS TR-55

Subcatchment 5:

Hydrograph



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	2.25	8.94
0.25	0.02	0.00	0.00	13.50	5.39	2.33	6.69
0.50	0.03	0.00	0.00	13.75	5.49	2.41	5.62
0.75	0.05	0.00	0.00	14.00	5.58	2.48	4.97
1.00	0.07	0.00	0.00	14.25	5.66	2.54	4.47
1.25	0.09	0.00	0.00	14.50	5.74	2.60	4.09
1.50	0.10	0.00	0.00	14.75	5.81	2.66	3.81
1.75	0.12	0.00	0.00	15.00	5.88	2.71	3.57
2.00	0.14	0.00	0.00	15.25	5.94	2.76	3.34
2.25	0.16	0.00	0.00	15.50	6.00	2.80	3.11
2.50	0.17	0.00	0.00	15.75	6.05	2.84	2.89
2.75	0.19	0.00	0.00	16.00	6.10	2.88	2.65
3.00	0.21	0.00	0.00	16.25	6.14	2.92	2.43
3.25	0.23	0.00	0.00	16.50	6.18	2.95	2.24
3.50	0.25	0.00	0.00	16.75	6.22	2.98	2.10
3.75	0.27	0.00	0.00	17.00	6.26	3.01	1.99
4.00	0.30	0.00	0.00	17.25	6.29	3.04	1.89
4.25	0.32	0.00	0.00	17.50	6.33	3.07	1.78
4.50	0.34	0.00	0.00	17.75	6.36	3.09	1.68
4.75	0.37	0.00	0.00	18.00	6.38	3.11	1.57
5.00	0.39	0.00	0.00	18.25	6.41	3.14	1.47
5.25	0.42	0.00	0.00	18.50	6.44	3.16	1.39
5.50	0.44	0.00	0.00	18.75	6.46	3.18	1.35
5.75	0.47	0.00	0.00	19.00	6.49	3.20	1.31
6.00	0.50	0.00	0.00	19.25	6.51	3.22	1.28
6.25	0.52	0.00	0.00	19.50	6.54	3.24	1.25
6.50	0.55	0.00	0.00	19.75	6.56	3.26	1.21
6.75	0.59	0.00	0.00	20.00	6.58	3.28	1.18
7.00	0.62	0.00	0.00	20.25	6.61	3.29	1.15
7.25	0.66	0.00	0.00	20.50	6.63	3.31	1.12
7.50	0.70	0.00	0.00	20.75	6.65	3.33	1.10
7.75	0.74	0.00	0.00	21.00	6.67	3.35	1.08
8.00	0.78	0.00	0.00	21.25	6.69	3.36	1.05
8.25	0.83	0.00	0.00	21.50	6.71	3.38	1.03
8.50	0.88	0.00	0.00	21.75	6.73	3.39	1.00
8.75	0.94	0.00	0.01	22.00	6.75	3.41	0.98
9.00	1.00	0.00	0.06	22.25	6.77	3.42	0.96
9.25	1.07	0.01	0.15	22.50	6.78	3.44	0.93
9.50	1.14	0.02	0.27	22.75	6.80	3.45	0.91
9.75	1.22	0.03	0.41	23.00	6.82	3.47	0.89
10.00	1.30	0.04	0.56	23.25	6.83	3.48	0.86
10.25	1.39	0.06	0.74	23.50	6.85	3.49	0.84
10.50	1.49	0.08	0.96	23.75	6.87	3.51	0.81
10.75	1.60	0.11	1.25	24.00	6.88	3.52	0.79
11.00	1.72	0.14	1.58				
11.25	1.87	0.19	1.98				
11.50	2.05	0.26	2.64				
11.75	2.44	0.43	3.91				
12.00	3.44	0.97	8.79				
12.25	4.44	1.63	25.19				
12.50	4.83	1.91	33.89				
12.75	5.01	2.05	23.27				
13.00	5.16	2.16	13.65				

HydroCAD North Stonington Existing_Rev Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Prepared by HDR, Inc

Printed 5/20/2021

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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 1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>3.08"
Tc=45.9 min CN=60 Runoff=7.64 cfs 1.202 af

Subcatchment 1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>3.18"
Tc=45.5 min CN=61 Runoff=17.92 cfs 2.795 af

Subcatchment 1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>3.08"
Tc=37.9 min CN=60 Runoff=15.45 cfs 2.203 af

Subcatchment 2: Runoff Area=4.800 ac 0.00% Impervious Runoff Depth>4.19"
Tc=22.6 min CN=70 Runoff=15.13 cfs 1.676 af

Subcatchment 4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>3.41"
Tc=25.7 min CN=63 Runoff=21.71 cfs 2.567 af

Subcatchment 5: Runoff Area=15.230 ac 0.00% Impervious Runoff Depth>4.18"
Tc=32.0 min CN=70 Runoff=41.13 cfs 5.306 af

Total Runoff Area = 52.860 ac Runoff Volume = 15.749 af Average Runoff Depth = 3.58"
100.00% Pervious = 52.860 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

Runoff = 7.64 cfs @ 12.66 hrs, Volume= 1.202 af, Depth> 3.08"

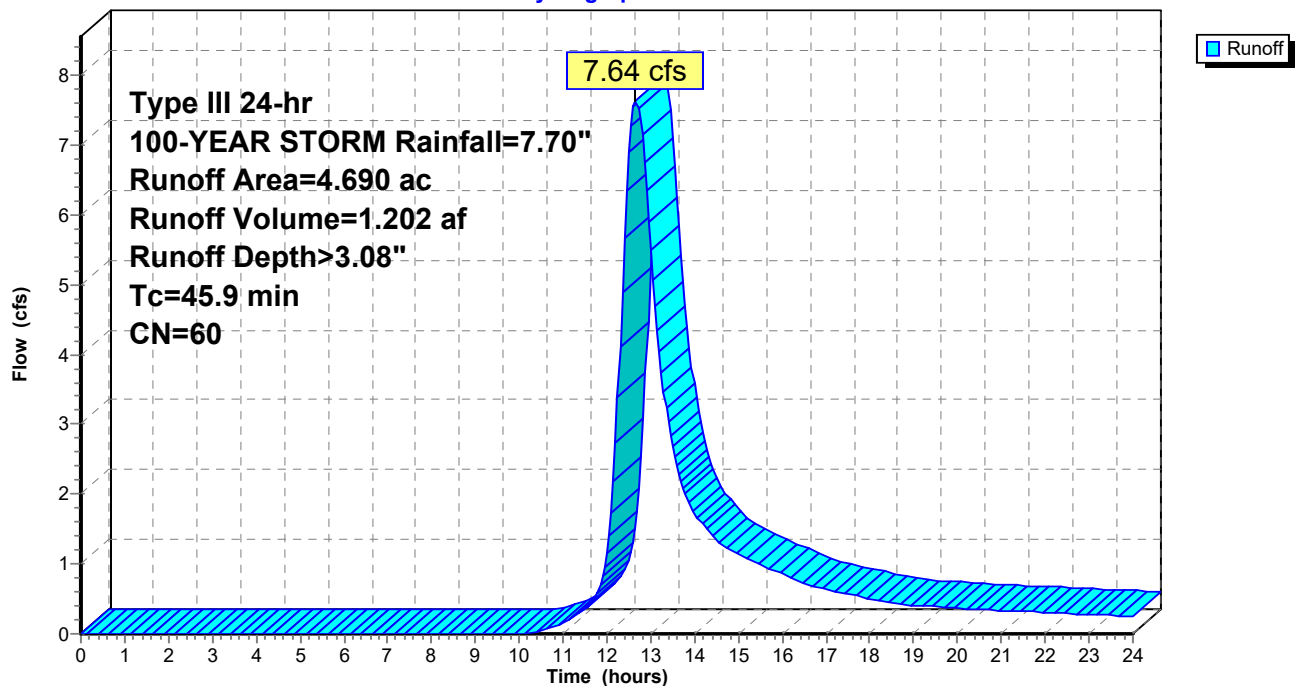
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 4.690	60	
4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9					Direct Entry, SCS TR-55

Subcatchment 1A:

Hydrograph



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	1.86	3.74
0.25	0.02	0.00	0.00	13.50	6.03	1.94	2.68
0.50	0.04	0.00	0.00	13.75	6.14	2.02	2.08
0.75	0.06	0.00	0.00	14.00	6.24	2.08	1.74
1.00	0.08	0.00	0.00	14.25	6.34	2.14	1.52
1.25	0.10	0.00	0.00	14.50	6.42	2.20	1.34
1.50	0.12	0.00	0.00	14.75	6.50	2.26	1.22
1.75	0.13	0.00	0.00	15.00	6.58	2.31	1.14
2.00	0.15	0.00	0.00	15.25	6.65	2.36	1.06
2.25	0.17	0.00	0.00	15.50	6.71	2.40	0.99
2.50	0.19	0.00	0.00	15.75	6.77	2.44	0.93
2.75	0.21	0.00	0.00	16.00	6.82	2.48	0.86
3.00	0.24	0.00	0.00	16.25	6.87	2.51	0.79
3.25	0.26	0.00	0.00	16.50	6.92	2.55	0.73
3.50	0.28	0.00	0.00	16.75	6.96	2.58	0.68
3.75	0.31	0.00	0.00	17.00	7.00	2.61	0.64
4.00	0.33	0.00	0.00	17.25	7.04	2.63	0.60
4.25	0.36	0.00	0.00	17.50	7.08	2.66	0.57
4.50	0.38	0.00	0.00	17.75	7.11	2.68	0.54
4.75	0.41	0.00	0.00	18.00	7.15	2.71	0.51
5.00	0.44	0.00	0.00	18.25	7.18	2.73	0.47
5.25	0.47	0.00	0.00	18.50	7.21	2.75	0.45
5.50	0.49	0.00	0.00	18.75	7.23	2.77	0.42
5.75	0.52	0.00	0.00	19.00	7.26	2.79	0.41
6.00	0.55	0.00	0.00	19.25	7.29	2.81	0.40
6.25	0.59	0.00	0.00	19.50	7.32	2.83	0.39
6.50	0.62	0.00	0.00	19.75	7.34	2.85	0.38
6.75	0.66	0.00	0.00	20.00	7.37	2.87	0.37
7.00	0.70	0.00	0.00	20.25	7.39	2.89	0.36
7.25	0.74	0.00	0.00	20.50	7.42	2.90	0.35
7.50	0.78	0.00	0.00	20.75	7.44	2.92	0.34
7.75	0.83	0.00	0.00	21.00	7.46	2.94	0.34
8.00	0.88	0.00	0.00	21.25	7.49	2.95	0.33
8.25	0.93	0.00	0.00	21.50	7.51	2.97	0.32
8.50	0.99	0.00	0.00	21.75	7.53	2.99	0.31
8.75	1.05	0.00	0.00	22.00	7.55	3.00	0.31
9.00	1.12	0.00	0.00	22.25	7.57	3.02	0.30
9.25	1.20	0.00	0.00	22.50	7.59	3.03	0.29
9.50	1.28	0.00	0.00	22.75	7.61	3.04	0.29
9.75	1.36	0.00	0.00	23.00	7.63	3.06	0.28
10.00	1.46	0.00	0.00	23.25	7.65	3.07	0.27
10.25	1.56	0.01	0.01	23.50	7.67	3.09	0.26
10.50	1.67	0.02	0.04	23.75	7.68	3.10	0.26
10.75	1.79	0.03	0.09	24.00	7.70	3.11	0.25
11.00	1.93	0.05	0.15				
11.25	2.09	0.08	0.24				
11.50	2.29	0.12	0.35				
11.75	2.74	0.24	0.55				
12.00	3.85	0.69	1.15				
12.25	4.96	1.28	3.38				
12.50	5.41	1.54	6.89				
12.75	5.61	1.67	7.43				
13.00	5.77	1.78	5.49				

Summary for Subcatchment 1B:

Runoff = 17.92 cfs @ 12.65 hrs, Volume= 2.795 af, Depth> 3.18"

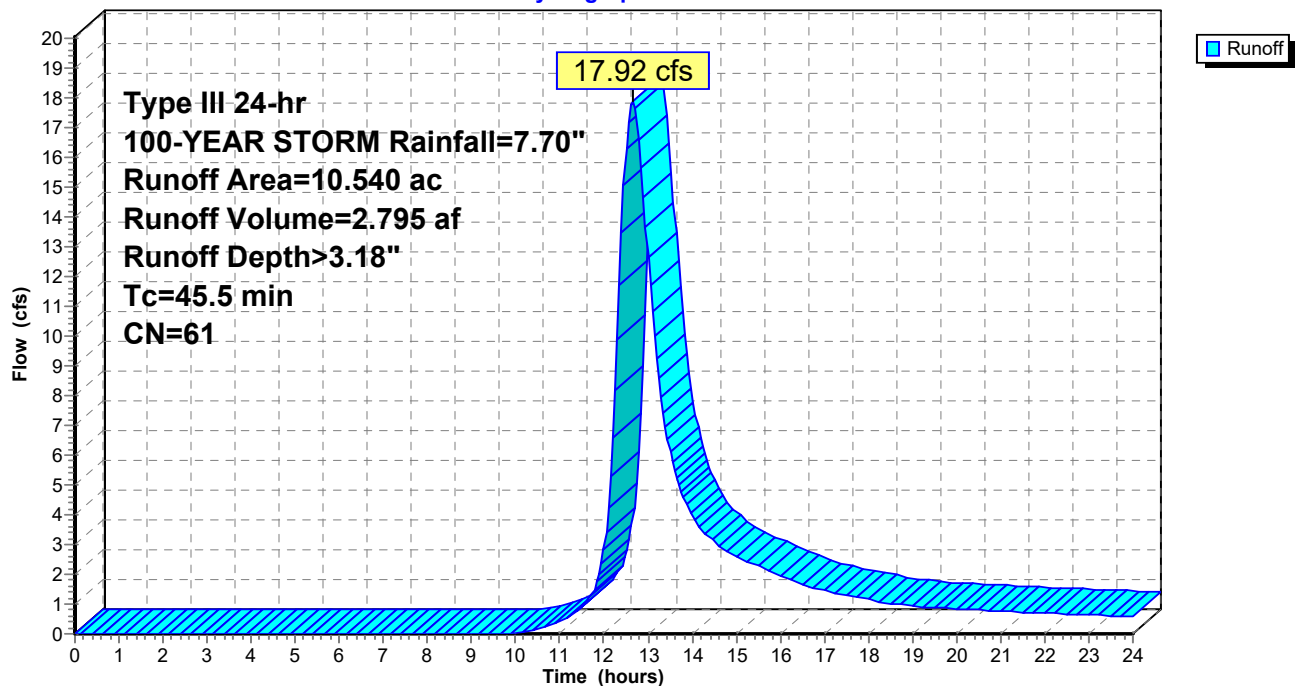
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 10.540	61	
10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.5					Direct Entry, SCS TR-55

Subcatchment 1B:

Hydrograph



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	1.95	8.57
0.25	0.02	0.00	0.00	13.50	6.03	2.03	6.14
0.50	0.04	0.00	0.00	13.75	6.14	2.10	4.76
0.75	0.06	0.00	0.00	14.00	6.24	2.17	3.99
1.00	0.08	0.00	0.00	14.25	6.34	2.23	3.47
1.25	0.10	0.00	0.00	14.50	6.42	2.29	3.08
1.50	0.12	0.00	0.00	14.75	6.50	2.35	2.80
1.75	0.13	0.00	0.00	15.00	6.58	2.40	2.60
2.00	0.15	0.00	0.00	15.25	6.65	2.45	2.44
2.25	0.17	0.00	0.00	15.50	6.71	2.50	2.28
2.50	0.19	0.00	0.00	15.75	6.77	2.54	2.12
2.75	0.21	0.00	0.00	16.00	6.82	2.57	1.97
3.00	0.24	0.00	0.00	16.25	6.87	2.61	1.81
3.25	0.26	0.00	0.00	16.50	6.92	2.64	1.66
3.50	0.28	0.00	0.00	16.75	6.96	2.67	1.55
3.75	0.31	0.00	0.00	17.00	7.00	2.70	1.45
4.00	0.33	0.00	0.00	17.25	7.04	2.73	1.37
4.25	0.36	0.00	0.00	17.50	7.08	2.76	1.30
4.50	0.38	0.00	0.00	17.75	7.11	2.78	1.23
4.75	0.41	0.00	0.00	18.00	7.15	2.81	1.16
5.00	0.44	0.00	0.00	18.25	7.18	2.83	1.08
5.25	0.47	0.00	0.00	18.50	7.21	2.85	1.02
5.50	0.49	0.00	0.00	18.75	7.23	2.87	0.97
5.75	0.52	0.00	0.00	19.00	7.26	2.89	0.94
6.00	0.55	0.00	0.00	19.25	7.29	2.91	0.91
6.25	0.59	0.00	0.00	19.50	7.32	2.93	0.89
6.50	0.62	0.00	0.00	19.75	7.34	2.95	0.87
6.75	0.66	0.00	0.00	20.00	7.37	2.97	0.84
7.00	0.70	0.00	0.00	20.25	7.39	2.99	0.82
7.25	0.74	0.00	0.00	20.50	7.42	3.01	0.80
7.50	0.78	0.00	0.00	20.75	7.44	3.02	0.78
7.75	0.83	0.00	0.00	21.00	7.46	3.04	0.77
8.00	0.88	0.00	0.00	21.25	7.49	3.06	0.75
8.25	0.93	0.00	0.00	21.50	7.51	3.08	0.73
8.50	0.99	0.00	0.00	21.75	7.53	3.09	0.72
8.75	1.05	0.00	0.00	22.00	7.55	3.11	0.70
9.00	1.12	0.00	0.00	22.25	7.57	3.12	0.68
9.25	1.20	0.00	0.00	22.50	7.59	3.14	0.67
9.50	1.28	0.00	0.00	22.75	7.61	3.15	0.65
9.75	1.36	0.00	0.00	23.00	7.63	3.17	0.64
10.00	1.46	0.00	0.01	23.25	7.65	3.18	0.62
10.25	1.56	0.01	0.06	23.50	7.67	3.19	0.60
10.50	1.67	0.02	0.15	23.75	7.68	3.21	0.59
10.75	1.79	0.04	0.27	24.00	7.70	3.22	0.57
11.00	1.93	0.06	0.43				
11.25	2.09	0.09	0.63				
11.50	2.29	0.14	0.91				
11.75	2.74	0.27	1.39				
12.00	3.85	0.74	2.83				
12.25	4.96	1.35	8.15				
12.50	5.41	1.62	16.32				
12.75	5.61	1.75	17.33				
13.00	5.77	1.86	12.65				

Summary for Subcatchment 1C:

Runoff = 15.45 cfs @ 12.55 hrs, Volume= 2.203 af, Depth> 3.08"

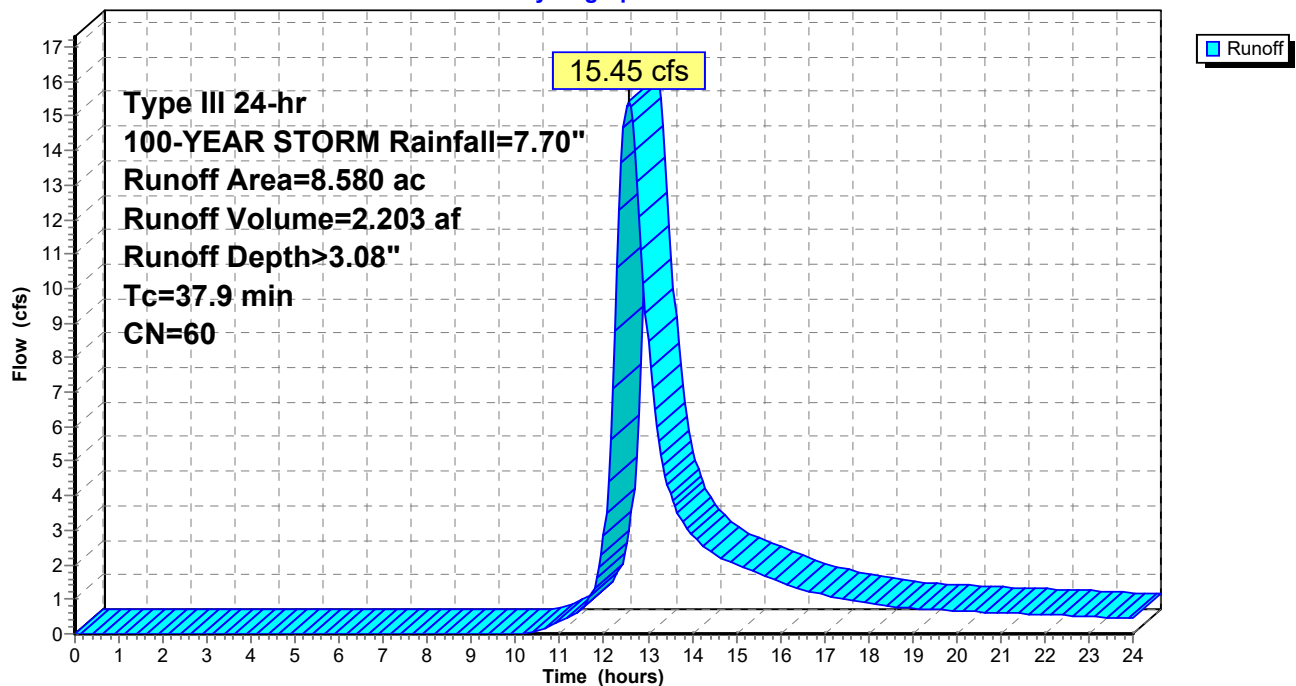
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 8.580	60	
8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.9					Direct Entry, SCS TR-55

Subcatchment 1C:

Hydrograph



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	1.86	5.58
0.25	0.02	0.00	0.00	13.50	6.03	1.94	4.07
0.50	0.04	0.00	0.00	13.75	6.14	2.02	3.30
0.75	0.06	0.00	0.00	14.00	6.24	2.08	2.86
1.00	0.08	0.00	0.00	14.25	6.34	2.14	2.54
1.25	0.10	0.00	0.00	14.50	6.42	2.20	2.30
1.50	0.12	0.00	0.00	14.75	6.50	2.26	2.14
1.75	0.13	0.00	0.00	15.00	6.58	2.31	2.00
2.00	0.15	0.00	0.00	15.25	6.65	2.36	1.88
2.25	0.17	0.00	0.00	15.50	6.71	2.40	1.76
2.50	0.19	0.00	0.00	15.75	6.77	2.44	1.63
2.75	0.21	0.00	0.00	16.00	6.82	2.48	1.51
3.00	0.24	0.00	0.00	16.25	6.87	2.51	1.38
3.25	0.26	0.00	0.00	16.50	6.92	2.55	1.27
3.50	0.28	0.00	0.00	16.75	6.96	2.58	1.19
3.75	0.31	0.00	0.00	17.00	7.00	2.61	1.13
4.00	0.33	0.00	0.00	17.25	7.04	2.63	1.07
4.25	0.36	0.00	0.00	17.50	7.08	2.66	1.01
4.50	0.38	0.00	0.00	17.75	7.11	2.68	0.95
4.75	0.41	0.00	0.00	18.00	7.15	2.71	0.90
5.00	0.44	0.00	0.00	18.25	7.18	2.73	0.84
5.25	0.47	0.00	0.00	18.50	7.21	2.75	0.79
5.50	0.49	0.00	0.00	18.75	7.23	2.77	0.76
5.75	0.52	0.00	0.00	19.00	7.26	2.79	0.74
6.00	0.55	0.00	0.00	19.25	7.29	2.81	0.72
6.25	0.59	0.00	0.00	19.50	7.32	2.83	0.70
6.50	0.62	0.00	0.00	19.75	7.34	2.85	0.68
6.75	0.66	0.00	0.00	20.00	7.37	2.87	0.67
7.00	0.70	0.00	0.00	20.25	7.39	2.89	0.65
7.25	0.74	0.00	0.00	20.50	7.42	2.90	0.63
7.50	0.78	0.00	0.00	20.75	7.44	2.92	0.62
7.75	0.83	0.00	0.00	21.00	7.46	2.94	0.61
8.00	0.88	0.00	0.00	21.25	7.49	2.95	0.59
8.25	0.93	0.00	0.00	21.50	7.51	2.97	0.58
8.50	0.99	0.00	0.00	21.75	7.53	2.99	0.57
8.75	1.05	0.00	0.00	22.00	7.55	3.00	0.55
9.00	1.12	0.00	0.00	22.25	7.57	3.02	0.54
9.25	1.20	0.00	0.00	22.50	7.59	3.03	0.53
9.50	1.28	0.00	0.00	22.75	7.61	3.04	0.52
9.75	1.36	0.00	0.00	23.00	7.63	3.06	0.50
10.00	1.46	0.00	0.00	23.25	7.65	3.07	0.49
10.25	1.56	0.01	0.04	23.50	7.67	3.09	0.48
10.50	1.67	0.02	0.11	23.75	7.68	3.10	0.46
10.75	1.79	0.03	0.21	24.00	7.70	3.11	0.45
11.00	1.93	0.05	0.34				
11.25	2.09	0.08	0.51				
11.50	2.29	0.12	0.76				
11.75	2.74	0.24	1.22				
12.00	3.85	0.69	2.82				
12.25	4.96	1.28	8.79				
12.50	5.41	1.54	15.28				
12.75	5.61	1.67	13.08				
13.00	5.77	1.78	8.47				

Summary for Subcatchment 2:

Runoff = 15.13 cfs @ 12.32 hrs, Volume= 1.676 af, Depth> 4.19"

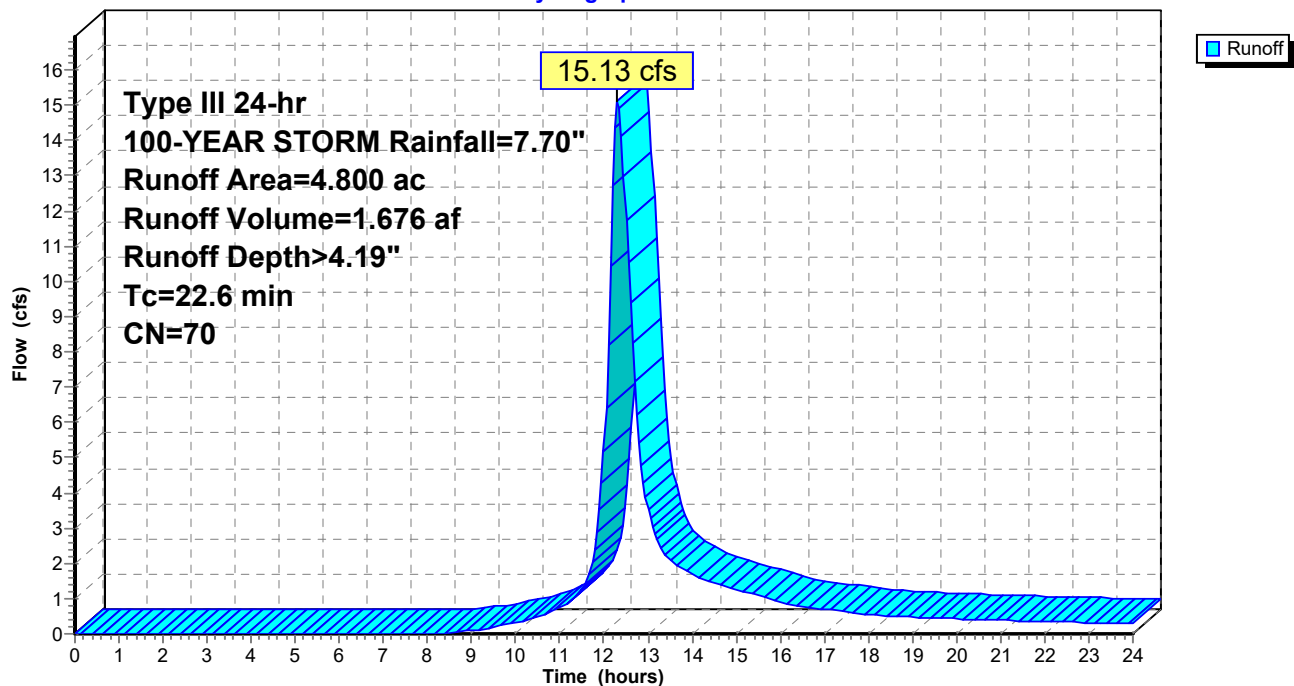
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 4.800	70	
4.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6					Direct Entry, SCS TR-55

Subcatchment 2:

Hydrograph



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	2.73	2.51
0.25	0.02	0.00	0.00	13.50	6.03	2.83	2.09
0.50	0.04	0.00	0.00	13.75	6.14	2.92	1.88
0.75	0.06	0.00	0.00	14.00	6.24	3.00	1.71
1.00	0.08	0.00	0.00	14.25	6.34	3.07	1.54
1.25	0.10	0.00	0.00	14.50	6.42	3.14	1.43
1.50	0.12	0.00	0.00	14.75	6.50	3.21	1.34
1.75	0.13	0.00	0.00	15.00	6.58	3.27	1.26
2.00	0.15	0.00	0.00	15.25	6.65	3.33	1.17
2.25	0.17	0.00	0.00	15.50	6.71	3.38	1.09
2.50	0.19	0.00	0.00	15.75	6.77	3.43	1.01
2.75	0.21	0.00	0.00	16.00	6.82	3.47	0.92
3.00	0.24	0.00	0.00	16.25	6.87	3.51	0.84
3.25	0.26	0.00	0.00	16.50	6.92	3.55	0.78
3.50	0.28	0.00	0.00	16.75	6.96	3.59	0.74
3.75	0.31	0.00	0.00	17.00	7.00	3.62	0.70
4.00	0.33	0.00	0.00	17.25	7.04	3.65	0.67
4.25	0.36	0.00	0.00	17.50	7.08	3.68	0.63
4.50	0.38	0.00	0.00	17.75	7.11	3.71	0.59
4.75	0.41	0.00	0.00	18.00	7.15	3.74	0.55
5.00	0.44	0.00	0.00	18.25	7.18	3.77	0.52
5.25	0.47	0.00	0.00	18.50	7.21	3.79	0.49
5.50	0.49	0.00	0.00	18.75	7.23	3.81	0.48
5.75	0.52	0.00	0.00	19.00	7.26	3.84	0.47
6.00	0.55	0.00	0.00	19.25	7.29	3.86	0.46
6.25	0.59	0.00	0.00	19.50	7.32	3.88	0.45
6.50	0.62	0.00	0.00	19.75	7.34	3.91	0.44
6.75	0.66	0.00	0.00	20.00	7.37	3.93	0.42
7.00	0.70	0.00	0.00	20.25	7.39	3.95	0.41
7.25	0.74	0.00	0.00	20.50	7.42	3.97	0.40
7.50	0.78	0.00	0.00	20.75	7.44	3.99	0.39
7.75	0.83	0.00	0.00	21.00	7.46	4.01	0.39
8.00	0.88	0.00	0.00	21.25	7.49	4.03	0.38
8.25	0.93	0.00	0.01	21.50	7.51	4.05	0.37
8.50	0.99	0.00	0.03	21.75	7.53	4.06	0.36
8.75	1.05	0.01	0.06	22.00	7.55	4.08	0.35
9.00	1.12	0.02	0.09	22.25	7.57	4.10	0.34
9.25	1.20	0.03	0.14	22.50	7.59	4.12	0.33
9.50	1.28	0.04	0.19	22.75	7.61	4.13	0.33
9.75	1.36	0.05	0.25	23.00	7.63	4.15	0.32
10.00	1.46	0.07	0.32	23.25	7.65	4.16	0.31
10.25	1.56	0.10	0.39	23.50	7.67	4.18	0.30
10.50	1.67	0.13	0.49	23.75	7.68	4.19	0.29
10.75	1.79	0.17	0.62	24.00	7.70	4.21	0.28
11.00	1.93	0.21	0.76				
11.25	2.09	0.27	0.93				
11.50	2.29	0.36	1.27				
11.75	2.74	0.57	2.02				
12.00	3.85	1.23	5.18				
12.25	4.96	2.01	14.37				
12.50	5.41	2.34	11.73				
12.75	5.61	2.50	6.23				
13.00	5.77	2.63	3.54				

Summary for Subcatchment 4:

Runoff = 21.71 cfs @ 12.37 hrs, Volume= 2.567 af, Depth> 3.41"

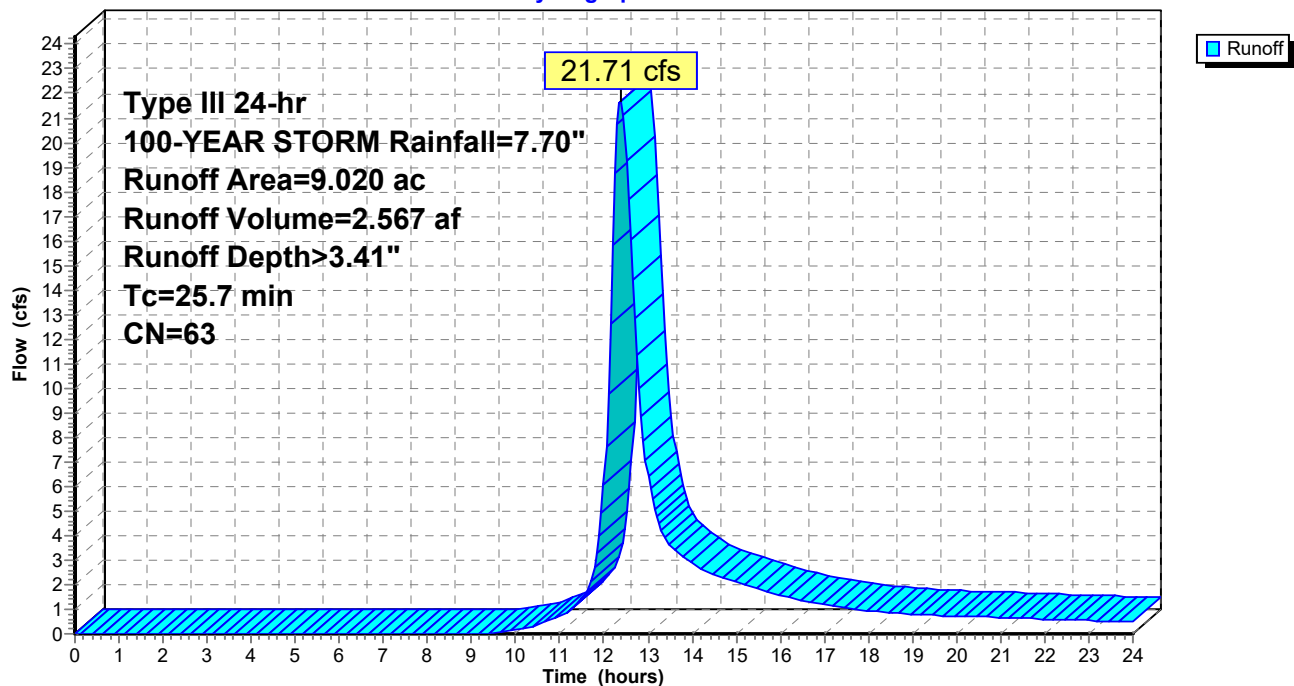
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 9.020	63	
9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7					Direct Entry, SCS TR-55

Subcatchment 4:

Hydrograph



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	2.11	4.47
0.25	0.02	0.00	0.00	13.50	6.03	2.20	3.58
0.50	0.04	0.00	0.00	13.75	6.14	2.28	3.18
0.75	0.06	0.00	0.00	14.00	6.24	2.35	2.88
1.00	0.08	0.00	0.00	14.25	6.34	2.41	2.61
1.25	0.10	0.00	0.00	14.50	6.42	2.48	2.41
1.50	0.12	0.00	0.00	14.75	6.50	2.53	2.27
1.75	0.13	0.00	0.00	15.00	6.58	2.59	2.13
2.00	0.15	0.00	0.00	15.25	6.65	2.64	1.99
2.25	0.17	0.00	0.00	15.50	6.71	2.69	1.86
2.50	0.19	0.00	0.00	15.75	6.77	2.73	1.72
2.75	0.21	0.00	0.00	16.00	6.82	2.77	1.58
3.00	0.24	0.00	0.00	16.25	6.87	2.80	1.44
3.25	0.26	0.00	0.00	16.50	6.92	2.84	1.34
3.50	0.28	0.00	0.00	16.75	6.96	2.87	1.26
3.75	0.31	0.00	0.00	17.00	7.00	2.90	1.20
4.00	0.33	0.00	0.00	17.25	7.04	2.93	1.14
4.25	0.36	0.00	0.00	17.50	7.08	2.96	1.07
4.50	0.38	0.00	0.00	17.75	7.11	2.99	1.01
4.75	0.41	0.00	0.00	18.00	7.15	3.01	0.95
5.00	0.44	0.00	0.00	18.25	7.18	3.03	0.89
5.25	0.47	0.00	0.00	18.50	7.21	3.06	0.84
5.50	0.49	0.00	0.00	18.75	7.23	3.08	0.82
5.75	0.52	0.00	0.00	19.00	7.26	3.10	0.80
6.00	0.55	0.00	0.00	19.25	7.29	3.12	0.78
6.25	0.59	0.00	0.00	19.50	7.32	3.14	0.76
6.50	0.62	0.00	0.00	19.75	7.34	3.16	0.74
6.75	0.66	0.00	0.00	20.00	7.37	3.18	0.73
7.00	0.70	0.00	0.00	20.25	7.39	3.20	0.71
7.25	0.74	0.00	0.00	20.50	7.42	3.22	0.69
7.50	0.78	0.00	0.00	20.75	7.44	3.24	0.67
7.75	0.83	0.00	0.00	21.00	7.46	3.25	0.66
8.00	0.88	0.00	0.00	21.25	7.49	3.27	0.65
8.25	0.93	0.00	0.00	21.50	7.51	3.29	0.63
8.50	0.99	0.00	0.00	21.75	7.53	3.30	0.62
8.75	1.05	0.00	0.00	22.00	7.55	3.32	0.60
9.00	1.12	0.00	0.00	22.25	7.57	3.34	0.59
9.25	1.20	0.00	0.00	22.50	7.59	3.35	0.57
9.50	1.28	0.00	0.01	22.75	7.61	3.37	0.56
9.75	1.36	0.01	0.06	23.00	7.63	3.38	0.54
10.00	1.46	0.01	0.15	23.25	7.65	3.39	0.53
10.25	1.56	0.02	0.25	23.50	7.67	3.41	0.52
10.50	1.67	0.04	0.37	23.75	7.68	3.42	0.50
10.75	1.79	0.06	0.53	24.00	7.70	3.43	0.49
11.00	1.93	0.09	0.73				
11.25	2.09	0.12	0.97				
11.50	2.29	0.18	1.39				
11.75	2.74	0.33	2.28				
12.00	3.85	0.84	6.07				
12.25	4.96	1.49	18.75				
12.50	5.41	1.77	19.27				
12.75	5.61	1.91	11.32				
13.00	5.77	2.02	6.45				

Summary for Subcatchment 5:

Runoff = 41.13 cfs @ 12.45 hrs, Volume= 5.306 af, Depth> 4.18"

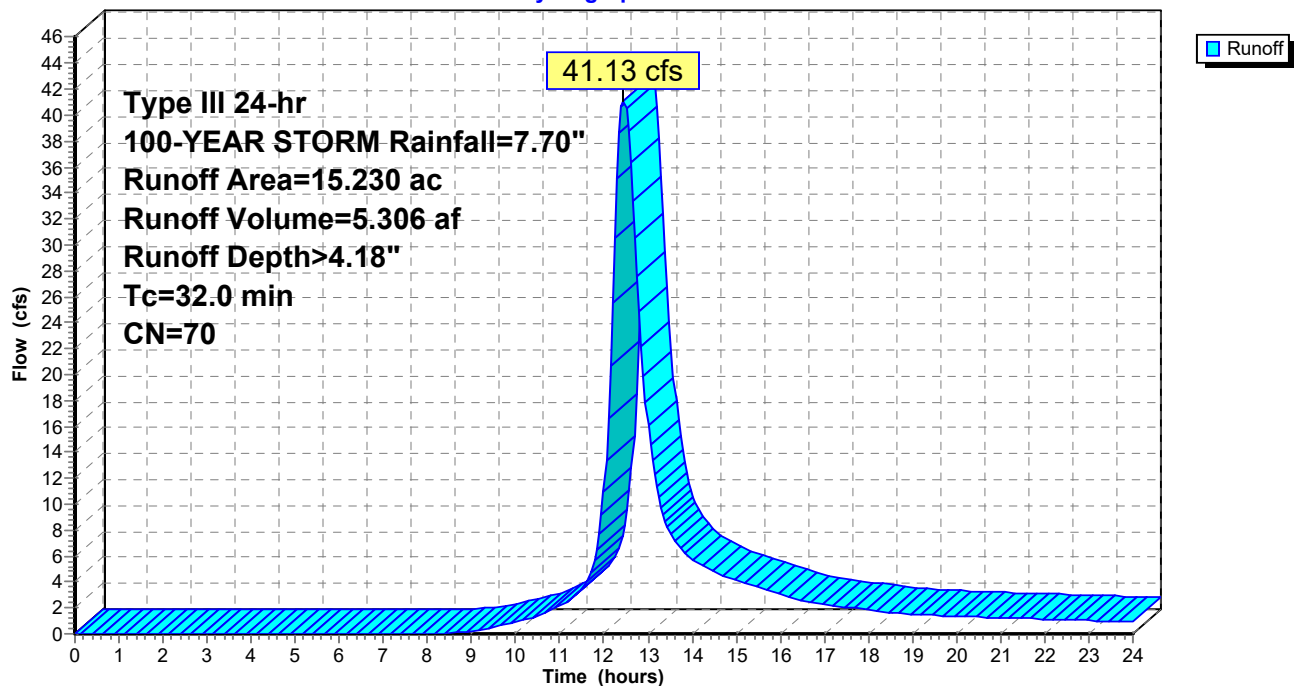
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 15.230	70	
15.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.0					Direct Entry, SCS TR-55

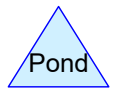
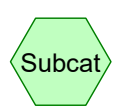
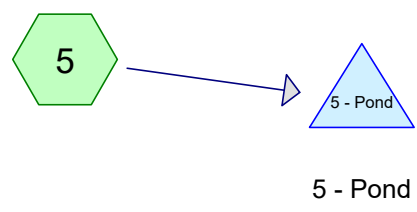
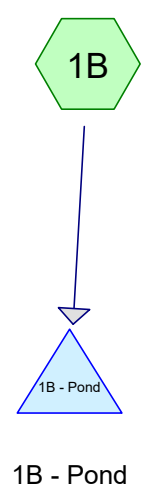
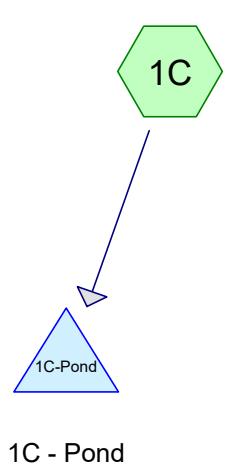
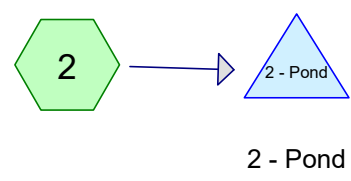
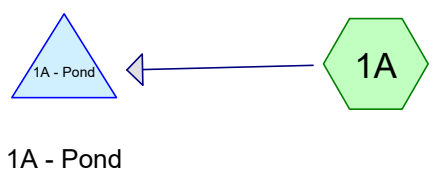
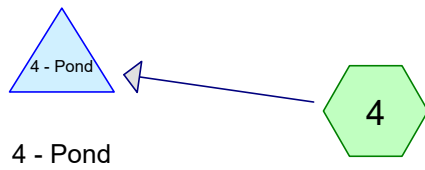
Subcatchment 5:

Hydrograph



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	2.73	10.49
0.25	0.02	0.00	0.00	13.50	6.03	2.83	7.83
0.50	0.04	0.00	0.00	13.75	6.14	2.92	6.55
0.75	0.06	0.00	0.00	14.00	6.24	3.00	5.78
1.00	0.08	0.00	0.00	14.25	6.34	3.07	5.20
1.25	0.10	0.00	0.00	14.50	6.42	3.14	4.75
1.50	0.12	0.00	0.00	14.75	6.50	3.21	4.43
1.75	0.13	0.00	0.00	15.00	6.58	3.27	4.15
2.00	0.15	0.00	0.00	15.25	6.65	3.33	3.88
2.25	0.17	0.00	0.00	15.50	6.71	3.38	3.61
2.50	0.19	0.00	0.00	15.75	6.77	3.43	3.35
2.75	0.21	0.00	0.00	16.00	6.82	3.47	3.08
3.00	0.24	0.00	0.00	16.25	6.87	3.51	2.81
3.25	0.26	0.00	0.00	16.50	6.92	3.55	2.59
3.50	0.28	0.00	0.00	16.75	6.96	3.59	2.43
3.75	0.31	0.00	0.00	17.00	7.00	3.62	2.30
4.00	0.33	0.00	0.00	17.25	7.04	3.65	2.18
4.25	0.36	0.00	0.00	17.50	7.08	3.68	2.06
4.50	0.38	0.00	0.00	17.75	7.11	3.71	1.94
4.75	0.41	0.00	0.00	18.00	7.15	3.74	1.82
5.00	0.44	0.00	0.00	18.25	7.18	3.77	1.70
5.25	0.47	0.00	0.00	18.50	7.21	3.79	1.61
5.50	0.49	0.00	0.00	18.75	7.23	3.81	1.55
5.75	0.52	0.00	0.00	19.00	7.26	3.84	1.51
6.00	0.55	0.00	0.00	19.25	7.29	3.86	1.47
6.25	0.59	0.00	0.00	19.50	7.32	3.88	1.44
6.50	0.62	0.00	0.00	19.75	7.34	3.91	1.40
6.75	0.66	0.00	0.00	20.00	7.37	3.93	1.37
7.00	0.70	0.00	0.00	20.25	7.39	3.95	1.33
7.25	0.74	0.00	0.00	20.50	7.42	3.97	1.30
7.50	0.78	0.00	0.00	20.75	7.44	3.99	1.27
7.75	0.83	0.00	0.00	21.00	7.46	4.01	1.24
8.00	0.88	0.00	0.00	21.25	7.49	4.03	1.21
8.25	0.93	0.00	0.01	21.50	7.51	4.05	1.19
8.50	0.99	0.00	0.05	21.75	7.53	4.06	1.16
8.75	1.05	0.01	0.13	22.00	7.55	4.08	1.13
9.00	1.12	0.02	0.23	22.25	7.57	4.10	1.10
9.25	1.20	0.03	0.36	22.50	7.59	4.12	1.08
9.50	1.28	0.04	0.52	22.75	7.61	4.13	1.05
9.75	1.36	0.05	0.69	23.00	7.63	4.15	1.02
10.00	1.46	0.07	0.89	23.25	7.65	4.16	0.99
10.25	1.56	0.10	1.11	23.50	7.67	4.18	0.97
10.50	1.67	0.13	1.38	23.75	7.68	4.19	0.94
10.75	1.79	0.17	1.73	24.00	7.70	4.21	0.91
11.00	1.93	0.21	2.15				
11.25	2.09	0.27	2.63				
11.50	2.29	0.36	3.44				
11.75	2.74	0.57	5.01				
12.00	3.85	1.23	10.99				
12.25	4.96	2.01	30.59				
12.50	5.41	2.34	40.51				
12.75	5.61	2.50	27.57				
13.00	5.77	2.63	16.08				



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.690	77	(1A)
10.540	79	(1B)
13.380	81	(1C, 2)
9.080	75	(4)
15.220	85	(5)
52.910	80	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
52.910	Other	1A, 1B, 1C, 2, 4, 5
52.910		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	52.910	52.910		1A, 1B, 1C, 2, 4, 5
0.000	0.000	0.000	0.000	52.910	52.910	TOTAL AREA	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1A - Pond	124.70	124.00	70.0	0.0100	0.012	15.0	0.0	0.0
2	1B - Pond	119.60	119.00	88.0	0.0068	0.012	15.0	0.0	0.0
3	1C-Pond	116.30	115.50	85.0	0.0094	0.012	24.0	0.0	0.0
4	2 - Pond	171.30	171.00	31.0	0.0097	0.012	15.0	0.0	0.0
5	4 - Pond	120.40	120.00	53.0	0.0075	0.012	18.0	0.0	0.0
6	5 - Pond	123.00	122.70	50.0	0.0060	0.012	24.0	0.0	0.0

HydroCAD North Stonington Proposed_Rev Type III 24-hr 2-YEAR STORM Rainfall=3.42"

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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 1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>1.36"
Tc=42.6 min CN=77 Runoff=3.50 cfs 0.530 af

Subcatchment 1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>1.49"
Tc=42.3 min CN=79 Runoff=8.76 cfs 1.308 af

Subcatchment 1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>1.63"
Tc=35.2 min CN=81 Runoff=8.62 cfs 1.166 af

Subcatchment 2: Runoff Area=4.800 ac 0.00% Impervious Runoff Depth>1.64"
Tc=21.7 min CN=81 Runoff=5.98 cfs 0.655 af

Subcatchment 4: Runoff Area=9.080 ac 0.00% Impervious Runoff Depth>1.24"
Tc=24.0 min CN=75 Runoff=7.95 cfs 0.937 af

Subcatchment 5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>1.94"
Tc=29.9 min CN=85 Runoff=19.66 cfs 2.455 af

Pond 1A - Pond: 1A - Pond Peak Elev=127.40' Storage=10,589 cf Inflow=3.50 cfs 0.530 af
Primary=0.67 cfs 0.481 af Secondary=0.00 cfs 0.000 af Outflow=0.67 cfs 0.481 af

Pond 1B - Pond: 1B - Pond Peak Elev=122.60' Storage=27,611 cf Inflow=8.76 cfs 1.308 af
Primary=1.57 cfs 1.138 af Secondary=0.00 cfs 0.000 af Outflow=1.57 cfs 1.138 af

Pond 1C-Pond: 1C - Pond Peak Elev=117.52' Storage=19,556 cf Inflow=8.62 cfs 1.166 af
Primary=3.21 cfs 1.021 af Secondary=0.00 cfs 0.000 af Outflow=3.21 cfs 1.021 af

Pond 2 - Pond: 2 - Pond Peak Elev=172.49' Storage=6,796 cf Inflow=5.98 cfs 0.655 af
Primary=4.13 cfs 0.610 af Secondary=0.00 cfs 0.000 af Outflow=4.13 cfs 0.610 af

Pond 4 - Pond: 4 - Pond Peak Elev=123.12' Storage=27,673 cf Inflow=7.95 cfs 0.937 af
Primary=0.38 cfs 0.355 af Secondary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.355 af

Pond 5 - Pond: 5 - Pond Peak Elev=125.69' Storage=28,134 cf Inflow=19.66 cfs 2.455 af
Primary=11.86 cfs 2.277 af Secondary=0.00 cfs 0.000 af Outflow=11.86 cfs 2.277 af

Total Runoff Area = 52.910 ac Runoff Volume = 7.051 af Average Runoff Depth = 1.60"
100.00% Pervious = 52.910 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

Runoff = 3.50 cfs @ 12.62 hrs, Volume= 0.530 af, Depth> 1.36"

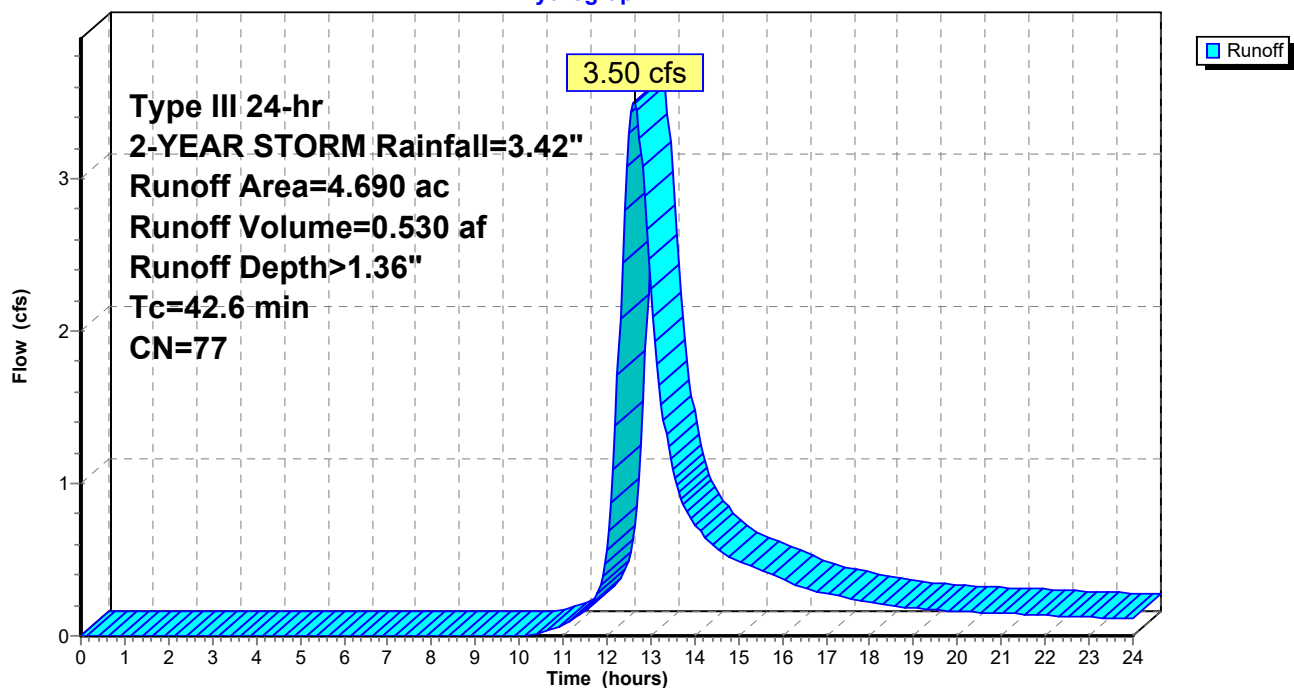
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 4.690	77	
4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					Direct Entry, SCS TR-55

Subcatchment 1A:

Hydrograph



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	0.82	1.52
0.25	0.01	0.00	0.00	13.50	2.68	0.86	1.10
0.50	0.02	0.00	0.00	13.75	2.73	0.89	0.87
0.75	0.03	0.00	0.00	14.00	2.77	0.92	0.73
1.00	0.03	0.00	0.00	14.25	2.81	0.94	0.65
1.25	0.04	0.00	0.00	14.50	2.85	0.97	0.58
1.50	0.05	0.00	0.00	14.75	2.89	0.99	0.53
1.75	0.06	0.00	0.00	15.00	2.92	1.02	0.49
2.00	0.07	0.00	0.00	15.25	2.95	1.04	0.46
2.25	0.08	0.00	0.00	15.50	2.98	1.06	0.43
2.50	0.09	0.00	0.00	15.75	3.01	1.08	0.40
2.75	0.10	0.00	0.00	16.00	3.03	1.09	0.37
3.00	0.11	0.00	0.00	16.25	3.05	1.11	0.34
3.25	0.12	0.00	0.00	16.50	3.07	1.12	0.32
3.50	0.13	0.00	0.00	16.75	3.09	1.14	0.29
3.75	0.14	0.00	0.00	17.00	3.11	1.15	0.28
4.00	0.15	0.00	0.00	17.25	3.13	1.16	0.26
4.25	0.16	0.00	0.00	17.50	3.14	1.17	0.25
4.50	0.17	0.00	0.00	17.75	3.16	1.18	0.23
4.75	0.18	0.00	0.00	18.00	3.17	1.19	0.22
5.00	0.19	0.00	0.00	18.25	3.19	1.20	0.21
5.25	0.21	0.00	0.00	18.50	3.20	1.21	0.19
5.50	0.22	0.00	0.00	18.75	3.21	1.22	0.19
5.75	0.23	0.00	0.00	19.00	3.23	1.23	0.18
6.00	0.25	0.00	0.00	19.25	3.24	1.24	0.18
6.25	0.26	0.00	0.00	19.50	3.25	1.25	0.17
6.50	0.28	0.00	0.00	19.75	3.26	1.26	0.17
6.75	0.29	0.00	0.00	20.00	3.27	1.26	0.16
7.00	0.31	0.00	0.00	20.25	3.28	1.27	0.16
7.25	0.33	0.00	0.00	20.50	3.29	1.28	0.15
7.50	0.35	0.00	0.00	20.75	3.31	1.29	0.15
7.75	0.37	0.00	0.00	21.00	3.32	1.29	0.15
8.00	0.39	0.00	0.00	21.25	3.33	1.30	0.14
8.25	0.41	0.00	0.00	21.50	3.34	1.31	0.14
8.50	0.44	0.00	0.00	21.75	3.34	1.32	0.14
8.75	0.47	0.00	0.00	22.00	3.35	1.32	0.14
9.00	0.50	0.00	0.00	22.25	3.36	1.33	0.13
9.25	0.53	0.00	0.00	22.50	3.37	1.34	0.13
9.50	0.57	0.00	0.00	22.75	3.38	1.34	0.13
9.75	0.61	0.00	0.00	23.00	3.39	1.35	0.12
10.00	0.65	0.00	0.00	23.25	3.40	1.35	0.12
10.25	0.69	0.00	0.01	23.50	3.40	1.36	0.12
10.50	0.74	0.01	0.02	23.75	3.41	1.37	0.11
10.75	0.80	0.01	0.04	24.00	3.42	1.37	0.11
11.00	0.85	0.02	0.07				
11.25	0.93	0.03	0.11				
11.50	1.02	0.05	0.16				
11.75	1.21	0.11	0.26				
12.00	1.71	0.30	0.56				
12.25	2.21	0.56	1.71				
12.50	2.40	0.68	3.30				
12.75	2.49	0.74	3.27				
13.00	2.56	0.78	2.28				

Summary for Subcatchment 1B:

Runoff = 8.76 cfs @ 12.60 hrs, Volume= 1.308 af, Depth> 1.49"

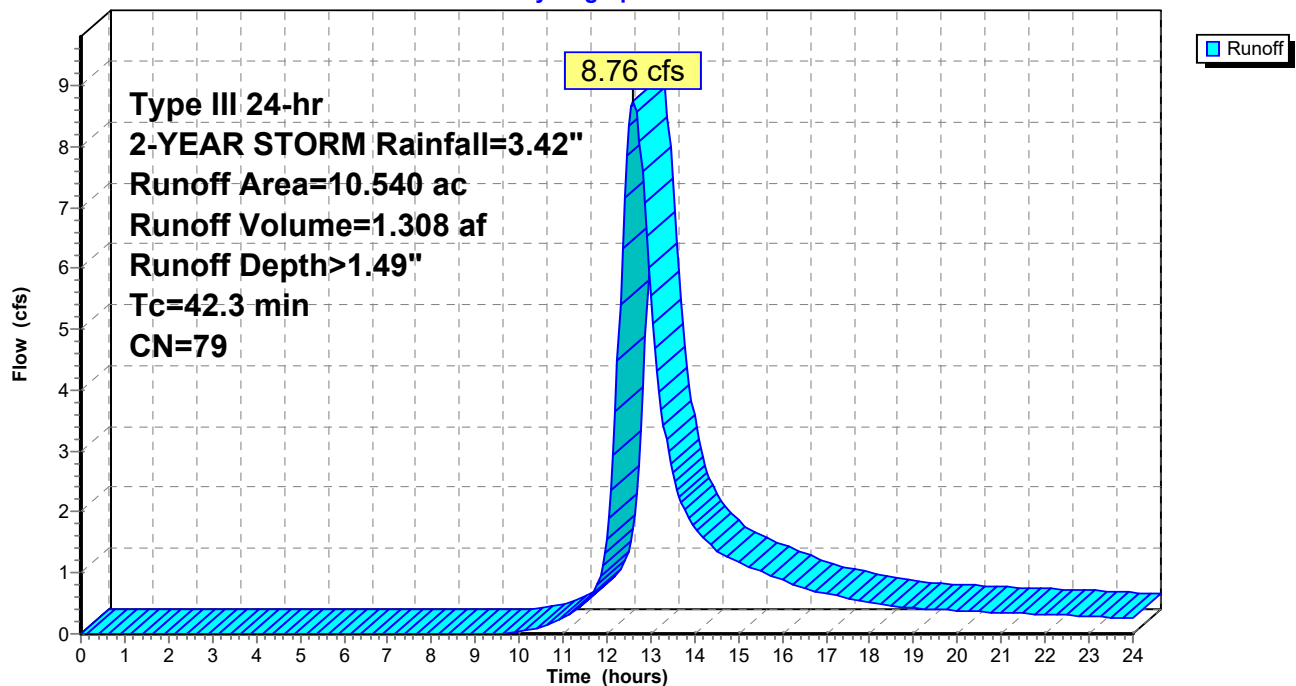
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 10.540	79	
10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					Direct Entry, SCS TR-55

Subcatchment 1B:

Hydrograph



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	0.92	3.67
0.25	0.01	0.00	0.00	13.50	2.68	0.96	2.63
0.50	0.02	0.00	0.00	13.75	2.73	0.99	2.07
0.75	0.03	0.00	0.00	14.00	2.77	1.03	1.75
1.00	0.03	0.00	0.00	14.25	2.81	1.05	1.54
1.25	0.04	0.00	0.00	14.50	2.85	1.08	1.37
1.50	0.05	0.00	0.00	14.75	2.89	1.11	1.26
1.75	0.06	0.00	0.00	15.00	2.92	1.13	1.18
2.00	0.07	0.00	0.00	15.25	2.95	1.15	1.10
2.25	0.08	0.00	0.00	15.50	2.98	1.17	1.03
2.50	0.09	0.00	0.00	15.75	3.01	1.19	0.96
2.75	0.10	0.00	0.00	16.00	3.03	1.21	0.89
3.00	0.11	0.00	0.00	16.25	3.05	1.23	0.81
3.25	0.12	0.00	0.00	16.50	3.07	1.24	0.75
3.50	0.13	0.00	0.00	16.75	3.09	1.26	0.70
3.75	0.14	0.00	0.00	17.00	3.11	1.27	0.66
4.00	0.15	0.00	0.00	17.25	3.13	1.28	0.62
4.25	0.16	0.00	0.00	17.50	3.14	1.30	0.59
4.50	0.17	0.00	0.00	17.75	3.16	1.31	0.55
4.75	0.18	0.00	0.00	18.00	3.17	1.32	0.52
5.00	0.19	0.00	0.00	18.25	3.19	1.33	0.49
5.25	0.21	0.00	0.00	18.50	3.20	1.34	0.46
5.50	0.22	0.00	0.00	18.75	3.21	1.35	0.44
5.75	0.23	0.00	0.00	19.00	3.23	1.36	0.43
6.00	0.25	0.00	0.00	19.25	3.24	1.37	0.41
6.25	0.26	0.00	0.00	19.50	3.25	1.37	0.40
6.50	0.28	0.00	0.00	19.75	3.26	1.38	0.39
6.75	0.29	0.00	0.00	20.00	3.27	1.39	0.38
7.00	0.31	0.00	0.00	20.25	3.28	1.40	0.37
7.25	0.33	0.00	0.00	20.50	3.29	1.41	0.36
7.50	0.35	0.00	0.00	20.75	3.31	1.42	0.36
7.75	0.37	0.00	0.00	21.00	3.32	1.42	0.35
8.00	0.39	0.00	0.00	21.25	3.33	1.43	0.34
8.25	0.41	0.00	0.00	21.50	3.34	1.44	0.33
8.50	0.44	0.00	0.00	21.75	3.34	1.45	0.33
8.75	0.47	0.00	0.00	22.00	3.35	1.45	0.32
9.00	0.50	0.00	0.00	22.25	3.36	1.46	0.31
9.25	0.53	0.00	0.00	22.50	3.37	1.47	0.30
9.50	0.57	0.00	0.00	22.75	3.38	1.47	0.30
9.75	0.61	0.00	0.01	23.00	3.39	1.48	0.29
10.00	0.65	0.00	0.03	23.25	3.40	1.49	0.28
10.25	0.69	0.01	0.07	23.50	3.40	1.49	0.27
10.50	0.74	0.02	0.12	23.75	3.41	1.50	0.27
10.75	0.80	0.02	0.18	24.00	3.42	1.50	0.26
11.00	0.85	0.04	0.27				
11.25	0.93	0.05	0.37				
11.50	1.02	0.08	0.51				
11.75	1.21	0.14	0.76				
12.00	1.71	0.36	1.56				
12.25	2.21	0.65	4.48				
12.50	2.40	0.77	8.35				
12.75	2.49	0.83	8.08				
13.00	2.56	0.88	5.54				

Summary for Subcatchment 1C:

Runoff = 8.62 cfs @ 12.50 hrs, Volume= 1.166 af, Depth> 1.63"

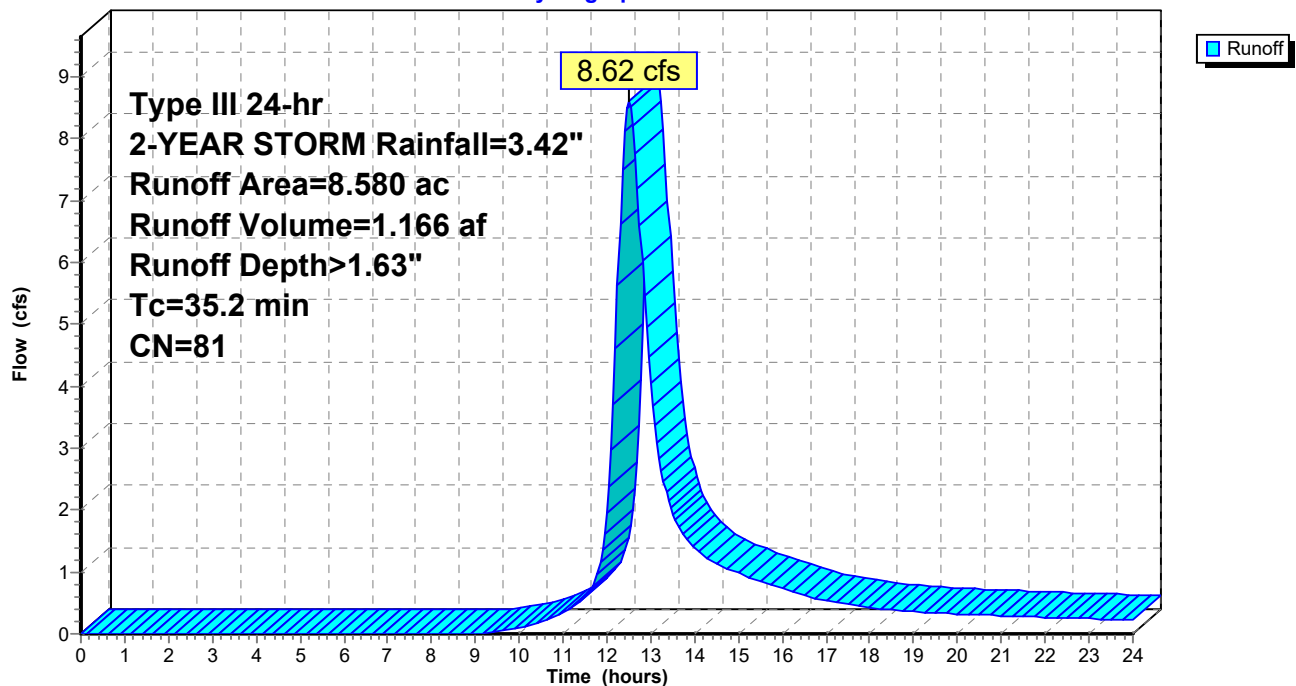
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 8.580	81	
8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					Direct Entry, SCS TR-55

Subcatchment 1C:

Hydrograph



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	1.03	2.63
0.25	0.01	0.00	0.00	13.50	2.68	1.07	1.93
0.50	0.02	0.00	0.00	13.75	2.73	1.11	1.59
0.75	0.03	0.00	0.00	14.00	2.77	1.14	1.38
1.00	0.03	0.00	0.00	14.25	2.81	1.17	1.23
1.25	0.04	0.00	0.00	14.50	2.85	1.20	1.12
1.50	0.05	0.00	0.00	14.75	2.89	1.23	1.04
1.75	0.06	0.00	0.00	15.00	2.92	1.25	0.98
2.00	0.07	0.00	0.00	15.25	2.95	1.28	0.92
2.25	0.08	0.00	0.00	15.50	2.98	1.30	0.85
2.50	0.09	0.00	0.00	15.75	3.01	1.32	0.79
2.75	0.10	0.00	0.00	16.00	3.03	1.34	0.73
3.00	0.11	0.00	0.00	16.25	3.05	1.35	0.67
3.25	0.12	0.00	0.00	16.50	3.07	1.37	0.62
3.50	0.13	0.00	0.00	16.75	3.09	1.38	0.58
3.75	0.14	0.00	0.00	17.00	3.11	1.40	0.55
4.00	0.15	0.00	0.00	17.25	3.13	1.41	0.52
4.25	0.16	0.00	0.00	17.50	3.14	1.43	0.49
4.50	0.17	0.00	0.00	17.75	3.16	1.44	0.46
4.75	0.18	0.00	0.00	18.00	3.17	1.45	0.43
5.00	0.19	0.00	0.00	18.25	3.19	1.46	0.41
5.25	0.21	0.00	0.00	18.50	3.20	1.47	0.38
5.50	0.22	0.00	0.00	18.75	3.21	1.48	0.37
5.75	0.23	0.00	0.00	19.00	3.23	1.49	0.36
6.00	0.25	0.00	0.00	19.25	3.24	1.50	0.35
6.25	0.26	0.00	0.00	19.50	3.25	1.51	0.34
6.50	0.28	0.00	0.00	19.75	3.26	1.52	0.33
6.75	0.29	0.00	0.00	20.00	3.27	1.53	0.32
7.00	0.31	0.00	0.00	20.25	3.28	1.54	0.31
7.25	0.33	0.00	0.00	20.50	3.29	1.54	0.31
7.50	0.35	0.00	0.00	20.75	3.31	1.55	0.30
7.75	0.37	0.00	0.00	21.00	3.32	1.56	0.29
8.00	0.39	0.00	0.00	21.25	3.33	1.57	0.29
8.25	0.41	0.00	0.00	21.50	3.34	1.58	0.28
8.50	0.44	0.00	0.00	21.75	3.34	1.58	0.27
8.75	0.47	0.00	0.00	22.00	3.35	1.59	0.27
9.00	0.50	0.00	0.00	22.25	3.36	1.60	0.26
9.25	0.53	0.00	0.01	22.50	3.37	1.61	0.26
9.50	0.57	0.00	0.03	22.75	3.38	1.61	0.25
9.75	0.61	0.01	0.06	23.00	3.39	1.62	0.24
10.00	0.65	0.01	0.10	23.25	3.40	1.63	0.24
10.25	0.69	0.02	0.14	23.50	3.40	1.63	0.23
10.50	0.74	0.03	0.19	23.75	3.41	1.64	0.22
10.75	0.80	0.04	0.26	24.00	3.42	1.64	0.22
11.00	0.85	0.05	0.35				
11.25	0.93	0.07	0.45				
11.50	1.02	0.10	0.60				
11.75	1.21	0.18	0.89				
12.00	1.71	0.43	1.95				
12.25	2.21	0.74	5.63				
12.50	2.40	0.87	8.62				
12.75	2.49	0.94	6.59				
13.00	2.56	0.99	4.05				

Summary for Subcatchment 2:

Runoff = 5.98 cfs @ 12.31 hrs, Volume= 0.655 af, Depth> 1.64"

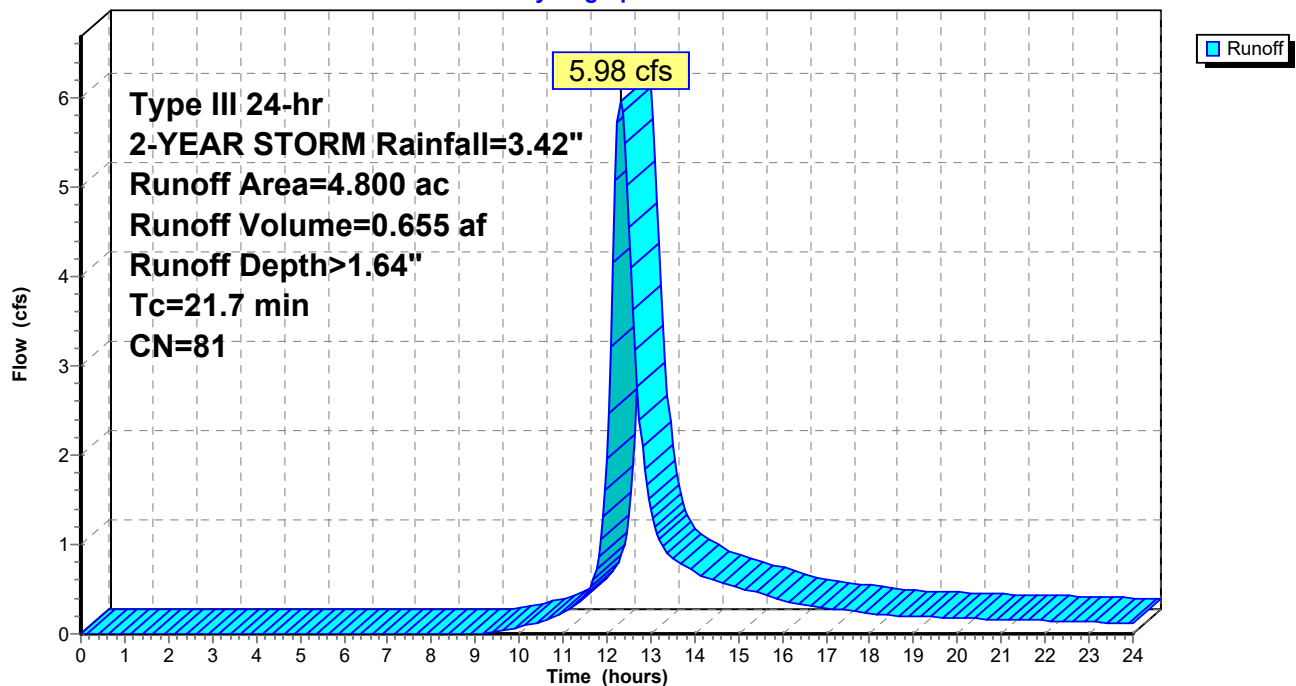
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 4.800	81	
4.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.7					Direct Entry, SCS TR-55

Subcatchment 2:

Hydrograph



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	1.03	1.00
0.25	0.01	0.00	0.00	13.50	2.68	1.07	0.85
0.50	0.02	0.00	0.00	13.75	2.73	1.11	0.77
0.75	0.03	0.00	0.00	14.00	2.77	1.14	0.70
1.00	0.03	0.00	0.00	14.25	2.81	1.17	0.63
1.25	0.04	0.00	0.00	14.50	2.85	1.20	0.59
1.50	0.05	0.00	0.00	14.75	2.89	1.23	0.55
1.75	0.06	0.00	0.00	15.00	2.92	1.25	0.52
2.00	0.07	0.00	0.00	15.25	2.95	1.28	0.48
2.25	0.08	0.00	0.00	15.50	2.98	1.30	0.45
2.50	0.09	0.00	0.00	15.75	3.01	1.32	0.41
2.75	0.10	0.00	0.00	16.00	3.03	1.34	0.38
3.00	0.11	0.00	0.00	16.25	3.05	1.35	0.35
3.25	0.12	0.00	0.00	16.50	3.07	1.37	0.32
3.50	0.13	0.00	0.00	16.75	3.09	1.38	0.31
3.75	0.14	0.00	0.00	17.00	3.11	1.40	0.29
4.00	0.15	0.00	0.00	17.25	3.13	1.41	0.28
4.25	0.16	0.00	0.00	17.50	3.14	1.43	0.26
4.50	0.17	0.00	0.00	17.75	3.16	1.44	0.24
4.75	0.18	0.00	0.00	18.00	3.17	1.45	0.23
5.00	0.19	0.00	0.00	18.25	3.19	1.46	0.21
5.25	0.21	0.00	0.00	18.50	3.20	1.47	0.21
5.50	0.22	0.00	0.00	18.75	3.21	1.48	0.20
5.75	0.23	0.00	0.00	19.00	3.23	1.49	0.20
6.00	0.25	0.00	0.00	19.25	3.24	1.50	0.19
6.25	0.26	0.00	0.00	19.50	3.25	1.51	0.19
6.50	0.28	0.00	0.00	19.75	3.26	1.52	0.18
6.75	0.29	0.00	0.00	20.00	3.27	1.53	0.18
7.00	0.31	0.00	0.00	20.25	3.28	1.54	0.17
7.25	0.33	0.00	0.00	20.50	3.29	1.54	0.17
7.50	0.35	0.00	0.00	20.75	3.31	1.55	0.16
7.75	0.37	0.00	0.00	21.00	3.32	1.56	0.16
8.00	0.39	0.00	0.00	21.25	3.33	1.57	0.16
8.25	0.41	0.00	0.00	21.50	3.34	1.58	0.15
8.50	0.44	0.00	0.00	21.75	3.34	1.58	0.15
8.75	0.47	0.00	0.00	22.00	3.35	1.59	0.15
9.00	0.50	0.00	0.00	22.25	3.36	1.60	0.14
9.25	0.53	0.00	0.01	22.50	3.37	1.61	0.14
9.50	0.57	0.00	0.03	22.75	3.38	1.61	0.14
9.75	0.61	0.01	0.05	23.00	3.39	1.62	0.13
10.00	0.65	0.01	0.07	23.25	3.40	1.63	0.13
10.25	0.69	0.02	0.10	23.50	3.40	1.63	0.13
10.50	0.74	0.03	0.14	23.75	3.41	1.64	0.12
10.75	0.80	0.04	0.18	24.00	3.42	1.64	0.12
11.00	0.85	0.05	0.24				
11.25	0.93	0.07	0.30				
11.50	1.02	0.10	0.43				
11.75	1.21	0.18	0.72				
12.00	1.71	0.43	1.97				
12.25	2.21	0.74	5.73				
12.50	2.40	0.87	4.55				
12.75	2.49	0.94	2.40				
13.00	2.56	0.99	1.39				

Summary for Subcatchment 4:

Runoff = 7.95 cfs @ 12.36 hrs, Volume= 0.937 af, Depth> 1.24"

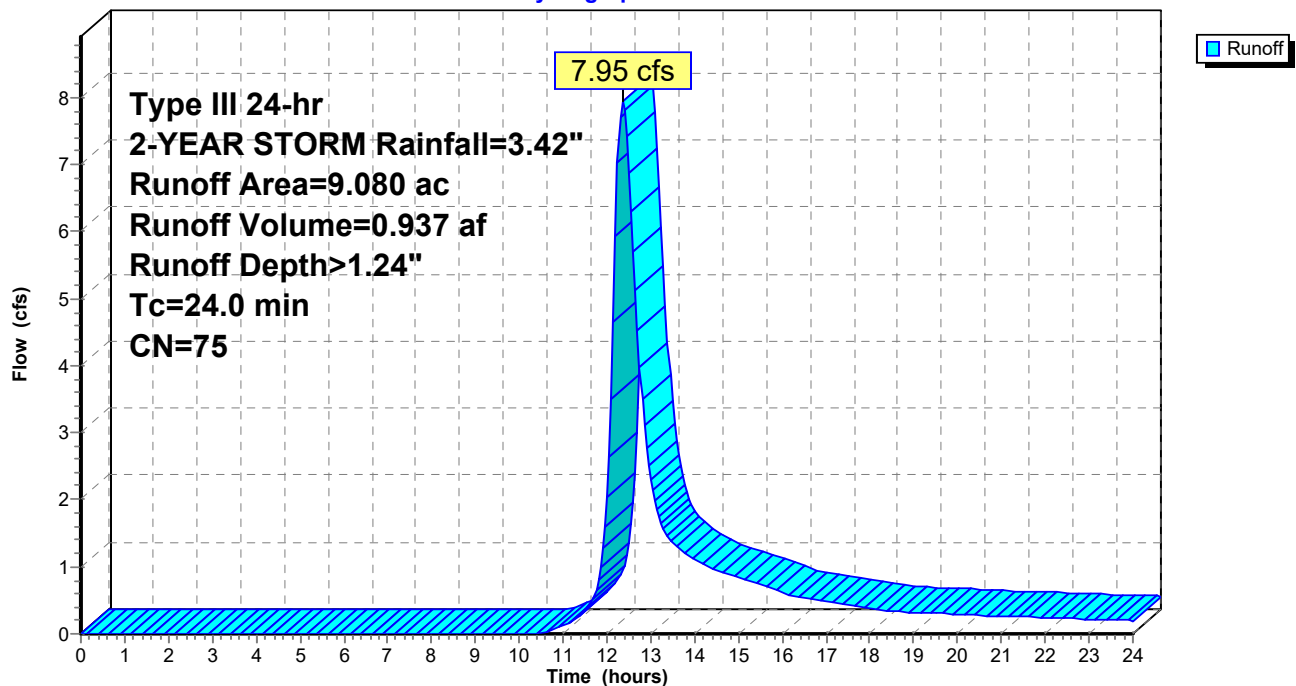
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 9.080	75	
9.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					Direct Entry, SCS TR-55

Subcatchment 4:

Hydrograph



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	0.72	1.65
0.25	0.01	0.00	0.00	13.50	2.68	0.76	1.36
0.50	0.02	0.00	0.00	13.75	2.73	0.79	1.22
0.75	0.03	0.00	0.00	14.00	2.77	0.82	1.12
1.00	0.03	0.00	0.00	14.25	2.81	0.84	1.01
1.25	0.04	0.00	0.00	14.50	2.85	0.87	0.94
1.50	0.05	0.00	0.00	14.75	2.89	0.89	0.89
1.75	0.06	0.00	0.00	15.00	2.92	0.91	0.83
2.00	0.07	0.00	0.00	15.25	2.95	0.93	0.78
2.25	0.08	0.00	0.00	15.50	2.98	0.95	0.73
2.50	0.09	0.00	0.00	15.75	3.01	0.97	0.67
2.75	0.10	0.00	0.00	16.00	3.03	0.98	0.62
3.00	0.11	0.00	0.00	16.25	3.05	0.99	0.56
3.25	0.12	0.00	0.00	16.50	3.07	1.01	0.53
3.50	0.13	0.00	0.00	16.75	3.09	1.02	0.50
3.75	0.14	0.00	0.00	17.00	3.11	1.03	0.48
4.00	0.15	0.00	0.00	17.25	3.13	1.05	0.45
4.25	0.16	0.00	0.00	17.50	3.14	1.06	0.43
4.50	0.17	0.00	0.00	17.75	3.16	1.07	0.40
4.75	0.18	0.00	0.00	18.00	3.17	1.08	0.38
5.00	0.19	0.00	0.00	18.25	3.19	1.09	0.35
5.25	0.21	0.00	0.00	18.50	3.20	1.09	0.34
5.50	0.22	0.00	0.00	18.75	3.21	1.10	0.33
5.75	0.23	0.00	0.00	19.00	3.23	1.11	0.32
6.00	0.25	0.00	0.00	19.25	3.24	1.12	0.31
6.25	0.26	0.00	0.00	19.50	3.25	1.13	0.30
6.50	0.28	0.00	0.00	19.75	3.26	1.14	0.30
6.75	0.29	0.00	0.00	20.00	3.27	1.14	0.29
7.00	0.31	0.00	0.00	20.25	3.28	1.15	0.28
7.25	0.33	0.00	0.00	20.50	3.29	1.16	0.28
7.50	0.35	0.00	0.00	20.75	3.31	1.17	0.27
7.75	0.37	0.00	0.00	21.00	3.32	1.17	0.26
8.00	0.39	0.00	0.00	21.25	3.33	1.18	0.26
8.25	0.41	0.00	0.00	21.50	3.34	1.19	0.25
8.50	0.44	0.00	0.00	21.75	3.34	1.19	0.25
8.75	0.47	0.00	0.00	22.00	3.35	1.20	0.24
9.00	0.50	0.00	0.00	22.25	3.36	1.21	0.24
9.25	0.53	0.00	0.00	22.50	3.37	1.21	0.23
9.50	0.57	0.00	0.00	22.75	3.38	1.22	0.22
9.75	0.61	0.00	0.00	23.00	3.39	1.22	0.22
10.00	0.65	0.00	0.00	23.25	3.40	1.23	0.21
10.25	0.69	0.00	0.00	23.50	3.40	1.23	0.21
10.50	0.74	0.00	0.01	23.75	3.41	1.24	0.20
10.75	0.80	0.00	0.06	24.00	3.42	1.25	0.20
11.00	0.85	0.01	0.12				
11.25	0.93	0.02	0.20				
11.50	1.02	0.03	0.34				
11.75	1.21	0.08	0.65				
12.00	1.71	0.25	2.03				
12.25	2.21	0.49	7.02				
12.50	2.40	0.59	6.87				
12.75	2.49	0.65	3.97				
13.00	2.56	0.69	2.31				

Summary for Subcatchment 5:

Runoff = 19.66 cfs @ 12.42 hrs, Volume= 2.455 af, Depth> 1.94"

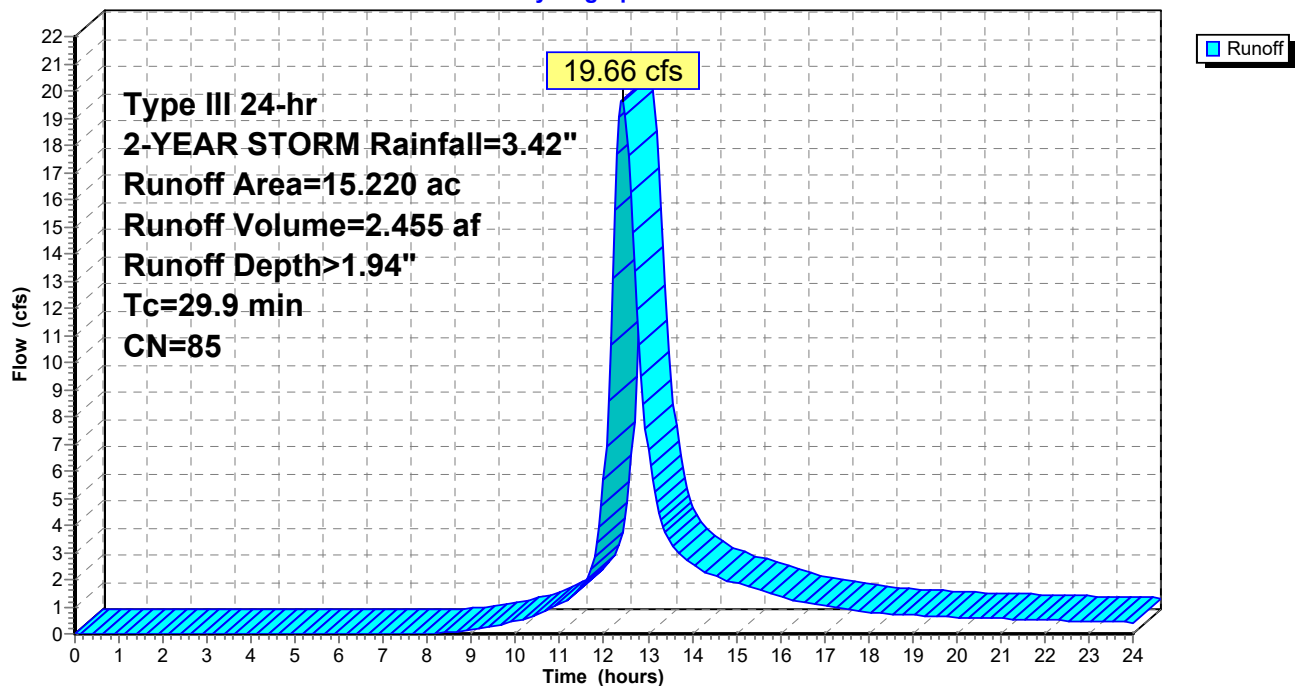
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-YEAR STORM Rainfall=3.42"

Area (ac)	CN	Description
* 15.220	85	
15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					Direct Entry, SCS TR-55

Subcatchment 5:

Hydrograph



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	2.62	1.28	4.49
0.25	0.01	0.00	0.00	13.50	2.68	1.32	3.41
0.50	0.02	0.00	0.00	13.75	2.73	1.36	2.89
0.75	0.03	0.00	0.00	14.00	2.77	1.40	2.58
1.00	0.03	0.00	0.00	14.25	2.81	1.43	2.33
1.25	0.04	0.00	0.00	14.50	2.85	1.47	2.13
1.50	0.05	0.00	0.00	14.75	2.89	1.49	1.99
1.75	0.06	0.00	0.00	15.00	2.92	1.52	1.87
2.00	0.07	0.00	0.00	15.25	2.95	1.55	1.74
2.25	0.08	0.00	0.00	15.50	2.98	1.57	1.62
2.50	0.09	0.00	0.00	15.75	3.01	1.59	1.50
2.75	0.10	0.00	0.00	16.00	3.03	1.61	1.38
3.00	0.11	0.00	0.00	16.25	3.05	1.63	1.26
3.25	0.12	0.00	0.00	16.50	3.07	1.65	1.16
3.50	0.13	0.00	0.00	16.75	3.09	1.67	1.09
3.75	0.14	0.00	0.00	17.00	3.11	1.68	1.04
4.00	0.15	0.00	0.00	17.25	3.13	1.70	0.98
4.25	0.16	0.00	0.00	17.50	3.14	1.71	0.93
4.50	0.17	0.00	0.00	17.75	3.16	1.72	0.87
4.75	0.18	0.00	0.00	18.00	3.17	1.74	0.82
5.00	0.19	0.00	0.00	18.25	3.19	1.75	0.76
5.25	0.21	0.00	0.00	18.50	3.20	1.76	0.72
5.50	0.22	0.00	0.00	18.75	3.21	1.77	0.70
5.75	0.23	0.00	0.00	19.00	3.23	1.78	0.68
6.00	0.25	0.00	0.00	19.25	3.24	1.79	0.66
6.25	0.26	0.00	0.00	19.50	3.25	1.80	0.65
6.50	0.28	0.00	0.00	19.75	3.26	1.81	0.63
6.75	0.29	0.00	0.00	20.00	3.27	1.82	0.62
7.00	0.31	0.00	0.00	20.25	3.28	1.83	0.60
7.25	0.33	0.00	0.00	20.50	3.29	1.84	0.58
7.50	0.35	0.00	0.00	20.75	3.31	1.85	0.57
7.75	0.37	0.00	0.00	21.00	3.32	1.86	0.56
8.00	0.39	0.00	0.01	21.25	3.33	1.87	0.55
8.25	0.41	0.00	0.03	21.50	3.34	1.87	0.53
8.50	0.44	0.00	0.07	21.75	3.34	1.88	0.52
8.75	0.47	0.01	0.11	22.00	3.35	1.89	0.51
9.00	0.50	0.01	0.16	22.25	3.36	1.90	0.50
9.25	0.53	0.02	0.23	22.50	3.37	1.91	0.49
9.50	0.57	0.02	0.30	22.75	3.38	1.91	0.47
9.75	0.61	0.03	0.39	23.00	3.39	1.92	0.46
10.00	0.65	0.04	0.48	23.25	3.40	1.93	0.45
10.25	0.69	0.05	0.59	23.50	3.40	1.93	0.44
10.50	0.74	0.07	0.72	23.75	3.41	1.94	0.42
10.75	0.80	0.09	0.89	24.00	3.42	1.95	0.41
11.00	0.85	0.11	1.09				
11.25	0.93	0.14	1.32				
11.50	1.02	0.18	1.72				
11.75	1.21	0.28	2.53				
12.00	1.71	0.59	5.67				
12.25	2.21	0.95	15.62				
12.50	2.40	1.10	18.79				
12.75	2.49	1.17	11.97				
13.00	2.56	1.23	6.81				

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 1.36" for 2-YEAR STORM event
 Inflow = 3.50 cfs @ 12.62 hrs, Volume= 0.530 af
 Outflow = 0.67 cfs @ 14.18 hrs, Volume= 0.481 af, Atten= 81%, Lag= 93.6 min
 Primary = 0.67 cfs @ 14.18 hrs, Volume= 0.481 af
 Secondary = 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= 127.40' @ 14.18 hrs Surf.Area= 4,915 sf Storage= 10,589 cf

Plug-Flow detention time= 205.8 min calculated for 0.481 af (91% of inflow)
 Center-of-Mass det. time= 162.4 min (1,038.9 - 876.5)

Volume	Invert	Avail.Storage	Storage Description
#1	124.00'	36,194 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.00	1,464	0	0
125.00	2,382	1,923	1,923
126.00	3,381	2,882	4,805
127.00	4,452	3,917	8,721
128.00	5,614	5,033	13,754
129.00	6,826	6,220	19,974
130.00	8,095	7,461	27,435
131.00	9,424	8,760	36,194

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#2	Primary	124.70'	15.0" Round Culvert L= 70.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 124.70' / 124.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	130.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	124.70'	4.0" Vert. Orifice/Grate C= 0.600

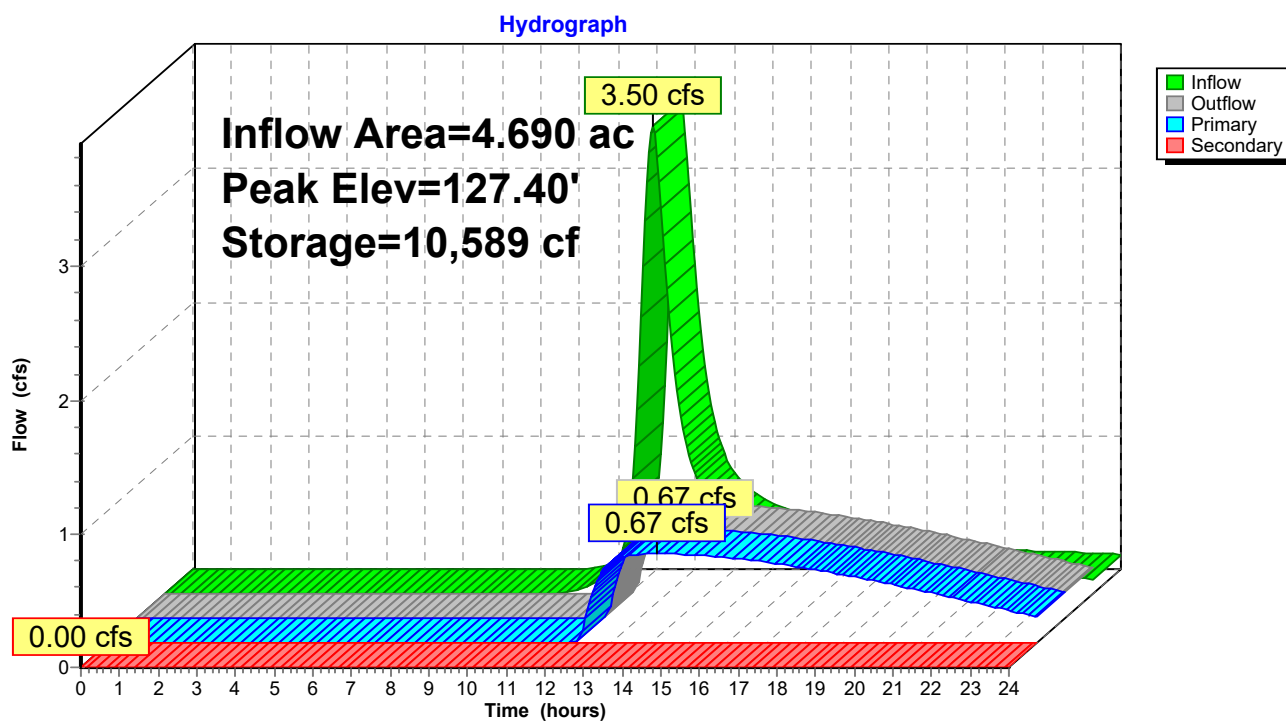
Primary OutFlow Max=0.67 cfs @ 14.18 hrs HW=127.40' (Free Discharge)

↑ **2=Culvert** (Passes 0.67 cfs of 8.49 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
 ↑ **4=Orifice/Grate** (Orifice Controls 0.67 cfs @ 7.66 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.00' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	124.00	0.00	0.00	0.00
0.50	0.00	0	124.00	0.00	0.00	0.00
1.00	0.00	0	124.00	0.00	0.00	0.00
1.50	0.00	0	124.00	0.00	0.00	0.00
2.00	0.00	0	124.00	0.00	0.00	0.00
2.50	0.00	0	124.00	0.00	0.00	0.00
3.00	0.00	0	124.00	0.00	0.00	0.00
3.50	0.00	0	124.00	0.00	0.00	0.00
4.00	0.00	0	124.00	0.00	0.00	0.00
4.50	0.00	0	124.00	0.00	0.00	0.00
5.00	0.00	0	124.00	0.00	0.00	0.00
5.50	0.00	0	124.00	0.00	0.00	0.00
6.00	0.00	0	124.00	0.00	0.00	0.00
6.50	0.00	0	124.00	0.00	0.00	0.00
7.00	0.00	0	124.00	0.00	0.00	0.00
7.50	0.00	0	124.00	0.00	0.00	0.00
8.00	0.00	0	124.00	0.00	0.00	0.00
8.50	0.00	0	124.00	0.00	0.00	0.00
9.00	0.00	0	124.00	0.00	0.00	0.00
9.50	0.00	0	124.00	0.00	0.00	0.00
10.00	0.00	0	124.00	0.00	0.00	0.00
10.50	0.02	13	124.01	0.00	0.00	0.00
11.00	0.07	89	124.06	0.00	0.00	0.00
11.50	0.16	291	124.19	0.00	0.00	0.00
12.00	0.56	818	124.48	0.00	0.00	0.00
12.50	3.30	3,829	125.70	0.38	0.38	0.00
13.00	2.28	8,481	126.95	0.61	0.61	0.00
13.50	1.10	10,177	127.31	0.66	0.66	0.00
14.00	0.73	10,569	127.39	0.67	0.67	0.00
14.50	0.58	10,533	127.39	0.67	0.67	0.00
15.00	0.49	10,294	127.34	0.66	0.66	0.00
15.50	0.43	9,948	127.27	0.65	0.65	0.00
16.00	0.37	9,513	127.17	0.64	0.64	0.00
16.50	0.32	8,997	127.06	0.62	0.62	0.00
17.00	0.28	8,424	126.93	0.60	0.60	0.00
17.50	0.25	7,827	126.79	0.58	0.58	0.00
18.00	0.22	7,219	126.65	0.56	0.56	0.00
18.50	0.19	6,605	126.49	0.54	0.54	0.00
19.00	0.18	6,000	126.34	0.51	0.51	0.00
19.50	0.17	5,424	126.18	0.48	0.48	0.00
20.00	0.16	4,884	126.02	0.45	0.45	0.00
20.50	0.15	4,384	125.87	0.42	0.42	0.00
21.00	0.15	3,925	125.73	0.39	0.39	0.00
21.50	0.14	3,512	125.59	0.36	0.36	0.00
22.00	0.14	3,145	125.47	0.33	0.33	0.00
22.50	0.13	2,826	125.35	0.29	0.29	0.00
23.00	0.12	2,554	125.25	0.26	0.26	0.00
23.50	0.12	2,329	125.16	0.23	0.23	0.00
24.00	0.11	2,147	125.09	0.20	0.20	0.00

Stage-Discharge for Pond 1A - Pond: 1A - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
124.00	0.00	0.00	0.00	129.30	0.88	0.88	0.00
124.10	0.00	0.00	0.00	129.40	0.89	0.89	0.00
124.20	0.00	0.00	0.00	129.50	0.90	0.90	0.00
124.30	0.00	0.00	0.00	129.60	0.91	0.91	0.00
124.40	0.00	0.00	0.00	129.70	0.92	0.92	0.00
124.50	0.00	0.00	0.00	129.80	0.93	0.93	0.00
124.60	0.00	0.00	0.00	129.90	0.94	0.94	0.00
124.70	0.00	0.00	0.00	130.00	0.95	0.95	0.00
124.80	0.02	0.02	0.00	130.10	1.28	1.28	0.00
124.90	0.08	0.08	0.00	130.20	1.88	1.88	0.00
125.00	0.15	0.15	0.00	130.30	2.68	2.68	0.00
125.10	0.20	0.20	0.00	130.40	3.64	3.64	0.00
125.20	0.24	0.24	0.00	130.50	4.76	4.76	0.00
125.30	0.28	0.28	0.00	130.60	6.03	6.03	0.00
125.40	0.31	0.31	0.00	130.70	7.43	7.43	0.00
125.50	0.33	0.33	0.00	130.80	8.97	8.97	0.00
125.60	0.36	0.36	0.00	130.90	10.64	10.64	0.00
125.70	0.38	0.38	0.00	131.00	14.06	12.44	1.63
125.80	0.41	0.41	0.00				
125.90	0.43	0.43	0.00				
126.00	0.45	0.45	0.00				
126.10	0.47	0.47	0.00				
126.20	0.49	0.49	0.00				
126.30	0.50	0.50	0.00				
126.40	0.52	0.52	0.00				
126.50	0.54	0.54	0.00				
126.60	0.55	0.55	0.00				
126.70	0.57	0.57	0.00				
126.80	0.58	0.58	0.00				
126.90	0.60	0.60	0.00				
127.00	0.61	0.61	0.00				
127.10	0.63	0.63	0.00				
127.20	0.64	0.64	0.00				
127.30	0.66	0.66	0.00				
127.40	0.67	0.67	0.00				
127.50	0.68	0.68	0.00				
127.60	0.69	0.69	0.00				
127.70	0.71	0.71	0.00				
127.80	0.72	0.72	0.00				
127.90	0.73	0.73	0.00				
128.00	0.74	0.74	0.00				
128.10	0.76	0.76	0.00				
128.20	0.77	0.77	0.00				
128.30	0.78	0.78	0.00				
128.40	0.79	0.79	0.00				
128.50	0.80	0.80	0.00				
128.60	0.81	0.81	0.00				
128.70	0.82	0.82	0.00				
128.80	0.83	0.83	0.00				
128.90	0.84	0.84	0.00				
129.00	0.85	0.85	0.00				
129.10	0.86	0.86	0.00				
129.20	0.87	0.87	0.00				

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 1.49" for 2-YEAR STORM event
 Inflow = 8.76 cfs @ 12.60 hrs, Volume= 1.308 af
 Outflow = 1.57 cfs @ 14.21 hrs, Volume= 1.138 af, Atten= 82%, Lag= 96.4 min
 Primary = 1.57 cfs @ 14.21 hrs, Volume= 1.138 af
 Secondary = 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= 122.60' @ 14.21 hrs Surf.Area= 9,858 sf Storage= 27,611 cf

Plug-Flow detention time= 229.9 min calculated for 1.138 af (87% of inflow)
 Center-of-Mass det. time= 173.6 min (1,043.9 - 870.3)

Volume	Invert	Avail.Storage	Storage Description
#1	119.00'	83,261 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
119.00	5,600	0	0
120.00	6,708	6,154	6,154
121.00	7,871	7,290	13,444
122.00	9,092	8,482	21,925
123.00	10,369	9,731	31,656
124.00	11,703	11,036	42,692
125.00	12,160	11,932	54,623
126.00	14,538	13,349	67,972
127.00	16,040	15,289	83,261

Device	Routing	Invert	Outlet Devices
#1	Primary	119.60'	15.0" Round Culvert L= 88.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.60' / 119.00' S= 0.0068 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Secondary	126.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	124.50'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	119.60'	6.0" Vert. Orifice/Grate C= 0.600

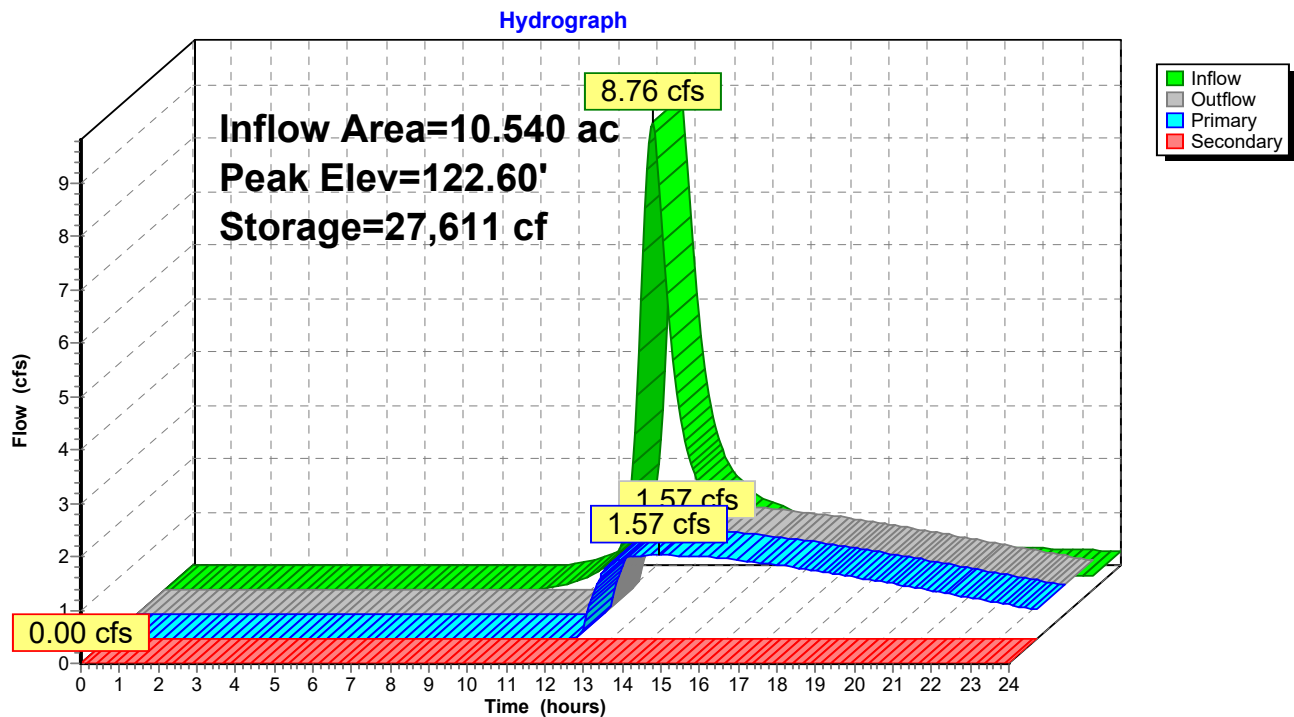
Primary OutFlow Max=1.57 cfs @ 14.21 hrs HW=122.60' (Free Discharge)

1=Culvert (Passes 1.57 cfs of 8.38 cfs potential flow)
 3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)
 4=Orifice/Grate (Orifice Controls 1.57 cfs @ 7.98 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=119.00' (Free Discharge)

2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	119.00	0.00	0.00	0.00
0.50	0.00	0	119.00	0.00	0.00	0.00
1.00	0.00	0	119.00	0.00	0.00	0.00
1.50	0.00	0	119.00	0.00	0.00	0.00
2.00	0.00	0	119.00	0.00	0.00	0.00
2.50	0.00	0	119.00	0.00	0.00	0.00
3.00	0.00	0	119.00	0.00	0.00	0.00
3.50	0.00	0	119.00	0.00	0.00	0.00
4.00	0.00	0	119.00	0.00	0.00	0.00
4.50	0.00	0	119.00	0.00	0.00	0.00
5.00	0.00	0	119.00	0.00	0.00	0.00
5.50	0.00	0	119.00	0.00	0.00	0.00
6.00	0.00	0	119.00	0.00	0.00	0.00
6.50	0.00	0	119.00	0.00	0.00	0.00
7.00	0.00	0	119.00	0.00	0.00	0.00
7.50	0.00	0	119.00	0.00	0.00	0.00
8.00	0.00	0	119.00	0.00	0.00	0.00
8.50	0.00	0	119.00	0.00	0.00	0.00
9.00	0.00	0	119.00	0.00	0.00	0.00
9.50	0.00	0	119.00	0.00	0.00	0.00
10.00	0.03	19	119.00	0.00	0.00	0.00
10.50	0.12	147	119.03	0.00	0.00	0.00
11.00	0.27	484	119.09	0.00	0.00	0.00
11.50	0.51	1,154	119.20	0.00	0.00	0.00
12.00	1.56	2,682	119.46	0.00	0.00	0.00
12.50	8.35	10,634	120.63	0.84	0.84	0.00
13.00	5.54	22,341	122.05	1.40	1.40	0.00
13.50	2.63	26,540	122.49	1.54	1.54	0.00
14.00	1.75	27,542	122.59	1.57	1.57	0.00
14.50	1.37	27,503	122.59	1.56	1.56	0.00
15.00	1.18	26,974	122.54	1.55	1.55	0.00
15.50	1.03	26,188	122.45	1.53	1.53	0.00
16.00	0.89	25,192	122.35	1.49	1.49	0.00
16.50	0.75	23,999	122.22	1.46	1.46	0.00
17.00	0.66	22,672	122.08	1.41	1.41	0.00
17.50	0.59	21,291	121.93	1.36	1.36	0.00
18.00	0.52	19,882	121.77	1.31	1.31	0.00
18.50	0.46	18,455	121.61	1.25	1.25	0.00
19.00	0.43	17,046	121.44	1.19	1.19	0.00
19.50	0.40	15,699	121.28	1.13	1.13	0.00
20.00	0.38	14,429	121.12	1.07	1.07	0.00
20.50	0.36	13,240	120.97	1.00	1.00	0.00
21.00	0.35	12,136	120.83	0.94	0.94	0.00
21.50	0.33	11,123	120.70	0.87	0.87	0.00
22.00	0.32	10,201	120.57	0.80	0.80	0.00
22.50	0.30	9,372	120.46	0.74	0.74	0.00
23.00	0.29	8,633	120.36	0.67	0.67	0.00
23.50	0.27	7,984	120.27	0.61	0.61	0.00
24.00	0.26	7,421	120.19	0.55	0.55	0.00

Stage-Discharge for Pond 1B - Pond: 1B - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
119.00	0.00	0.00	0.00	124.30	1.99	1.99	0.00
119.10	0.00	0.00	0.00	124.40	2.02	2.02	0.00
119.20	0.00	0.00	0.00	124.50	2.04	2.04	0.00
119.30	0.00	0.00	0.00	124.60	2.38	2.38	0.00
119.40	0.00	0.00	0.00	124.70	2.99	2.99	0.00
119.50	0.00	0.00	0.00	124.80	3.80	3.80	0.00
119.60	0.00	0.00	0.00	124.90	4.78	4.78	0.00
119.70	0.03	0.03	0.00	125.00	5.91	5.91	0.00
119.80	0.11	0.11	0.00	125.10	7.19	7.19	0.00
119.90	0.23	0.23	0.00	125.20	8.60	8.60	0.00
120.00	0.36	0.36	0.00	125.30	10.15	10.15	0.00
120.10	0.47	0.47	0.00	125.40	11.83	11.83	0.00
120.20	0.56	0.56	0.00	125.50	12.52	12.52	0.00
120.30	0.63	0.63	0.00	125.60	12.64	12.64	0.00
120.40	0.70	0.70	0.00	125.70	12.76	12.76	0.00
120.50	0.76	0.76	0.00	125.80	12.87	12.87	0.00
120.60	0.82	0.82	0.00	125.90	12.99	12.99	0.00
120.70	0.87	0.87	0.00	126.00	13.10	13.10	0.00
120.80	0.92	0.92	0.00	126.10	13.22	13.22	0.00
120.90	0.97	0.97	0.00	126.20	13.33	13.33	0.00
121.00	1.01	1.01	0.00	126.30	13.44	13.44	0.00
121.10	1.06	1.06	0.00	126.40	13.55	13.55	0.00
121.20	1.10	1.10	0.00	126.50	13.66	13.66	0.00
121.30	1.14	1.14	0.00	126.60	13.77	13.77	0.00
121.40	1.18	1.18	0.00	126.70	13.88	13.88	0.00
121.50	1.21	1.21	0.00	126.80	13.98	13.98	0.00
121.60	1.25	1.25	0.00	126.90	14.09	14.09	0.00
121.70	1.29	1.29	0.00	127.00	15.82	14.20	1.63
121.80	1.32	1.32	0.00				
121.90	1.35	1.35	0.00				
122.00	1.39	1.39	0.00				
122.10	1.42	1.42	0.00				
122.20	1.45	1.45	0.00				
122.30	1.48	1.48	0.00				
122.40	1.51	1.51	0.00				
122.50	1.54	1.54	0.00				
122.60	1.57	1.57	0.00				
122.70	1.60	1.60	0.00				
122.80	1.62	1.62	0.00				
122.90	1.65	1.65	0.00				
123.00	1.68	1.68	0.00				
123.10	1.70	1.70	0.00				
123.20	1.73	1.73	0.00				
123.30	1.76	1.76	0.00				
123.40	1.78	1.78	0.00				
123.50	1.81	1.81	0.00				
123.60	1.83	1.83	0.00				
123.70	1.86	1.86	0.00				
123.80	1.88	1.88	0.00				
123.90	1.90	1.90	0.00				
124.00	1.93	1.93	0.00				
124.10	1.95	1.95	0.00				
124.20	1.97	1.97	0.00				

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 1.63" for 2-YEAR STORM event
 Inflow = 8.62 cfs @ 12.50 hrs, Volume= 1.166 af
 Outflow = 3.21 cfs @ 13.13 hrs, Volume= 1.021 af, Atten= 63%, Lag= 37.5 min
 Primary = 3.21 cfs @ 13.13 hrs, Volume= 1.021 af
 Secondary = 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= 117.52' @ 13.13 hrs Surf.Area= 15,051 sf Storage= 19,556 cf

Plug-Flow detention time= 131.7 min calculated for 1.019 af (87% of inflow)
 Center-of-Mass det. time= 77.2 min (935.9 - 858.7)

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	65,972 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	10,723	0	0
117.00	13,549	12,136	12,136
118.00	16,443	14,996	27,132
119.00	19,403	17,923	45,055
120.00	22,431	20,917	65,972

Device	Routing	Invert	Outlet Devices
#1	Primary	116.30'	24.0" Round Culvert L= 85.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.30' / 115.50' S= 0.0094 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	119.80'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	119.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	116.30'	12.0" Vert. Orifice/Grate C= 0.600

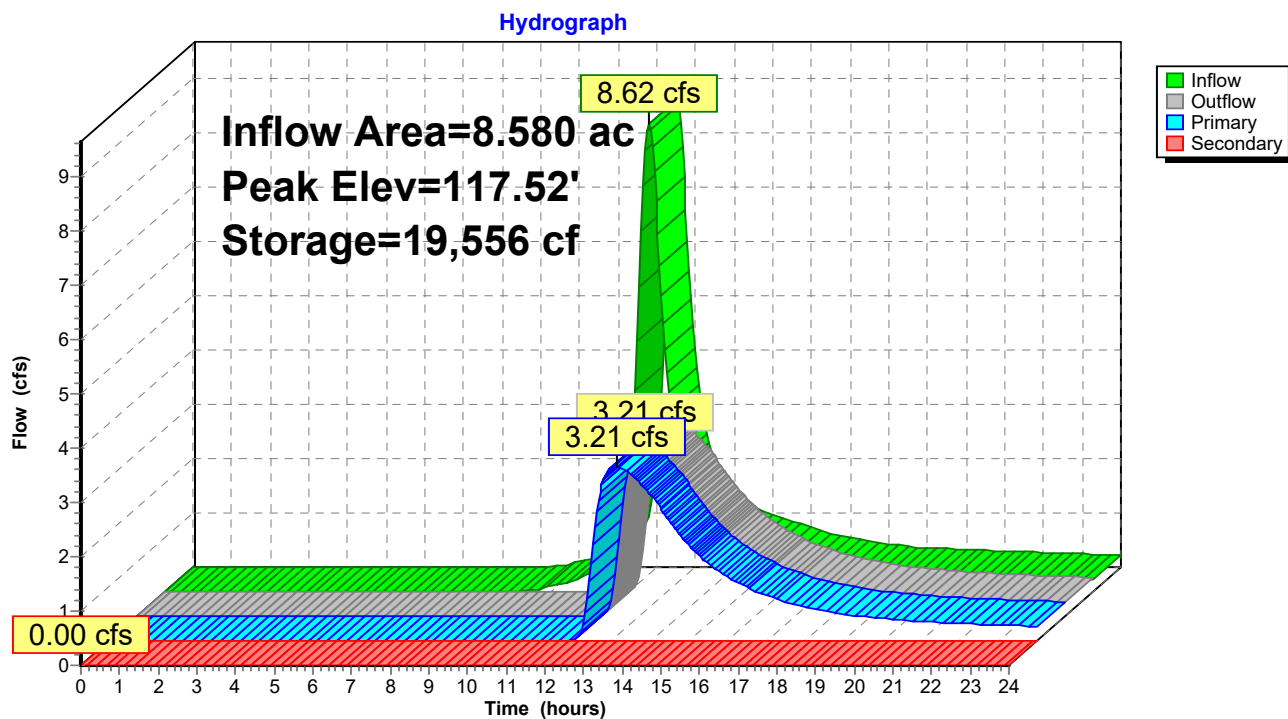
Primary OutFlow Max=3.21 cfs @ 13.13 hrs HW=117.52' (Free Discharge)

↑ **1=Culvert** (Passes 3.21 cfs of 7.50 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
 ↑ **4=Orifice/Grate** (Orifice Controls 3.21 cfs @ 4.08 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=116.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	116.00	0.00	0.00	0.00
0.50	0.00	0	116.00	0.00	0.00	0.00
1.00	0.00	0	116.00	0.00	0.00	0.00
1.50	0.00	0	116.00	0.00	0.00	0.00
2.00	0.00	0	116.00	0.00	0.00	0.00
2.50	0.00	0	116.00	0.00	0.00	0.00
3.00	0.00	0	116.00	0.00	0.00	0.00
3.50	0.00	0	116.00	0.00	0.00	0.00
4.00	0.00	0	116.00	0.00	0.00	0.00
4.50	0.00	0	116.00	0.00	0.00	0.00
5.00	0.00	0	116.00	0.00	0.00	0.00
5.50	0.00	0	116.00	0.00	0.00	0.00
6.00	0.00	0	116.00	0.00	0.00	0.00
6.50	0.00	0	116.00	0.00	0.00	0.00
7.00	0.00	0	116.00	0.00	0.00	0.00
7.50	0.00	0	116.00	0.00	0.00	0.00
8.00	0.00	0	116.00	0.00	0.00	0.00
8.50	0.00	0	116.00	0.00	0.00	0.00
9.00	0.00	0	116.00	0.00	0.00	0.00
9.50	0.03	18	116.00	0.00	0.00	0.00
10.00	0.10	127	116.01	0.00	0.00	0.00
10.50	0.19	384	116.04	0.00	0.00	0.00
11.00	0.35	862	116.08	0.00	0.00	0.00
11.50	0.60	1,682	116.15	0.00	0.00	0.00
12.00	1.95	3,515	116.31	0.00	0.00	0.00
12.50	8.62	12,527	117.03	1.78	1.78	0.00
13.00	4.05	19,371	117.51	3.18	3.18	0.00
13.50	1.93	18,627	117.46	3.06	3.06	0.00
14.00	1.38	16,341	117.30	2.68	2.68	0.00
14.50	1.12	14,142	117.15	2.22	2.22	0.00
15.00	0.98	12,459	117.02	1.76	1.76	0.00
15.50	0.85	11,255	116.93	1.43	1.43	0.00
16.00	0.73	10,351	116.87	1.18	1.18	0.00
16.50	0.62	9,622	116.81	0.98	0.98	0.00
17.00	0.55	9,036	116.77	0.83	0.83	0.00
17.50	0.49	8,574	116.73	0.72	0.72	0.00
18.00	0.43	8,191	116.70	0.63	0.63	0.00
18.50	0.38	7,856	116.67	0.56	0.56	0.00
19.00	0.36	7,575	116.65	0.50	0.50	0.00
19.50	0.34	7,353	116.63	0.45	0.45	0.00
20.00	0.32	7,172	116.62	0.41	0.41	0.00
20.50	0.31	7,020	116.61	0.38	0.38	0.00
21.00	0.29	6,891	116.60	0.36	0.36	0.00
21.50	0.28	6,777	116.59	0.34	0.34	0.00
22.00	0.27	6,676	116.58	0.32	0.32	0.00
22.50	0.26	6,582	116.57	0.31	0.31	0.00
23.00	0.24	6,494	116.56	0.29	0.29	0.00
23.50	0.23	6,410	116.56	0.28	0.28	0.00
24.00	0.22	6,327	116.55	0.26	0.26	0.00

Stage-Discharge for Pond 1C-Pond: 1C - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
116.00	0.00	0.00	0.00	118.65	5.14	5.14	0.00
116.05	0.00	0.00	0.00	118.70	5.21	5.21	0.00
116.10	0.00	0.00	0.00	118.75	5.28	5.28	0.00
116.15	0.00	0.00	0.00	118.80	5.35	5.35	0.00
116.20	0.00	0.00	0.00	118.85	5.41	5.41	0.00
116.25	0.00	0.00	0.00	118.90	5.48	5.48	0.00
116.30	0.00	0.00	0.00	118.95	5.55	5.55	0.00
116.35	0.01	0.01	0.00	119.00	5.61	5.61	0.00
116.40	0.04	0.04	0.00	119.05	5.78	5.78	0.00
116.45	0.10	0.10	0.00	119.10	6.05	6.05	0.00
116.50	0.17	0.17	0.00	119.15	6.38	6.38	0.00
116.55	0.26	0.26	0.00	119.20	6.77	6.77	0.00
116.60	0.37	0.37	0.00	119.25	7.20	7.20	0.00
116.65	0.49	0.49	0.00	119.30	7.68	7.68	0.00
116.70	0.63	0.63	0.00	119.35	8.19	8.19	0.00
116.75	0.78	0.78	0.00	119.40	8.75	8.75	0.00
116.80	0.95	0.95	0.00	119.45	9.34	9.34	0.00
116.85	1.12	1.12	0.00	119.50	9.98	9.98	0.00
116.90	1.30	1.30	0.00	119.55	10.64	10.64	0.00
116.95	1.48	1.48	0.00	119.60	11.35	11.35	0.00
117.00	1.67	1.67	0.00	119.65	12.08	12.08	0.00
117.05	1.86	1.86	0.00	119.70	12.86	12.86	0.00
117.10	2.05	2.05	0.00	119.75	13.66	13.66	0.00
117.15	2.23	2.23	0.00	119.80	14.50	14.50	0.00
117.20	2.40	2.40	0.00	119.85	15.94	15.36	0.57
117.25	2.56	2.56	0.00	119.90	17.89	16.27	1.63
117.30	2.67	2.67	0.00	119.95	20.18	17.20	2.99
117.35	2.80	2.80	0.00	120.00	22.76	18.16	4.60
117.40	2.93	2.93	0.00				
117.45	3.05	3.05	0.00				
117.50	3.16	3.16	0.00				
117.55	3.28	3.28	0.00				
117.60	3.38	3.38	0.00				
117.65	3.49	3.49	0.00				
117.70	3.59	3.59	0.00				
117.75	3.69	3.69	0.00				
117.80	3.78	3.78	0.00				
117.85	3.88	3.88	0.00				
117.90	3.97	3.97	0.00				
117.95	4.06	4.06	0.00				
118.00	4.14	4.14	0.00				
118.05	4.23	4.23	0.00				
118.10	4.31	4.31	0.00				
118.15	4.39	4.39	0.00				
118.20	4.47	4.47	0.00				
118.25	4.55	4.55	0.00				
118.30	4.63	4.63	0.00				
118.35	4.71	4.71	0.00				
118.40	4.78	4.78	0.00				
118.45	4.86	4.86	0.00				
118.50	4.93	4.93	0.00				
118.55	5.00	5.00	0.00				
118.60	5.07	5.07	0.00				

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 4.800 ac, 0.00% Impervious, Inflow Depth > 1.64" for 2-YEAR STORM event
 Inflow = 5.98 cfs @ 12.31 hrs, Volume= 0.655 af
 Outflow = 4.13 cfs @ 12.55 hrs, Volume= 0.610 af, Atten= 31%, Lag= 14.4 min
 Primary = 4.13 cfs @ 12.55 hrs, Volume= 0.610 af
 Secondary = 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= 172.49' @ 12.55 hrs Surf.Area= 5,226 sf Storage= 6,796 cf

Plug-Flow detention time= 68.1 min calculated for 0.610 af (93% of inflow)
 Center-of-Mass det. time= 33.5 min (881.6 - 848.1)

Volume	Invert	Avail.Storage	Storage Description
#1	171.00'	23,080 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	3,912	0	0
172.00	4,771	4,342	4,342
173.00	5,697	5,234	9,576
174.00	6,691	6,194	15,770
175.00	7,929	7,310	23,080

Device	Routing	Invert	Outlet Devices
#1	Device 2	171.60'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#2	Primary	171.30'	15.0" Round Culvert L= 31.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 171.30' / 171.00' S= 0.0097 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Secondary	174.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	171.30'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=4.13 cfs @ 12.55 hrs HW=172.49' (Free Discharge)

↑ **2=Culvert** (Barrel Controls 4.13 cfs @ 4.40 fps)

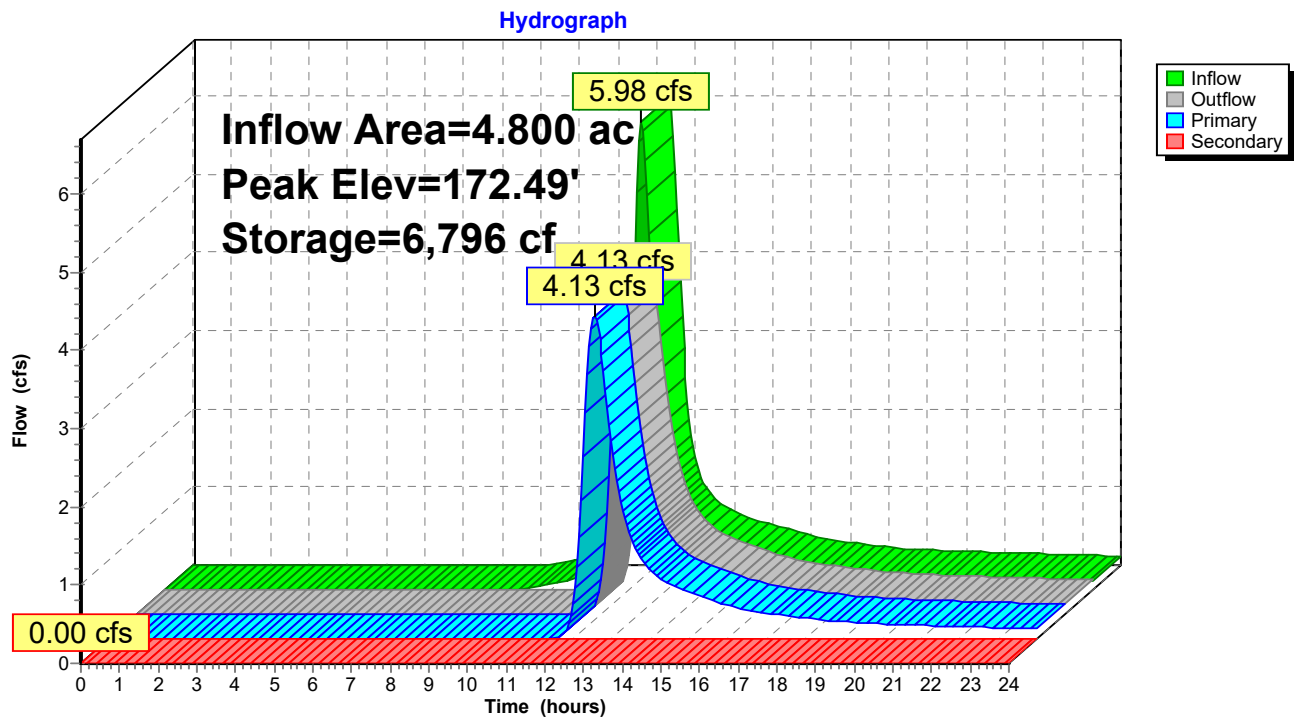
↑ **1=Sharp-Crested Rectangular Weir** (Passes < 9.45 cfs potential flow)

↑ **4=Orifice/Grate** (Passes < 3.14 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=171.00' (Free Discharge)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2 - Pond: 2 - Pond



Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	171.00	0.00	0.00	0.00
0.50	0.00	0	171.00	0.00	0.00	0.00
1.00	0.00	0	171.00	0.00	0.00	0.00
1.50	0.00	0	171.00	0.00	0.00	0.00
2.00	0.00	0	171.00	0.00	0.00	0.00
2.50	0.00	0	171.00	0.00	0.00	0.00
3.00	0.00	0	171.00	0.00	0.00	0.00
3.50	0.00	0	171.00	0.00	0.00	0.00
4.00	0.00	0	171.00	0.00	0.00	0.00
4.50	0.00	0	171.00	0.00	0.00	0.00
5.00	0.00	0	171.00	0.00	0.00	0.00
5.50	0.00	0	171.00	0.00	0.00	0.00
6.00	0.00	0	171.00	0.00	0.00	0.00
6.50	0.00	0	171.00	0.00	0.00	0.00
7.00	0.00	0	171.00	0.00	0.00	0.00
7.50	0.00	0	171.00	0.00	0.00	0.00
8.00	0.00	0	171.00	0.00	0.00	0.00
8.50	0.00	0	171.00	0.00	0.00	0.00
9.00	0.00	0	171.00	0.00	0.00	0.00
9.50	0.03	22	171.01	0.00	0.00	0.00
10.00	0.07	112	171.03	0.00	0.00	0.00
10.50	0.14	297	171.08	0.00	0.00	0.00
11.00	0.24	629	171.16	0.00	0.00	0.00
11.50	0.43	1,194	171.30	0.00	0.00	0.00
12.00	1.97	2,608	171.62	0.45	0.45	0.00
12.50	4.55	6,758	172.48	4.10	4.10	0.00
13.00	1.39	5,116	172.16	2.54	2.54	0.00
13.50	0.85	3,742	171.87	1.29	1.29	0.00
14.00	0.70	3,226	171.76	0.88	0.88	0.00
14.50	0.59	2,964	171.70	0.70	0.70	0.00
15.00	0.52	2,806	171.67	0.59	0.59	0.00
15.50	0.45	2,686	171.64	0.51	0.51	0.00
16.00	0.38	2,582	171.62	0.43	0.43	0.00
16.50	0.32	2,495	171.60	0.37	0.37	0.00
17.00	0.29	2,422	171.58	0.33	0.33	0.00
17.50	0.26	2,355	171.57	0.30	0.30	0.00
18.00	0.23	2,290	171.55	0.27	0.27	0.00
18.50	0.21	2,225	171.54	0.24	0.24	0.00
19.00	0.20	2,178	171.53	0.22	0.22	0.00
19.50	0.19	2,145	171.52	0.20	0.20	0.00
20.00	0.18	2,117	171.51	0.19	0.19	0.00
20.50	0.17	2,091	171.51	0.18	0.18	0.00
21.00	0.16	2,068	171.50	0.17	0.17	0.00
21.50	0.15	2,047	171.50	0.17	0.17	0.00
22.00	0.15	2,027	171.49	0.16	0.16	0.00
22.50	0.14	2,007	171.49	0.15	0.15	0.00
23.00	0.13	1,988	171.48	0.14	0.14	0.00
23.50	0.13	1,969	171.48	0.14	0.14	0.00
24.00	0.12	1,948	171.47	0.13	0.13	0.00

Stage-Discharge for Pond 2 - Pond: 2 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
171.00	0.00	0.00	0.00	173.65	7.76	7.76	0.00
171.05	0.00	0.00	0.00	173.70	7.87	7.87	0.00
171.10	0.00	0.00	0.00	173.75	7.98	7.98	0.00
171.15	0.00	0.00	0.00	173.80	8.09	8.09	0.00
171.20	0.00	0.00	0.00	173.85	8.20	8.20	0.00
171.25	0.00	0.00	0.00	173.90	8.30	8.30	0.00
171.30	0.00	0.00	0.00	173.95	8.41	8.41	0.00
171.35	0.01	0.01	0.00	174.00	8.51	8.51	0.00
171.40	0.04	0.04	0.00	174.05	8.61	8.61	0.00
171.45	0.10	0.10	0.00	174.10	8.71	8.71	0.00
171.50	0.17	0.17	0.00	174.15	8.81	8.81	0.00
171.55	0.26	0.26	0.00	174.20	8.91	8.91	0.00
171.60	0.37	0.37	0.00	174.25	9.01	9.01	0.00
171.65	0.54	0.54	0.00	174.30	9.11	9.11	0.00
171.70	0.69	0.69	0.00	174.35	9.20	9.20	0.00
171.75	0.85	0.85	0.00	174.40	9.30	9.30	0.00
171.80	1.02	1.02	0.00	174.45	9.39	9.39	0.00
171.85	1.20	1.20	0.00	174.50	9.48	9.48	0.00
171.90	1.40	1.40	0.00	174.55	9.57	9.57	0.00
171.95	1.60	1.60	0.00	174.60	9.66	9.66	0.00
172.00	1.81	1.81	0.00	174.65	9.75	9.75	0.00
172.05	2.03	2.03	0.00	174.70	9.84	9.84	0.00
172.10	2.26	2.26	0.00	174.75	9.93	9.93	0.00
172.15	2.49	2.49	0.00	174.80	10.02	10.02	0.00
172.20	2.73	2.73	0.00	174.85	10.11	10.11	0.00
172.25	2.97	2.97	0.00	174.90	10.19	10.19	0.00
172.30	3.21	3.21	0.00	174.95	10.85	10.28	0.57
172.35	3.45	3.45	0.00	175.00	11.99	10.36	1.63
172.40	3.69	3.69	0.00				
172.45	3.93	3.93	0.00				
172.50	4.17	4.17	0.00				
172.55	4.41	4.41	0.00				
172.60	4.64	4.64	0.00				
172.65	4.86	4.86	0.00				
172.70	5.07	5.07	0.00				
172.75	5.26	5.26	0.00				
172.80	5.44	5.44	0.00				
172.85	5.60	5.60	0.00				
172.90	5.72	5.72	0.00				
172.95	5.77	5.77	0.00				
173.00	5.86	5.86	0.00				
173.05	6.06	6.06	0.00				
173.10	6.24	6.24	0.00				
173.15	6.42	6.42	0.00				
173.20	6.60	6.60	0.00				
173.25	6.77	6.77	0.00				
173.30	6.93	6.93	0.00				
173.35	7.05	7.05	0.00				
173.40	7.18	7.18	0.00				
173.45	7.30	7.30	0.00				
173.50	7.42	7.42	0.00				
173.55	7.53	7.53	0.00				
173.60	7.65	7.65	0.00				

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.080 ac, 0.00% Impervious, Inflow Depth > 1.24" for 2-YEAR STORM event
 Inflow = 7.95 cfs @ 12.36 hrs, Volume= 0.937 af
 Outflow = 0.38 cfs @ 17.95 hrs, Volume= 0.355 af, Atten= 95%, Lag= 335.3 min
 Primary = 0.38 cfs @ 17.95 hrs, Volume= 0.355 af
 Secondary = 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= 123.12' @ 17.95 hrs Surf.Area= 11,056 sf Storage= 27,673 cf

Plug-Flow detention time= 360.4 min calculated for 0.354 af (38% of inflow)
 Center-of-Mass det. time= 228.7 min (1,096.9 - 868.1)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	79,242 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	6,749	0	0
121.00	8,061	7,405	7,405
122.00	9,434	8,748	16,153
123.00	10,869	10,152	26,304
124.00	12,365	11,617	37,921
125.00	13,922	13,144	51,065
126.00	15,541	14,732	65,796
127.00	11,350	13,446	79,242

Device	Routing	Invert	Outlet Devices
#1	Primary	120.40'	18.0" Round Culvert L= 53.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.40' / 120.00' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	126.50'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	125.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	120.40'	3.0" Vert. Orifice/Grate C= 0.600

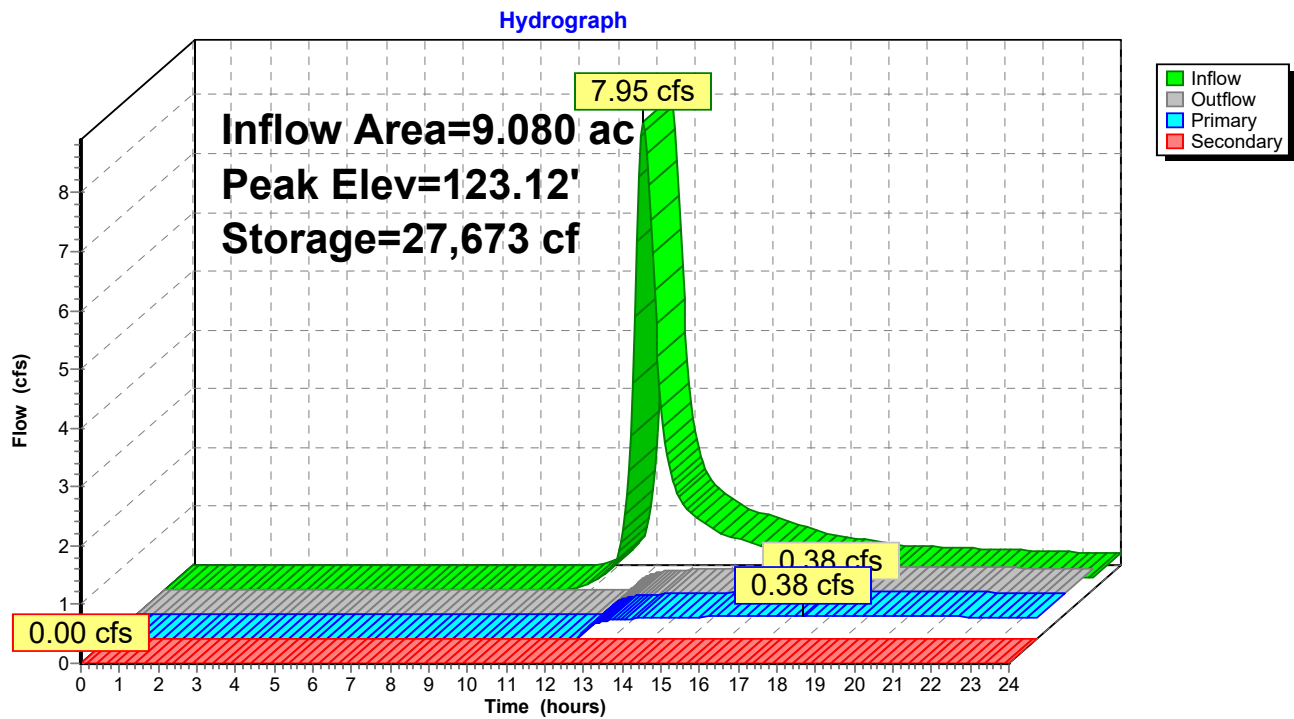
Primary OutFlow Max=0.38 cfs @ 17.95 hrs HW=123.12' (Free Discharge)

↑ **1=Culvert** (Passes 0.38 cfs of 11.85 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
 ↑ **4=Orifice/Grate** (Orifice Controls 0.38 cfs @ 7.76 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond



Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	0.00
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.00	0	120.00	0.00	0.00	0.00
7.50	0.00	0	120.00	0.00	0.00	0.00
8.00	0.00	0	120.00	0.00	0.00	0.00
8.50	0.00	0	120.00	0.00	0.00	0.00
9.00	0.00	0	120.00	0.00	0.00	0.00
9.50	0.00	0	120.00	0.00	0.00	0.00
10.00	0.00	0	120.00	0.00	0.00	0.00
10.50	0.01	4	120.00	0.00	0.00	0.00
11.00	0.12	114	120.02	0.00	0.00	0.00
11.50	0.34	498	120.07	0.00	0.00	0.00
12.00	2.03	1,999	120.29	0.00	0.00	0.00
12.50	6.87	12,428	121.59	0.24	0.24	0.00
13.00	2.31	19,474	122.34	0.32	0.32	0.00
13.50	1.36	21,956	122.59	0.34	0.34	0.00
14.00	1.12	23,541	122.74	0.35	0.35	0.00
14.50	0.94	24,733	122.85	0.36	0.36	0.00
15.00	0.83	25,672	122.94	0.37	0.37	0.00
15.50	0.73	26,412	123.01	0.37	0.37	0.00
16.00	0.62	26,952	123.06	0.38	0.38	0.00
16.50	0.53	27,294	123.09	0.38	0.38	0.00
17.00	0.48	27,512	123.11	0.38	0.38	0.00
17.50	0.43	27,638	123.12	0.38	0.38	0.00
18.00	0.38	27,674	123.12	0.38	0.38	0.00
18.50	0.34	27,623	123.12	0.38	0.38	0.00
19.00	0.32	27,528	123.11	0.38	0.38	0.00
19.50	0.30	27,407	123.10	0.38	0.38	0.00
20.00	0.29	27,260	123.09	0.38	0.38	0.00
20.50	0.28	27,089	123.07	0.38	0.38	0.00
21.00	0.26	26,898	123.05	0.38	0.38	0.00
21.50	0.25	26,689	123.04	0.37	0.37	0.00
22.00	0.24	26,463	123.01	0.37	0.37	0.00
22.50	0.23	26,218	122.99	0.37	0.37	0.00
23.00	0.22	25,956	122.97	0.37	0.37	0.00
23.50	0.21	25,676	122.94	0.37	0.37	0.00
24.00	0.20	25,378	122.91	0.37	0.37	0.00

Stage-Discharge for Pond 4 - Pond: 4 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
120.00	0.00	0.00	0.00	125.30	2.21	2.21	0.00
120.10	0.00	0.00	0.00	125.40	3.17	3.17	0.00
120.20	0.00	0.00	0.00	125.50	4.29	4.29	0.00
120.30	0.00	0.00	0.00	125.60	5.55	5.55	0.00
120.40	0.00	0.00	0.00	125.70	6.95	6.95	0.00
120.50	0.02	0.02	0.00	125.80	8.49	8.49	0.00
120.60	0.06	0.06	0.00	125.90	10.15	10.15	0.00
120.70	0.10	0.10	0.00	126.00	11.95	11.95	0.00
120.80	0.12	0.12	0.00	126.10	13.87	13.87	0.00
120.90	0.14	0.14	0.00	126.20	15.91	15.91	0.00
121.00	0.16	0.16	0.00	126.30	18.07	18.07	0.00
121.10	0.18	0.18	0.00	126.40	19.50	19.50	0.00
121.20	0.19	0.19	0.00	126.50	19.68	19.68	0.00
121.30	0.21	0.21	0.00	126.60	21.49	19.86	1.63
121.40	0.22	0.22	0.00	126.70	24.64	20.05	4.60
121.50	0.23	0.23	0.00	126.80	28.75	20.23	8.53
121.60	0.25	0.25	0.00	126.90	33.66	20.40	13.26
121.70	0.26	0.26	0.00	127.00	39.39	20.58	18.81
121.80	0.27	0.27	0.00				
121.90	0.28	0.28	0.00				
122.00	0.29	0.29	0.00				
122.10	0.30	0.30	0.00				
122.20	0.31	0.31	0.00				
122.30	0.31	0.31	0.00				
122.40	0.32	0.32	0.00				
122.50	0.33	0.33	0.00				
122.60	0.34	0.34	0.00				
122.70	0.35	0.35	0.00				
122.80	0.36	0.36	0.00				
122.90	0.36	0.36	0.00				
123.00	0.37	0.37	0.00				
123.10	0.38	0.38	0.00				
123.20	0.39	0.39	0.00				
123.30	0.39	0.39	0.00				
123.40	0.40	0.40	0.00				
123.50	0.41	0.41	0.00				
123.60	0.41	0.41	0.00				
123.70	0.42	0.42	0.00				
123.80	0.43	0.43	0.00				
123.90	0.43	0.43	0.00				
124.00	0.44	0.44	0.00				
124.10	0.45	0.45	0.00				
124.20	0.45	0.45	0.00				
124.30	0.46	0.46	0.00				
124.40	0.47	0.47	0.00				
124.50	0.47	0.47	0.00				
124.60	0.48	0.48	0.00				
124.70	0.48	0.48	0.00				
124.80	0.49	0.49	0.00				
124.90	0.49	0.49	0.00				
125.00	0.50	0.50	0.00				
125.10	0.82	0.82	0.00				
125.20	1.42	1.42	0.00				

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 1.94" for 2-YEAR STORM event
 Inflow = 19.66 cfs @ 12.42 hrs, Volume= 2.455 af
 Outflow = 11.86 cfs @ 12.76 hrs, Volume= 2.277 af, Atten= 40%, Lag= 20.4 min
 Primary = 11.86 cfs @ 12.76 hrs, Volume= 2.277 af
 Secondary = 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= 125.69' @ 12.76 hrs Surf.Area= 10,191 sf Storage= 28,134 cf

Plug-Flow detention time= 72.6 min calculated for 2.272 af (93% of inflow)
 Center-of-Mass det. time= 36.8 min (878.5 - 841.7)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	86,402 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,177	0	0
123.00	6,454	5,816	5,816
124.00	7,790	7,122	12,938
125.00	9,184	8,487	21,425
126.00	10,638	9,911	31,336
127.00	12,150	11,394	42,730
128.00	13,721	12,936	55,665
129.00	15,351	14,536	70,201
130.00	17,050	16,201	86,402

Device	Routing	Invert	Outlet Devices
#1	Device 2	127.60'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#2	Primary	123.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.70' S= 0.0060 1' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#3	Secondary	129.50'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	123.00'	18.0" Vert. Orifice/Grate C= 0.600

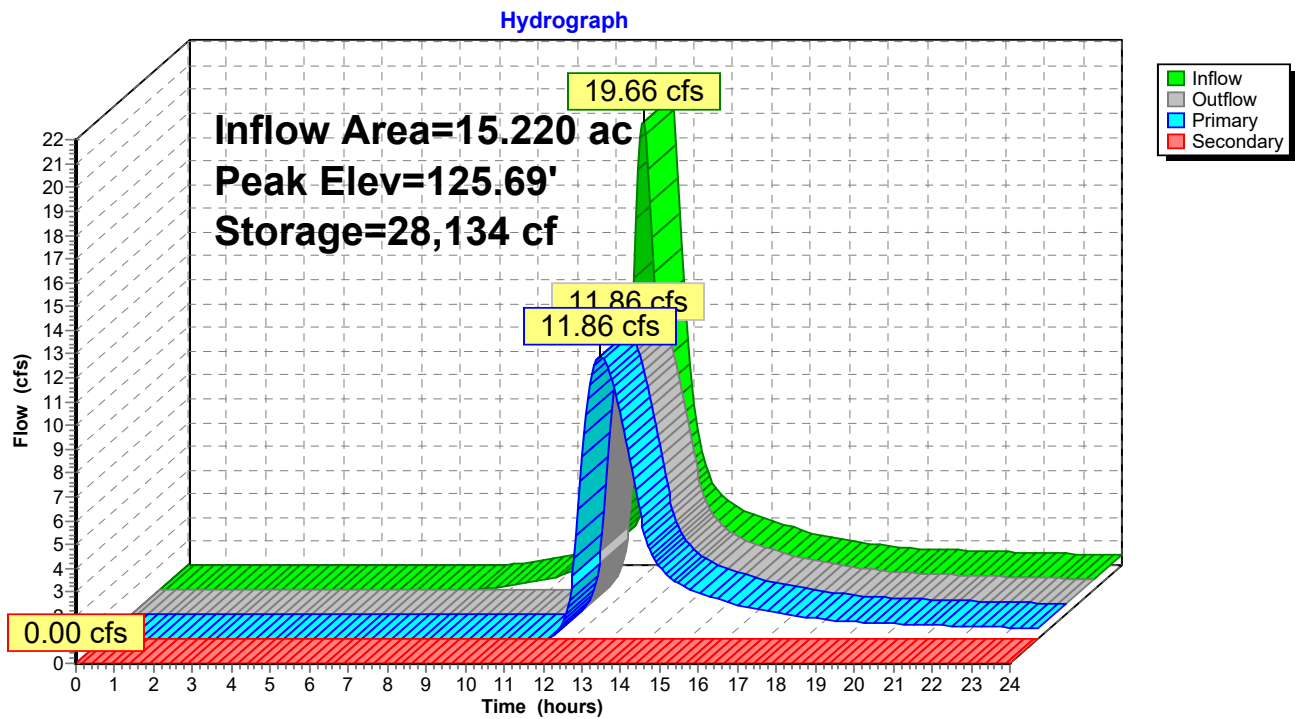
Primary OutFlow Max=11.86 cfs @ 12.76 hrs HW=125.69' (Free Discharge)

↑ **2=Culvert** (Passes 11.86 cfs of 17.61 cfs potential flow)
 ↑ **1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
 ↑ **4=Orifice/Grate** (Orifice Controls 11.86 cfs @ 6.71 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	0.00
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	0	122.00	0.00	0.00	0.00
5.00	0.00	0	122.00	0.00	0.00	0.00
5.50	0.00	0	122.00	0.00	0.00	0.00
6.00	0.00	0	122.00	0.00	0.00	0.00
6.50	0.00	0	122.00	0.00	0.00	0.00
7.00	0.00	0	122.00	0.00	0.00	0.00
7.50	0.00	0	122.00	0.00	0.00	0.00
8.00	0.01	3	122.00	0.00	0.00	0.00
8.50	0.07	63	122.01	0.00	0.00	0.00
9.00	0.16	264	122.05	0.00	0.00	0.00
9.50	0.30	680	122.13	0.00	0.00	0.00
10.00	0.48	1,384	122.26	0.00	0.00	0.00
10.50	0.72	2,455	122.45	0.00	0.00	0.00
11.00	1.09	4,072	122.72	0.00	0.00	0.00
11.50	1.72	6,498	123.10	0.06	0.06	0.00
12.00	5.67	10,417	123.67	2.10	2.10	0.00
12.50	18.79	24,523	125.33	10.69	10.69	0.00
13.00	6.81	25,881	125.47	11.15	11.15	0.00
13.50	3.41	17,280	124.53	7.53	7.53	0.00
14.00	2.58	12,567	123.95	3.93	3.93	0.00
14.50	2.13	11,072	123.76	2.63	2.63	0.00
15.00	1.87	10,442	123.67	2.12	2.12	0.00
15.50	1.62	10,049	123.62	1.82	1.82	0.00
16.00	1.38	9,706	123.57	1.57	1.57	0.00
16.50	1.16	9,367	123.52	1.33	1.33	0.00
17.00	1.04	9,100	123.48	1.16	1.16	0.00
17.50	0.93	8,893	123.46	1.03	1.03	0.00
18.00	0.82	8,707	123.43	0.92	0.92	0.00
18.50	0.72	8,521	123.40	0.82	0.82	0.00
19.00	0.68	8,383	123.38	0.74	0.74	0.00
19.50	0.65	8,292	123.37	0.69	0.69	0.00
20.00	0.62	8,221	123.36	0.65	0.65	0.00
20.50	0.58	8,153	123.35	0.62	0.62	0.00
21.00	0.56	8,091	123.34	0.59	0.59	0.00
21.50	0.53	8,033	123.33	0.57	0.57	0.00
22.00	0.51	7,978	123.32	0.54	0.54	0.00
22.50	0.49	7,924	123.32	0.51	0.51	0.00
23.00	0.46	7,870	123.31	0.49	0.49	0.00
23.50	0.44	7,816	123.30	0.46	0.46	0.00
24.00	0.41	7,762	123.29	0.44	0.44	0.00

Stage-Discharge for Pond 5 - Pond: 5 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
122.00	0.00	0.00	0.00	127.30	16.03	16.03	0.00
122.10	0.00	0.00	0.00	127.40	16.26	16.26	0.00
122.20	0.00	0.00	0.00	127.50	16.48	16.48	0.00
122.30	0.00	0.00	0.00	127.60	16.70	16.70	0.00
122.40	0.00	0.00	0.00	127.70	17.23	17.23	0.00
122.50	0.00	0.00	0.00	127.80	18.03	18.03	0.00
122.60	0.00	0.00	0.00	127.90	19.03	19.03	0.00
122.70	0.00	0.00	0.00	128.00	20.19	20.19	0.00
122.80	0.00	0.00	0.00	128.10	21.51	21.51	0.00
122.90	0.00	0.00	0.00	128.20	22.97	22.97	0.00
123.00	0.00	0.00	0.00	128.30	24.57	24.57	0.00
123.10	0.05	0.05	0.00	128.40	26.29	26.29	0.00
123.20	0.20	0.20	0.00	128.50	28.15	28.15	0.00
123.30	0.46	0.46	0.00	128.60	30.13	30.13	0.00
123.40	0.80	0.80	0.00	128.70	32.24	32.24	0.00
123.50	1.23	1.23	0.00	128.80	33.14	33.14	0.00
123.60	1.73	1.73	0.00	128.90	33.48	33.48	0.00
123.70	2.29	2.29	0.00	129.00	33.82	33.82	0.00
123.80	2.91	2.91	0.00	129.10	34.16	34.16	0.00
123.90	3.58	3.58	0.00	129.20	34.49	34.49	0.00
124.00	4.26	4.26	0.00	129.30	34.82	34.82	0.00
124.10	4.96	4.96	0.00	129.40	35.15	35.15	0.00
124.20	5.65	5.65	0.00	129.50	35.48	35.48	0.00
124.30	6.32	6.32	0.00	129.60	37.42	35.80	1.63
124.40	6.92	6.92	0.00	129.70	40.71	36.11	4.60
124.50	7.37	7.37	0.00	129.80	44.96	36.43	8.53
124.60	7.84	7.84	0.00	129.90	50.00	36.74	13.26
124.70	8.29	8.29	0.00	130.00	55.86	37.05	18.81
124.80	8.72	8.72	0.00				
124.90	9.12	9.12	0.00				
125.00	9.51	9.51	0.00				
125.10	9.89	9.89	0.00				
125.20	10.25	10.25	0.00				
125.30	10.59	10.59	0.00				
125.40	10.93	10.93	0.00				
125.50	11.26	11.26	0.00				
125.60	11.57	11.57	0.00				
125.70	11.88	11.88	0.00				
125.80	12.18	12.18	0.00				
125.90	12.48	12.48	0.00				
126.00	12.76	12.76	0.00				
126.10	13.04	13.04	0.00				
126.20	13.32	13.32	0.00				
126.30	13.59	13.59	0.00				
126.40	13.85	13.85	0.00				
126.50	14.11	14.11	0.00				
126.60	14.36	14.36	0.00				
126.70	14.61	14.61	0.00				
126.80	14.86	14.86	0.00				
126.90	15.10	15.10	0.00				
127.00	15.34	15.34	0.00				
127.10	15.57	15.57	0.00				
127.20	15.80	15.80	0.00				

HydroCAD North Stonington Proposed_RevType III 24-hr 10-YEAR STORM Rainfall=5.08"

Prepared by HDR, Inc

Printed 5/24/2021

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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 1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>2.67"
Tc=42.6 min CN=77 Runoff=7.03 cfs 1.042 af

Subcatchment 1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>2.85"
Tc=42.3 min CN=79 Runoff=16.94 cfs 2.500 af

Subcatchment 1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>3.04"
Tc=35.2 min CN=81 Runoff=16.10 cfs 2.170 af

Subcatchment 2: Runoff Area=4.800 ac 0.00% Impervious Runoff Depth>3.04"
Tc=21.7 min CN=81 Runoff=11.17 cfs 1.218 af

Subcatchment 4: Runoff Area=9.080 ac 0.00% Impervious Runoff Depth>2.50"
Tc=24.0 min CN=75 Runoff=16.59 cfs 1.893 af

Subcatchment 5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>3.42"
Tc=29.9 min CN=85 Runoff=34.49 cfs 4.343 af

Pond 1A - Pond: 1A - Pond Peak Elev=129.62' Storage=24,414 cf Inflow=7.03 cfs 1.042 af
Primary=0.92 cfs 0.815 af Secondary=0.00 cfs 0.000 af Outflow=0.92 cfs 0.815 af

Pond 1B - Pond: 1B - Pond Peak Elev=124.89' Storage=53,343 cf Inflow=16.94 cfs 2.500 af
Primary=4.73 cfs 2.044 af Secondary=0.00 cfs 0.000 af Outflow=4.73 cfs 2.044 af

Pond 1C-Pond: 1C - Pond Peak Elev=118.65' Storage=38,369 cf Inflow=16.10 cfs 2.170 af
Primary=5.14 cfs 2.005 af Secondary=0.00 cfs 0.000 af Outflow=5.14 cfs 2.005 af

Pond 2 - Pond: 2 - Pond Peak Elev=173.36' Storage=11,711 cf Inflow=11.17 cfs 1.218 af
Primary=7.09 cfs 1.168 af Secondary=0.00 cfs 0.000 af Outflow=7.09 cfs 1.168 af

Pond 4 - Pond: 4 - Pond Peak Elev=125.20' Storage=53,927 cf Inflow=16.59 cfs 1.893 af
Primary=1.45 cfs 0.741 af Secondary=0.00 cfs 0.000 af Outflow=1.45 cfs 0.741 af

Pond 5 - Pond: 5 - Pond Peak Elev=127.70' Storage=51,677 cf Inflow=34.49 cfs 4.343 af
Primary=17.27 cfs 4.152 af Secondary=0.00 cfs 0.000 af Outflow=17.27 cfs 4.152 af

Total Runoff Area = 52.910 ac Runoff Volume = 13.165 af Average Runoff Depth = 2.99"
100.00% Pervious = 52.910 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

Runoff = 7.03 cfs @ 12.59 hrs, Volume= 1.042 af, Depth> 2.67"

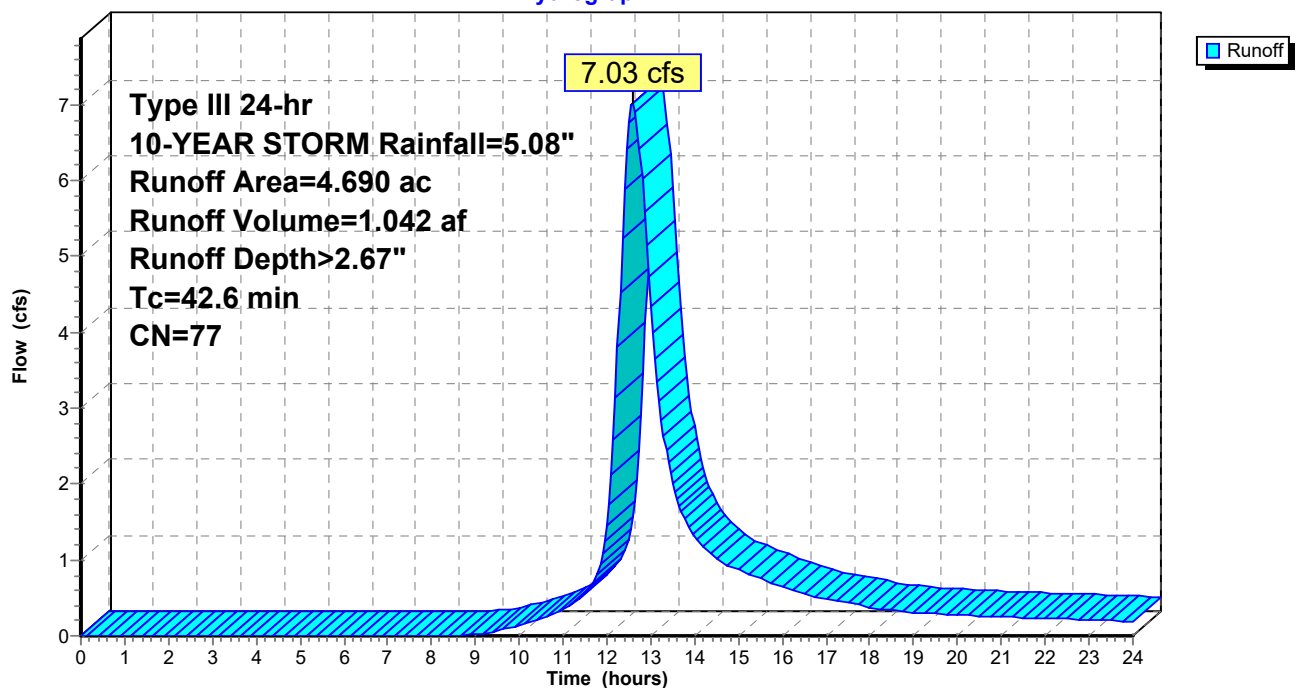
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 4.690	77	
4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					Direct Entry, SCS TR-55

Subcatchment 1A:

Hydrograph



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	1.73	2.85
0.25	0.01	0.00	0.00	13.50	3.98	1.80	2.02
0.50	0.03	0.00	0.00	13.75	4.05	1.85	1.57
0.75	0.04	0.00	0.00	14.00	4.12	1.91	1.32
1.00	0.05	0.00	0.00	14.25	4.18	1.95	1.15
1.25	0.06	0.00	0.00	14.50	4.24	2.00	1.02
1.50	0.08	0.00	0.00	14.75	4.29	2.04	0.93
1.75	0.09	0.00	0.00	15.00	4.34	2.08	0.87
2.00	0.10	0.00	0.00	15.25	4.39	2.12	0.81
2.25	0.11	0.00	0.00	15.50	4.43	2.15	0.76
2.50	0.13	0.00	0.00	15.75	4.47	2.18	0.70
2.75	0.14	0.00	0.00	16.00	4.50	2.21	0.65
3.00	0.16	0.00	0.00	16.25	4.53	2.24	0.60
3.25	0.17	0.00	0.00	16.50	4.56	2.26	0.55
3.50	0.19	0.00	0.00	16.75	4.59	2.29	0.51
3.75	0.20	0.00	0.00	17.00	4.62	2.31	0.48
4.00	0.22	0.00	0.00	17.25	4.65	2.33	0.45
4.25	0.24	0.00	0.00	17.50	4.67	2.35	0.43
4.50	0.25	0.00	0.00	17.75	4.69	2.37	0.40
4.75	0.27	0.00	0.00	18.00	4.71	2.39	0.38
5.00	0.29	0.00	0.00	18.25	4.73	2.40	0.36
5.25	0.31	0.00	0.00	18.50	4.75	2.42	0.34
5.50	0.33	0.00	0.00	18.75	4.77	2.43	0.32
5.75	0.35	0.00	0.00	19.00	4.79	2.45	0.31
6.00	0.37	0.00	0.00	19.25	4.81	2.46	0.30
6.25	0.39	0.00	0.00	19.50	4.83	2.48	0.29
6.50	0.41	0.00	0.00	19.75	4.84	2.49	0.29
6.75	0.43	0.00	0.00	20.00	4.86	2.51	0.28
7.00	0.46	0.00	0.00	20.25	4.88	2.52	0.27
7.25	0.49	0.00	0.00	20.50	4.89	2.53	0.26
7.50	0.52	0.00	0.00	20.75	4.91	2.55	0.26
7.75	0.55	0.00	0.00	21.00	4.92	2.56	0.25
8.00	0.58	0.00	0.00	21.25	4.94	2.57	0.25
8.25	0.61	0.00	0.00	21.50	4.95	2.58	0.24
8.50	0.65	0.00	0.00	21.75	4.97	2.60	0.24
8.75	0.69	0.00	0.01	22.00	4.98	2.61	0.23
9.00	0.74	0.01	0.02	22.25	5.00	2.62	0.22
9.25	0.79	0.01	0.04	22.50	5.01	2.63	0.22
9.50	0.84	0.02	0.07	22.75	5.02	2.64	0.21
9.75	0.90	0.03	0.10	23.00	5.03	2.65	0.21
10.00	0.96	0.04	0.13	23.25	5.05	2.66	0.20
10.25	1.03	0.05	0.17	23.50	5.06	2.67	0.20
10.50	1.10	0.07	0.22	23.75	5.07	2.68	0.19
10.75	1.18	0.10	0.28	24.00	5.08	2.69	0.19
11.00	1.27	0.12	0.35				
11.25	1.38	0.16	0.43				
11.50	1.51	0.22	0.56				
11.75	1.80	0.35	0.78				
12.00	2.54	0.77	1.46				
12.25	3.28	1.27	3.81				
12.50	3.57	1.48	6.77				
12.75	3.70	1.58	6.42				
13.00	3.81	1.66	4.35				

Summary for Subcatchment 1B:

Runoff = 16.94 cfs @ 12.58 hrs, Volume= 2.500 af, Depth> 2.85"

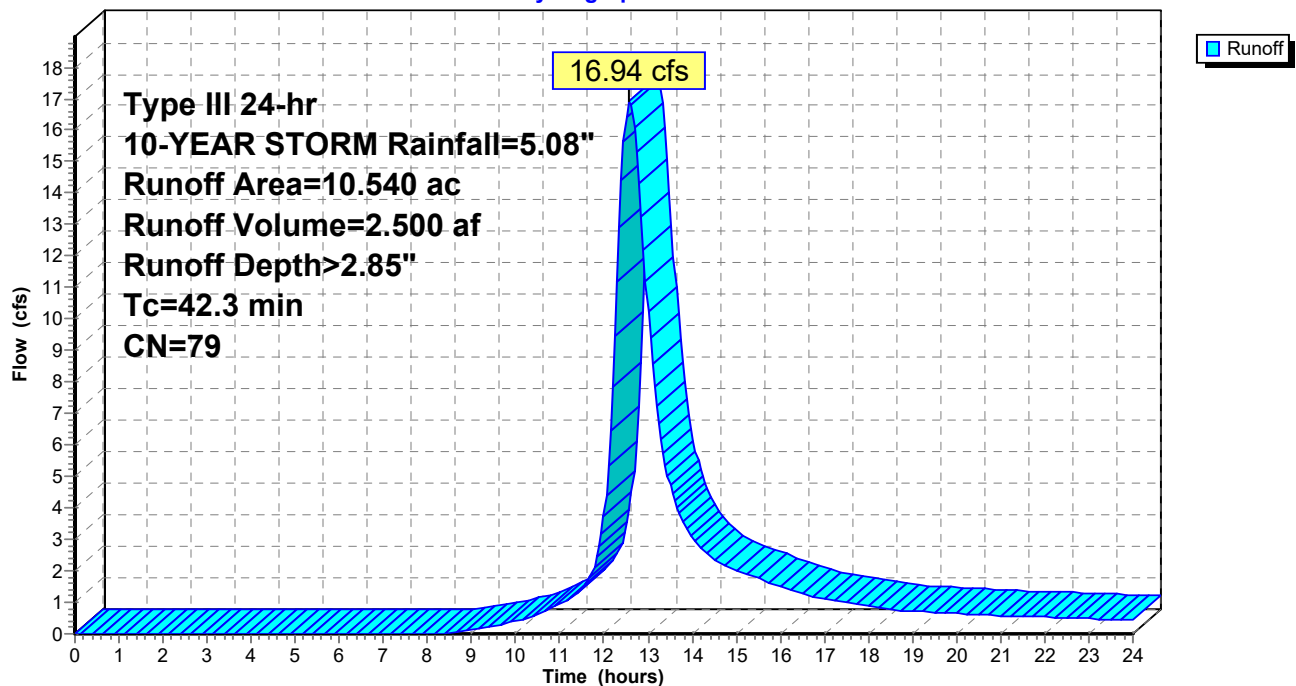
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 10.540	79	
10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					Direct Entry, SCS TR-55

Subcatchment 1B:

Hydrograph



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	1.88	6.67
0.25	0.01	0.00	0.00	13.50	3.98	1.95	4.71
0.50	0.03	0.00	0.00	13.75	4.05	2.01	3.66
0.75	0.04	0.00	0.00	14.00	4.12	2.06	3.07
1.00	0.05	0.00	0.00	14.25	4.18	2.11	2.67
1.25	0.06	0.00	0.00	14.50	4.24	2.16	2.37
1.50	0.08	0.00	0.00	14.75	4.29	2.20	2.17
1.75	0.09	0.00	0.00	15.00	4.34	2.24	2.02
2.00	0.10	0.00	0.00	15.25	4.39	2.28	1.89
2.25	0.11	0.00	0.00	15.50	4.43	2.32	1.76
2.50	0.13	0.00	0.00	15.75	4.47	2.35	1.64
2.75	0.14	0.00	0.00	16.00	4.50	2.38	1.51
3.00	0.16	0.00	0.00	16.25	4.53	2.40	1.38
3.25	0.17	0.00	0.00	16.50	4.56	2.43	1.27
3.50	0.19	0.00	0.00	16.75	4.59	2.45	1.18
3.75	0.20	0.00	0.00	17.00	4.62	2.48	1.11
4.00	0.22	0.00	0.00	17.25	4.65	2.50	1.05
4.25	0.24	0.00	0.00	17.50	4.67	2.52	0.99
4.50	0.25	0.00	0.00	17.75	4.69	2.54	0.94
4.75	0.27	0.00	0.00	18.00	4.71	2.56	0.88
5.00	0.29	0.00	0.00	18.25	4.73	2.57	0.82
5.25	0.31	0.00	0.00	18.50	4.75	2.59	0.78
5.50	0.33	0.00	0.00	18.75	4.77	2.61	0.74
5.75	0.35	0.00	0.00	19.00	4.79	2.62	0.72
6.00	0.37	0.00	0.00	19.25	4.81	2.64	0.70
6.25	0.39	0.00	0.00	19.50	4.83	2.65	0.68
6.50	0.41	0.00	0.00	19.75	4.84	2.67	0.66
6.75	0.43	0.00	0.00	20.00	4.86	2.68	0.64
7.00	0.46	0.00	0.00	20.25	4.88	2.70	0.63
7.25	0.49	0.00	0.00	20.50	4.89	2.71	0.61
7.50	0.52	0.00	0.00	20.75	4.91	2.72	0.60
7.75	0.55	0.00	0.00	21.00	4.92	2.74	0.58
8.00	0.58	0.00	0.00	21.25	4.94	2.75	0.57
8.25	0.61	0.00	0.01	21.50	4.95	2.76	0.56
8.50	0.65	0.01	0.04	21.75	4.97	2.77	0.55
8.75	0.69	0.01	0.07	22.00	4.98	2.79	0.53
9.00	0.74	0.02	0.12	22.25	5.00	2.80	0.52
9.25	0.79	0.02	0.18	22.50	5.01	2.81	0.51
9.50	0.84	0.03	0.25	22.75	5.02	2.82	0.49
9.75	0.90	0.04	0.32	23.00	5.03	2.83	0.48
10.00	0.96	0.06	0.41	23.25	5.05	2.84	0.47
10.25	1.03	0.08	0.51	23.50	5.06	2.85	0.46
10.50	1.10	0.10	0.63	23.75	5.07	2.86	0.44
10.75	1.18	0.13	0.78	24.00	5.08	2.87	0.43
11.00	1.27	0.16	0.95				
11.25	1.38	0.20	1.17				
11.50	1.51	0.26	1.47				
11.75	1.80	0.41	2.01				
12.00	2.54	0.86	3.72				
12.25	3.28	1.39	9.45				
12.50	3.57	1.62	16.42				
12.75	3.70	1.73	15.30				
13.00	3.81	1.81	10.25				

Summary for Subcatchment 1C:

Runoff = 16.10 cfs @ 12.49 hrs, Volume= 2.170 af, Depth> 3.04"

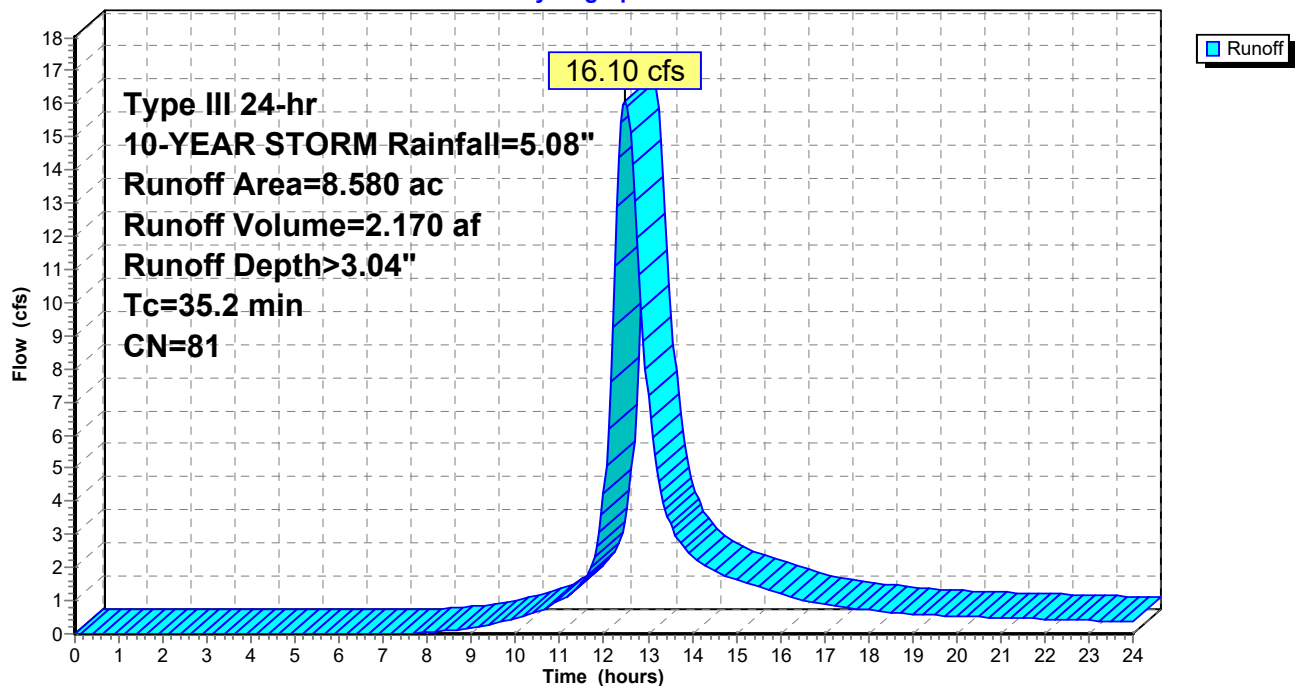
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 8.580	81	
8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					Direct Entry, SCS TR-55

Subcatchment 1C:

Hydrograph



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	2.04	4.60
0.25	0.01	0.00	0.00	13.50	3.98	2.10	3.34
0.50	0.03	0.00	0.00	13.75	4.05	2.17	2.72
0.75	0.04	0.00	0.00	14.00	4.12	2.22	2.35
1.00	0.05	0.00	0.00	14.25	4.18	2.27	2.09
1.25	0.06	0.00	0.00	14.50	4.24	2.32	1.90
1.50	0.08	0.00	0.00	14.75	4.29	2.37	1.76
1.75	0.09	0.00	0.00	15.00	4.34	2.41	1.64
2.00	0.10	0.00	0.00	15.25	4.39	2.45	1.54
2.25	0.11	0.00	0.00	15.50	4.43	2.49	1.43
2.50	0.13	0.00	0.00	15.75	4.47	2.52	1.33
2.75	0.14	0.00	0.00	16.00	4.50	2.55	1.22
3.00	0.16	0.00	0.00	16.25	4.53	2.58	1.12
3.25	0.17	0.00	0.00	16.50	4.56	2.60	1.02
3.50	0.19	0.00	0.00	16.75	4.59	2.63	0.96
3.75	0.20	0.00	0.00	17.00	4.62	2.65	0.91
4.00	0.22	0.00	0.00	17.25	4.65	2.67	0.86
4.25	0.24	0.00	0.00	17.50	4.67	2.70	0.81
4.50	0.25	0.00	0.00	17.75	4.69	2.72	0.76
4.75	0.27	0.00	0.00	18.00	4.71	2.73	0.72
5.00	0.29	0.00	0.00	18.25	4.73	2.75	0.67
5.25	0.31	0.00	0.00	18.50	4.75	2.77	0.63
5.50	0.33	0.00	0.00	18.75	4.77	2.79	0.61
5.75	0.35	0.00	0.00	19.00	4.79	2.80	0.59
6.00	0.37	0.00	0.00	19.25	4.81	2.82	0.58
6.25	0.39	0.00	0.00	19.50	4.83	2.83	0.56
6.50	0.41	0.00	0.00	19.75	4.84	2.85	0.55
6.75	0.43	0.00	0.00	20.00	4.86	2.86	0.53
7.00	0.46	0.00	0.00	20.25	4.88	2.88	0.52
7.25	0.49	0.00	0.00	20.50	4.89	2.89	0.51
7.50	0.52	0.00	0.00	20.75	4.91	2.91	0.49
7.75	0.55	0.00	0.02	21.00	4.92	2.92	0.48
8.00	0.58	0.00	0.04	21.25	4.94	2.93	0.47
8.25	0.61	0.01	0.07	21.50	4.95	2.94	0.46
8.50	0.65	0.01	0.10	21.75	4.97	2.96	0.45
8.75	0.69	0.02	0.14	22.00	4.98	2.97	0.44
9.00	0.74	0.03	0.19	22.25	5.00	2.98	0.43
9.25	0.79	0.04	0.25	22.50	5.01	2.99	0.42
9.50	0.84	0.05	0.32	22.75	5.02	3.00	0.41
9.75	0.90	0.07	0.39	23.00	5.03	3.02	0.40
10.00	0.96	0.08	0.48	23.25	5.05	3.03	0.39
10.25	1.03	0.11	0.57	23.50	5.06	3.04	0.38
10.50	1.10	0.13	0.68	23.75	5.07	3.05	0.37
10.75	1.18	0.17	0.83	24.00	5.08	3.06	0.35
11.00	1.27	0.20	1.00				
11.25	1.38	0.25	1.19				
11.50	1.51	0.32	1.50				
11.75	1.80	0.48	2.10				
12.00	2.54	0.97	4.24				
12.25	3.28	1.53	11.10				
12.50	3.57	1.76	16.09				
12.75	3.70	1.87	11.93				
13.00	3.81	1.96	7.18				

Summary for Subcatchment 2:

Runoff = 11.17 cfs @ 12.30 hrs, Volume= 1.218 af, Depth> 3.04"

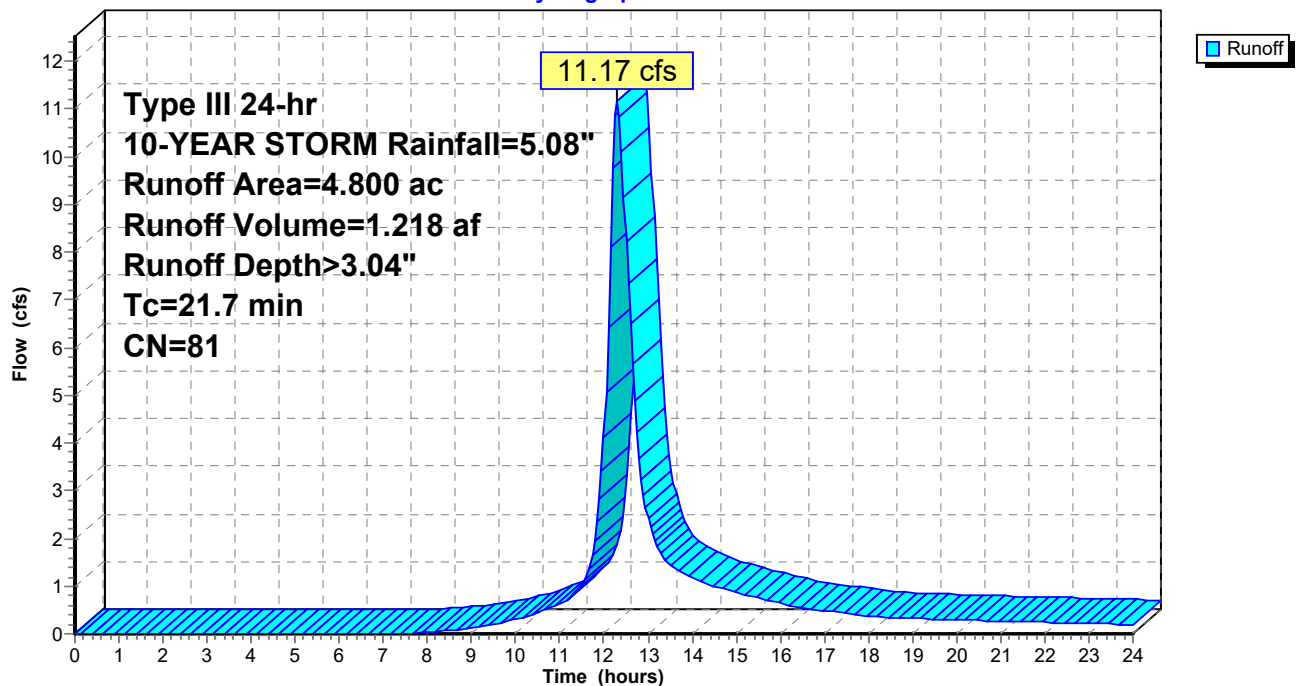
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 4.800	81	
4.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.7					Direct Entry, SCS TR-55

Subcatchment 2:

Hydrograph



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	2.04	1.72
0.25	0.01	0.00	0.00	13.50	3.98	2.10	1.44
0.50	0.03	0.00	0.00	13.75	4.05	2.17	1.30
0.75	0.04	0.00	0.00	14.00	4.12	2.22	1.18
1.00	0.05	0.00	0.00	14.25	4.18	2.27	1.07
1.25	0.06	0.00	0.00	14.50	4.24	2.32	0.99
1.50	0.08	0.00	0.00	14.75	4.29	2.37	0.93
1.75	0.09	0.00	0.00	15.00	4.34	2.41	0.87
2.00	0.10	0.00	0.00	15.25	4.39	2.45	0.81
2.25	0.11	0.00	0.00	15.50	4.43	2.49	0.75
2.50	0.13	0.00	0.00	15.75	4.47	2.52	0.69
2.75	0.14	0.00	0.00	16.00	4.50	2.55	0.63
3.00	0.16	0.00	0.00	16.25	4.53	2.58	0.58
3.25	0.17	0.00	0.00	16.50	4.56	2.60	0.54
3.50	0.19	0.00	0.00	16.75	4.59	2.63	0.51
3.75	0.20	0.00	0.00	17.00	4.62	2.65	0.48
4.00	0.22	0.00	0.00	17.25	4.65	2.67	0.46
4.25	0.24	0.00	0.00	17.50	4.67	2.70	0.43
4.50	0.25	0.00	0.00	17.75	4.69	2.72	0.41
4.75	0.27	0.00	0.00	18.00	4.71	2.73	0.38
5.00	0.29	0.00	0.00	18.25	4.73	2.75	0.35
5.25	0.31	0.00	0.00	18.50	4.75	2.77	0.34
5.50	0.33	0.00	0.00	18.75	4.77	2.79	0.33
5.75	0.35	0.00	0.00	19.00	4.79	2.80	0.32
6.00	0.37	0.00	0.00	19.25	4.81	2.82	0.32
6.25	0.39	0.00	0.00	19.50	4.83	2.83	0.31
6.50	0.41	0.00	0.00	19.75	4.84	2.85	0.30
6.75	0.43	0.00	0.00	20.00	4.86	2.86	0.29
7.00	0.46	0.00	0.00	20.25	4.88	2.88	0.28
7.25	0.49	0.00	0.00	20.50	4.89	2.89	0.28
7.50	0.52	0.00	0.01	20.75	4.91	2.91	0.27
7.75	0.55	0.00	0.02	21.00	4.92	2.92	0.27
8.00	0.58	0.00	0.03	21.25	4.94	2.93	0.26
8.25	0.61	0.01	0.05	21.50	4.95	2.94	0.25
8.50	0.65	0.01	0.07	21.75	4.97	2.96	0.25
8.75	0.69	0.02	0.10	22.00	4.98	2.97	0.24
9.00	0.74	0.03	0.13	22.25	5.00	2.98	0.24
9.25	0.79	0.04	0.17	22.50	5.01	2.99	0.23
9.50	0.84	0.05	0.21	22.75	5.02	3.00	0.22
9.75	0.90	0.07	0.26	23.00	5.03	3.02	0.22
10.00	0.96	0.08	0.31	23.25	5.05	3.03	0.21
10.25	1.03	0.11	0.36	23.50	5.06	3.04	0.21
10.50	1.10	0.13	0.44	23.75	5.07	3.05	0.20
10.75	1.18	0.17	0.54	24.00	5.08	3.06	0.19
11.00	1.27	0.20	0.64				
11.25	1.38	0.25	0.77				
11.50	1.51	0.32	1.04				
11.75	1.80	0.48	1.63				
12.00	2.54	0.97	4.10				
12.25	3.28	1.53	10.85				
12.50	3.57	1.76	8.22				
12.75	3.70	1.87	4.22				
13.00	3.81	1.96	2.41				

Summary for Subcatchment 4:

Runoff = 16.59 cfs @ 12.34 hrs, Volume= 1.893 af, Depth> 2.50"

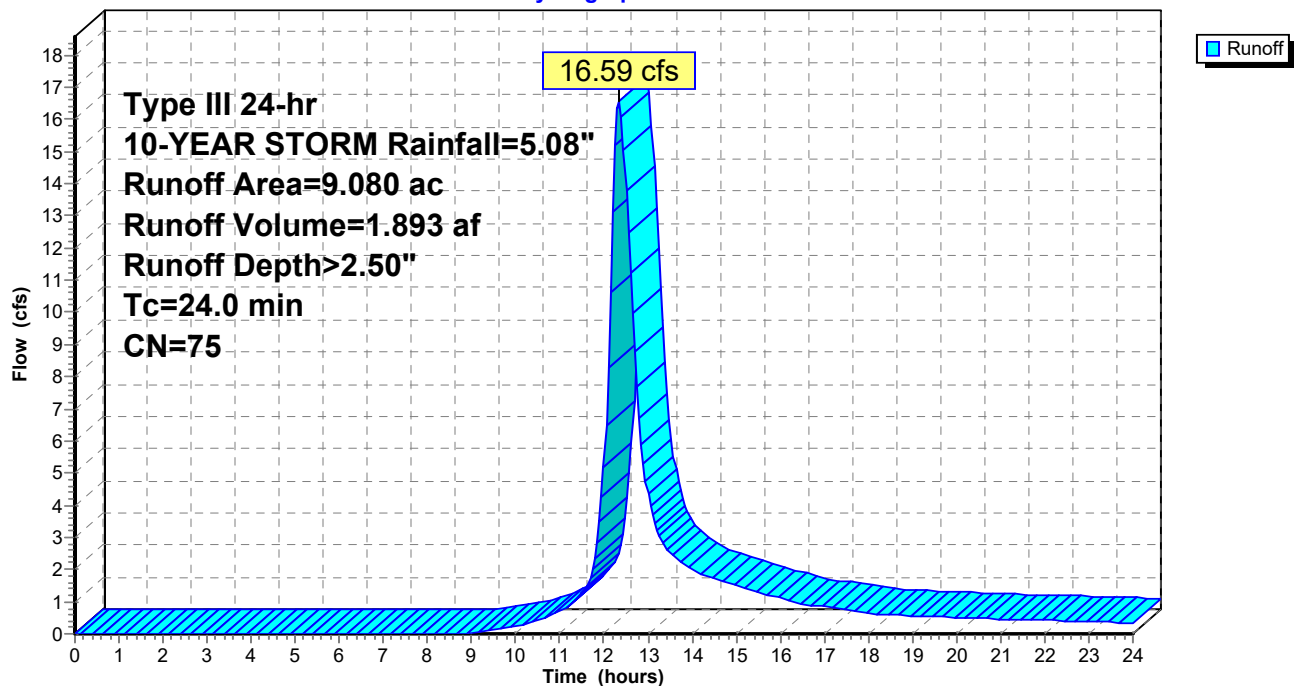
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 9.080	75	
9.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					Direct Entry, SCS TR-55

Subcatchment 4:

Hydrograph



HydroCAD North Stonington Proposed_RevType III 24-hr 10-YEAR STORM Rainfall=5.08"

Prepared by HDR, Inc

Printed 5/24/2021

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Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	1.59	3.05
0.25	0.01	0.00	0.00	13.50	3.98	1.65	2.49
0.50	0.03	0.00	0.00	13.75	4.05	1.71	2.23
0.75	0.04	0.00	0.00	14.00	4.12	1.76	2.02
1.00	0.05	0.00	0.00	14.25	4.18	1.80	1.83
1.25	0.06	0.00	0.00	14.50	4.24	1.85	1.69
1.50	0.08	0.00	0.00	14.75	4.29	1.89	1.59
1.75	0.09	0.00	0.00	15.00	4.34	1.93	1.49
2.00	0.10	0.00	0.00	15.25	4.39	1.96	1.40
2.25	0.11	0.00	0.00	15.50	4.43	1.99	1.30
2.50	0.13	0.00	0.00	15.75	4.47	2.02	1.20
2.75	0.14	0.00	0.00	16.00	4.50	2.05	1.10
3.00	0.16	0.00	0.00	16.25	4.53	2.08	1.00
3.25	0.17	0.00	0.00	16.50	4.56	2.10	0.93
3.50	0.19	0.00	0.00	16.75	4.59	2.12	0.88
3.75	0.20	0.00	0.00	17.00	4.62	2.15	0.84
4.00	0.22	0.00	0.00	17.25	4.65	2.17	0.79
4.25	0.24	0.00	0.00	17.50	4.67	2.18	0.75
4.50	0.25	0.00	0.00	17.75	4.69	2.20	0.70
4.75	0.27	0.00	0.00	18.00	4.71	2.22	0.66
5.00	0.29	0.00	0.00	18.25	4.73	2.24	0.62
5.25	0.31	0.00	0.00	18.50	4.75	2.25	0.59
5.50	0.33	0.00	0.00	18.75	4.77	2.27	0.57
5.75	0.35	0.00	0.00	19.00	4.79	2.28	0.56
6.00	0.37	0.00	0.00	19.25	4.81	2.30	0.55
6.25	0.39	0.00	0.00	19.50	4.83	2.31	0.53
6.50	0.41	0.00	0.00	19.75	4.84	2.32	0.52
6.75	0.43	0.00	0.00	20.00	4.86	2.34	0.51
7.00	0.46	0.00	0.00	20.25	4.88	2.35	0.49
7.25	0.49	0.00	0.00	20.50	4.89	2.36	0.48
7.50	0.52	0.00	0.00	20.75	4.91	2.38	0.47
7.75	0.55	0.00	0.00	21.00	4.92	2.39	0.46
8.00	0.58	0.00	0.00	21.25	4.94	2.40	0.45
8.25	0.61	0.00	0.00	21.50	4.95	2.41	0.44
8.50	0.65	0.00	0.00	21.75	4.97	2.42	0.43
8.75	0.69	0.00	0.00	22.00	4.98	2.43	0.42
9.00	0.74	0.00	0.02	22.25	5.00	2.45	0.41
9.25	0.79	0.00	0.05	22.50	5.01	2.46	0.40
9.50	0.84	0.01	0.11	22.75	5.02	2.47	0.39
9.75	0.90	0.02	0.17	23.00	5.03	2.48	0.38
10.00	0.96	0.02	0.24	23.25	5.05	2.49	0.37
10.25	1.03	0.03	0.32	23.50	5.06	2.50	0.36
10.50	1.10	0.05	0.42	23.75	5.07	2.51	0.35
10.75	1.18	0.07	0.55	24.00	5.08	2.51	0.34
11.00	1.27	0.09	0.70				
11.25	1.38	0.12	0.89				
11.50	1.51	0.17	1.24				
11.75	1.80	0.29	1.99				
12.00	2.54	0.67	5.19				
12.25	3.28	1.15	15.18				
12.50	3.57	1.35	13.78				
12.75	3.70	1.45	7.66				
13.00	3.81	1.53	4.34				

Summary for Subcatchment 5:

Runoff = 34.49 cfs @ 12.41 hrs, Volume= 4.343 af, Depth> 3.42"

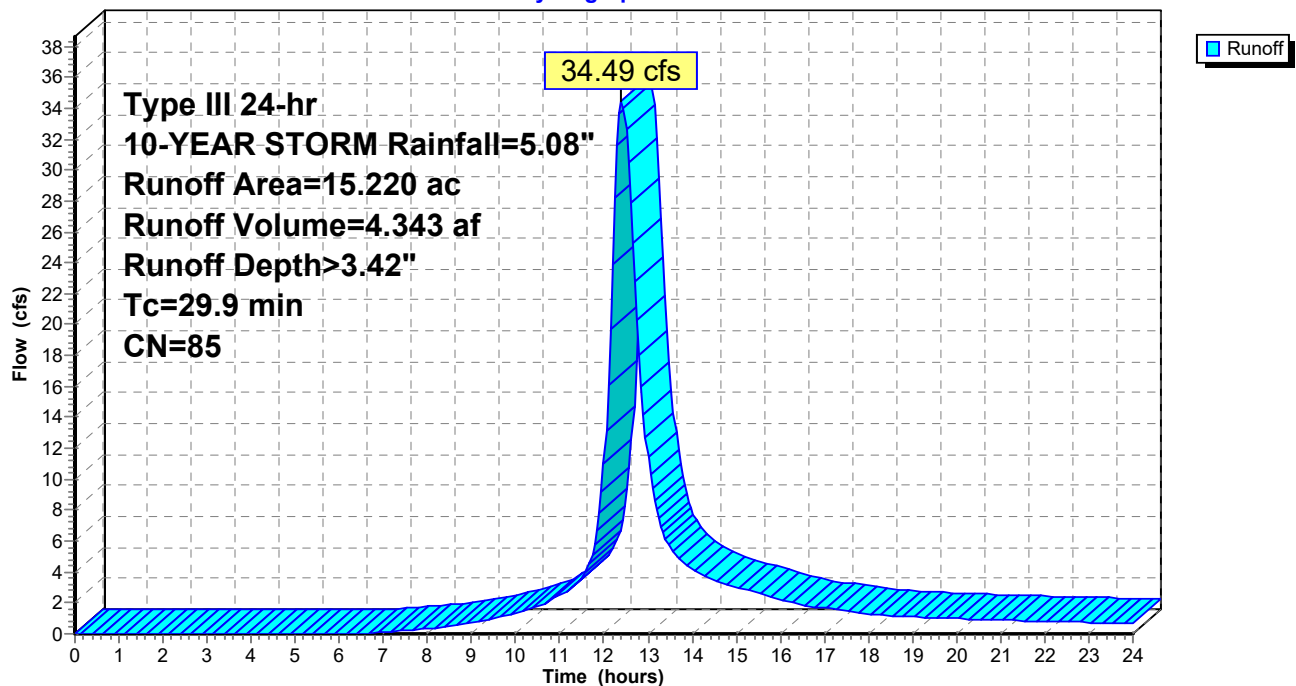
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 15.220	85	
15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					Direct Entry, SCS TR-55

Subcatchment 5:

Hydrograph



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	3.90	2.37	7.43
0.25	0.01	0.00	0.00	13.50	3.98	2.44	5.60
0.50	0.03	0.00	0.00	13.75	4.05	2.51	4.73
0.75	0.04	0.00	0.00	14.00	4.12	2.57	4.21
1.00	0.05	0.00	0.00	14.25	4.18	2.62	3.79
1.25	0.06	0.00	0.00	14.50	4.24	2.67	3.46
1.50	0.08	0.00	0.00	14.75	4.29	2.72	3.22
1.75	0.09	0.00	0.00	15.00	4.34	2.76	3.02
2.00	0.10	0.00	0.00	15.25	4.39	2.80	2.82
2.25	0.11	0.00	0.00	15.50	4.43	2.84	2.62
2.50	0.13	0.00	0.00	15.75	4.47	2.88	2.42
2.75	0.14	0.00	0.00	16.00	4.50	2.91	2.22
3.00	0.16	0.00	0.00	16.25	4.53	2.94	2.02
3.25	0.17	0.00	0.00	16.50	4.56	2.97	1.87
3.50	0.19	0.00	0.00	16.75	4.59	2.99	1.75
3.75	0.20	0.00	0.00	17.00	4.62	3.02	1.66
4.00	0.22	0.00	0.00	17.25	4.65	3.04	1.57
4.25	0.24	0.00	0.00	17.50	4.67	3.06	1.48
4.50	0.25	0.00	0.00	17.75	4.69	3.09	1.40
4.75	0.27	0.00	0.00	18.00	4.71	3.10	1.31
5.00	0.29	0.00	0.00	18.25	4.73	3.12	1.22
5.25	0.31	0.00	0.00	18.50	4.75	3.14	1.16
5.50	0.33	0.00	0.00	18.75	4.77	3.16	1.12
5.75	0.35	0.00	0.00	19.00	4.79	3.18	1.09
6.00	0.37	0.00	0.00	19.25	4.81	3.19	1.06
6.25	0.39	0.00	0.01	19.50	4.83	3.21	1.04
6.50	0.41	0.00	0.03	19.75	4.84	3.22	1.01
6.75	0.43	0.00	0.06	20.00	4.86	3.24	0.98
7.00	0.46	0.01	0.10	20.25	4.88	3.26	0.96
7.25	0.49	0.01	0.14	20.50	4.89	3.27	0.93
7.50	0.52	0.01	0.19	20.75	4.91	3.28	0.91
7.75	0.55	0.02	0.25	21.00	4.92	3.30	0.89
8.00	0.58	0.03	0.31	21.25	4.94	3.31	0.87
8.25	0.61	0.03	0.38	21.50	4.95	3.33	0.85
8.50	0.65	0.04	0.46	21.75	4.97	3.34	0.83
8.75	0.69	0.06	0.57	22.00	4.98	3.35	0.81
9.00	0.74	0.07	0.69	22.25	5.00	3.36	0.79
9.25	0.79	0.09	0.83	22.50	5.01	3.38	0.77
9.50	0.84	0.11	0.99	22.75	5.02	3.39	0.75
9.75	0.90	0.13	1.16	23.00	5.03	3.40	0.73
10.00	0.96	0.16	1.34	23.25	5.05	3.41	0.71
10.25	1.03	0.19	1.54	23.50	5.06	3.42	0.69
10.50	1.10	0.22	1.79	23.75	5.07	3.43	0.67
10.75	1.18	0.26	2.11	24.00	5.08	3.44	0.65
11.00	1.27	0.31	2.48				
11.25	1.38	0.38	2.90				
11.50	1.51	0.46	3.65				
11.75	1.80	0.66	5.14				
12.00	2.54	1.21	10.94				
12.25	3.28	1.82	28.17				
12.50	3.57	2.07	32.62				
12.75	3.70	2.19	20.33				
13.00	3.81	2.29	11.40				

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 2.67" for 10-YEAR STORM event
 Inflow = 7.03 cfs @ 12.59 hrs, Volume= 1.042 af
 Outflow = 0.92 cfs @ 14.81 hrs, Volume= 0.815 af, Atten= 87%, Lag= 133.1 min
 Primary = 0.92 cfs @ 14.81 hrs, Volume= 0.815 af
 Secondary = 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= 129.62' @ 14.81 hrs Surf.Area= 7,607 sf Storage= 24,414 cf

Plug-Flow detention time= 288.5 min calculated for 0.815 af (78% of inflow)
 Center-of-Mass det. time= 210.2 min (1,067.7 - 857.5)

Volume	Invert	Avail.Storage	Storage Description
#1	124.00'	36,194 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.00	1,464	0	0
125.00	2,382	1,923	1,923
126.00	3,381	2,882	4,805
127.00	4,452	3,917	8,721
128.00	5,614	5,033	13,754
129.00	6,826	6,220	19,974
130.00	8,095	7,461	27,435
131.00	9,424	8,760	36,194

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#2	Primary	124.70'	15.0" Round Culvert L= 70.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 124.70' / 124.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	130.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	124.70'	4.0" Vert. Orifice/Grate C= 0.600

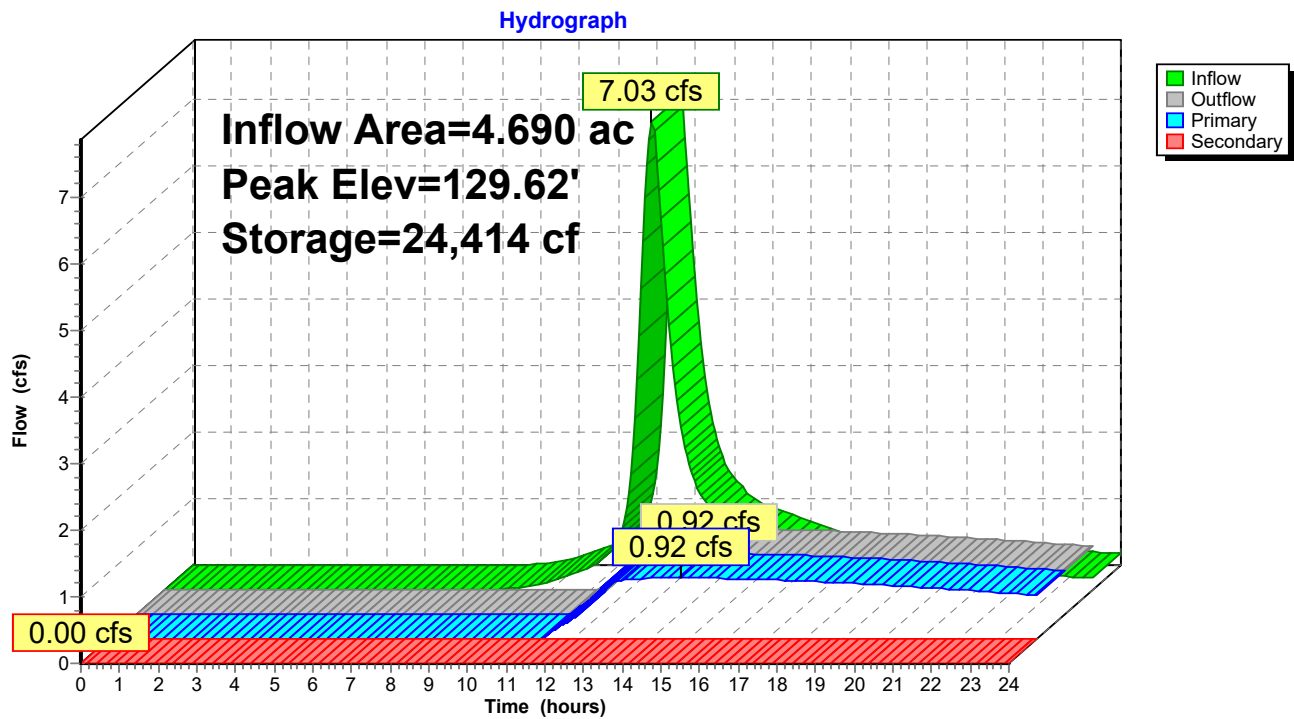
Primary OutFlow Max=0.92 cfs @ 14.81 hrs HW=129.62' (Free Discharge)

↑ **2=Culvert** (Passes 0.92 cfs of 12.10 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
 ↑ **4=Orifice/Grate** (Orifice Controls 0.92 cfs @ 10.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.00' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	124.00	0.00	0.00	0.00
0.50	0.00	0	124.00	0.00	0.00	0.00
1.00	0.00	0	124.00	0.00	0.00	0.00
1.50	0.00	0	124.00	0.00	0.00	0.00
2.00	0.00	0	124.00	0.00	0.00	0.00
2.50	0.00	0	124.00	0.00	0.00	0.00
3.00	0.00	0	124.00	0.00	0.00	0.00
3.50	0.00	0	124.00	0.00	0.00	0.00
4.00	0.00	0	124.00	0.00	0.00	0.00
4.50	0.00	0	124.00	0.00	0.00	0.00
5.00	0.00	0	124.00	0.00	0.00	0.00
5.50	0.00	0	124.00	0.00	0.00	0.00
6.00	0.00	0	124.00	0.00	0.00	0.00
6.50	0.00	0	124.00	0.00	0.00	0.00
7.00	0.00	0	124.00	0.00	0.00	0.00
7.50	0.00	0	124.00	0.00	0.00	0.00
8.00	0.00	0	124.00	0.00	0.00	0.00
8.50	0.00	0	124.00	0.00	0.00	0.00
9.00	0.02	15	124.01	0.00	0.00	0.00
9.50	0.07	89	124.06	0.00	0.00	0.00
10.00	0.13	263	124.17	0.00	0.00	0.00
10.50	0.22	573	124.35	0.00	0.00	0.00
11.00	0.35	1,075	124.62	0.00	0.00	0.00
11.50	0.56	1,807	124.95	0.12	0.12	0.00
12.00	1.46	2,952	125.40	0.31	0.31	0.00
12.50	6.77	9,254	127.12	0.63	0.63	0.00
13.00	4.35	18,905	128.84	0.84	0.84	0.00
13.50	2.02	22,670	129.38	0.89	0.89	0.00
14.00	1.32	23,927	129.55	0.91	0.91	0.00
14.50	1.02	24,361	129.61	0.91	0.91	0.00
15.00	0.87	24,398	129.61	0.92	0.92	0.00
15.50	0.76	24,214	129.59	0.91	0.91	0.00
16.00	0.65	23,841	129.54	0.91	0.91	0.00
16.50	0.55	23,287	129.47	0.90	0.90	0.00
17.00	0.48	22,593	129.37	0.89	0.89	0.00
17.50	0.43	21,814	129.26	0.88	0.88	0.00
18.00	0.38	20,966	129.14	0.87	0.87	0.00
18.50	0.34	20,056	129.01	0.86	0.86	0.00
19.00	0.31	19,106	128.87	0.84	0.84	0.00
19.50	0.29	18,148	128.73	0.83	0.83	0.00
20.00	0.28	17,191	128.58	0.81	0.81	0.00
20.50	0.26	16,237	128.42	0.79	0.79	0.00
21.00	0.25	15,291	128.27	0.77	0.77	0.00
21.50	0.24	14,357	128.11	0.76	0.76	0.00
22.00	0.23	13,437	127.94	0.74	0.74	0.00
22.50	0.22	12,533	127.78	0.72	0.72	0.00
23.00	0.21	11,647	127.61	0.70	0.70	0.00
23.50	0.20	10,779	127.44	0.67	0.67	0.00
24.00	0.19	9,932	127.26	0.65	0.65	0.00

Stage-Discharge for Pond 1A - Pond: 1A - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
124.00	0.00	0.00	0.00	129.30	0.88	0.88	0.00
124.10	0.00	0.00	0.00	129.40	0.89	0.89	0.00
124.20	0.00	0.00	0.00	129.50	0.90	0.90	0.00
124.30	0.00	0.00	0.00	129.60	0.91	0.91	0.00
124.40	0.00	0.00	0.00	129.70	0.92	0.92	0.00
124.50	0.00	0.00	0.00	129.80	0.93	0.93	0.00
124.60	0.00	0.00	0.00	129.90	0.94	0.94	0.00
124.70	0.00	0.00	0.00	130.00	0.95	0.95	0.00
124.80	0.02	0.02	0.00	130.10	1.28	1.28	0.00
124.90	0.08	0.08	0.00	130.20	1.88	1.88	0.00
125.00	0.15	0.15	0.00	130.30	2.68	2.68	0.00
125.10	0.20	0.20	0.00	130.40	3.64	3.64	0.00
125.20	0.24	0.24	0.00	130.50	4.76	4.76	0.00
125.30	0.28	0.28	0.00	130.60	6.03	6.03	0.00
125.40	0.31	0.31	0.00	130.70	7.43	7.43	0.00
125.50	0.33	0.33	0.00	130.80	8.97	8.97	0.00
125.60	0.36	0.36	0.00	130.90	10.64	10.64	0.00
125.70	0.38	0.38	0.00	131.00	14.06	12.44	1.63
125.80	0.41	0.41	0.00				
125.90	0.43	0.43	0.00				
126.00	0.45	0.45	0.00				
126.10	0.47	0.47	0.00				
126.20	0.49	0.49	0.00				
126.30	0.50	0.50	0.00				
126.40	0.52	0.52	0.00				
126.50	0.54	0.54	0.00				
126.60	0.55	0.55	0.00				
126.70	0.57	0.57	0.00				
126.80	0.58	0.58	0.00				
126.90	0.60	0.60	0.00				
127.00	0.61	0.61	0.00				
127.10	0.63	0.63	0.00				
127.20	0.64	0.64	0.00				
127.30	0.66	0.66	0.00				
127.40	0.67	0.67	0.00				
127.50	0.68	0.68	0.00				
127.60	0.69	0.69	0.00				
127.70	0.71	0.71	0.00				
127.80	0.72	0.72	0.00				
127.90	0.73	0.73	0.00				
128.00	0.74	0.74	0.00				
128.10	0.76	0.76	0.00				
128.20	0.77	0.77	0.00				
128.30	0.78	0.78	0.00				
128.40	0.79	0.79	0.00				
128.50	0.80	0.80	0.00				
128.60	0.81	0.81	0.00				
128.70	0.82	0.82	0.00				
128.80	0.83	0.83	0.00				
128.90	0.84	0.84	0.00				
129.00	0.85	0.85	0.00				
129.10	0.86	0.86	0.00				
129.20	0.87	0.87	0.00				

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 2.85" for 10-YEAR STORM event
 Inflow = 16.94 cfs @ 12.58 hrs, Volume= 2.500 af
 Outflow = 4.73 cfs @ 13.50 hrs, Volume= 2.044 af, Atten= 72%, Lag= 55.1 min
 Primary = 4.73 cfs @ 13.50 hrs, Volume= 2.044 af
 Secondary = 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= 124.89' @ 13.50 hrs Surf.Area= 12,112 sf Storage= 53,343 cf

Plug-Flow detention time= 250.2 min calculated for 2.044 af (82% of inflow)
 Center-of-Mass det. time= 180.4 min (1,032.5 - 852.2)

Volume	Invert	Avail.Storage	Storage Description
#1	119.00'	83,261 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
119.00	5,600	0	0
120.00	6,708	6,154	6,154
121.00	7,871	7,290	13,444
122.00	9,092	8,482	21,925
123.00	10,369	9,731	31,656
124.00	11,703	11,036	42,692
125.00	12,160	11,932	54,623
126.00	14,538	13,349	67,972
127.00	16,040	15,289	83,261

Device	Routing	Invert	Outlet Devices
#1	Primary	119.60'	15.0" Round Culvert L= 88.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.60' / 119.00' S= 0.0068 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Secondary	126.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	124.50'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	119.60'	6.0" Vert. Orifice/Grate C= 0.600

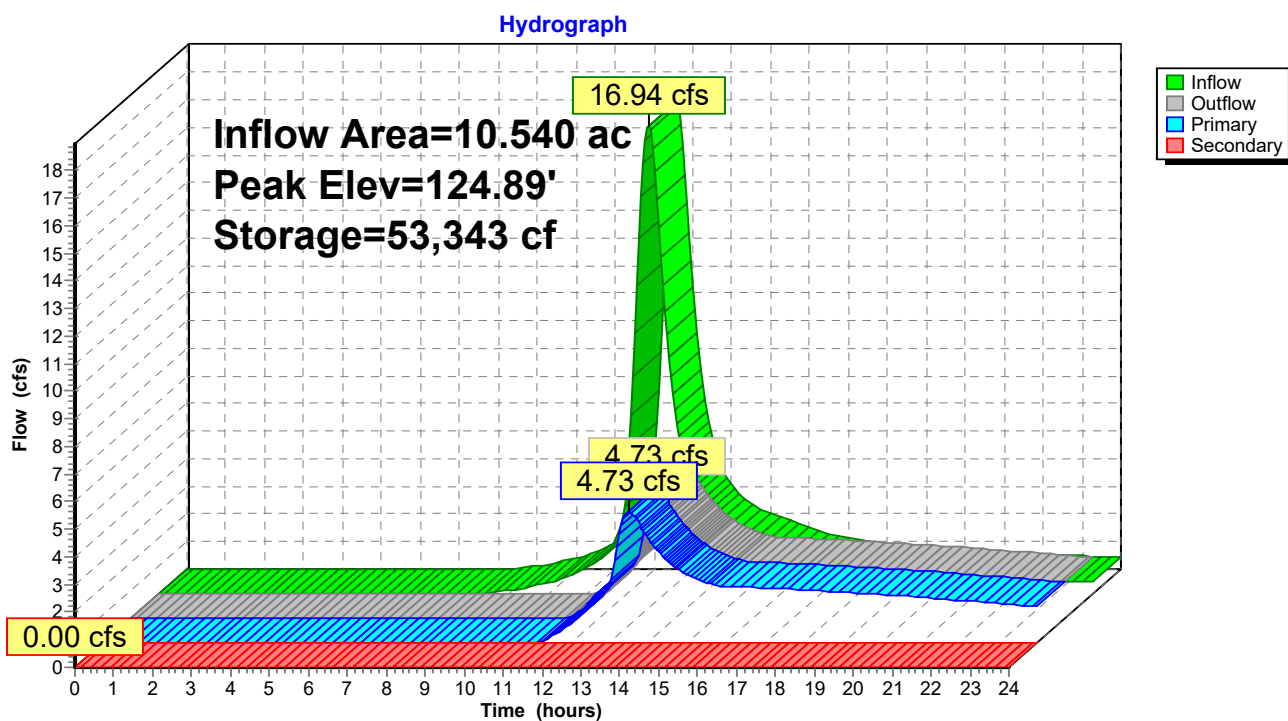
Primary OutFlow Max=4.72 cfs @ 13.50 hrs HW=124.89' (Free Discharge)

1=Culvert (Passes 4.72 cfs of 11.78 cfs potential flow)
 3=Sharp-Crested Rectangular Weir (Weir Controls 2.60 cfs @ 2.25 fps)
 4=Orifice/Grate (Orifice Controls 2.12 cfs @ 10.81 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=119.00' (Free Discharge)

2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	119.00	0.00	0.00	0.00
0.50	0.00	0	119.00	0.00	0.00	0.00
1.00	0.00	0	119.00	0.00	0.00	0.00
1.50	0.00	0	119.00	0.00	0.00	0.00
2.00	0.00	0	119.00	0.00	0.00	0.00
2.50	0.00	0	119.00	0.00	0.00	0.00
3.00	0.00	0	119.00	0.00	0.00	0.00
3.50	0.00	0	119.00	0.00	0.00	0.00
4.00	0.00	0	119.00	0.00	0.00	0.00
4.50	0.00	0	119.00	0.00	0.00	0.00
5.00	0.00	0	119.00	0.00	0.00	0.00
5.50	0.00	0	119.00	0.00	0.00	0.00
6.00	0.00	0	119.00	0.00	0.00	0.00
6.50	0.00	0	119.00	0.00	0.00	0.00
7.00	0.00	0	119.00	0.00	0.00	0.00
7.50	0.00	0	119.00	0.00	0.00	0.00
8.00	0.00	0	119.00	0.00	0.00	0.00
8.50	0.04	28	119.00	0.00	0.00	0.00
9.00	0.12	163	119.03	0.00	0.00	0.00
9.50	0.25	486	119.09	0.00	0.00	0.00
10.00	0.41	1,071	119.19	0.00	0.00	0.00
10.50	0.63	1,998	119.34	0.00	0.00	0.00
11.00	0.95	3,405	119.58	0.00	0.00	0.00
11.50	1.47	5,406	119.89	0.21	0.21	0.00
12.00	3.72	8,569	120.35	0.67	0.67	0.00
12.50	16.42	24,294	122.26	1.47	1.47	0.00
13.00	10.25	47,370	124.40	2.02	2.02	0.00
13.50	4.71	53,343	124.89	4.73	4.73	0.00
14.00	3.07	52,238	124.80	3.84	3.84	0.00
14.50	2.37	50,980	124.70	2.99	2.99	0.00
15.00	2.02	50,014	124.62	2.48	2.48	0.00
15.50	1.76	49,228	124.55	2.20	2.20	0.00
16.00	1.51	48,408	124.48	2.04	2.04	0.00
16.50	1.27	47,257	124.39	2.01	2.01	0.00
17.00	1.11	45,788	124.26	1.99	1.99	0.00
17.50	0.99	44,134	124.12	1.95	1.95	0.00
18.00	0.88	42,333	123.97	1.92	1.92	0.00
18.50	0.78	40,401	123.80	1.88	1.88	0.00
19.00	0.72	38,392	123.62	1.84	1.84	0.00
19.50	0.68	36,380	123.44	1.79	1.79	0.00
20.00	0.64	34,385	123.26	1.75	1.75	0.00
20.50	0.61	32,416	123.07	1.70	1.70	0.00
21.00	0.58	30,481	122.89	1.65	1.65	0.00
21.50	0.56	28,589	122.70	1.60	1.60	0.00
22.00	0.53	26,746	122.51	1.54	1.54	0.00
22.50	0.51	24,954	122.33	1.49	1.49	0.00
23.00	0.48	23,217	122.14	1.43	1.43	0.00
23.50	0.46	21,538	121.96	1.37	1.37	0.00
24.00	0.43	19,919	121.78	1.31	1.31	0.00

Stage-Discharge for Pond 1B - Pond: 1B - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
119.00	0.00	0.00	0.00	124.30	1.99	1.99	0.00
119.10	0.00	0.00	0.00	124.40	2.02	2.02	0.00
119.20	0.00	0.00	0.00	124.50	2.04	2.04	0.00
119.30	0.00	0.00	0.00	124.60	2.38	2.38	0.00
119.40	0.00	0.00	0.00	124.70	2.99	2.99	0.00
119.50	0.00	0.00	0.00	124.80	3.80	3.80	0.00
119.60	0.00	0.00	0.00	124.90	4.78	4.78	0.00
119.70	0.03	0.03	0.00	125.00	5.91	5.91	0.00
119.80	0.11	0.11	0.00	125.10	7.19	7.19	0.00
119.90	0.23	0.23	0.00	125.20	8.60	8.60	0.00
120.00	0.36	0.36	0.00	125.30	10.15	10.15	0.00
120.10	0.47	0.47	0.00	125.40	11.83	11.83	0.00
120.20	0.56	0.56	0.00	125.50	12.52	12.52	0.00
120.30	0.63	0.63	0.00	125.60	12.64	12.64	0.00
120.40	0.70	0.70	0.00	125.70	12.76	12.76	0.00
120.50	0.76	0.76	0.00	125.80	12.87	12.87	0.00
120.60	0.82	0.82	0.00	125.90	12.99	12.99	0.00
120.70	0.87	0.87	0.00	126.00	13.10	13.10	0.00
120.80	0.92	0.92	0.00	126.10	13.22	13.22	0.00
120.90	0.97	0.97	0.00	126.20	13.33	13.33	0.00
121.00	1.01	1.01	0.00	126.30	13.44	13.44	0.00
121.10	1.06	1.06	0.00	126.40	13.55	13.55	0.00
121.20	1.10	1.10	0.00	126.50	13.66	13.66	0.00
121.30	1.14	1.14	0.00	126.60	13.77	13.77	0.00
121.40	1.18	1.18	0.00	126.70	13.88	13.88	0.00
121.50	1.21	1.21	0.00	126.80	13.98	13.98	0.00
121.60	1.25	1.25	0.00	126.90	14.09	14.09	0.00
121.70	1.29	1.29	0.00	127.00	15.82	14.20	1.63
121.80	1.32	1.32	0.00				
121.90	1.35	1.35	0.00				
122.00	1.39	1.39	0.00				
122.10	1.42	1.42	0.00				
122.20	1.45	1.45	0.00				
122.30	1.48	1.48	0.00				
122.40	1.51	1.51	0.00				
122.50	1.54	1.54	0.00				
122.60	1.57	1.57	0.00				
122.70	1.60	1.60	0.00				
122.80	1.62	1.62	0.00				
122.90	1.65	1.65	0.00				
123.00	1.68	1.68	0.00				
123.10	1.70	1.70	0.00				
123.20	1.73	1.73	0.00				
123.30	1.76	1.76	0.00				
123.40	1.78	1.78	0.00				
123.50	1.81	1.81	0.00				
123.60	1.83	1.83	0.00				
123.70	1.86	1.86	0.00				
123.80	1.88	1.88	0.00				
123.90	1.90	1.90	0.00				
124.00	1.93	1.93	0.00				
124.10	1.95	1.95	0.00				
124.20	1.97	1.97	0.00				

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 3.04" for 10-YEAR STORM event
 Inflow = 16.10 cfs @ 12.49 hrs, Volume= 2.170 af
 Outflow = 5.14 cfs @ 13.18 hrs, Volume= 2.005 af, Atten= 68%, Lag= 41.7 min
 Primary = 5.14 cfs @ 13.18 hrs, Volume= 2.005 af
 Secondary = 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= 118.65' @ 13.18 hrs Surf.Area= 18,355 sf Storage= 38,369 cf

Plug-Flow detention time= 123.0 min calculated for 2.001 af (92% of inflow)
 Center-of-Mass det. time= 85.8 min (927.1 - 841.3)

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	65,972 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	10,723	0	0
117.00	13,549	12,136	12,136
118.00	16,443	14,996	27,132
119.00	19,403	17,923	45,055
120.00	22,431	20,917	65,972

Device	Routing	Invert	Outlet Devices
#1	Primary	116.30'	24.0" Round Culvert L= 85.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.30' / 115.50' S= 0.0094 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	119.80'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	119.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	116.30'	12.0" Vert. Orifice/Grate C= 0.600

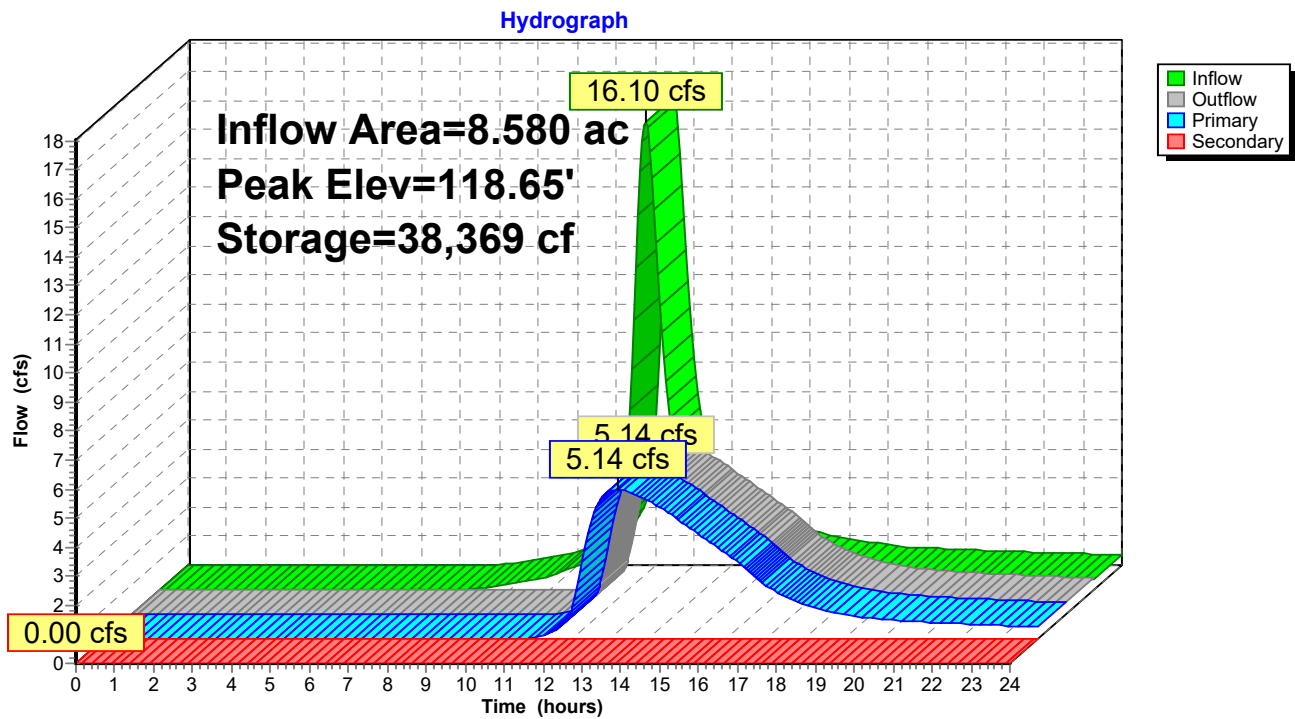
Primary OutFlow Max=5.14 cfs @ 13.18 hrs HW=118.65' (Free Discharge)

↑ **1=Culvert** (Passes 5.14 cfs of 17.55 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
 ↑ **4=Orifice/Grate** (Orifice Controls 5.14 cfs @ 6.54 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=116.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	116.00	0.00	0.00	0.00
0.50	0.00	0	116.00	0.00	0.00	0.00
1.00	0.00	0	116.00	0.00	0.00	0.00
1.50	0.00	0	116.00	0.00	0.00	0.00
2.00	0.00	0	116.00	0.00	0.00	0.00
2.50	0.00	0	116.00	0.00	0.00	0.00
3.00	0.00	0	116.00	0.00	0.00	0.00
3.50	0.00	0	116.00	0.00	0.00	0.00
4.00	0.00	0	116.00	0.00	0.00	0.00
4.50	0.00	0	116.00	0.00	0.00	0.00
5.00	0.00	0	116.00	0.00	0.00	0.00
5.50	0.00	0	116.00	0.00	0.00	0.00
6.00	0.00	0	116.00	0.00	0.00	0.00
6.50	0.00	0	116.00	0.00	0.00	0.00
7.00	0.00	0	116.00	0.00	0.00	0.00
7.50	0.00	1	116.00	0.00	0.00	0.00
8.00	0.04	34	116.00	0.00	0.00	0.00
8.50	0.10	154	116.01	0.00	0.00	0.00
9.00	0.19	409	116.04	0.00	0.00	0.00
9.50	0.32	859	116.08	0.00	0.00	0.00
10.00	0.48	1,566	116.14	0.00	0.00	0.00
10.50	0.68	2,595	116.23	0.00	0.00	0.00
11.00	1.00	4,083	116.36	0.02	0.02	0.00
11.50	1.50	6,086	116.53	0.22	0.22	0.00
12.00	4.24	9,443	116.80	0.94	0.94	0.00
12.50	16.09	24,718	117.85	3.88	3.88	0.00
13.00	7.18	37,747	118.61	5.09	5.09	0.00
13.50	3.34	37,223	118.58	5.05	5.05	0.00
14.00	2.35	33,361	118.37	4.73	4.73	0.00
14.50	1.90	28,977	118.11	4.33	4.33	0.00
15.00	1.64	24,756	117.85	3.88	3.88	0.00
15.50	1.43	20,961	117.61	3.41	3.41	0.00
16.00	1.22	17,662	117.39	2.91	2.91	0.00
16.50	1.02	14,889	117.20	2.40	2.40	0.00
17.00	0.91	12,803	117.05	1.86	1.86	0.00
17.50	0.81	11,382	116.94	1.46	1.46	0.00
18.00	0.72	10,389	116.87	1.19	1.19	0.00
18.50	0.63	9,649	116.81	0.99	0.99	0.00
19.00	0.59	9,100	116.77	0.85	0.85	0.00
19.50	0.56	8,702	116.74	0.75	0.75	0.00
20.00	0.53	8,402	116.72	0.68	0.68	0.00
20.50	0.51	8,165	116.70	0.62	0.62	0.00
21.00	0.48	7,970	116.68	0.58	0.58	0.00
21.50	0.46	7,808	116.67	0.55	0.55	0.00
22.00	0.44	7,666	116.66	0.52	0.52	0.00
22.50	0.42	7,537	116.65	0.49	0.49	0.00
23.00	0.40	7,417	116.64	0.46	0.46	0.00
23.50	0.38	7,301	116.63	0.44	0.44	0.00
24.00	0.35	7,187	116.62	0.42	0.42	0.00

Stage-Discharge for Pond 1C-Pond: 1C - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
116.00	0.00	0.00	0.00	118.65	5.14	5.14	0.00
116.05	0.00	0.00	0.00	118.70	5.21	5.21	0.00
116.10	0.00	0.00	0.00	118.75	5.28	5.28	0.00
116.15	0.00	0.00	0.00	118.80	5.35	5.35	0.00
116.20	0.00	0.00	0.00	118.85	5.41	5.41	0.00
116.25	0.00	0.00	0.00	118.90	5.48	5.48	0.00
116.30	0.00	0.00	0.00	118.95	5.55	5.55	0.00
116.35	0.01	0.01	0.00	119.00	5.61	5.61	0.00
116.40	0.04	0.04	0.00	119.05	5.78	5.78	0.00
116.45	0.10	0.10	0.00	119.10	6.05	6.05	0.00
116.50	0.17	0.17	0.00	119.15	6.38	6.38	0.00
116.55	0.26	0.26	0.00	119.20	6.77	6.77	0.00
116.60	0.37	0.37	0.00	119.25	7.20	7.20	0.00
116.65	0.49	0.49	0.00	119.30	7.68	7.68	0.00
116.70	0.63	0.63	0.00	119.35	8.19	8.19	0.00
116.75	0.78	0.78	0.00	119.40	8.75	8.75	0.00
116.80	0.95	0.95	0.00	119.45	9.34	9.34	0.00
116.85	1.12	1.12	0.00	119.50	9.98	9.98	0.00
116.90	1.30	1.30	0.00	119.55	10.64	10.64	0.00
116.95	1.48	1.48	0.00	119.60	11.35	11.35	0.00
117.00	1.67	1.67	0.00	119.65	12.08	12.08	0.00
117.05	1.86	1.86	0.00	119.70	12.86	12.86	0.00
117.10	2.05	2.05	0.00	119.75	13.66	13.66	0.00
117.15	2.23	2.23	0.00	119.80	14.50	14.50	0.00
117.20	2.40	2.40	0.00	119.85	15.94	15.36	0.57
117.25	2.56	2.56	0.00	119.90	17.89	16.27	1.63
117.30	2.67	2.67	0.00	119.95	20.18	17.20	2.99
117.35	2.80	2.80	0.00	120.00	22.76	18.16	4.60
117.40	2.93	2.93	0.00				
117.45	3.05	3.05	0.00				
117.50	3.16	3.16	0.00				
117.55	3.28	3.28	0.00				
117.60	3.38	3.38	0.00				
117.65	3.49	3.49	0.00				
117.70	3.59	3.59	0.00				
117.75	3.69	3.69	0.00				
117.80	3.78	3.78	0.00				
117.85	3.88	3.88	0.00				
117.90	3.97	3.97	0.00				
117.95	4.06	4.06	0.00				
118.00	4.14	4.14	0.00				
118.05	4.23	4.23	0.00				
118.10	4.31	4.31	0.00				
118.15	4.39	4.39	0.00				
118.20	4.47	4.47	0.00				
118.25	4.55	4.55	0.00				
118.30	4.63	4.63	0.00				
118.35	4.71	4.71	0.00				
118.40	4.78	4.78	0.00				
118.45	4.86	4.86	0.00				
118.50	4.93	4.93	0.00				
118.55	5.00	5.00	0.00				
118.60	5.07	5.07	0.00				

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 4.800 ac, 0.00% Impervious, Inflow Depth > 3.04" for 10-YEAR STORM event
 Inflow = 11.17 cfs @ 12.30 hrs, Volume= 1.218 af
 Outflow = 7.09 cfs @ 12.57 hrs, Volume= 1.168 af, Atten= 37%, Lag= 16.0 min
 Primary = 7.09 cfs @ 12.57 hrs, Volume= 1.168 af
 Secondary = 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= 173.36' @ 12.57 hrs Surf.Area= 6,058 sf Storage= 11,711 cf

Plug-Flow detention time= 50.9 min calculated for 1.166 af (96% of inflow)
 Center-of-Mass det. time= 28.9 min (859.4 - 830.5)

Volume	Invert	Avail.Storage	Storage Description
#1	171.00'	23,080 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	3,912	0	0
172.00	4,771	4,342	4,342
173.00	5,697	5,234	9,576
174.00	6,691	6,194	15,770
175.00	7,929	7,310	23,080

Device	Routing	Invert	Outlet Devices
#1	Device 2	171.60'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#2	Primary	171.30'	15.0" Round Culvert L= 31.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 171.30' / 171.00' S= 0.0097 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Secondary	174.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	171.30'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=7.08 cfs @ 12.57 hrs HW=173.36' (Free Discharge)

↑ **2=Culvert** (Inlet Controls 7.08 cfs @ 5.77 fps)

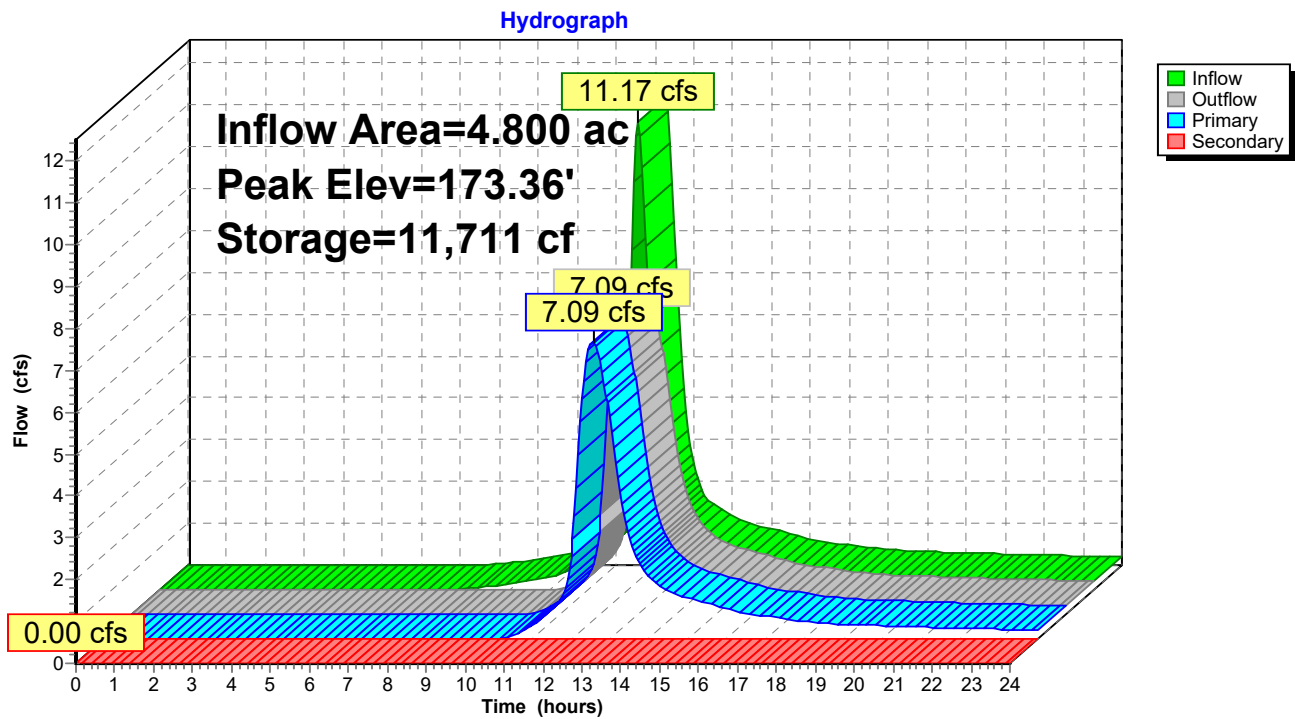
↑ **1=Sharp-Crested Rectangular Weir** (Passes < 28.94 cfs potential flow)

↑ **4=Orifice/Grate** (Passes < 4.72 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=171.00' (Free Discharge)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2 - Pond: 2 - Pond



Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	171.00	0.00	0.00	0.00
0.50	0.00	0	171.00	0.00	0.00	0.00
1.00	0.00	0	171.00	0.00	0.00	0.00
1.50	0.00	0	171.00	0.00	0.00	0.00
2.00	0.00	0	171.00	0.00	0.00	0.00
2.50	0.00	0	171.00	0.00	0.00	0.00
3.00	0.00	0	171.00	0.00	0.00	0.00
3.50	0.00	0	171.00	0.00	0.00	0.00
4.00	0.00	0	171.00	0.00	0.00	0.00
4.50	0.00	0	171.00	0.00	0.00	0.00
5.00	0.00	0	171.00	0.00	0.00	0.00
5.50	0.00	0	171.00	0.00	0.00	0.00
6.00	0.00	0	171.00	0.00	0.00	0.00
6.50	0.00	0	171.00	0.00	0.00	0.00
7.00	0.00	0	171.00	0.00	0.00	0.00
7.50	0.01	2	171.00	0.00	0.00	0.00
8.00	0.03	36	171.01	0.00	0.00	0.00
8.50	0.07	128	171.03	0.00	0.00	0.00
9.00	0.13	309	171.08	0.00	0.00	0.00
9.50	0.21	614	171.15	0.00	0.00	0.00
10.00	0.31	1,077	171.27	0.00	0.00	0.00
10.50	0.44	1,710	171.42	0.06	0.06	0.00
11.00	0.64	2,369	171.57	0.30	0.30	0.00
11.50	1.04	2,936	171.70	0.68	0.68	0.00
12.00	4.10	4,518	172.04	1.98	1.98	0.00
12.50	8.22	11,572	173.34	7.03	7.03	0.00
13.00	2.41	8,276	172.77	5.33	5.33	0.00
13.50	1.44	4,947	172.13	2.38	2.38	0.00
14.00	1.18	3,975	171.92	1.49	1.49	0.00
14.50	0.99	3,567	171.84	1.15	1.15	0.00
15.00	0.87	3,341	171.79	0.97	0.97	0.00
15.50	0.75	3,170	171.75	0.84	0.84	0.00
16.00	0.63	3,006	171.71	0.73	0.73	0.00
16.50	0.54	2,846	171.68	0.62	0.62	0.00
17.00	0.48	2,728	171.65	0.54	0.54	0.00
17.50	0.43	2,637	171.63	0.48	0.48	0.00
18.00	0.38	2,564	171.61	0.42	0.42	0.00
18.50	0.34	2,500	171.60	0.37	0.37	0.00
19.00	0.32	2,454	171.59	0.35	0.35	0.00
19.50	0.31	2,416	171.58	0.33	0.33	0.00
20.00	0.29	2,382	171.57	0.31	0.31	0.00
20.50	0.28	2,350	171.57	0.29	0.29	0.00
21.00	0.27	2,322	171.56	0.28	0.28	0.00
21.50	0.25	2,295	171.55	0.27	0.27	0.00
22.00	0.24	2,268	171.55	0.26	0.26	0.00
22.50	0.23	2,241	171.54	0.24	0.24	0.00
23.00	0.22	2,214	171.53	0.23	0.23	0.00
23.50	0.21	2,187	171.53	0.22	0.22	0.00
24.00	0.19	2,159	171.52	0.21	0.21	0.00

Stage-Discharge for Pond 2 - Pond: 2 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
171.00	0.00	0.00	0.00	173.65	7.76	7.76	0.00
171.05	0.00	0.00	0.00	173.70	7.87	7.87	0.00
171.10	0.00	0.00	0.00	173.75	7.98	7.98	0.00
171.15	0.00	0.00	0.00	173.80	8.09	8.09	0.00
171.20	0.00	0.00	0.00	173.85	8.20	8.20	0.00
171.25	0.00	0.00	0.00	173.90	8.30	8.30	0.00
171.30	0.00	0.00	0.00	173.95	8.41	8.41	0.00
171.35	0.01	0.01	0.00	174.00	8.51	8.51	0.00
171.40	0.04	0.04	0.00	174.05	8.61	8.61	0.00
171.45	0.10	0.10	0.00	174.10	8.71	8.71	0.00
171.50	0.17	0.17	0.00	174.15	8.81	8.81	0.00
171.55	0.26	0.26	0.00	174.20	8.91	8.91	0.00
171.60	0.37	0.37	0.00	174.25	9.01	9.01	0.00
171.65	0.54	0.54	0.00	174.30	9.11	9.11	0.00
171.70	0.69	0.69	0.00	174.35	9.20	9.20	0.00
171.75	0.85	0.85	0.00	174.40	9.30	9.30	0.00
171.80	1.02	1.02	0.00	174.45	9.39	9.39	0.00
171.85	1.20	1.20	0.00	174.50	9.48	9.48	0.00
171.90	1.40	1.40	0.00	174.55	9.57	9.57	0.00
171.95	1.60	1.60	0.00	174.60	9.66	9.66	0.00
172.00	1.81	1.81	0.00	174.65	9.75	9.75	0.00
172.05	2.03	2.03	0.00	174.70	9.84	9.84	0.00
172.10	2.26	2.26	0.00	174.75	9.93	9.93	0.00
172.15	2.49	2.49	0.00	174.80	10.02	10.02	0.00
172.20	2.73	2.73	0.00	174.85	10.11	10.11	0.00
172.25	2.97	2.97	0.00	174.90	10.19	10.19	0.00
172.30	3.21	3.21	0.00	174.95	10.85	10.28	0.57
172.35	3.45	3.45	0.00	175.00	11.99	10.36	1.63
172.40	3.69	3.69	0.00				
172.45	3.93	3.93	0.00				
172.50	4.17	4.17	0.00				
172.55	4.41	4.41	0.00				
172.60	4.64	4.64	0.00				
172.65	4.86	4.86	0.00				
172.70	5.07	5.07	0.00				
172.75	5.26	5.26	0.00				
172.80	5.44	5.44	0.00				
172.85	5.60	5.60	0.00				
172.90	5.72	5.72	0.00				
172.95	5.77	5.77	0.00				
173.00	5.86	5.86	0.00				
173.05	6.06	6.06	0.00				
173.10	6.24	6.24	0.00				
173.15	6.42	6.42	0.00				
173.20	6.60	6.60	0.00				
173.25	6.77	6.77	0.00				
173.30	6.93	6.93	0.00				
173.35	7.05	7.05	0.00				
173.40	7.18	7.18	0.00				
173.45	7.30	7.30	0.00				
173.50	7.42	7.42	0.00				
173.55	7.53	7.53	0.00				
173.60	7.65	7.65	0.00				

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.080 ac, 0.00% Impervious, Inflow Depth > 2.50" for 10-YEAR STORM event
 Inflow = 16.59 cfs @ 12.34 hrs, Volume= 1.893 af
 Outflow = 1.45 cfs @ 15.11 hrs, Volume= 0.741 af, Atten= 91%, Lag= 166.0 min
 Primary = 1.45 cfs @ 15.11 hrs, Volume= 0.741 af
 Secondary = 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= 125.20' @ 15.11 hrs Surf.Area= 14,251 sf Storage= 53,927 cf

Plug-Flow detention time= 322.9 min calculated for 0.740 af (39% of inflow)
 Center-of-Mass det. time= 199.9 min (1,047.7 - 847.8)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	79,242 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	6,749	0	0
121.00	8,061	7,405	7,405
122.00	9,434	8,748	16,153
123.00	10,869	10,152	26,304
124.00	12,365	11,617	37,921
125.00	13,922	13,144	51,065
126.00	15,541	14,732	65,796
127.00	11,350	13,446	79,242

Device	Routing	Invert	Outlet Devices
#1	Primary	120.40'	18.0" Round Culvert L= 53.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.40' / 120.00' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	126.50'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	125.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	120.40'	3.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.44 cfs @ 15.11 hrs HW=125.20' (Free Discharge)

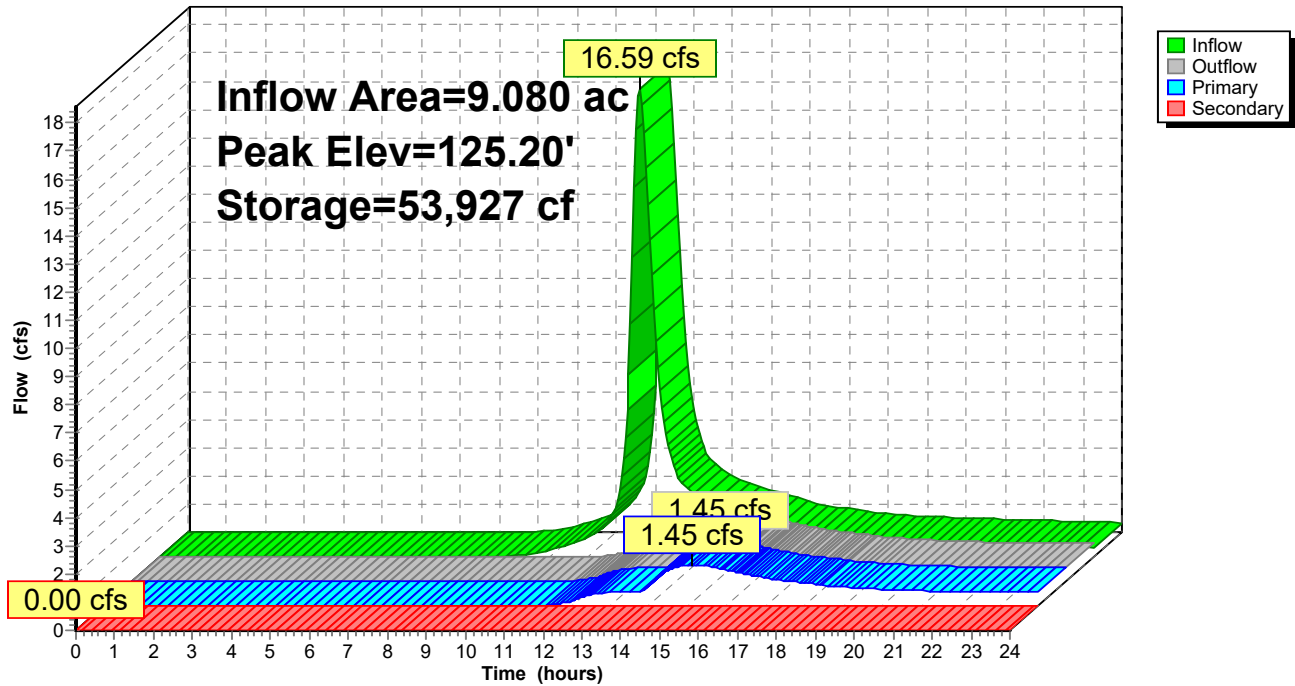
↑ **1=Culvert** (Passes 1.44 cfs of 17.13 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Weir Controls 0.93 cfs @ 1.55 fps)
 ↑ **4=Orifice/Grate** (Orifice Controls 0.51 cfs @ 10.41 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond

Hydrograph



Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	0.00
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.00	0	120.00	0.00	0.00	0.00
7.50	0.00	0	120.00	0.00	0.00	0.00
8.00	0.00	0	120.00	0.00	0.00	0.00
8.50	0.00	0	120.00	0.00	0.00	0.00
9.00	0.02	5	120.00	0.00	0.00	0.00
9.50	0.11	106	120.02	0.00	0.00	0.00
10.00	0.24	409	120.06	0.00	0.00	0.00
10.50	0.42	986	120.14	0.00	0.00	0.00
11.00	0.70	1,983	120.29	0.00	0.00	0.00
11.50	1.24	3,630	120.51	0.03	0.03	0.00
12.00	5.19	7,815	121.05	0.17	0.17	0.00
12.50	13.78	30,195	123.35	0.40	0.40	0.00
13.00	4.34	44,127	124.49	0.47	0.47	0.00
13.50	2.49	48,973	124.85	0.49	0.49	0.00
14.00	2.02	52,046	125.07	0.71	0.71	0.00
14.50	1.69	53,538	125.18	1.26	1.26	0.00
15.00	1.49	53,919	125.20	1.45	1.45	0.00
15.50	1.30	53,841	125.20	1.41	1.41	0.00
16.00	1.10	53,577	125.18	1.27	1.27	0.00
16.50	0.93	53,224	125.15	1.13	1.13	0.00
17.00	0.84	52,907	125.13	1.00	1.00	0.00
17.50	0.75	52,644	125.11	0.89	0.89	0.00
18.00	0.66	52,390	125.09	0.81	0.81	0.00
18.50	0.59	52,123	125.08	0.73	0.73	0.00
19.00	0.56	51,905	125.06	0.66	0.66	0.00
19.50	0.53	51,738	125.05	0.62	0.62	0.00
20.00	0.51	51,602	125.04	0.58	0.58	0.00
20.50	0.48	51,466	125.03	0.56	0.56	0.00
21.00	0.46	51,327	125.02	0.54	0.54	0.00
21.50	0.44	51,188	125.01	0.52	0.52	0.00
22.00	0.42	51,048	125.00	0.50	0.50	0.00
22.50	0.40	50,887	124.99	0.50	0.50	0.00
23.00	0.38	50,690	124.97	0.50	0.50	0.00
23.50	0.36	50,457	124.96	0.50	0.50	0.00
24.00	0.34	50,189	124.94	0.50	0.50	0.00

Stage-Discharge for Pond 4 - Pond: 4 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
120.00	0.00	0.00	0.00	125.30	2.21	2.21	0.00
120.10	0.00	0.00	0.00	125.40	3.17	3.17	0.00
120.20	0.00	0.00	0.00	125.50	4.29	4.29	0.00
120.30	0.00	0.00	0.00	125.60	5.55	5.55	0.00
120.40	0.00	0.00	0.00	125.70	6.95	6.95	0.00
120.50	0.02	0.02	0.00	125.80	8.49	8.49	0.00
120.60	0.06	0.06	0.00	125.90	10.15	10.15	0.00
120.70	0.10	0.10	0.00	126.00	11.95	11.95	0.00
120.80	0.12	0.12	0.00	126.10	13.87	13.87	0.00
120.90	0.14	0.14	0.00	126.20	15.91	15.91	0.00
121.00	0.16	0.16	0.00	126.30	18.07	18.07	0.00
121.10	0.18	0.18	0.00	126.40	19.50	19.50	0.00
121.20	0.19	0.19	0.00	126.50	19.68	19.68	0.00
121.30	0.21	0.21	0.00	126.60	21.49	19.86	1.63
121.40	0.22	0.22	0.00	126.70	24.64	20.05	4.60
121.50	0.23	0.23	0.00	126.80	28.75	20.23	8.53
121.60	0.25	0.25	0.00	126.90	33.66	20.40	13.26
121.70	0.26	0.26	0.00	127.00	39.39	20.58	18.81
121.80	0.27	0.27	0.00				
121.90	0.28	0.28	0.00				
122.00	0.29	0.29	0.00				
122.10	0.30	0.30	0.00				
122.20	0.31	0.31	0.00				
122.30	0.31	0.31	0.00				
122.40	0.32	0.32	0.00				
122.50	0.33	0.33	0.00				
122.60	0.34	0.34	0.00				
122.70	0.35	0.35	0.00				
122.80	0.36	0.36	0.00				
122.90	0.36	0.36	0.00				
123.00	0.37	0.37	0.00				
123.10	0.38	0.38	0.00				
123.20	0.39	0.39	0.00				
123.30	0.39	0.39	0.00				
123.40	0.40	0.40	0.00				
123.50	0.41	0.41	0.00				
123.60	0.41	0.41	0.00				
123.70	0.42	0.42	0.00				
123.80	0.43	0.43	0.00				
123.90	0.43	0.43	0.00				
124.00	0.44	0.44	0.00				
124.10	0.45	0.45	0.00				
124.20	0.45	0.45	0.00				
124.30	0.46	0.46	0.00				
124.40	0.47	0.47	0.00				
124.50	0.47	0.47	0.00				
124.60	0.48	0.48	0.00				
124.70	0.48	0.48	0.00				
124.80	0.49	0.49	0.00				
124.90	0.49	0.49	0.00				
125.00	0.50	0.50	0.00				
125.10	0.82	0.82	0.00				
125.20	1.42	1.42	0.00				

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 3.42" for 10-YEAR STORM event
 Inflow = 34.49 cfs @ 12.41 hrs, Volume= 4.343 af
 Outflow = 17.27 cfs @ 12.82 hrs, Volume= 4.152 af, Atten= 50%, Lag= 24.8 min
 Primary = 17.27 cfs @ 12.82 hrs, Volume= 4.152 af
 Secondary = 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= 127.70' @ 12.82 hrs Surf.Area= 13,257 sf Storage= 51,677 cf

Plug-Flow detention time= 61.7 min calculated for 4.144 af (95% of inflow)
 Center-of-Mass det. time= 38.3 min (864.0 - 825.8)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	86,402 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,177	0	0
123.00	6,454	5,816	5,816
124.00	7,790	7,122	12,938
125.00	9,184	8,487	21,425
126.00	10,638	9,911	31,336
127.00	12,150	11,394	42,730
128.00	13,721	12,936	55,665
129.00	15,351	14,536	70,201
130.00	17,050	16,201	86,402

Device	Routing	Invert	Outlet Devices
#1	Device 2	127.60'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#2	Primary	123.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.70' S= 0.0060 1' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#3	Secondary	129.50'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	123.00'	18.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=17.23 cfs @ 12.82 hrs HW=127.70' (Free Discharge)

↑ **2=Culvert** (Passes 17.23 cfs of 29.10 cfs potential flow)

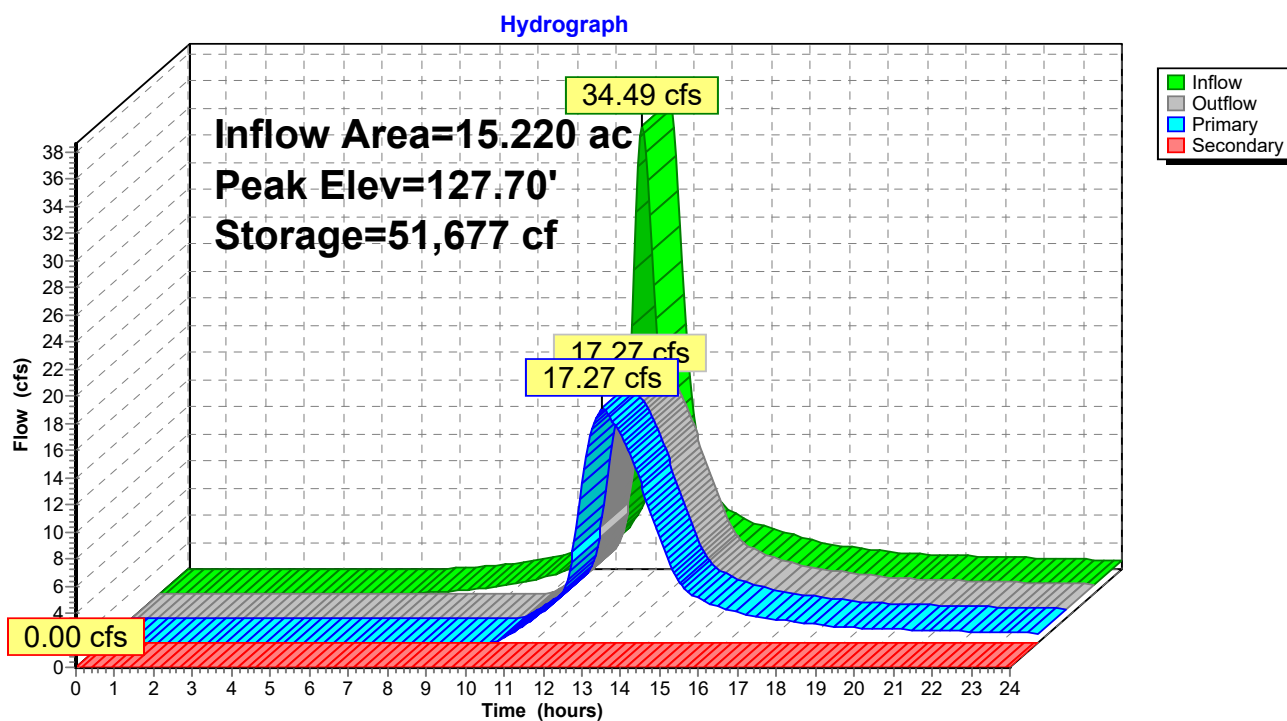
↑ **1=Sharp-Crested Rectangular Weir** (Weir Controls 0.32 cfs @ 1.06 fps)

↑ **4=Orifice/Grate** (Orifice Controls 16.91 cfs @ 9.57 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	0.00
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	0	122.00	0.00	0.00	0.00
5.00	0.00	0	122.00	0.00	0.00	0.00
5.50	0.00	0	122.00	0.00	0.00	0.00
6.00	0.00	0	122.00	0.00	0.00	0.00
6.50	0.03	16	122.00	0.00	0.00	0.00
7.00	0.10	124	122.02	0.00	0.00	0.00
7.50	0.19	380	122.07	0.00	0.00	0.00
8.00	0.31	828	122.16	0.00	0.00	0.00
8.50	0.46	1,511	122.28	0.00	0.00	0.00
9.00	0.69	2,539	122.46	0.00	0.00	0.00
9.50	0.99	4,043	122.72	0.00	0.00	0.00
10.00	1.34	6,128	123.05	0.01	0.01	0.00
10.50	1.79	8,368	123.38	0.73	0.73	0.00
11.00	2.48	9,949	123.60	1.74	1.74	0.00
11.50	3.65	11,250	123.78	2.78	2.78	0.00
12.00	10.94	14,865	124.24	5.94	5.94	0.00
12.50	32.62	41,993	126.94	15.19	15.19	0.00
13.00	11.40	49,771	127.56	16.61	16.61	0.00
13.50	5.60	36,025	126.43	13.92	13.92	0.00
14.00	4.21	22,930	125.16	10.11	10.11	0.00
14.50	3.46	15,164	124.28	6.17	6.17	0.00
15.00	3.02	12,412	123.93	3.79	3.79	0.00
15.50	2.62	11,481	123.81	2.98	2.98	0.00
16.00	2.22	10,919	123.73	2.50	2.50	0.00
16.50	1.87	10,430	123.67	2.11	2.11	0.00
17.00	1.66	10,064	123.62	1.83	1.83	0.00
17.50	1.48	9,789	123.58	1.63	1.63	0.00
18.00	1.31	9,532	123.54	1.45	1.45	0.00
18.50	1.16	9,287	123.51	1.28	1.28	0.00
19.00	1.09	9,107	123.49	1.17	1.17	0.00
19.50	1.04	8,988	123.47	1.09	1.09	0.00
20.00	0.98	8,892	123.46	1.03	1.03	0.00
20.50	0.93	8,806	123.44	0.98	0.98	0.00
21.00	0.89	8,728	123.43	0.93	0.93	0.00
21.50	0.85	8,654	123.42	0.89	0.89	0.00
22.00	0.81	8,581	123.41	0.85	0.85	0.00
22.50	0.77	8,508	123.40	0.81	0.81	0.00
23.00	0.73	8,436	123.39	0.77	0.77	0.00
23.50	0.69	8,364	123.38	0.73	0.73	0.00
24.00	0.65	8,291	123.37	0.69	0.69	0.00

Stage-Discharge for Pond 5 - Pond: 5 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
122.00	0.00	0.00	0.00	127.30	16.03	16.03	0.00
122.10	0.00	0.00	0.00	127.40	16.26	16.26	0.00
122.20	0.00	0.00	0.00	127.50	16.48	16.48	0.00
122.30	0.00	0.00	0.00	127.60	16.70	16.70	0.00
122.40	0.00	0.00	0.00	127.70	17.23	17.23	0.00
122.50	0.00	0.00	0.00	127.80	18.03	18.03	0.00
122.60	0.00	0.00	0.00	127.90	19.03	19.03	0.00
122.70	0.00	0.00	0.00	128.00	20.19	20.19	0.00
122.80	0.00	0.00	0.00	128.10	21.51	21.51	0.00
122.90	0.00	0.00	0.00	128.20	22.97	22.97	0.00
123.00	0.00	0.00	0.00	128.30	24.57	24.57	0.00
123.10	0.05	0.05	0.00	128.40	26.29	26.29	0.00
123.20	0.20	0.20	0.00	128.50	28.15	28.15	0.00
123.30	0.46	0.46	0.00	128.60	30.13	30.13	0.00
123.40	0.80	0.80	0.00	128.70	32.24	32.24	0.00
123.50	1.23	1.23	0.00	128.80	33.14	33.14	0.00
123.60	1.73	1.73	0.00	128.90	33.48	33.48	0.00
123.70	2.29	2.29	0.00	129.00	33.82	33.82	0.00
123.80	2.91	2.91	0.00	129.10	34.16	34.16	0.00
123.90	3.58	3.58	0.00	129.20	34.49	34.49	0.00
124.00	4.26	4.26	0.00	129.30	34.82	34.82	0.00
124.10	4.96	4.96	0.00	129.40	35.15	35.15	0.00
124.20	5.65	5.65	0.00	129.50	35.48	35.48	0.00
124.30	6.32	6.32	0.00	129.60	37.42	35.80	1.63
124.40	6.92	6.92	0.00	129.70	40.71	36.11	4.60
124.50	7.37	7.37	0.00	129.80	44.96	36.43	8.53
124.60	7.84	7.84	0.00	129.90	50.00	36.74	13.26
124.70	8.29	8.29	0.00	130.00	55.86	37.05	18.81
124.80	8.72	8.72	0.00				
124.90	9.12	9.12	0.00				
125.00	9.51	9.51	0.00				
125.10	9.89	9.89	0.00				
125.20	10.25	10.25	0.00				
125.30	10.59	10.59	0.00				
125.40	10.93	10.93	0.00				
125.50	11.26	11.26	0.00				
125.60	11.57	11.57	0.00				
125.70	11.88	11.88	0.00				
125.80	12.18	12.18	0.00				
125.90	12.48	12.48	0.00				
126.00	12.76	12.76	0.00				
126.10	13.04	13.04	0.00				
126.20	13.32	13.32	0.00				
126.30	13.59	13.59	0.00				
126.40	13.85	13.85	0.00				
126.50	14.11	14.11	0.00				
126.60	14.36	14.36	0.00				
126.70	14.61	14.61	0.00				
126.80	14.86	14.86	0.00				
126.90	15.10	15.10	0.00				
127.00	15.34	15.34	0.00				
127.10	15.57	15.57	0.00				
127.20	15.80	15.80	0.00				

HydroCAD North Stonington Proposed_RevType III 24-hr 25-YEAR STORM Rainfall=6.11"

Prepared by HDR, Inc

Printed 5/24/2021

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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 1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>3.54"
Tc=42.6 min CN=77 Runoff=9.36 cfs 1.385 af

Subcatchment 1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>3.75"
Tc=42.3 min CN=79 Runoff=22.30 cfs 3.291 af

Subcatchment 1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>3.96"
Tc=35.2 min CN=81 Runoff=20.91 cfs 2.830 af

Subcatchment 2: Runoff Area=4.800 ac 0.00% Impervious Runoff Depth>3.97"
Tc=21.7 min CN=81 Runoff=14.51 cfs 1.588 af

Subcatchment 4: Runoff Area=9.080 ac 0.00% Impervious Runoff Depth>3.36"
Tc=24.0 min CN=75 Runoff=22.37 cfs 2.543 af

Subcatchment 5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>4.38"
Tc=29.9 min CN=85 Runoff=43.82 cfs 5.561 af

Pond 1A - Pond: 1A - Pond Peak Elev=130.29' Storage=29,817 cf Inflow=9.36 cfs 1.385 af
Primary=2.57 cfs 1.064 af Secondary=0.00 cfs 0.000 af Outflow=2.57 cfs 1.064 af

Pond 1B - Pond: 1B - Pond Peak Elev=125.38' Storage=59,436 cf Inflow=22.30 cfs 3.291 af
Primary=11.52 cfs 2.746 af Secondary=0.00 cfs 0.000 af Outflow=11.52 cfs 2.746 af

Pond 1C-Pond: 1C - Pond Peak Elev=119.26' Storage=50,139 cf Inflow=20.91 cfs 2.830 af
Primary=7.27 cfs 2.655 af Secondary=0.00 cfs 0.000 af Outflow=7.27 cfs 2.655 af

Pond 2 - Pond: 2 - Pond Peak Elev=173.96' Storage=15,512 cf Inflow=14.51 cfs 1.588 af
Primary=8.43 cfs 1.535 af Secondary=0.00 cfs 0.000 af Outflow=8.43 cfs 1.535 af

Pond 4 - Pond: 4 - Pond Peak Elev=125.54' Storage=58,746 cf Inflow=22.37 cfs 2.543 af
Primary=4.72 cfs 1.369 af Secondary=0.00 cfs 0.000 af Outflow=4.72 cfs 1.369 af

Pond 5 - Pond: 5 - Pond Peak Elev=128.45' Storage=62,022 cf Inflow=43.82 cfs 5.561 af
Primary=27.24 cfs 5.364 af Secondary=0.00 cfs 0.000 af Outflow=27.24 cfs 5.364 af

Total Runoff Area = 52.910 ac Runoff Volume = 17.198 af Average Runoff Depth = 3.90"
100.00% Pervious = 52.910 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

Runoff = 9.36 cfs @ 12.58 hrs, Volume= 1.385 af, Depth> 3.54"

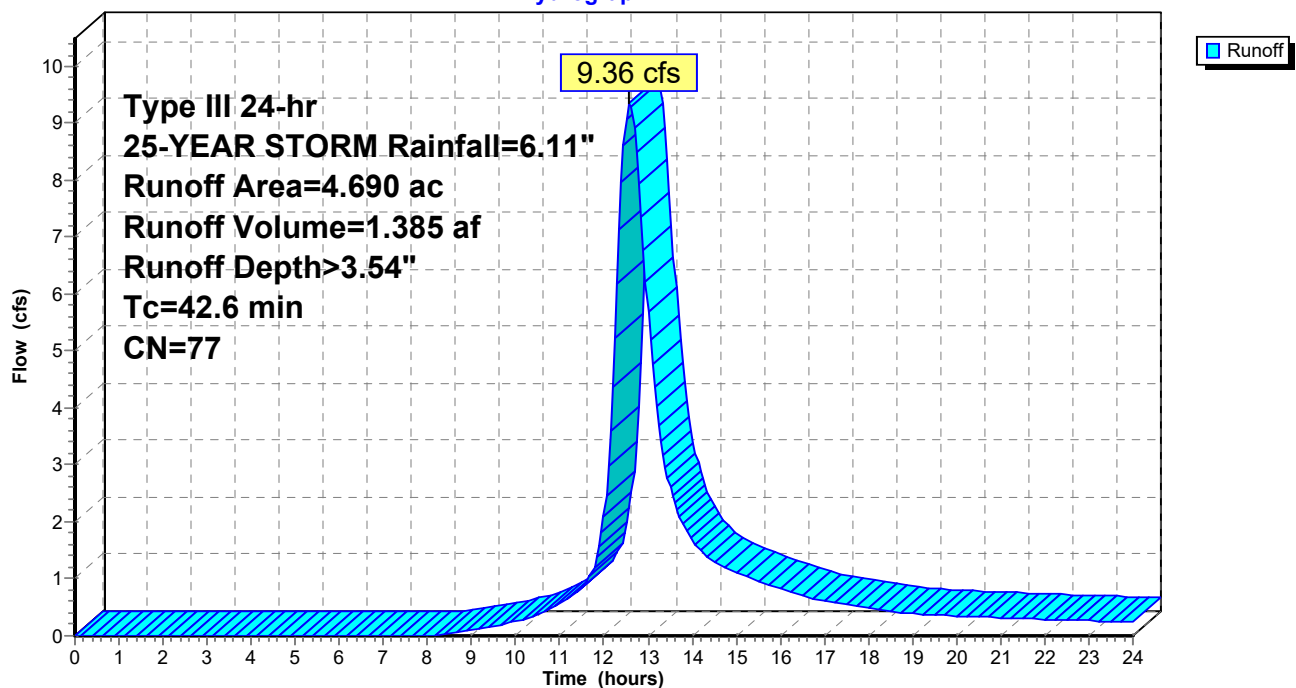
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 4.690	77	
4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					Direct Entry, SCS TR-55

Subcatchment 1A:

Hydrograph



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	2.37	3.70
0.25	0.02	0.00	0.00	13.50	4.79	2.45	2.60
0.50	0.03	0.00	0.00	13.75	4.88	2.52	2.01
0.75	0.05	0.00	0.00	14.00	4.96	2.59	1.68
1.00	0.06	0.00	0.00	14.25	5.03	2.65	1.46
1.25	0.08	0.00	0.00	14.50	5.10	2.70	1.30
1.50	0.09	0.00	0.00	14.75	5.16	2.76	1.19
1.75	0.11	0.00	0.00	15.00	5.22	2.81	1.10
2.00	0.12	0.00	0.00	15.25	5.27	2.85	1.03
2.25	0.14	0.00	0.00	15.50	5.33	2.90	0.96
2.50	0.15	0.00	0.00	15.75	5.37	2.94	0.89
2.75	0.17	0.00	0.00	16.00	5.41	2.97	0.82
3.00	0.19	0.00	0.00	16.25	5.45	3.01	0.75
3.25	0.21	0.00	0.00	16.50	5.49	3.04	0.69
3.50	0.22	0.00	0.00	16.75	5.52	3.07	0.64
3.75	0.24	0.00	0.00	17.00	5.56	3.10	0.61
4.00	0.26	0.00	0.00	17.25	5.59	3.12	0.57
4.25	0.28	0.00	0.00	17.50	5.62	3.15	0.54
4.50	0.30	0.00	0.00	17.75	5.64	3.17	0.51
4.75	0.32	0.00	0.00	18.00	5.67	3.19	0.48
5.00	0.35	0.00	0.00	18.25	5.69	3.21	0.45
5.25	0.37	0.00	0.00	18.50	5.72	3.23	0.42
5.50	0.39	0.00	0.00	18.75	5.74	3.25	0.40
5.75	0.42	0.00	0.00	19.00	5.76	3.27	0.39
6.00	0.44	0.00	0.00	19.25	5.79	3.29	0.38
6.25	0.47	0.00	0.00	19.50	5.81	3.31	0.37
6.50	0.49	0.00	0.00	19.75	5.83	3.33	0.36
6.75	0.52	0.00	0.00	20.00	5.85	3.35	0.35
7.00	0.55	0.00	0.00	20.25	5.87	3.36	0.34
7.25	0.59	0.00	0.00	20.50	5.89	3.38	0.33
7.50	0.62	0.00	0.00	20.75	5.90	3.40	0.32
7.75	0.66	0.00	0.00	21.00	5.92	3.41	0.32
8.00	0.70	0.00	0.01	21.25	5.94	3.43	0.31
8.25	0.74	0.01	0.02	21.50	5.96	3.44	0.30
8.50	0.78	0.01	0.04	21.75	5.98	3.46	0.30
8.75	0.84	0.02	0.06	22.00	5.99	3.47	0.29
9.00	0.89	0.03	0.09	22.25	6.01	3.49	0.28
9.25	0.95	0.04	0.12	22.50	6.02	3.50	0.28
9.50	1.01	0.05	0.16	22.75	6.04	3.51	0.27
9.75	1.08	0.07	0.21	23.00	6.05	3.53	0.26
10.00	1.15	0.09	0.26	23.25	6.07	3.54	0.25
10.25	1.23	0.11	0.31	23.50	6.08	3.55	0.25
10.50	1.32	0.14	0.38	23.75	6.10	3.56	0.24
10.75	1.42	0.18	0.46	24.00	6.11	3.58	0.23
11.00	1.53	0.22	0.56				
11.25	1.66	0.28	0.68				
11.50	1.82	0.36	0.85				
11.75	2.17	0.54	1.15				
12.00	3.05	1.11	2.09				
12.25	3.94	1.76	5.23				
12.50	4.29	2.04	9.06				
12.75	4.45	2.17	8.47				
13.00	4.58	2.28	5.68				

Summary for Subcatchment 1B:

Runoff = 22.30 cfs @ 12.57 hrs, Volume= 3.291 af, Depth> 3.75"

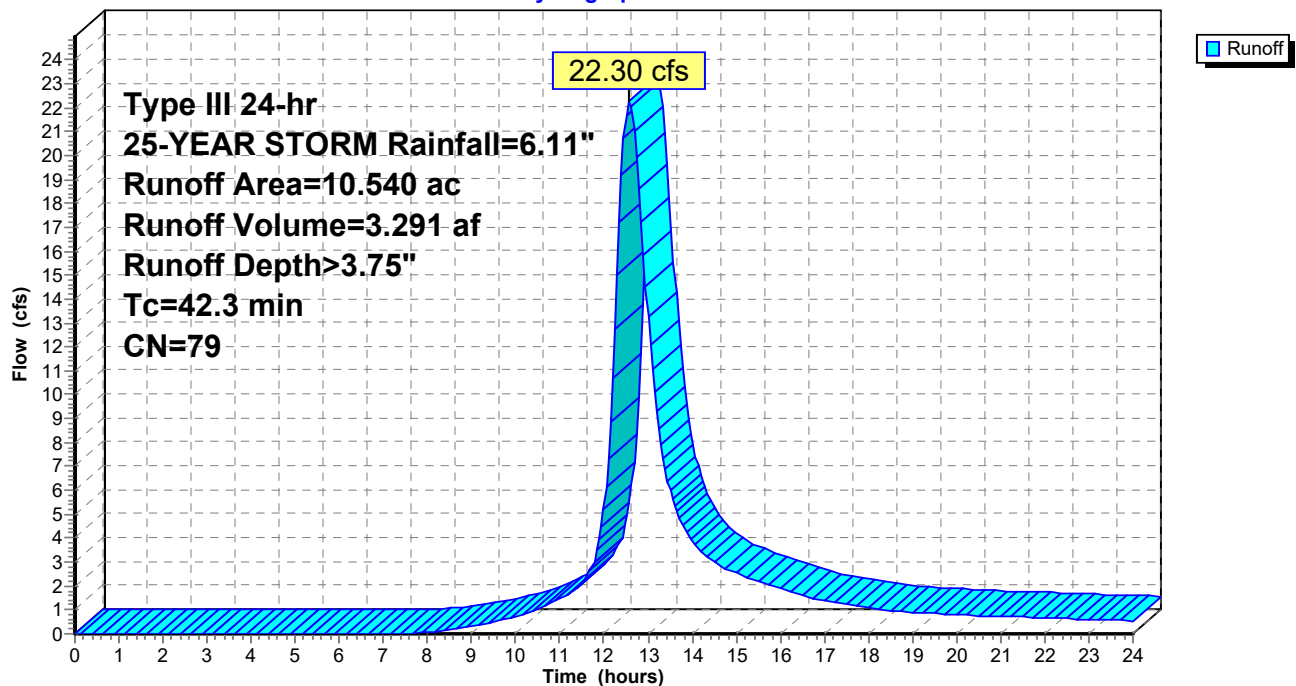
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 10.540	79	
10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					Direct Entry, SCS TR-55

Subcatchment 1B:

Hydrograph



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	2.54	8.58
0.25	0.02	0.00	0.00	13.50	4.79	2.62	6.02
0.50	0.03	0.00	0.00	13.75	4.88	2.70	4.65
0.75	0.05	0.00	0.00	14.00	4.96	2.76	3.89
1.00	0.06	0.00	0.00	14.25	5.03	2.83	3.38
1.25	0.08	0.00	0.00	14.50	5.10	2.88	2.99
1.50	0.09	0.00	0.00	14.75	5.16	2.94	2.74
1.75	0.11	0.00	0.00	15.00	5.22	2.99	2.55
2.00	0.12	0.00	0.00	15.25	5.27	3.04	2.38
2.25	0.14	0.00	0.00	15.50	5.33	3.08	2.21
2.50	0.15	0.00	0.00	15.75	5.37	3.12	2.06
2.75	0.17	0.00	0.00	16.00	5.41	3.16	1.90
3.00	0.19	0.00	0.00	16.25	5.45	3.19	1.74
3.25	0.21	0.00	0.00	16.50	5.49	3.23	1.59
3.50	0.22	0.00	0.00	16.75	5.52	3.26	1.48
3.75	0.24	0.00	0.00	17.00	5.56	3.29	1.39
4.00	0.26	0.00	0.00	17.25	5.59	3.31	1.32
4.25	0.28	0.00	0.00	17.50	5.62	3.34	1.24
4.50	0.30	0.00	0.00	17.75	5.64	3.36	1.17
4.75	0.32	0.00	0.00	18.00	5.67	3.39	1.10
5.00	0.35	0.00	0.00	18.25	5.69	3.41	1.03
5.25	0.37	0.00	0.00	18.50	5.72	3.43	0.97
5.50	0.39	0.00	0.00	18.75	5.74	3.45	0.93
5.75	0.42	0.00	0.00	19.00	5.76	3.47	0.90
6.00	0.44	0.00	0.00	19.25	5.79	3.49	0.87
6.25	0.47	0.00	0.00	19.50	5.81	3.51	0.85
6.50	0.49	0.00	0.00	19.75	5.83	3.53	0.83
6.75	0.52	0.00	0.00	20.00	5.85	3.54	0.81
7.00	0.55	0.00	0.00	20.25	5.87	3.56	0.78
7.25	0.59	0.00	0.00	20.50	5.89	3.58	0.76
7.50	0.62	0.00	0.02	20.75	5.90	3.59	0.75
7.75	0.66	0.01	0.04	21.00	5.92	3.61	0.73
8.00	0.70	0.01	0.08	21.25	5.94	3.63	0.71
8.25	0.74	0.01	0.12	21.50	5.96	3.64	0.70
8.50	0.78	0.02	0.17	21.75	5.98	3.66	0.68
8.75	0.84	0.03	0.23	22.00	5.99	3.67	0.66
9.00	0.89	0.04	0.30	22.25	6.01	3.69	0.65
9.25	0.95	0.06	0.39	22.50	6.02	3.70	0.63
9.50	1.01	0.07	0.49	22.75	6.04	3.72	0.62
9.75	1.08	0.09	0.60	23.00	6.05	3.73	0.60
10.00	1.15	0.12	0.72	23.25	6.07	3.74	0.59
10.25	1.23	0.15	0.86	23.50	6.08	3.75	0.57
10.50	1.32	0.18	1.02	23.75	6.10	3.77	0.55
10.75	1.42	0.22	1.22	24.00	6.11	3.78	0.54
11.00	1.53	0.27	1.47				
11.25	1.66	0.33	1.75				
11.50	1.82	0.42	2.16				
11.75	2.17	0.63	2.89				
12.00	3.05	1.23	5.21				
12.25	3.94	1.91	12.77				
12.50	4.29	2.20	21.69				
12.75	4.45	2.34	19.95				
13.00	4.58	2.45	13.25				

Summary for Subcatchment 1C:

Runoff = 20.91 cfs @ 12.48 hrs, Volume= 2.830 af, Depth> 3.96"

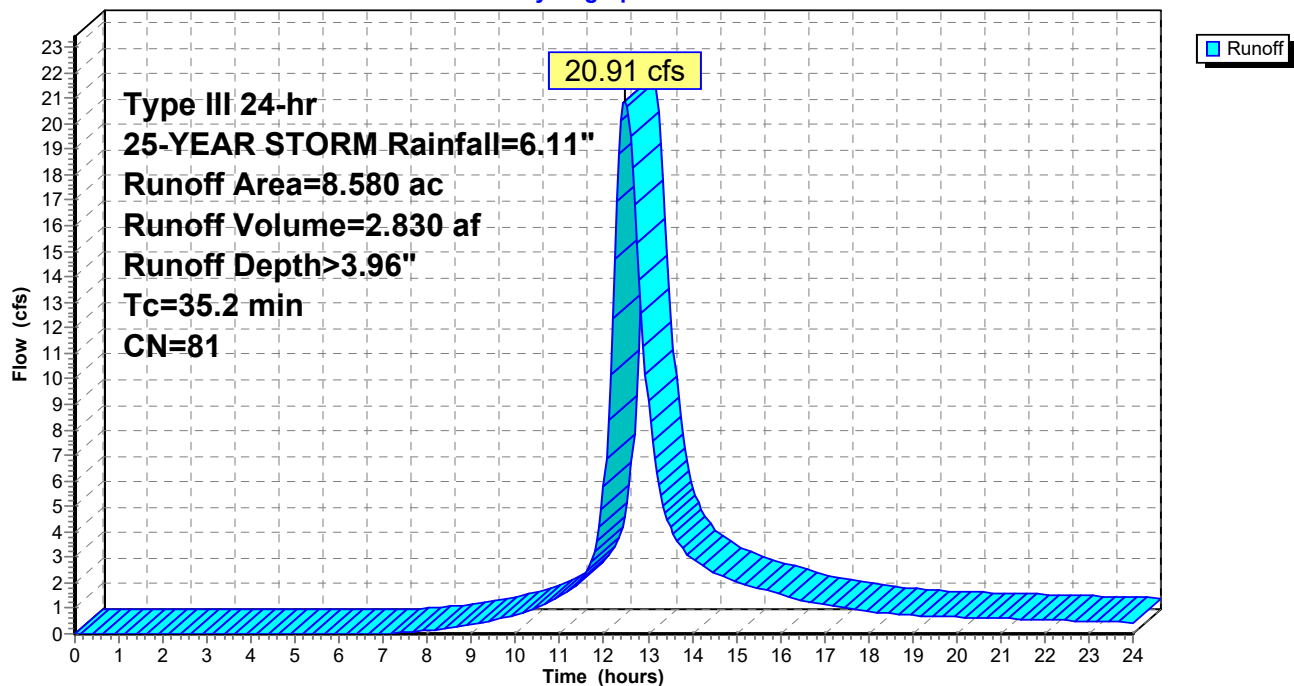
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 8.580	81	
8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					Direct Entry, SCS TR-55

Subcatchment 1C:

Hydrograph



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	2.71	5.84
0.25	0.02	0.00	0.00	13.50	4.79	2.80	4.21
0.50	0.03	0.00	0.00	13.75	4.88	2.88	3.42
0.75	0.05	0.00	0.00	14.00	4.96	2.95	2.95
1.00	0.06	0.00	0.00	14.25	5.03	3.01	2.62
1.25	0.08	0.00	0.00	14.50	5.10	3.07	2.38
1.50	0.09	0.00	0.00	14.75	5.16	3.13	2.20
1.75	0.11	0.00	0.00	15.00	5.22	3.18	2.06
2.00	0.12	0.00	0.00	15.25	5.27	3.23	1.92
2.25	0.14	0.00	0.00	15.50	5.33	3.27	1.79
2.50	0.15	0.00	0.00	15.75	5.37	3.32	1.66
2.75	0.17	0.00	0.00	16.00	5.41	3.35	1.52
3.00	0.19	0.00	0.00	16.25	5.45	3.39	1.39
3.25	0.21	0.00	0.00	16.50	5.49	3.42	1.28
3.50	0.22	0.00	0.00	16.75	5.52	3.45	1.20
3.75	0.24	0.00	0.00	17.00	5.56	3.48	1.13
4.00	0.26	0.00	0.00	17.25	5.59	3.51	1.07
4.25	0.28	0.00	0.00	17.50	5.62	3.54	1.01
4.50	0.30	0.00	0.00	17.75	5.64	3.56	0.95
4.75	0.32	0.00	0.00	18.00	5.67	3.58	0.89
5.00	0.35	0.00	0.00	18.25	5.69	3.61	0.83
5.25	0.37	0.00	0.00	18.50	5.72	3.63	0.79
5.50	0.39	0.00	0.00	18.75	5.74	3.65	0.76
5.75	0.42	0.00	0.00	19.00	5.76	3.67	0.73
6.00	0.44	0.00	0.00	19.25	5.79	3.69	0.72
6.25	0.47	0.00	0.00	19.50	5.81	3.71	0.70
6.50	0.49	0.00	0.00	19.75	5.83	3.73	0.68
6.75	0.52	0.00	0.01	20.00	5.85	3.74	0.66
7.00	0.55	0.00	0.02	20.25	5.87	3.76	0.64
7.25	0.59	0.01	0.04	20.50	5.89	3.78	0.63
7.50	0.62	0.01	0.07	20.75	5.90	3.80	0.61
7.75	0.66	0.01	0.10	21.00	5.92	3.81	0.60
8.00	0.70	0.02	0.14	21.25	5.94	3.83	0.59
8.25	0.74	0.03	0.18	21.50	5.96	3.85	0.57
8.50	0.78	0.04	0.23	21.75	5.98	3.86	0.56
8.75	0.84	0.05	0.29	22.00	5.99	3.88	0.55
9.00	0.89	0.06	0.37	22.25	6.01	3.89	0.53
9.25	0.95	0.08	0.45	22.50	6.02	3.91	0.52
9.50	1.01	0.10	0.55	22.75	6.04	3.92	0.51
9.75	1.08	0.13	0.65	23.00	6.05	3.93	0.49
10.00	1.15	0.16	0.76	23.25	6.07	3.95	0.48
10.25	1.23	0.19	0.89	23.50	6.08	3.96	0.47
10.50	1.32	0.23	1.04	23.75	6.10	3.97	0.45
10.75	1.42	0.27	1.24	24.00	6.11	3.98	0.44
11.00	1.53	0.33	1.46				
11.25	1.66	0.40	1.72				
11.50	1.82	0.49	2.14				
11.75	2.17	0.72	2.94				
12.00	3.05	1.36	5.78				
12.25	3.94	2.07	14.68				
12.50	4.29	2.37	20.87				
12.75	4.45	2.51	15.32				
13.00	4.58	2.62	9.16				

Summary for Subcatchment 2:

Runoff = 14.51 cfs @ 12.30 hrs, Volume= 1.588 af, Depth> 3.97"

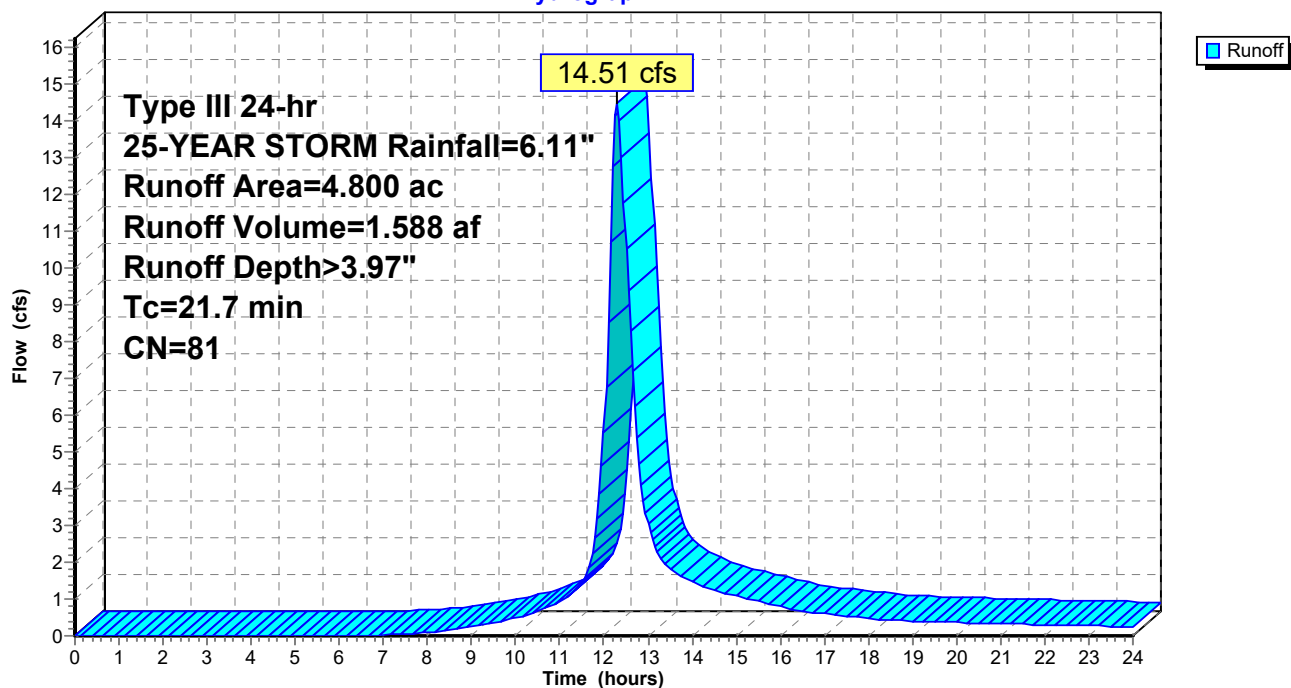
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 4.800	81	
4.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.7					Direct Entry, SCS TR-55

Subcatchment 2:

Hydrograph



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	2.71	2.17
0.25	0.02	0.00	0.00	13.50	4.79	2.80	1.82
0.50	0.03	0.00	0.00	13.75	4.88	2.88	1.64
0.75	0.05	0.00	0.00	14.00	4.96	2.95	1.48
1.00	0.06	0.00	0.00	14.25	5.03	3.01	1.34
1.25	0.08	0.00	0.00	14.50	5.10	3.07	1.24
1.50	0.09	0.00	0.00	14.75	5.16	3.13	1.16
1.75	0.11	0.00	0.00	15.00	5.22	3.18	1.09
2.00	0.12	0.00	0.00	15.25	5.27	3.23	1.01
2.25	0.14	0.00	0.00	15.50	5.33	3.27	0.94
2.50	0.15	0.00	0.00	15.75	5.37	3.32	0.86
2.75	0.17	0.00	0.00	16.00	5.41	3.35	0.79
3.00	0.19	0.00	0.00	16.25	5.45	3.39	0.72
3.25	0.21	0.00	0.00	16.50	5.49	3.42	0.67
3.50	0.22	0.00	0.00	16.75	5.52	3.45	0.64
3.75	0.24	0.00	0.00	17.00	5.56	3.48	0.60
4.00	0.26	0.00	0.00	17.25	5.59	3.51	0.57
4.25	0.28	0.00	0.00	17.50	5.62	3.54	0.54
4.50	0.30	0.00	0.00	17.75	5.64	3.56	0.50
4.75	0.32	0.00	0.00	18.00	5.67	3.58	0.47
5.00	0.35	0.00	0.00	18.25	5.69	3.61	0.44
5.25	0.37	0.00	0.00	18.50	5.72	3.63	0.42
5.50	0.39	0.00	0.00	18.75	5.74	3.65	0.41
5.75	0.42	0.00	0.00	19.00	5.76	3.67	0.40
6.00	0.44	0.00	0.00	19.25	5.79	3.69	0.39
6.25	0.47	0.00	0.00	19.50	5.81	3.71	0.38
6.50	0.49	0.00	0.00	19.75	5.83	3.73	0.37
6.75	0.52	0.00	0.01	20.00	5.85	3.74	0.36
7.00	0.55	0.00	0.02	20.25	5.87	3.76	0.35
7.25	0.59	0.01	0.04	20.50	5.89	3.78	0.34
7.50	0.62	0.01	0.05	20.75	5.90	3.80	0.34
7.75	0.66	0.01	0.07	21.00	5.92	3.81	0.33
8.00	0.70	0.02	0.10	21.25	5.94	3.83	0.32
8.25	0.74	0.03	0.12	21.50	5.96	3.85	0.31
8.50	0.78	0.04	0.16	21.75	5.98	3.86	0.31
8.75	0.84	0.05	0.20	22.00	5.99	3.88	0.30
9.00	0.89	0.06	0.24	22.25	6.01	3.89	0.29
9.25	0.95	0.08	0.29	22.50	6.02	3.91	0.28
9.50	1.01	0.10	0.35	22.75	6.04	3.92	0.28
9.75	1.08	0.13	0.41	23.00	6.05	3.93	0.27
10.00	1.15	0.16	0.48	23.25	6.07	3.95	0.26
10.25	1.23	0.19	0.56	23.50	6.08	3.96	0.25
10.50	1.32	0.23	0.66	23.75	6.10	3.97	0.25
10.75	1.42	0.27	0.79	24.00	6.11	3.98	0.24
11.00	1.53	0.33	0.93				
11.25	1.66	0.40	1.11				
11.50	1.82	0.49	1.46				
11.75	2.17	0.72	2.26				
12.00	3.05	1.36	5.52				
12.25	3.94	2.07	14.14				
12.50	4.29	2.37	10.55				
12.75	4.45	2.51	5.37				
13.00	4.58	2.62	3.05				

Summary for Subcatchment 4:

Runoff = 22.37 cfs @ 12.34 hrs, Volume= 2.543 af, Depth> 3.36"

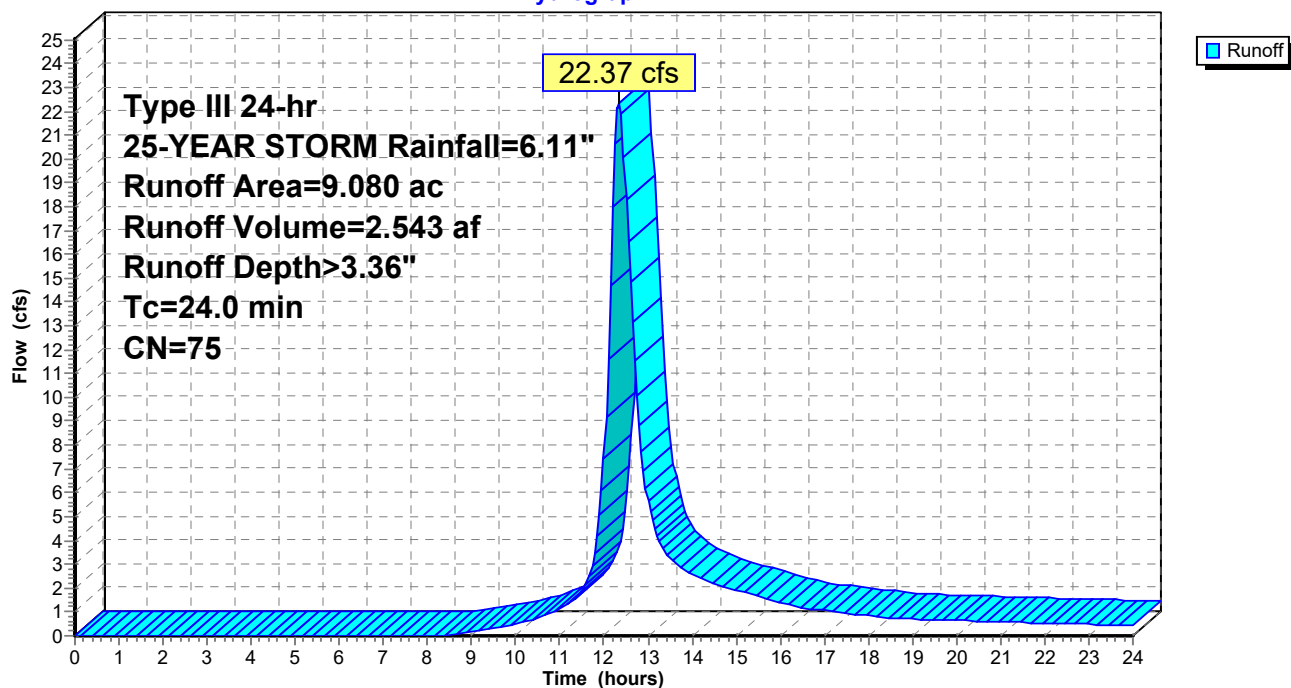
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 9.080	75	
9.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					Direct Entry, SCS TR-55

Subcatchment 4:

Hydrograph



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	2.20	3.95
0.25	0.02	0.00	0.00	13.50	4.79	2.28	3.21
0.50	0.03	0.00	0.00	13.75	4.88	2.35	2.87
0.75	0.05	0.00	0.00	14.00	4.96	2.41	2.60
1.00	0.06	0.00	0.00	14.25	5.03	2.47	2.35
1.25	0.08	0.00	0.00	14.50	5.10	2.53	2.17
1.50	0.09	0.00	0.00	14.75	5.16	2.58	2.04
1.75	0.11	0.00	0.00	15.00	5.22	2.63	1.91
2.00	0.12	0.00	0.00	15.25	5.27	2.67	1.78
2.25	0.14	0.00	0.00	15.50	5.33	2.72	1.66
2.50	0.15	0.00	0.00	15.75	5.37	2.75	1.53
2.75	0.17	0.00	0.00	16.00	5.41	2.79	1.40
3.00	0.19	0.00	0.00	16.25	5.45	2.82	1.27
3.25	0.21	0.00	0.00	16.50	5.49	2.85	1.19
3.50	0.22	0.00	0.00	16.75	5.52	2.88	1.12
3.75	0.24	0.00	0.00	17.00	5.56	2.91	1.07
4.00	0.26	0.00	0.00	17.25	5.59	2.93	1.01
4.25	0.28	0.00	0.00	17.50	5.62	2.96	0.95
4.50	0.30	0.00	0.00	17.75	5.64	2.98	0.90
4.75	0.32	0.00	0.00	18.00	5.67	3.00	0.84
5.00	0.35	0.00	0.00	18.25	5.69	3.02	0.78
5.25	0.37	0.00	0.00	18.50	5.72	3.04	0.75
5.50	0.39	0.00	0.00	18.75	5.74	3.06	0.73
5.75	0.42	0.00	0.00	19.00	5.76	3.08	0.71
6.00	0.44	0.00	0.00	19.25	5.79	3.10	0.69
6.25	0.47	0.00	0.00	19.50	5.81	3.12	0.68
6.50	0.49	0.00	0.00	19.75	5.83	3.14	0.66
6.75	0.52	0.00	0.00	20.00	5.85	3.15	0.64
7.00	0.55	0.00	0.00	20.25	5.87	3.17	0.62
7.25	0.59	0.00	0.00	20.50	5.89	3.19	0.61
7.50	0.62	0.00	0.00	20.75	5.90	3.20	0.60
7.75	0.66	0.00	0.00	21.00	5.92	3.22	0.58
8.00	0.70	0.00	0.00	21.25	5.94	3.23	0.57
8.25	0.74	0.00	0.02	21.50	5.96	3.25	0.56
8.50	0.78	0.00	0.05	21.75	5.98	3.26	0.54
8.75	0.84	0.01	0.10	22.00	5.99	3.28	0.53
9.00	0.89	0.01	0.15	22.25	6.01	3.29	0.52
9.25	0.95	0.02	0.22	22.50	6.02	3.30	0.51
9.50	1.01	0.03	0.30	22.75	6.04	3.32	0.49
9.75	1.08	0.05	0.39	23.00	6.05	3.33	0.48
10.00	1.15	0.06	0.49	23.25	6.07	3.34	0.47
10.25	1.23	0.08	0.60	23.50	6.08	3.35	0.45
10.50	1.32	0.11	0.75	23.75	6.10	3.36	0.44
10.75	1.42	0.14	0.94	24.00	6.11	3.38	0.43
11.00	1.53	0.18	1.15				
11.25	1.66	0.23	1.41				
11.50	1.82	0.30	1.90				
11.75	2.17	0.47	2.97				
12.00	3.05	1.00	7.42				
12.25	3.94	1.62	20.67				
12.50	4.29	1.89	18.31				
12.75	4.45	2.01	10.05				
13.00	4.58	2.12	5.65				

Summary for Subcatchment 5:

Runoff = 43.82 cfs @ 12.40 hrs, Volume= 5.561 af, Depth> 4.38"

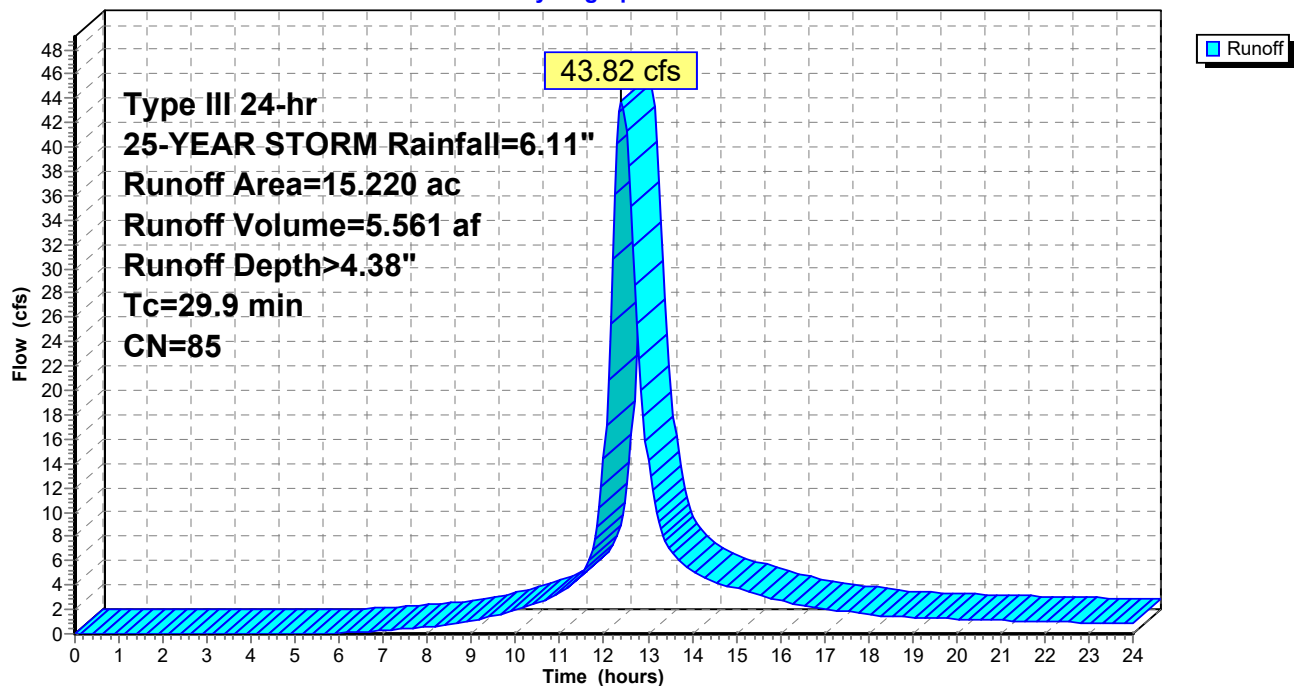
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YEAR STORM Rainfall=6.11"

Area (ac)	CN	Description
* 15.220	85	
15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					Direct Entry, SCS TR-55

Subcatchment 5:

Hydrograph



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	4.69	3.08	9.25
0.25	0.02	0.00	0.00	13.50	4.79	3.17	6.95
0.50	0.03	0.00	0.00	13.75	4.88	3.25	5.86
0.75	0.05	0.00	0.00	14.00	4.96	3.33	5.21
1.00	0.06	0.00	0.00	14.25	5.03	3.39	4.69
1.25	0.08	0.00	0.00	14.50	5.10	3.46	4.28
1.50	0.09	0.00	0.00	14.75	5.16	3.52	3.98
1.75	0.11	0.00	0.00	15.00	5.22	3.57	3.73
2.00	0.12	0.00	0.00	15.25	5.27	3.62	3.48
2.25	0.14	0.00	0.00	15.50	5.33	3.67	3.23
2.50	0.15	0.00	0.00	15.75	5.37	3.71	2.98
2.75	0.17	0.00	0.00	16.00	5.41	3.75	2.73
3.00	0.19	0.00	0.00	16.25	5.45	3.79	2.49
3.25	0.21	0.00	0.00	16.50	5.49	3.82	2.30
3.50	0.22	0.00	0.00	16.75	5.52	3.86	2.16
3.75	0.24	0.00	0.00	17.00	5.56	3.89	2.05
4.00	0.26	0.00	0.00	17.25	5.59	3.92	1.94
4.25	0.28	0.00	0.00	17.50	5.62	3.94	1.83
4.50	0.30	0.00	0.00	17.75	5.64	3.97	1.72
4.75	0.32	0.00	0.00	18.00	5.67	3.99	1.61
5.00	0.35	0.00	0.00	18.25	5.69	4.01	1.50
5.25	0.37	0.00	0.00	18.50	5.72	4.04	1.42
5.50	0.39	0.00	0.01	18.75	5.74	4.06	1.38
5.75	0.42	0.00	0.03	19.00	5.76	4.08	1.34
6.00	0.44	0.00	0.07	19.25	5.79	4.10	1.31
6.25	0.47	0.01	0.11	19.50	5.81	4.12	1.27
6.50	0.49	0.01	0.15	19.75	5.83	4.14	1.24
6.75	0.52	0.01	0.20	20.00	5.85	4.16	1.21
7.00	0.55	0.02	0.26	20.25	5.87	4.18	1.17
7.25	0.59	0.03	0.32	20.50	5.89	4.20	1.15
7.50	0.62	0.04	0.39	20.75	5.90	4.21	1.12
7.75	0.66	0.04	0.47	21.00	5.92	4.23	1.09
8.00	0.70	0.06	0.56	21.25	5.94	4.25	1.07
8.25	0.74	0.07	0.65	21.50	5.96	4.26	1.05
8.50	0.78	0.08	0.77	21.75	5.98	4.28	1.02
8.75	0.84	0.10	0.92	22.00	5.99	4.30	1.00
9.00	0.89	0.13	1.09	22.25	6.01	4.31	0.97
9.25	0.95	0.15	1.28	22.50	6.02	4.33	0.95
9.50	1.01	0.18	1.49	22.75	6.04	4.34	0.92
9.75	1.08	0.21	1.71	23.00	6.05	4.35	0.90
10.00	1.15	0.25	1.95	23.25	6.07	4.37	0.87
10.25	1.23	0.29	2.21	23.50	6.08	4.38	0.85
10.50	1.32	0.34	2.54	23.75	6.10	4.39	0.82
10.75	1.42	0.40	2.96	24.00	6.11	4.41	0.80
11.00	1.53	0.47	3.43				
11.25	1.66	0.55	3.97				
11.50	1.82	0.67	4.93				
11.75	2.17	0.92	6.87				
12.00	3.05	1.63	14.36				
12.25	3.94	2.40	36.11				
12.50	4.29	2.72	41.27				
12.75	4.45	2.87	25.52				
13.00	4.58	2.98	14.24				

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 3.54" for 25-YEAR STORM event
 Inflow = 9.36 cfs @ 12.58 hrs, Volume= 1.385 af
 Outflow = 2.57 cfs @ 13.51 hrs, Volume= 1.064 af, Atten= 73%, Lag= 55.7 min
 Primary = 2.57 cfs @ 13.51 hrs, Volume= 1.064 af
 Secondary = 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= 130.29' @ 13.51 hrs Surf.Area= 8,477 sf Storage= 29,817 cf

Plug-Flow detention time= 259.3 min calculated for 1.064 af (77% of inflow)
 Center-of-Mass det. time= 179.2 min (1,028.7 - 849.5)

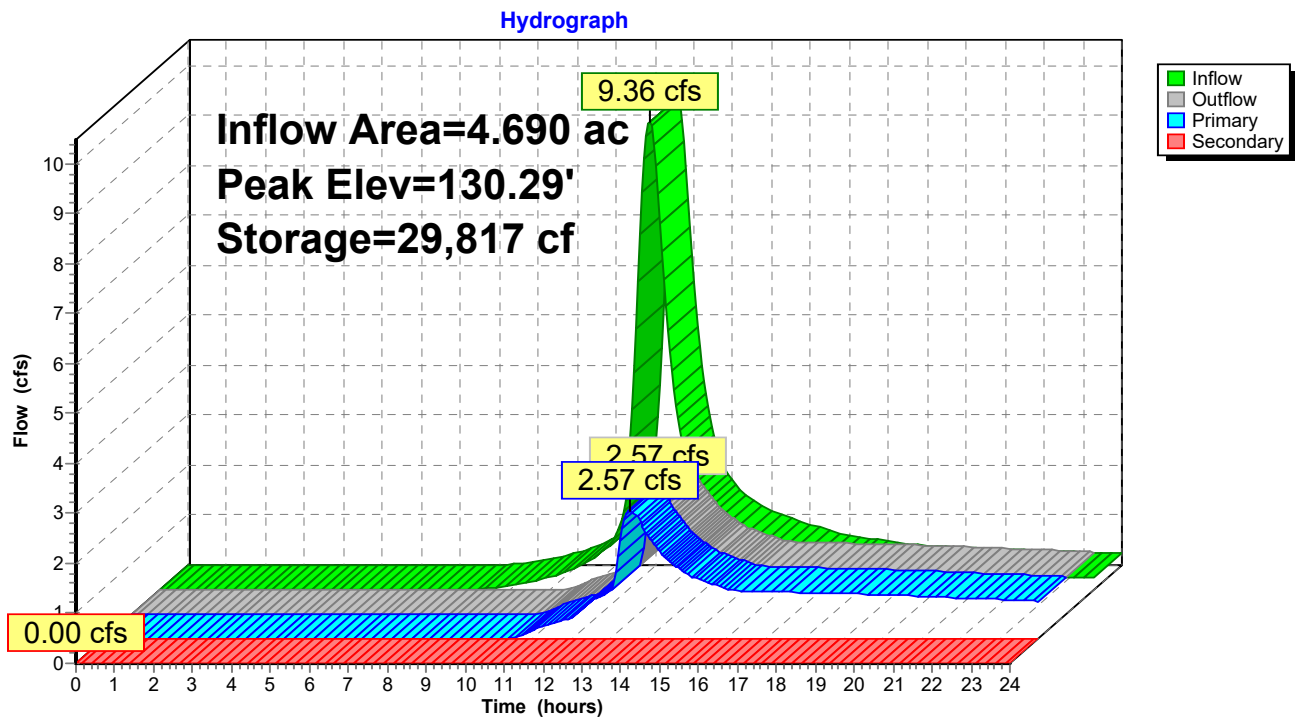
Volume	Invert	Avail.Storage	Storage Description
#1	124.00'	36,194 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.00	1,464	0	0
125.00	2,382	1,923	1,923
126.00	3,381	2,882	4,805
127.00	4,452	3,917	8,721
128.00	5,614	5,033	13,754
129.00	6,826	6,220	19,974
130.00	8,095	7,461	27,435
131.00	9,424	8,760	36,194

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#2	Primary	124.70'	15.0" Round Culvert L= 70.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 124.70' / 124.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	130.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	124.70'	4.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=2.56 cfs @ 13.51 hrs HW=130.29' (Free Discharge)
 ↳ **2=Culvert** (Passes 2.56 cfs of 13.00 cfs potential flow)
 ↳ **3=Sharp-Crested Rectangular Weir** (Weir Controls 1.59 cfs @ 1.88 fps)
 ↳ **4=Orifice/Grate** (Orifice Controls 0.98 cfs @ 11.21 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	124.00	0.00	0.00	0.00
0.50	0.00	0	124.00	0.00	0.00	0.00
1.00	0.00	0	124.00	0.00	0.00	0.00
1.50	0.00	0	124.00	0.00	0.00	0.00
2.00	0.00	0	124.00	0.00	0.00	0.00
2.50	0.00	0	124.00	0.00	0.00	0.00
3.00	0.00	0	124.00	0.00	0.00	0.00
3.50	0.00	0	124.00	0.00	0.00	0.00
4.00	0.00	0	124.00	0.00	0.00	0.00
4.50	0.00	0	124.00	0.00	0.00	0.00
5.00	0.00	0	124.00	0.00	0.00	0.00
5.50	0.00	0	124.00	0.00	0.00	0.00
6.00	0.00	0	124.00	0.00	0.00	0.00
6.50	0.00	0	124.00	0.00	0.00	0.00
7.00	0.00	0	124.00	0.00	0.00	0.00
7.50	0.00	0	124.00	0.00	0.00	0.00
8.00	0.01	4	124.00	0.00	0.00	0.00
8.50	0.04	43	124.03	0.00	0.00	0.00
9.00	0.09	154	124.10	0.00	0.00	0.00
9.50	0.16	377	124.24	0.00	0.00	0.00
10.00	0.26	750	124.45	0.00	0.00	0.00
10.50	0.38	1,315	124.73	0.01	0.01	0.00
11.00	0.56	2,007	125.03	0.17	0.17	0.00
11.50	0.85	2,821	125.35	0.29	0.29	0.00
12.00	2.09	4,442	125.89	0.43	0.43	0.00
12.50	9.06	13,162	127.89	0.73	0.73	0.00
13.00	5.68	26,179	129.84	0.94	0.94	0.00
13.50	2.60	29,817	130.29	2.57	2.57	0.00
14.00	1.68	29,278	130.22	2.05	2.05	0.00
14.50	1.30	28,691	130.15	1.58	1.58	0.00
15.00	1.10	28,267	130.10	1.29	1.29	0.00
15.50	0.96	27,951	130.06	1.14	1.14	0.00
16.00	0.82	27,635	130.02	1.00	1.00	0.00
16.50	0.69	27,261	129.98	0.95	0.95	0.00
17.00	0.61	26,719	129.91	0.94	0.94	0.00
17.50	0.54	26,058	129.83	0.94	0.94	0.00
18.00	0.48	25,300	129.73	0.93	0.93	0.00
18.50	0.42	24,451	129.62	0.92	0.92	0.00
19.00	0.39	23,539	129.50	0.90	0.90	0.00
19.50	0.37	22,604	129.37	0.89	0.89	0.00
20.00	0.35	21,658	129.24	0.88	0.88	0.00
20.50	0.33	20,703	129.11	0.87	0.87	0.00
21.00	0.32	19,743	128.97	0.85	0.85	0.00
21.50	0.30	18,783	128.82	0.84	0.84	0.00
22.00	0.29	17,826	128.68	0.82	0.82	0.00
22.50	0.28	16,873	128.53	0.80	0.80	0.00
23.00	0.26	15,925	128.37	0.79	0.79	0.00
23.50	0.25	14,983	128.21	0.77	0.77	0.00
24.00	0.23	14,050	128.05	0.75	0.75	0.00

Stage-Discharge for Pond 1A - Pond: 1A - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
124.00	0.00	0.00	0.00	129.30	0.88	0.88	0.00
124.10	0.00	0.00	0.00	129.40	0.89	0.89	0.00
124.20	0.00	0.00	0.00	129.50	0.90	0.90	0.00
124.30	0.00	0.00	0.00	129.60	0.91	0.91	0.00
124.40	0.00	0.00	0.00	129.70	0.92	0.92	0.00
124.50	0.00	0.00	0.00	129.80	0.93	0.93	0.00
124.60	0.00	0.00	0.00	129.90	0.94	0.94	0.00
124.70	0.00	0.00	0.00	130.00	0.95	0.95	0.00
124.80	0.02	0.02	0.00	130.10	1.28	1.28	0.00
124.90	0.08	0.08	0.00	130.20	1.88	1.88	0.00
125.00	0.15	0.15	0.00	130.30	2.68	2.68	0.00
125.10	0.20	0.20	0.00	130.40	3.64	3.64	0.00
125.20	0.24	0.24	0.00	130.50	4.76	4.76	0.00
125.30	0.28	0.28	0.00	130.60	6.03	6.03	0.00
125.40	0.31	0.31	0.00	130.70	7.43	7.43	0.00
125.50	0.33	0.33	0.00	130.80	8.97	8.97	0.00
125.60	0.36	0.36	0.00	130.90	10.64	10.64	0.00
125.70	0.38	0.38	0.00	131.00	14.06	12.44	1.63
125.80	0.41	0.41	0.00				
125.90	0.43	0.43	0.00				
126.00	0.45	0.45	0.00				
126.10	0.47	0.47	0.00				
126.20	0.49	0.49	0.00				
126.30	0.50	0.50	0.00				
126.40	0.52	0.52	0.00				
126.50	0.54	0.54	0.00				
126.60	0.55	0.55	0.00				
126.70	0.57	0.57	0.00				
126.80	0.58	0.58	0.00				
126.90	0.60	0.60	0.00				
127.00	0.61	0.61	0.00				
127.10	0.63	0.63	0.00				
127.20	0.64	0.64	0.00				
127.30	0.66	0.66	0.00				
127.40	0.67	0.67	0.00				
127.50	0.68	0.68	0.00				
127.60	0.69	0.69	0.00				
127.70	0.71	0.71	0.00				
127.80	0.72	0.72	0.00				
127.90	0.73	0.73	0.00				
128.00	0.74	0.74	0.00				
128.10	0.76	0.76	0.00				
128.20	0.77	0.77	0.00				
128.30	0.78	0.78	0.00				
128.40	0.79	0.79	0.00				
128.50	0.80	0.80	0.00				
128.60	0.81	0.81	0.00				
128.70	0.82	0.82	0.00				
128.80	0.83	0.83	0.00				
128.90	0.84	0.84	0.00				
129.00	0.85	0.85	0.00				
129.10	0.86	0.86	0.00				
129.20	0.87	0.87	0.00				

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 3.75" for 25-YEAR STORM event
 Inflow = 22.30 cfs @ 12.57 hrs, Volume= 3.291 af
 Outflow = 11.52 cfs @ 13.08 hrs, Volume= 2.746 af, Atten= 48%, Lag= 30.4 min
 Primary = 11.52 cfs @ 13.08 hrs, Volume= 2.746 af
 Secondary = 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= 125.38' @ 13.08 hrs Surf.Area= 13,067 sf Storage= 59,436 cf

Plug-Flow detention time= 203.1 min calculated for 2.746 af (83% of inflow)
 Center-of-Mass det. time= 137.8 min (982.3 - 844.5)

Volume	Invert	Avail.Storage	Storage Description
#1	119.00'	83,261 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
119.00	5,600	0	0
120.00	6,708	6,154	6,154
121.00	7,871	7,290	13,444
122.00	9,092	8,482	21,925
123.00	10,369	9,731	31,656
124.00	11,703	11,036	42,692
125.00	12,160	11,932	54,623
126.00	14,538	13,349	67,972
127.00	16,040	15,289	83,261

Device	Routing	Invert	Outlet Devices
#1	Primary	119.60'	15.0" Round Culvert L= 88.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.60' / 119.00' S= 0.0068 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Secondary	126.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	124.50'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	119.60'	6.0" Vert. Orifice/Grate C= 0.600

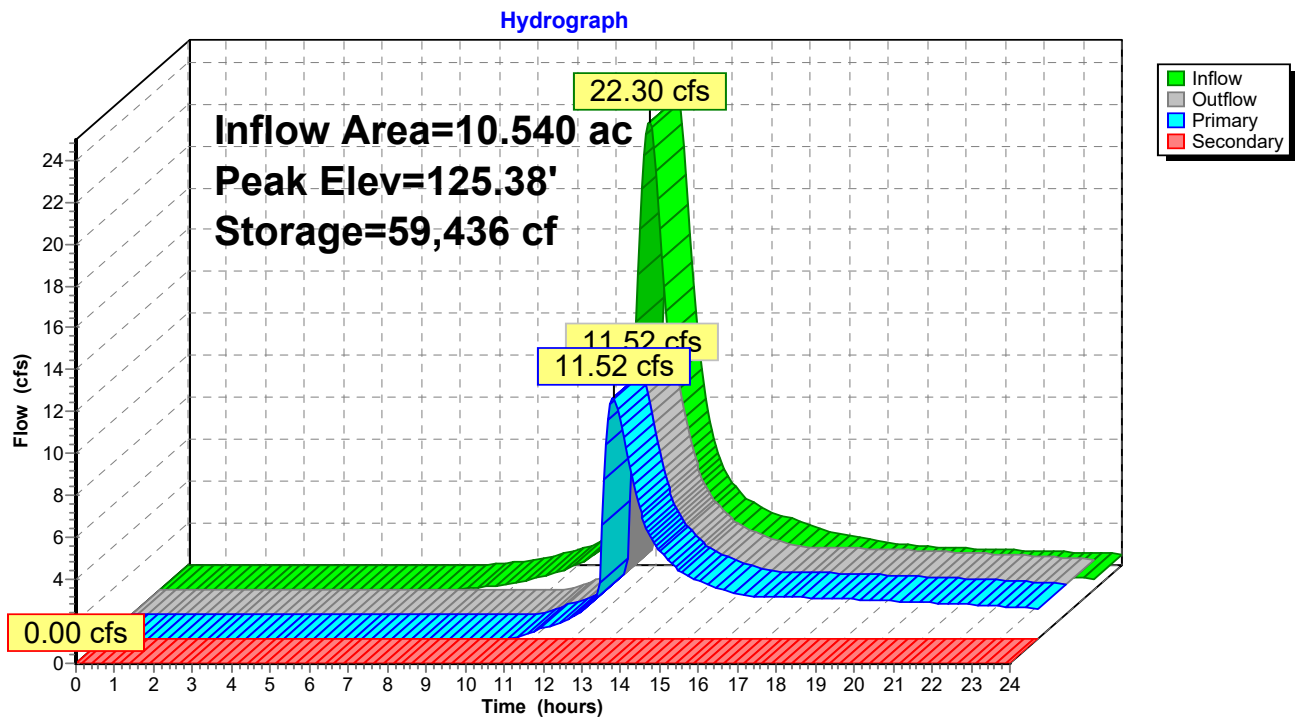
Primary OutFlow Max=11.49 cfs @ 13.08 hrs HW=125.38' (Free Discharge)

1=Culvert (Passes 11.49 cfs of 12.38 cfs potential flow)
 3=Sharp-Crested Rectangular Weir (Weir Controls 9.27 cfs @ 3.73 fps)
 4=Orifice/Grate (Orifice Controls 2.22 cfs @ 11.32 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=119.00' (Free Discharge)

2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	119.00	0.00	0.00	0.00
0.50	0.00	0	119.00	0.00	0.00	0.00
1.00	0.00	0	119.00	0.00	0.00	0.00
1.50	0.00	0	119.00	0.00	0.00	0.00
2.00	0.00	0	119.00	0.00	0.00	0.00
2.50	0.00	0	119.00	0.00	0.00	0.00
3.00	0.00	0	119.00	0.00	0.00	0.00
3.50	0.00	0	119.00	0.00	0.00	0.00
4.00	0.00	0	119.00	0.00	0.00	0.00
4.50	0.00	0	119.00	0.00	0.00	0.00
5.00	0.00	0	119.00	0.00	0.00	0.00
5.50	0.00	0	119.00	0.00	0.00	0.00
6.00	0.00	0	119.00	0.00	0.00	0.00
6.50	0.00	0	119.00	0.00	0.00	0.00
7.00	0.00	0	119.00	0.00	0.00	0.00
7.50	0.02	9	119.00	0.00	0.00	0.00
8.00	0.08	89	119.02	0.00	0.00	0.00
8.50	0.17	305	119.05	0.00	0.00	0.00
9.00	0.30	719	119.13	0.00	0.00	0.00
9.50	0.49	1,421	119.25	0.00	0.00	0.00
10.00	0.72	2,503	119.43	0.00	0.00	0.00
10.50	1.02	4,054	119.68	0.02	0.02	0.00
11.00	1.47	5,995	119.98	0.33	0.33	0.00
11.50	2.16	8,287	120.31	0.64	0.64	0.00
12.00	5.21	12,543	120.88	0.96	0.96	0.00
12.50	21.69	33,841	123.21	1.73	1.73	0.00
13.00	13.25	59,161	125.36	11.16	11.16	0.00
13.50	6.02	56,728	125.17	8.17	8.17	0.00
14.00	3.89	53,743	124.93	5.08	5.08	0.00
14.50	2.99	52,080	124.79	3.72	3.72	0.00
15.00	2.55	51,027	124.70	3.02	3.02	0.00
15.50	2.21	50,270	124.64	2.61	2.61	0.00
16.00	1.90	49,570	124.58	2.30	2.30	0.00
16.50	1.59	48,777	124.51	2.06	2.06	0.00
17.00	1.39	47,790	124.43	2.02	2.02	0.00
17.50	1.24	46,541	124.33	2.00	2.00	0.00
18.00	1.10	45,078	124.20	1.97	1.97	0.00
18.50	0.97	43,417	124.06	1.94	1.94	0.00
19.00	0.90	41,629	123.91	1.90	1.90	0.00
19.50	0.85	39,803	123.75	1.87	1.87	0.00
20.00	0.81	37,967	123.59	1.83	1.83	0.00
20.50	0.76	36,126	123.42	1.79	1.79	0.00
21.00	0.73	34,293	123.25	1.74	1.74	0.00
21.50	0.70	32,478	123.08	1.70	1.70	0.00
22.00	0.66	30,687	122.91	1.65	1.65	0.00
22.50	0.63	28,923	122.73	1.60	1.60	0.00
23.00	0.60	27,189	122.56	1.56	1.56	0.00
23.50	0.57	25,488	122.38	1.50	1.50	0.00
24.00	0.54	23,823	122.21	1.45	1.45	0.00

Stage-Discharge for Pond 1B - Pond: 1B - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
119.00	0.00	0.00	0.00	124.30	1.99	1.99	0.00
119.10	0.00	0.00	0.00	124.40	2.02	2.02	0.00
119.20	0.00	0.00	0.00	124.50	2.04	2.04	0.00
119.30	0.00	0.00	0.00	124.60	2.38	2.38	0.00
119.40	0.00	0.00	0.00	124.70	2.99	2.99	0.00
119.50	0.00	0.00	0.00	124.80	3.80	3.80	0.00
119.60	0.00	0.00	0.00	124.90	4.78	4.78	0.00
119.70	0.03	0.03	0.00	125.00	5.91	5.91	0.00
119.80	0.11	0.11	0.00	125.10	7.19	7.19	0.00
119.90	0.23	0.23	0.00	125.20	8.60	8.60	0.00
120.00	0.36	0.36	0.00	125.30	10.15	10.15	0.00
120.10	0.47	0.47	0.00	125.40	11.83	11.83	0.00
120.20	0.56	0.56	0.00	125.50	12.52	12.52	0.00
120.30	0.63	0.63	0.00	125.60	12.64	12.64	0.00
120.40	0.70	0.70	0.00	125.70	12.76	12.76	0.00
120.50	0.76	0.76	0.00	125.80	12.87	12.87	0.00
120.60	0.82	0.82	0.00	125.90	12.99	12.99	0.00
120.70	0.87	0.87	0.00	126.00	13.10	13.10	0.00
120.80	0.92	0.92	0.00	126.10	13.22	13.22	0.00
120.90	0.97	0.97	0.00	126.20	13.33	13.33	0.00
121.00	1.01	1.01	0.00	126.30	13.44	13.44	0.00
121.10	1.06	1.06	0.00	126.40	13.55	13.55	0.00
121.20	1.10	1.10	0.00	126.50	13.66	13.66	0.00
121.30	1.14	1.14	0.00	126.60	13.77	13.77	0.00
121.40	1.18	1.18	0.00	126.70	13.88	13.88	0.00
121.50	1.21	1.21	0.00	126.80	13.98	13.98	0.00
121.60	1.25	1.25	0.00	126.90	14.09	14.09	0.00
121.70	1.29	1.29	0.00	127.00	15.82	14.20	1.63
121.80	1.32	1.32	0.00				
121.90	1.35	1.35	0.00				
122.00	1.39	1.39	0.00				
122.10	1.42	1.42	0.00				
122.20	1.45	1.45	0.00				
122.30	1.48	1.48	0.00				
122.40	1.51	1.51	0.00				
122.50	1.54	1.54	0.00				
122.60	1.57	1.57	0.00				
122.70	1.60	1.60	0.00				
122.80	1.62	1.62	0.00				
122.90	1.65	1.65	0.00				
123.00	1.68	1.68	0.00				
123.10	1.70	1.70	0.00				
123.20	1.73	1.73	0.00				
123.30	1.76	1.76	0.00				
123.40	1.78	1.78	0.00				
123.50	1.81	1.81	0.00				
123.60	1.83	1.83	0.00				
123.70	1.86	1.86	0.00				
123.80	1.88	1.88	0.00				
123.90	1.90	1.90	0.00				
124.00	1.93	1.93	0.00				
124.10	1.95	1.95	0.00				
124.20	1.97	1.97	0.00				

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 3.96" for 25-YEAR STORM event
 Inflow = 20.91 cfs @ 12.48 hrs, Volume= 2.830 af
 Outflow = 7.27 cfs @ 13.12 hrs, Volume= 2.655 af, Atten= 65%, Lag= 38.4 min
 Primary = 7.27 cfs @ 13.12 hrs, Volume= 2.655 af
 Secondary = 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= 119.26' @ 13.12 hrs Surf.Area= 20,181 sf Storage= 50,139 cf

Plug-Flow detention time= 123.2 min calculated for 2.649 af (94% of inflow)
 Center-of-Mass det. time= 91.7 min (925.6 - 833.9)

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	65,972 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	10,723	0	0
117.00	13,549	12,136	12,136
118.00	16,443	14,996	27,132
119.00	19,403	17,923	45,055
120.00	22,431	20,917	65,972

Device	Routing	Invert	Outlet Devices
#1	Primary	116.30'	24.0" Round Culvert L= 85.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.30' / 115.50' S= 0.0094 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	119.80'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	119.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	116.30'	12.0" Vert. Orifice/Grate C= 0.600

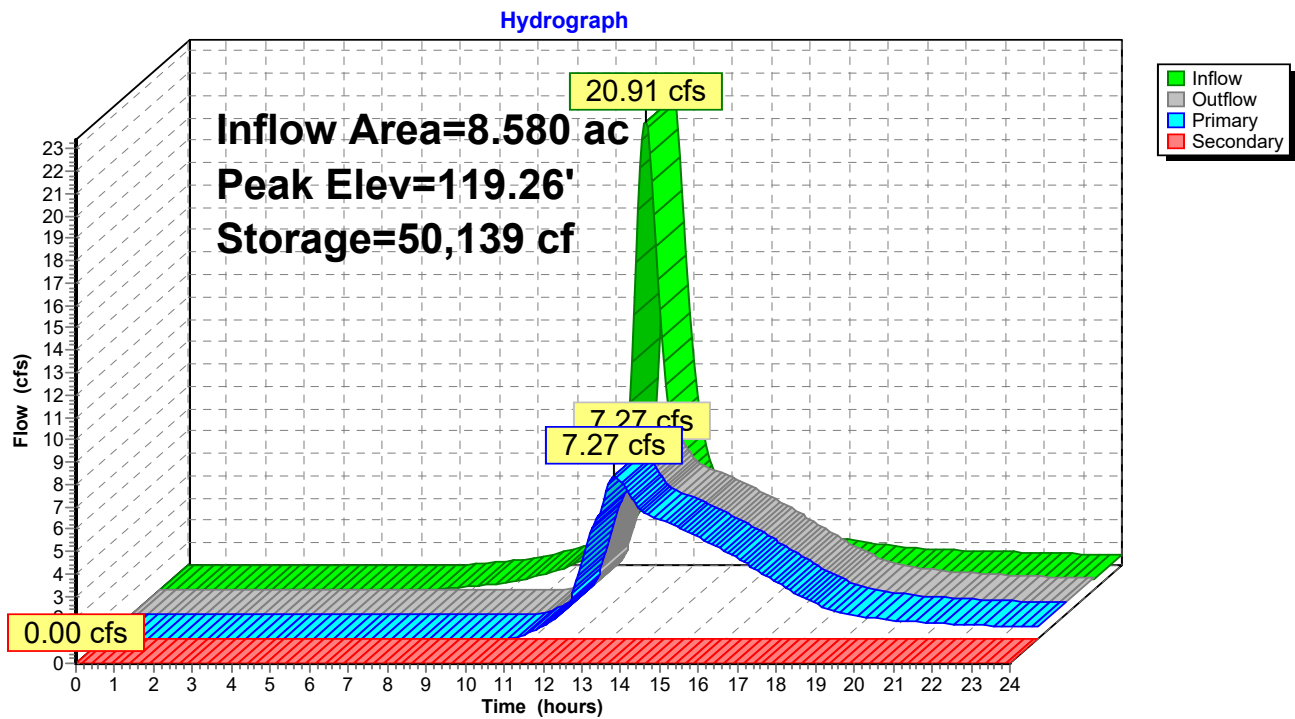
Primary OutFlow Max=7.25 cfs @ 13.12 hrs HW=119.26' (Free Discharge)

↑ **1=Culvert** (Passes 7.25 cfs of 21.16 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Weir Controls 1.33 cfs @ 1.76 fps)
 ↑ **4=Orifice/Grate** (Orifice Controls 5.93 cfs @ 7.55 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=116.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	116.00	0.00	0.00	0.00
0.50	0.00	0	116.00	0.00	0.00	0.00
1.00	0.00	0	116.00	0.00	0.00	0.00
1.50	0.00	0	116.00	0.00	0.00	0.00
2.00	0.00	0	116.00	0.00	0.00	0.00
2.50	0.00	0	116.00	0.00	0.00	0.00
3.00	0.00	0	116.00	0.00	0.00	0.00
3.50	0.00	0	116.00	0.00	0.00	0.00
4.00	0.00	0	116.00	0.00	0.00	0.00
4.50	0.00	0	116.00	0.00	0.00	0.00
5.00	0.00	0	116.00	0.00	0.00	0.00
5.50	0.00	0	116.00	0.00	0.00	0.00
6.00	0.00	0	116.00	0.00	0.00	0.00
6.50	0.00	0	116.00	0.00	0.00	0.00
7.00	0.02	13	116.00	0.00	0.00	0.00
7.50	0.07	93	116.01	0.00	0.00	0.00
8.00	0.14	283	116.03	0.00	0.00	0.00
8.50	0.23	614	116.06	0.00	0.00	0.00
9.00	0.37	1,144	116.11	0.00	0.00	0.00
9.50	0.55	1,959	116.18	0.00	0.00	0.00
10.00	0.76	3,132	116.28	0.00	0.00	0.00
10.50	1.04	4,710	116.42	0.06	0.06	0.00
11.00	1.46	6,638	116.58	0.32	0.32	0.00
11.50	2.14	8,833	116.75	0.78	0.78	0.00
12.00	5.78	12,599	117.03	1.80	1.80	0.00
12.50	20.87	32,539	118.32	4.66	4.66	0.00
13.00	9.16	49,721	119.24	7.08	7.08	0.00
13.50	4.21	48,137	119.16	6.43	6.43	0.00
14.00	2.95	43,834	118.94	5.53	5.53	0.00
14.50	2.38	38,932	118.68	5.18	5.18	0.00
15.00	2.06	33,934	118.40	4.78	4.78	0.00
15.50	1.79	29,171	118.12	4.35	4.35	0.00
16.00	1.52	24,740	117.85	3.88	3.88	0.00
16.50	1.28	20,718	117.60	3.37	3.37	0.00
17.00	1.13	17,281	117.37	2.84	2.84	0.00
17.50	1.01	14,548	117.17	2.32	2.32	0.00
18.00	0.89	12,576	117.03	1.80	1.80	0.00
18.50	0.79	11,213	116.93	1.41	1.41	0.00
19.00	0.73	10,280	116.86	1.16	1.16	0.00
19.50	0.70	9,647	116.81	0.99	0.99	0.00
20.00	0.66	9,201	116.78	0.87	0.87	0.00
20.50	0.63	8,867	116.75	0.79	0.79	0.00
21.00	0.60	8,607	116.73	0.73	0.73	0.00
21.50	0.57	8,399	116.72	0.68	0.68	0.00
22.00	0.55	8,223	116.70	0.64	0.64	0.00
22.50	0.52	8,067	116.69	0.60	0.60	0.00
23.00	0.49	7,924	116.68	0.57	0.57	0.00
23.50	0.47	7,788	116.67	0.54	0.54	0.00
24.00	0.44	7,655	116.66	0.51	0.51	0.00

Stage-Discharge for Pond 1C-Pond: 1C - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
116.00	0.00	0.00	0.00	118.65	5.14	5.14	0.00
116.05	0.00	0.00	0.00	118.70	5.21	5.21	0.00
116.10	0.00	0.00	0.00	118.75	5.28	5.28	0.00
116.15	0.00	0.00	0.00	118.80	5.35	5.35	0.00
116.20	0.00	0.00	0.00	118.85	5.41	5.41	0.00
116.25	0.00	0.00	0.00	118.90	5.48	5.48	0.00
116.30	0.00	0.00	0.00	118.95	5.55	5.55	0.00
116.35	0.01	0.01	0.00	119.00	5.61	5.61	0.00
116.40	0.04	0.04	0.00	119.05	5.78	5.78	0.00
116.45	0.10	0.10	0.00	119.10	6.05	6.05	0.00
116.50	0.17	0.17	0.00	119.15	6.38	6.38	0.00
116.55	0.26	0.26	0.00	119.20	6.77	6.77	0.00
116.60	0.37	0.37	0.00	119.25	7.20	7.20	0.00
116.65	0.49	0.49	0.00	119.30	7.68	7.68	0.00
116.70	0.63	0.63	0.00	119.35	8.19	8.19	0.00
116.75	0.78	0.78	0.00	119.40	8.75	8.75	0.00
116.80	0.95	0.95	0.00	119.45	9.34	9.34	0.00
116.85	1.12	1.12	0.00	119.50	9.98	9.98	0.00
116.90	1.30	1.30	0.00	119.55	10.64	10.64	0.00
116.95	1.48	1.48	0.00	119.60	11.35	11.35	0.00
117.00	1.67	1.67	0.00	119.65	12.08	12.08	0.00
117.05	1.86	1.86	0.00	119.70	12.86	12.86	0.00
117.10	2.05	2.05	0.00	119.75	13.66	13.66	0.00
117.15	2.23	2.23	0.00	119.80	14.50	14.50	0.00
117.20	2.40	2.40	0.00	119.85	15.94	15.36	0.57
117.25	2.56	2.56	0.00	119.90	17.89	16.27	1.63
117.30	2.67	2.67	0.00	119.95	20.18	17.20	2.99
117.35	2.80	2.80	0.00	120.00	22.76	18.16	4.60
117.40	2.93	2.93	0.00				
117.45	3.05	3.05	0.00				
117.50	3.16	3.16	0.00				
117.55	3.28	3.28	0.00				
117.60	3.38	3.38	0.00				
117.65	3.49	3.49	0.00				
117.70	3.59	3.59	0.00				
117.75	3.69	3.69	0.00				
117.80	3.78	3.78	0.00				
117.85	3.88	3.88	0.00				
117.90	3.97	3.97	0.00				
117.95	4.06	4.06	0.00				
118.00	4.14	4.14	0.00				
118.05	4.23	4.23	0.00				
118.10	4.31	4.31	0.00				
118.15	4.39	4.39	0.00				
118.20	4.47	4.47	0.00				
118.25	4.55	4.55	0.00				
118.30	4.63	4.63	0.00				
118.35	4.71	4.71	0.00				
118.40	4.78	4.78	0.00				
118.45	4.86	4.86	0.00				
118.50	4.93	4.93	0.00				
118.55	5.00	5.00	0.00				
118.60	5.07	5.07	0.00				

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 4.800 ac, 0.00% Impervious, Inflow Depth > 3.97" for 25-YEAR STORM event
 Inflow = 14.51 cfs @ 12.30 hrs, Volume= 1.588 af
 Outflow = 8.43 cfs @ 12.59 hrs, Volume= 1.535 af, Atten= 42%, Lag= 17.9 min
 Primary = 8.43 cfs @ 12.59 hrs, Volume= 1.535 af
 Secondary = 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= 173.96' @ 12.59 hrs Surf.Area= 6,653 sf Storage= 15,512 cf

Plug-Flow detention time= 46.6 min calculated for 1.532 af (97% of inflow)
 Center-of-Mass det. time= 28.4 min (851.4 - 823.0)

Volume	Invert	Avail.Storage	Storage Description
#1	171.00'	23,080 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	3,912	0	0
172.00	4,771	4,342	4,342
173.00	5,697	5,234	9,576
174.00	6,691	6,194	15,770
175.00	7,929	7,310	23,080

Device	Routing	Invert	Outlet Devices
#1	Device 2	171.60'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#2	Primary	171.30'	15.0" Round Culvert L= 31.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 171.30' / 171.00' S= 0.0097 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Secondary	174.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	171.30'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=8.43 cfs @ 12.59 hrs HW=173.96' (Free Discharge)

↑ **2=Culvert** (Inlet Controls 8.43 cfs @ 6.87 fps)

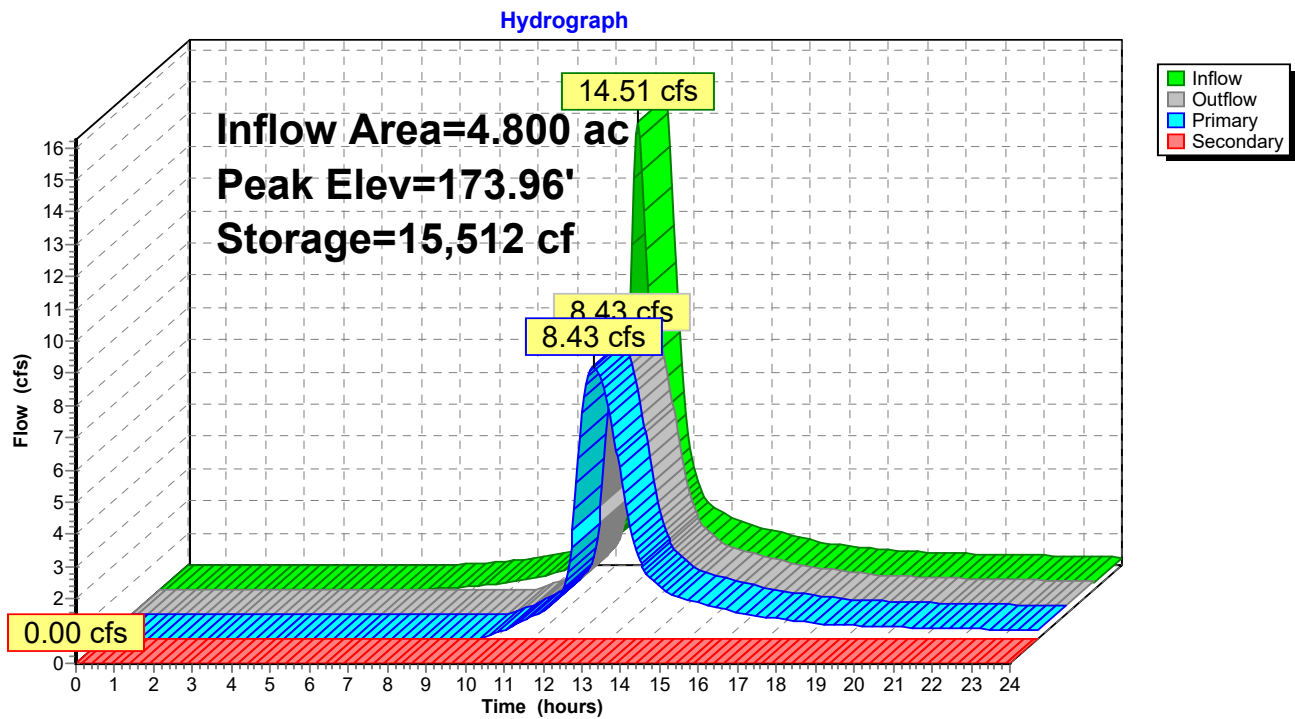
↑ **1=Sharp-Crested Rectangular Weir** (Passes < 47.27 cfs potential flow)

↑ **4=Orifice/Grate** (Passes < 5.56 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=171.00' (Free Discharge)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2 - Pond: 2 - Pond



Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	171.00	0.00	0.00	0.00
0.50	0.00	0	171.00	0.00	0.00	0.00
1.00	0.00	0	171.00	0.00	0.00	0.00
1.50	0.00	0	171.00	0.00	0.00	0.00
2.00	0.00	0	171.00	0.00	0.00	0.00
2.50	0.00	0	171.00	0.00	0.00	0.00
3.00	0.00	0	171.00	0.00	0.00	0.00
3.50	0.00	0	171.00	0.00	0.00	0.00
4.00	0.00	0	171.00	0.00	0.00	0.00
4.50	0.00	0	171.00	0.00	0.00	0.00
5.00	0.00	0	171.00	0.00	0.00	0.00
5.50	0.00	0	171.00	0.00	0.00	0.00
6.00	0.00	0	171.00	0.00	0.00	0.00
6.50	0.00	0	171.00	0.00	0.00	0.00
7.00	0.02	16	171.00	0.00	0.00	0.00
7.50	0.05	82	171.02	0.00	0.00	0.00
8.00	0.10	218	171.06	0.00	0.00	0.00
8.50	0.16	441	171.11	0.00	0.00	0.00
9.00	0.24	795	171.20	0.00	0.00	0.00
9.50	0.35	1,325	171.33	0.00	0.00	0.00
10.00	0.48	1,972	171.48	0.14	0.14	0.00
10.50	0.66	2,527	171.61	0.39	0.39	0.00
11.00	0.93	2,962	171.70	0.70	0.70	0.00
11.50	1.46	3,464	171.81	1.07	1.07	0.00
12.00	5.52	5,411	172.22	2.82	2.82	0.00
12.50	10.55	15,146	173.91	8.32	8.32	0.00
13.00	3.05	11,401	173.31	6.96	6.96	0.00
13.50	1.82	6,101	172.36	3.48	3.48	0.00
14.00	1.48	4,478	172.03	1.94	1.94	0.00
14.50	1.24	3,919	171.91	1.44	1.44	0.00
15.00	1.09	3,641	171.85	1.21	1.21	0.00
15.50	0.94	3,438	171.81	1.05	1.05	0.00
16.00	0.79	3,245	171.77	0.90	0.90	0.00
16.50	0.67	3,057	171.72	0.76	0.76	0.00
17.00	0.60	2,922	171.69	0.67	0.67	0.00
17.50	0.54	2,814	171.67	0.60	0.60	0.00
18.00	0.47	2,711	171.65	0.53	0.53	0.00
18.50	0.42	2,619	171.63	0.46	0.46	0.00
19.00	0.40	2,569	171.62	0.42	0.42	0.00
19.50	0.38	2,537	171.61	0.40	0.40	0.00
20.00	0.36	2,511	171.60	0.38	0.38	0.00
20.50	0.34	2,484	171.60	0.36	0.36	0.00
21.00	0.33	2,454	171.59	0.35	0.35	0.00
21.50	0.31	2,424	171.58	0.33	0.33	0.00
22.00	0.30	2,395	171.58	0.32	0.32	0.00
22.50	0.28	2,365	171.57	0.30	0.30	0.00
23.00	0.27	2,335	171.56	0.29	0.29	0.00
23.50	0.25	2,304	171.56	0.27	0.27	0.00
24.00	0.24	2,272	171.55	0.26	0.26	0.00

Stage-Discharge for Pond 2 - Pond: 2 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
171.00	0.00	0.00	0.00	173.65	7.76	7.76	0.00
171.05	0.00	0.00	0.00	173.70	7.87	7.87	0.00
171.10	0.00	0.00	0.00	173.75	7.98	7.98	0.00
171.15	0.00	0.00	0.00	173.80	8.09	8.09	0.00
171.20	0.00	0.00	0.00	173.85	8.20	8.20	0.00
171.25	0.00	0.00	0.00	173.90	8.30	8.30	0.00
171.30	0.00	0.00	0.00	173.95	8.41	8.41	0.00
171.35	0.01	0.01	0.00	174.00	8.51	8.51	0.00
171.40	0.04	0.04	0.00	174.05	8.61	8.61	0.00
171.45	0.10	0.10	0.00	174.10	8.71	8.71	0.00
171.50	0.17	0.17	0.00	174.15	8.81	8.81	0.00
171.55	0.26	0.26	0.00	174.20	8.91	8.91	0.00
171.60	0.37	0.37	0.00	174.25	9.01	9.01	0.00
171.65	0.54	0.54	0.00	174.30	9.11	9.11	0.00
171.70	0.69	0.69	0.00	174.35	9.20	9.20	0.00
171.75	0.85	0.85	0.00	174.40	9.30	9.30	0.00
171.80	1.02	1.02	0.00	174.45	9.39	9.39	0.00
171.85	1.20	1.20	0.00	174.50	9.48	9.48	0.00
171.90	1.40	1.40	0.00	174.55	9.57	9.57	0.00
171.95	1.60	1.60	0.00	174.60	9.66	9.66	0.00
172.00	1.81	1.81	0.00	174.65	9.75	9.75	0.00
172.05	2.03	2.03	0.00	174.70	9.84	9.84	0.00
172.10	2.26	2.26	0.00	174.75	9.93	9.93	0.00
172.15	2.49	2.49	0.00	174.80	10.02	10.02	0.00
172.20	2.73	2.73	0.00	174.85	10.11	10.11	0.00
172.25	2.97	2.97	0.00	174.90	10.19	10.19	0.00
172.30	3.21	3.21	0.00	174.95	10.85	10.28	0.57
172.35	3.45	3.45	0.00	175.00	11.99	10.36	1.63
172.40	3.69	3.69	0.00				
172.45	3.93	3.93	0.00				
172.50	4.17	4.17	0.00				
172.55	4.41	4.41	0.00				
172.60	4.64	4.64	0.00				
172.65	4.86	4.86	0.00				
172.70	5.07	5.07	0.00				
172.75	5.26	5.26	0.00				
172.80	5.44	5.44	0.00				
172.85	5.60	5.60	0.00				
172.90	5.72	5.72	0.00				
172.95	5.77	5.77	0.00				
173.00	5.86	5.86	0.00				
173.05	6.06	6.06	0.00				
173.10	6.24	6.24	0.00				
173.15	6.42	6.42	0.00				
173.20	6.60	6.60	0.00				
173.25	6.77	6.77	0.00				
173.30	6.93	6.93	0.00				
173.35	7.05	7.05	0.00				
173.40	7.18	7.18	0.00				
173.45	7.30	7.30	0.00				
173.50	7.42	7.42	0.00				
173.55	7.53	7.53	0.00				
173.60	7.65	7.65	0.00				

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.080 ac, 0.00% Impervious, Inflow Depth > 3.36" for 25-YEAR STORM event
 Inflow = 22.37 cfs @ 12.34 hrs, Volume= 2.543 af
 Outflow = 4.72 cfs @ 13.12 hrs, Volume= 1.369 af, Atten= 79%, Lag= 46.9 min
 Primary = 4.72 cfs @ 13.12 hrs, Volume= 1.369 af
 Secondary = 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= 125.54' @ 13.12 hrs Surf.Area= 14,788 sf Storage= 58,746 cf

Plug-Flow detention time= 236.9 min calculated for 1.369 af (54% of inflow)
 Center-of-Mass det. time= 126.0 min (965.4 - 839.4)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	79,242 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	6,749	0	0
121.00	8,061	7,405	7,405
122.00	9,434	8,748	16,153
123.00	10,869	10,152	26,304
124.00	12,365	11,617	37,921
125.00	13,922	13,144	51,065
126.00	15,541	14,732	65,796
127.00	11,350	13,446	79,242

Device	Routing	Invert	Outlet Devices
#1	Primary	120.40'	18.0" Round Culvert L= 53.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.40' / 120.00' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	126.50'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	125.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	120.40'	3.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=4.71 cfs @ 13.12 hrs HW=125.53' (Free Discharge)

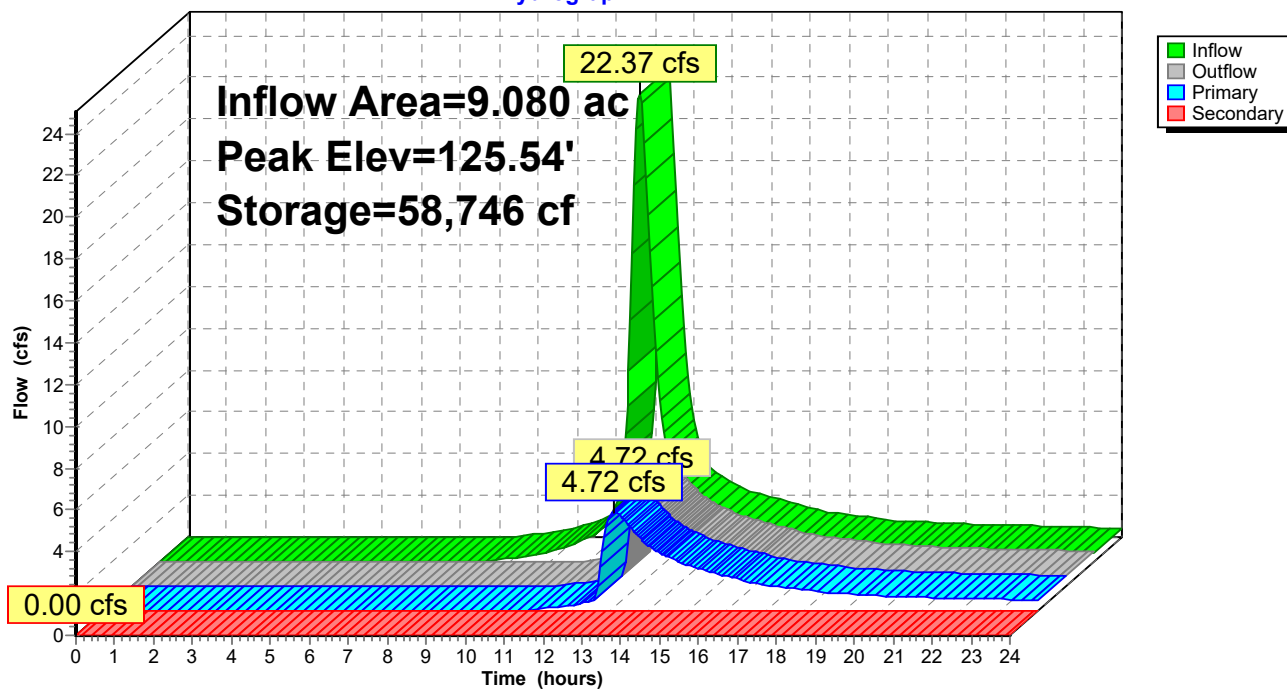
↑ **1=Culvert** (Passes 4.71 cfs of 17.82 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Weir Controls 4.18 cfs @ 2.70 fps)
 ↑ **4=Orifice/Grate** (Orifice Controls 0.53 cfs @ 10.78 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond

Hydrograph



Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	0.00
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.00	0	120.00	0.00	0.00	0.00
7.50	0.00	0	120.00	0.00	0.00	0.00
8.00	0.00	0	120.00	0.00	0.00	0.00
8.50	0.05	34	120.00	0.00	0.00	0.00
9.00	0.15	210	120.03	0.00	0.00	0.00
9.50	0.30	612	120.09	0.00	0.00	0.00
10.00	0.49	1,318	120.19	0.00	0.00	0.00
10.50	0.75	2,416	120.35	0.00	0.00	0.00
11.00	1.15	4,087	120.57	0.05	0.05	0.00
11.50	1.90	6,521	120.89	0.14	0.14	0.00
12.00	7.42	12,600	121.61	0.25	0.25	0.00
12.50	18.31	43,105	124.41	0.47	0.47	0.00
13.00	5.65	58,539	125.52	4.55	4.55	0.00
13.50	3.21	57,870	125.48	4.01	4.01	0.00
14.00	2.60	56,695	125.40	3.13	3.13	0.00
14.50	2.17	55,857	125.34	2.56	2.56	0.00
15.00	1.91	55,270	125.30	2.19	2.19	0.00
15.50	1.66	54,792	125.26	1.91	1.91	0.00
16.00	1.40	54,337	125.23	1.66	1.66	0.00
16.50	1.19	53,872	125.20	1.42	1.42	0.00
17.00	1.07	53,508	125.17	1.25	1.25	0.00
17.50	0.95	53,199	125.15	1.12	1.12	0.00
18.00	0.84	52,908	125.13	1.00	1.00	0.00
18.50	0.75	52,635	125.11	0.88	0.88	0.00
19.00	0.71	52,420	125.10	0.82	0.82	0.00
19.50	0.68	52,245	125.08	0.76	0.76	0.00
20.00	0.64	52,095	125.07	0.72	0.72	0.00
20.50	0.61	51,959	125.06	0.68	0.68	0.00
21.00	0.58	51,840	125.06	0.65	0.65	0.00
21.50	0.56	51,734	125.05	0.61	0.61	0.00
22.00	0.53	51,635	125.04	0.59	0.59	0.00
22.50	0.51	51,532	125.03	0.57	0.57	0.00
23.00	0.48	51,411	125.02	0.55	0.55	0.00
23.50	0.45	51,277	125.02	0.53	0.53	0.00
24.00	0.43	51,132	125.00	0.51	0.51	0.00

Stage-Discharge for Pond 4 - Pond: 4 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
120.00	0.00	0.00	0.00	125.30	2.21	2.21	0.00
120.10	0.00	0.00	0.00	125.40	3.17	3.17	0.00
120.20	0.00	0.00	0.00	125.50	4.29	4.29	0.00
120.30	0.00	0.00	0.00	125.60	5.55	5.55	0.00
120.40	0.00	0.00	0.00	125.70	6.95	6.95	0.00
120.50	0.02	0.02	0.00	125.80	8.49	8.49	0.00
120.60	0.06	0.06	0.00	125.90	10.15	10.15	0.00
120.70	0.10	0.10	0.00	126.00	11.95	11.95	0.00
120.80	0.12	0.12	0.00	126.10	13.87	13.87	0.00
120.90	0.14	0.14	0.00	126.20	15.91	15.91	0.00
121.00	0.16	0.16	0.00	126.30	18.07	18.07	0.00
121.10	0.18	0.18	0.00	126.40	19.50	19.50	0.00
121.20	0.19	0.19	0.00	126.50	19.68	19.68	0.00
121.30	0.21	0.21	0.00	126.60	21.49	19.86	1.63
121.40	0.22	0.22	0.00	126.70	24.64	20.05	4.60
121.50	0.23	0.23	0.00	126.80	28.75	20.23	8.53
121.60	0.25	0.25	0.00	126.90	33.66	20.40	13.26
121.70	0.26	0.26	0.00	127.00	39.39	20.58	18.81
121.80	0.27	0.27	0.00				
121.90	0.28	0.28	0.00				
122.00	0.29	0.29	0.00				
122.10	0.30	0.30	0.00				
122.20	0.31	0.31	0.00				
122.30	0.31	0.31	0.00				
122.40	0.32	0.32	0.00				
122.50	0.33	0.33	0.00				
122.60	0.34	0.34	0.00				
122.70	0.35	0.35	0.00				
122.80	0.36	0.36	0.00				
122.90	0.36	0.36	0.00				
123.00	0.37	0.37	0.00				
123.10	0.38	0.38	0.00				
123.20	0.39	0.39	0.00				
123.30	0.39	0.39	0.00				
123.40	0.40	0.40	0.00				
123.50	0.41	0.41	0.00				
123.60	0.41	0.41	0.00				
123.70	0.42	0.42	0.00				
123.80	0.43	0.43	0.00				
123.90	0.43	0.43	0.00				
124.00	0.44	0.44	0.00				
124.10	0.45	0.45	0.00				
124.20	0.45	0.45	0.00				
124.30	0.46	0.46	0.00				
124.40	0.47	0.47	0.00				
124.50	0.47	0.47	0.00				
124.60	0.48	0.48	0.00				
124.70	0.48	0.48	0.00				
124.80	0.49	0.49	0.00				
124.90	0.49	0.49	0.00				
125.00	0.50	0.50	0.00				
125.10	0.82	0.82	0.00				
125.20	1.42	1.42	0.00				

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 4.38" for 25-YEAR STORM event
 Inflow = 43.82 cfs @ 12.40 hrs, Volume= 5.561 af
 Outflow = 27.24 cfs @ 12.72 hrs, Volume= 5.364 af, Atten= 38%, Lag= 19.2 min
 Primary = 27.24 cfs @ 12.72 hrs, Volume= 5.364 af
 Secondary = 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= 128.45' @ 12.72 hrs Surf.Area= 14,456 sf Storage= 62,022 cf

Plug-Flow detention time= 56.6 min calculated for 5.364 af (96% of inflow)
 Center-of-Mass det. time= 36.9 min (855.8 - 818.9)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	86,402 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,177	0	0
123.00	6,454	5,816	5,816
124.00	7,790	7,122	12,938
125.00	9,184	8,487	21,425
126.00	10,638	9,911	31,336
127.00	12,150	11,394	42,730
128.00	13,721	12,936	55,665
129.00	15,351	14,536	70,201
130.00	17,050	16,201	86,402

Device	Routing	Invert	Outlet Devices
#1	Device 2	127.60'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#2	Primary	123.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.70' S= 0.0060 1' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#3	Secondary	129.50'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	123.00'	18.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=27.13 cfs @ 12.72 hrs HW=128.45' (Free Discharge)

↑ **2=Culvert** (Passes 27.13 cfs of 31.89 cfs potential flow)

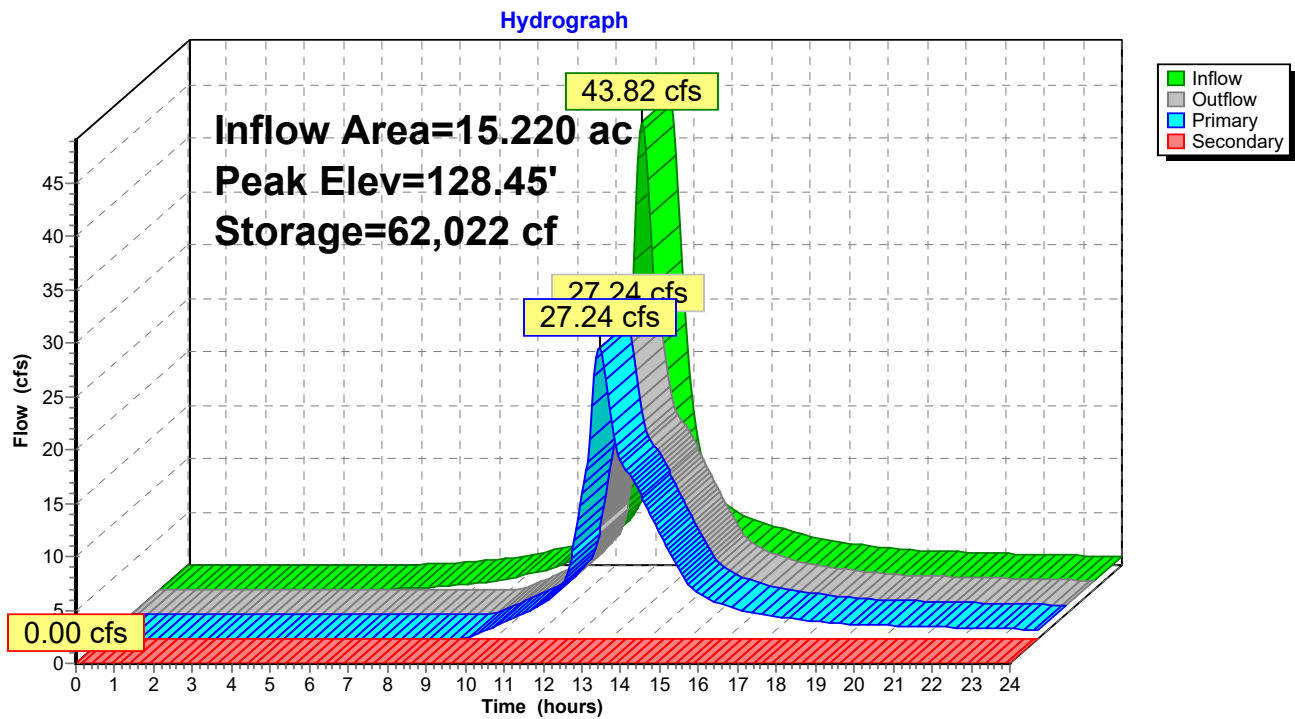
↑ **1=Sharp-Crested Rectangular Weir** (Weir Controls 8.69 cfs @ 3.63 fps)

↑ **4=Orifice/Grate** (Orifice Controls 18.44 cfs @ 10.43 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	0.00
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	0	122.00	0.00	0.00	0.00
5.00	0.00	0	122.00	0.00	0.00	0.00
5.50	0.01	3	122.00	0.00	0.00	0.00
6.00	0.07	68	122.01	0.00	0.00	0.00
6.50	0.15	261	122.05	0.00	0.00	0.00
7.00	0.26	621	122.12	0.00	0.00	0.00
7.50	0.39	1,204	122.23	0.00	0.00	0.00
8.00	0.56	2,058	122.38	0.00	0.00	0.00
8.50	0.77	3,238	122.58	0.00	0.00	0.00
9.00	1.09	4,899	122.86	0.00	0.00	0.00
9.50	1.49	7,136	123.20	0.20	0.20	0.00
10.00	1.95	9,048	123.48	1.13	1.13	0.00
10.50	2.54	10,241	123.64	1.97	1.97	0.00
11.00	3.43	11,296	123.79	2.82	2.82	0.00
11.50	4.93	12,578	123.95	3.94	3.94	0.00
12.00	14.36	17,209	124.52	7.50	7.50	0.00
12.50	41.27	53,915	127.87	18.74	18.74	0.00
13.00	14.24	57,049	128.10	21.52	21.52	0.00
13.50	6.95	43,094	127.03	15.41	15.41	0.00
14.00	5.21	28,928	125.77	12.09	12.09	0.00
14.50	4.28	18,950	124.72	8.40	8.40	0.00
15.00	3.73	14,021	124.14	5.22	5.22	0.00
15.50	3.23	12,394	123.93	3.78	3.78	0.00
16.00	2.73	11,617	123.83	3.10	3.10	0.00
16.50	2.30	11,019	123.75	2.59	2.59	0.00
17.00	2.05	10,594	123.69	2.24	2.24	0.00
17.50	1.83	10,277	123.65	1.99	1.99	0.00
18.00	1.61	9,984	123.61	1.77	1.77	0.00
18.50	1.42	9,700	123.57	1.57	1.57	0.00
19.00	1.34	9,498	123.54	1.42	1.42	0.00
19.50	1.27	9,369	123.52	1.33	1.33	0.00
20.00	1.21	9,262	123.51	1.27	1.27	0.00
20.50	1.15	9,159	123.49	1.20	1.20	0.00
21.00	1.09	9,067	123.48	1.14	1.14	0.00
21.50	1.05	8,984	123.47	1.09	1.09	0.00
22.00	1.00	8,905	123.46	1.04	1.04	0.00
22.50	0.95	8,826	123.45	0.99	0.99	0.00
23.00	0.90	8,747	123.43	0.94	0.94	0.00
23.50	0.85	8,662	123.42	0.90	0.90	0.00
24.00	0.80	8,575	123.41	0.85	0.85	0.00

Stage-Discharge for Pond 5 - Pond: 5 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
122.00	0.00	0.00	0.00	127.30	16.03	16.03	0.00
122.10	0.00	0.00	0.00	127.40	16.26	16.26	0.00
122.20	0.00	0.00	0.00	127.50	16.48	16.48	0.00
122.30	0.00	0.00	0.00	127.60	16.70	16.70	0.00
122.40	0.00	0.00	0.00	127.70	17.23	17.23	0.00
122.50	0.00	0.00	0.00	127.80	18.03	18.03	0.00
122.60	0.00	0.00	0.00	127.90	19.03	19.03	0.00
122.70	0.00	0.00	0.00	128.00	20.19	20.19	0.00
122.80	0.00	0.00	0.00	128.10	21.51	21.51	0.00
122.90	0.00	0.00	0.00	128.20	22.97	22.97	0.00
123.00	0.00	0.00	0.00	128.30	24.57	24.57	0.00
123.10	0.05	0.05	0.00	128.40	26.29	26.29	0.00
123.20	0.20	0.20	0.00	128.50	28.15	28.15	0.00
123.30	0.46	0.46	0.00	128.60	30.13	30.13	0.00
123.40	0.80	0.80	0.00	128.70	32.24	32.24	0.00
123.50	1.23	1.23	0.00	128.80	33.14	33.14	0.00
123.60	1.73	1.73	0.00	128.90	33.48	33.48	0.00
123.70	2.29	2.29	0.00	129.00	33.82	33.82	0.00
123.80	2.91	2.91	0.00	129.10	34.16	34.16	0.00
123.90	3.58	3.58	0.00	129.20	34.49	34.49	0.00
124.00	4.26	4.26	0.00	129.30	34.82	34.82	0.00
124.10	4.96	4.96	0.00	129.40	35.15	35.15	0.00
124.20	5.65	5.65	0.00	129.50	35.48	35.48	0.00
124.30	6.32	6.32	0.00	129.60	37.42	35.80	1.63
124.40	6.92	6.92	0.00	129.70	40.71	36.11	4.60
124.50	7.37	7.37	0.00	129.80	44.96	36.43	8.53
124.60	7.84	7.84	0.00	129.90	50.00	36.74	13.26
124.70	8.29	8.29	0.00	130.00	55.86	37.05	18.81
124.80	8.72	8.72	0.00				
124.90	9.12	9.12	0.00				
125.00	9.51	9.51	0.00				
125.10	9.89	9.89	0.00				
125.20	10.25	10.25	0.00				
125.30	10.59	10.59	0.00				
125.40	10.93	10.93	0.00				
125.50	11.26	11.26	0.00				
125.60	11.57	11.57	0.00				
125.70	11.88	11.88	0.00				
125.80	12.18	12.18	0.00				
125.90	12.48	12.48	0.00				
126.00	12.76	12.76	0.00				
126.10	13.04	13.04	0.00				
126.20	13.32	13.32	0.00				
126.30	13.59	13.59	0.00				
126.40	13.85	13.85	0.00				
126.50	14.11	14.11	0.00				
126.60	14.36	14.36	0.00				
126.70	14.61	14.61	0.00				
126.80	14.86	14.86	0.00				
126.90	15.10	15.10	0.00				
127.00	15.34	15.34	0.00				
127.10	15.57	15.57	0.00				
127.20	15.80	15.80	0.00				

HydroCAD North Stonington Proposed_RevType III 24-hr 50-YEAR STORM Rainfall=6.88"

Prepared by HDR, Inc

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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 1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>4.22"
Tc=42.6 min CN=77 Runoff=11.13 cfs 1.651 af

Subcatchment 1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>4.44"
Tc=42.3 min CN=79 Runoff=26.35 cfs 3.899 af

Subcatchment 1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>4.66"
Tc=35.2 min CN=81 Runoff=24.54 cfs 3.335 af

Subcatchment 2: Runoff Area=4.800 ac 0.00% Impervious Runoff Depth>4.68"
Tc=21.7 min CN=81 Runoff=17.03 cfs 1.871 af

Subcatchment 4: Runoff Area=9.080 ac 0.00% Impervious Runoff Depth>4.03"
Tc=24.0 min CN=75 Runoff=26.79 cfs 3.046 af

Subcatchment 5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>5.11"
Tc=29.9 min CN=85 Runoff=50.80 cfs 6.485 af

Pond 1A - Pond: 1A - Pond Peak Elev=130.51' Storage=31,738 cf Inflow=11.13 cfs 1.651 af
Primary=4.88 cfs 1.296 af Secondary=0.00 cfs 0.000 af Outflow=4.88 cfs 1.296 af

Pond 1B - Pond: 1B - Pond Peak Elev=125.89' Storage=66,318 cf Inflow=26.35 cfs 3.899 af
Primary=12.97 cfs 3.293 af Secondary=0.00 cfs 0.000 af Outflow=12.97 cfs 3.293 af

Pond 1C-Pond: 1C - Pond Peak Elev=119.55' Storage=56,106 cf Inflow=24.54 cfs 3.335 af
Primary=10.60 cfs 3.152 af Secondary=0.00 cfs 0.000 af Outflow=10.60 cfs 3.152 af

Pond 2 - Pond: 2 - Pond Peak Elev=174.42' Storage=18,671 cf Inflow=17.03 cfs 1.871 af
Primary=9.33 cfs 1.817 af Secondary=0.00 cfs 0.000 af Outflow=9.33 cfs 1.817 af

Pond 4 - Pond: 4 - Pond Peak Elev=125.86' Storage=63,602 cf Inflow=26.79 cfs 3.046 af
Primary=9.44 cfs 1.864 af Secondary=0.00 cfs 0.000 af Outflow=9.44 cfs 1.864 af

Pond 5 - Pond: 5 - Pond Peak Elev=128.86' Storage=68,114 cf Inflow=50.80 cfs 6.485 af
Primary=33.36 cfs 6.283 af Secondary=0.00 cfs 0.000 af Outflow=33.36 cfs 6.283 af

Total Runoff Area = 52.910 ac Runoff Volume = 20.286 af Average Runoff Depth = 4.60"
100.00% Pervious = 52.910 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

Runoff = 11.13 cfs @ 12.58 hrs, Volume= 1.651 af, Depth> 4.22"

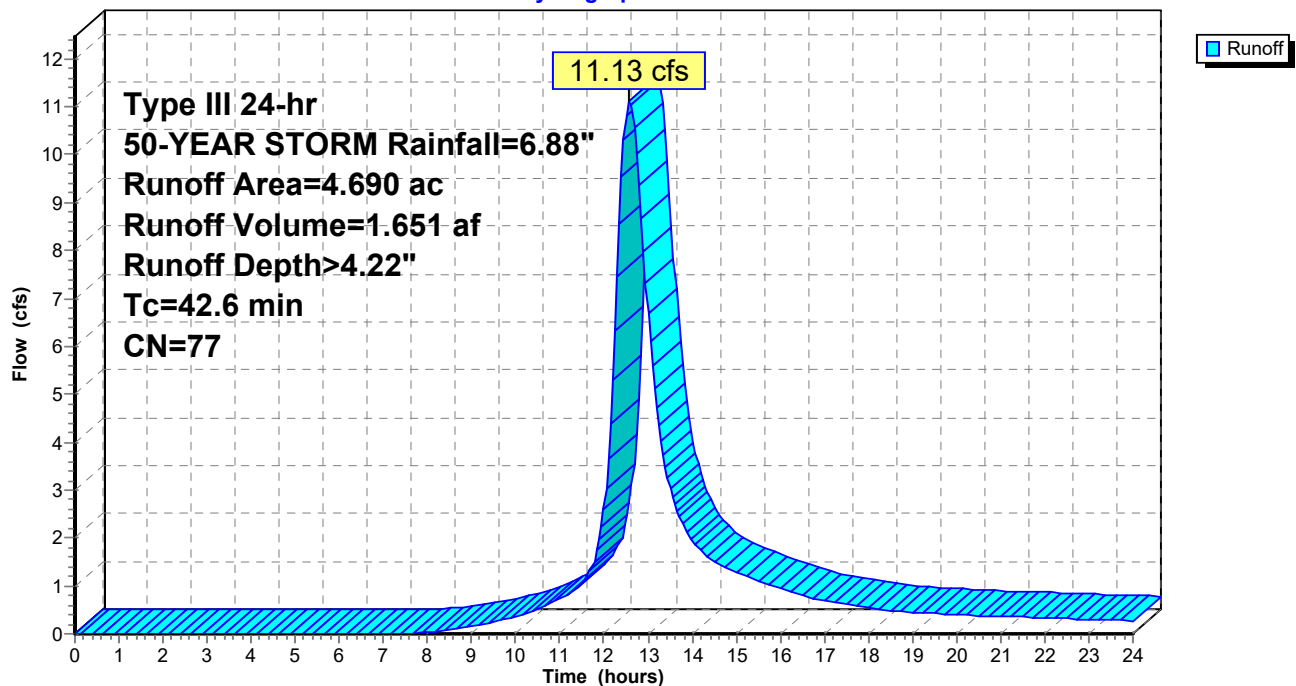
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 4.690	77	
4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					Direct Entry, SCS TR-55

Subcatchment 1A:

Hydrograph



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	2.86	4.34
0.25	0.02	0.00	0.00	13.50	5.39	2.95	3.04
0.50	0.03	0.00	0.00	13.75	5.49	3.04	2.35
0.75	0.05	0.00	0.00	14.00	5.58	3.11	1.96
1.00	0.07	0.00	0.00	14.25	5.66	3.19	1.70
1.25	0.09	0.00	0.00	14.50	5.74	3.25	1.50
1.50	0.10	0.00	0.00	14.75	5.81	3.31	1.37
1.75	0.12	0.00	0.00	15.00	5.88	3.37	1.28
2.00	0.14	0.00	0.00	15.25	5.94	3.43	1.19
2.25	0.16	0.00	0.00	15.50	6.00	3.48	1.11
2.50	0.17	0.00	0.00	15.75	6.05	3.52	1.03
2.75	0.19	0.00	0.00	16.00	6.10	3.56	0.95
3.00	0.21	0.00	0.00	16.25	6.14	3.60	0.87
3.25	0.23	0.00	0.00	16.50	6.18	3.64	0.80
3.50	0.25	0.00	0.00	16.75	6.22	3.67	0.74
3.75	0.27	0.00	0.00	17.00	6.26	3.70	0.70
4.00	0.30	0.00	0.00	17.25	6.29	3.74	0.66
4.25	0.32	0.00	0.00	17.50	6.33	3.76	0.62
4.50	0.34	0.00	0.00	17.75	6.36	3.79	0.59
4.75	0.37	0.00	0.00	18.00	6.38	3.82	0.55
5.00	0.39	0.00	0.00	18.25	6.41	3.84	0.52
5.25	0.42	0.00	0.00	18.50	6.44	3.86	0.49
5.50	0.44	0.00	0.00	18.75	6.46	3.89	0.46
5.75	0.47	0.00	0.00	19.00	6.49	3.91	0.45
6.00	0.50	0.00	0.00	19.25	6.51	3.93	0.44
6.25	0.52	0.00	0.00	19.50	6.54	3.95	0.43
6.50	0.55	0.00	0.00	19.75	6.56	3.97	0.41
6.75	0.59	0.00	0.00	20.00	6.58	3.99	0.40
7.00	0.62	0.00	0.00	20.25	6.61	4.01	0.39
7.25	0.66	0.00	0.00	20.50	6.63	4.03	0.38
7.50	0.70	0.00	0.01	20.75	6.65	4.05	0.37
7.75	0.74	0.01	0.02	21.00	6.67	4.07	0.37
8.00	0.78	0.01	0.04	21.25	6.69	4.09	0.36
8.25	0.83	0.02	0.06	21.50	6.71	4.11	0.35
8.50	0.88	0.03	0.08	21.75	6.73	4.12	0.34
8.75	0.94	0.04	0.11	22.00	6.75	4.14	0.33
9.00	1.00	0.05	0.15	22.25	6.77	4.16	0.33
9.25	1.07	0.06	0.19	22.50	6.78	4.17	0.32
9.50	1.14	0.08	0.24	22.75	6.80	4.19	0.31
9.75	1.22	0.11	0.30	23.00	6.82	4.20	0.30
10.00	1.30	0.13	0.36	23.25	6.83	4.22	0.29
10.25	1.39	0.17	0.43	23.50	6.85	4.23	0.29
10.50	1.49	0.21	0.51	23.75	6.87	4.24	0.28
10.75	1.60	0.25	0.61	24.00	6.88	4.26	0.27
11.00	1.72	0.31	0.73				
11.25	1.87	0.38	0.88				
11.50	2.05	0.48	1.08				
11.75	2.44	0.71	1.45				
12.00	3.44	1.39	2.59				
12.25	4.44	2.16	6.33				
12.50	4.83	2.48	10.81				
12.75	5.01	2.64	10.03				
13.00	5.16	2.76	6.69				

Summary for Subcatchment 1B:

Runoff = 26.35 cfs @ 12.57 hrs, Volume= 3.899 af, Depth> 4.44"

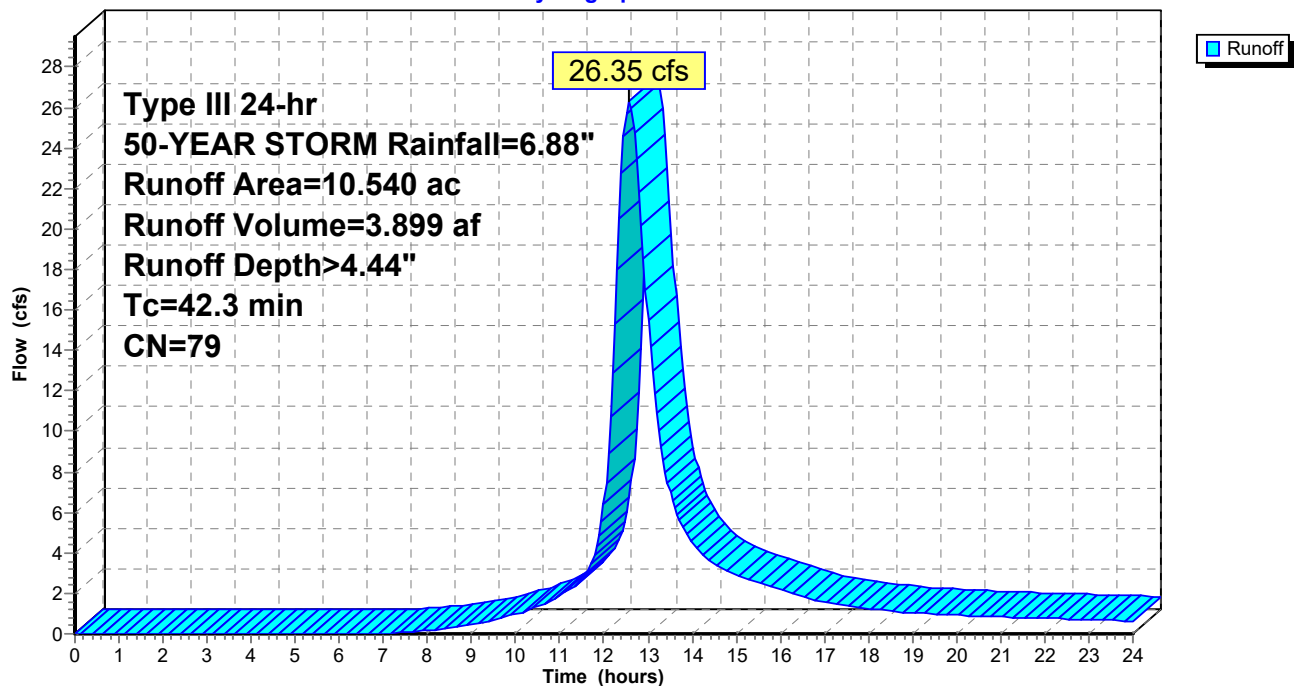
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 10.540	79	
10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					Direct Entry, SCS TR-55

Subcatchment 1B:

Hydrograph



HydroCAD North Stonington Proposed_RevType III 24-hr 50-YEAR STORM Rainfall=6.88"

Prepared by HDR, Inc

Printed 5/24/2021

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Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	3.04	10.01
0.25	0.02	0.00	0.00	13.50	5.39	3.14	7.00
0.50	0.03	0.00	0.00	13.75	5.49	3.23	5.40
0.75	0.05	0.00	0.00	14.00	5.58	3.31	4.51
1.00	0.07	0.00	0.00	14.25	5.66	3.38	3.91
1.25	0.09	0.00	0.00	14.50	5.74	3.45	3.46
1.50	0.10	0.00	0.00	14.75	5.81	3.51	3.16
1.75	0.12	0.00	0.00	15.00	5.88	3.57	2.94
2.00	0.14	0.00	0.00	15.25	5.94	3.63	2.74
2.25	0.16	0.00	0.00	15.50	6.00	3.68	2.55
2.50	0.17	0.00	0.00	15.75	6.05	3.72	2.37
2.75	0.19	0.00	0.00	16.00	6.10	3.77	2.19
3.00	0.21	0.00	0.00	16.25	6.14	3.80	2.00
3.25	0.23	0.00	0.00	16.50	6.18	3.84	1.84
3.50	0.25	0.00	0.00	16.75	6.22	3.88	1.71
3.75	0.27	0.00	0.00	17.00	6.26	3.91	1.61
4.00	0.30	0.00	0.00	17.25	6.29	3.94	1.52
4.25	0.32	0.00	0.00	17.50	6.33	3.97	1.43
4.50	0.34	0.00	0.00	17.75	6.36	4.00	1.35
4.75	0.37	0.00	0.00	18.00	6.38	4.02	1.27
5.00	0.39	0.00	0.00	18.25	6.41	4.05	1.19
5.25	0.42	0.00	0.00	18.50	6.44	4.07	1.12
5.50	0.44	0.00	0.00	18.75	6.46	4.10	1.07
5.75	0.47	0.00	0.00	19.00	6.49	4.12	1.03
6.00	0.50	0.00	0.00	19.25	6.51	4.14	1.00
6.25	0.52	0.00	0.00	19.50	6.54	4.16	0.98
6.50	0.55	0.00	0.00	19.75	6.56	4.18	0.95
6.75	0.59	0.00	0.00	20.00	6.58	4.21	0.93
7.00	0.62	0.00	0.02	20.25	6.61	4.23	0.90
7.25	0.66	0.01	0.04	20.50	6.63	4.25	0.88
7.50	0.70	0.01	0.08	20.75	6.65	4.26	0.86
7.75	0.74	0.02	0.12	21.00	6.67	4.28	0.84
8.00	0.78	0.02	0.17	21.25	6.69	4.30	0.82
8.25	0.83	0.03	0.22	21.50	6.71	4.32	0.80
8.50	0.88	0.04	0.29	21.75	6.73	4.34	0.78
8.75	0.94	0.05	0.36	22.00	6.75	4.35	0.76
9.00	1.00	0.07	0.46	22.25	6.77	4.37	0.75
9.25	1.07	0.09	0.57	22.50	6.78	4.39	0.73
9.50	1.14	0.11	0.69	22.75	6.80	4.40	0.71
9.75	1.22	0.14	0.83	23.00	6.82	4.42	0.69
10.00	1.30	0.17	0.98	23.25	6.83	4.43	0.67
10.25	1.39	0.21	1.15	23.50	6.85	4.45	0.65
10.50	1.49	0.25	1.34	23.75	6.87	4.46	0.63
10.75	1.60	0.31	1.59	24.00	6.88	4.47	0.62
11.00	1.72	0.37	1.88				
11.25	1.87	0.45	2.22				
11.50	2.05	0.55	2.70				
11.75	2.44	0.80	3.59				
12.00	3.44	1.52	6.36				
12.25	4.44	2.32	15.31				
12.50	4.83	2.66	25.69				
12.75	5.01	2.81	23.47				
13.00	5.16	2.94	15.52				

Summary for Subcatchment 1C:

Runoff = 24.54 cfs @ 12.48 hrs, Volume= 3.335 af, Depth> 4.66"

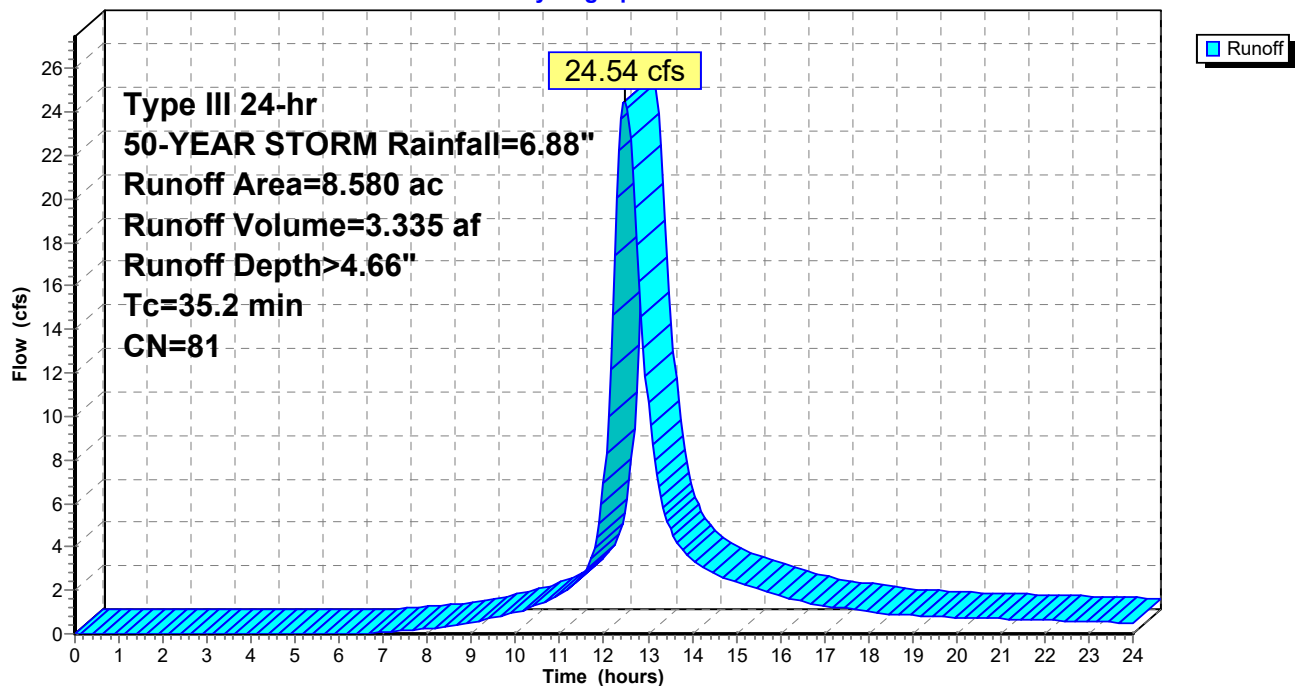
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 8.580	81	
8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					Direct Entry, SCS TR-55

Subcatchment 1C:

Hydrograph



HydroCAD North Stonington Proposed_RevType III 24-hr 50-YEAR STORM Rainfall=6.88"

Prepared by HDR, Inc

Printed 5/24/2021

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Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	3.23	6.76
0.25	0.02	0.00	0.00	13.50	5.39	3.33	4.87
0.50	0.03	0.00	0.00	13.75	5.49	3.42	3.94
0.75	0.05	0.00	0.00	14.00	5.58	3.50	3.40
1.00	0.07	0.00	0.00	14.25	5.66	3.58	3.02
1.25	0.09	0.00	0.00	14.50	5.74	3.65	2.74
1.50	0.10	0.00	0.00	14.75	5.81	3.71	2.53
1.75	0.12	0.00	0.00	15.00	5.88	3.77	2.36
2.00	0.14	0.00	0.00	15.25	5.94	3.83	2.21
2.25	0.16	0.00	0.00	15.50	6.00	3.88	2.05
2.50	0.17	0.00	0.00	15.75	6.05	3.93	1.90
2.75	0.19	0.00	0.00	16.00	6.10	3.97	1.75
3.00	0.21	0.00	0.00	16.25	6.14	4.01	1.60
3.25	0.23	0.00	0.00	16.50	6.18	4.05	1.47
3.50	0.25	0.00	0.00	16.75	6.22	4.08	1.37
3.75	0.27	0.00	0.00	17.00	6.26	4.12	1.30
4.00	0.30	0.00	0.00	17.25	6.29	4.15	1.23
4.25	0.32	0.00	0.00	17.50	6.33	4.18	1.16
4.50	0.34	0.00	0.00	17.75	6.36	4.21	1.09
4.75	0.37	0.00	0.00	18.00	6.38	4.24	1.02
5.00	0.39	0.00	0.00	18.25	6.41	4.26	0.96
5.25	0.42	0.00	0.00	18.50	6.44	4.29	0.90
5.50	0.44	0.00	0.00	18.75	6.46	4.31	0.87
5.75	0.47	0.00	0.00	19.00	6.49	4.33	0.84
6.00	0.50	0.00	0.00	19.25	6.51	4.36	0.82
6.25	0.52	0.00	0.01	19.50	6.54	4.38	0.80
6.50	0.55	0.00	0.02	19.75	6.56	4.40	0.78
6.75	0.59	0.01	0.04	20.00	6.58	4.42	0.76
7.00	0.62	0.01	0.07	20.25	6.61	4.44	0.74
7.25	0.66	0.01	0.11	20.50	6.63	4.46	0.72
7.50	0.70	0.02	0.14	20.75	6.65	4.48	0.70
7.75	0.74	0.03	0.19	21.00	6.67	4.50	0.69
8.00	0.78	0.04	0.23	21.25	6.69	4.52	0.67
8.25	0.83	0.05	0.28	21.50	6.71	4.54	0.66
8.50	0.88	0.06	0.34	21.75	6.73	4.55	0.64
8.75	0.94	0.08	0.42	22.00	6.75	4.57	0.63
9.00	1.00	0.10	0.51	22.25	6.77	4.59	0.61
9.25	1.07	0.12	0.62	22.50	6.78	4.60	0.60
9.50	1.14	0.15	0.74	22.75	6.80	4.62	0.58
9.75	1.22	0.18	0.86	23.00	6.82	4.64	0.56
10.00	1.30	0.22	1.00	23.25	6.83	4.65	0.55
10.25	1.39	0.26	1.15	23.50	6.85	4.67	0.53
10.50	1.49	0.31	1.33	23.75	6.87	4.68	0.52
10.75	1.60	0.37	1.56	24.00	6.88	4.69	0.50
11.00	1.72	0.44	1.83				
11.25	1.87	0.52	2.14				
11.50	2.05	0.64	2.63				
11.75	2.44	0.90	3.59				
12.00	3.44	1.66	6.97				
12.25	4.44	2.49	17.40				
12.50	4.83	2.84	24.48				
12.75	5.01	3.00	17.86				
13.00	5.16	3.13	10.64				

Summary for Subcatchment 2:

Runoff = 17.03 cfs @ 12.29 hrs, Volume= 1.871 af, Depth> 4.68"

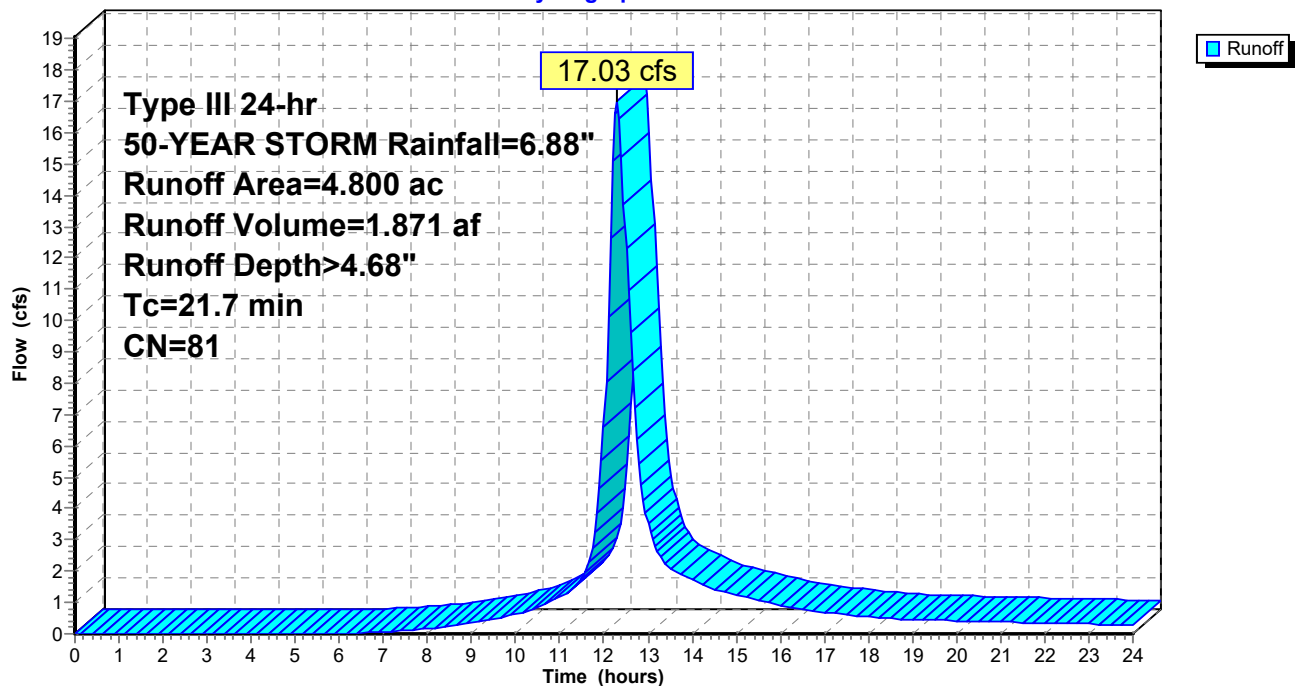
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 4.800	81	
4.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.7					Direct Entry, SCS TR-55

Subcatchment 2:

Hydrograph



HydroCAD North Stonington Proposed_RevType III 24-hr 50-YEAR STORM Rainfall=6.88"

Prepared by HDR, Inc

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Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	3.23	2.50
0.25	0.02	0.00	0.00	13.50	5.39	3.33	2.09
0.50	0.03	0.00	0.00	13.75	5.49	3.42	1.88
0.75	0.05	0.00	0.00	14.00	5.58	3.50	1.71
1.00	0.07	0.00	0.00	14.25	5.66	3.58	1.54
1.25	0.09	0.00	0.00	14.50	5.74	3.65	1.42
1.50	0.10	0.00	0.00	14.75	5.81	3.71	1.33
1.75	0.12	0.00	0.00	15.00	5.88	3.77	1.25
2.00	0.14	0.00	0.00	15.25	5.94	3.83	1.16
2.25	0.16	0.00	0.00	15.50	6.00	3.88	1.08
2.50	0.17	0.00	0.00	15.75	6.05	3.93	0.99
2.75	0.19	0.00	0.00	16.00	6.10	3.97	0.91
3.00	0.21	0.00	0.00	16.25	6.14	4.01	0.82
3.25	0.23	0.00	0.00	16.50	6.18	4.05	0.77
3.50	0.25	0.00	0.00	16.75	6.22	4.08	0.73
3.75	0.27	0.00	0.00	17.00	6.26	4.12	0.69
4.00	0.30	0.00	0.00	17.25	6.29	4.15	0.65
4.25	0.32	0.00	0.00	17.50	6.33	4.18	0.62
4.50	0.34	0.00	0.00	17.75	6.36	4.21	0.58
4.75	0.37	0.00	0.00	18.00	6.38	4.24	0.54
5.00	0.39	0.00	0.00	18.25	6.41	4.26	0.51
5.25	0.42	0.00	0.00	18.50	6.44	4.29	0.48
5.50	0.44	0.00	0.00	18.75	6.46	4.31	0.47
5.75	0.47	0.00	0.00	19.00	6.49	4.33	0.46
6.00	0.50	0.00	0.00	19.25	6.51	4.36	0.45
6.25	0.52	0.00	0.01	19.50	6.54	4.38	0.44
6.50	0.55	0.00	0.02	19.75	6.56	4.40	0.43
6.75	0.59	0.01	0.04	20.00	6.58	4.42	0.41
7.00	0.62	0.01	0.06	20.25	6.61	4.44	0.40
7.25	0.66	0.01	0.08	20.50	6.63	4.46	0.39
7.50	0.70	0.02	0.10	20.75	6.65	4.48	0.39
7.75	0.74	0.03	0.12	21.00	6.67	4.50	0.38
8.00	0.78	0.04	0.15	21.25	6.69	4.52	0.37
8.25	0.83	0.05	0.18	21.50	6.71	4.54	0.36
8.50	0.88	0.06	0.23	21.75	6.73	4.55	0.35
8.75	0.94	0.08	0.28	22.00	6.75	4.57	0.34
9.00	1.00	0.10	0.33	22.25	6.77	4.59	0.33
9.25	1.07	0.12	0.40	22.50	6.78	4.60	0.33
9.50	1.14	0.15	0.47	22.75	6.80	4.62	0.32
9.75	1.22	0.18	0.54	23.00	6.82	4.64	0.31
10.00	1.30	0.22	0.63	23.25	6.83	4.65	0.30
10.25	1.39	0.26	0.72	23.50	6.85	4.67	0.29
10.50	1.49	0.31	0.84	23.75	6.87	4.68	0.28
10.75	1.60	0.37	0.99	24.00	6.88	4.69	0.27
11.00	1.72	0.44	1.16				
11.25	1.87	0.52	1.37				
11.50	2.05	0.64	1.78				
11.75	2.44	0.90	2.74				
12.00	3.44	1.66	6.60				
12.25	4.44	2.49	16.63				
12.50	4.83	2.84	12.29				
12.75	5.01	3.00	6.22				
13.00	5.16	3.13	3.52				

Summary for Subcatchment 4:

Runoff = 26.79 cfs @ 12.33 hrs, Volume= 3.046 af, Depth> 4.03"

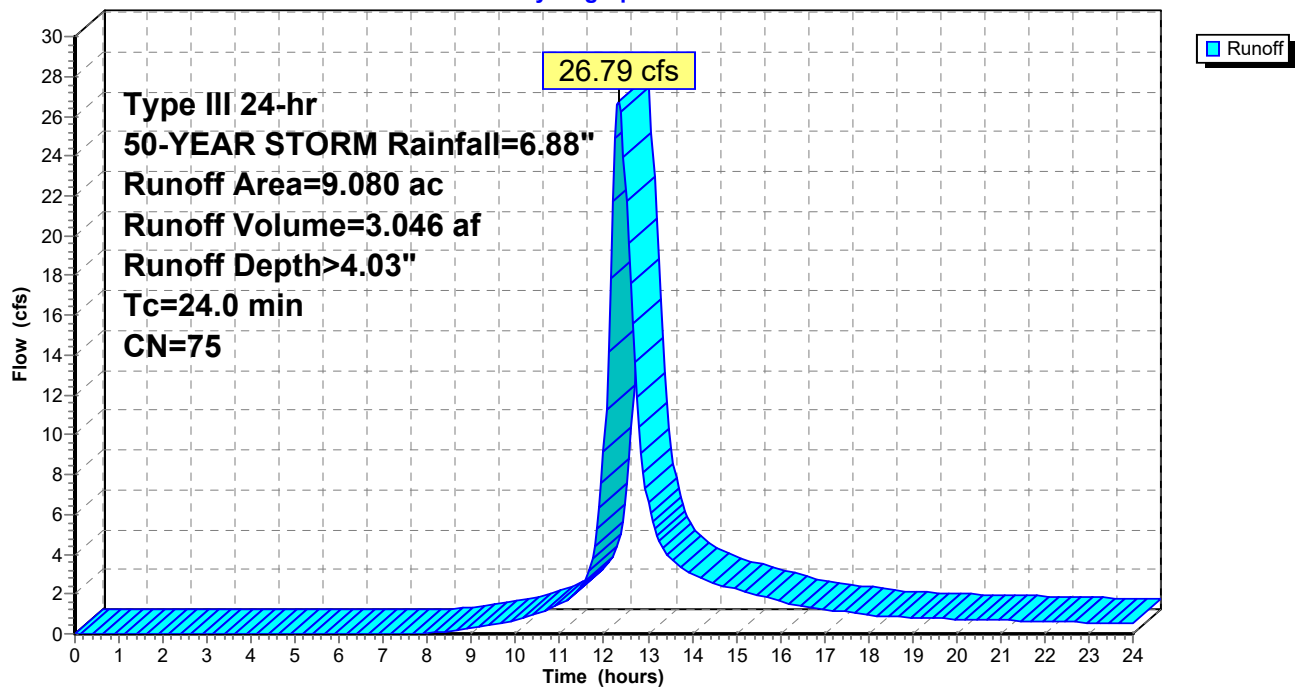
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 9.080	75	
9.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					Direct Entry, SCS TR-55

Subcatchment 4:

Hydrograph



HydroCAD North Stonington Proposed_RevType III 24-hr 50-YEAR STORM Rainfall=6.88"

Prepared by HDR, Inc

Printed 5/24/2021

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Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	2.68	4.62
0.25	0.02	0.00	0.00	13.50	5.39	2.77	3.75
0.50	0.03	0.00	0.00	13.75	5.49	2.85	3.35
0.75	0.05	0.00	0.00	14.00	5.58	2.93	3.03
1.00	0.07	0.00	0.00	14.25	5.66	3.00	2.74
1.25	0.09	0.00	0.00	14.50	5.74	3.06	2.53
1.50	0.10	0.00	0.00	14.75	5.81	3.12	2.37
1.75	0.12	0.00	0.00	15.00	5.88	3.18	2.22
2.00	0.14	0.00	0.00	15.25	5.94	3.23	2.07
2.25	0.16	0.00	0.00	15.50	6.00	3.28	1.93
2.50	0.17	0.00	0.00	15.75	6.05	3.32	1.78
2.75	0.19	0.00	0.00	16.00	6.10	3.36	1.63
3.00	0.21	0.00	0.00	16.25	6.14	3.40	1.48
3.25	0.23	0.00	0.00	16.50	6.18	3.44	1.38
3.50	0.25	0.00	0.00	16.75	6.22	3.47	1.30
3.75	0.27	0.00	0.00	17.00	6.26	3.50	1.24
4.00	0.30	0.00	0.00	17.25	6.29	3.53	1.17
4.25	0.32	0.00	0.00	17.50	6.33	3.56	1.10
4.50	0.34	0.00	0.00	17.75	6.36	3.59	1.04
4.75	0.37	0.00	0.00	18.00	6.38	3.61	0.97
5.00	0.39	0.00	0.00	18.25	6.41	3.64	0.91
5.25	0.42	0.00	0.00	18.50	6.44	3.66	0.87
5.50	0.44	0.00	0.00	18.75	6.46	3.68	0.84
5.75	0.47	0.00	0.00	19.00	6.49	3.70	0.82
6.00	0.50	0.00	0.00	19.25	6.51	3.72	0.80
6.25	0.52	0.00	0.00	19.50	6.54	3.75	0.78
6.50	0.55	0.00	0.00	19.75	6.56	3.77	0.76
6.75	0.59	0.00	0.00	20.00	6.58	3.79	0.74
7.00	0.62	0.00	0.00	20.25	6.61	3.80	0.72
7.25	0.66	0.00	0.00	20.50	6.63	3.82	0.71
7.50	0.70	0.00	0.00	20.75	6.65	3.84	0.69
7.75	0.74	0.00	0.02	21.00	6.67	3.86	0.67
8.00	0.78	0.00	0.05	21.25	6.69	3.88	0.66
8.25	0.83	0.01	0.09	21.50	6.71	3.89	0.64
8.50	0.88	0.01	0.14	21.75	6.73	3.91	0.63
8.75	0.94	0.02	0.20	22.00	6.75	3.93	0.61
9.00	1.00	0.03	0.28	22.25	6.77	3.94	0.60
9.25	1.07	0.04	0.37	22.50	6.78	3.96	0.58
9.50	1.14	0.06	0.47	22.75	6.80	3.97	0.57
9.75	1.22	0.08	0.58	23.00	6.82	3.99	0.55
10.00	1.30	0.10	0.71	23.25	6.83	4.00	0.54
10.25	1.39	0.13	0.84	23.50	6.85	4.02	0.52
10.50	1.49	0.16	1.03	23.75	6.87	4.03	0.51
10.75	1.60	0.20	1.26	24.00	6.88	4.04	0.49
11.00	1.72	0.25	1.52				
11.25	1.87	0.32	1.83				
11.50	2.05	0.41	2.44				
11.75	2.44	0.62	3.74				
12.00	3.44	1.26	9.17				
12.25	4.44	2.00	24.88				
12.50	4.83	2.31	21.77				
12.75	5.01	2.46	11.86				
13.00	5.16	2.58	6.64				

Summary for Subcatchment 5:

Runoff = 50.80 cfs @ 12.40 hrs, Volume= 6.485 af, Depth> 5.11"

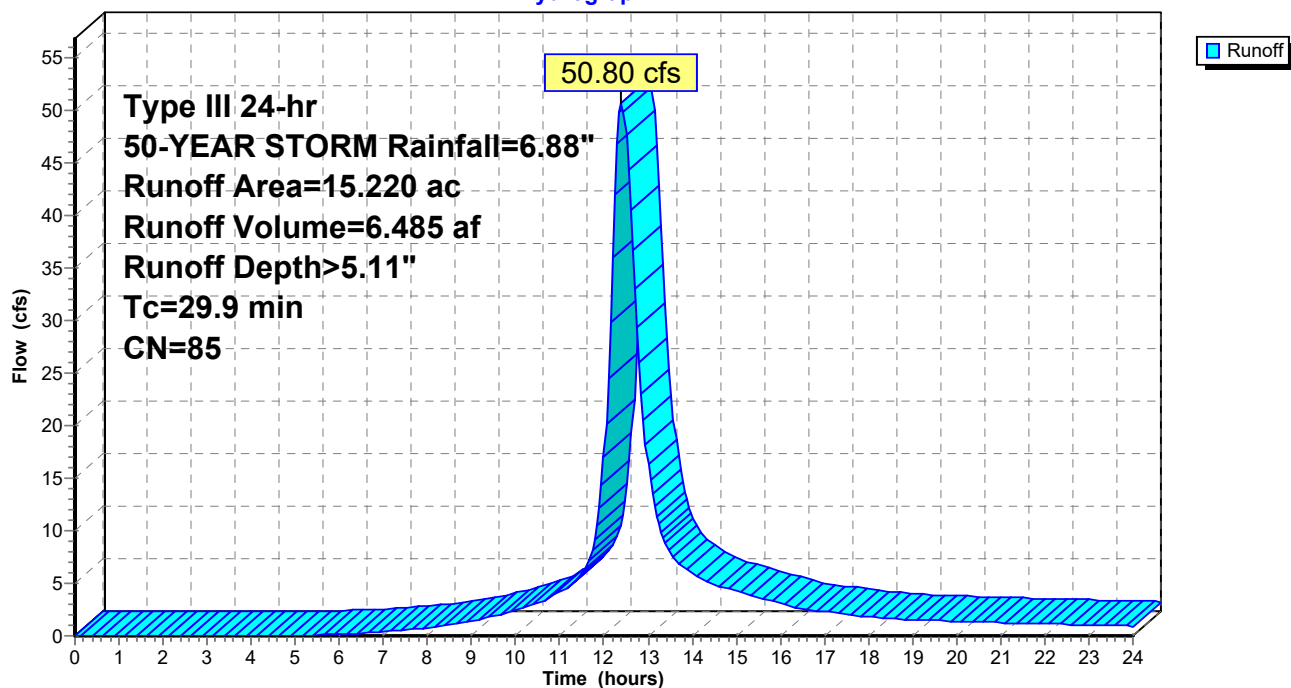
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-YEAR STORM Rainfall=6.88"

Area (ac)	CN	Description
* 15.220	85	
15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					Direct Entry, SCS TR-55

Subcatchment 5:

Hydrograph



HydroCAD North Stonington Proposed_RevType III 24-hr 50-YEAR STORM Rainfall=6.88"

Prepared by HDR, Inc

Printed 5/24/2021

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Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.28	3.63	10.60
0.25	0.02	0.00	0.00	13.50	5.39	3.73	7.96
0.50	0.03	0.00	0.00	13.75	5.49	3.82	6.70
0.75	0.05	0.00	0.00	14.00	5.58	3.91	5.96
1.00	0.07	0.00	0.00	14.25	5.66	3.98	5.36
1.25	0.09	0.00	0.00	14.50	5.74	4.06	4.89
1.50	0.10	0.00	0.00	14.75	5.81	4.12	4.55
1.75	0.12	0.00	0.00	15.00	5.88	4.19	4.25
2.00	0.14	0.00	0.00	15.25	5.94	4.25	3.97
2.25	0.16	0.00	0.00	15.50	6.00	4.30	3.68
2.50	0.17	0.00	0.00	15.75	6.05	4.35	3.40
2.75	0.19	0.00	0.00	16.00	6.10	4.39	3.12
3.00	0.21	0.00	0.00	16.25	6.14	4.43	2.84
3.25	0.23	0.00	0.00	16.50	6.18	4.47	2.62
3.50	0.25	0.00	0.00	16.75	6.22	4.51	2.46
3.75	0.27	0.00	0.00	17.00	6.26	4.55	2.33
4.00	0.30	0.00	0.00	17.25	6.29	4.58	2.21
4.25	0.32	0.00	0.00	17.50	6.33	4.61	2.08
4.50	0.34	0.00	0.00	17.75	6.36	4.64	1.96
4.75	0.37	0.00	0.00	18.00	6.38	4.67	1.83
5.00	0.39	0.00	0.01	18.25	6.41	4.69	1.71
5.25	0.42	0.00	0.03	18.50	6.44	4.72	1.62
5.50	0.44	0.00	0.07	18.75	6.46	4.74	1.57
5.75	0.47	0.01	0.11	19.00	6.49	4.77	1.52
6.00	0.50	0.01	0.16	19.25	6.51	4.79	1.49
6.25	0.52	0.02	0.20	19.50	6.54	4.81	1.45
6.50	0.55	0.02	0.26	19.75	6.56	4.83	1.41
6.75	0.59	0.03	0.32	20.00	6.58	4.86	1.37
7.00	0.62	0.04	0.40	20.25	6.61	4.88	1.34
7.25	0.66	0.05	0.48	20.50	6.63	4.90	1.30
7.50	0.70	0.06	0.57	20.75	6.65	4.92	1.27
7.75	0.74	0.07	0.66	21.00	6.67	4.94	1.25
8.00	0.78	0.08	0.77	21.25	6.69	4.96	1.22
8.25	0.83	0.10	0.88	21.50	6.71	4.98	1.19
8.50	0.88	0.12	1.02	21.75	6.73	4.99	1.16
8.75	0.94	0.15	1.20	22.00	6.75	5.01	1.13
9.00	1.00	0.17	1.41	22.25	6.77	5.03	1.11
9.25	1.07	0.21	1.64	22.50	6.78	5.05	1.08
9.50	1.14	0.24	1.89	22.75	6.80	5.06	1.05
9.75	1.22	0.28	2.15	23.00	6.82	5.08	1.02
10.00	1.30	0.33	2.44	23.25	6.83	5.09	0.99
10.25	1.39	0.38	2.74	23.50	6.85	5.11	0.97
10.50	1.49	0.45	3.12	23.75	6.87	5.12	0.94
10.75	1.60	0.52	3.61	24.00	6.88	5.14	0.91
11.00	1.72	0.60	4.16				
11.25	1.87	0.70	4.79				
11.50	2.05	0.83	5.92				
11.75	2.44	1.13	8.19				
12.00	3.44	1.96	16.94				
12.25	4.44	2.85	42.07				
12.50	4.83	3.21	47.73				
12.75	5.01	3.38	29.39				
13.00	5.16	3.52	16.36				

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 4.22" for 50-YEAR STORM event
 Inflow = 11.13 cfs @ 12.58 hrs, Volume= 1.651 af
 Outflow = 4.88 cfs @ 13.18 hrs, Volume= 1.296 af, Atten= 56%, Lag= 36.2 min
 Primary = 4.88 cfs @ 13.18 hrs, Volume= 1.296 af
 Secondary = 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= 130.51' @ 13.18 hrs Surf.Area= 8,773 sf Storage= 31,738 cf

Plug-Flow detention time= 223.1 min calculated for 1.293 af (78% of inflow)
 Center-of-Mass det. time= 147.4 min (992.1 - 844.7)

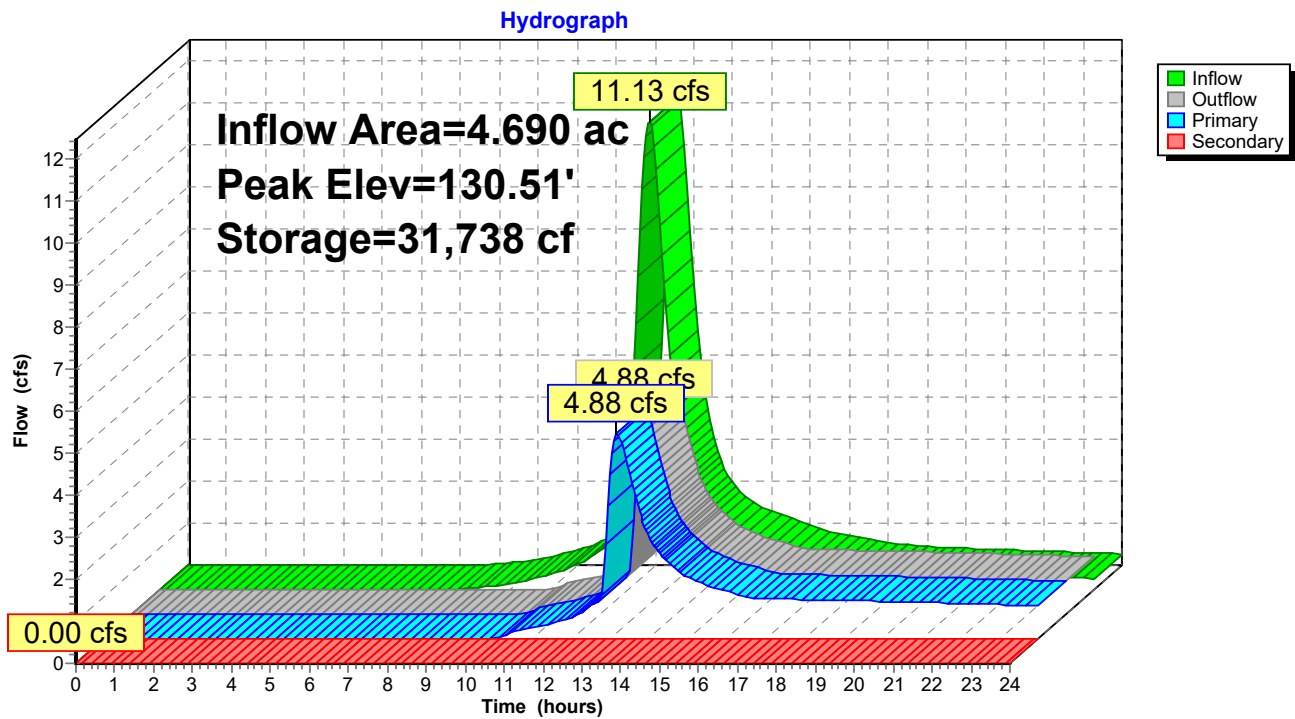
Volume	Invert	Avail.Storage	Storage Description
#1	124.00'	36,194 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.00	1,464	0	0
125.00	2,382	1,923	1,923
126.00	3,381	2,882	4,805
127.00	4,452	3,917	8,721
128.00	5,614	5,033	13,754
129.00	6,826	6,220	19,974
130.00	8,095	7,461	27,435
131.00	9,424	8,760	36,194

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#2	Primary	124.70'	15.0" Round Culvert L= 70.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 124.70' / 124.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	130.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	124.70'	4.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=4.87 cfs @ 13.18 hrs HW=130.51' (Free Discharge)
 ↳ **2=Culvert** (Passes 4.87 cfs of 13.28 cfs potential flow)
 ↳ ↳ **3=Sharp-Crested Rectangular Weir** (Weir Controls 3.87 cfs @ 2.62 fps)
 ↳ ↳ ↳ **4=Orifice/Grate** (Orifice Controls 1.00 cfs @ 11.44 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	124.00	0.00	0.00	0.00
0.50	0.00	0	124.00	0.00	0.00	0.00
1.00	0.00	0	124.00	0.00	0.00	0.00
1.50	0.00	0	124.00	0.00	0.00	0.00
2.00	0.00	0	124.00	0.00	0.00	0.00
2.50	0.00	0	124.00	0.00	0.00	0.00
3.00	0.00	0	124.00	0.00	0.00	0.00
3.50	0.00	0	124.00	0.00	0.00	0.00
4.00	0.00	0	124.00	0.00	0.00	0.00
4.50	0.00	0	124.00	0.00	0.00	0.00
5.00	0.00	0	124.00	0.00	0.00	0.00
5.50	0.00	0	124.00	0.00	0.00	0.00
6.00	0.00	0	124.00	0.00	0.00	0.00
6.50	0.00	0	124.00	0.00	0.00	0.00
7.00	0.00	0	124.00	0.00	0.00	0.00
7.50	0.01	5	124.00	0.00	0.00	0.00
8.00	0.04	45	124.03	0.00	0.00	0.00
8.50	0.08	154	124.10	0.00	0.00	0.00
9.00	0.15	362	124.23	0.00	0.00	0.00
9.50	0.24	714	124.43	0.00	0.00	0.00
10.00	0.36	1,257	124.70	0.00	0.00	0.00
10.50	0.51	1,922	125.00	0.15	0.15	0.00
11.00	0.73	2,642	125.28	0.27	0.27	0.00
11.50	1.08	3,660	125.64	0.37	0.37	0.00
12.00	2.59	5,722	126.26	0.50	0.50	0.00
12.50	10.81	16,336	128.44	0.79	0.79	0.00
13.00	6.69	30,988	130.42	3.90	3.90	0.00
13.50	3.04	30,993	130.42	3.91	3.91	0.00
14.00	1.96	29,724	130.28	2.48	2.48	0.00
14.50	1.50	29,000	130.19	1.82	1.82	0.00
15.00	1.28	28,551	130.14	1.48	1.48	0.00
15.50	1.11	28,230	130.10	1.27	1.27	0.00
16.00	0.95	27,936	130.06	1.13	1.13	0.00
16.50	0.80	27,605	130.02	0.99	0.99	0.00
17.00	0.70	27,222	129.97	0.95	0.95	0.00
17.50	0.62	26,709	129.91	0.94	0.94	0.00
18.00	0.55	26,077	129.83	0.94	0.94	0.00
18.50	0.49	25,335	129.74	0.93	0.93	0.00
19.00	0.45	24,514	129.63	0.92	0.92	0.00
19.50	0.43	23,660	129.52	0.91	0.91	0.00
20.00	0.40	22,786	129.40	0.89	0.89	0.00
20.50	0.38	21,896	129.27	0.88	0.88	0.00
21.00	0.37	20,993	129.15	0.87	0.87	0.00
21.50	0.35	20,084	129.02	0.86	0.86	0.00
22.00	0.33	19,170	128.88	0.84	0.84	0.00
22.50	0.32	18,254	128.74	0.83	0.83	0.00
23.00	0.30	17,335	128.60	0.81	0.81	0.00
23.50	0.29	16,417	128.45	0.80	0.80	0.00
24.00	0.27	15,499	128.30	0.78	0.78	0.00

Stage-Discharge for Pond 1A - Pond: 1A - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
124.00	0.00	0.00	0.00	129.30	0.88	0.88	0.00
124.10	0.00	0.00	0.00	129.40	0.89	0.89	0.00
124.20	0.00	0.00	0.00	129.50	0.90	0.90	0.00
124.30	0.00	0.00	0.00	129.60	0.91	0.91	0.00
124.40	0.00	0.00	0.00	129.70	0.92	0.92	0.00
124.50	0.00	0.00	0.00	129.80	0.93	0.93	0.00
124.60	0.00	0.00	0.00	129.90	0.94	0.94	0.00
124.70	0.00	0.00	0.00	130.00	0.95	0.95	0.00
124.80	0.02	0.02	0.00	130.10	1.28	1.28	0.00
124.90	0.08	0.08	0.00	130.20	1.88	1.88	0.00
125.00	0.15	0.15	0.00	130.30	2.68	2.68	0.00
125.10	0.20	0.20	0.00	130.40	3.64	3.64	0.00
125.20	0.24	0.24	0.00	130.50	4.76	4.76	0.00
125.30	0.28	0.28	0.00	130.60	6.03	6.03	0.00
125.40	0.31	0.31	0.00	130.70	7.43	7.43	0.00
125.50	0.33	0.33	0.00	130.80	8.97	8.97	0.00
125.60	0.36	0.36	0.00	130.90	10.64	10.64	0.00
125.70	0.38	0.38	0.00	131.00	14.06	12.44	1.63
125.80	0.41	0.41	0.00				
125.90	0.43	0.43	0.00				
126.00	0.45	0.45	0.00				
126.10	0.47	0.47	0.00				
126.20	0.49	0.49	0.00				
126.30	0.50	0.50	0.00				
126.40	0.52	0.52	0.00				
126.50	0.54	0.54	0.00				
126.60	0.55	0.55	0.00				
126.70	0.57	0.57	0.00				
126.80	0.58	0.58	0.00				
126.90	0.60	0.60	0.00				
127.00	0.61	0.61	0.00				
127.10	0.63	0.63	0.00				
127.20	0.64	0.64	0.00				
127.30	0.66	0.66	0.00				
127.40	0.67	0.67	0.00				
127.50	0.68	0.68	0.00				
127.60	0.69	0.69	0.00				
127.70	0.71	0.71	0.00				
127.80	0.72	0.72	0.00				
127.90	0.73	0.73	0.00				
128.00	0.74	0.74	0.00				
128.10	0.76	0.76	0.00				
128.20	0.77	0.77	0.00				
128.30	0.78	0.78	0.00				
128.40	0.79	0.79	0.00				
128.50	0.80	0.80	0.00				
128.60	0.81	0.81	0.00				
128.70	0.82	0.82	0.00				
128.80	0.83	0.83	0.00				
128.90	0.84	0.84	0.00				
129.00	0.85	0.85	0.00				
129.10	0.86	0.86	0.00				
129.20	0.87	0.87	0.00				

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 4.44" for 50-YEAR STORM event
 Inflow = 26.35 cfs @ 12.57 hrs, Volume= 3.899 af
 Outflow = 12.97 cfs @ 13.10 hrs, Volume= 3.293 af, Atten= 51%, Lag= 31.8 min
 Primary = 12.97 cfs @ 13.10 hrs, Volume= 3.293 af
 Secondary = 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= 125.89' @ 13.10 hrs Surf.Area= 14,265 sf Storage= 66,318 cf

Plug-Flow detention time= 179.6 min calculated for 3.293 af (84% of inflow)
 Center-of-Mass det. time= 117.0 min (956.9 - 839.8)

Volume	Invert	Avail.Storage	Storage Description
#1	119.00'	83,261 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
119.00	5,600	0	0
120.00	6,708	6,154	6,154
121.00	7,871	7,290	13,444
122.00	9,092	8,482	21,925
123.00	10,369	9,731	31,656
124.00	11,703	11,036	42,692
125.00	12,160	11,932	54,623
126.00	14,538	13,349	67,972
127.00	16,040	15,289	83,261

Device	Routing	Invert	Outlet Devices
#1	Primary	119.60'	15.0" Round Culvert L= 88.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.60' / 119.00' S= 0.0068 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Secondary	126.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	124.50'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	119.60'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=12.97 cfs @ 13.10 hrs HW=125.89' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 12.97 cfs @ 10.57 fps)

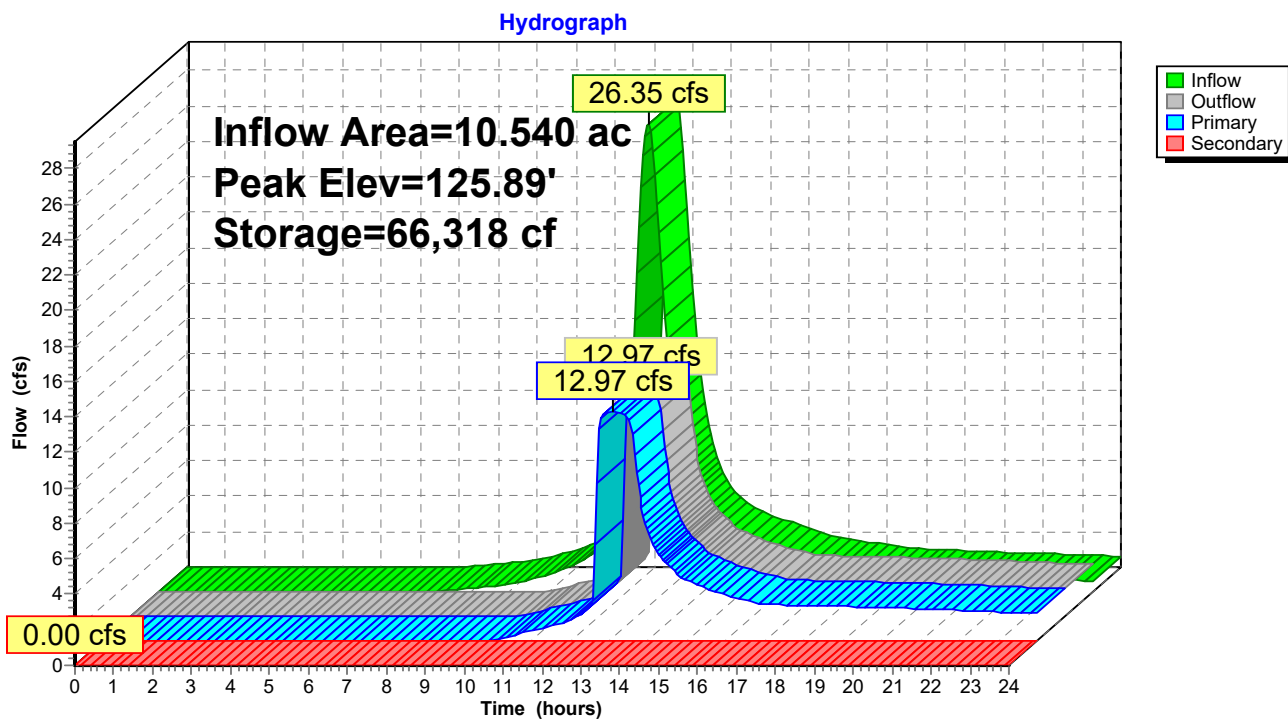
↑ **3=Sharp-Crested Rectangular Weir** (Passes < 19.43 cfs potential flow)

↑ **4=Orifice/Grate** (Passes < 2.32 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=119.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	119.00	0.00	0.00	0.00
0.50	0.00	0	119.00	0.00	0.00	0.00
1.00	0.00	0	119.00	0.00	0.00	0.00
1.50	0.00	0	119.00	0.00	0.00	0.00
2.00	0.00	0	119.00	0.00	0.00	0.00
2.50	0.00	0	119.00	0.00	0.00	0.00
3.00	0.00	0	119.00	0.00	0.00	0.00
3.50	0.00	0	119.00	0.00	0.00	0.00
4.00	0.00	0	119.00	0.00	0.00	0.00
4.50	0.00	0	119.00	0.00	0.00	0.00
5.00	0.00	0	119.00	0.00	0.00	0.00
5.50	0.00	0	119.00	0.00	0.00	0.00
6.00	0.00	0	119.00	0.00	0.00	0.00
6.50	0.00	0	119.00	0.00	0.00	0.00
7.00	0.02	10	119.00	0.00	0.00	0.00
7.50	0.08	92	119.02	0.00	0.00	0.00
8.00	0.17	314	119.06	0.00	0.00	0.00
8.50	0.29	718	119.13	0.00	0.00	0.00
9.00	0.46	1,377	119.24	0.00	0.00	0.00
9.50	0.69	2,402	119.41	0.00	0.00	0.00
10.00	0.98	3,898	119.65	0.01	0.01	0.00
10.50	1.34	5,749	119.94	0.28	0.28	0.00
11.00	1.88	7,808	120.24	0.59	0.59	0.00
11.50	2.70	10,562	120.62	0.83	0.83	0.00
12.00	6.36	15,837	121.30	1.14	1.14	0.00
12.50	25.69	41,471	123.90	1.90	1.90	0.00
13.00	15.52	65,869	125.85	12.93	12.93	0.00
13.50	7.00	61,527	125.54	12.57	12.57	0.00
14.00	4.51	55,005	125.03	6.30	6.30	0.00
14.50	3.46	52,832	124.85	4.30	4.30	0.00
15.00	2.94	51,677	124.76	3.43	3.43	0.00
15.50	2.55	50,900	124.69	2.94	2.94	0.00
16.00	2.19	50,208	124.63	2.58	2.58	0.00
16.50	1.84	49,473	124.57	2.27	2.27	0.00
17.00	1.61	48,684	124.51	2.05	2.05	0.00
17.50	1.43	47,757	124.43	2.02	2.02	0.00
18.00	1.27	46,566	124.33	2.00	2.00	0.00
18.50	1.12	45,130	124.21	1.97	1.97	0.00
19.00	1.03	43,528	124.07	1.94	1.94	0.00
19.50	0.98	41,865	123.93	1.91	1.91	0.00
20.00	0.93	40,170	123.78	1.87	1.87	0.00
20.50	0.88	38,451	123.63	1.84	1.84	0.00
21.00	0.84	36,720	123.47	1.80	1.80	0.00
21.50	0.80	34,990	123.32	1.76	1.76	0.00
22.00	0.76	33,267	123.15	1.72	1.72	0.00
22.50	0.73	31,554	122.99	1.68	1.68	0.00
23.00	0.69	29,853	122.82	1.63	1.63	0.00
23.50	0.65	28,169	122.66	1.58	1.58	0.00
24.00	0.62	26,504	122.49	1.54	1.54	0.00

Stage-Discharge for Pond 1B - Pond: 1B - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
119.00	0.00	0.00	0.00	124.30	1.99	1.99	0.00
119.10	0.00	0.00	0.00	124.40	2.02	2.02	0.00
119.20	0.00	0.00	0.00	124.50	2.04	2.04	0.00
119.30	0.00	0.00	0.00	124.60	2.38	2.38	0.00
119.40	0.00	0.00	0.00	124.70	2.99	2.99	0.00
119.50	0.00	0.00	0.00	124.80	3.80	3.80	0.00
119.60	0.00	0.00	0.00	124.90	4.78	4.78	0.00
119.70	0.03	0.03	0.00	125.00	5.91	5.91	0.00
119.80	0.11	0.11	0.00	125.10	7.19	7.19	0.00
119.90	0.23	0.23	0.00	125.20	8.60	8.60	0.00
120.00	0.36	0.36	0.00	125.30	10.15	10.15	0.00
120.10	0.47	0.47	0.00	125.40	11.83	11.83	0.00
120.20	0.56	0.56	0.00	125.50	12.52	12.52	0.00
120.30	0.63	0.63	0.00	125.60	12.64	12.64	0.00
120.40	0.70	0.70	0.00	125.70	12.76	12.76	0.00
120.50	0.76	0.76	0.00	125.80	12.87	12.87	0.00
120.60	0.82	0.82	0.00	125.90	12.99	12.99	0.00
120.70	0.87	0.87	0.00	126.00	13.10	13.10	0.00
120.80	0.92	0.92	0.00	126.10	13.22	13.22	0.00
120.90	0.97	0.97	0.00	126.20	13.33	13.33	0.00
121.00	1.01	1.01	0.00	126.30	13.44	13.44	0.00
121.10	1.06	1.06	0.00	126.40	13.55	13.55	0.00
121.20	1.10	1.10	0.00	126.50	13.66	13.66	0.00
121.30	1.14	1.14	0.00	126.60	13.77	13.77	0.00
121.40	1.18	1.18	0.00	126.70	13.88	13.88	0.00
121.50	1.21	1.21	0.00	126.80	13.98	13.98	0.00
121.60	1.25	1.25	0.00	126.90	14.09	14.09	0.00
121.70	1.29	1.29	0.00	127.00	15.82	14.20	1.63
121.80	1.32	1.32	0.00				
121.90	1.35	1.35	0.00				
122.00	1.39	1.39	0.00				
122.10	1.42	1.42	0.00				
122.20	1.45	1.45	0.00				
122.30	1.48	1.48	0.00				
122.40	1.51	1.51	0.00				
122.50	1.54	1.54	0.00				
122.60	1.57	1.57	0.00				
122.70	1.60	1.60	0.00				
122.80	1.62	1.62	0.00				
122.90	1.65	1.65	0.00				
123.00	1.68	1.68	0.00				
123.10	1.70	1.70	0.00				
123.20	1.73	1.73	0.00				
123.30	1.76	1.76	0.00				
123.40	1.78	1.78	0.00				
123.50	1.81	1.81	0.00				
123.60	1.83	1.83	0.00				
123.70	1.86	1.86	0.00				
123.80	1.88	1.88	0.00				
123.90	1.90	1.90	0.00				
124.00	1.93	1.93	0.00				
124.10	1.95	1.95	0.00				
124.20	1.97	1.97	0.00				

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 4.66" for 50-YEAR STORM event
 Inflow = 24.54 cfs @ 12.48 hrs, Volume= 3.335 af
 Outflow = 10.60 cfs @ 13.01 hrs, Volume= 3.152 af, Atten= 57%, Lag= 31.6 min
 Primary = 10.60 cfs @ 13.01 hrs, Volume= 3.152 af
 Secondary = 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= 119.55' @ 13.01 hrs Surf.Area= 21,057 sf Storage= 56,106 cf

Plug-Flow detention time= 116.7 min calculated for 3.145 af (94% of inflow)
 Center-of-Mass det. time= 88.2 min (917.6 - 829.3)

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	65,972 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	10,723	0	0
117.00	13,549	12,136	12,136
118.00	16,443	14,996	27,132
119.00	19,403	17,923	45,055
120.00	22,431	20,917	65,972

Device	Routing	Invert	Outlet Devices
#1	Primary	116.30'	24.0" Round Culvert L= 85.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.30' / 115.50' S= 0.0094 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	119.80'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	119.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	116.30'	12.0" Vert. Orifice/Grate C= 0.600

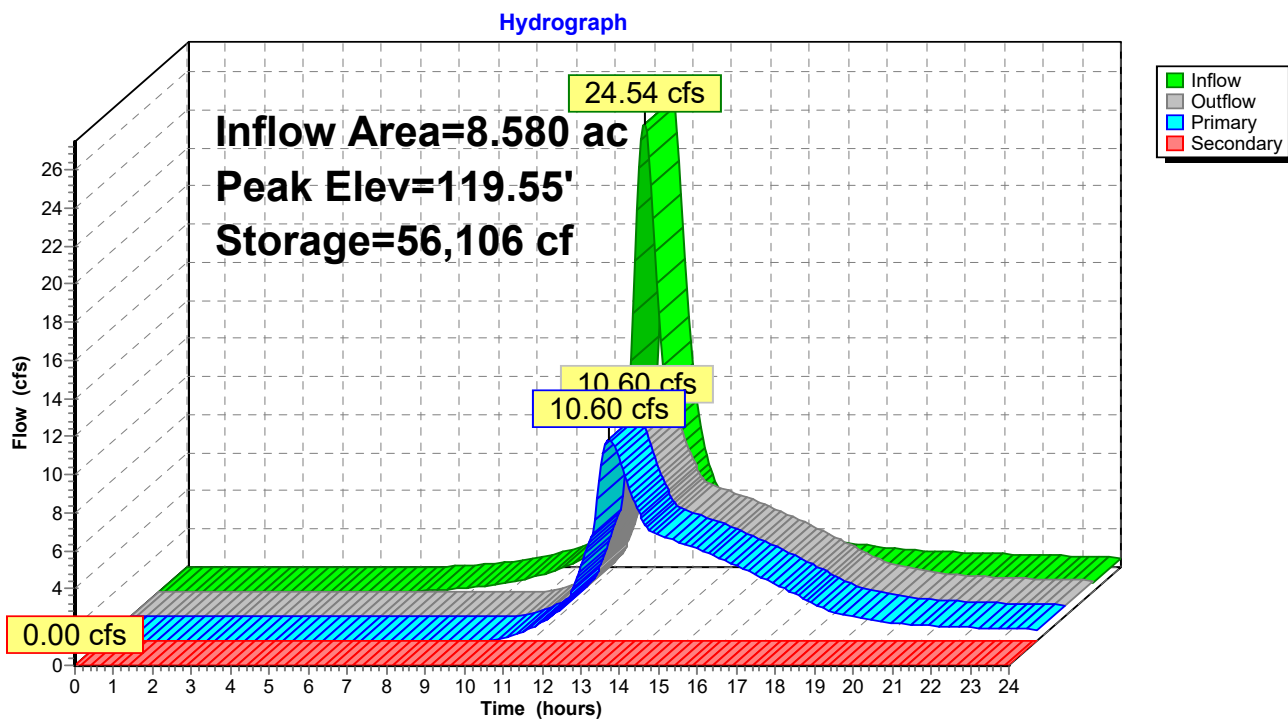
Primary OutFlow Max=10.59 cfs @ 13.01 hrs HW=119.55' (Free Discharge)

↑ **1=Culvert** (Passes 10.59 cfs of 22.67 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Weir Controls 4.32 cfs @ 2.74 fps)
 ↑ **4=Orifice/Grate** (Orifice Controls 6.27 cfs @ 7.98 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=116.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	116.00	0.00	0.00	0.00
0.50	0.00	0	116.00	0.00	0.00	0.00
1.00	0.00	0	116.00	0.00	0.00	0.00
1.50	0.00	0	116.00	0.00	0.00	0.00
2.00	0.00	0	116.00	0.00	0.00	0.00
2.50	0.00	0	116.00	0.00	0.00	0.00
3.00	0.00	0	116.00	0.00	0.00	0.00
3.50	0.00	0	116.00	0.00	0.00	0.00
4.00	0.00	0	116.00	0.00	0.00	0.00
4.50	0.00	0	116.00	0.00	0.00	0.00
5.00	0.00	0	116.00	0.00	0.00	0.00
5.50	0.00	0	116.00	0.00	0.00	0.00
6.00	0.00	0	116.00	0.00	0.00	0.00
6.50	0.02	14	116.00	0.00	0.00	0.00
7.00	0.07	96	116.01	0.00	0.00	0.00
7.50	0.14	289	116.03	0.00	0.00	0.00
8.00	0.23	626	116.06	0.00	0.00	0.00
8.50	0.34	1,139	116.10	0.00	0.00	0.00
9.00	0.51	1,903	116.17	0.00	0.00	0.00
9.50	0.74	3,021	116.27	0.00	0.00	0.00
10.00	1.00	4,553	116.40	0.05	0.05	0.00
10.50	1.33	6,372	116.55	0.27	0.27	0.00
11.00	1.83	8,373	116.71	0.67	0.67	0.00
11.50	2.63	10,590	116.88	1.24	1.24	0.00
12.00	6.97	14,724	117.19	2.36	2.36	0.00
12.50	24.48	38,491	118.65	5.15	5.15	0.00
13.00	10.64	56,106	119.55	10.60	10.60	0.00
13.50	4.87	51,731	119.34	8.04	8.04	0.00
14.00	3.40	46,610	119.08	5.93	5.93	0.00
14.50	2.74	42,002	118.84	5.40	5.40	0.00
15.00	2.36	37,163	118.58	5.04	5.04	0.00
15.50	2.05	32,407	118.31	4.65	4.65	0.00
16.00	1.75	27,845	118.04	4.22	4.22	0.00
16.50	1.47	23,559	117.78	3.74	3.74	0.00
17.00	1.30	19,755	117.53	3.24	3.24	0.00
17.50	1.16	16,600	117.32	2.72	2.72	0.00
18.00	1.02	14,104	117.14	2.21	2.21	0.00
18.50	0.90	12,312	117.01	1.72	1.72	0.00
19.00	0.84	11,102	116.92	1.38	1.38	0.00
19.50	0.80	10,301	116.86	1.16	1.16	0.00
20.00	0.76	9,750	116.82	1.02	1.02	0.00
20.50	0.72	9,350	116.79	0.91	0.91	0.00
21.00	0.69	9,046	116.77	0.83	0.83	0.00
21.50	0.66	8,807	116.75	0.78	0.78	0.00
22.00	0.63	8,608	116.73	0.73	0.73	0.00
22.50	0.60	8,435	116.72	0.69	0.69	0.00
23.00	0.56	8,276	116.71	0.65	0.65	0.00
23.50	0.53	8,125	116.69	0.62	0.62	0.00
24.00	0.50	7,980	116.68	0.58	0.58	0.00

HydroCAD North Stonington Proposed_RevType III 24-hr 50-YEAR STORM Rainfall=6.88"

Prepared by HDR, Inc

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Stage-Discharge for Pond 1C-Pond: 1C - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
116.00	0.00	0.00	0.00	118.65	5.14	5.14	0.00
116.05	0.00	0.00	0.00	118.70	5.21	5.21	0.00
116.10	0.00	0.00	0.00	118.75	5.28	5.28	0.00
116.15	0.00	0.00	0.00	118.80	5.35	5.35	0.00
116.20	0.00	0.00	0.00	118.85	5.41	5.41	0.00
116.25	0.00	0.00	0.00	118.90	5.48	5.48	0.00
116.30	0.00	0.00	0.00	118.95	5.55	5.55	0.00
116.35	0.01	0.01	0.00	119.00	5.61	5.61	0.00
116.40	0.04	0.04	0.00	119.05	5.78	5.78	0.00
116.45	0.10	0.10	0.00	119.10	6.05	6.05	0.00
116.50	0.17	0.17	0.00	119.15	6.38	6.38	0.00
116.55	0.26	0.26	0.00	119.20	6.77	6.77	0.00
116.60	0.37	0.37	0.00	119.25	7.20	7.20	0.00
116.65	0.49	0.49	0.00	119.30	7.68	7.68	0.00
116.70	0.63	0.63	0.00	119.35	8.19	8.19	0.00
116.75	0.78	0.78	0.00	119.40	8.75	8.75	0.00
116.80	0.95	0.95	0.00	119.45	9.34	9.34	0.00
116.85	1.12	1.12	0.00	119.50	9.98	9.98	0.00
116.90	1.30	1.30	0.00	119.55	10.64	10.64	0.00
116.95	1.48	1.48	0.00	119.60	11.35	11.35	0.00
117.00	1.67	1.67	0.00	119.65	12.08	12.08	0.00
117.05	1.86	1.86	0.00	119.70	12.86	12.86	0.00
117.10	2.05	2.05	0.00	119.75	13.66	13.66	0.00
117.15	2.23	2.23	0.00	119.80	14.50	14.50	0.00
117.20	2.40	2.40	0.00	119.85	15.94	15.36	0.57
117.25	2.56	2.56	0.00	119.90	17.89	16.27	1.63
117.30	2.67	2.67	0.00	119.95	20.18	17.20	2.99
117.35	2.80	2.80	0.00	120.00	22.76	18.16	4.60
117.40	2.93	2.93	0.00				
117.45	3.05	3.05	0.00				
117.50	3.16	3.16	0.00				
117.55	3.28	3.28	0.00				
117.60	3.38	3.38	0.00				
117.65	3.49	3.49	0.00				
117.70	3.59	3.59	0.00				
117.75	3.69	3.69	0.00				
117.80	3.78	3.78	0.00				
117.85	3.88	3.88	0.00				
117.90	3.97	3.97	0.00				
117.95	4.06	4.06	0.00				
118.00	4.14	4.14	0.00				
118.05	4.23	4.23	0.00				
118.10	4.31	4.31	0.00				
118.15	4.39	4.39	0.00				
118.20	4.47	4.47	0.00				
118.25	4.55	4.55	0.00				
118.30	4.63	4.63	0.00				
118.35	4.71	4.71	0.00				
118.40	4.78	4.78	0.00				
118.45	4.86	4.86	0.00				
118.50	4.93	4.93	0.00				
118.55	5.00	5.00	0.00				
118.60	5.07	5.07	0.00				

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 4.800 ac, 0.00% Impervious, Inflow Depth > 4.68" for 50-YEAR STORM event
 Inflow = 17.03 cfs @ 12.29 hrs, Volume= 1.871 af
 Outflow = 9.33 cfs @ 12.61 hrs, Volume= 1.817 af, Atten= 45%, Lag= 19.1 min
 Primary = 9.33 cfs @ 12.61 hrs, Volume= 1.817 af
 Secondary = 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= 174.42' @ 12.61 hrs Surf.Area= 7,208 sf Storage= 18,671 cf

Plug-Flow detention time= 44.9 min calculated for 1.817 af (97% of inflow)
 Center-of-Mass det. time= 28.6 min (847.0 - 818.4)

Volume	Invert	Avail.Storage	Storage Description
#1	171.00'	23,080 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	3,912	0	0
172.00	4,771	4,342	4,342
173.00	5,697	5,234	9,576
174.00	6,691	6,194	15,770
175.00	7,929	7,310	23,080

Device	Routing	Invert	Outlet Devices
#1	Device 2	171.60'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#2	Primary	171.30'	15.0" Round Culvert L= 31.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 171.30' / 171.00' S= 0.0097 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Secondary	174.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	171.30'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=9.32 cfs @ 12.61 hrs HW=174.41' (Free Discharge)

↑ **2=Culvert** (Inlet Controls 9.32 cfs @ 7.60 fps)

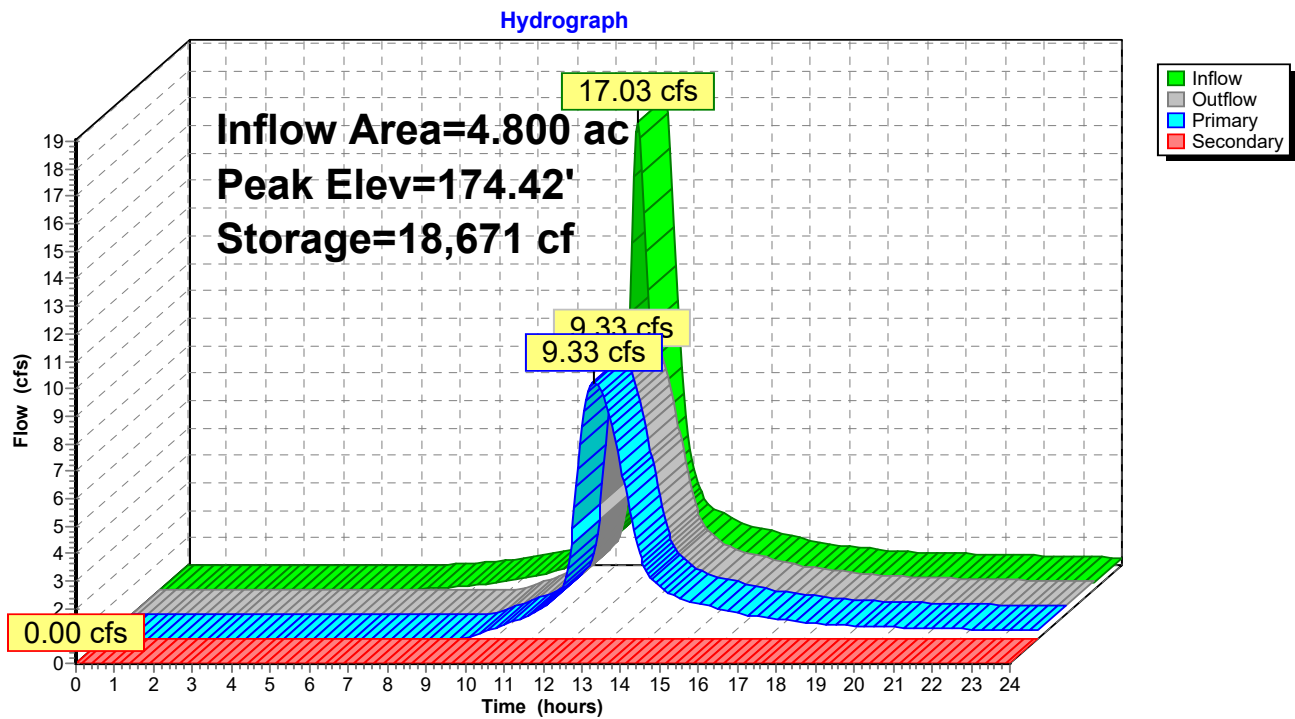
↑ **1=Sharp-Crested Rectangular Weir** (Passes < 63.54 cfs potential flow)

↑ **4=Orifice/Grate** (Passes < 6.11 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=171.00' (Free Discharge)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2 - Pond: 2 - Pond



Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	171.00	0.00	0.00	0.00
0.50	0.00	0	171.00	0.00	0.00	0.00
1.00	0.00	0	171.00	0.00	0.00	0.00
1.50	0.00	0	171.00	0.00	0.00	0.00
2.00	0.00	0	171.00	0.00	0.00	0.00
2.50	0.00	0	171.00	0.00	0.00	0.00
3.00	0.00	0	171.00	0.00	0.00	0.00
3.50	0.00	0	171.00	0.00	0.00	0.00
4.00	0.00	0	171.00	0.00	0.00	0.00
4.50	0.00	0	171.00	0.00	0.00	0.00
5.00	0.00	0	171.00	0.00	0.00	0.00
5.50	0.00	0	171.00	0.00	0.00	0.00
6.00	0.00	0	171.00	0.00	0.00	0.00
6.50	0.02	17	171.00	0.00	0.00	0.00
7.00	0.06	85	171.02	0.00	0.00	0.00
7.50	0.10	223	171.06	0.00	0.00	0.00
8.00	0.15	448	171.11	0.00	0.00	0.00
8.50	0.23	782	171.20	0.00	0.00	0.00
9.00	0.33	1,281	171.32	0.00	0.00	0.00
9.50	0.47	1,917	171.47	0.12	0.12	0.00
10.00	0.63	2,476	171.59	0.36	0.36	0.00
10.50	0.84	2,870	171.68	0.63	0.63	0.00
11.00	1.16	3,274	171.77	0.92	0.92	0.00
11.50	1.78	3,809	171.89	1.35	1.35	0.00
12.00	6.60	6,063	172.35	3.44	3.44	0.00
12.50	12.29	18,058	174.33	9.17	9.17	0.00
13.00	3.52	14,287	173.77	8.04	8.04	0.00
13.50	2.09	7,431	172.61	4.69	4.69	0.00
14.00	1.71	4,929	172.12	2.36	2.36	0.00
14.50	1.42	4,185	171.97	1.67	1.67	0.00
15.00	1.25	3,856	171.90	1.39	1.39	0.00
15.50	1.08	3,627	171.85	1.20	1.20	0.00
16.00	0.91	3,412	171.80	1.03	1.03	0.00
16.50	0.77	3,206	171.76	0.87	0.87	0.00
17.00	0.69	3,058	171.72	0.76	0.76	0.00
17.50	0.62	2,939	171.70	0.68	0.68	0.00
18.00	0.54	2,827	171.67	0.60	0.60	0.00
18.50	0.48	2,719	171.65	0.53	0.53	0.00
19.00	0.46	2,651	171.63	0.49	0.49	0.00
19.50	0.44	2,612	171.62	0.46	0.46	0.00
20.00	0.41	2,581	171.62	0.43	0.43	0.00
20.50	0.39	2,552	171.61	0.41	0.41	0.00
21.00	0.38	2,528	171.61	0.39	0.39	0.00
21.50	0.36	2,505	171.60	0.37	0.37	0.00
22.00	0.34	2,480	171.60	0.36	0.36	0.00
22.50	0.33	2,450	171.59	0.34	0.34	0.00
23.00	0.31	2,417	171.58	0.33	0.33	0.00
23.50	0.29	2,383	171.57	0.31	0.31	0.00
24.00	0.27	2,349	171.57	0.29	0.29	0.00

Stage-Discharge for Pond 2 - Pond: 2 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
171.00	0.00	0.00	0.00	173.65	7.76	7.76	0.00
171.05	0.00	0.00	0.00	173.70	7.87	7.87	0.00
171.10	0.00	0.00	0.00	173.75	7.98	7.98	0.00
171.15	0.00	0.00	0.00	173.80	8.09	8.09	0.00
171.20	0.00	0.00	0.00	173.85	8.20	8.20	0.00
171.25	0.00	0.00	0.00	173.90	8.30	8.30	0.00
171.30	0.00	0.00	0.00	173.95	8.41	8.41	0.00
171.35	0.01	0.01	0.00	174.00	8.51	8.51	0.00
171.40	0.04	0.04	0.00	174.05	8.61	8.61	0.00
171.45	0.10	0.10	0.00	174.10	8.71	8.71	0.00
171.50	0.17	0.17	0.00	174.15	8.81	8.81	0.00
171.55	0.26	0.26	0.00	174.20	8.91	8.91	0.00
171.60	0.37	0.37	0.00	174.25	9.01	9.01	0.00
171.65	0.54	0.54	0.00	174.30	9.11	9.11	0.00
171.70	0.69	0.69	0.00	174.35	9.20	9.20	0.00
171.75	0.85	0.85	0.00	174.40	9.30	9.30	0.00
171.80	1.02	1.02	0.00	174.45	9.39	9.39	0.00
171.85	1.20	1.20	0.00	174.50	9.48	9.48	0.00
171.90	1.40	1.40	0.00	174.55	9.57	9.57	0.00
171.95	1.60	1.60	0.00	174.60	9.66	9.66	0.00
172.00	1.81	1.81	0.00	174.65	9.75	9.75	0.00
172.05	2.03	2.03	0.00	174.70	9.84	9.84	0.00
172.10	2.26	2.26	0.00	174.75	9.93	9.93	0.00
172.15	2.49	2.49	0.00	174.80	10.02	10.02	0.00
172.20	2.73	2.73	0.00	174.85	10.11	10.11	0.00
172.25	2.97	2.97	0.00	174.90	10.19	10.19	0.00
172.30	3.21	3.21	0.00	174.95	10.85	10.28	0.57
172.35	3.45	3.45	0.00	175.00	11.99	10.36	1.63
172.40	3.69	3.69	0.00				
172.45	3.93	3.93	0.00				
172.50	4.17	4.17	0.00				
172.55	4.41	4.41	0.00				
172.60	4.64	4.64	0.00				
172.65	4.86	4.86	0.00				
172.70	5.07	5.07	0.00				
172.75	5.26	5.26	0.00				
172.80	5.44	5.44	0.00				
172.85	5.60	5.60	0.00				
172.90	5.72	5.72	0.00				
172.95	5.77	5.77	0.00				
173.00	5.86	5.86	0.00				
173.05	6.06	6.06	0.00				
173.10	6.24	6.24	0.00				
173.15	6.42	6.42	0.00				
173.20	6.60	6.60	0.00				
173.25	6.77	6.77	0.00				
173.30	6.93	6.93	0.00				
173.35	7.05	7.05	0.00				
173.40	7.18	7.18	0.00				
173.45	7.30	7.30	0.00				
173.50	7.42	7.42	0.00				
173.55	7.53	7.53	0.00				
173.60	7.65	7.65	0.00				

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.080 ac, 0.00% Impervious, Inflow Depth > 4.03" for 50-YEAR STORM event
 Inflow = 26.79 cfs @ 12.33 hrs, Volume= 3.046 af
 Outflow = 9.44 cfs @ 12.84 hrs, Volume= 1.864 af, Atten= 65%, Lag= 30.4 min
 Primary = 9.44 cfs @ 12.84 hrs, Volume= 1.864 af
 Secondary = 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= 125.86' @ 12.84 hrs Surf.Area= 15,311 sf Storage= 63,602 cf

Plug-Flow detention time= 203.2 min calculated for 1.864 af (61% of inflow)
 Center-of-Mass det. time= 99.8 min (934.1 - 834.3)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	79,242 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	6,749	0	0
121.00	8,061	7,405	7,405
122.00	9,434	8,748	16,153
123.00	10,869	10,152	26,304
124.00	12,365	11,617	37,921
125.00	13,922	13,144	51,065
126.00	15,541	14,732	65,796
127.00	11,350	13,446	79,242

Device	Routing	Invert	Outlet Devices
#1	Primary	120.40'	18.0" Round Culvert L= 53.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.40' / 120.00' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	126.50'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	125.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	120.40'	3.0" Vert. Orifice/Grate C= 0.600

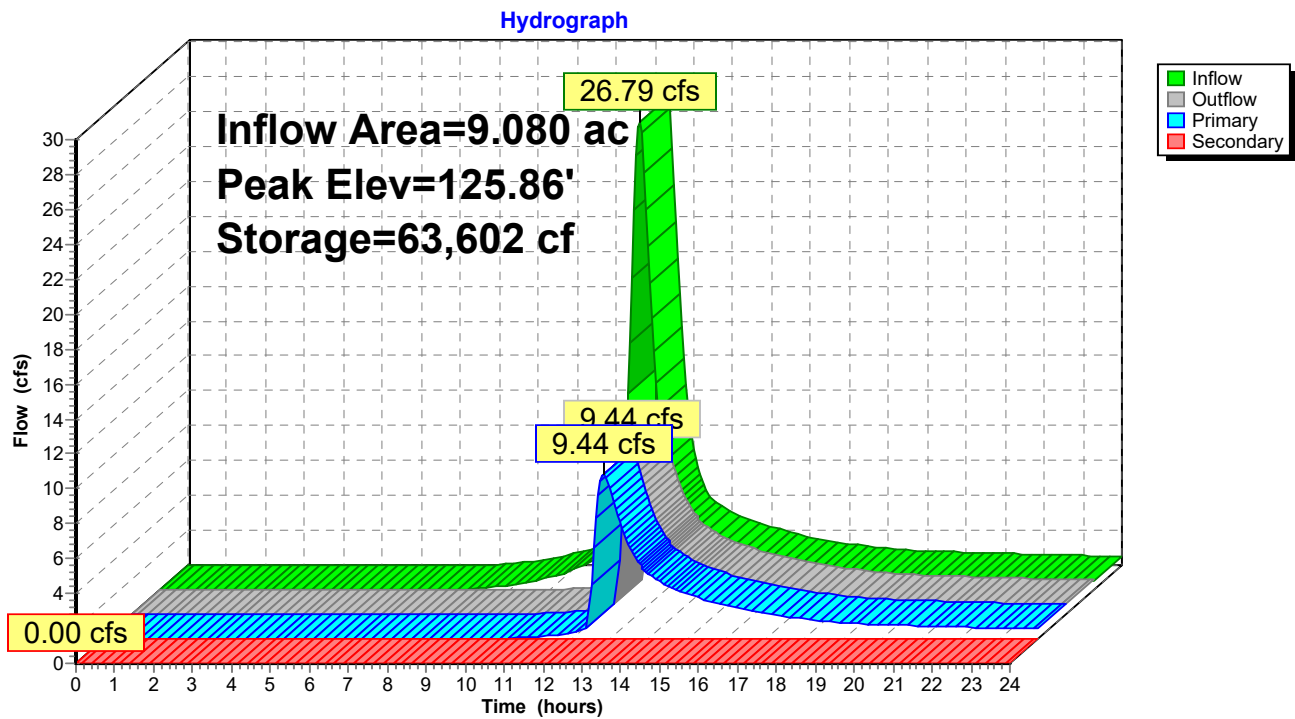
Primary OutFlow Max=9.42 cfs @ 12.84 hrs HW=125.86' (Free Discharge)

↑ **1=Culvert** (Passes 9.42 cfs of 18.46 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Weir Controls 8.87 cfs @ 3.66 fps)
 ↑ **4=Orifice/Grate** (Orifice Controls 0.55 cfs @ 11.12 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond



Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	0.00
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.00	0	120.00	0.00	0.00	0.00
7.50	0.00	0	120.00	0.00	0.00	0.00
8.00	0.05	36	120.01	0.00	0.00	0.00
8.50	0.14	202	120.03	0.00	0.00	0.00
9.00	0.28	575	120.08	0.00	0.00	0.00
9.50	0.47	1,243	120.18	0.00	0.00	0.00
10.00	0.71	2,293	120.33	0.00	0.00	0.00
10.50	1.03	3,814	120.54	0.04	0.04	0.00
11.00	1.52	5,931	120.81	0.13	0.13	0.00
11.50	2.44	9,036	121.20	0.19	0.19	0.00
12.00	9.17	16,661	122.05	0.29	0.29	0.00
12.50	21.77	53,368	125.16	1.19	1.19	0.00
13.00	6.64	62,864	125.81	8.64	8.64	0.00
13.50	3.75	59,326	125.57	5.22	5.22	0.00
14.00	3.03	57,514	125.45	3.73	3.73	0.00
14.50	2.53	56,485	125.38	2.98	2.98	0.00
15.00	2.22	55,814	125.33	2.53	2.53	0.00
15.50	1.93	55,293	125.30	2.21	2.21	0.00
16.00	1.63	54,787	125.26	1.91	1.91	0.00
16.50	1.38	54,288	125.23	1.64	1.64	0.00
17.00	1.24	53,886	125.20	1.43	1.43	0.00
17.50	1.10	53,567	125.18	1.27	1.27	0.00
18.00	0.97	53,261	125.16	1.14	1.14	0.00
18.50	0.87	52,959	125.13	1.02	1.02	0.00
19.00	0.82	52,734	125.12	0.92	0.92	0.00
19.50	0.78	52,575	125.11	0.86	0.86	0.00
20.00	0.74	52,433	125.10	0.82	0.82	0.00
20.50	0.71	52,295	125.09	0.78	0.78	0.00
21.00	0.67	52,169	125.08	0.74	0.74	0.00
21.50	0.64	52,052	125.07	0.71	0.71	0.00
22.00	0.61	51,941	125.06	0.68	0.68	0.00
22.50	0.58	51,834	125.06	0.64	0.64	0.00
23.00	0.55	51,728	125.05	0.61	0.61	0.00
23.50	0.52	51,624	125.04	0.58	0.58	0.00
24.00	0.49	51,507	125.03	0.56	0.56	0.00

Stage-Discharge for Pond 4 - Pond: 4 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
120.00	0.00	0.00	0.00	125.30	2.21	2.21	0.00
120.10	0.00	0.00	0.00	125.40	3.17	3.17	0.00
120.20	0.00	0.00	0.00	125.50	4.29	4.29	0.00
120.30	0.00	0.00	0.00	125.60	5.55	5.55	0.00
120.40	0.00	0.00	0.00	125.70	6.95	6.95	0.00
120.50	0.02	0.02	0.00	125.80	8.49	8.49	0.00
120.60	0.06	0.06	0.00	125.90	10.15	10.15	0.00
120.70	0.10	0.10	0.00	126.00	11.95	11.95	0.00
120.80	0.12	0.12	0.00	126.10	13.87	13.87	0.00
120.90	0.14	0.14	0.00	126.20	15.91	15.91	0.00
121.00	0.16	0.16	0.00	126.30	18.07	18.07	0.00
121.10	0.18	0.18	0.00	126.40	19.50	19.50	0.00
121.20	0.19	0.19	0.00	126.50	19.68	19.68	0.00
121.30	0.21	0.21	0.00	126.60	21.49	19.86	1.63
121.40	0.22	0.22	0.00	126.70	24.64	20.05	4.60
121.50	0.23	0.23	0.00	126.80	28.75	20.23	8.53
121.60	0.25	0.25	0.00	126.90	33.66	20.40	13.26
121.70	0.26	0.26	0.00	127.00	39.39	20.58	18.81
121.80	0.27	0.27	0.00				
121.90	0.28	0.28	0.00				
122.00	0.29	0.29	0.00				
122.10	0.30	0.30	0.00				
122.20	0.31	0.31	0.00				
122.30	0.31	0.31	0.00				
122.40	0.32	0.32	0.00				
122.50	0.33	0.33	0.00				
122.60	0.34	0.34	0.00				
122.70	0.35	0.35	0.00				
122.80	0.36	0.36	0.00				
122.90	0.36	0.36	0.00				
123.00	0.37	0.37	0.00				
123.10	0.38	0.38	0.00				
123.20	0.39	0.39	0.00				
123.30	0.39	0.39	0.00				
123.40	0.40	0.40	0.00				
123.50	0.41	0.41	0.00				
123.60	0.41	0.41	0.00				
123.70	0.42	0.42	0.00				
123.80	0.43	0.43	0.00				
123.90	0.43	0.43	0.00				
124.00	0.44	0.44	0.00				
124.10	0.45	0.45	0.00				
124.20	0.45	0.45	0.00				
124.30	0.46	0.46	0.00				
124.40	0.47	0.47	0.00				
124.50	0.47	0.47	0.00				
124.60	0.48	0.48	0.00				
124.70	0.48	0.48	0.00				
124.80	0.49	0.49	0.00				
124.90	0.49	0.49	0.00				
125.00	0.50	0.50	0.00				
125.10	0.82	0.82	0.00				
125.20	1.42	1.42	0.00				

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 5.11" for 50-YEAR STORM event
 Inflow = 50.80 cfs @ 12.40 hrs, Volume= 6.485 af
 Outflow = 33.36 cfs @ 12.70 hrs, Volume= 6.283 af, Atten= 34%, Lag= 17.6 min
 Primary = 33.36 cfs @ 12.70 hrs, Volume= 6.283 af
 Secondary = 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= 128.86' @ 12.70 hrs Surf.Area= 15,128 sf Storage= 68,114 cf

Plug-Flow detention time= 53.0 min calculated for 6.283 af (97% of inflow)
 Center-of-Mass det. time= 35.5 min (850.1 - 814.7)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	86,402 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,177	0	0
123.00	6,454	5,816	5,816
124.00	7,790	7,122	12,938
125.00	9,184	8,487	21,425
126.00	10,638	9,911	31,336
127.00	12,150	11,394	42,730
128.00	13,721	12,936	55,665
129.00	15,351	14,536	70,201
130.00	17,050	16,201	86,402

Device	Routing	Invert	Outlet Devices
#1	Device 2	127.60'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#2	Primary	123.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.70' S= 0.0060 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#3	Secondary	129.50'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	123.00'	18.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=33.35 cfs @ 12.70 hrs HW=128.86' (Free Discharge)

↑ **2=Culvert** (Inlet Controls 33.35 cfs @ 10.62 fps)

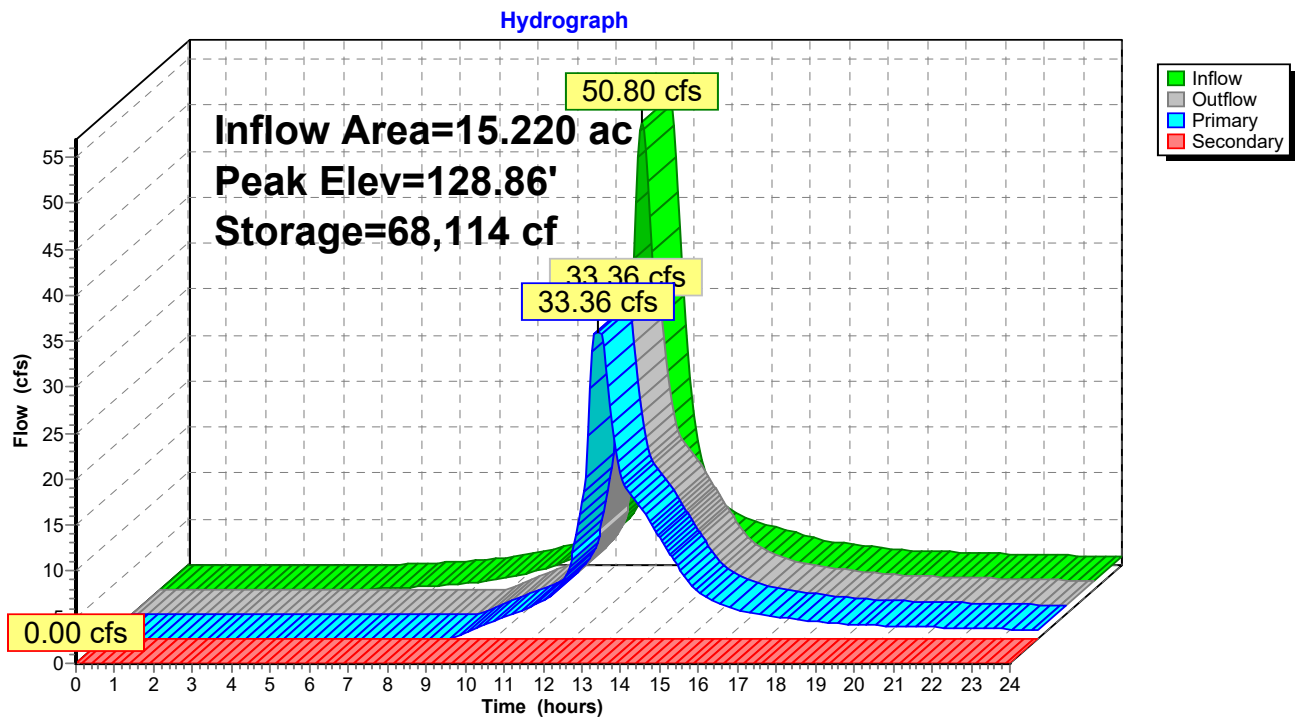
↑ **1=Sharp-Crested Rectangular Weir** (Passes < 16.66 cfs potential flow)

↑ **4=Orifice/Grate** (Passes < 19.24 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	0.00
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	0	122.00	0.00	0.00	0.00
5.00	0.01	2	122.00	0.00	0.00	0.00
5.50	0.07	66	122.01	0.00	0.00	0.00
6.00	0.16	271	122.05	0.00	0.00	0.00
6.50	0.26	641	122.12	0.00	0.00	0.00
7.00	0.40	1,223	122.23	0.00	0.00	0.00
7.50	0.57	2,083	122.38	0.00	0.00	0.00
8.00	0.77	3,278	122.59	0.00	0.00	0.00
8.50	1.02	4,869	122.85	0.00	0.00	0.00
9.00	1.41	6,990	123.18	0.17	0.17	0.00
9.50	1.89	8,907	123.46	1.04	1.04	0.00
10.00	2.44	10,132	123.63	1.88	1.88	0.00
10.50	3.12	11,044	123.75	2.61	2.61	0.00
11.00	4.16	12,092	123.89	3.51	3.51	0.00
11.50	5.92	13,520	124.07	4.78	4.78	0.00
12.00	16.94	19,125	124.74	8.48	8.48	0.00
12.50	47.73	61,934	128.45	27.13	27.13	0.00
13.00	16.36	60,482	128.34	25.32	25.32	0.00
13.50	7.96	46,200	127.28	15.99	15.99	0.00
14.00	5.96	32,232	126.08	13.00	13.00	0.00
14.50	4.89	21,570	125.02	9.57	9.57	0.00
15.00	4.25	15,477	124.32	6.42	6.42	0.00
15.50	3.68	13,128	124.02	4.43	4.43	0.00
16.00	3.12	12,139	123.90	3.55	3.55	0.00
16.50	2.62	11,443	123.80	2.95	2.95	0.00
17.00	2.33	10,970	123.74	2.55	2.55	0.00
17.50	2.08	10,621	123.69	2.26	2.26	0.00
18.00	1.83	10,302	123.65	2.01	2.01	0.00
18.50	1.62	9,990	123.61	1.77	1.77	0.00
19.00	1.52	9,775	123.58	1.62	1.62	0.00
19.50	1.45	9,632	123.56	1.52	1.52	0.00
20.00	1.37	9,515	123.54	1.44	1.44	0.00
20.50	1.30	9,407	123.53	1.36	1.36	0.00
21.00	1.25	9,312	123.51	1.30	1.30	0.00
21.50	1.19	9,221	123.50	1.24	1.24	0.00
22.00	1.13	9,132	123.49	1.18	1.18	0.00
22.50	1.08	9,043	123.48	1.13	1.13	0.00
23.00	1.02	8,954	123.46	1.07	1.07	0.00
23.50	0.97	8,865	123.45	1.01	1.01	0.00
24.00	0.91	8,776	123.44	0.96	0.96	0.00

Stage-Discharge for Pond 5 - Pond: 5 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
122.00	0.00	0.00	0.00	127.30	16.03	16.03	0.00
122.10	0.00	0.00	0.00	127.40	16.26	16.26	0.00
122.20	0.00	0.00	0.00	127.50	16.48	16.48	0.00
122.30	0.00	0.00	0.00	127.60	16.70	16.70	0.00
122.40	0.00	0.00	0.00	127.70	17.23	17.23	0.00
122.50	0.00	0.00	0.00	127.80	18.03	18.03	0.00
122.60	0.00	0.00	0.00	127.90	19.03	19.03	0.00
122.70	0.00	0.00	0.00	128.00	20.19	20.19	0.00
122.80	0.00	0.00	0.00	128.10	21.51	21.51	0.00
122.90	0.00	0.00	0.00	128.20	22.97	22.97	0.00
123.00	0.00	0.00	0.00	128.30	24.57	24.57	0.00
123.10	0.05	0.05	0.00	128.40	26.29	26.29	0.00
123.20	0.20	0.20	0.00	128.50	28.15	28.15	0.00
123.30	0.46	0.46	0.00	128.60	30.13	30.13	0.00
123.40	0.80	0.80	0.00	128.70	32.24	32.24	0.00
123.50	1.23	1.23	0.00	128.80	33.14	33.14	0.00
123.60	1.73	1.73	0.00	128.90	33.48	33.48	0.00
123.70	2.29	2.29	0.00	129.00	33.82	33.82	0.00
123.80	2.91	2.91	0.00	129.10	34.16	34.16	0.00
123.90	3.58	3.58	0.00	129.20	34.49	34.49	0.00
124.00	4.26	4.26	0.00	129.30	34.82	34.82	0.00
124.10	4.96	4.96	0.00	129.40	35.15	35.15	0.00
124.20	5.65	5.65	0.00	129.50	35.48	35.48	0.00
124.30	6.32	6.32	0.00	129.60	37.42	35.80	1.63
124.40	6.92	6.92	0.00	129.70	40.71	36.11	4.60
124.50	7.37	7.37	0.00	129.80	44.96	36.43	8.53
124.60	7.84	7.84	0.00	129.90	50.00	36.74	13.26
124.70	8.29	8.29	0.00	130.00	55.86	37.05	18.81
124.80	8.72	8.72	0.00				
124.90	9.12	9.12	0.00				
125.00	9.51	9.51	0.00				
125.10	9.89	9.89	0.00				
125.20	10.25	10.25	0.00				
125.30	10.59	10.59	0.00				
125.40	10.93	10.93	0.00				
125.50	11.26	11.26	0.00				
125.60	11.57	11.57	0.00				
125.70	11.88	11.88	0.00				
125.80	12.18	12.18	0.00				
125.90	12.48	12.48	0.00				
126.00	12.76	12.76	0.00				
126.10	13.04	13.04	0.00				
126.20	13.32	13.32	0.00				
126.30	13.59	13.59	0.00				
126.40	13.85	13.85	0.00				
126.50	14.11	14.11	0.00				
126.60	14.36	14.36	0.00				
126.70	14.61	14.61	0.00				
126.80	14.86	14.86	0.00				
126.90	15.10	15.10	0.00				
127.00	15.34	15.34	0.00				
127.10	15.57	15.57	0.00				
127.20	15.80	15.80	0.00				

HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

Prepared by HDR, Inc

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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 1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>4.96"
Tc=42.6 min CN=77 Runoff=13.05 cfs 1.939 af

Subcatchment 1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>5.19"
Tc=42.3 min CN=79 Runoff=30.69 cfs 4.558 af

Subcatchment 1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>5.43"
Tc=35.2 min CN=81 Runoff=28.41 cfs 3.880 af

Subcatchment 2: Runoff Area=4.800 ac 0.00% Impervious Runoff Depth>5.44"
Tc=21.7 min CN=81 Runoff=19.71 cfs 2.176 af

Subcatchment 4: Runoff Area=9.080 ac 0.00% Impervious Runoff Depth>4.75"
Tc=24.0 min CN=75 Runoff=31.57 cfs 3.595 af

Subcatchment 5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>5.90"
Tc=29.9 min CN=85 Runoff=58.22 cfs 7.478 af

Pond 1A - Pond: 1A - Pond Peak Elev=130.71' Storage=33,526 cf Inflow=13.05 cfs 1.939 af
Primary=7.60 cfs 1.551 af Secondary=0.00 cfs 0.000 af Outflow=7.60 cfs 1.551 af

Pond 1B - Pond: 1B - Pond Peak Elev=126.60' Storage=76,933 cf Inflow=30.69 cfs 4.558 af
Primary=13.77 cfs 3.890 af Secondary=0.00 cfs 0.000 af Outflow=13.77 cfs 3.890 af

Pond 1C-Pond: 1C - Pond Peak Elev=119.80' Storage=61,452 cf Inflow=28.41 cfs 3.880 af
Primary=14.42 cfs 3.689 af Secondary=0.00 cfs 0.000 af Outflow=14.42 cfs 3.689 af

Pond 2 - Pond: 2 - Pond Peak Elev=174.90' Storage=22,278 cf Inflow=19.71 cfs 2.176 af
Primary=10.19 cfs 2.120 af Secondary=0.00 cfs 0.000 af Outflow=10.19 cfs 2.120 af

Pond 4 - Pond: 4 - Pond Peak Elev=126.17' Storage=68,449 cf Inflow=31.57 cfs 3.595 af
Primary=15.39 cfs 2.406 af Secondary=0.00 cfs 0.000 af Outflow=15.39 cfs 2.406 af

Pond 5 - Pond: 5 - Pond Peak Elev=129.48' Storage=77,709 cf Inflow=58.22 cfs 7.478 af
Primary=35.40 cfs 7.272 af Secondary=0.00 cfs 0.000 af Outflow=35.40 cfs 7.272 af

Total Runoff Area = 52.910 ac Runoff Volume = 23.625 af Average Runoff Depth = 5.36"
100.00% Pervious = 52.910 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

Runoff = 13.05 cfs @ 12.57 hrs, Volume= 1.939 af, Depth> 4.96"

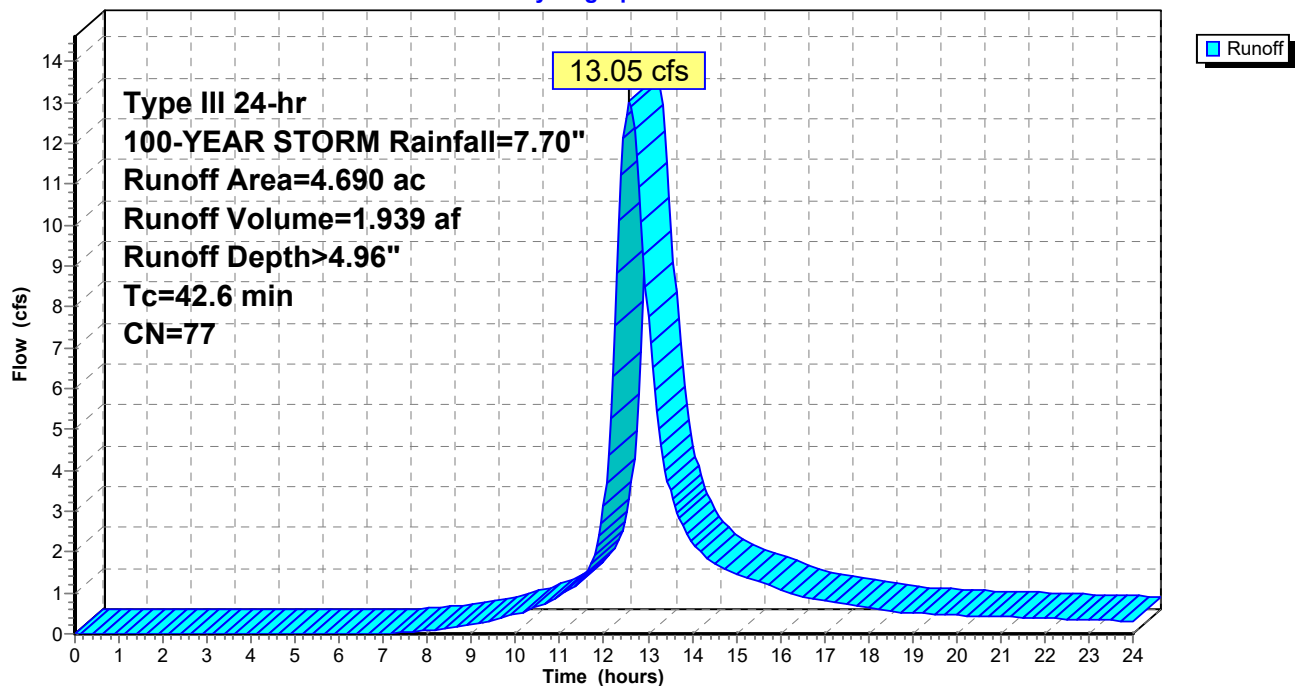
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 4.690	77	
4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					Direct Entry, SCS TR-55

Subcatchment 1A:

Hydrograph



HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	3.40	5.02
0.25	0.02	0.00	0.00	13.50	6.03	3.51	3.51
0.50	0.04	0.00	0.00	13.75	6.14	3.61	2.70
0.75	0.06	0.00	0.00	14.00	6.24	3.69	2.25
1.00	0.08	0.00	0.00	14.25	6.34	3.77	1.95
1.25	0.10	0.00	0.00	14.50	6.42	3.85	1.73
1.50	0.12	0.00	0.00	14.75	6.50	3.92	1.58
1.75	0.13	0.00	0.00	15.00	6.58	3.99	1.47
2.00	0.15	0.00	0.00	15.25	6.65	4.05	1.37
2.25	0.17	0.00	0.00	15.50	6.71	4.11	1.27
2.50	0.19	0.00	0.00	15.75	6.77	4.16	1.18
2.75	0.21	0.00	0.00	16.00	6.82	4.21	1.09
3.00	0.24	0.00	0.00	16.25	6.87	4.25	1.00
3.25	0.26	0.00	0.00	16.50	6.92	4.29	0.92
3.50	0.28	0.00	0.00	16.75	6.96	4.33	0.85
3.75	0.31	0.00	0.00	17.00	7.00	4.37	0.80
4.00	0.33	0.00	0.00	17.25	7.04	4.40	0.76
4.25	0.36	0.00	0.00	17.50	7.08	4.44	0.71
4.50	0.38	0.00	0.00	17.75	7.11	4.47	0.67
4.75	0.41	0.00	0.00	18.00	7.15	4.50	0.63
5.00	0.44	0.00	0.00	18.25	7.18	4.52	0.59
5.25	0.47	0.00	0.00	18.50	7.21	4.55	0.56
5.50	0.49	0.00	0.00	18.75	7.23	4.58	0.53
5.75	0.52	0.00	0.00	19.00	7.26	4.60	0.51
6.00	0.55	0.00	0.00	19.25	7.29	4.63	0.50
6.25	0.59	0.00	0.00	19.50	7.32	4.65	0.49
6.50	0.62	0.00	0.00	19.75	7.34	4.68	0.47
6.75	0.66	0.00	0.00	20.00	7.37	4.70	0.46
7.00	0.70	0.00	0.01	20.25	7.39	4.72	0.45
7.25	0.74	0.01	0.02	20.50	7.42	4.74	0.44
7.50	0.78	0.01	0.04	20.75	7.44	4.76	0.43
7.75	0.83	0.02	0.06	21.00	7.46	4.79	0.42
8.00	0.88	0.02	0.08	21.25	7.49	4.81	0.41
8.25	0.93	0.03	0.11	21.50	7.51	4.83	0.40
8.50	0.99	0.05	0.14	21.75	7.53	4.85	0.39
8.75	1.05	0.06	0.18	22.00	7.55	4.86	0.38
9.00	1.12	0.08	0.22	22.25	7.57	4.88	0.37
9.25	1.20	0.10	0.28	22.50	7.59	4.90	0.36
9.50	1.28	0.13	0.34	22.75	7.61	4.92	0.35
9.75	1.36	0.16	0.41	23.00	7.63	4.94	0.34
10.00	1.46	0.19	0.48	23.25	7.65	4.95	0.33
10.25	1.56	0.23	0.57	23.50	7.67	4.97	0.33
10.50	1.67	0.28	0.66	23.75	7.68	4.98	0.32
10.75	1.79	0.34	0.78	24.00	7.70	5.00	0.31
11.00	1.93	0.41	0.93				
11.25	2.09	0.50	1.10				
11.50	2.29	0.61	1.34				
11.75	2.74	0.89	1.77				
12.00	3.85	1.70	3.13				
12.25	4.96	2.59	7.53				
12.50	5.41	2.97	12.70				
12.75	5.61	3.14	11.69				
13.00	5.77	3.28	7.77				

Summary for Subcatchment 1B:

Runoff = 30.69 cfs @ 12.57 hrs, Volume= 4.558 af, Depth> 5.19"

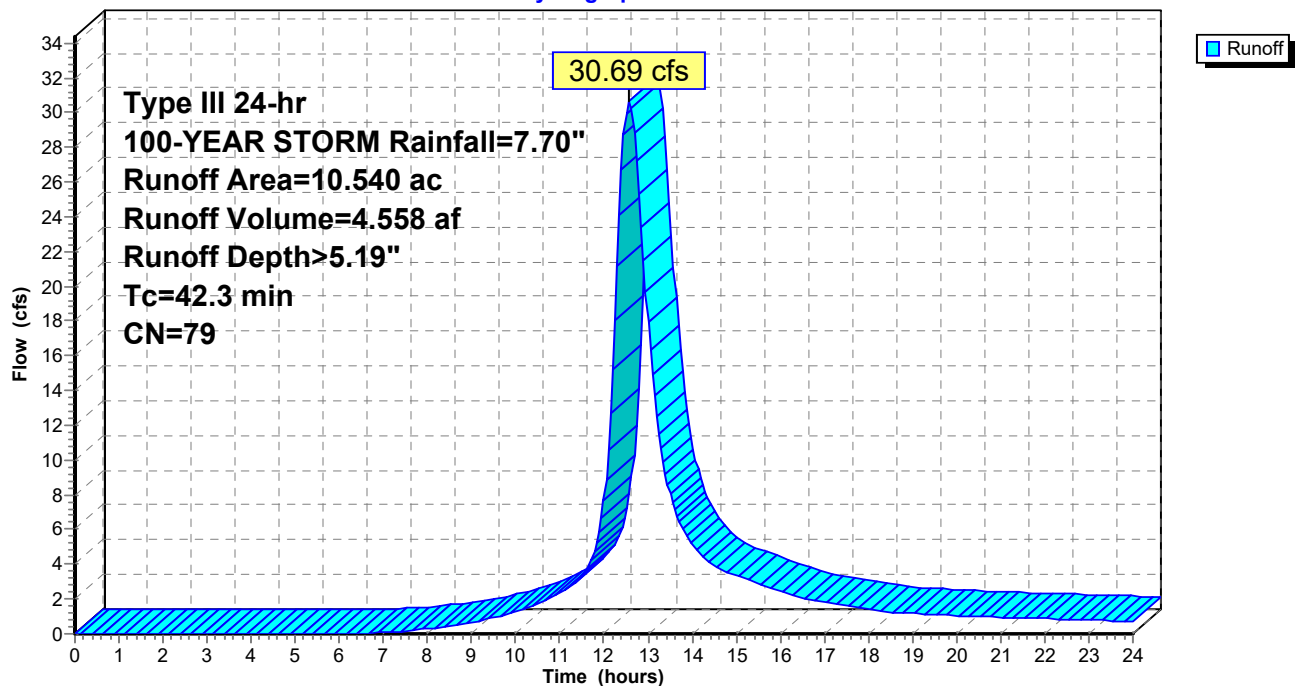
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 10.540	79	
10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					Direct Entry, SCS TR-55

Subcatchment 1B:

Hydrograph



HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	3.60	11.53
0.25	0.02	0.00	0.00	13.50	6.03	3.71	8.05
0.50	0.04	0.00	0.00	13.75	6.14	3.81	6.19
0.75	0.06	0.00	0.00	14.00	6.24	3.90	5.16
1.00	0.08	0.00	0.00	14.25	6.34	3.98	4.47
1.25	0.10	0.00	0.00	14.50	6.42	4.06	3.95
1.50	0.12	0.00	0.00	14.75	6.50	4.13	3.61
1.75	0.13	0.00	0.00	15.00	6.58	4.20	3.36
2.00	0.15	0.00	0.00	15.25	6.65	4.26	3.13
2.25	0.17	0.00	0.00	15.50	6.71	4.32	2.91
2.50	0.19	0.00	0.00	15.75	6.77	4.37	2.70
2.75	0.21	0.00	0.00	16.00	6.82	4.42	2.49
3.00	0.24	0.00	0.00	16.25	6.87	4.47	2.28
3.25	0.26	0.00	0.00	16.50	6.92	4.51	2.09
3.50	0.28	0.00	0.00	16.75	6.96	4.55	1.94
3.75	0.31	0.00	0.00	17.00	7.00	4.59	1.83
4.00	0.33	0.00	0.00	17.25	7.04	4.62	1.73
4.25	0.36	0.00	0.00	17.50	7.08	4.66	1.63
4.50	0.38	0.00	0.00	17.75	7.11	4.69	1.54
4.75	0.41	0.00	0.00	18.00	7.15	4.72	1.45
5.00	0.44	0.00	0.00	18.25	7.18	4.75	1.35
5.25	0.47	0.00	0.00	18.50	7.21	4.77	1.27
5.50	0.49	0.00	0.00	18.75	7.23	4.80	1.21
5.75	0.52	0.00	0.00	19.00	7.26	4.83	1.17
6.00	0.55	0.00	0.00	19.25	7.29	4.85	1.14
6.25	0.59	0.00	0.00	19.50	7.32	4.88	1.11
6.50	0.62	0.00	0.02	19.75	7.34	4.90	1.08
6.75	0.66	0.01	0.04	20.00	7.37	4.92	1.05
7.00	0.70	0.01	0.08	20.25	7.39	4.95	1.03
7.25	0.74	0.01	0.12	20.50	7.42	4.97	1.00
7.50	0.78	0.02	0.17	20.75	7.44	4.99	0.97
7.75	0.83	0.03	0.22	21.00	7.46	5.01	0.95
8.00	0.88	0.04	0.28	21.25	7.49	5.03	0.93
8.25	0.93	0.05	0.35	21.50	7.51	5.05	0.91
8.50	0.99	0.07	0.43	21.75	7.53	5.07	0.89
8.75	1.05	0.09	0.52	22.00	7.55	5.09	0.87
9.00	1.12	0.11	0.64	22.25	7.57	5.11	0.85
9.25	1.20	0.13	0.77	22.50	7.59	5.13	0.83
9.50	1.28	0.16	0.93	22.75	7.61	5.15	0.80
9.75	1.36	0.20	1.09	23.00	7.63	5.16	0.78
10.00	1.46	0.24	1.27	23.25	7.65	5.18	0.76
10.25	1.56	0.28	1.47	23.50	7.67	5.20	0.74
10.50	1.67	0.34	1.70	23.75	7.68	5.21	0.72
10.75	1.79	0.40	1.99	24.00	7.70	5.23	0.70
11.00	1.93	0.48	2.34				
11.25	2.09	0.57	2.74				
11.50	2.29	0.70	3.31				
11.75	2.74	1.00	4.36				
12.00	3.85	1.84	7.63				
12.25	4.96	2.77	18.06				
12.50	5.41	3.15	29.98				
12.75	5.61	3.34	27.22				
13.00	5.77	3.48	17.93				

Summary for Subcatchment 1C:

Runoff = 28.41 cfs @ 12.48 hrs, Volume= 3.880 af, Depth> 5.43"

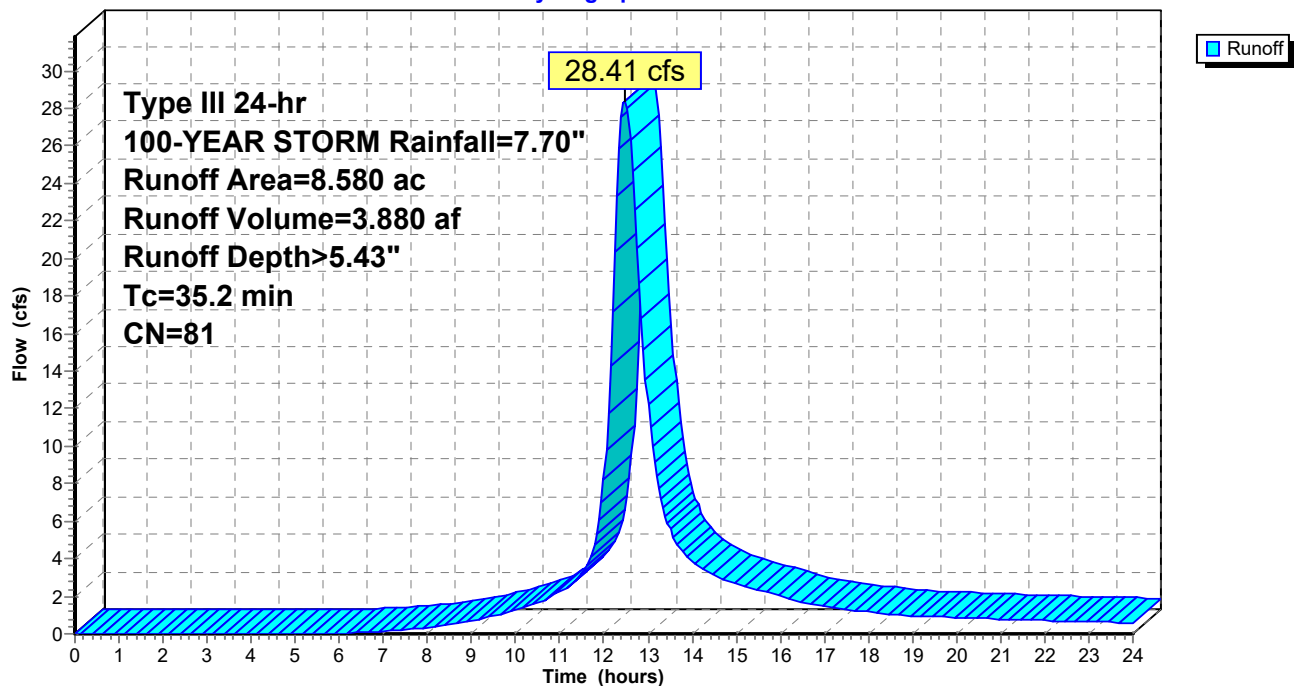
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 8.580	81	
8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					Direct Entry, SCS TR-55

Subcatchment 1C:

Hydrograph



HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	3.80	7.74
0.25	0.02	0.00	0.00	13.50	6.03	3.91	5.56
0.50	0.04	0.00	0.00	13.75	6.14	4.02	4.50
0.75	0.06	0.00	0.00	14.00	6.24	4.11	3.87
1.00	0.08	0.00	0.00	14.25	6.34	4.19	3.44
1.25	0.10	0.00	0.00	14.50	6.42	4.27	3.12
1.50	0.12	0.00	0.00	14.75	6.50	4.34	2.88
1.75	0.13	0.00	0.00	15.00	6.58	4.41	2.69
2.00	0.15	0.00	0.00	15.25	6.65	4.48	2.51
2.25	0.17	0.00	0.00	15.50	6.71	4.54	2.34
2.50	0.19	0.00	0.00	15.75	6.77	4.59	2.16
2.75	0.21	0.00	0.00	16.00	6.82	4.64	1.99
3.00	0.24	0.00	0.00	16.25	6.87	4.69	1.81
3.25	0.26	0.00	0.00	16.50	6.92	4.73	1.67
3.50	0.28	0.00	0.00	16.75	6.96	4.77	1.56
3.75	0.31	0.00	0.00	17.00	7.00	4.81	1.47
4.00	0.33	0.00	0.00	17.25	7.04	4.84	1.39
4.25	0.36	0.00	0.00	17.50	7.08	4.88	1.32
4.50	0.38	0.00	0.00	17.75	7.11	4.91	1.24
4.75	0.41	0.00	0.00	18.00	7.15	4.94	1.16
5.00	0.44	0.00	0.00	18.25	7.18	4.97	1.09
5.25	0.47	0.00	0.00	18.50	7.21	5.00	1.02
5.50	0.49	0.00	0.00	18.75	7.23	5.02	0.98
5.75	0.52	0.00	0.01	19.00	7.26	5.05	0.95
6.00	0.55	0.00	0.02	19.25	7.29	5.08	0.93
6.25	0.59	0.01	0.04	19.50	7.32	5.10	0.91
6.50	0.62	0.01	0.07	19.75	7.34	5.13	0.88
6.75	0.66	0.01	0.10	20.00	7.37	5.15	0.86
7.00	0.70	0.02	0.14	20.25	7.39	5.17	0.84
7.25	0.74	0.03	0.18	20.50	7.42	5.20	0.82
7.50	0.78	0.04	0.23	20.75	7.44	5.22	0.80
7.75	0.83	0.05	0.28	21.00	7.46	5.24	0.78
8.00	0.88	0.06	0.34	21.25	7.49	5.26	0.76
8.25	0.93	0.08	0.40	21.50	7.51	5.28	0.74
8.50	0.99	0.09	0.48	21.75	7.53	5.30	0.73
8.75	1.05	0.12	0.57	22.00	7.55	5.32	0.71
9.00	1.12	0.14	0.68	22.25	7.57	5.34	0.69
9.25	1.20	0.17	0.81	22.50	7.59	5.36	0.67
9.50	1.28	0.21	0.95	22.75	7.61	5.38	0.66
9.75	1.36	0.25	1.10	23.00	7.63	5.39	0.64
10.00	1.46	0.29	1.26	23.25	7.65	5.41	0.62
10.25	1.56	0.34	1.44	23.50	7.67	5.43	0.61
10.50	1.67	0.40	1.65	23.75	7.68	5.44	0.59
10.75	1.79	0.48	1.93	24.00	7.70	5.46	0.57
11.00	1.93	0.56	2.24				
11.25	2.09	0.66	2.60				
11.50	2.29	0.80	3.18				
11.75	2.74	1.11	4.29				
12.00	3.85	2.00	8.25				
12.25	4.96	2.95	20.31				
12.50	5.41	3.35	28.33				
12.75	5.61	3.53	20.56				
13.00	5.77	3.68	12.21				

HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

Prepared by HDR, Inc

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Summary for Subcatchment 2:

Runoff = 19.71 cfs @ 12.29 hrs, Volume= 2.176 af, Depth> 5.44"

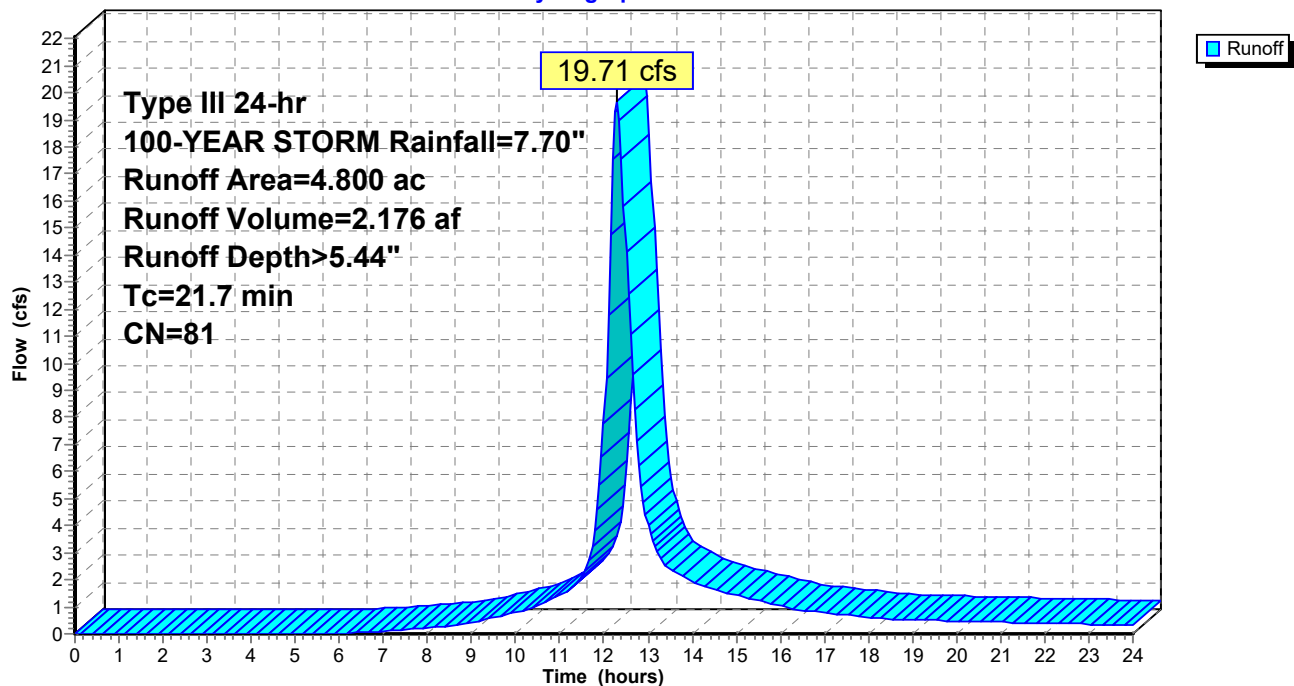
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 4.800	81	
4.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.7					Direct Entry, SCS TR-55

Subcatchment 2:

Hydrograph



HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	3.80	2.86
0.25	0.02	0.00	0.00	13.50	6.03	3.91	2.39
0.50	0.04	0.00	0.00	13.75	6.14	4.02	2.15
0.75	0.06	0.00	0.00	14.00	6.24	4.11	1.94
1.00	0.08	0.00	0.00	14.25	6.34	4.19	1.75
1.25	0.10	0.00	0.00	14.50	6.42	4.27	1.62
1.50	0.12	0.00	0.00	14.75	6.50	4.34	1.52
1.75	0.13	0.00	0.00	15.00	6.58	4.41	1.42
2.00	0.15	0.00	0.00	15.25	6.65	4.48	1.32
2.25	0.17	0.00	0.00	15.50	6.71	4.54	1.23
2.50	0.19	0.00	0.00	15.75	6.77	4.59	1.13
2.75	0.21	0.00	0.00	16.00	6.82	4.64	1.03
3.00	0.24	0.00	0.00	16.25	6.87	4.69	0.94
3.25	0.26	0.00	0.00	16.50	6.92	4.73	0.87
3.50	0.28	0.00	0.00	16.75	6.96	4.77	0.83
3.75	0.31	0.00	0.00	17.00	7.00	4.81	0.79
4.00	0.33	0.00	0.00	17.25	7.04	4.84	0.74
4.25	0.36	0.00	0.00	17.50	7.08	4.88	0.70
4.50	0.38	0.00	0.00	17.75	7.11	4.91	0.66
4.75	0.41	0.00	0.00	18.00	7.15	4.94	0.61
5.00	0.44	0.00	0.00	18.25	7.18	4.97	0.57
5.25	0.47	0.00	0.00	18.50	7.21	5.00	0.55
5.50	0.49	0.00	0.00	18.75	7.23	5.02	0.54
5.75	0.52	0.00	0.01	19.00	7.26	5.05	0.52
6.00	0.55	0.00	0.02	19.25	7.29	5.08	0.51
6.25	0.59	0.01	0.04	19.50	7.32	5.10	0.50
6.50	0.62	0.01	0.05	19.75	7.34	5.13	0.48
6.75	0.66	0.01	0.07	20.00	7.37	5.15	0.47
7.00	0.70	0.02	0.10	20.25	7.39	5.17	0.46
7.25	0.74	0.03	0.12	20.50	7.42	5.20	0.45
7.50	0.78	0.04	0.15	20.75	7.44	5.22	0.44
7.75	0.83	0.05	0.18	21.00	7.46	5.24	0.43
8.00	0.88	0.06	0.22	21.25	7.49	5.26	0.42
8.25	0.93	0.08	0.26	21.50	7.51	5.28	0.41
8.50	0.99	0.09	0.31	21.75	7.53	5.30	0.40
8.75	1.05	0.12	0.37	22.00	7.55	5.32	0.39
9.00	1.12	0.14	0.44	22.25	7.57	5.34	0.38
9.25	1.20	0.17	0.52	22.50	7.59	5.36	0.37
9.50	1.28	0.21	0.60	22.75	7.61	5.38	0.36
9.75	1.36	0.25	0.69	23.00	7.63	5.39	0.35
10.00	1.46	0.29	0.79	23.25	7.65	5.41	0.34
10.25	1.56	0.34	0.89	23.50	7.67	5.43	0.33
10.50	1.67	0.40	1.04	23.75	7.68	5.44	0.32
10.75	1.79	0.48	1.22	24.00	7.70	5.46	0.31
11.00	1.93	0.56	1.41				
11.25	2.09	0.66	1.65				
11.50	2.29	0.80	2.14				
11.75	2.74	1.11	3.26				
12.00	3.85	2.00	7.77				
12.25	4.96	2.95	19.29				
12.50	5.41	3.35	14.14				
12.75	5.61	3.53	7.13				
13.00	5.77	3.68	4.03				

Summary for Subcatchment 4:

Runoff = 31.57 cfs @ 12.33 hrs, Volume= 3.595 af, Depth> 4.75"

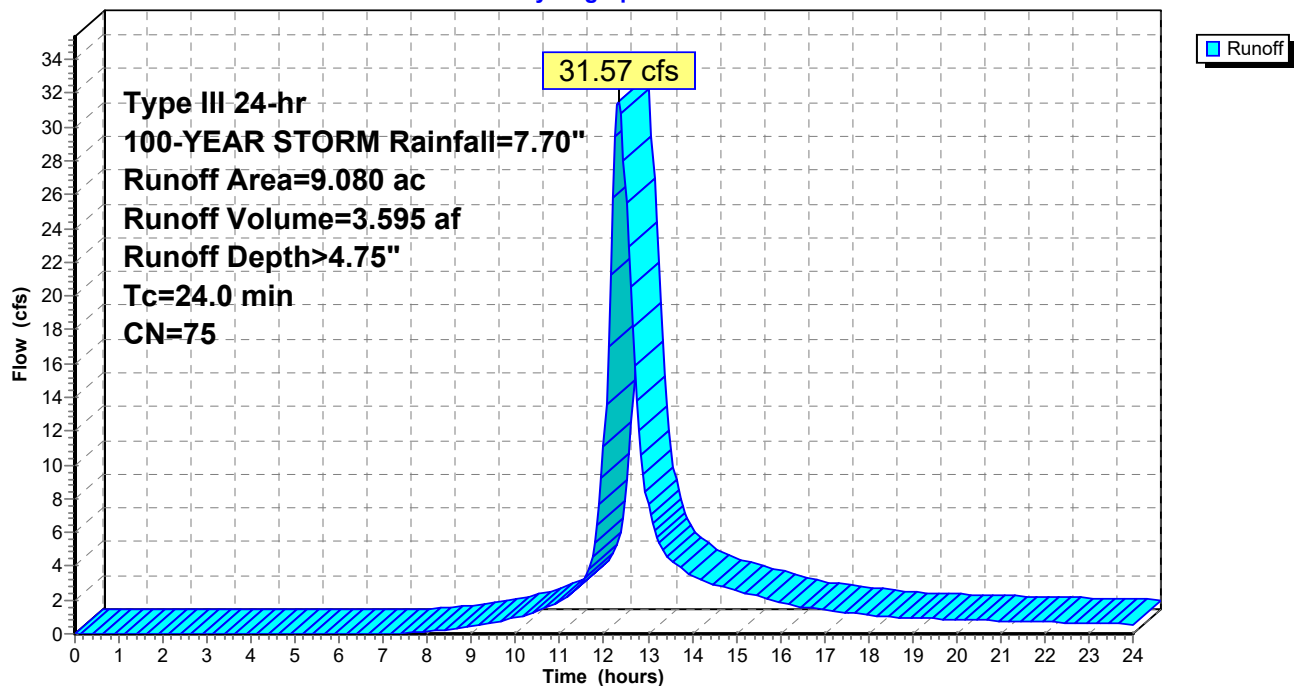
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 9.080	75	
9.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					Direct Entry, SCS TR-55

Subcatchment 4:

Hydrograph



HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	3.21	5.34
0.25	0.02	0.00	0.00	13.50	6.03	3.31	4.33
0.50	0.04	0.00	0.00	13.75	6.14	3.41	3.86
0.75	0.06	0.00	0.00	14.00	6.24	3.49	3.49
1.00	0.08	0.00	0.00	14.25	6.34	3.57	3.15
1.25	0.10	0.00	0.00	14.50	6.42	3.64	2.91
1.50	0.12	0.00	0.00	14.75	6.50	3.71	2.72
1.75	0.13	0.00	0.00	15.00	6.58	3.78	2.55
2.00	0.15	0.00	0.00	15.25	6.65	3.84	2.38
2.25	0.17	0.00	0.00	15.50	6.71	3.90	2.21
2.50	0.19	0.00	0.00	15.75	6.77	3.95	2.04
2.75	0.21	0.00	0.00	16.00	6.82	3.99	1.87
3.00	0.24	0.00	0.00	16.25	6.87	4.04	1.70
3.25	0.26	0.00	0.00	16.50	6.92	4.08	1.58
3.50	0.28	0.00	0.00	16.75	6.96	4.12	1.50
3.75	0.31	0.00	0.00	17.00	7.00	4.15	1.42
4.00	0.33	0.00	0.00	17.25	7.04	4.19	1.34
4.25	0.36	0.00	0.00	17.50	7.08	4.22	1.27
4.50	0.38	0.00	0.00	17.75	7.11	4.25	1.19
4.75	0.41	0.00	0.00	18.00	7.15	4.28	1.11
5.00	0.44	0.00	0.00	18.25	7.18	4.30	1.04
5.25	0.47	0.00	0.00	18.50	7.21	4.33	0.99
5.50	0.49	0.00	0.00	18.75	7.23	4.36	0.96
5.75	0.52	0.00	0.00	19.00	7.26	4.38	0.94
6.00	0.55	0.00	0.00	19.25	7.29	4.41	0.92
6.25	0.59	0.00	0.00	19.50	7.32	4.43	0.90
6.50	0.62	0.00	0.00	19.75	7.34	4.45	0.87
6.75	0.66	0.00	0.00	20.00	7.37	4.48	0.85
7.00	0.70	0.00	0.00	20.25	7.39	4.50	0.83
7.25	0.74	0.00	0.02	20.50	7.42	4.52	0.81
7.50	0.78	0.00	0.05	20.75	7.44	4.54	0.79
7.75	0.83	0.01	0.09	21.00	7.46	4.56	0.77
8.00	0.88	0.01	0.14	21.25	7.49	4.58	0.75
8.25	0.93	0.02	0.19	21.50	7.51	4.60	0.74
8.50	0.99	0.03	0.25	21.75	7.53	4.62	0.72
8.75	1.05	0.04	0.34	22.00	7.55	4.64	0.70
9.00	1.12	0.05	0.43	22.25	7.57	4.66	0.69
9.25	1.20	0.07	0.54	22.50	7.59	4.68	0.67
9.50	1.28	0.09	0.67	22.75	7.61	4.69	0.65
9.75	1.36	0.12	0.80	23.00	7.63	4.71	0.63
10.00	1.46	0.15	0.95	23.25	7.65	4.73	0.62
10.25	1.56	0.19	1.12	23.50	7.67	4.74	0.60
10.50	1.67	0.23	1.34	23.75	7.68	4.76	0.58
10.75	1.79	0.28	1.62	24.00	7.70	4.77	0.56
11.00	1.93	0.34	1.93				
11.25	2.09	0.42	2.31				
11.50	2.29	0.53	3.03				
11.75	2.74	0.79	4.60				
12.00	3.85	1.56	11.09				
12.25	4.96	2.42	29.45				
12.50	5.41	2.78	25.48				
12.75	5.61	2.95	13.80				
13.00	5.77	3.09	7.69				

HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

Prepared by HDR, Inc

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Summary for Subcatchment 5:

Runoff = 58.22 cfs @ 12.40 hrs, Volume= 7.478 af, Depth> 5.90"

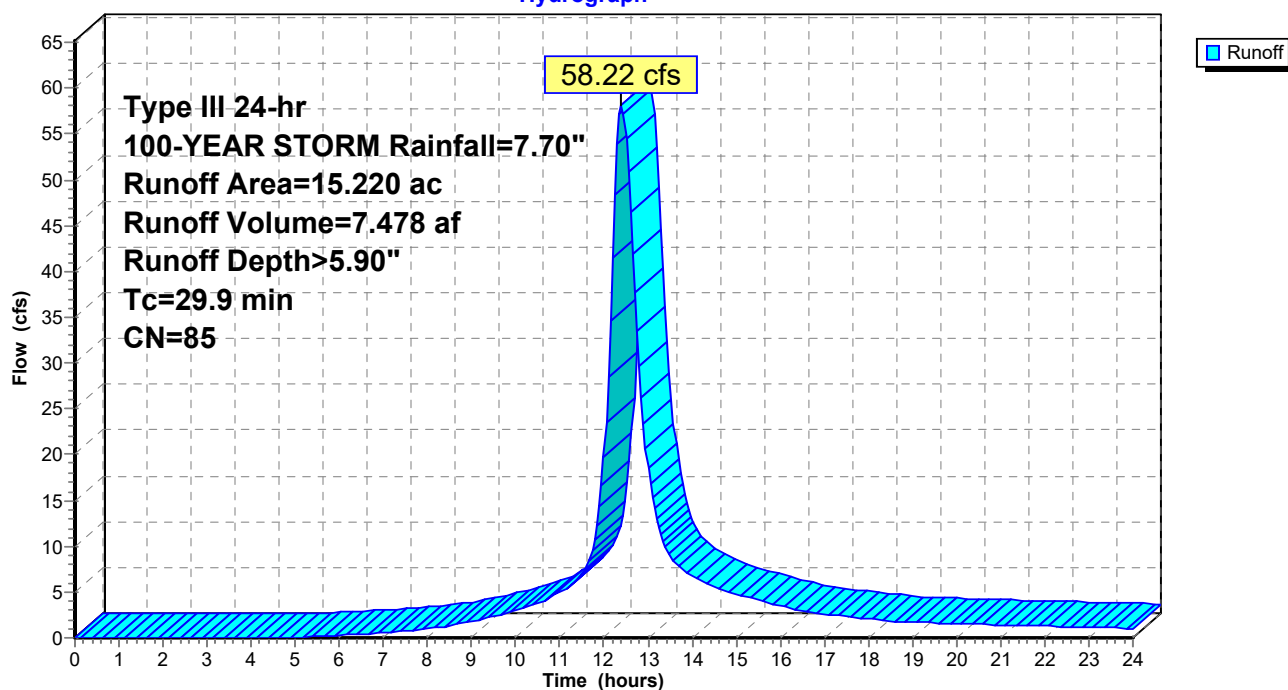
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

Area (ac)	CN	Description
* 15.220	85	
15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					Direct Entry, SCS TR-55

Subcatchment 5:

Hydrograph



HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.25	5.91	4.22	12.03
0.25	0.02	0.00	0.00	13.50	6.03	4.33	9.02
0.50	0.04	0.00	0.00	13.75	6.14	4.44	7.59
0.75	0.06	0.00	0.00	14.00	6.24	4.53	6.75
1.00	0.08	0.00	0.00	14.25	6.34	4.62	6.06
1.25	0.10	0.00	0.00	14.50	6.42	4.70	5.53
1.50	0.12	0.00	0.00	14.75	6.50	4.78	5.15
1.75	0.13	0.00	0.00	15.00	6.58	4.85	4.81
2.00	0.15	0.00	0.00	15.25	6.65	4.92	4.49
2.25	0.17	0.00	0.00	15.50	6.71	4.98	4.17
2.50	0.19	0.00	0.00	15.75	6.77	5.03	3.85
2.75	0.21	0.00	0.00	16.00	6.82	5.08	3.53
3.00	0.24	0.00	0.00	16.25	6.87	5.13	3.21
3.25	0.26	0.00	0.00	16.50	6.92	5.17	2.96
3.50	0.28	0.00	0.00	16.75	6.96	5.22	2.78
3.75	0.31	0.00	0.00	17.00	7.00	5.26	2.63
4.00	0.33	0.00	0.00	17.25	7.04	5.29	2.49
4.25	0.36	0.00	0.00	17.50	7.08	5.33	2.35
4.50	0.38	0.00	0.00	17.75	7.11	5.36	2.21
4.75	0.41	0.00	0.02	18.00	7.15	5.39	2.07
5.00	0.44	0.00	0.06	18.25	7.18	5.42	1.93
5.25	0.47	0.01	0.11	18.50	7.21	5.45	1.83
5.50	0.49	0.01	0.16	18.75	7.23	5.48	1.77
5.75	0.52	0.02	0.21	19.00	7.26	5.50	1.72
6.00	0.55	0.02	0.27	19.25	7.29	5.53	1.68
6.25	0.59	0.03	0.32	19.50	7.32	5.56	1.64
6.50	0.62	0.04	0.39	19.75	7.34	5.58	1.59
6.75	0.66	0.04	0.47	20.00	7.37	5.61	1.55
7.00	0.70	0.06	0.56	20.25	7.39	5.63	1.51
7.25	0.74	0.07	0.66	20.50	7.42	5.65	1.47
7.50	0.78	0.08	0.76	20.75	7.44	5.68	1.44
7.75	0.83	0.10	0.88	21.00	7.46	5.70	1.41
8.00	0.88	0.12	1.00	21.25	7.49	5.72	1.37
8.25	0.93	0.14	1.14	21.50	7.51	5.74	1.34
8.50	0.99	0.17	1.31	21.75	7.53	5.76	1.31
8.75	1.05	0.20	1.53	22.00	7.55	5.78	1.28
9.00	1.12	0.23	1.77	22.25	7.57	5.80	1.25
9.25	1.20	0.27	2.04	22.50	7.59	5.82	1.22
9.50	1.28	0.32	2.33	22.75	7.61	5.84	1.18
9.75	1.36	0.37	2.64	23.00	7.63	5.86	1.15
10.00	1.46	0.42	2.97	23.25	7.65	5.87	1.12
10.25	1.56	0.49	3.31	23.50	7.67	5.89	1.09
10.50	1.67	0.56	3.76	23.75	7.68	5.91	1.06
10.75	1.79	0.65	4.33	24.00	7.70	5.92	1.03
11.00	1.93	0.74	4.96				
11.25	2.09	0.86	5.68				
11.50	2.29	1.02	6.98				
11.75	2.74	1.37	9.60				
12.00	3.85	2.32	19.71				
12.25	4.96	3.34	48.41				
12.50	5.41	3.74	54.59				
12.75	5.61	3.94	33.50				
13.00	5.77	4.09	18.60				

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 4.96" for 100-YEAR STORM event
 Inflow = 13.05 cfs @ 12.57 hrs, Volume= 1.939 af
 Outflow = 7.60 cfs @ 13.02 hrs, Volume= 1.551 af, Atten= 42%, Lag= 26.5 min
 Primary = 7.60 cfs @ 13.02 hrs, Volume= 1.551 af
 Secondary = 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= 130.71' @ 13.02 hrs Surf.Area= 9,040 sf Storage= 33,526 cf

Plug-Flow detention time= 195.2 min calculated for 1.551 af (80% of inflow)
 Center-of-Mass det. time= 122.3 min (962.6 - 840.2)

Volume	Invert	Avail.Storage	Storage Description
#1	124.00'	36,194 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.00	1,464	0	0
125.00	2,382	1,923	1,923
126.00	3,381	2,882	4,805
127.00	4,452	3,917	8,721
128.00	5,614	5,033	13,754
129.00	6,826	6,220	19,974
130.00	8,095	7,461	27,435
131.00	9,424	8,760	36,194

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#2	Primary	124.70'	15.0" Round Culvert L= 70.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 124.70' / 124.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	130.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	124.70'	4.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=7.57 cfs @ 13.02 hrs HW=130.71' (Free Discharge)

↑ **2=Culvert** (Passes 7.57 cfs of 13.53 cfs potential flow)

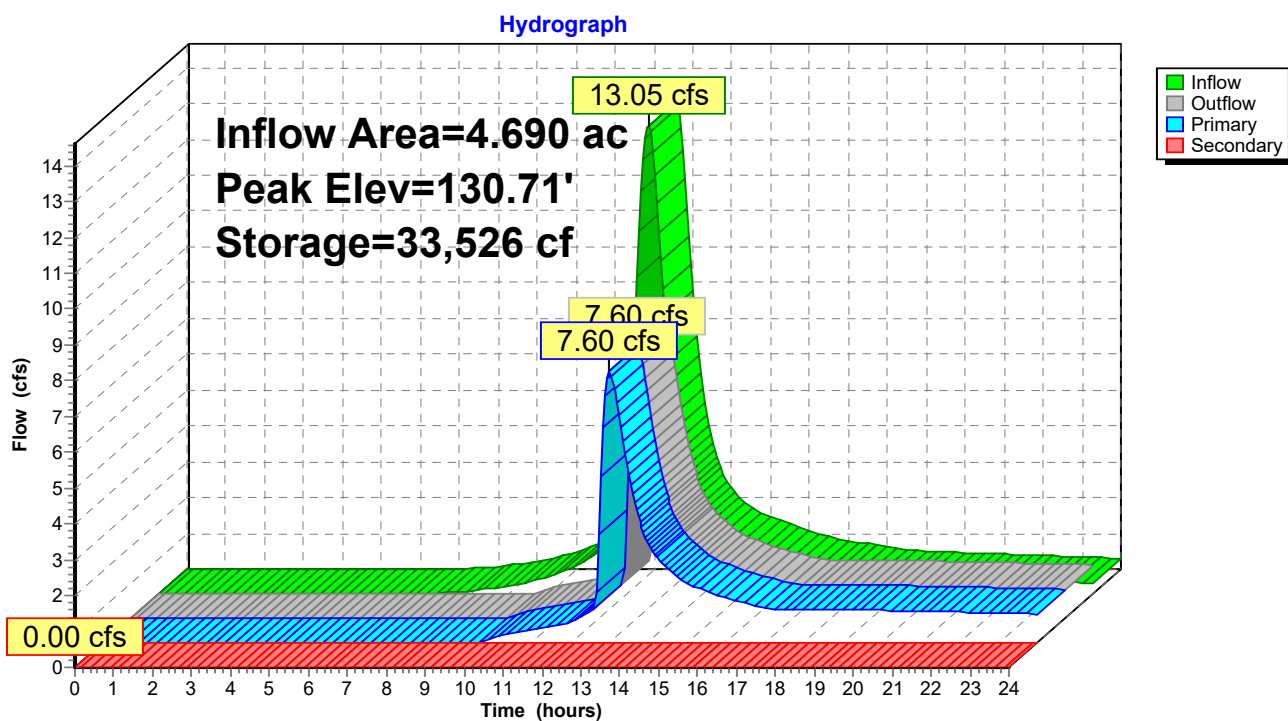
↑ **3=Sharp-Crested Rectangular Weir** (Weir Controls 6.55 cfs @ 3.23 fps)

↑ **4=Orifice/Grate** (Orifice Controls 1.02 cfs @ 11.64 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.00' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	124.00	0.00	0.00	0.00
0.50	0.00	0	124.00	0.00	0.00	0.00
1.00	0.00	0	124.00	0.00	0.00	0.00
1.50	0.00	0	124.00	0.00	0.00	0.00
2.00	0.00	0	124.00	0.00	0.00	0.00
2.50	0.00	0	124.00	0.00	0.00	0.00
3.00	0.00	0	124.00	0.00	0.00	0.00
3.50	0.00	0	124.00	0.00	0.00	0.00
4.00	0.00	0	124.00	0.00	0.00	0.00
4.50	0.00	0	124.00	0.00	0.00	0.00
5.00	0.00	0	124.00	0.00	0.00	0.00
5.50	0.00	0	124.00	0.00	0.00	0.00
6.00	0.00	0	124.00	0.00	0.00	0.00
6.50	0.00	0	124.00	0.00	0.00	0.00
7.00	0.01	4	124.00	0.00	0.00	0.00
7.50	0.04	43	124.03	0.00	0.00	0.00
8.00	0.08	150	124.10	0.00	0.00	0.00
8.50	0.14	348	124.22	0.00	0.00	0.00
9.00	0.22	672	124.41	0.00	0.00	0.00
9.50	0.34	1,177	124.66	0.00	0.00	0.00
10.00	0.48	1,835	124.96	0.13	0.13	0.00
10.50	0.66	2,502	125.23	0.25	0.25	0.00
11.00	0.93	3,379	125.55	0.35	0.35	0.00
11.50	1.34	4,669	125.96	0.44	0.44	0.00
12.00	3.13	7,243	126.65	0.56	0.56	0.00
12.50	12.70	19,927	128.99	0.85	0.85	0.00
13.00	7.77	33,518	130.71	7.58	7.58	0.00
13.50	3.51	31,585	130.49	4.68	4.68	0.00
14.00	2.25	30,061	130.32	2.83	2.83	0.00
14.50	1.73	29,281	130.22	2.06	2.06	0.00
15.00	1.47	28,810	130.17	1.66	1.66	0.00
15.50	1.27	28,488	130.13	1.44	1.44	0.00
16.00	1.09	28,196	130.09	1.25	1.25	0.00
16.50	0.92	27,879	130.05	1.10	1.10	0.00
17.00	0.80	27,555	130.01	0.97	0.97	0.00
17.50	0.71	27,196	129.97	0.95	0.95	0.00
18.00	0.63	26,704	129.91	0.94	0.94	0.00
18.50	0.56	26,079	129.83	0.94	0.94	0.00
19.00	0.51	25,360	129.74	0.93	0.93	0.00
19.50	0.49	24,597	129.64	0.92	0.92	0.00
20.00	0.46	23,805	129.53	0.91	0.91	0.00
20.50	0.44	22,989	129.42	0.90	0.90	0.00
21.00	0.42	22,153	129.31	0.89	0.89	0.00
21.50	0.40	21,303	129.19	0.87	0.87	0.00
22.00	0.38	20,442	129.07	0.86	0.86	0.00
22.50	0.36	19,572	128.94	0.85	0.85	0.00
23.00	0.34	18,692	128.81	0.83	0.83	0.00
23.50	0.33	17,805	128.67	0.82	0.82	0.00
24.00	0.31	16,912	128.53	0.80	0.80	0.00

Stage-Discharge for Pond 1A - Pond: 1A - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
124.00	0.00	0.00	0.00	129.30	0.88	0.88	0.00
124.10	0.00	0.00	0.00	129.40	0.89	0.89	0.00
124.20	0.00	0.00	0.00	129.50	0.90	0.90	0.00
124.30	0.00	0.00	0.00	129.60	0.91	0.91	0.00
124.40	0.00	0.00	0.00	129.70	0.92	0.92	0.00
124.50	0.00	0.00	0.00	129.80	0.93	0.93	0.00
124.60	0.00	0.00	0.00	129.90	0.94	0.94	0.00
124.70	0.00	0.00	0.00	130.00	0.95	0.95	0.00
124.80	0.02	0.02	0.00	130.10	1.28	1.28	0.00
124.90	0.08	0.08	0.00	130.20	1.88	1.88	0.00
125.00	0.15	0.15	0.00	130.30	2.68	2.68	0.00
125.10	0.20	0.20	0.00	130.40	3.64	3.64	0.00
125.20	0.24	0.24	0.00	130.50	4.76	4.76	0.00
125.30	0.28	0.28	0.00	130.60	6.03	6.03	0.00
125.40	0.31	0.31	0.00	130.70	7.43	7.43	0.00
125.50	0.33	0.33	0.00	130.80	8.97	8.97	0.00
125.60	0.36	0.36	0.00	130.90	10.64	10.64	0.00
125.70	0.38	0.38	0.00	131.00	14.06	12.44	1.63
125.80	0.41	0.41	0.00				
125.90	0.43	0.43	0.00				
126.00	0.45	0.45	0.00				
126.10	0.47	0.47	0.00				
126.20	0.49	0.49	0.00				
126.30	0.50	0.50	0.00				
126.40	0.52	0.52	0.00				
126.50	0.54	0.54	0.00				
126.60	0.55	0.55	0.00				
126.70	0.57	0.57	0.00				
126.80	0.58	0.58	0.00				
126.90	0.60	0.60	0.00				
127.00	0.61	0.61	0.00				
127.10	0.63	0.63	0.00				
127.20	0.64	0.64	0.00				
127.30	0.66	0.66	0.00				
127.40	0.67	0.67	0.00				
127.50	0.68	0.68	0.00				
127.60	0.69	0.69	0.00				
127.70	0.71	0.71	0.00				
127.80	0.72	0.72	0.00				
127.90	0.73	0.73	0.00				
128.00	0.74	0.74	0.00				
128.10	0.76	0.76	0.00				
128.20	0.77	0.77	0.00				
128.30	0.78	0.78	0.00				
128.40	0.79	0.79	0.00				
128.50	0.80	0.80	0.00				
128.60	0.81	0.81	0.00				
128.70	0.82	0.82	0.00				
128.80	0.83	0.83	0.00				
128.90	0.84	0.84	0.00				
129.00	0.85	0.85	0.00				
129.10	0.86	0.86	0.00				
129.20	0.87	0.87	0.00				

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 5.19" for 100-YEAR STORM event
 Inflow = 30.69 cfs @ 12.57 hrs, Volume= 4.558 af
 Outflow = 13.77 cfs @ 13.15 hrs, Volume= 3.890 af, Atten= 55%, Lag= 34.8 min
 Primary = 13.77 cfs @ 13.15 hrs, Volume= 3.890 af
 Secondary = 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= 126.60' @ 13.15 hrs Surf.Area= 15,436 sf Storage= 76,933 cf

Plug-Flow detention time= 162.9 min calculated for 3.882 af (85% of inflow)
 Center-of-Mass det. time= 103.4 min (938.9 - 835.5)

Volume	Invert	Avail.Storage	Storage Description
#1	119.00'	83,261 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
119.00	5,600	0	0
120.00	6,708	6,154	6,154
121.00	7,871	7,290	13,444
122.00	9,092	8,482	21,925
123.00	10,369	9,731	31,656
124.00	11,703	11,036	42,692
125.00	12,160	11,932	54,623
126.00	14,538	13,349	67,972
127.00	16,040	15,289	83,261

Device	Routing	Invert	Outlet Devices
#1	Primary	119.60'	15.0" Round Culvert L= 88.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.60' / 119.00' S= 0.0068 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Secondary	126.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	124.50'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	119.60'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=13.77 cfs @ 13.15 hrs HW=126.60' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 13.77 cfs @ 11.22 fps)

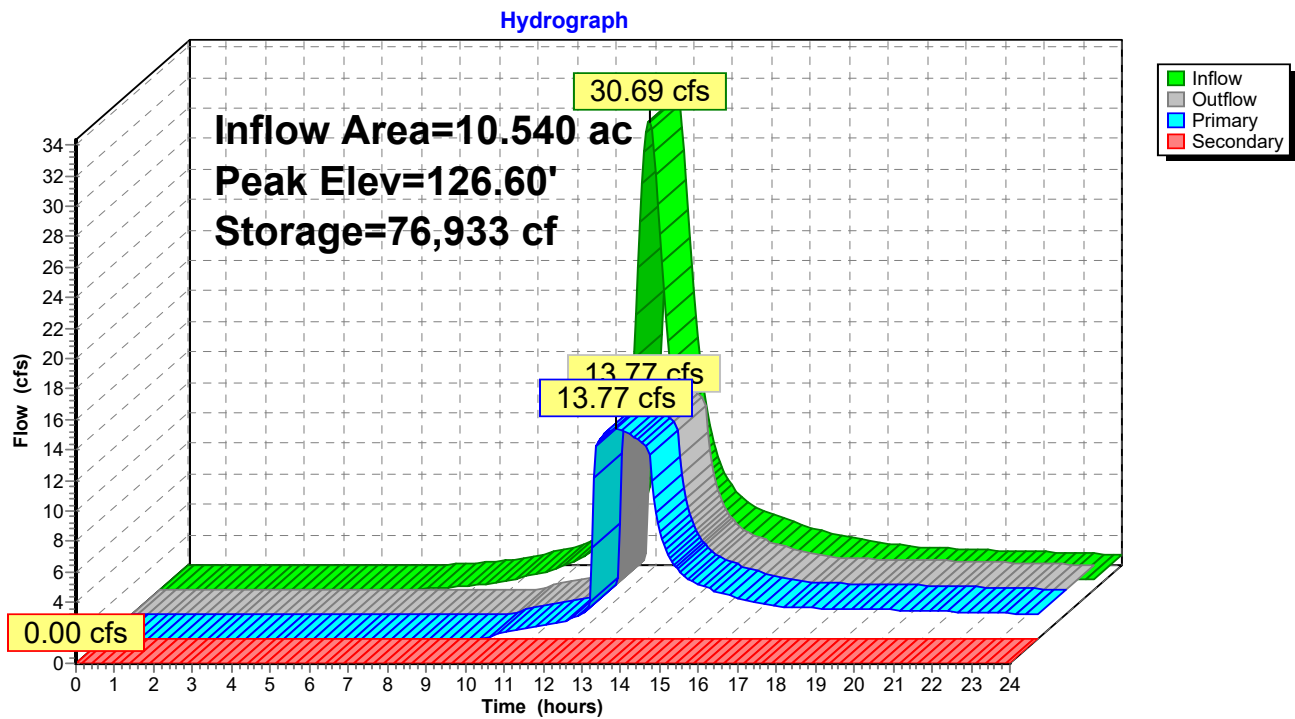
↑ **3=Sharp-Crested Rectangular Weir** (Passes < 38.79 cfs potential flow)

↑ **4=Orifice/Grate** (Passes < 2.46 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=119.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	119.00	0.00	0.00	0.00
0.50	0.00	0	119.00	0.00	0.00	0.00
1.00	0.00	0	119.00	0.00	0.00	0.00
1.50	0.00	0	119.00	0.00	0.00	0.00
2.00	0.00	0	119.00	0.00	0.00	0.00
2.50	0.00	0	119.00	0.00	0.00	0.00
3.00	0.00	0	119.00	0.00	0.00	0.00
3.50	0.00	0	119.00	0.00	0.00	0.00
4.00	0.00	0	119.00	0.00	0.00	0.00
4.50	0.00	0	119.00	0.00	0.00	0.00
5.00	0.00	0	119.00	0.00	0.00	0.00
5.50	0.00	0	119.00	0.00	0.00	0.00
6.00	0.00	0	119.00	0.00	0.00	0.00
6.50	0.02	9	119.00	0.00	0.00	0.00
7.00	0.08	89	119.02	0.00	0.00	0.00
7.50	0.17	305	119.05	0.00	0.00	0.00
8.00	0.28	706	119.12	0.00	0.00	0.00
8.50	0.43	1,336	119.23	0.00	0.00	0.00
9.00	0.64	2,283	119.39	0.00	0.00	0.00
9.50	0.93	3,682	119.62	0.00	0.00	0.00
10.00	1.27	5,493	119.90	0.23	0.23	0.00
10.50	1.70	7,423	120.19	0.55	0.55	0.00
11.00	2.34	9,829	120.52	0.78	0.78	0.00
11.50	3.31	13,208	120.97	1.00	1.00	0.00
12.00	7.63	19,659	121.75	1.30	1.30	0.00
12.50	29.98	49,974	124.61	2.46	2.46	0.00
13.00	17.93	75,871	126.53	13.69	13.69	0.00
13.50	8.05	72,900	126.33	13.48	13.48	0.00
14.00	5.16	60,845	125.49	12.51	12.51	0.00
14.50	3.95	54,225	124.97	5.53	5.53	0.00
15.00	3.36	52,442	124.82	3.99	3.99	0.00
15.50	2.91	51,536	124.74	3.34	3.34	0.00
16.00	2.49	50,806	124.68	2.88	2.88	0.00
16.50	2.09	50,068	124.62	2.51	2.51	0.00
17.00	1.83	49,339	124.56	2.23	2.23	0.00
17.50	1.63	48,630	124.50	2.04	2.04	0.00
18.00	1.45	47,741	124.43	2.02	2.02	0.00
18.50	1.27	46,557	124.33	2.00	2.00	0.00
19.00	1.17	45,168	124.21	1.97	1.97	0.00
19.50	1.11	43,692	124.09	1.95	1.95	0.00
20.00	1.05	42,163	123.95	1.92	1.92	0.00
20.50	1.00	40,590	123.82	1.88	1.88	0.00
21.00	0.95	38,986	123.68	1.85	1.85	0.00
21.50	0.91	37,364	123.53	1.81	1.81	0.00
22.00	0.87	35,732	123.38	1.78	1.78	0.00
22.50	0.83	34,093	123.23	1.74	1.74	0.00
23.00	0.78	32,449	123.08	1.70	1.70	0.00
23.50	0.74	30,804	122.92	1.66	1.66	0.00
24.00	0.70	29,161	122.76	1.61	1.61	0.00

HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Stage-Discharge for Pond 1B - Pond: 1B - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
119.00	0.00	0.00	0.00	124.30	1.99	1.99	0.00
119.10	0.00	0.00	0.00	124.40	2.02	2.02	0.00
119.20	0.00	0.00	0.00	124.50	2.04	2.04	0.00
119.30	0.00	0.00	0.00	124.60	2.38	2.38	0.00
119.40	0.00	0.00	0.00	124.70	2.99	2.99	0.00
119.50	0.00	0.00	0.00	124.80	3.80	3.80	0.00
119.60	0.00	0.00	0.00	124.90	4.78	4.78	0.00
119.70	0.03	0.03	0.00	125.00	5.91	5.91	0.00
119.80	0.11	0.11	0.00	125.10	7.19	7.19	0.00
119.90	0.23	0.23	0.00	125.20	8.60	8.60	0.00
120.00	0.36	0.36	0.00	125.30	10.15	10.15	0.00
120.10	0.47	0.47	0.00	125.40	11.83	11.83	0.00
120.20	0.56	0.56	0.00	125.50	12.52	12.52	0.00
120.30	0.63	0.63	0.00	125.60	12.64	12.64	0.00
120.40	0.70	0.70	0.00	125.70	12.76	12.76	0.00
120.50	0.76	0.76	0.00	125.80	12.87	12.87	0.00
120.60	0.82	0.82	0.00	125.90	12.99	12.99	0.00
120.70	0.87	0.87	0.00	126.00	13.10	13.10	0.00
120.80	0.92	0.92	0.00	126.10	13.22	13.22	0.00
120.90	0.97	0.97	0.00	126.20	13.33	13.33	0.00
121.00	1.01	1.01	0.00	126.30	13.44	13.44	0.00
121.10	1.06	1.06	0.00	126.40	13.55	13.55	0.00
121.20	1.10	1.10	0.00	126.50	13.66	13.66	0.00
121.30	1.14	1.14	0.00	126.60	13.77	13.77	0.00
121.40	1.18	1.18	0.00	126.70	13.88	13.88	0.00
121.50	1.21	1.21	0.00	126.80	13.98	13.98	0.00
121.60	1.25	1.25	0.00	126.90	14.09	14.09	0.00
121.70	1.29	1.29	0.00	127.00	15.82	14.20	1.63
121.80	1.32	1.32	0.00				
121.90	1.35	1.35	0.00				
122.00	1.39	1.39	0.00				
122.10	1.42	1.42	0.00				
122.20	1.45	1.45	0.00				
122.30	1.48	1.48	0.00				
122.40	1.51	1.51	0.00				
122.50	1.54	1.54	0.00				
122.60	1.57	1.57	0.00				
122.70	1.60	1.60	0.00				
122.80	1.62	1.62	0.00				
122.90	1.65	1.65	0.00				
123.00	1.68	1.68	0.00				
123.10	1.70	1.70	0.00				
123.20	1.73	1.73	0.00				
123.30	1.76	1.76	0.00				
123.40	1.78	1.78	0.00				
123.50	1.81	1.81	0.00				
123.60	1.83	1.83	0.00				
123.70	1.86	1.86	0.00				
123.80	1.88	1.88	0.00				
123.90	1.90	1.90	0.00				
124.00	1.93	1.93	0.00				
124.10	1.95	1.95	0.00				
124.20	1.97	1.97	0.00				

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 5.43" for 100-YEAR STORM event
 Inflow = 28.41 cfs @ 12.48 hrs, Volume= 3.880 af
 Outflow = 14.42 cfs @ 12.92 hrs, Volume= 3.689 af, Atten= 49%, Lag= 26.8 min
 Primary = 14.42 cfs @ 12.92 hrs, Volume= 3.689 af
 Secondary = 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= 119.80' @ 12.92 hrs Surf.Area= 21,812 sf Storage= 61,452 cf

Plug-Flow detention time= 110.0 min calculated for 3.689 af (95% of inflow)
 Center-of-Mass det. time= 83.9 min (909.0 - 825.1)

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	65,972 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	10,723	0	0
117.00	13,549	12,136	12,136
118.00	16,443	14,996	27,132
119.00	19,403	17,923	45,055
120.00	22,431	20,917	65,972

Device	Routing	Invert	Outlet Devices
#1	Primary	116.30'	24.0" Round Culvert L= 85.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.30' / 115.50' S= 0.0094 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	119.80'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	119.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	116.30'	12.0" Vert. Orifice/Grate C= 0.600

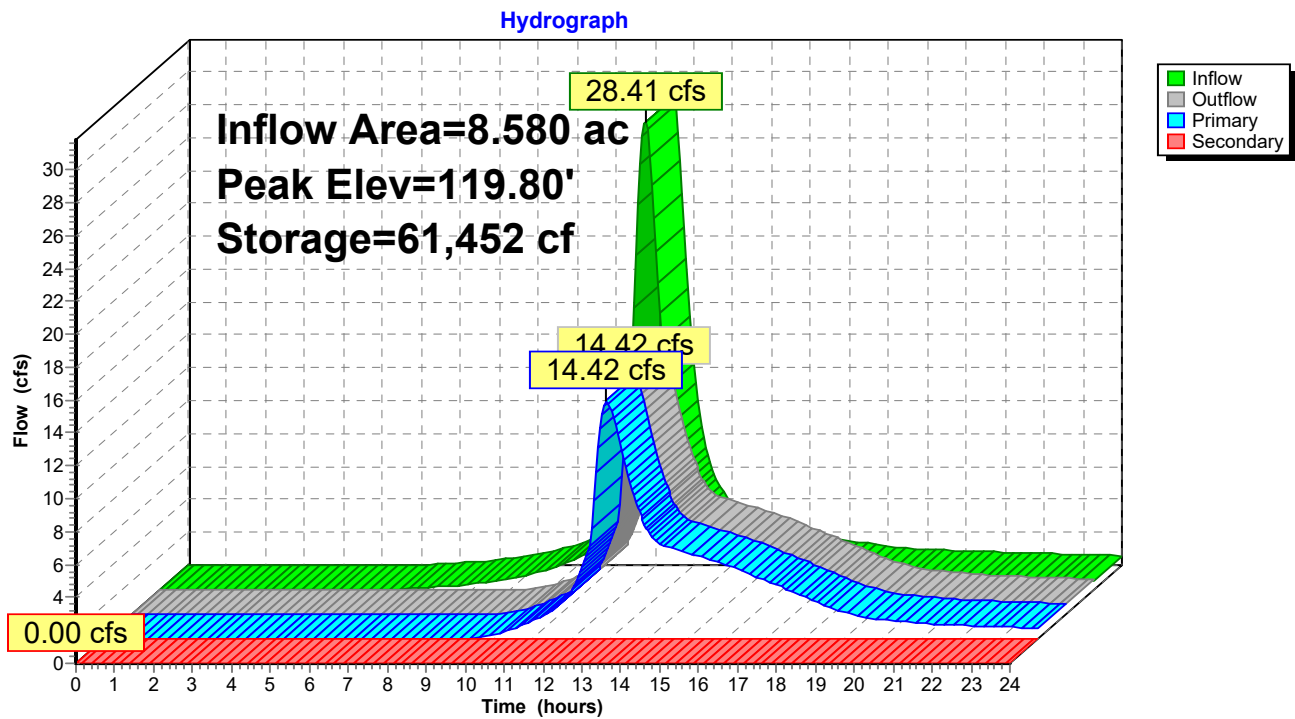
Primary OutFlow Max=14.39 cfs @ 12.92 hrs HW=119.79' (Free Discharge)

↑ **1=Culvert** (Passes 14.39 cfs of 23.89 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Weir Controls 7.85 cfs @ 3.48 fps)
 ↑ **4=Orifice/Grate** (Orifice Controls 6.54 cfs @ 8.33 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=116.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	116.00	0.00	0.00	0.00
0.50	0.00	0	116.00	0.00	0.00	0.00
1.00	0.00	0	116.00	0.00	0.00	0.00
1.50	0.00	0	116.00	0.00	0.00	0.00
2.00	0.00	0	116.00	0.00	0.00	0.00
2.50	0.00	0	116.00	0.00	0.00	0.00
3.00	0.00	0	116.00	0.00	0.00	0.00
3.50	0.00	0	116.00	0.00	0.00	0.00
4.00	0.00	0	116.00	0.00	0.00	0.00
4.50	0.00	0	116.00	0.00	0.00	0.00
5.00	0.00	0	116.00	0.00	0.00	0.00
5.50	0.00	0	116.00	0.00	0.00	0.00
6.00	0.02	14	116.00	0.00	0.00	0.00
6.50	0.07	95	116.01	0.00	0.00	0.00
7.00	0.14	283	116.03	0.00	0.00	0.00
7.50	0.23	614	116.06	0.00	0.00	0.00
8.00	0.34	1,124	116.10	0.00	0.00	0.00
8.50	0.48	1,850	116.17	0.00	0.00	0.00
9.00	0.68	2,885	116.26	0.00	0.00	0.00
9.50	0.95	4,335	116.38	0.03	0.03	0.00
10.00	1.26	6,113	116.53	0.23	0.23	0.00
10.50	1.65	8,000	116.68	0.59	0.59	0.00
11.00	2.24	9,996	116.84	1.08	1.08	0.00
11.50	3.18	12,260	117.01	1.71	1.71	0.00
12.00	8.25	16,929	117.34	2.78	2.78	0.00
12.50	28.33	44,959	119.00	5.60	5.60	0.00
13.00	12.21	61,156	119.78	14.19	14.19	0.00
13.50	5.56	54,342	119.46	9.50	9.50	0.00
14.00	3.87	48,472	119.17	6.56	6.56	0.00
14.50	3.12	44,061	118.95	5.54	5.54	0.00
15.00	2.69	39,562	118.71	5.23	5.23	0.00
15.50	2.34	34,991	118.46	4.87	4.87	0.00
16.00	1.99	30,467	118.20	4.47	4.47	0.00
16.50	1.67	26,081	117.94	4.03	4.03	0.00
17.00	1.47	22,066	117.68	3.55	3.55	0.00
17.50	1.32	18,618	117.46	3.06	3.06	0.00
18.00	1.16	15,773	117.26	2.58	2.58	0.00
18.50	1.02	13,546	117.10	2.06	2.06	0.00
19.00	0.95	12,014	116.99	1.64	1.64	0.00
19.50	0.91	11,010	116.92	1.36	1.36	0.00
20.00	0.86	10,335	116.87	1.17	1.17	0.00
20.50	0.82	9,856	116.83	1.04	1.04	0.00
21.00	0.78	9,500	116.80	0.95	0.95	0.00
21.50	0.74	9,226	116.78	0.88	0.88	0.00
22.00	0.71	9,002	116.76	0.82	0.82	0.00
22.50	0.67	8,809	116.75	0.78	0.78	0.00
23.00	0.64	8,633	116.73	0.73	0.73	0.00
23.50	0.61	8,468	116.72	0.69	0.69	0.00
24.00	0.57	8,309	116.71	0.66	0.66	0.00

Stage-Discharge for Pond 1C-Pond: 1C - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
116.00	0.00	0.00	0.00	118.65	5.14	5.14	0.00
116.05	0.00	0.00	0.00	118.70	5.21	5.21	0.00
116.10	0.00	0.00	0.00	118.75	5.28	5.28	0.00
116.15	0.00	0.00	0.00	118.80	5.35	5.35	0.00
116.20	0.00	0.00	0.00	118.85	5.41	5.41	0.00
116.25	0.00	0.00	0.00	118.90	5.48	5.48	0.00
116.30	0.00	0.00	0.00	118.95	5.55	5.55	0.00
116.35	0.01	0.01	0.00	119.00	5.61	5.61	0.00
116.40	0.04	0.04	0.00	119.05	5.78	5.78	0.00
116.45	0.10	0.10	0.00	119.10	6.05	6.05	0.00
116.50	0.17	0.17	0.00	119.15	6.38	6.38	0.00
116.55	0.26	0.26	0.00	119.20	6.77	6.77	0.00
116.60	0.37	0.37	0.00	119.25	7.20	7.20	0.00
116.65	0.49	0.49	0.00	119.30	7.68	7.68	0.00
116.70	0.63	0.63	0.00	119.35	8.19	8.19	0.00
116.75	0.78	0.78	0.00	119.40	8.75	8.75	0.00
116.80	0.95	0.95	0.00	119.45	9.34	9.34	0.00
116.85	1.12	1.12	0.00	119.50	9.98	9.98	0.00
116.90	1.30	1.30	0.00	119.55	10.64	10.64	0.00
116.95	1.48	1.48	0.00	119.60	11.35	11.35	0.00
117.00	1.67	1.67	0.00	119.65	12.08	12.08	0.00
117.05	1.86	1.86	0.00	119.70	12.86	12.86	0.00
117.10	2.05	2.05	0.00	119.75	13.66	13.66	0.00
117.15	2.23	2.23	0.00	119.80	14.50	14.50	0.00
117.20	2.40	2.40	0.00	119.85	15.94	15.36	0.57
117.25	2.56	2.56	0.00	119.90	17.89	16.27	1.63
117.30	2.67	2.67	0.00	119.95	20.18	17.20	2.99
117.35	2.80	2.80	0.00	120.00	22.76	18.16	4.60
117.40	2.93	2.93	0.00				
117.45	3.05	3.05	0.00				
117.50	3.16	3.16	0.00				
117.55	3.28	3.28	0.00				
117.60	3.38	3.38	0.00				
117.65	3.49	3.49	0.00				
117.70	3.59	3.59	0.00				
117.75	3.69	3.69	0.00				
117.80	3.78	3.78	0.00				
117.85	3.88	3.88	0.00				
117.90	3.97	3.97	0.00				
117.95	4.06	4.06	0.00				
118.00	4.14	4.14	0.00				
118.05	4.23	4.23	0.00				
118.10	4.31	4.31	0.00				
118.15	4.39	4.39	0.00				
118.20	4.47	4.47	0.00				
118.25	4.55	4.55	0.00				
118.30	4.63	4.63	0.00				
118.35	4.71	4.71	0.00				
118.40	4.78	4.78	0.00				
118.45	4.86	4.86	0.00				
118.50	4.93	4.93	0.00				
118.55	5.00	5.00	0.00				
118.60	5.07	5.07	0.00				

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 4.800 ac, 0.00% Impervious, Inflow Depth > 5.44" for 100-YEAR STORM event
 Inflow = 19.71 cfs @ 12.29 hrs, Volume= 2.176 af
 Outflow = 10.19 cfs @ 12.63 hrs, Volume= 2.120 af, Atten= 48%, Lag= 20.2 min
 Primary = 10.19 cfs @ 12.63 hrs, Volume= 2.120 af
 Secondary = 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= 174.90' @ 12.63 hrs Surf.Area= 7,803 sf Storage= 22,278 cf

Plug-Flow detention time= 43.5 min calculated for 2.116 af (97% of inflow)
 Center-of-Mass det. time= 29.0 min (843.2 - 814.2)

Volume	Invert	Avail.Storage	Storage Description
#1	171.00'	23,080 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	3,912	0	0
172.00	4,771	4,342	4,342
173.00	5,697	5,234	9,576
174.00	6,691	6,194	15,770
175.00	7,929	7,310	23,080

Device	Routing	Invert	Outlet Devices
#1	Device 2	171.60'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#2	Primary	171.30'	15.0" Round Culvert L= 31.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 171.30' / 171.00' S= 0.0097 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Secondary	174.90'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	171.30'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=10.18 cfs @ 12.63 hrs HW=174.89' (Free Discharge)

↑ **2=Culvert** (Inlet Controls 10.18 cfs @ 8.30 fps)

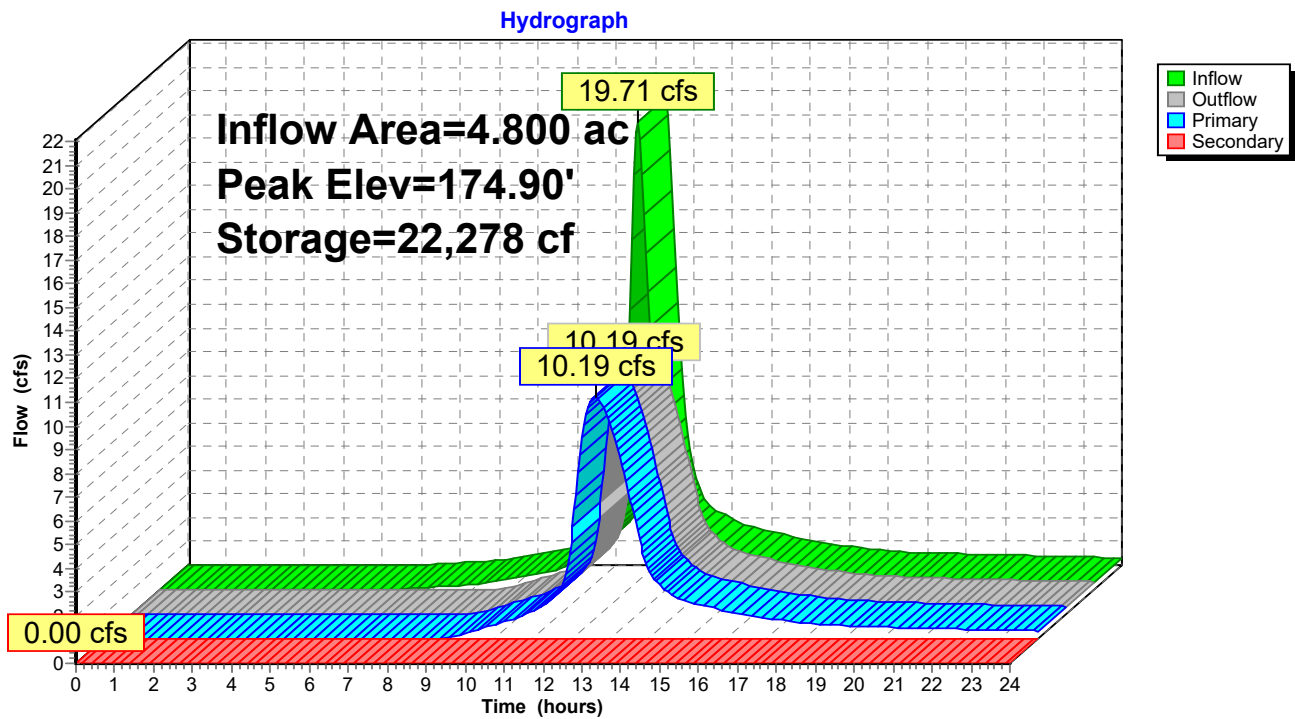
↑ **1=Sharp-Crested Rectangular Weir** (Passes < 82.67 cfs potential flow)

↑ **4=Orifice/Grate** (Passes < 6.65 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=171.00' (Free Discharge)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2 - Pond: 2 - Pond



HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	171.00	0.00	0.00	0.00
0.50	0.00	0	171.00	0.00	0.00	0.00
1.00	0.00	0	171.00	0.00	0.00	0.00
1.50	0.00	0	171.00	0.00	0.00	0.00
2.00	0.00	0	171.00	0.00	0.00	0.00
2.50	0.00	0	171.00	0.00	0.00	0.00
3.00	0.00	0	171.00	0.00	0.00	0.00
3.50	0.00	0	171.00	0.00	0.00	0.00
4.00	0.00	0	171.00	0.00	0.00	0.00
4.50	0.00	0	171.00	0.00	0.00	0.00
5.00	0.00	0	171.00	0.00	0.00	0.00
5.50	0.00	0	171.00	0.00	0.00	0.00
6.00	0.02	17	171.00	0.00	0.00	0.00
6.50	0.05	83	171.02	0.00	0.00	0.00
7.00	0.10	218	171.06	0.00	0.00	0.00
7.50	0.15	441	171.11	0.00	0.00	0.00
8.00	0.22	772	171.19	0.00	0.00	0.00
8.50	0.31	1,236	171.31	0.00	0.00	0.00
9.00	0.44	1,841	171.45	0.10	0.10	0.00
9.50	0.60	2,406	171.58	0.32	0.32	0.00
10.00	0.79	2,813	171.67	0.59	0.59	0.00
10.50	1.04	3,155	171.75	0.83	0.83	0.00
11.00	1.41	3,574	171.84	1.16	1.16	0.00
11.50	2.14	4,160	171.96	1.65	1.65	0.00
12.00	7.77	6,755	172.48	4.09	4.09	0.00
12.50	14.14	21,335	174.78	9.98	9.98	0.00
13.00	4.03	17,725	174.28	9.08	9.08	0.00
13.50	2.39	9,429	172.97	5.80	5.80	0.00
14.00	1.94	5,556	172.25	2.96	2.96	0.00
14.50	1.62	4,487	172.03	1.95	1.95	0.00
15.00	1.42	4,081	171.95	1.58	1.58	0.00
15.50	1.23	3,822	171.89	1.36	1.36	0.00
16.00	1.03	3,584	171.84	1.16	1.16	0.00
16.50	0.87	3,356	171.79	0.98	0.98	0.00
17.00	0.79	3,196	171.75	0.86	0.86	0.00
17.50	0.70	3,067	171.73	0.77	0.77	0.00
18.00	0.61	2,944	171.70	0.68	0.68	0.00
18.50	0.55	2,827	171.67	0.60	0.60	0.00
19.00	0.52	2,751	171.66	0.56	0.56	0.00
19.50	0.50	2,700	171.64	0.52	0.52	0.00
20.00	0.47	2,657	171.63	0.49	0.49	0.00
20.50	0.45	2,623	171.63	0.46	0.46	0.00
21.00	0.43	2,594	171.62	0.44	0.44	0.00
21.50	0.41	2,569	171.62	0.42	0.42	0.00
22.00	0.39	2,544	171.61	0.40	0.40	0.00
22.50	0.37	2,519	171.60	0.38	0.38	0.00
23.00	0.35	2,494	171.60	0.37	0.37	0.00
23.50	0.33	2,462	171.59	0.35	0.35	0.00
24.00	0.31	2,426	171.58	0.33	0.33	0.00

HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Stage-Discharge for Pond 2 - Pond: 2 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
171.00	0.00	0.00	0.00	173.65	7.76	7.76	0.00
171.05	0.00	0.00	0.00	173.70	7.87	7.87	0.00
171.10	0.00	0.00	0.00	173.75	7.98	7.98	0.00
171.15	0.00	0.00	0.00	173.80	8.09	8.09	0.00
171.20	0.00	0.00	0.00	173.85	8.20	8.20	0.00
171.25	0.00	0.00	0.00	173.90	8.30	8.30	0.00
171.30	0.00	0.00	0.00	173.95	8.41	8.41	0.00
171.35	0.01	0.01	0.00	174.00	8.51	8.51	0.00
171.40	0.04	0.04	0.00	174.05	8.61	8.61	0.00
171.45	0.10	0.10	0.00	174.10	8.71	8.71	0.00
171.50	0.17	0.17	0.00	174.15	8.81	8.81	0.00
171.55	0.26	0.26	0.00	174.20	8.91	8.91	0.00
171.60	0.37	0.37	0.00	174.25	9.01	9.01	0.00
171.65	0.54	0.54	0.00	174.30	9.11	9.11	0.00
171.70	0.69	0.69	0.00	174.35	9.20	9.20	0.00
171.75	0.85	0.85	0.00	174.40	9.30	9.30	0.00
171.80	1.02	1.02	0.00	174.45	9.39	9.39	0.00
171.85	1.20	1.20	0.00	174.50	9.48	9.48	0.00
171.90	1.40	1.40	0.00	174.55	9.57	9.57	0.00
171.95	1.60	1.60	0.00	174.60	9.66	9.66	0.00
172.00	1.81	1.81	0.00	174.65	9.75	9.75	0.00
172.05	2.03	2.03	0.00	174.70	9.84	9.84	0.00
172.10	2.26	2.26	0.00	174.75	9.93	9.93	0.00
172.15	2.49	2.49	0.00	174.80	10.02	10.02	0.00
172.20	2.73	2.73	0.00	174.85	10.11	10.11	0.00
172.25	2.97	2.97	0.00	174.90	10.19	10.19	0.00
172.30	3.21	3.21	0.00	174.95	10.85	10.28	0.57
172.35	3.45	3.45	0.00	175.00	11.99	10.36	1.63
172.40	3.69	3.69	0.00				
172.45	3.93	3.93	0.00				
172.50	4.17	4.17	0.00				
172.55	4.41	4.41	0.00				
172.60	4.64	4.64	0.00				
172.65	4.86	4.86	0.00				
172.70	5.07	5.07	0.00				
172.75	5.26	5.26	0.00				
172.80	5.44	5.44	0.00				
172.85	5.60	5.60	0.00				
172.90	5.72	5.72	0.00				
172.95	5.77	5.77	0.00				
173.00	5.86	5.86	0.00				
173.05	6.06	6.06	0.00				
173.10	6.24	6.24	0.00				
173.15	6.42	6.42	0.00				
173.20	6.60	6.60	0.00				
173.25	6.77	6.77	0.00				
173.30	6.93	6.93	0.00				
173.35	7.05	7.05	0.00				
173.40	7.18	7.18	0.00				
173.45	7.30	7.30	0.00				
173.50	7.42	7.42	0.00				
173.55	7.53	7.53	0.00				
173.60	7.65	7.65	0.00				

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.080 ac, 0.00% Impervious, Inflow Depth > 4.75" for 100-YEAR STORM event
 Inflow = 31.57 cfs @ 12.33 hrs, Volume= 3.595 af
 Outflow = 15.39 cfs @ 12.71 hrs, Volume= 2.406 af, Atten= 51%, Lag= 23.1 min
 Primary = 15.39 cfs @ 12.71 hrs, Volume= 2.406 af
 Secondary = 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= 126.17' @ 12.71 hrs Surf.Area= 14,808 sf Storage= 68,449 cf

Plug-Flow detention time= 179.8 min calculated for 2.406 af (67% of inflow)
 Center-of-Mass det. time= 83.4 min (913.1 - 829.7)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	79,242 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	6,749	0	0
121.00	8,061	7,405	7,405
122.00	9,434	8,748	16,153
123.00	10,869	10,152	26,304
124.00	12,365	11,617	37,921
125.00	13,922	13,144	51,065
126.00	15,541	14,732	65,796
127.00	11,350	13,446	79,242

Device	Routing	Invert	Outlet Devices
#1	Primary	120.40'	18.0" Round Culvert L= 53.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.40' / 120.00' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	126.50'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	125.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	120.40'	3.0" Vert. Orifice/Grate C= 0.600

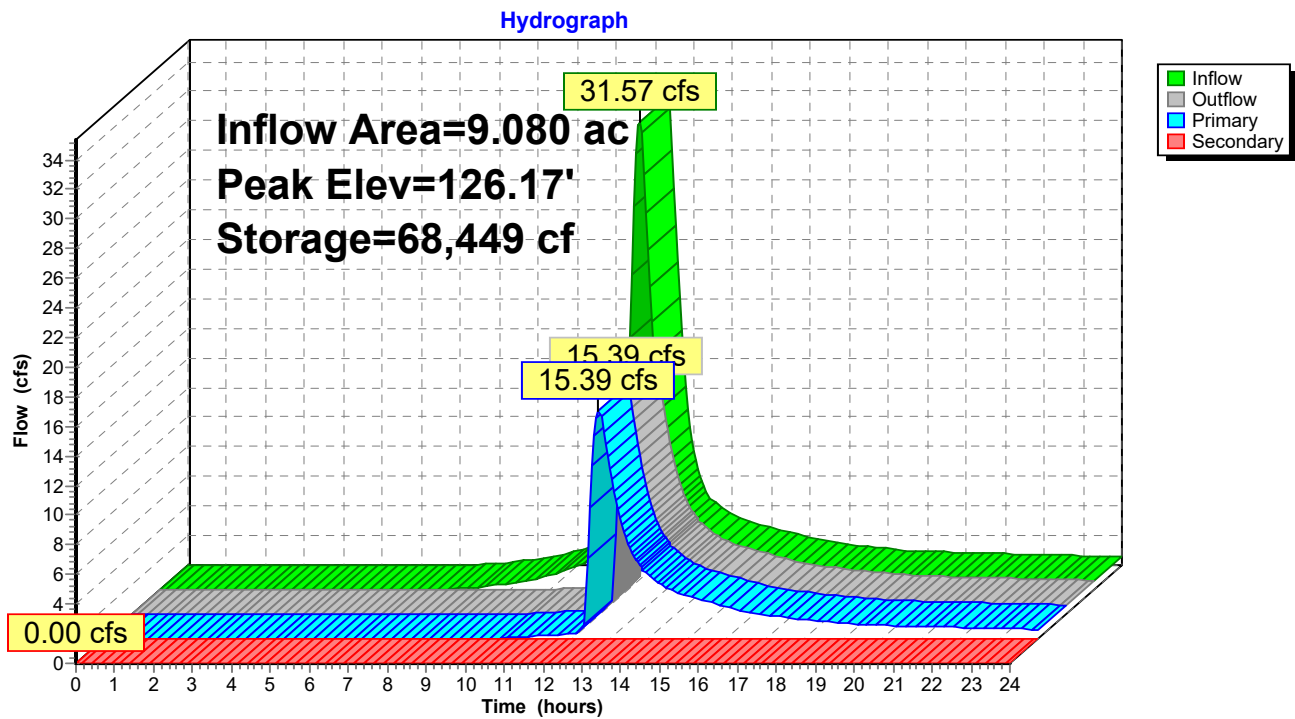
Primary OutFlow Max=15.32 cfs @ 12.71 hrs HW=126.17' (Free Discharge)

↑ **1=Culvert** (Passes 15.32 cfs of 19.07 cfs potential flow)
 ↑ **3=Sharp-Crested Rectangular Weir** (Weir Controls 14.76 cfs @ 4.55 fps)
 ↑ **4=Orifice/Grate** (Orifice Controls 0.56 cfs @ 11.44 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond



HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	0.00
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.00	0	120.00	0.00	0.00	0.00
7.50	0.05	34	120.00	0.00	0.00	0.00
8.00	0.14	196	120.03	0.00	0.00	0.00
8.50	0.25	538	120.08	0.00	0.00	0.00
9.00	0.43	1,147	120.17	0.00	0.00	0.00
9.50	0.67	2,128	120.31	0.00	0.00	0.00
10.00	0.95	3,571	120.50	0.02	0.02	0.00
10.50	1.34	5,480	120.76	0.11	0.11	0.00
11.00	1.93	8,140	121.09	0.18	0.18	0.00
11.50	3.03	12,031	121.55	0.24	0.24	0.00
12.00	11.09	21,381	122.53	0.33	0.33	0.00
12.50	25.48	63,049	125.82	8.84	8.84	0.00
13.00	7.69	65,398	125.97	11.48	11.48	0.00
13.50	4.33	60,333	125.64	6.13	6.13	0.00
14.00	3.49	58,209	125.50	4.28	4.28	0.00
14.50	2.91	57,071	125.42	3.41	3.41	0.00
15.00	2.55	56,350	125.37	2.89	2.89	0.00
15.50	2.21	55,782	125.33	2.51	2.51	0.00
16.00	1.87	55,239	125.29	2.18	2.18	0.00
16.50	1.58	54,693	125.26	1.85	1.85	0.00
17.00	1.42	54,270	125.23	1.63	1.63	0.00
17.50	1.27	53,920	125.20	1.45	1.45	0.00
18.00	1.11	53,601	125.18	1.29	1.29	0.00
18.50	0.99	53,286	125.16	1.15	1.15	0.00
19.00	0.94	53,044	125.14	1.05	1.05	0.00
19.50	0.90	52,869	125.13	0.98	0.98	0.00
20.00	0.85	52,729	125.12	0.92	0.92	0.00
20.50	0.81	52,605	125.11	0.87	0.87	0.00
21.00	0.77	52,490	125.10	0.84	0.84	0.00
21.50	0.74	52,373	125.09	0.80	0.80	0.00
22.00	0.70	52,256	125.09	0.77	0.77	0.00
22.50	0.67	52,139	125.08	0.73	0.73	0.00
23.00	0.63	52,022	125.07	0.70	0.70	0.00
23.50	0.60	51,904	125.06	0.66	0.66	0.00
24.00	0.56	51,785	125.05	0.63	0.63	0.00

Stage-Discharge for Pond 4 - Pond: 4 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
120.00	0.00	0.00	0.00	125.30	2.21	2.21	0.00
120.10	0.00	0.00	0.00	125.40	3.17	3.17	0.00
120.20	0.00	0.00	0.00	125.50	4.29	4.29	0.00
120.30	0.00	0.00	0.00	125.60	5.55	5.55	0.00
120.40	0.00	0.00	0.00	125.70	6.95	6.95	0.00
120.50	0.02	0.02	0.00	125.80	8.49	8.49	0.00
120.60	0.06	0.06	0.00	125.90	10.15	10.15	0.00
120.70	0.10	0.10	0.00	126.00	11.95	11.95	0.00
120.80	0.12	0.12	0.00	126.10	13.87	13.87	0.00
120.90	0.14	0.14	0.00	126.20	15.91	15.91	0.00
121.00	0.16	0.16	0.00	126.30	18.07	18.07	0.00
121.10	0.18	0.18	0.00	126.40	19.50	19.50	0.00
121.20	0.19	0.19	0.00	126.50	19.68	19.68	0.00
121.30	0.21	0.21	0.00	126.60	21.49	19.86	1.63
121.40	0.22	0.22	0.00	126.70	24.64	20.05	4.60
121.50	0.23	0.23	0.00	126.80	28.75	20.23	8.53
121.60	0.25	0.25	0.00	126.90	33.66	20.40	13.26
121.70	0.26	0.26	0.00	127.00	39.39	20.58	18.81
121.80	0.27	0.27	0.00				
121.90	0.28	0.28	0.00				
122.00	0.29	0.29	0.00				
122.10	0.30	0.30	0.00				
122.20	0.31	0.31	0.00				
122.30	0.31	0.31	0.00				
122.40	0.32	0.32	0.00				
122.50	0.33	0.33	0.00				
122.60	0.34	0.34	0.00				
122.70	0.35	0.35	0.00				
122.80	0.36	0.36	0.00				
122.90	0.36	0.36	0.00				
123.00	0.37	0.37	0.00				
123.10	0.38	0.38	0.00				
123.20	0.39	0.39	0.00				
123.30	0.39	0.39	0.00				
123.40	0.40	0.40	0.00				
123.50	0.41	0.41	0.00				
123.60	0.41	0.41	0.00				
123.70	0.42	0.42	0.00				
123.80	0.43	0.43	0.00				
123.90	0.43	0.43	0.00				
124.00	0.44	0.44	0.00				
124.10	0.45	0.45	0.00				
124.20	0.45	0.45	0.00				
124.30	0.46	0.46	0.00				
124.40	0.47	0.47	0.00				
124.50	0.47	0.47	0.00				
124.60	0.48	0.48	0.00				
124.70	0.48	0.48	0.00				
124.80	0.49	0.49	0.00				
124.90	0.49	0.49	0.00				
125.00	0.50	0.50	0.00				
125.10	0.82	0.82	0.00				
125.20	1.42	1.42	0.00				

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 5.90" for 100-YEAR STORM event
 Inflow = 58.22 cfs @ 12.40 hrs, Volume= 7.478 af
 Outflow = 35.40 cfs @ 12.73 hrs, Volume= 7.272 af, Atten= 39%, Lag= 19.6 min
 Primary = 35.40 cfs @ 12.73 hrs, Volume= 7.272 af
 Secondary = 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= 129.48' @ 12.73 hrs Surf.Area= 16,161 sf Storage= 77,709 cf

Plug-Flow detention time= 50.4 min calculated for 7.257 af (97% of inflow)
 Center-of-Mass det. time= 34.9 min (845.7 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	86,402 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,177	0	0
123.00	6,454	5,816	5,816
124.00	7,790	7,122	12,938
125.00	9,184	8,487	21,425
126.00	10,638	9,911	31,336
127.00	12,150	11,394	42,730
128.00	13,721	12,936	55,665
129.00	15,351	14,536	70,201
130.00	17,050	16,201	86,402

Device	Routing	Invert	Outlet Devices
#1	Device 2	127.60'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#2	Primary	123.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.70' S= 0.0060 1' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#3	Secondary	129.50'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	123.00'	18.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=35.38 cfs @ 12.73 hrs HW=129.47' (Free Discharge)

↑ **2=Culvert** (Inlet Controls 35.38 cfs @ 11.26 fps)

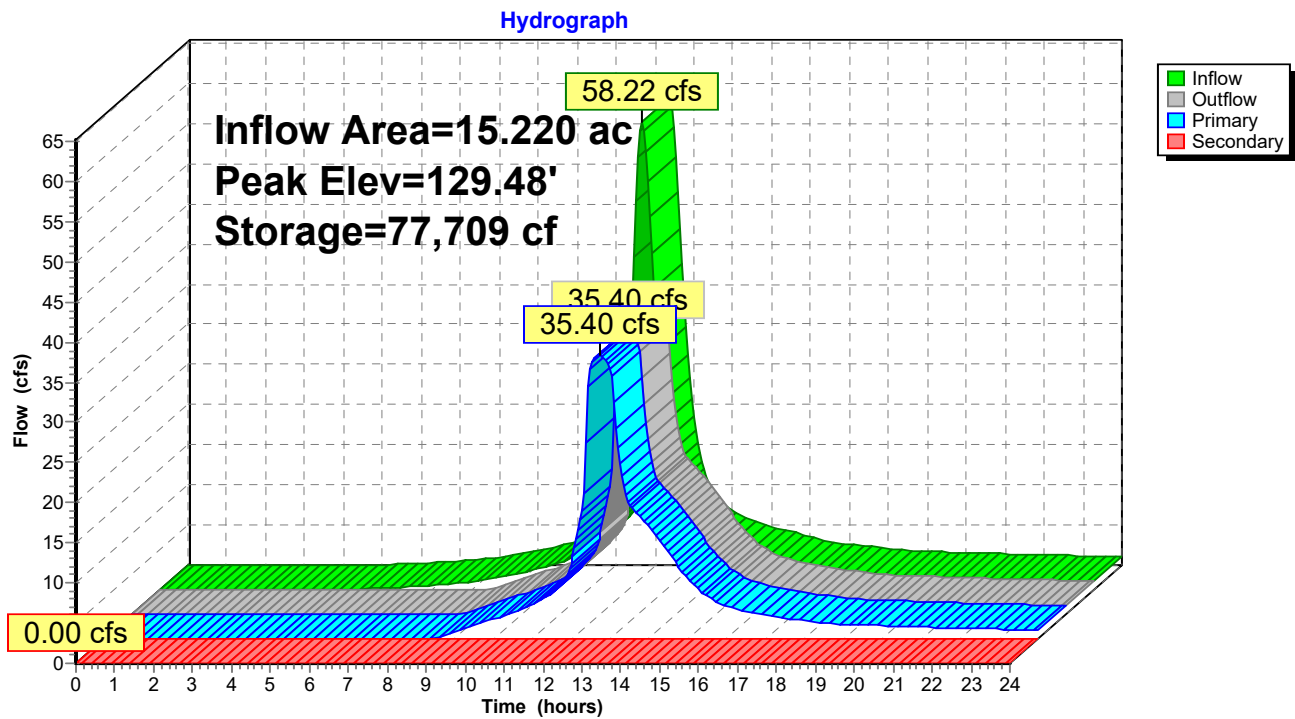
↑ **1=Sharp-Crested Rectangular Weir** (Passes < 32.04 cfs potential flow)

↑ **4=Orifice/Grate** (Passes < 20.35 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	0.00
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	1	122.00	0.00	0.00	0.00
5.00	0.06	50	122.01	0.00	0.00	0.00
5.50	0.16	250	122.05	0.00	0.00	0.00
6.00	0.27	634	122.12	0.00	0.00	0.00
6.50	0.39	1,215	122.23	0.00	0.00	0.00
7.00	0.56	2,058	122.38	0.00	0.00	0.00
7.50	0.76	3,240	122.58	0.00	0.00	0.00
8.00	1.00	4,826	122.84	0.00	0.00	0.00
8.50	1.31	6,843	123.16	0.13	0.13	0.00
9.00	1.77	8,706	123.43	0.92	0.92	0.00
9.50	2.33	9,963	123.60	1.75	1.75	0.00
10.00	2.97	10,898	123.73	2.49	2.49	0.00
10.50	3.76	11,765	123.85	3.23	3.23	0.00
11.00	4.96	12,906	124.00	4.23	4.23	0.00
11.50	6.98	14,531	124.20	5.66	5.66	0.00
12.00	19.71	21,339	124.99	9.48	9.48	0.00
12.50	54.59	69,289	128.94	33.62	33.62	0.00
13.00	18.60	69,096	128.93	33.58	33.58	0.00
13.50	9.02	49,864	127.57	16.62	16.62	0.00
14.00	6.75	36,102	126.43	13.94	13.94	0.00
14.50	5.53	24,771	125.35	10.78	10.78	0.00
15.00	4.81	17,523	124.56	7.66	7.66	0.00
15.50	4.17	14,085	124.15	5.28	5.28	0.00
16.00	3.53	12,723	123.97	4.07	4.07	0.00
16.50	2.96	11,894	123.86	3.34	3.34	0.00
17.00	2.63	11,356	123.79	2.87	2.87	0.00
17.50	2.35	10,974	123.74	2.55	2.55	0.00
18.00	2.07	10,623	123.69	2.26	2.26	0.00
18.50	1.83	10,286	123.65	2.00	2.00	0.00
19.00	1.72	10,052	123.62	1.82	1.82	0.00
19.50	1.64	9,903	123.60	1.71	1.71	0.00
20.00	1.55	9,777	123.58	1.62	1.62	0.00
20.50	1.47	9,657	123.56	1.54	1.54	0.00
21.00	1.41	9,551	123.55	1.46	1.46	0.00
21.50	1.34	9,455	123.53	1.39	1.39	0.00
22.00	1.28	9,363	123.52	1.33	1.33	0.00
22.50	1.22	9,269	123.51	1.27	1.27	0.00
23.00	1.15	9,171	123.49	1.21	1.21	0.00
23.50	1.09	9,071	123.48	1.14	1.14	0.00
24.00	1.03	8,971	123.47	1.08	1.08	0.00

HydroCAD North Stonington Proposed_ReType III 24-hr 100-YEAR STORM Rainfall=7.70"

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Stage-Discharge for Pond 5 - Pond: 5 - Pond

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
122.00	0.00	0.00	0.00	127.30	16.03	16.03	0.00
122.10	0.00	0.00	0.00	127.40	16.26	16.26	0.00
122.20	0.00	0.00	0.00	127.50	16.48	16.48	0.00
122.30	0.00	0.00	0.00	127.60	16.70	16.70	0.00
122.40	0.00	0.00	0.00	127.70	17.23	17.23	0.00
122.50	0.00	0.00	0.00	127.80	18.03	18.03	0.00
122.60	0.00	0.00	0.00	127.90	19.03	19.03	0.00
122.70	0.00	0.00	0.00	128.00	20.19	20.19	0.00
122.80	0.00	0.00	0.00	128.10	21.51	21.51	0.00
122.90	0.00	0.00	0.00	128.20	22.97	22.97	0.00
123.00	0.00	0.00	0.00	128.30	24.57	24.57	0.00
123.10	0.05	0.05	0.00	128.40	26.29	26.29	0.00
123.20	0.20	0.20	0.00	128.50	28.15	28.15	0.00
123.30	0.46	0.46	0.00	128.60	30.13	30.13	0.00
123.40	0.80	0.80	0.00	128.70	32.24	32.24	0.00
123.50	1.23	1.23	0.00	128.80	33.14	33.14	0.00
123.60	1.73	1.73	0.00	128.90	33.48	33.48	0.00
123.70	2.29	2.29	0.00	129.00	33.82	33.82	0.00
123.80	2.91	2.91	0.00	129.10	34.16	34.16	0.00
123.90	3.58	3.58	0.00	129.20	34.49	34.49	0.00
124.00	4.26	4.26	0.00	129.30	34.82	34.82	0.00
124.10	4.96	4.96	0.00	129.40	35.15	35.15	0.00
124.20	5.65	5.65	0.00	129.50	35.48	35.48	0.00
124.30	6.32	6.32	0.00	129.60	37.42	35.80	1.63
124.40	6.92	6.92	0.00	129.70	40.71	36.11	4.60
124.50	7.37	7.37	0.00	129.80	44.96	36.43	8.53
124.60	7.84	7.84	0.00	129.90	50.00	36.74	13.26
124.70	8.29	8.29	0.00	130.00	55.86	37.05	18.81
124.80	8.72	8.72	0.00				
124.90	9.12	9.12	0.00				
125.00	9.51	9.51	0.00				
125.10	9.89	9.89	0.00				
125.20	10.25	10.25	0.00				
125.30	10.59	10.59	0.00				
125.40	10.93	10.93	0.00				
125.50	11.26	11.26	0.00				
125.60	11.57	11.57	0.00				
125.70	11.88	11.88	0.00				
125.80	12.18	12.18	0.00				
125.90	12.48	12.48	0.00				
126.00	12.76	12.76	0.00				
126.10	13.04	13.04	0.00				
126.20	13.32	13.32	0.00				
126.30	13.59	13.59	0.00				
126.40	13.85	13.85	0.00				
126.50	14.11	14.11	0.00				
126.60	14.36	14.36	0.00				
126.70	14.61	14.61	0.00				
126.80	14.86	14.86	0.00				
126.90	15.10	15.10	0.00				
127.00	15.34	15.34	0.00				
127.10	15.57	15.57	0.00				
127.20	15.80	15.80	0.00				



Appendix E

Curve Number

Composite SCS Curve Number



PROJECT: Stonington
SCENARIO: Pre-development

DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 1A			Total Drainage Area: 4.69 Ac					
Cover Description	Hydrologic Soil Group							
	A		B		C		D	
	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):								
Poor condition (grass cover < 50%)		68		79		86		89
Fair condition (grass cover 50% to 75%)		49		69		79		84
Good condition (grass cover > 75%)		39		61		74		80
Impervious areas:								
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98
Paved streets and roads; curbs and storm sewers (excluding		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93
Gravel streets and roads (including R/W)		76		85		89		91
Dirt streets and roads (including R/W)		72		82		87		89
Woods-grass combonation (orchard or tree farm)								
Fair hydrologic condition		43		65		76		82
Good hydrologic condition		32		58		72		79
Urban districts:								
Commercial and business		89		92		94		95
Industrial		81		88		91		93
Residential districts by average lot size:								
1/8 acre or less (town houses)		77		85		90		92
1/4 acre		61		75		83		87
1/3 acre		57		72		81		86
1/2 acre		54		70		80		85
1 acre		51		68		79		84
2 acres		46		65		77		82
Pasture, grassland or range:								
Poor hydrologic condition		68		79		86		89
Fair hydrologic condition		49		69		79		84
Good hydrologic condition		39		61		74		80
Woods:								
Poor hydrologic condition		45		66		77		83
Fair hydrologic condition		36	4.69	60		73		79
Good hydrologic condition		30		55		70		77
Developing urban areas:								
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84
Cultivated Agricultural Areas:								
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90
Total HSG Areas:			4.69					

Calculated Total Drainage Area: **4.69 Ac**
Calculated Composite Curve Number: **60**

Composite SCS Curve Number



PROJECT: Stonington
SCENARIO: Pre-development

DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 1B		Total Drainage Area: 10.54 Ac							
Cover Description		Hydrologic Soil Group							
		A		B		C		D	
		Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):									
Poor condition (grass cover < 50%)			68		79		86		89
Fair condition (grass cover 50% to 75%)			49		69		79		84
Good condition (grass cover > 75%)			39		61		74		80
Impervious areas:									
Paved parking lots, roofs, driveways, etc. (excluding R/W)			98		98		98		98
Paved streets and roads; curbs and storm sewers (excluding right-of-way)			98		98		98		98
Paved streets and roads; open ditches (including R/W)			83		89		92		93
Gravel streets and roads (including R/W)			76		85		89		91
Dirt streets and roads (including R/W)			72		82		87		89
Woods-grass combination (orchard or tree farm)									
Fair hydrologic condition			43		65		76		82
Good hydrologic condition			32		58		72		79
Urban districts:									
Commercial and business			89		92		94		95
Industrial			81		88		91		93
Residential districts by average lot size:									
1/8 acre or less (town houses)			77		85		90		92
1/4 acre			61		75		83		87
1/3 acre			57		72		81		86
1/2 acre			54		70		80		85
1 acre			51		68		79		84
2 acres			46		65		77		82
Pasture, grassland or range:									
Poor hydrologic condition			68		79		86		89
Fair hydrologic condition			49		69		79		84
Good hydrologic condition			39		61		74		80
Woods:									
Poor hydrologic condition			45		66		77		83
Fair hydrologic condition			36	10.40	60		73	0.14	79
Good hydrologic condition			30		55		70		77
Developing urban areas:									
Newly graded areas (pervious areas only, no vegetation)			77		86		91		94
Substation Pad with 6" of Loose Washed Stone			49		69		79		84
Cultivated Agricultural Areas:									
Fallow Bare Soil Crop residue Cover Good Hydrologic Condition			74		83		88		90
Total HSG Areas:				10.40				0.14	

Calculated Total Drainage Area: **10.54 Ac**
Calculated Composite Curve Number: **61**

Composite SCS Curve Number



PROJECT: Stonington
SCENARIO: Pre-development

DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 1C			Total Drainage Area: 8.58 Ac					
Cover Description	Hydrologic Soil Group							
	A		B		C		D	
	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):								
Poor condition (grass cover < 50%)		68		79		86		89
Fair condition (grass cover 50% to 75%)		49		69		79		84
Good condition (grass cover > 75%)		39		61		74		80
Impervious areas:								
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98
Paved streets and roads; curbs and storm sewers (excluding right-of-way)		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93
Gravel streets and roads (including R/W)		76		85		89		91
Dirt streets and roads (including R/W)		72		82		87		89
Woods-grass combonation (orchard or tree farm)								
Fair hydrologic condition		43		65		76		82
Good hydrologic condition		32		58		72		79
Urban districts:								
Commercial and business		89		92		94		95
Industrial		81		88		91		93
Residential districts by average lot size:								
1/8 acre or less (town houses)		77		85		90		92
1/4 acre		61		75		83		87
1/3 acre		57		72		81		86
1/2 acre		54		70		80		85
1 acre		51		68		79		84
2 acres		46		65		77		82
Pasture, grassland or range:								
Poor hydrologic condition		68		79		86		89
Fair hydrologic condition		49		69		79		84
Good hydrologic condition		39		61		74		80
Woods:								
Poor hydrologic condition		45		66		77		83
Fair hydrologic condition		36	8.58	60		73		79
Good hydrologic condition		30		55		70		77
Developing urban areas:								
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84
Cultivated Agricultural Areas:								
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90
Total HSG Areas:			8.58					

Calculated Total Drainage Area: **8.58 Ac**
Calculated Composite Curve Number: **60**

Composite SCS Curve Number



PROJECT: Stonington
SCENARIO: Pre-development

DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 2			Total Drainage Area: 9.60 Ac					
Cover Description	Hydrologic Soil Group							
	A		B		C		D	
	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):								
Poor condition (grass cover < 50%)		68		79		86		89
Fair condition (grass cover 50% to 75%)		49		69		79		84
Good condition (grass cover > 75%)		39		61		74		80
Impervious areas:								
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98
Paved streets and roads; curbs and storm sewers (excluding		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93
Gravel streets and roads (including R/W)		76		85		89		91
Dirt streets and roads (including R/W)		72		82		87		89
Woods-grass combonation (orchard or tree farm)								
Fair hydrologic condition		43		65		76		82
Good hydrologic condition		32		58		72		79
Urban districts:								
Commercial and business		89		92		94		95
Industrial		81		88		91		93
Residential districts by average lot size:								
1/8 acre or less (town houses)		77		85		90		92
1/4 acre		61		75		83		87
1/3 acre		57		72		81		86
1/2 acre		54		70		80		85
1 acre		51		68		79		84
2 acres		46		65		77		82
Pasture, grassland or range:								
Poor hydrologic condition		68		79		86		89
Fair hydrologic condition		49		69		79		84
Good hydrologic condition		39		61		74		80
Woods:								
Poor hydrologic condition		45		66		77		83
Fair hydrologic condition		36	4.87	60	4.28	73	0.45	79
Good hydrologic condition		30		55		70		77
Developing urban areas:								
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84
Cultivated Agricultural Areas:								
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90
Total HSG Areas:			4.87		4.28		0.45	

Calculated Total Drainage Area: **9.60 Ac**
Calculated Composite Curve Number: **67**

Composite SCS Curve Number



PROJECT: Stonington
SCENARIO: Pre-development

DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 4		Total Drainage Area: 9.02 Ac							
Cover Description		Hydrologic Soil Group							
		A		B		C		D	
		Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):									
Poor condition (grass cover < 50%)			68		79		86		89
Fair condition (grass cover 50% to 75%)			49		69		79		84
Good condition (grass cover > 75%)			39		61		74		80
Impervious areas:									
Paved parking lots, roofs, driveways, etc. (excluding R/W)			98		98		98		98
Paved streets and roads; curbs and storm sewers (excluding right-of-way)			98		98		98		98
Paved streets and roads; open ditches (including R/W)			83		89		92		93
Gravel streets and roads (including R/W)			76		85		89		91
Dirt streets and roads (including R/W)			72		82		87		89
Woods-grass combination (orchard or tree farm)									
Fair hydrologic condition			43		65		76		82
Good hydrologic condition			32		58		72		79
Urban districts:									
Commercial and business			89		92		94		95
Industrial			81		88		91		93
Residential districts by average lot size:									
1/8 acre or less (town houses)			77		85		90		92
1/4 acre			61		75		83		87
1/3 acre			57		72		81		86
1/2 acre			54		70		80		85
1 acre			51		68		79		84
2 acres			46		65		77		82
Pasture, grassland or range:									
Poor hydrologic condition			68		79		86		89
Fair hydrologic condition			49		69		79		84
Good hydrologic condition			39		61		74		80
Woods:									
Poor hydrologic condition			45		66		77		83
Fair hydrologic condition			36	7.62	60		73	1.40	79
Good hydrologic condition			30		55		70		77
Developing urban areas:									
Newly graded areas (pervious areas only, no vegetation)			77		86		91		94
Substation Pad with 6" of Loose Washed Stone			49		69		79		84
Cultivated Agricultural Areas:									
Fallow Bare Soil Crop residue Cover Good Hydrologic Condition			74		83		88		90
Total HSG Areas:				7.62				1.40	

Calculated Total Drainage Area: **9.02 Ac**
Calculated Composite Curve Number: **63**

Composite SCS Curve Number



PROJECT: Stonington
SCENARIO: Pre-development

DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 5		Total Drainage Area: 15.22 Ac							
Cover Description		Hydrologic Soil Group							
		A		B		C		D	
		Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):									
Poor condition (grass cover < 50%)			68		79		86		89
Fair condition (grass cover 50% to 75%)			49		69		79		84
Good condition (grass cover > 75%)			39		61		74		80
Impervious areas:									
Paved parking lots, roofs, driveways, etc. (excluding R/W)			98		98		98		98
Paved streets and roads; curbs and storm sewers (excluding right-of-way)			98		98		98		98
Paved streets and roads; open ditches (including R/W)			83		89		92		93
Gravel streets and roads (including R/W)			76		85		89		91
Dirt streets and roads (including R/W)			72		82		87		89
Woods-grass combination (orchard or tree farm)									
Fair hydrologic condition			43		65		76		82
Good hydrologic condition			32		58		72		79
Urban districts:									
Commercial and business			89		92		94		95
Industrial			81		88		91		93
Residential districts by average lot size:									
1/8 acre or less (town houses)			77		85		90		92
1/4 acre			61		75		83		87
1/3 acre			57		72		81		86
1/2 acre			54		70		80		85
1 acre			51		68		79		84
2 acres			46		65		77		82
Pasture, grassland or range:									
Poor hydrologic condition			68		79		86		89
Fair hydrologic condition			49		69		79		84
Good hydrologic condition			39		61		74		80
Woods:									
Poor hydrologic condition			45		66		77		83
Fair hydrologic condition		0.97	36	1.96	60	10.72	73	1.57	79
Good hydrologic condition			30		55		70		77
Developing urban areas:									
Newly graded areas (pervious areas only, no vegetation)			77		86		91		94
Substation Pad with 6" of Loose Washed Stone			49		69		79		84
Cultivated Agricultural Areas:									
Fallow Bare Soil Crop residue Cover Good Hydrologic Condition			74		83		88		90
Total HSG Areas:		0.97		1.96		10.72		1.57	

Calculated Total Drainage Area: **15.22 Ac**
Calculated Composite Curve Number: **70**

Composite SCS
Curve Number



PROJECT: **Solar - Stonington**
SCENARIO: **Post-development**

DATE: **5/21/2021**
PREPARED BY: **JRP**

Drainage Area: 1A									Total Drainage Area: 4.69 Ac							
Cover Description	Hydrologic Soil Group								Hydrologic Soil Group							
	A		B		C		D		A.5		B.5		C.5		D	
	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):																
Poor condition (grass cover < 50%)		68		79		86		89		73.5		82.5		87.5		89
Fair condition (grass cover 50% to 75%)		49		69		79		84		59		74		81.5		84
Good condition (grass cover > 75%)		39		61		74		80		50	3.37	67.5		77		80
Impervious areas:																
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		98	1.32	98		98		98
Paved streets and roads; curbs and storm sewers (excluding		98		98		98		98		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93		86		90.5		92.5		93
Gravel streets and roads (including R/W)		76		85		89		91		80.5		87		90		91
Dirt streets and roads (including R/W)		72		82		87		89		77		84.5		88		89
Woods-grass combonation (orchard or tree farm)																
Fair hydrologic condition		43		65		76		82		54		70.5		79		82
Good hydrologic condition		32		58		72		79		45		65		75.5		79
Urban districts:																
Commercial and business		89		92		94		95		90.5		93		94.5		95
Industrial		81		88		91		93		84.5		89.5		92		93
Residential districts by average lot size:																
1/8 acre or less (town houses)		77		85		90		92		81		87.5		91		92
1/4 acre		61		75		83		87		68		79		85		87
1/3 acre		57		72		81		86		64.5		76.5		83.5		86
1/2 acre		54		70		80		85		62		75		82.5		85
1 acre		51		68		79		84		59.5		73.5		81.5		84
2 acres		46		65		77		82		55.5		71		79.5		82
Pasture, grassland or range:																
Poor hydrologic condition		68		79		86		89		73.5		82.5		87.5		89
Fair hydrologic condition		49		69		79		84		59		74		81.5		84
Good hydrologic condition		39		61		74		80		50		67.5		77		80
Woods:																
Poor hydrologic condition		45		66		77		83		55.5		71.5		80		83
Fair hydrologic condition		36		60		73		79		48		66.5		76		79
Good hydrologic condition		30		55		70		77		42.5		62.5		73.5		77
Developing urban areas:																
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		81.5		88.5		92.5		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		59		74		81.5		84
Cultivated Agricultural Areas:																
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		78.5		85.5		89		90
Total HSG Areas:											4.69					

Calculated Total Drainage Area: **4.69 Ac**
Calculated Composite Curve Number: **77**

Composite SCS
Curve Number



PROJECT: Solar - Stonington
SCENARIO: Post-development

DATE: 4/21/2021
PREPARED BY: JRP

Drainage Area: 1B									Total Drainage Area: 8.58 Ac							
Cover Description	Hydrologic Soil Group								Hydrologic Soil Group							
	A		B		C		D		A.5		B.5		C.5		D	
	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):																
Poor condition (grass cover < 50%)		68		79		86		89		73.5		82.5		87.5		89
Fair condition (grass cover 50% to 75%)		49		69		79		84		59		74		81.5		84
Good condition (grass cover > 75%)		39		61		74		80		50	3.56	67.5		77		80
Impervious areas:																
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		98	3.04	98		98		98
Paved streets and roads; curbs and storm sewers (excluding right-of-way)		98		98		98		98		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93		86		90.5		92.5		93
Gravel streets and roads (including R/W)		76		85		89		91		80.5		87		90		91
Dirt streets and roads (including R/W)		72		82		87		89		77		84.5		88		89
Woods-grass combonation (orchard or tree farm)																
Fair hydrologic condition		43		65		76		82		54		70.5		79		82
Good hydrologic condition		32		58		72		79		45		65		75.5		79
Urban districts:																
Commercial and business		89		92		94		95		90.5		93		94.5		95
Industrial		81		88		91		93		84.5		89.5		92		93
Residential districts by average lot size:																
1/8 acre or less (town houses)		77		85		90		92		81		87.5		91		92
1/4 acre		61		75		83		87		68		79		85		87
1/3 acre		57		72		81		86		64.5		76.5		83.5		86
1/2 acre		54		70		80		85		62		75		82.5		85
1 acre		51		68		79		84		59.5		73.5		81.5		84
2 acres		46		65		77		82		55.5		71		79.5		82
Pasture, grassland or range:																
Poor hydrologic condition		68		79		86		89		73.5		82.5		87.5		89
Fair hydrologic condition		49		69		79		84		59		74		81.5		84
Good hydrologic condition		39		61		74		80		50		67.5		77		80
Woods:																
Poor hydrologic condition		45		66		77		83		55.5		71.5		80		83
Fair hydrologic condition		36		60		73		79		48	1.98	66.5		76		79
Good hydrologic condition		30		55		70		77		42.5		62.5		73.5		77
Developing urban areas:																
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		81.5		88.5		92.5		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		59		74		81.5		84
Cultivated Agricultural Areas:																
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		78.5		85.5		89		90
Total HSG Areas:											8.58					

Calculated Total Drainage Area: **8.58 Ac**
Calculated Composite Curve Number: **79**

Composite SCS
Curve Number



PROJECT: **Solar - Litchfield**
SCENARIO: **Post-development**

DATE: **5/21/2021**
PREPARED BY: **YA**

Drainage Area: 1C									Total Drainage Area: 10.54 Ac							
Cover Description	Hydrologic Soil Group								Hydrologic Soil Group							
	A		B		C		D		A.5		B.5		C.5		D	
	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):																
Poor condition (grass cover < 50%)		68		79		86		89		73.5		82.5		87.5		89
Fair condition (grass cover 50% to 75%)		49		69		79		84		59		74		81.5		84
Good condition (grass cover > 75%)		39		61		74		80		50	4.48	67.5		77		80
Impervious areas:																
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		98	4.59	98		98		98
Paved streets and roads; curbs and storm sewers (excluding R/W)		98		98		98		98		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93		86		90.5		92.5		93
Gravel streets and roads (including R/W)		76		85		89		91		80.5		87		90		91
Dirt streets and roads (including R/W)		72		82		87		89		77		84.5		88		89
Woods-grass combonation (orchard or tree farm)																
Fair hydrologic condition		43		65		76		82		54		70.5		79		82
Good hydrologic condition		32		58		72		79		45		65		75.5		79
Urban districts:																
Commercial and business		89		92		94		95		90.5		93		94.5		95
Industrial		81		88		91		93		84.5		89.5		92		93
Residential districts by average lot size:																
1/8 acre or less (town houses)		77		85		90		92		81		87.5		91		92
1/4 acre		61		75		83		87		68		79		85		87
1/3 acre		57		72		81		86		64.5		76.5		83.5		86
1/2 acre		54		70		80		85		62		75		82.5		85
1 acre		51		68		79		84		59.5		73.5		81.5		84
2 acres		46		65		77		82		55.5		71		79.5		82
Pasture, grassland or range:																
Poor hydrologic condition		68		79		86		89		73.5		82.5		87.5		89
Fair hydrologic condition		49		69		79		84		59		74		81.5		84
Good hydrologic condition		39		61		74		80		50		67.5		77		80
Woods:																
Poor hydrologic condition		45		66		77		83		55.5		71.5		80		83
Fair hydrologic condition		36		60		73		79		48	1.47	66.5		76		79
Good hydrologic condition		30		55		70		77		42.5		62.5		73.5		77
Developing urban areas:																
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		81.5		88.5		92.5		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		59		74		81.5		84
Cultivated Agricultural Areas:																
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		78.5		85.5		89		90
Total HSG Areas:											10.54					

Calculated Total Drainage Area: **10.54 Ac**
Calculated Composite Curve Number: **81**

Composite SCS
Curve Number



PROJECT: Solar - Stonington
SCENARIO: Post-development

DATE: 5/21/2021
PREPARED BY: YA

Drainage Area: 2								Total Drainage Area: 4.80 Ac								
Cover Description	Hydrologic Soil Group						Hydrologic Soil Group									
	A		B		C		D		A.5		B.5		C.5		D	
	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):																
Poor condition (grass cover < 50%)		68		79		86		89		73.5		82.5		87.5		89
Fair condition (grass cover 50% to 75%)		49		69		79		84		59		74		81.5		84
Good condition (grass cover > 75%)		39		61		74		80		50	0.96	67.5	1.65	77		80
Impervious areas:																
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		98	0.16	98	1.02	98		98
Paved streets and roads; curbs and storm sewers (excluding R/W)		98		98		98		98		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93		86		90.5		92.5		93
Gravel streets and roads (including R/W)		76		85		89		91		80.5		87		90		91
Dirt streets and roads (including R/W)		72		82		87		89		77		84.5		88		89
Woods-grass combination (orchard or tree farm)																
Fair hydrologic condition		43		65		76		82		54		70.5		79		82
Good hydrologic condition		32		58		72		79		45		65		75.5		79
Urban districts:																
Commercial and business		89		92		94		95		90.5		93		94.5		95
Industrial		81		88		91		93		84.5		89.5		92		93
Residential districts by average lot size:																
1/8 acre or less (town houses)		77		85		90		92		81		87.5		91		92
1/4 acre		61		75		83		87		68		79		85		87
1/3 acre		57		72		81		86		64.5		76.5		83.5		86
1/2 acre		54		70		80		85		62		75		82.5		85
1 acre		51		68		79		84		59.5		73.5		81.5		84
2 acres		46		65		77		82		55.5		71		79.5		82
Pasture, grassland or range:																
Poor hydrologic condition		68		79		86		89		73.5		82.5		87.5		89
Fair hydrologic condition		49		69		79		84		59		74		81.5		84
Good hydrologic condition		39		61		74		80		50		67.5		77		80
Woods:																
Poor hydrologic condition		45		66		77		83		55.5		71.5		80		83
Fair hydrologic condition		36		60		73		79		48		66.5	1.01	76		79
Good hydrologic condition		30		55		70		77		42.5		62.5		73.5		77
Developing urban areas:																
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		81.5		88.5		92.5		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		59		74		81.5		84
Cultivated Agricultural Areas:																
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		78.5		85.5		89		90
Total HSG Areas:											1.12		3.68			

Calculated Total Drainage Area: **4.80 Ac**
Calculated Composite Curve Number: **81**

Composite SCS
Curve Number



PROJECT: **Solar - Stonington**
SCENARIO: **Post-development**

DATE: **5/21/2021**
PREPARED BY: **YA**

Drainage Area: 4								Total Drainage Area: 9.08 Ac								
Cover Description	Hydrologic Soil Group							Hydrologic Soil Group								
	A		B		C		D		A.5		B.5		C.5		D	
	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):																
Poor condition (grass cover < 50%)		68		79		86		89		73.5		82.5		87.5		89
Fair condition (grass cover 50% to 75%)		49		69		79		84		59		74		81.5		84
Good condition (grass cover > 75%)		39		61		74		80		50	6.26	67.5		77	1.17	80
Impervious areas:																
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		98	1.43	98		98	0.22	98
Paved streets and roads; curbs and storm sewers (excluding R/W)		98		98		98		98		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93		86		90.5		92.5		93
Gravel streets and roads (including R/W)		76		85		89		91		80.5		87		90		91
Dirt streets and roads (including R/W)		72		82		87		89		77		84.5		88		89
Woods-grass combonation (orchard or tree farm)																
Fair hydrologic condition		43		65		76		82		54		70.5		79		82
Good hydrologic condition		32		58		72		79		45		65		75.5		79
Urban districts:																
Commercial and business		89		92		94		95		90.5		93		94.5		95
Industrial		81		88		91		93		84.5		89.5		92		93
Residential districts by average lot size:																
1/8 acre or less (town houses)		77		85		90		92		81		87.5		91		92
1/4 acre		61		75		83		87		68		79		85		87
1/3 acre		57		72		81		86		64.5		76.5		83.5		86
1/2 acre		54		70		80		85		62		75		82.5		85
1 acre		51		68		79		84		59.5		73.5		81.5		84
2 acres		46		65		77		82		55.5		71		79.5		82
Pasture, grassland or range:																
Poor hydrologic condition		68		79		86		89		73.5		82.5		87.5		89
Fair hydrologic condition		49		69		79		84		59		74		81.5		84
Good hydrologic condition		39		61		74		80		50		67.5		77		80
Woods:																
Poor hydrologic condition		45		66		77		83		55.5		71.5		80		83
Fair hydrologic condition		36		60		73		79		48		66.5		76		79
Good hydrologic condition		30		55		70		77		42.5		62.5		73.5		77
Developing urban areas:																
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		81.5		88.5		92.5		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		59		74		81.5		84
Cultivated Agricultural Areas:																
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		78.5		85.5		89		90
Total HSG Areas:											7.69				1.39	

Calculated Total Drainage Area: **9.08 Ac**
Calculated Composite Curve Number: **75**

Composite SCS
Curve Number



PROJECT: Solar - Stonington
SCENARIO: Post-development

DATE: 5/21/2021
PREPARED BY: YA

Drainage Area: 5									Total Drainage Area: 15.22 Ac							
Cover Description	Hydrologic Soil Group								Hydrologic Soil Group							
	A		B		C		D		A.5		B.5		C.5		D	
	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):																
Poor condition (grass cover < 50%)		68		79		86		89		73.5		82.5		87.5		89
Fair condition (grass cover 50% to 75%)		49		69		79		84		59		74		81.5		84
Good condition (grass cover > 75%)		39		61		74		80		50		67.5	9.85	77		80
Impervious areas:																
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		98		98	5.37	98		98
Paved streets and roads; curbs and storm sewers (excluding R/W)		98		98		98		98		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93		86		90.5		92.5		93
Gravel streets and roads (including R/W)		76		85		89		91		80.5		87		90		91
Dirt streets and roads (including R/W)		72		82		87		89		77		84.5		88		89
Woods-grass combonation (orchard or tree farm)																
Fair hydrologic condition		43		65		76		82		54		70.5		79		82
Good hydrologic condition		32		58		72		79		45		65		75.5		79
Urban districts:																
Commercial and business		89		92		94		95		90.5		93		94.5		95
Industrial		81		88		91		93		84.5		89.5		92		93
Residential districts by average lot size:																
1/8 acre or less (town houses)		77		85		90		92		81		87.5		91		92
1/4 acre		61		75		83		87		68		79		85		87
1/3 acre		57		72		81		86		64.5		76.5		83.5		86
1/2 acre		54		70		80		85		62		75		82.5		85
1 acre		51		68		79		84		59.5		73.5		81.5		84
2 acres		46		65		77		82		55.5		71		79.5		82
Pasture, grassland or range:																
Poor hydrologic condition		68		79		86		89		73.5		82.5		87.5		89
Fair hydrologic condition		49		69		79		84		59		74		81.5		84
Good hydrologic condition		39		61		74		80		50		67.5		77		80
Woods:																
Poor hydrologic condition		45		66		77		83		55.5		71.5		80		83
Fair hydrologic condition		36		60		73		79		48		66.5		76		79
Good hydrologic condition		30		55		70		77		42.5		62.5		73.5		77
Developing urban areas:																
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		81.5		88.5		92.5		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		59		74		81.5		84
Cultivated Agricultural Areas:																
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		78.5		85.5		89		90
Total HSG Areas:													15.22			

Calculated Total Drainage Area: **15.22 Ac**
Calculated Composite Curve Number: **85**

Appendix F

Time of Concentration

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information			Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	1A		Flow Type	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	645.0 ft		Sheet Flow	295.0	5.10	44.3 mins.
TOTAL ELEVATION UP:	140.10		Shallow Concentrated Flow	350.0	18.00	1.6 mins.
TOTAL ELEVATION DOWN:	117.00		Channel Flow - Rectangular	0.0	0.00	0.0 mins.
TOTAL ACRES:	4.63		Channel Flow - Triangular	0.0	0.00	0.0 mins.
			Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
			Channel Flow - Circular	0.0	0.00	0.0 mins.
			Basin Totals	645.0	23.10	45.9 mins.

NOTES:

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.33			Flow Length (ft)	350.0 ft		
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)	135.00		
Flow Length (ft)	295			Elevation Down (ft)	117.00		
Elevation Up (ft)	140.10			Watercourse Slope (ft/ft)	0.051		
Elevation Down (ft)	135.00			Average Velocity (ft/Sec)	3.7		
Land Slope (ft/ft)	0.017			Time Of Concentration (Mins)	1.59		
Time Of Concentration (Mins)	44.28						
Total Sheet Flow Tc (Minutes):			44.3 min.	Total Shallow Concentrated Tc (Mins):			1.6 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins): **45.9 min.**

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information			Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	1B		Flow Type	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	895.0 ft		Sheet Flow	295.0	5.60	42.6 mins.
TOTAL ELEVATION UP:	140.60		Shallow Concentrated Flow	600.0	29.00	2.8 mins.
TOTAL ELEVATION DOWN:	106.00		Channel Flow - Rectangular	0.0	0.00	0.0 mins.
TOTAL ACRES:	7.97		Channel Flow - Triangular	0.0	0.00	0.0 mins.
			Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
			Channel Flow - Circular	0.0	0.00	0.0 mins.
			Basin Totals	895.0	34.60	45.5 mins.

NOTES:

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.33			Flow Length (ft)	600.0 ft		
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)	135.00		
Flow Length (ft)	295			Elevation Down (ft)	106.00		
Elevation Up (ft)	140.60			Watercourse Slope (ft/ft)	0.048		
Elevation Down (ft)	135.00			Average Velocity (ft/Sec)	3.5		
Land Slope (ft/ft)	0.019			Time Of Concentration (Mins)	2.82		
Time Of Concentration (Mins)	42.65						
Total Sheet Flow Tc (Minutes):			42.6 min.	Total Shallow Concentrated Tc (Mins):			2.8 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):									45.5 min.
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Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information			Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	1C		Flow Type	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	547.4 ft		Sheet Flow	259.1	5.60	36.5 mins.
TOTAL ELEVATION UP:	142.20		Shallow Concentrated Flow	288.3	13.00	1.4 mins.
TOTAL ELEVATION DOWN:	123.60		Channel Flow - Rectangular	0.0	0.00	0.0 mins.
TOTAL ACRES:	28.08		Channel Flow - Triangular	0.0	0.00	0.0 mins.
			Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
			Channel Flow - Circular	0.0	0.00	0.0 mins.
NOTES:			Basin Totals	547.4	18.60	37.9 mins.

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.33			Flow Length (ft)	288.3 ft		
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)	136.60		
Flow Length (ft)	259.1			Elevation Down (ft)	123.60		
Elevation Up (ft)	142.20			Watercourse Slope (ft/ft)	0.045		
Elevation Down (ft)	136.60			Average Velocity (ft/Sec)	3.4		
Land Slope (ft/ft)	0.022			Time Of Concentration (Mins)	1.40		
Time Of Concentration (Mins)	36.50						
Total Sheet Flow Tc (Minutes):			36.5 min.	Total Shallow Concentrated Tc (Mins):			1.4 min.



Time of Concentration Worksheet SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins): **37.9 min.**



Time of Concentration Worksheet SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing

DATE: 05/12/21
PREPARED BY: YA

Drainage Area Information			Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	2		Flow Type	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	342.0 ft		Sheet Flow	300.0	15.36	22.5 mins.
TOTAL ELEVATION UP:	213.48		Shallow Concentrated Flow	42.0	9.31	0.1 mins.
TOTAL ELEVATION DOWN:	188.81		Channel Flow - Rectangular	0.0	0.00	0.0 mins.
TOTAL ACRES:	4.80		Channel Flow - Triangular	0.0	0.00	0.0 mins.
			Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
			Channel Flow - Circular	0.0	0.00	0.0 mins.
NOTES:			Basin Totals	342.0	24.67	22.6 mins.

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.24			Flow Length (ft)	42.0 ft		
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)	198.12		
Flow Length (ft)	300			Elevation Down (ft)	188.81		
Elevation Up (ft)	213.48			Watercourse Slope (ft/ft)	0.222		
Elevation Down (ft)	198.12			Average Velocity (ft/Sec)	7.6		
Land Slope (ft/ft)	0.051			Time Of Concentration (Mins)	0.09		
Time Of Concentration (Mins)	22.53						
Total Sheet Flow Tc (Minutes):			22.5 min.	Total Shallow Concentrated Tc (Mins):			0.1 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins): **43.3 min.**

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information		Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	4	Flow Type Sheet Flow Shallow Concentrated Flow Channel Flow - Rectangular Channel Flow - Triangular Channel Flow - Trapezoidal Channel Flow - Circular	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	758.2 ft		300.0	27.20	23.1 mins.
TOTAL ELEVATION UP:	163.80		458.2	16.10	2.5 mins.
TOTAL ELEVATION DOWN:	120.50		0.0	0.00	0.0 mins.
TOTAL ACRES:	28.08		0.0	0.00	0.0 mins.
			0.0	0.00	0.0 mins.
NOTES:		Basin Totals	758.2	43.30	25.7 mins.

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.33			Flow Length (ft)	458.2 ft		
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)	136.60		
Flow Length (ft)	300			Elevation Down (ft)	120.50		
Elevation Up (ft)	163.80			Watercourse Slope (ft/ft)	0.035		
Elevation Down (ft)	136.60			Average Velocity (ft/Sec)	3.0		
Land Slope (ft/ft)	0.091			Time Of Concentration (Mins)	2.53		
Time Of Concentration (Mins)	23.13						
Total Sheet Flow Tc (Minutes):			23.1 min.	Total Shallow Concentrated Tc (Mins):			2.5 min.



Time of Concentration Worksheet SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins): **25.7 min.**

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information			Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	5		Flow Type	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	1101.2 ft		Sheet Flow	300.0	15.60	28.9 mins.
TOTAL ELEVATION UP:	183.70		Shallow Concentrated Flow	801.2	56.30	3.1 mins.
TOTAL ELEVATION DOWN:	111.80		Channel Flow - Rectangular	0.0	0.00	0.0 mins.
TOTAL ACRES:	28.08		Channel Flow - Triangular	0.0	0.00	0.0 mins.
			Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
			Channel Flow - Circular	0.0	0.00	0.0 mins.
NOTES:			Basin Totals	1101.2	71.90	32.0 mins.

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.33			Flow Length (ft)	801.2 ft		
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)	168.10		
Flow Length (ft)	300			Elevation Down (ft)	111.80		
Elevation Up (ft)	183.70			Watercourse Slope (ft/ft)	0.070		
Elevation Down (ft)	168.10			Average Velocity (ft/Sec)	4.3		
Land Slope (ft/ft)	0.052			Time Of Concentration (Mins)	3.12		
Time Of Concentration (Mins)	28.89						
Total Sheet Flow Tc (Minutes):			28.9 min.	Total Shallow Concentrated Tc (Mins):			3.1 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Existing

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins): **32.0 min.**

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information			Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	1A		Flow Type	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	645.0 ft		Sheet Flow	295.0	5.10	41.0 mins.
TOTAL ELEVATION UP:	140.10		Shallow Concentrated Flow	350.0	18.00	1.6 mins.
TOTAL ELEVATION DOWN:	117.00		Channel Flow - Rectangular	0.0	0.00	0.0 mins.
TOTAL ACRES:	4.63		Channel Flow - Triangular	0.0	0.00	0.0 mins.
			Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
			Channel Flow - Circular	0.0	0.00	0.0 mins.
			Basin Totals	645.0	23.10	42.6 mins.

NOTES:

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.30			Flow Length (ft)	350.0 ft		
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)	135.00		
Flow Length (ft)	295			Elevation Down (ft)	117.00		
Elevation Up (ft)	140.10			Watercourse Slope (ft/ft)	0.051		
Elevation Down (ft)	135.00			Average Velocity (ft/Sec)	3.7		
Land Slope (ft/ft)	0.017			Time Of Concentration (Mins)	1.59		
Time Of Concentration (Mins)	41.03						
Total Sheet Flow Tc (Minutes):			41.0 min.	Total Shallow Concentrated Tc (Mins):			1.6 min.



Time of Concentration Worksheet SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins): 42.6 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information			Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	1B		Flow Type	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	895.0 ft		Sheet Flow	295.0	5.60	39.5 mins.
TOTAL ELEVATION UP:	140.60		Shallow Concentrated Flow	600.0	29.00	2.8 mins.
TOTAL ELEVATION DOWN:	106.00		Channel Flow - Rectangular	0.0	0.00	0.0 mins.
TOTAL ACRES:	7.97		Channel Flow - Triangular	0.0	0.00	0.0 mins.
			Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
			Channel Flow - Circular	0.0	0.00	0.0 mins.
			Basin Totals	895.0	34.60	42.3 mins.

NOTES:

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.30			Flow Length (ft)	600.0 ft		
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)	135.00		
Flow Length (ft)	295			Elevation Down (ft)	106.00		
Elevation Up (ft)	140.60			Watercourse Slope (ft/ft)	0.048		
Elevation Down (ft)	135.00			Average Velocity (ft/Sec)	3.5		
Land Slope (ft/ft)	0.019			Time Of Concentration (Mins)	2.82		
Time Of Concentration (Mins)	39.52						
Total Sheet Flow Tc (Minutes):			39.5 min.	Total Shallow Concentrated Tc (Mins):			2.8 min.



Time of Concentration Worksheet SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins): **42.3 min.**

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information			Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	1C		Flow Type	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	547.4 ft		Sheet Flow	259.1	5.60	33.8 mins.
TOTAL ELEVATION UP:	142.20		Shallow Concentrated Flow	288.3	13.00	1.4 mins.
TOTAL ELEVATION DOWN:	123.60		Channel Flow - Rectangular	0.0	0.00	0.0 mins.
TOTAL ACRES:	28.08		Channel Flow - Triangular	0.0	0.00	0.0 mins.
			Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
			Channel Flow - Circular	0.0	0.00	0.0 mins.
			Basin Totals	547.4	18.60	35.2 mins.

NOTES:

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.30			Flow Length (ft)	288.3 ft		
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)	136.60		
Flow Length (ft)	259.1			Elevation Down (ft)	123.60		
Elevation Up (ft)	142.20			Watercourse Slope (ft/ft)	0.045		
Elevation Down (ft)	136.60			Average Velocity (ft/Sec)	3.4		
Land Slope (ft/ft)	0.022			Time Of Concentration (Mins)	1.40		
Time Of Concentration (Mins)	33.82						
Total Sheet Flow Tc (Minutes):			33.8 min.	Total Shallow Concentrated Tc (Mins):			1.4 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins): **35.2 min.**

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 05/15/21
PREPARED BY: YA

Drainage Area Information			Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	2		Flow Type	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	475.0 ft		Sheet Flow	253.0	13.63	19.3 mins.
TOTAL ELEVATION UP:	213.48		Shallow Concentrated Flow	0.0	0.00	0.0 mins.
TOTAL ELEVATION DOWN:	179.10		Channel Flow - Rectangular	0.0	0.00	0.0 mins.
TOTAL ACRES:	4.80		Channel Flow - Triangular	222.0	20.75	2.4 mins.
			Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
			Channel Flow - Circular	0.0	0.00	0.0 mins.
NOTES:			Basin Totals	475.0	34.38	21.7 mins.

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.24			Flow Length (ft)			
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)			
Flow Length (ft)	253			Elevation Down (ft)			
Elevation Up (ft)	213.48			Watercourse Slope (ft/ft)			
Elevation Down (ft)	199.85			Average Velocity (ft/Sec)			
Land Slope (ft/ft)	0.054			Time Of Concentration (Mins)			
Time Of Concentration (Mins)	19.26						
Total Sheet Flow Tc (Minutes):			19.3 min.	Total Shallow Concentrated Tc (Mins):			0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins): **40.3 min.**



Time of Concentration Worksheet SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information		Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	4	Flow Type Sheet Flow Shallow Concentrated Flow Channel Flow - Rectangular Channel Flow - Triangular Channel Flow - Trapezoidal Channel Flow - Circular	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	758.2 ft		300.0	27.20	21.4 mins.
TOTAL ELEVATION UP:	163.80		458.2	16.10	2.5 mins.
TOTAL ELEVATION DOWN:	120.50		0.0	0.00	0.0 mins.
TOTAL ACRES:	28.08		0.0	0.00	0.0 mins.
			0.0	0.00	0.0 mins.
NOTES:		Basin Totals	758.2	43.30	24.0 mins.

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.30			Flow Length (ft)	458.2 ft		
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)	136.60		
Flow Length (ft)	300			Elevation Down (ft)	120.50		
Elevation Up (ft)	163.80			Watercourse Slope (ft/ft)	0.035		
Elevation Down (ft)	136.60			Average Velocity (ft/Sec)	3.0		
Land Slope (ft/ft)	0.091			Time Of Concentration (Mins)	2.53		
Time Of Concentration (Mins)	21.43						
Total Sheet Flow Tc (Minutes):			21.4 min.	Total Shallow Concentrated Tc (Mins):			2.5 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins): **24.0 min.**

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information			Drainage Area Tc Summary Data			
DRAINAGE AREA ID:	5		Flow Type	Length (ft)	Elev. Diff.	Tc
TOTAL BASIN LENGTH:	1101.2 ft		Sheet Flow	300.0	15.60	26.8 mins.
TOTAL ELEVATION UP:	183.70		Shallow Concentrated Flow	801.2	56.30	3.1 mins.
TOTAL ELEVATION DOWN:	111.80		Channel Flow - Rectangular	0.0	0.00	0.0 mins.
TOTAL ACRES:	28.08		Channel Flow - Triangular	0.0	0.00	0.0 mins.
			Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
			Channel Flow - Circular	0.0	0.00	0.0 mins.
NOTES:			Basin Totals	1101.2	71.90	29.9 mins.

This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW				2. SHALLOW CONCENTRATED FLOW			
	Segment #1	Segment #2	Segment #3		Segment #1	Segment #2	Segment #3
Surface Description	Grass			Surface Description	Unpaved		
Manning's "n"	0.30			Flow Length (ft)	801.2 ft		
2- Year, 24- Hr. Rain Fall (In)	3.51			Elevation Up (ft)	168.10		
Flow Length (ft)	300			Elevation Down (ft)	111.80		
Elevation Up (ft)	183.70			Watercourse Slope (ft/ft)	0.070		
Elevation Down (ft)	168.10			Average Velocity (ft/Sec)	4.3		
Land Slope (ft/ft)	0.052			Time Of Concentration (Mins)	3.12		
Time Of Concentration (Mins)	26.77						
Total Sheet Flow Tc (Minutes):			26.8 min.	Total Shallow Concentrated Tc (Mins):			3.1 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Rectangular Channel Tc (Mins):									0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Triangular Channel Tc									0.0 min.

Time of Concentration Worksheet SCS TR-55 Method



PROJECT: Stonington
SCENARIO: Proposed

DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Trapezoidal Channel Tc									0.0 min.

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

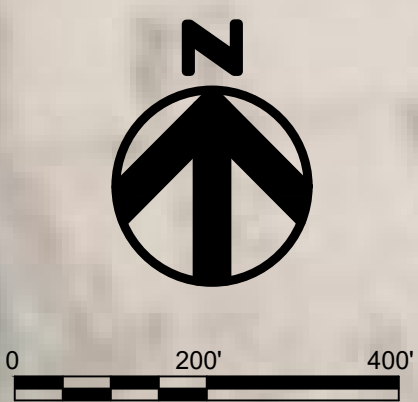
	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
Total Circular Channel Tc (Mins):									0.0 min.

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins): **29.9 min.**

Appendix G

Map of Wetlands



NOT FOR
CONSTRUCTION

**STONINGTON
SOLAR**

428, PROVIDENCE-NEW LONDON TURNPIKE
NORTH STONINGTON, CT 06359, USA
LAT: 41.431830°N
LON: 71.821514°W

STONINGTON, CT

REV. NO	DESCRIPTION	DATE
2	RE-ISSUED FOR PERMIT	05/28/21
1	RE-ISSUED FOR PERMIT	02/19/21
0	ISSUED FOR PERMIT	09/30/20

SHEET TITLE:

WETLAND EXHIBIT

PROJ. MGR. WK	PROJ. ENGR. MB	DATE: 5/28/21
DRAWN BY: NC	CHECKED BY: CP	SCALE: 1:200

DRAWING NO.

EXHIBIT

Appendix H

Erosion and Sediment Control Calculations

SEDIMENT TRAP CALCULATIONS		HDR
Litchfield Solar		
HDR PROJECT NO.: -		
DATE: 4/22/2021	BY: JRP	
REVISED:	RVW:	

Sediment Trap T-2

Scenario: Erosion Control

Drainage Area Characteristics	
Total drainage area (TDA) ¹	4.50 ac

Required Storage Volume		
Req'd Min. Wet Storage Volume ³	(1811 cf per ac of DA)⁵	8,149 cf
Req'd Min. Dry Storage Volume ³	(1811 cf per ac of DA)⁵	8,149 cf

Design Criteria	
Bottom Elevation	170.00 msl
Depth of Wet Storage	2.40 ft
Depth of Dry Storage	1.60 ft
1 ft over Weir	1.00 ft

Basin Size			
Elev. (msl)	Depth (ft)	Area (sf)	Cumulative Volume (cf)
170.00	0.00	2,250	0
171.00	1.00	2,923	2,579
172.00	2.00	3,927	5,992
173.00	3.00	5,036	10,462
174.00	4.00	6,520	16,224
175.00	5.00	7,929	23,437

Basin Configuration	
Bottom Elevation	170.00 msl
Wet Storage Elevation (Base of Stone Outlet)	172.40 msl
Dry Storage Elevation (Weir Crest)	174.00 msl
Top of Berm	175.00 msl

Basin Size Check	
Wet Storage Volume Provided	8,916 cf
Dry Storage Volume provided	8,712 cf

Spillway Outlet	
Bottom of Embankment Elevation	170.00 msl
Height of Embankment ²	5.00 ft
Top Width of Embankment	4.50 ft

Notes

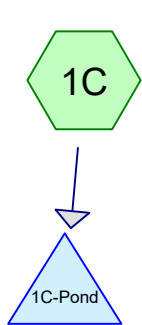
1. See attached drainage area map.
2. Maximum height of embankment is 5 ft.
3. Per 2002 Connecticut Guidelines for Soil and Sediment Control, 134 cubic yards per acre of drainage area are provided. Half of this storage is wet and half of this storage is dry.



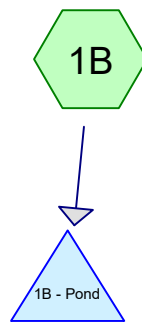
4 - Pond



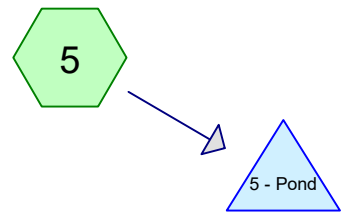
1A - Pond



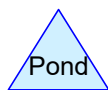
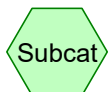
1C - Pond



1B - Pond



5 - Pond



Routing Diagram for HydroCAD North Stonington Sediment Basins

Prepared by HDR, Inc, Printed 5/24/2021

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HydroCAD North Stonington Sediment Basins

Prepared by HDR, Inc

Printed 5/24/2021

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
12.630	60	(1A, 1C)
8.910	61	(1B)
9.020	63	(4)
10.850	70	(5)
41.410	63	TOTAL AREA

HydroCAD North Stonington Sediment Basins

Prepared by HDR, Inc

Printed 5/24/2021

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
41.410	Other	1A, 1B, 1C, 4, 5
41.410		TOTAL AREA

HydroCAD North Stonington Sediment Basins

Prepared by HDR, Inc

Printed 5/24/2021

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Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	41.410	41.410		1A, 1B, 1C, 4, 5
0.000	0.000	0.000	0.000	41.410	41.410	TOTAL AREA	

HydroCAD North Stonington Sediment Basins

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1A - Pond	124.50	124.00	70.0	0.0071	0.012	18.0	0.0	0.0
2	1B - Pond	119.00	118.50	86.0	0.0058	0.012	24.0	0.0	0.0
3	1C-Pond	116.00	115.50	85.0	0.0059	0.012	24.0	0.0	0.0
4	4 - Pond	120.00	119.50	53.0	0.0094	0.012	18.0	0.0	0.0
5	5 - Pond	122.00	117.00	50.0	0.1000	0.012	24.0	0.0	0.0

HydroCAD North Stonington Sediment Basin Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Prepared by HDR, Inc

Printed 5/24/2021

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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 1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>1.33"
Tc=45.9 min CN=60 Runoff=3.05 cfs 0.520 af

Subcatchment 1B: Runoff Area=8.910 ac 0.00% Impervious Runoff Depth>1.40"
Tc=45.5 min CN=61 Runoff=6.21 cfs 1.039 af

Subcatchment 1C: Runoff Area=7.940 ac 0.00% Impervious Runoff Depth>1.33"
Tc=37.9 min CN=60 Runoff=5.72 cfs 0.882 af

Subcatchment 4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>1.55"
Tc=25.7 min CN=63 Runoff=9.30 cfs 1.164 af

Subcatchment 5: Runoff Area=10.850 ac 0.00% Impervious Runoff Depth>2.08"
Tc=32.0 min CN=70 Runoff=14.32 cfs 1.881 af

Pond 1A - Pond: 1A - Pond Peak Elev=129.27' Storage=21,875 cf Inflow=3.05 cfs 0.520 af
Primary=0.14 cfs 0.018 af Secondary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.018 af

Pond 1B - Pond: 1B - Pond Peak Elev=124.04' Storage=43,196 cf Inflow=6.21 cfs 1.039 af
Primary=0.29 cfs 0.047 af Secondary=0.00 cfs 0.000 af Outflow=0.29 cfs 0.047 af

Pond 1C-Pond: 1C - Pond Peak Elev=118.54' Storage=36,392 cf Inflow=5.72 cfs 0.882 af
Primary=0.24 cfs 0.047 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.047 af

Pond 4 - Pond: 4 - Pond Peak Elev=124.79' Storage=48,238 cf Inflow=9.30 cfs 1.164 af
Outflow=0.30 cfs 0.058 af

Pond 5 - Pond: 5 - Pond Peak Elev=129.31' Storage=75,029 cf Inflow=14.32 cfs 1.881 af
Primary=0.51 cfs 0.162 af Secondary=0.00 cfs 0.000 af Outflow=0.51 cfs 0.162 af

Total Runoff Area = 41.410 ac Runoff Volume = 5.486 af Average Runoff Depth = 1.59"
100.00% Pervious = 41.410 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

Runoff = 3.05 cfs @ 12.70 hrs, Volume= 0.520 af, Depth> 1.33"

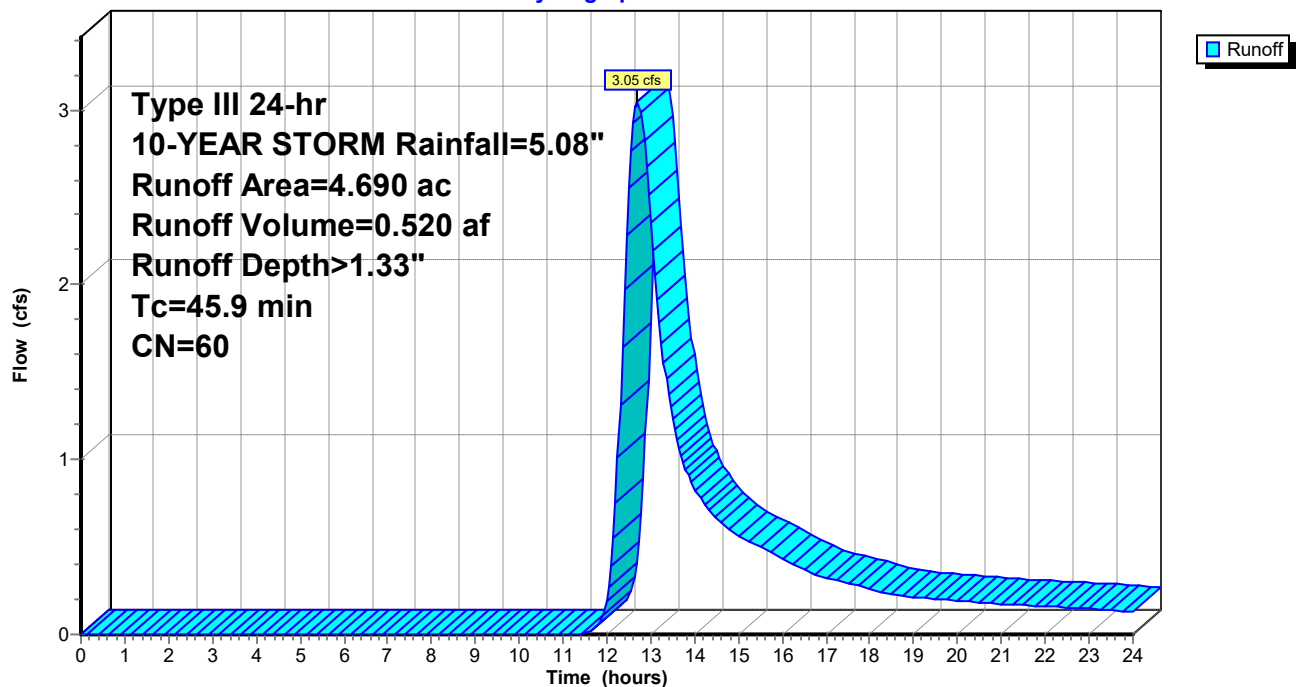
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 4.690	60	
4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9					Direct Entry, SCS TR-55

Subcatchment 1A:

Hydrograph



Summary for Subcatchment 1B:

Runoff = 6.21 cfs @ 12.69 hrs, Volume= 1.039 af, Depth> 1.40"

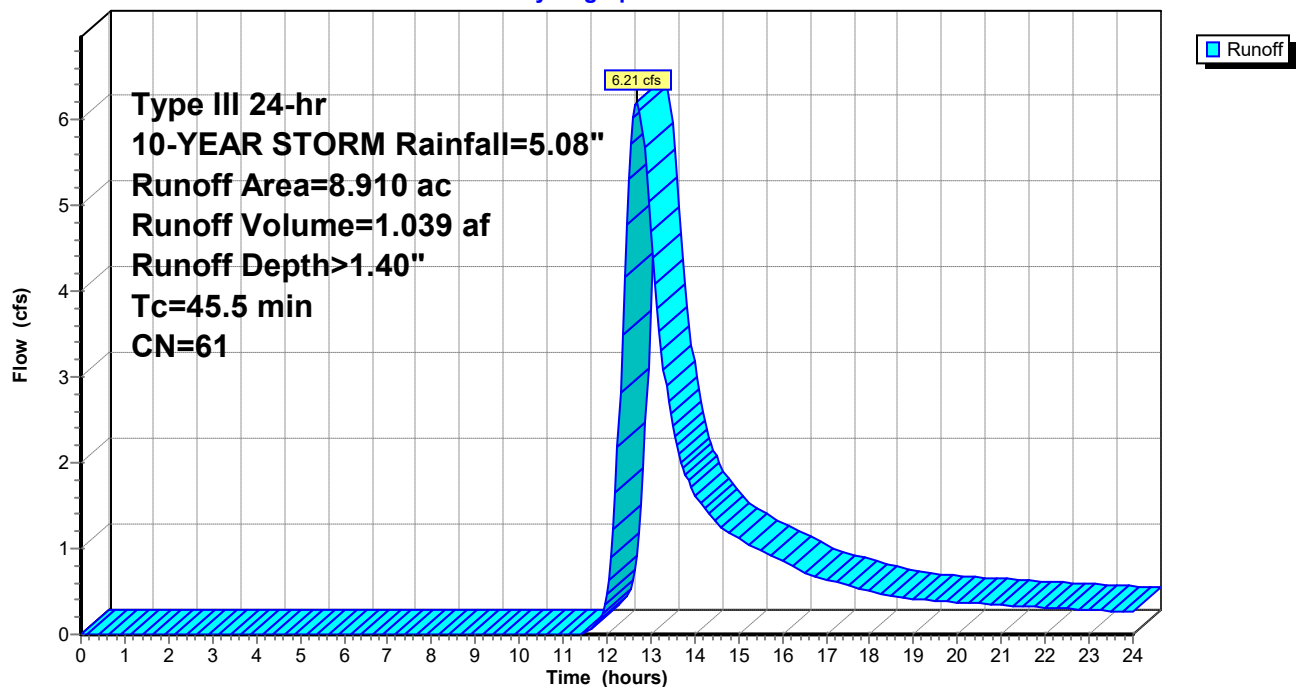
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 8.910	61	
8.910		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.5					Direct Entry, SCS TR-55

Subcatchment 1B:

Hydrograph



Summary for Subcatchment 1C:

Runoff = 5.72 cfs @ 12.59 hrs, Volume= 0.882 af, Depth> 1.33"

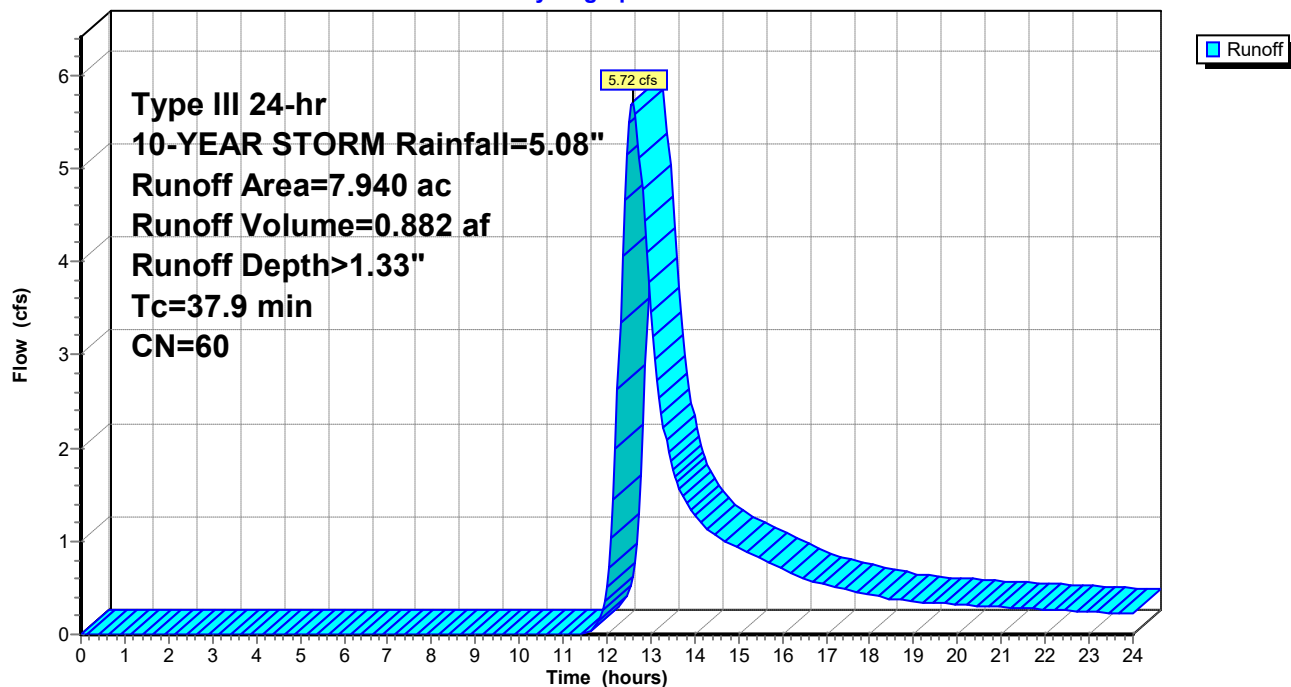
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 7.940	60	
7.940		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.9					Direct Entry, SCS TR-55

Subcatchment 1C:

Hydrograph



Summary for Subcatchment 4:

Runoff = 9.30 cfs @ 12.39 hrs, Volume= 1.164 af, Depth> 1.55"

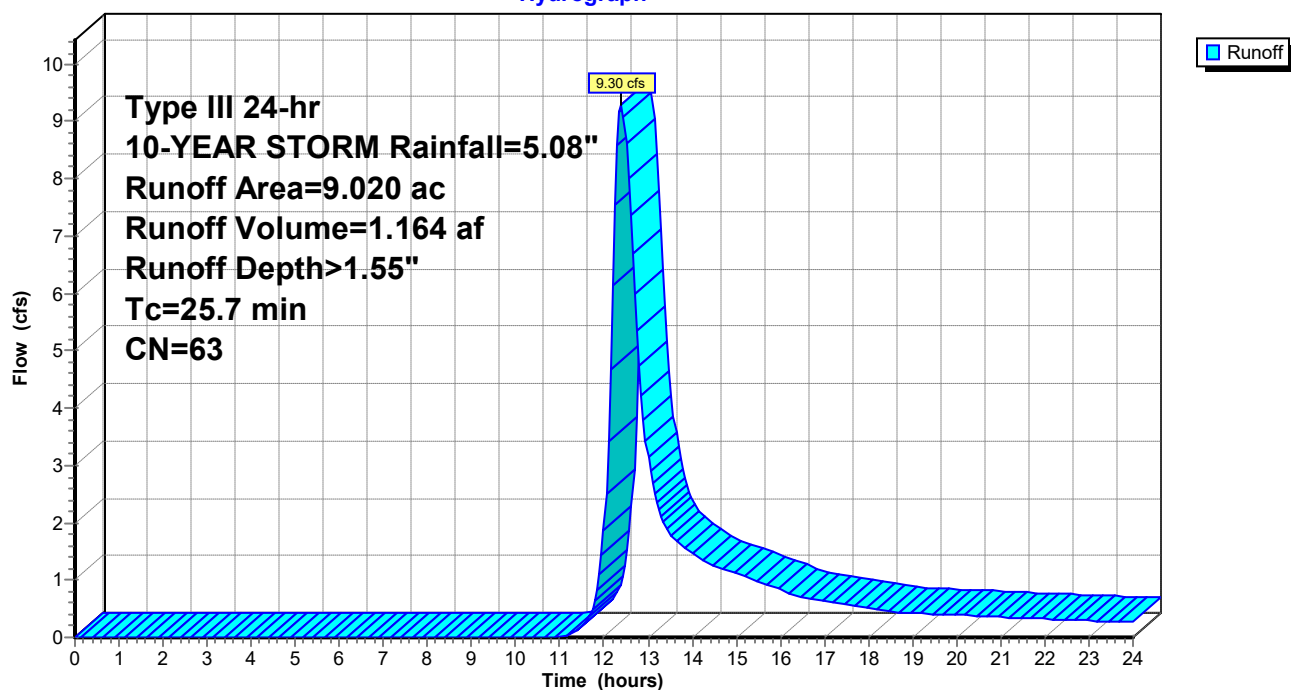
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 9.020	63	
9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7					Direct Entry, SCS TR-55

Subcatchment 4:

Hydrograph



Summary for Subcatchment 5:

Runoff = 14.32 cfs @ 12.47 hrs, Volume= 1.881 af, Depth> 2.08"

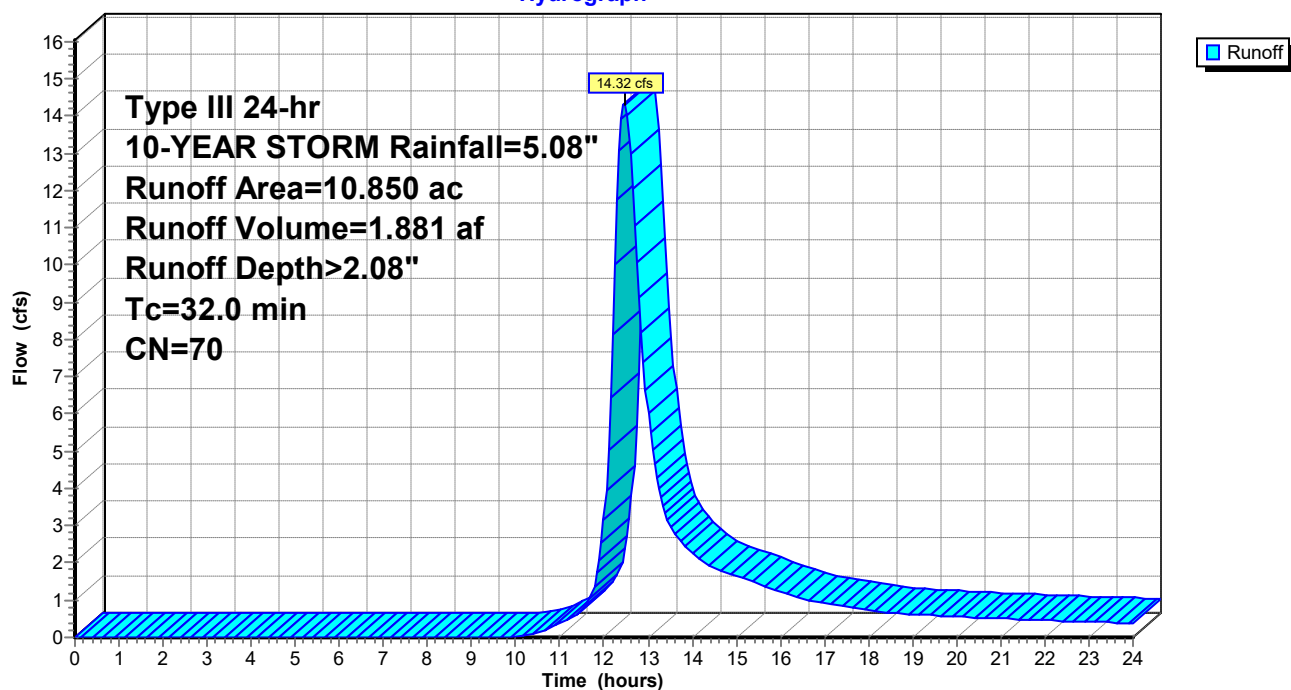
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YEAR STORM Rainfall=5.08"

Area (ac)	CN	Description
* 10.850	70	
10.850		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.0					Direct Entry, SCS TR-55

Subcatchment 5:

Hydrograph



Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 1.33" for 10-YEAR STORM event
 Inflow = 3.05 cfs @ 12.70 hrs, Volume= 0.520 af
 Outflow = 0.14 cfs @ 23.33 hrs, Volume= 0.018 af, Atten= 95%, Lag= 637.6 min
 Primary = 0.14 cfs @ 23.33 hrs, Volume= 0.018 af
 Secondary = 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= 129.27' @ 23.33 hrs Surf.Area= 7,181 sf Storage= 21,875 cf

Plug-Flow detention time= 664.6 min calculated for 0.018 af (3% of inflow)
 Center-of-Mass det. time= 491.2 min (1,394.7 - 903.5)

Volume	Invert	Avail.Storage	Storage Description
#1	124.00'	36,253 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.00	1,464	0	0
125.00	2,382	1,923	1,923
126.00	3,381	2,882	4,805
127.00	4,443	3,912	8,717
128.00	5,619	5,031	13,748
129.00	6,839	6,229	19,977
130.00	8,102	7,471	27,447
131.00	9,509	8,806	36,253

Device	Routing	Invert	Outlet Devices
#1	Primary	124.50'	18.0" Round Culvert L= 70.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 124.50' / 124.00' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	129.25'	30.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Secondary	130.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

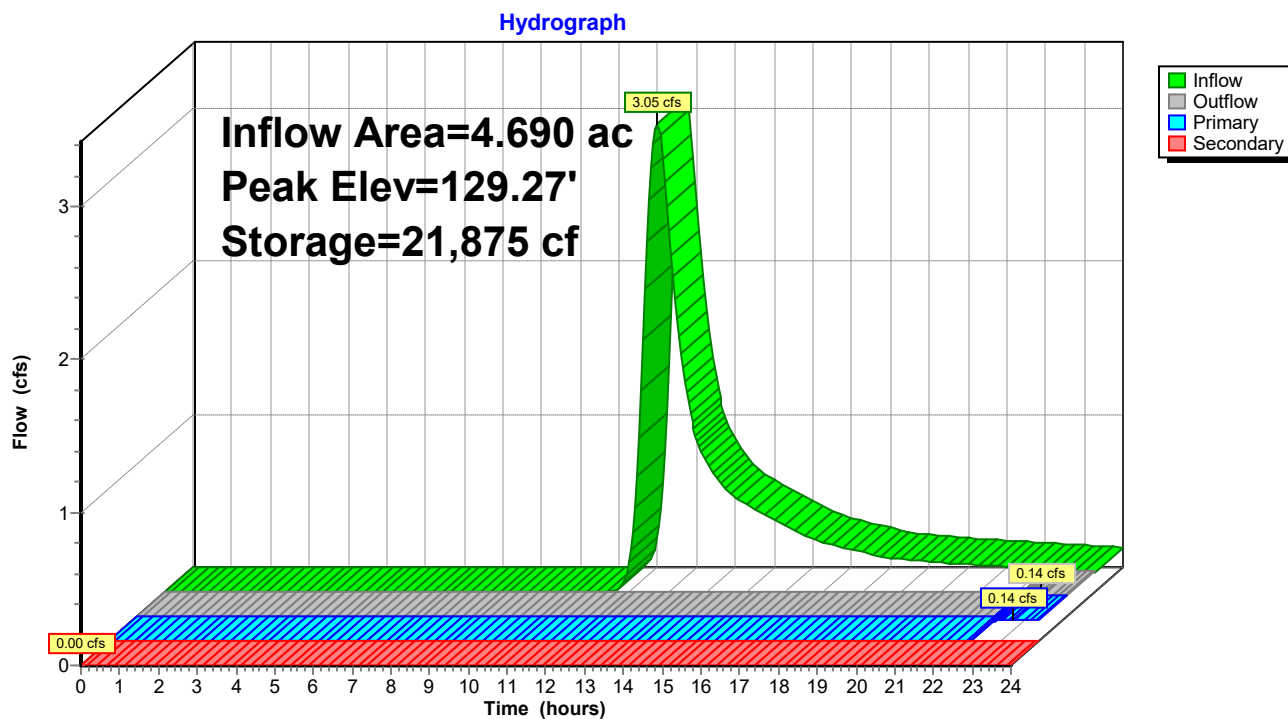
Primary OutFlow Max=0.08 cfs @ 23.33 hrs HW=129.27' (Free Discharge)

↑ **1=Culvert** (Passes 0.08 cfs of 17.06 cfs potential flow)
 ↑ **2=Orifice/Grate** (Weir Controls 0.08 cfs @ 0.47 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.00' (Free Discharge)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 8.910 ac, 0.00% Impervious, Inflow Depth > 1.40" for 10-YEAR STORM event
 Inflow = 6.21 cfs @ 12.69 hrs, Volume= 1.039 af
 Outflow = 0.29 cfs @ 22.97 hrs, Volume= 0.047 af, Atten= 95%, Lag= 616.6 min
 Primary = 0.29 cfs @ 22.97 hrs, Volume= 0.047 af
 Secondary = 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= 124.04' @ 22.97 hrs Surf.Area= 11,723 sf Storage= 43,196 cf

Plug-Flow detention time= 647.4 min calculated for 0.047 af (5% of inflow)
 Center-of-Mass det. time= 477.8 min (1,378.1 - 900.3)

Volume	Invert	Avail.Storage	Storage Description
#1	119.00'	83,261 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
119.00	5,600	0	0
120.00	6,708	6,154	6,154
121.00	7,871	7,290	13,444
122.00	9,092	8,482	21,925
123.00	10,369	9,731	31,656
124.00	11,703	11,036	42,692
125.00	12,160	11,932	54,623
126.00	14,538	13,349	67,972
127.00	16,040	15,289	83,261

Device	Routing	Invert	Outlet Devices
#1	Primary	119.00'	24.0" Round Culvert L= 86.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.00' / 118.50' S= 0.0058 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	126.00'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	124.00'	36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

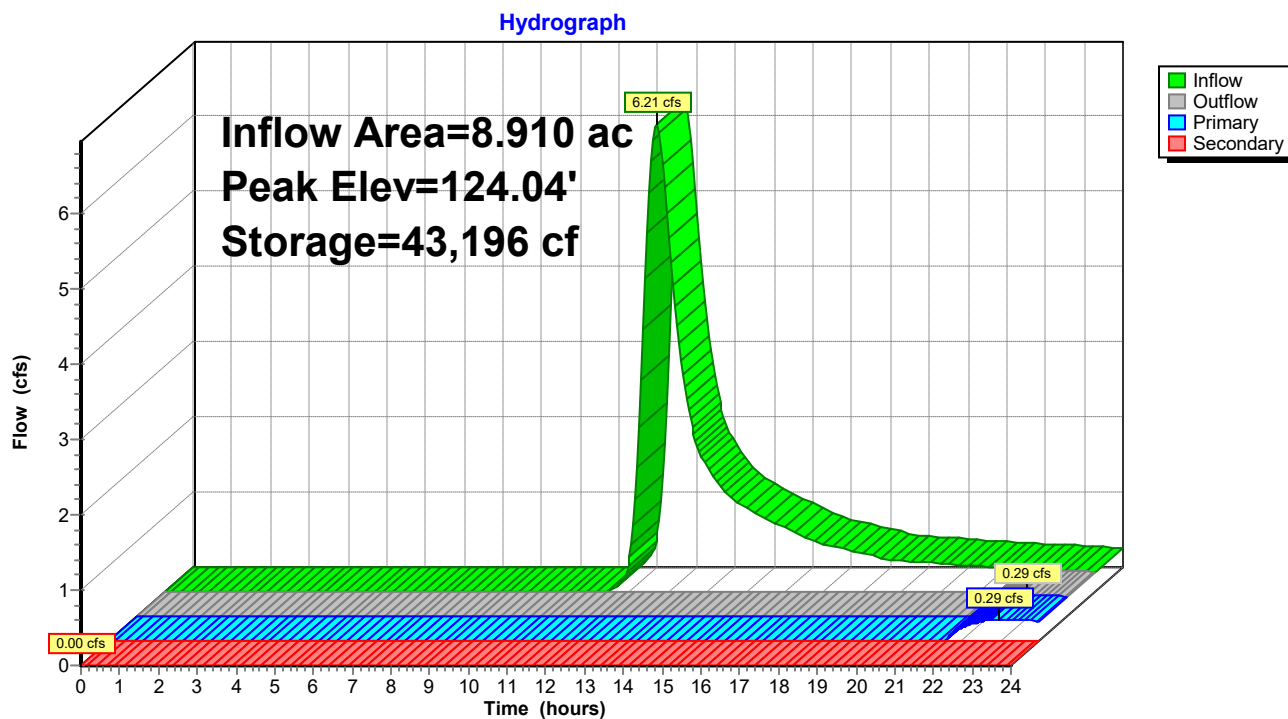
Primary OutFlow Max=0.28 cfs @ 22.97 hrs HW=124.04' (Free Discharge)

↑ **1=Culvert** (Passes 0.28 cfs of 30.42 cfs potential flow)
 ↑ **3=Orifice/Grate** (Weir Controls 0.28 cfs @ 0.68 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=119.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 7.940 ac, 0.00% Impervious, Inflow Depth > 1.33" for 10-YEAR STORM event
 Inflow = 5.72 cfs @ 12.59 hrs, Volume= 0.882 af
 Outflow = 0.24 cfs @ 23.00 hrs, Volume= 0.047 af, Atten= 96%, Lag= 624.4 min
 Primary = 0.24 cfs @ 23.00 hrs, Volume= 0.047 af
 Secondary = 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= 118.54' @ 23.00 hrs Surf.Area= 18,033 sf Storage= 36,392 cf

Plug-Flow detention time= 638.1 min calculated for 0.047 af (5% of inflow)
 Center-of-Mass det. time= 470.7 min (1,368.2 - 897.6)

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	65,972 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	10,723	0	0
117.00	13,549	12,136	12,136
118.00	16,443	14,996	27,132
119.00	19,403	17,923	45,055
120.00	22,431	20,917	65,972

Device	Routing	Invert	Outlet Devices
#1	Primary	116.00'	24.0" Round Culvert L= 85.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 116.00' / 115.50' S= 0.0059 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	119.75'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	118.50'	36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

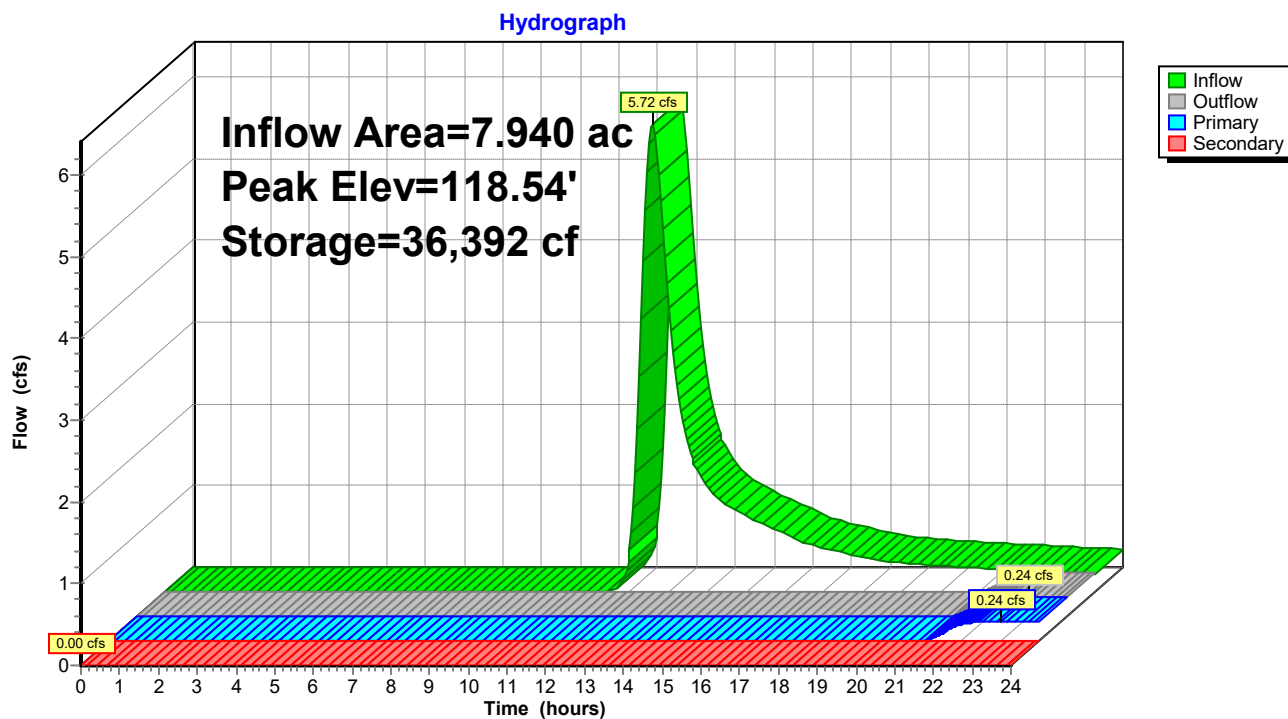
Primary OutFlow Max=0.22 cfs @ 23.00 hrs HW=118.54' (Free Discharge)

↑ **1=Culvert** (Passes 0.22 cfs of 17.56 cfs potential flow)
 ↑ **3=Orifice/Grate** (Weir Controls 0.22 cfs @ 0.63 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=116.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 1.55" for 10-YEAR STORM event
 Inflow = 9.30 cfs @ 12.39 hrs, Volume= 1.164 af
 Outflow = 0.30 cfs @ 22.83 hrs, Volume= 0.058 af, Atten= 97%, Lag= 625.8 min
 Primary = 0.30 cfs @ 22.83 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 124.79' @ 22.83 hrs Surf.Area= 13,602 sf Storage= 48,238 cf

Plug-Flow detention time= 652.4 min calculated for 0.058 af (5% of inflow)
 Center-of-Mass det. time= 488.6 min (1,368.3 - 879.8)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	82,177 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

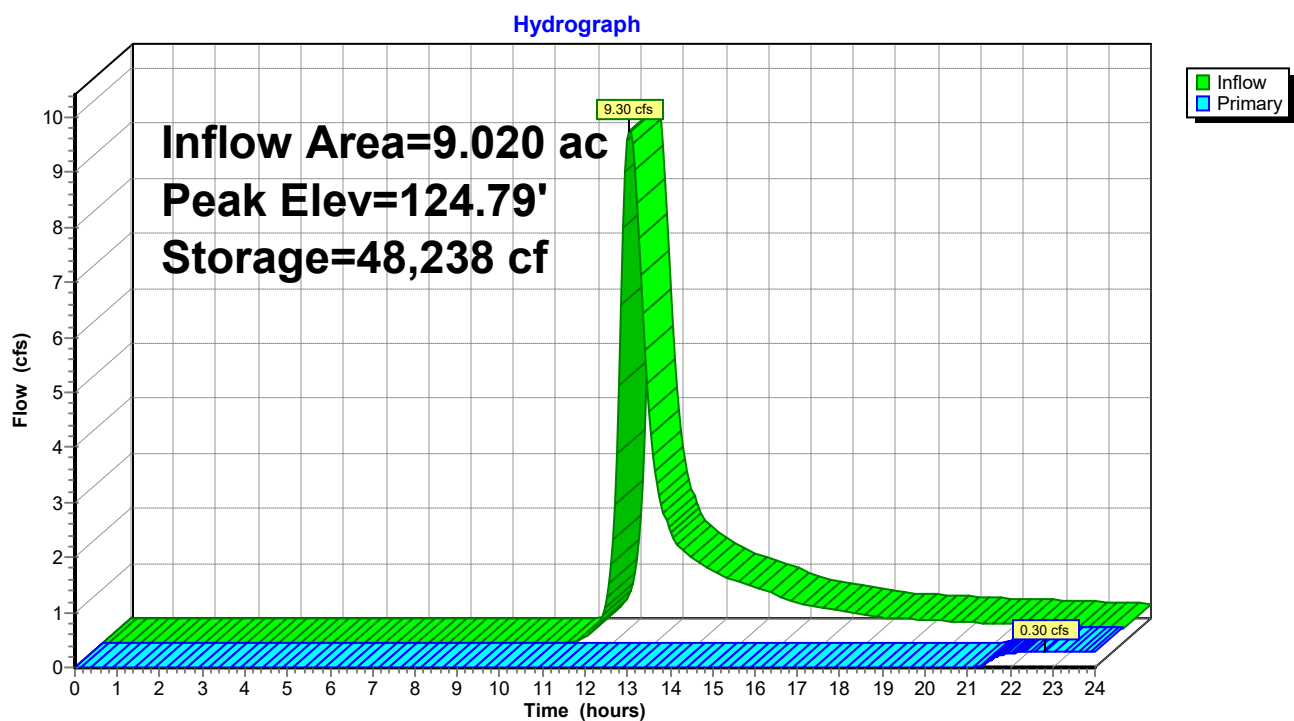
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	6,748	0	0
121.00	8,061	7,405	7,405
122.00	9,434	8,748	16,152
123.00	10,869	10,152	26,304
124.00	12,365	11,617	37,921
125.00	13,922	13,144	51,064
126.00	15,541	14,732	65,796
127.00	17,221	16,381	82,177

Device	Routing	Invert	Outlet Devices
#1	Primary	120.00'	18.0" Round Culvert L= 53.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.00' / 119.50' S= 0.0094 ' S= 0.0094 ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	126.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 0.5' Crest Height
#3	Device 1	124.75'	30.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.24 cfs @ 22.83 hrs HW=124.79' (Free Discharge)

1=Culvert (Passes 0.24 cfs of 17.11 cfs potential flow)
 2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)
 3=Orifice/Grate (Weir Controls 0.24 cfs @ 0.69 fps)

Pond 4 - Pond: 4 - Pond



Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 10.850 ac, 0.00% Impervious, Inflow Depth > 2.08" for 10-YEAR STORM event
 Inflow = 14.32 cfs @ 12.47 hrs, Volume= 1.881 af
 Outflow = 0.51 cfs @ 20.89 hrs, Volume= 0.162 af, Atten= 96%, Lag= 505.6 min
 Primary = 0.51 cfs @ 20.89 hrs, Volume= 0.162 af
 Secondary = 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= 129.31' @ 20.89 hrs Surf.Area= 15,876 sf Storage= 75,029 cf

Plug-Flow detention time= 604.1 min calculated for 0.162 af (9% of inflow)
 Center-of-Mass det. time= 443.8 min (1,310.2 - 866.5)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	86,402 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,177	0	0
123.00	6,454	5,816	5,816
124.00	7,790	7,122	12,938
125.00	9,184	8,487	21,425
126.00	10,638	9,911	31,336
127.00	12,150	11,394	42,730
128.00	13,721	12,936	55,665
129.00	15,351	14,536	70,201
130.00	17,050	16,201	86,402

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.00' / 117.00' S= 0.1000 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	129.50'	20.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	129.25'	36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

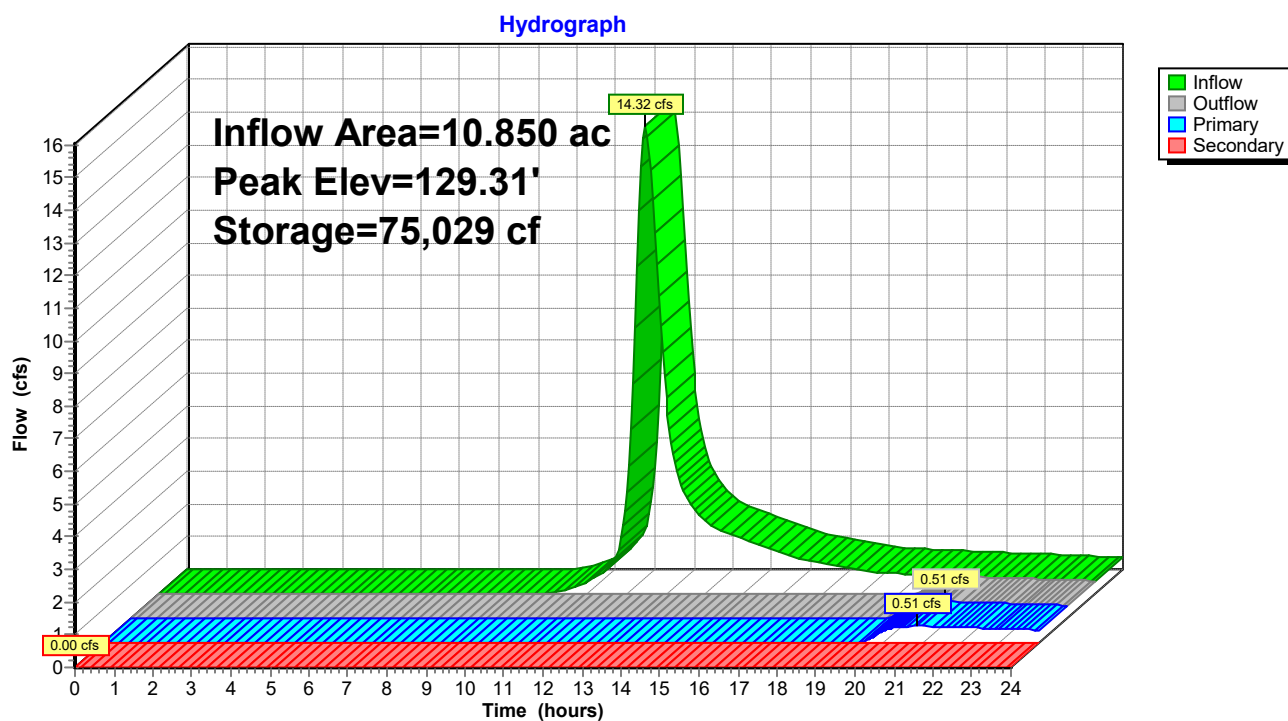
Primary OutFlow Max=0.44 cfs @ 20.89 hrs HW=129.31' (Free Discharge)

↑ **1=Culvert** (Passes 0.44 cfs of 38.00 cfs potential flow)
 ↑ **3=Orifice/Grate** (Weir Controls 0.44 cfs @ 0.80 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Stonington Solar Array Facility
North Stonington, CT
SRC

5/24/2021

RipRap Calculations

Storm Event: 25-yr, 24-hr

Culvert #	Q (cfs)	D _o (ft)	TW (ft)	L _a (ft)	W (ft)	d ₅₀ (ft)
1A	2.56	1.25	0.59	13.1	16.9	0.09
1B	11.49	1.25	1.25	24.0	13.3	0.31
1C	7.25	2	0.67	20.4	26.4	0.17
2	8.43	1.25	1.25	20.3	11.9	0.20
4	4.71	1.5	0.73	16.4	20.9	0.13
5	27.13	2	1.33	32.3	18.9	0.49
D1A	1.75	1	0.84	11.0	7.4	0.05

Note:

1. Normal depth of flow calculated and input as tailwater
2. D_o is the maximum inside culvert width
3. Q is the pipe discharge for the conduit design storm of the 25-year storm, whichever is greater
4. L_a is the length of the apron

$$L_a = \frac{1.7Q}{D_o^{3/2}} + 8D_o$$

5. For TW ≥ center of pipe elevation, W = 3D_o + 0.4L_a
For TW < elevation of center of pipe, W = 3D_o + L_a

6. d₅₀ is median stone diameter

$$d_{50} = \left(\frac{0.02}{TW}\right) \left(\frac{Q}{D_o}\right)^{4/3}$$

Circular Pipe (Pond Culverts.fm8) Report

Label	Solve For	Friction Method	Roughness Coefficient
1A	Normal Depth	Manning Formula	0.012
1B *Full Pipe Flow	Normal Depth	Manning Formula	0.012
1C	Normal Depth	Manning Formula	0.012
2	Normal Depth	Manning Formula	0.012
3-Removed	Normal Depth	Manning Formula	0.012
4 *Full Pipe Flow	Normal Depth	Manning Formula	0.012
5	Normal Depth	Manning Formula	0.012
Offsite-1	Normal Depth	Manning Formula	0.013

Channel Slope (ft/ft)	Normal Depth (ft)	Diameter (ft)	Discharge (ft ³ /s)
0.01000	0.52	1.25	2.56
0.01000	1.24	1.25	11.49
0.01480	0.67	2.00	7.25
0.00970	1.07	1.25	8.43
0.15560	0.32	1.50	4.59
0.00750	0.73	1.50	4.71
0.00600	1.33	2.00	27.13
0.06000	0.34	1.00	2.19

Flow Area (ft ²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Top Width (ft)
0.49	1.76	0.28	1.23
1.57	3.43	0.46	1.13
0.93	2.47	0.37	1.89
1.12	2.96	0.38	0.87
0.28	1.45	0.19	1.23
0.85	2.32	0.37	1.50

Circular Pipe (Pond Culverts.fm8) Report

Flow Area (ft ²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Top Width (ft)
2.22	3.82	0.58	1.89
0.24	1.25	0.19	0.95

Critical Depth (ft)	Percent Full (%)	Critical Slope (ft/ft)	Velocity (ft/s)
0.64	41.8	0.00491	5.26
1.29	82.9	0.00941	7.34
0.96	33.6	0.00408	7.83
1.07	85.9	0.00975	6.38
0.82	21.6	0.00478	16.35
0.83	48.7	0.00482	5.52
1.81	66.6	0.01074	12.21
0.63	34.2	0.00713	9.24

Velocity Head (ft)	Specific Energy (ft)	Froude Number	Maximum Discharge (ft ³ /s)
0.43	0.95	1.48	7.53
0.84	2.08	1.10	12.24
0.95	1.62	1.97	32.07
0.63	1.71	0.99	7.41
4.16	4.48	6.05	48.28
0.47	1.20	1.29	10.60
2.32	3.65	1.98	37.28
1.33	1.67	3.26	9.39

Discharge Full (ft ³ /s)	Slope Full (ft/ft)	Flow Type	Notes
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Circular Pipe (Pond Culverts.fm8) Report

Discharge Full (ft ³ /s)	Slope Full (ft/ft)	Flow Type	Notes
7.00	0.00134	SuperCritical	
11.38	0.01020	SuperCritical	
29.81	0.00088	SuperCritical	
6.89	0.01045	SubCritical	
44.89	0.00163	SuperCritical	
9.85	0.00171	SuperCritical	
34.66	0.01226	SuperCritical	
8.73	0.00378	SuperCritical	

Messages

Appendix I

Culvert, Ditch, and Water
Quality Calculations

H22



NOT FOR
CONSTRUCTION

STONINGTON
SOLAR

428, PROVIDENCE-NEW LONDON TURNPIKE
NORTH STONINGTON, CT 06359, USA
LAT: 41.431830°N
LON: 71.821514°W

STONINGTON, CT

REV. NO.	DESCRIPTION	DATE
2	RE-ISSUED FOR PERMIT	05/28/21
1	RE-ISSUED FOR PERMIT	02/19/21
0	ISSUED FOR PERMIT	09/30/20

SHEET TITLE:

CULVERT DRAINAGE AREAS

PROJECT WORK	PROJECT ENGINEER	DATE
WK	MB	5/28/21
DATE	DATE	DATE
NO.	NO.	NO.
1/250	1/250	1/250
DRAWING NO.	DRAWING NO.	DRAWING NO.

EXHIBIT



H2R



NOT FOR
CONSTRUCTION

STONINGTON
SOLAR

428, PROVIDENCE-NEW LONDON TURNPIKE
NORTH STONINGTON, CT 06359, USA
LAT: 41.431880°N
LON: 71.821514°W

STONINGTON, CT

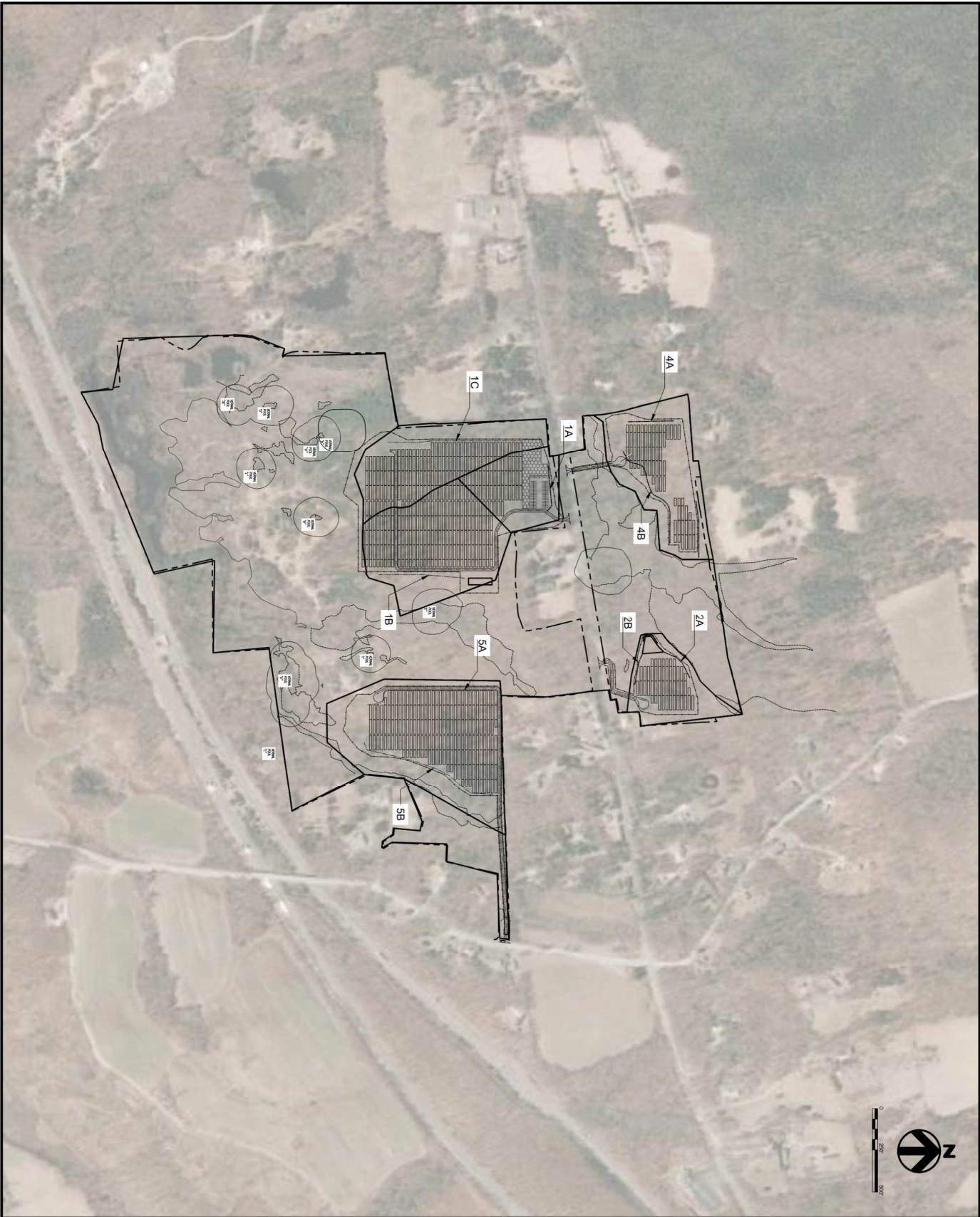
REV. NO	DESCRIPTION	DATE
2	RE-ISSUED FOR PERMIT	05/28/21
1	RE-ISSUED FOR PERMIT	02/19/21
0	ISSUED FOR PERMIT	09/30/20

SHEET TITLE:

DITCH DRAINAGE AREA
EXHIBIT

PROJECT WORK	PROJECT ENGINEER	DATE
WORK	MM	5/28/21
DESIGN	MM	02/19/21
NO	GP	1/25/20

EXHIBIT



Stonington Solar Array Facility
 North Stonington, CT
 SRC

9/23/2020

Culvert Calculations

Storm Event: 50-yr

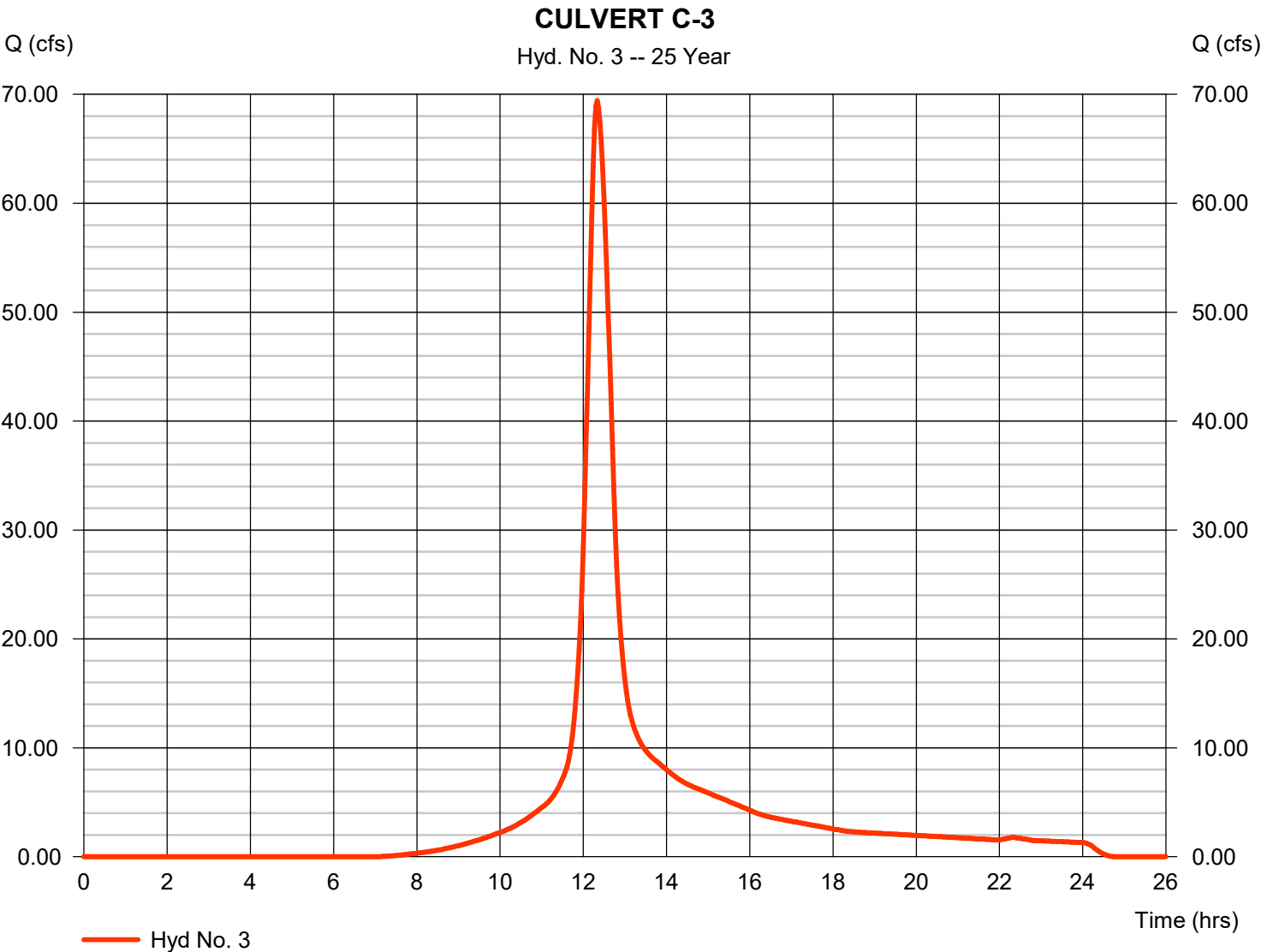
Culvert	Type	Est. Peak Flow Q 25 (cfs)	Est. Peak Flow Q 50-yr (cfs)	Length (ft)	Shape	Span (ft)	Rise (ft)	Area (sf)	Open Area (sf)	OR (Open Area) / Length	Ex Stream Slope (%)	Arch Req'd
C-1	New	126.13	163.36	20	Box	9	3.00	27	18	0.90	0.40	No
C-3	New	69.43	87.23	20	Arch (Bottomless)	9	2.92	26.25	26.25	1.31	5.4	Yes
C-4	Existing	83.36	104.78	20	Arch (Bottomless)	10	3.46	34.58	34.58	1.73	3.5	Yes

Hydrograph Report

Hyd. No. 3

CULVERT C-3

Hydrograph type	= SCS Runoff	Peak discharge	= 69.43 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.33 hrs
Time interval	= 2 min	Hyd. volume	= 363,040 cuft
Drainage area	= 27.980 ac	Curve number	= 80
Basin Slope	= 3.2 %	Hydraulic length	= 1874 ft
Tc method	= LAG	Time of conc. (Tc)	= 29.42 min
Total precip.	= 5.77 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

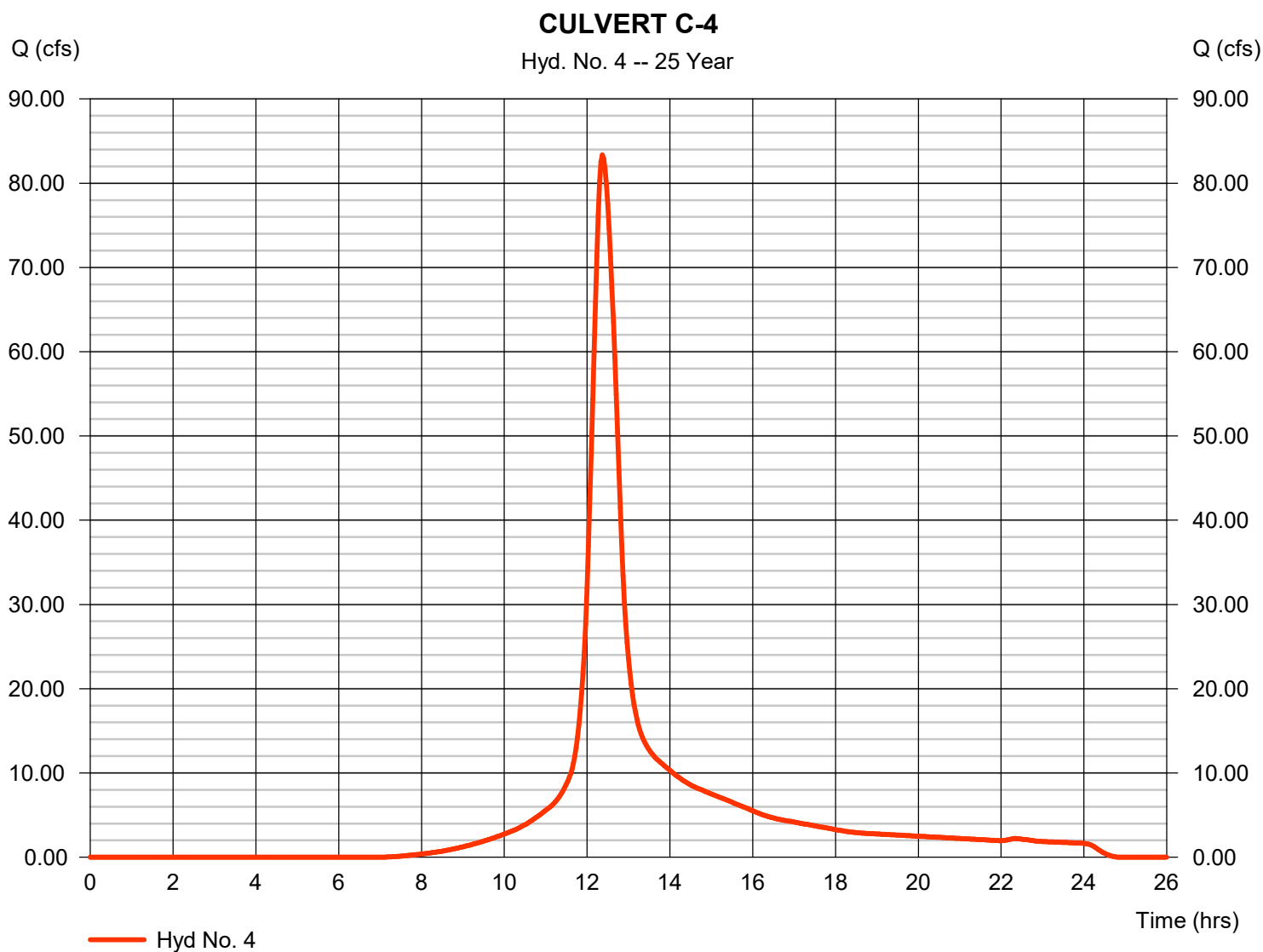
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v2018.3

Wednesday, 09 / 23 / 2020

Hyd. No. 4

CULVERT C-4

Hydrograph type	= SCS Runoff	Peak discharge	= 83.36 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.37 hrs
Time interval	= 2 min	Hyd. volume	= 460,589 cuft
Drainage area	= 35.060 ac	Curve number	= 80
Basin Slope	= 3.6 %	Hydraulic length	= 2196 ft
Tc method	= LAG	Time of conc. (Tc)	= 31.49 min
Total precip.	= 5.77 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v2018.3

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	163.36	2	746	981,098	-----	-----	-----	CULVERT C-1
2	SCS Runoff	28.04	2	740	146,448	-----	-----	-----	CULVERT C-2
3	SCS Runoff	87.23	2	740	458,092	-----	-----	-----	CULVERT C-3
4	SCS Runoff	104.78	2	742	581,182	-----	-----	-----	CULVERT C-4
STONINGTON-CULVERTS.gpw					Return Period: 50 Year			Wednesday, 09 / 23 / 2020	

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v2018.3

Wednesday, 09 / 23 / 2020

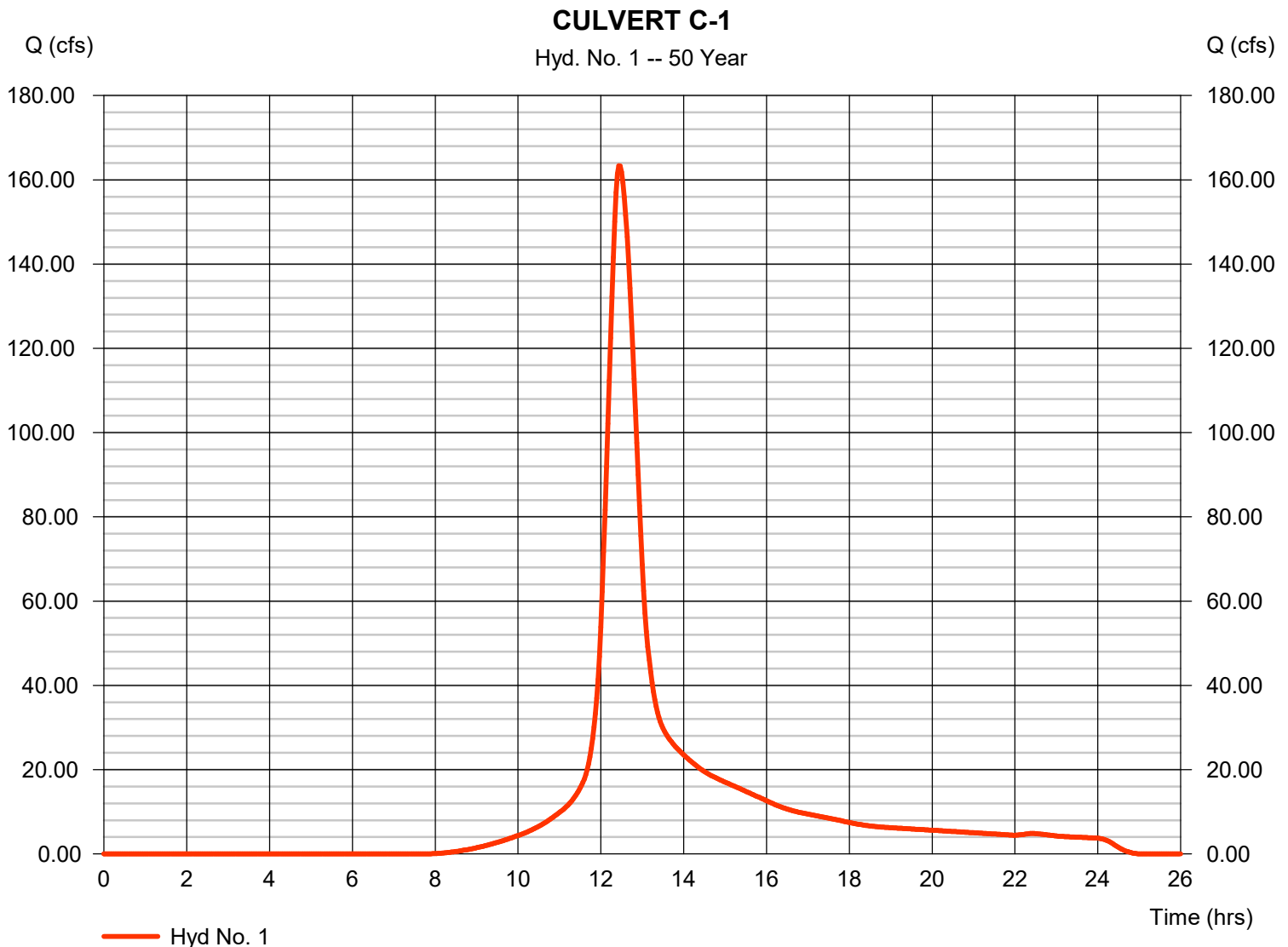
Hyd. No. 1

CULVERT C-1

Hydrograph type = SCS Runoff
 Storm frequency = 50 yrs
 Time interval = 2 min
 Drainage area = 69.870 ac
 Basin Slope = 4.5 %
 Tc method = LAG
 Total precip. = 6.80 in
 Storm duration = 24 hrs

Peak discharge = 163.36 cfs
 Time to peak = 12.43 hrs
 Hyd. volume = 981,098 cuft
 Curve number = 74*
 Hydraulic length = 2679 ft
 Time of conc. (Tc) = 39.45 min
 Distribution = Type III
 Shape factor = 484

* Composite (Area/CN) = $[(35.000 \times 79) + (34.870 \times 68)] / 69.870$



Hydrograph Report

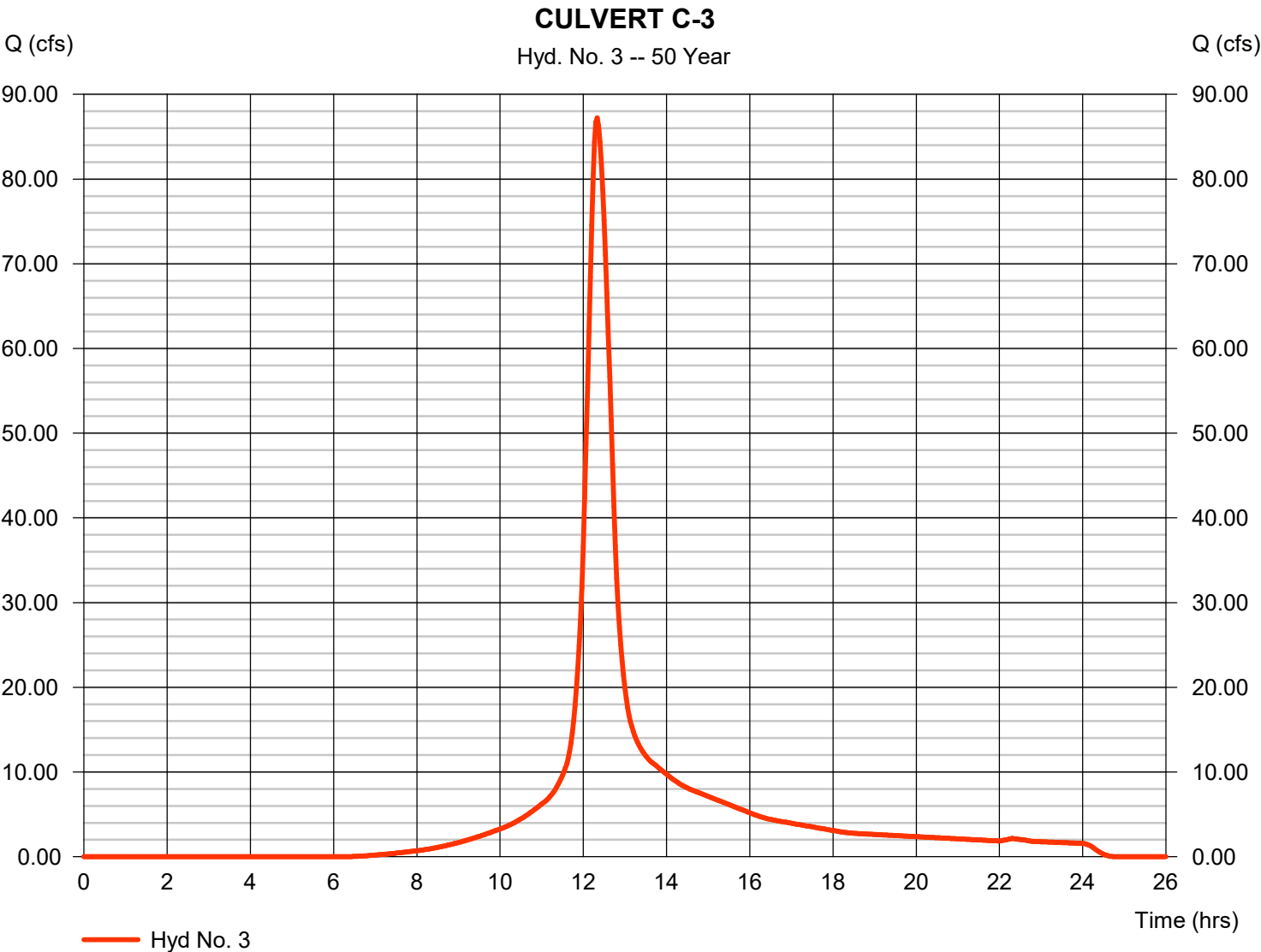
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v2018.3

Wednesday, 09 / 23 / 2020

Hyd. No. 3

CULVERT C-3

Hydrograph type	= SCS Runoff	Peak discharge	= 87.23 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.33 hrs
Time interval	= 2 min	Hyd. volume	= 458,092 cuft
Drainage area	= 27.980 ac	Curve number	= 80
Basin Slope	= 3.2 %	Hydraulic length	= 1874 ft
Tc method	= LAG	Time of conc. (Tc)	= 29.42 min
Total precip.	= 6.80 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

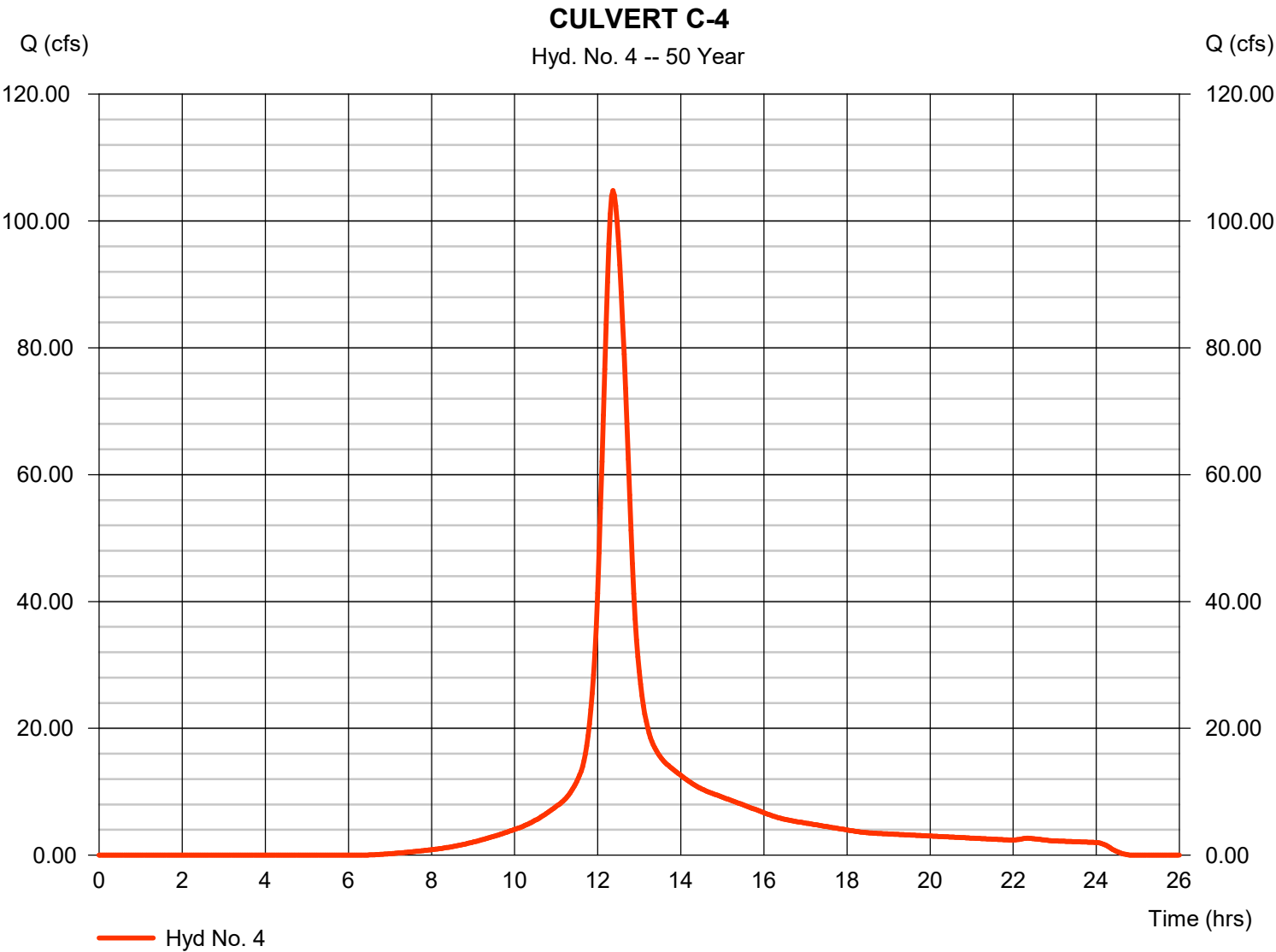
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v2018.3

Wednesday, 09 / 23 / 2020

Hyd. No. 4

CULVERT C-4

Hydrograph type	= SCS Runoff	Peak discharge	= 104.78 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.37 hrs
Time interval	= 2 min	Hyd. volume	= 581,182 cuft
Drainage area	= 35.060 ac	Curve number	= 80
Basin Slope	= 3.6 %	Hydraulic length	= 2196 ft
Tc method	= LAG	Time of conc. (Tc)	= 31.49 min
Total precip.	= 6.80 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



HY-8 Culvert Analysis Report

Water Surface Profile Plot for Culvert: CULV C-1

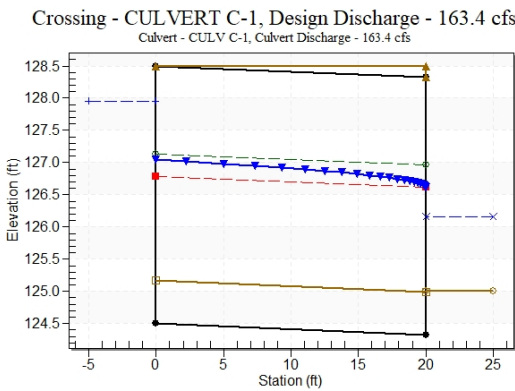


Table 1 - Culvert Summary Table: CULV C-1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	125.62	0.418	0.451	3-M 2t	0.360	0.251	0.276	0.272	2.592	2.887
25.34	25.34	125.99	0.795	0.818	2-M 2c	0.632	0.467	0.467	0.453	3.878	3.848
40.67	40.67	126.28	1.090	1.112	2-M 2c	0.843	0.640	0.640	0.582	4.539	4.419
56.01	56.01	126.54	1.349	1.371	2-M 2c	1.024	0.792	0.792	0.686	5.050	4.842
71.34	71.34	126.77	1.585	1.606	2-M 2c	1.186	0.931	0.931	0.776	5.474	5.180
86.68	86.68	126.99	1.801	1.826	2-M 2c	1.335	1.060	1.060	0.855	5.842	5.466
102.02	102.02	127.20	2.001	2.033	2-M 2c	1.474	1.181	1.181	0.927	6.168	5.715
117.35	117.35	127.40	2.192	2.231	2-M 2c	1.606	1.297	1.297	0.992	6.462	5.936
132.69	132.69	127.59	2.375	2.420	2-M 2c	1.731	1.408	1.408	1.053	6.732	6.135
148.02	148.02	127.77	2.551	2.602	2-M 2c	1.851	1.514	1.514	1.110	6.982	6.318
163.36	163.36	127.94	2.723	2.778	2-M 2c	1.966	1.617	1.617	1.164	7.216	6.487

 Straight Culvert
 Inlet Elevation (invert): 125.17 ft, Outlet Elevation (invert): 125.00 ft
 Culvert Length: 20.00 ft, Culvert Slope: 0.0085

Site Data - CULV C-1

Site Data Option: Culvert Invert Data
 Inlet Station: 0.00 ft
 Inlet Elevation: 124.50 ft
 Outlet Station: 20.00 ft
 Outlet Elevation: 124.33 ft
 Number of Barrels: 1

Culvert Data Summary - CULV C-1

Barrel Shape: Concrete Box
 Barrel Span: 14.00 ft

Barrel Rise: 4.00 ft
 Barrel Material: Concrete
 Embedment: 8.00 in
 Barrel Manning's n: 0.0120 (top and sides)
 Manning's n: 0.0350 (bottom)
 Culvert Type: Straight
 Inlet Configuration: Square Edge (90°) Headwall
 Inlet Depression: None

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 10 cfs

Design Flow: 163.36 cfs

Maximum Flow: 163.36 cfs

Table 2 - Summary of Culvert Flows at Crossing: CULVERT C-1

Headwater Elevation (ft)	Total Discharge (cfs)	CULV C-1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
125.62	10.00	10.00	0.00	1
125.99	25.34	25.34	0.00	1
126.28	40.67	40.67	0.00	1
126.54	56.01	56.01	0.00	1
126.77	71.34	71.34	0.00	1
126.99	86.68	86.68	0.00	1
127.20	102.02	102.02	0.00	1
127.40	117.35	117.35	0.00	1
127.59	132.69	132.69	0.00	1
127.77	148.02	148.02	0.00	1
127.94	163.36	163.36	0.00	1
128.50	214.82	214.82	0.00	Overtopping

Table 3 - Downstream Channel Rating Curve (Crossing: CULVERT C-1)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
10.00	125.27	0.27	2.89	0.58	1.07
25.34	125.45	0.45	3.85	0.96	1.15
40.67	125.58	0.58	4.42	1.23	1.19
56.01	125.69	0.69	4.84	1.46	1.22
71.34	125.78	0.78	5.18	1.65	1.24
86.68	125.85	0.85	5.47	1.81	1.26
102.02	125.93	0.93	5.71	1.97	1.27
117.35	125.99	0.99	5.94	2.11	1.29
132.69	126.05	1.05	6.14	2.23	1.30
148.02	126.11	1.11	6.32	2.36	1.31
163.36	126.16	1.16	6.49	2.47	1.31

Tailwater Channel Data - CULVERT C-1

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 10.00 ft

Side Slope (H:V): 10.00 (1:1)

Channel Slope: 0.0340

Channel Manning's n: 0.0350

Channel Invert Elevation: 125.00 ft

Roadway Data for Crossing: CULVERT C-1

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 200.00 ft

Crest Elevation: 128.50 ft

Roadway Surface: Gravel

Roadway Top Width: 20.00 ft

Water Surface Profile Plot for Culvert: CULV C-3

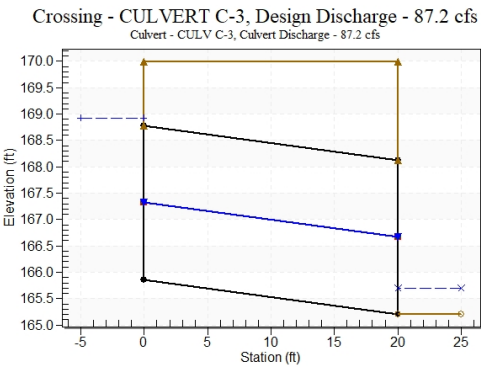


Table 7 - Culvert Summary Table: CULV C-3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	166.47	0.610	0.0*	1-S2n	0.329	0.339	0.329	0.134	3.441	2.628
17.72	17.72	166.76	0.900	0.0*	1-S2n	0.476	0.499	0.476	0.189	4.261	3.288
25.45	25.45	167.01	1.153	0.062	1-S2n	0.603	0.636	0.603	0.234	4.861	3.784
33.17	33.17	167.25	1.386	0.239	1-S2n	0.721	0.760	0.721	0.274	5.348	4.194
40.89	40.89	167.47	1.614	0.422	1-S2n	0.832	0.875	0.832	0.311	5.755	4.545
48.62	48.62	167.71	1.846	0.612	1-S2n	0.940	0.984	0.940	0.345	6.110	4.857
56.34	56.34	167.94	2.077	0.810	1-S2n	1.044	1.087	1.044	0.376	6.421	5.138
64.06	64.06	168.17	2.308	1.017	1-S2n	1.148	1.185	1.151	0.406	6.685	5.396
71.78	71.78	168.38	2.519	1.235	1-S2n	1.252	1.279	1.252	0.435	6.943	5.634
79.51	79.51	168.59	2.729	1.463	1-S2n	1.356	1.370	1.356	0.462	7.166	5.855
87.23	87.23	168.92	2.939	3.064	7-M2c	1.461	1.458	1.458	0.488	7.380	6.064

* Full Flow Headwater elevation is below inlet invert.

Straight Culvert
Inlet Elevation (invert): 165.86 ft, Outlet Elevation (invert): 165.21 ft
Culvert Length: 20.01 ft, Culvert Slope: 0.0325

Site Data - CULV C-3

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 165.86 ft

Outlet Station: 20.00 ft

Outlet Elevation: 165.21 ft

Number of Barrels: 1

Culvert Data Summary - CULV C-3

Barrel Shape: Arch, Open Bottom

Barrel Span: 9.00 ft

Barrel Rise: 2.92 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0350 (top and sides)

Manning's n: 0.0350 (bottom)

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 10 cfs

Design Flow: 87.23 cfs

Maximum Flow: 87.23 cfs

Table 8 - Summary of Culvert Flows at Crossing: CULVERT C-3

Headwater Elevation (ft)	Total Discharge (cfs)	CULV C-3 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
166.47	10.00	10.00	0.00	1
166.76	17.72	17.72	0.00	1
167.01	25.45	25.45	0.00	1
167.25	33.17	33.17	0.00	1
167.47	40.89	40.89	0.00	1
167.71	48.62	48.62	0.00	1
167.94	56.34	56.34	0.00	1
168.17	64.06	64.06	0.00	1
168.38	71.78	71.78	0.00	1
168.59	79.51	79.51	0.00	1
168.92	87.23	87.23	0.00	1
170.00	129.81	129.81	0.00	Overtopping

Table 9 - Downstream Channel Rating Curve (Crossing: CULVERT C-3)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
10.00	165.34	0.13	2.63	0.48	1.27
17.72	165.40	0.19	3.29	0.67	1.35
25.45	165.44	0.23	3.78	0.83	1.39
33.17	165.48	0.27	4.19	0.98	1.43
40.89	165.52	0.31	4.55	1.11	1.46
48.62	165.55	0.34	4.86	1.23	1.48
56.34	165.59	0.38	5.14	1.34	1.50
64.06	165.62	0.41	5.40	1.45	1.52
71.78	165.64	0.43	5.63	1.55	1.54
79.51	165.67	0.46	5.86	1.64	1.55
87.23	165.70	0.49	6.06	1.74	1.57

Tailwater Channel Data - CULVERT C-3

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 28.00 ft

Side Slope (H:V): 3.00 (1:1)

Channel Slope: 0.0570

Channel Manning's n: 0.0350

Channel Invert Elevation: 165.21 ft

Roadway Data for Crossing: CULVERT C-3

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 170.00 ft

Roadway Surface: Gravel

Roadway Top Width: 20.00 ft

Water Surface Profile Plot for Culvert: CULV C-4

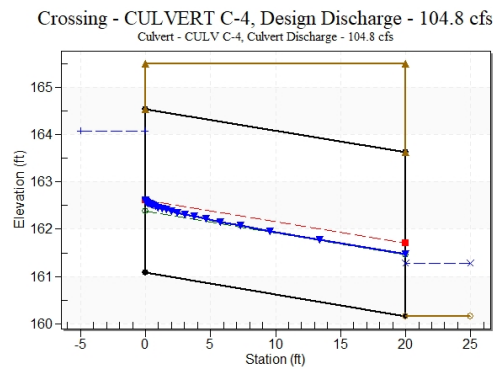


Table 10 - Culvert Summary Table: CULV C-4

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	161.64	0.558	0.0*	1-S2n	0.275	0.316	0.275	0.321	3.678	2.481
19.48	19.48	161.96	0.876	0.0*	1-S2n	0.419	0.494	0.419	0.464	4.745	3.060
28.96	28.96	162.23	1.147	0.0*	1-S2n	0.541	0.645	0.541	0.575	5.496	3.449
38.43	38.43	162.47	1.393	0.0*	1-S2n	0.649	0.780	0.649	0.668	6.105	3.749
47.91	47.91	162.70	1.623	0.139	1-S2n	0.751	0.904	0.751	0.750	6.611	3.996
57.39	57.39	162.93	1.850	0.319	1-S2n	0.849	1.021	0.849	0.823	7.050	4.207
66.87	66.87	163.16	2.083	0.504	1-S2n	0.942	1.132	0.942	0.890	7.438	4.392
76.35	76.35	163.40	2.315	0.696	1-S2n	1.033	1.239	1.033	0.951	7.788	4.557
85.82	85.82	163.63	2.548	0.893	1-S2n	1.121	1.340	1.121	1.009	8.106	4.707
95.30	95.30	163.86	2.776	1.099	1-S2n	1.208	1.437	1.215	1.063	8.358	4.845
104.78	104.78	164.07	2.987	1.312	1-S2n	1.295	1.531	1.302	1.114	8.620	4.972

* Full Flow Headwater elevation is below inlet invert.

Straight Culvert
Inlet Elevation (invert): 161.08 ft, Outlet Elevation (invert): 160.17 ft
Culvert Length: 20.02 ft, Culvert Slope: 0.0455

Site Data - CULV C-4

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 161.08 ft

Outlet Station: 20.00 ft

Outlet Elevation: 160.17 ft

Number of Barrels: 1

Culvert Data Summary - CULV C-4

Barrel Shape: Arch, Open Bottom

Barrel Span: 10.00 ft

Barrel Rise: 3.46 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0350 (top and sides)

Manning's n: 0.0350 (bottom)

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 10 cfs

Design Flow: 104.78 cfs

Maximum Flow: 104.78 cfs

Table 11 - Summary of Culvert Flows at Crossing: CULVERT C-4

Headwater Elevation (ft)	Total Discharge (cfs)	CULV C-4 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
161.64	10.00	10.00	0.00	1
161.96	19.48	19.48	0.00	1
162.23	28.96	28.96	0.00	1
162.47	38.43	38.43	0.00	1
162.70	47.91	47.91	0.00	1
162.93	57.39	57.39	0.00	1
163.16	66.87	66.87	0.00	1
163.40	76.35	76.35	0.00	1
163.63	85.82	85.82	0.00	1
163.86	95.30	95.30	0.00	1
164.07	104.78	104.78	0.00	1
165.50	168.02	168.02	0.00	Overtopping

Table 12 - Downstream Channel Rating Curve (Crossing: CULVERT C-4)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
10.00	160.49	0.32	2.48	0.40	0.85
19.48	160.63	0.46	3.06	0.58	0.89
28.96	160.74	0.57	3.45	0.72	0.92
38.43	160.84	0.67	3.75	0.83	0.94
47.91	160.92	0.75	4.00	0.94	0.95
57.39	160.99	0.82	4.21	1.03	0.97
66.87	161.06	0.89	4.39	1.11	0.98
76.35	161.12	0.95	4.56	1.19	0.99
85.82	161.18	1.01	4.71	1.26	0.99
95.30	161.23	1.06	4.85	1.33	1.00
104.78	161.28	1.11	4.97	1.39	1.01

Tailwater Channel Data - CULVERT C-4

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 10.00 ft

Side Slope (H:V): 8.00 (1:1)

Channel Slope: 0.0200

Channel Manning's n: 0.0350

Channel Invert Elevation: 160.17 ft

Roadway Data for Crossing: CULVERT C-4

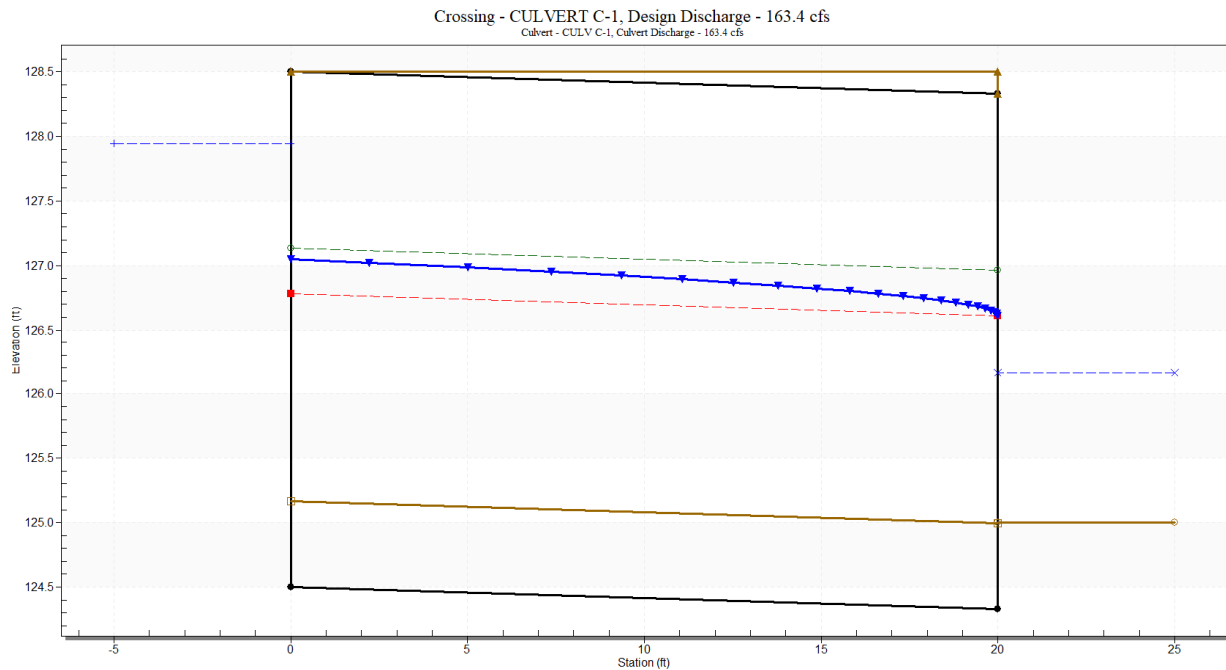
Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 165.50 ft

Roadway Surface: Gravel

Roadway Top Width: 20.00 ft



Crossing Data - CULVERT C-1

Name:

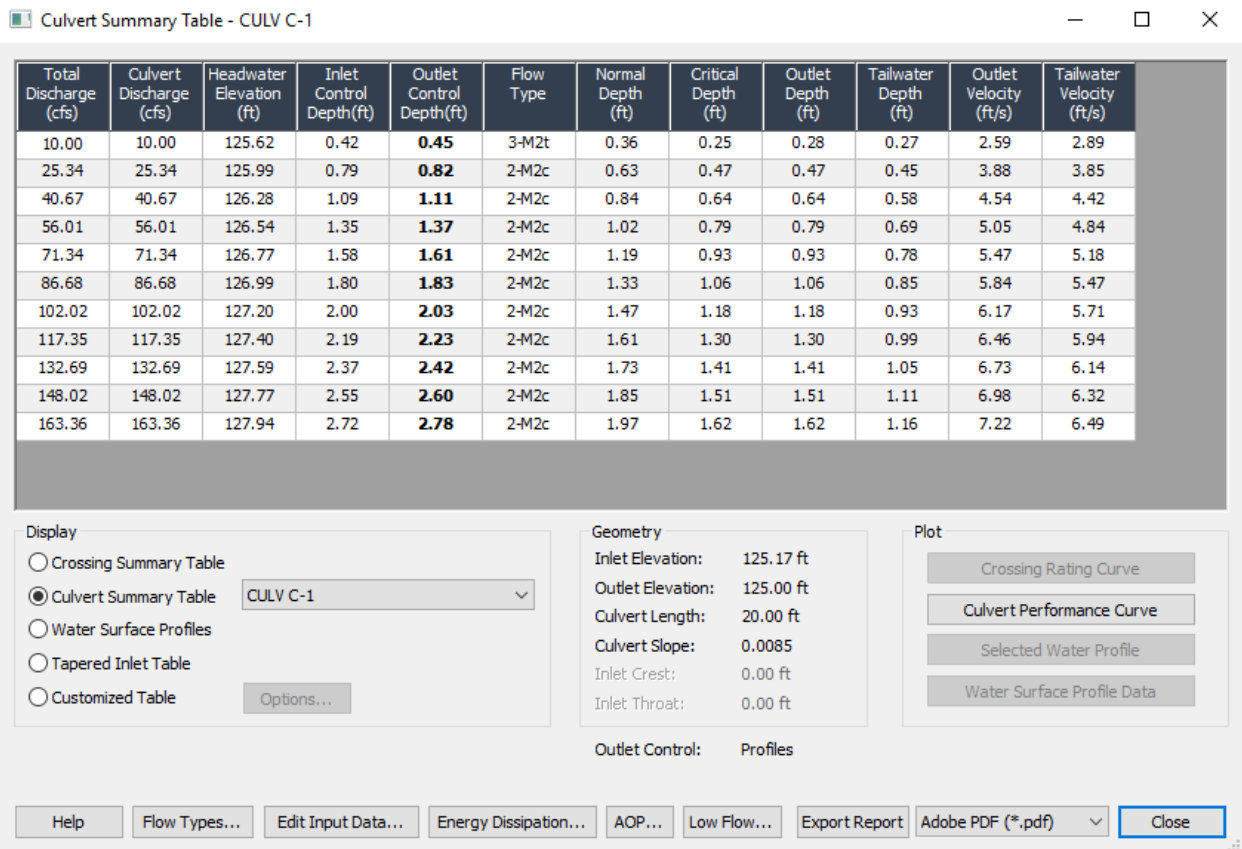
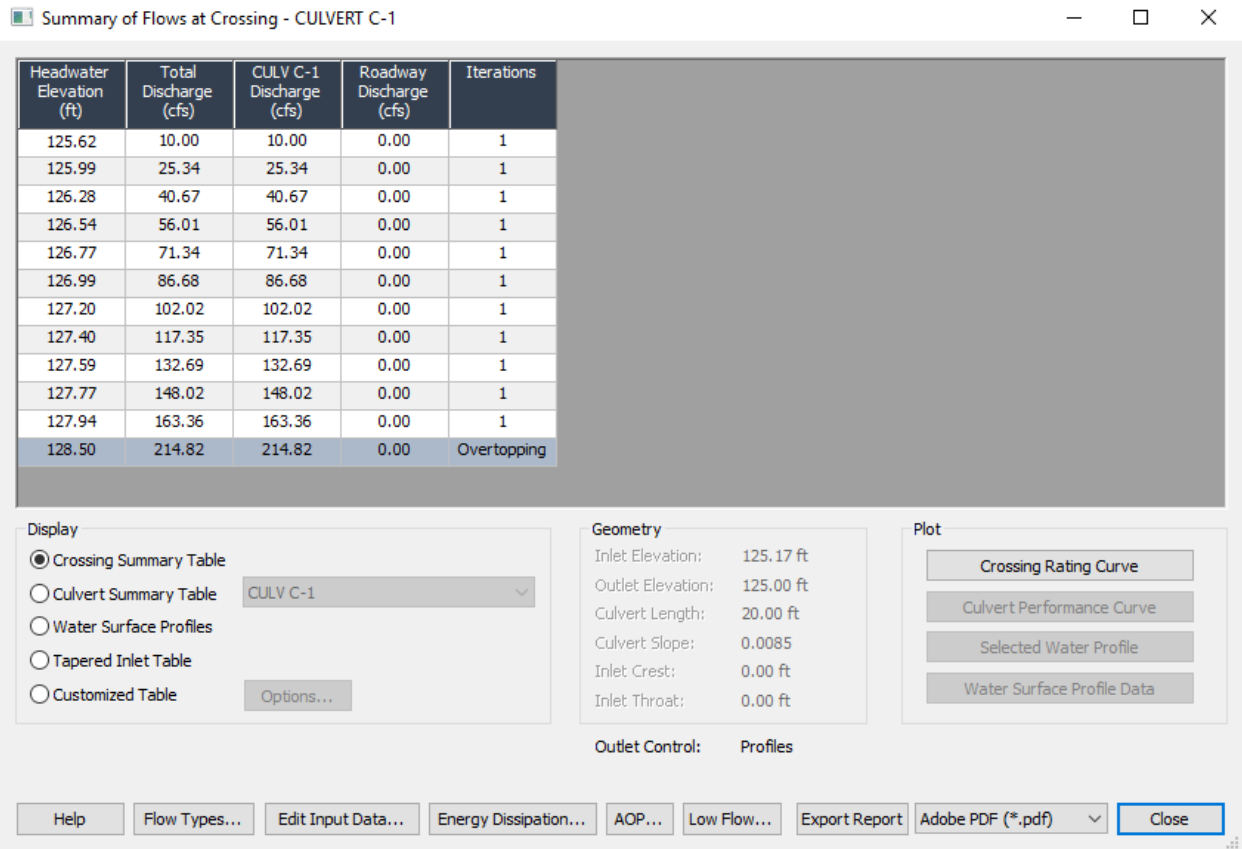
Parameter	Value	Units
DISCHARGE DATA		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	163.360	cfs
Maximum Flow	163.360	cfs
TAILWATER DATA		
Channel Type	Trapezoidal Channel	
Bottom Width	10.000	ft
Side Slope (H:V)	10.000	: 1
Channel Slope	0.0340	ft/ft
Manning's n (channel)	0.035	
Channel Invert Elevation	125.000	ft
Rating Curve	View...	
ROADWAY DATA		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	200.000	ft
Crest Elevation	128.500	ft
Roadway Surface	Gravel	
Top Width	20.000	ft

Culvert Properties

[Add Culvert](#) [Duplicate Culvert](#) [Delete Culvert](#)

Parameter	Value	Units
CULVERT DATA		
Name	CULV C-1	
Shape	Concrete Box	
Material	Concrete	
Span	14.000	ft
Rise	4.000	ft
Embedment Depth	8.000	in
Manning's n (Top/Sides)	0.012	
Manning's n (Bottom)	0.035	
Culvert Type	Straight	
Inlet Configuration	Square Edge (90°) Headwall	
Inlet Depression?	No	
SITE DATA		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	124.500	ft
Outlet Station	20.000	ft
Outlet Elevation	124.330	ft
Number of Barrels	1	

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Water Surface Profile Table - CULV C-1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Length Full (ft)	Length Free (ft)
10.00	10.00	125.62	0.42	0.45	3-M2t	0.00	20.00
25.34	25.34	125.99	0.79	0.82	2-M2c	0.00	20.00
40.67	40.67	126.28	1.09	1.11	2-M2c	0.00	20.00
56.01	56.01	126.54	1.35	1.37	2-M2c	0.00	20.00
71.34	71.34	126.77	1.58	1.61	2-M2c	0.00	20.00
86.68	86.68	126.99	1.80	1.83	2-M2c	0.00	20.00
102.02	102.02	127.20	2.00	2.03	2-M2c	0.00	20.00
117.35	117.35	127.40	2.19	2.23	2-M2c	0.00	20.00
132.69	132.69	127.59	2.37	2.42	2-M2c	0.00	20.00
148.02	148.02	127.77	2.55	2.60	2-M2c	0.00	20.00
163.36	163.36	127.94	2.72	2.78	2-M2c	0.00	20.00

Display

☐ Crossing Summary Table☐ Culvert Summary Table☒ Water Surface Profiles☐ Tapered Inlet Table☐ Customized Table

Options...

CULV C-1

Geometry

Inlet Elevation: 125.17 ft

Outlet Elevation: 125.00 ft

Culvert Length: 20.00 ft

Culvert Slope: 0.0085

Inlet Crest: 0.00 ft

Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

Outlet Control: Profiles

Help

Flow Types...

Edit Input Data...

Energy Dissipation...

AOP...

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Export Report

Adobe PDF (*.pdf)

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Tapered Inlet Table - CULV C-1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Crest Control Elev(ft)	Face Control Elev(ft)	Throat Control Elev(ft)	Tailwater Elevation (ft)
10.00	10.00	125.62	0.42	0.45	3-M2t	0.00	0.00	0.00	125.27
25.34	25.34	125.99	0.79	0.82	2-M2c	0.00	0.00	0.00	125.45
40.67	40.67	126.28	1.09	1.11	2-M2c	0.00	0.00	0.00	125.58
56.01	56.01	126.54	1.35	1.37	2-M2c	0.00	0.00	0.00	125.69
71.34	71.34	126.77	1.58	1.61	2-M2c	0.00	0.00	0.00	125.78
86.68	86.68	126.99	1.80	1.83	2-M2c	0.00	0.00	0.00	125.85
102.02	102.02	127.20	2.00	2.03	2-M2c	0.00	0.00	0.00	125.93
117.35	117.35	127.40	2.19	2.23	2-M2c	0.00	0.00	0.00	125.99
132.69	132.69	127.59	2.37	2.42	2-M2c	0.00	0.00	0.00	126.05
148.02	148.02	127.77	2.55	2.60	2-M2c	0.00	0.00	0.00	126.11
163.36	163.36	127.94	2.72	2.78	2-M2c	0.00	0.00	0.00	126.16

Display

☐ Crossing Summary Table☐ Culvert Summary Table☐ Water Surface Profiles☒ Tapered Inlet Table☐ Customized Table

Options...

CULV C-1

Geometry

Inlet Elevation: 125.17 ft

Outlet Elevation: 125.00 ft

Culvert Length: 20.00 ft

Culvert Slope: 0.0085

Inlet Crest: 0.00 ft

Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

Outlet Control: Profiles

Help

Flow Types...

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Adobe PDF (*.pdf)

Close

Custom Table - CULV C-1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Crest Control Elev(ft)	Face Control Elev(ft)	Throat Control Elev(ft)	Tailwater Elevation (ft)
10.00	10.00	125.62	0.42	0.45	3-M2t	0.00	0.00	0.00	125.27
25.34	25.34	125.99	0.79	0.82	2-M2c	0.00	0.00	0.00	125.45
40.67	40.67	126.28	1.09	1.11	2-M2c	0.00	0.00	0.00	125.58
56.01	56.01	126.54	1.35	1.37	2-M2c	0.00	0.00	0.00	125.69
71.34	71.34	126.77	1.58	1.61	2-M2c	0.00	0.00	0.00	125.78
86.68	86.68	126.99	1.80	1.83	2-M2c	0.00	0.00	0.00	125.85
102.02	102.02	127.20	2.00	2.03	2-M2c	0.00	0.00	0.00	125.93
117.35	117.35	127.40	2.19	2.23	2-M2c	0.00	0.00	0.00	125.99
132.69	132.69	127.59	2.37	2.42	2-M2c	0.00	0.00	0.00	126.05
148.02	148.02	127.77	2.55	2.60	2-M2c	0.00	0.00	0.00	126.11
163.36	163.36	127.94	2.72	2.78	2-M2c	0.00	0.00	0.00	126.16

Display

☐ Crossing Summary Table☐ Culvert Summary Table☐ Water Surface Profiles☐ Tapered Inlet Table☒ Customized Table

Options...

CULV C-1

Geometry

Inlet Elevation: 125.17 ft

Outlet Elevation: 125.00 ft

Culvert Length: 20.00 ft

Culvert Slope: 0.0085

Inlet Crest: 0.00 ft

Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

Outlet Control: Profiles

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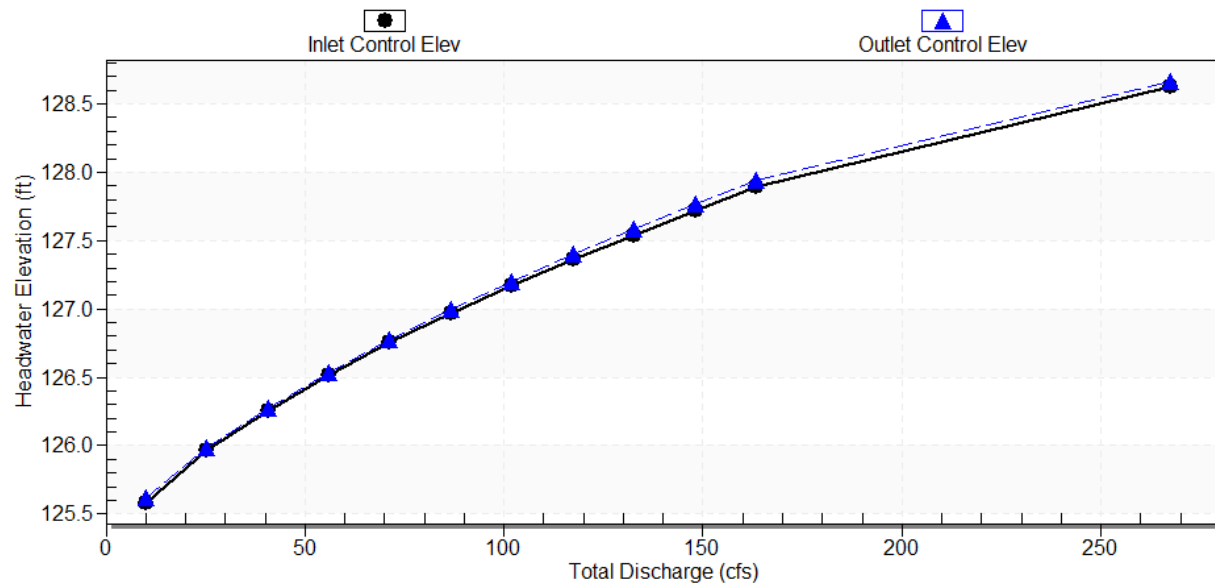
Adobe PDF (*.pdf)

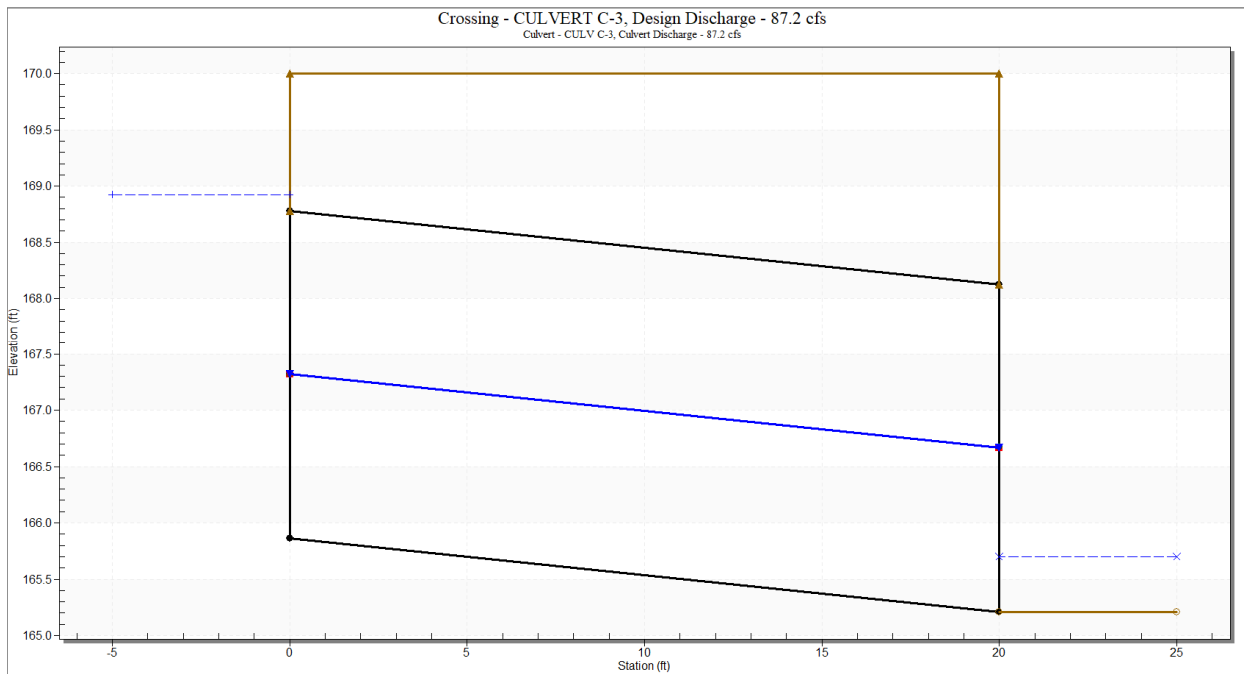
Close

Performance Curve

Performance Curve

Culvert: CULV C-1





Crossing Data - CULVERT C-3

Name: **CULVERT C-3**

Parameter	Value	Units
DISCHARGE DATA		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	87.230	cfs
Maximum Flow	87.230	cfs
TAILWATER DATA		
Channel Type	Trapezoidal Channel	
Bottom Width	28.000	ft
Side Slope (H:V)	3.000	_:1
Channel Slope	0.0570	ft/ft
Manning's n (channel)	0.035	
Channel Invert Elevation	165.210	ft
Rating Curve	View...	
ROADWAY DATA		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	100.000	ft
Crest Elevation	170.000	ft
Roadway Surface	Gravel	
Top Width	20.000	ft

Culvert Properties

CULV C-3 [Add Culvert](#) [Duplicate Culvert](#) [Delete Culvert](#)

Parameter	Value	Units
CULVERT DATA		
Name	CULV C-3	
Shape	Arch, Open Bottom	
Material	Corrugated Steel	
Size	Define...	
Span	9.000	ft
Rise	2.917	ft
Embedment Depth	0.000	in
Manning's n (Top/Sides)	0.035	
Manning's n (Bottom)	0.035	
Culvert Type	Straight	
Inlet Configuration	Thin Edge Projecting	
Inlet Depression?	No	
SITE DATA		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	165.860	ft
Outlet Station	20.000	ft
Outlet Elevation	165.210	ft
Number of Barrels	1	

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Summary of Flows at Crossing - CULVERT C-3

Headwater Elevation (ft)	Total Discharge (cfs)	CULV C-3 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
166.47	10.00	10.00	0.00	1
166.76	17.72	17.72	0.00	1
167.01	25.45	25.45	0.00	1
167.25	33.17	33.17	0.00	1
167.47	40.89	40.89	0.00	1
167.71	48.62	48.62	0.00	1
167.94	56.34	56.34	0.00	1
168.17	64.06	64.06	0.00	1
168.38	71.78	71.78	0.00	1
168.59	79.51	79.51	0.00	1
168.92	87.23	87.23	0.00	1
170.00	129.81	129.81	0.00	Overtopping

Display

☒ Crossing Summary Table
 ☐ Culvert Summary Table
 ☐ Water Surface Profiles
 ☐ Tapered Inlet Table
 ☐ Customized Table

CULV C-3

Options...

Geometry

Inlet Elevation: 165.86 ft
 Outlet Elevation: 165.21 ft
 Culvert Length: 20.01 ft
 Culvert Slope: 0.0325
 Inlet Crest: 0.00 ft
 Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

Outlet Control: Profiles

Help

Flow Types...

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Culvert Summary Table - CULV C-3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	166.47	0.61	0.0*	1-S2n	0.33	0.34	0.33	0.13	3.44	2.63
17.72	17.72	166.76	0.90	0.0*	1-S2n	0.48	0.50	0.48	0.19	4.26	3.29
25.45	25.45	167.01	1.15	0.06	1-S2n	0.60	0.64	0.60	0.23	4.86	3.78
33.17	33.17	167.25	1.39	0.24	1-S2n	0.72	0.76	0.72	0.27	5.35	4.19
40.89	40.89	167.47	1.61	0.42	1-S2n	0.83	0.88	0.83	0.31	5.75	4.55
48.62	48.62	167.71	1.85	0.61	1-S2n	0.94	0.98	0.94	0.34	6.11	4.86
56.34	56.34	167.94	2.08	0.81	1-S2n	1.04	1.09	1.04	0.38	6.42	5.14
64.06	64.06	168.17	2.31	1.02	1-S2n	1.15	1.18	1.15	0.41	6.68	5.40
71.78	71.78	168.38	2.52	1.23	1-S2n	1.25	1.28	1.25	0.43	6.94	5.63
79.51	79.51	168.59	2.73	1.46	1-S2n	1.36	1.37	1.36	0.46	7.17	5.86
87.23	87.23	168.92	2.94	3.06	7-M2c	1.46	1.46	1.46	0.49	7.38	6.06

Display

☐ Crossing Summary Table
 ☒ Culvert Summary Table
 ☐ Water Surface Profiles
 ☐ Tapered Inlet Table
 ☐ Customized Table

CULV C-3

Options...

Geometry

Inlet Elevation: 165.86 ft
 Outlet Elevation: 165.21 ft
 Culvert Length: 20.01 ft
 Culvert Slope: 0.0325
 Inlet Crest: 0.00 ft
 Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

Outlet Control: Profiles

Help

Flow Types...

Edit Input Data...

Energy Dissipation...

AOP...

Low Flow...

Export Report

Adobe PDF (*.pdf)

Close

* Full Flow Headwater elevation is below inlet invert.

Water Surface Profile Table - CULV C-3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Length Full (ft)	Length Free (ft)
10.00	10.00	166.47	0.61	0.0*	1-S2n	0.00	20.00
17.72	17.72	166.76	0.90	0.0*	1-S2n	0.00	20.00
25.45	25.45	167.01	1.15	0.06	1-S2n	0.00	20.00
33.17	33.17	167.25	1.39	0.24	1-S2n	0.00	20.00
40.89	40.89	167.47	1.61	0.42	1-S2n	0.00	20.00
48.62	48.62	167.71	1.85	0.61	1-S2n	0.00	20.00
56.34	56.34	167.94	2.08	0.81	1-S2n	0.00	20.00
64.06	64.06	168.17	2.31	1.02	1-S2n	0.00	20.00
71.78	71.78	168.38	2.52	1.23	1-S2n	0.00	20.00
79.51	79.51	168.59	2.73	1.46	1-S2n	0.00	20.00
87.23	87.23	168.92	2.94	3.06	7-M2c	0.00	20.00

Display

- ☐ Crossing Summary Table
☐ Culvert Summary Table
☒ Water Surface Profiles
☐ Tapered Inlet Table
☐ Customized Table

CULV C-3

Options...

Geometry

Inlet Elevation: 165.86 ft
 Outlet Elevation: 165.21 ft
 Culvert Length: 20.01 ft
 Culvert Slope: 0.0325
 Inlet Crest: 0.00 ft
 Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve
 Culvert Performance Curve
 Selected Water Profile
 Water Surface Profile Data

* Full Flow Headwater elevation is below inlet invert.

Outlet Control: Profiles

Help

Flow Types...

Edit Input Data...

Energy Dissipation...

AOP...

Low Flow...

Export Report

Adobe PDF (*.pdf)

Close

Tapered Inlet Table - CULV C-3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Crest Control Elev(ft)	Face Control Elev(ft)	Throat Control Elev(ft)	Tailwater Elevation (ft)
10.00	10.00	166.47	0.61	0.0*	1-S2n	0.00	0.00	0.00	165.34
17.72	17.72	166.76	0.90	0.0*	1-S2n	0.00	0.00	0.00	165.40
25.45	25.45	167.01	1.15	0.06	1-S2n	0.00	0.00	0.00	165.44
33.17	33.17	167.25	1.39	0.24	1-S2n	0.00	0.00	0.00	165.48
40.89	40.89	167.47	1.61	0.42	1-S2n	0.00	0.00	0.00	165.52
48.62	48.62	167.71	1.85	0.61	1-S2n	0.00	0.00	0.00	165.55
56.34	56.34	167.94	2.08	0.81	1-S2n	0.00	0.00	0.00	165.59
64.06	64.06	168.17	2.31	1.02	1-S2n	0.00	0.00	0.00	165.62
71.78	71.78	168.38	2.52	1.23	1-S2n	0.00	0.00	0.00	165.64
79.51	79.51	168.59	2.73	1.46	1-S2n	0.00	0.00	0.00	165.67
87.23	87.23	168.92	2.94	3.06	7-M2c	0.00	0.00	0.00	165.70

Display

- ☐ Crossing Summary Table
☐ Culvert Summary Table
☐ Water Surface Profiles
☒ Tapered Inlet Table
☐ Customized Table

CULV C-3

Options...

Geometry

Inlet Elevation: 165.86 ft
 Outlet Elevation: 165.21 ft
 Culvert Length: 20.01 ft
 Culvert Slope: 0.0325
 Inlet Crest: 0.00 ft
 Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve
 Culvert Performance Curve
 Selected Water Profile
 Water Surface Profile Data

* Full Flow Headwater elevation is below inlet invert.

Outlet Control: Profiles

Help

Flow Types...

Edit Input Data...

Energy Dissipation...

AOP...

Low Flow...

Export Report

Adobe PDF (*.pdf)

Close

Custom Table - CULV C-3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Crest Control Elev(ft)	Face Control Elev(ft)	Throat Control Elev(ft)	Tailwater Elevation (ft)
10.00	10.00	166.47	0.61	0.0*	1-S2n	0.00	0.00	0.00	165.34
17.72	17.72	166.76	0.90	0.0*	1-S2n	0.00	0.00	0.00	165.40
25.45	25.45	167.01	1.15	0.06	1-S2n	0.00	0.00	0.00	165.44
33.17	33.17	167.25	1.39	0.24	1-S2n	0.00	0.00	0.00	165.48
40.89	40.89	167.47	1.61	0.42	1-S2n	0.00	0.00	0.00	165.52
48.62	48.62	167.71	1.85	0.61	1-S2n	0.00	0.00	0.00	165.55
56.34	56.34	167.94	2.08	0.81	1-S2n	0.00	0.00	0.00	165.59
64.06	64.06	168.17	2.31	1.02	1-S2n	0.00	0.00	0.00	165.62
71.78	71.78	168.38	2.52	1.23	1-S2n	0.00	0.00	0.00	165.64
79.51	79.51	168.59	2.73	1.46	1-S2n	0.00	0.00	0.00	165.67
87.23	87.23	168.92	2.94	3.06	7-M2c	0.00	0.00	0.00	165.70

Display

☐ Crossing Summary Table☐ Culvert Summary Table☐ Water Surface Profiles☐ Tapered Inlet Table☒ Customized Table

Options...

CULV C-3

Geometry

Inlet Elevation: 165.86 ft

Outlet Elevation: 165.21 ft

Culvert Length: 20.01 ft

Culvert Slope: 0.0325

Inlet Crest: 0.00 ft

Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

* Full Flow Headwater elevation is below inlet invert.

Outlet Control: Profiles

Help

Flow Types...

Edit Input Data...

Energy Dissipation...

AOP...

Low Flow...

Export Report

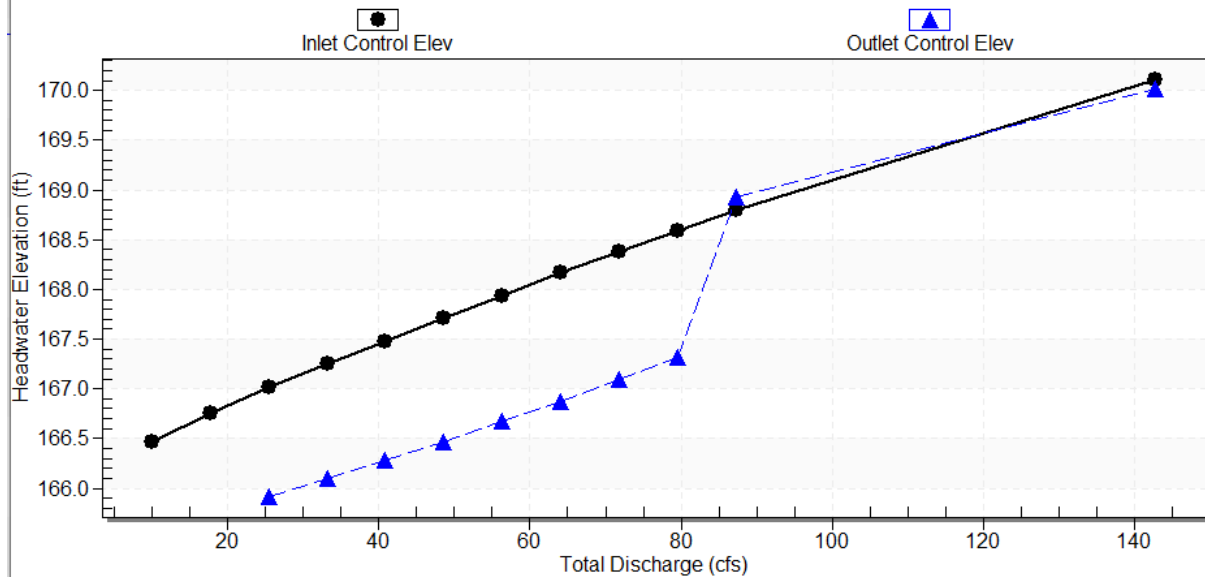
Adobe PDF (*.pdf)

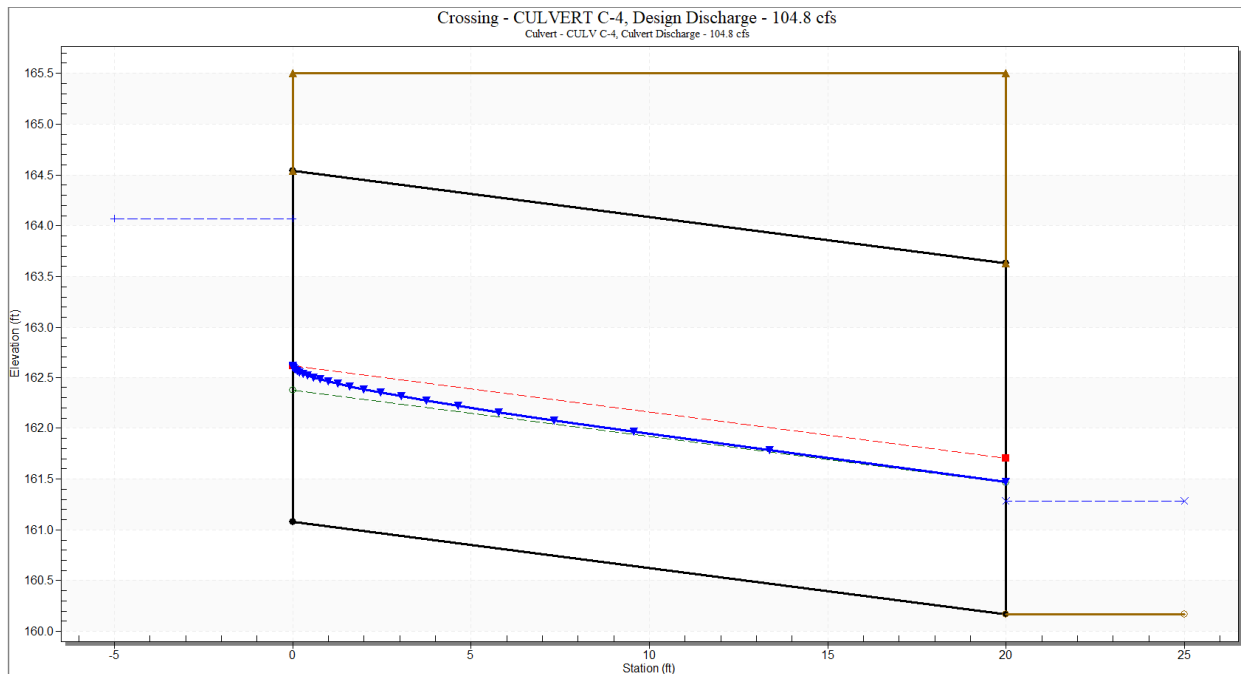
Close

Performance Curve

Performance Curve

Culvert: CULV C-3





Crossing Data - CULVERT C-4

Name:

Parameter	Value	Units
DISCHARGE DATA		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	104.780	cfs
Maximum Flow	104.780	cfs
TAILWATER DATA		
Channel Type	Trapezoidal Channel	
Bottom Width	10.000	ft
Side Slope (H:V)	8.000	_:1
Channel Slope	0.0200	ft/ft
Manning's n (channel)	0.035	
Channel Invert Elevation	160.170	ft
Rating Curve	View...	
ROADWAY DATA		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	100.000	ft
Crest Elevation	165.500	ft
Roadway Surface	Gravel	
Top Width	20.000	ft

Culvert Properties

[Add Culvert](#) [Duplicate Culvert](#) [Delete Culvert](#)

Parameter	Value	Units
CULVERT DATA		
Name	CULV C-4	
Shape	Arch, Open Bottom	
Material	Corrugated Steel	
Size	Define...	
Span	10.000	ft
Rise	3.458	ft
Embedment Depth	0.000	in
Manning's n (Top/Sides)	0.035	
Manning's n (Bottom)	0.035	
Culvert Type	Straight	
Inlet Configuration	Thin Edge Projecting	
Inlet Depression?	No	
SITE DATA		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	161.080	ft
Outlet Station	20.000	ft
Outlet Elevation	160.170	ft
Number of Barrels	1	

[Help](#) [Click on any icon for help on a specific topic](#) [Low Flow](#) [AOP](#) [Energy Dissipation](#) [Analyze Crossing](#) [OK](#) [Cancel](#)

Summary of Flows at Crossing - CULVERT C-4

Headwater Elevation (ft)	Total Discharge (cfs)	CULV C-4 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
161.64	10.00	10.00	0.00	1
161.96	19.48	19.48	0.00	1
162.23	28.96	28.96	0.00	1
162.47	38.43	38.43	0.00	1
162.70	47.91	47.91	0.00	1
162.93	57.39	57.39	0.00	1
163.16	66.87	66.87	0.00	1
163.40	76.35	76.35	0.00	1
163.63	85.82	85.82	0.00	1
163.86	95.30	95.30	0.00	1
164.07	104.78	104.78	0.00	1
165.50	168.02	168.02	0.00	Overtopping

Display

☒ Crossing Summary Table
 ☐ Culvert Summary Table
 ☐ Water Surface Profiles
 ☐ Tapered Inlet Table
 ☐ Customized Table

CULV C-4

Options...

Geometry

Inlet Elevation: 161.08 ft
 Outlet Elevation: 160.17 ft
 Culvert Length: 20.02 ft
 Culvert Slope: 0.0455
 Inlet Crest: 0.00 ft
 Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

Outlet Control: Profiles

Help

Flow Types...

Edit Input Data...

Energy Dissipation...

AOP...

Low Flow...

Export Report

Adobe PDF (*.pdf)

Close

Culvert Summary Table - CULV C-4

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	161.64	0.56	0.0*	1-S2n	0.28	0.32	0.28	0.32	3.68	2.48
19.48	19.48	161.96	0.88	0.0*	1-S2n	0.42	0.49	0.42	0.46	4.74	3.06
28.96	28.96	162.23	1.15	0.0*	1-S2n	0.54	0.64	0.54	0.57	5.50	3.45
38.43	38.43	162.47	1.39	0.0*	1-S2n	0.65	0.78	0.65	0.67	6.10	3.75
47.91	47.91	162.70	1.62	0.14	1-S2n	0.75	0.90	0.75	0.75	6.61	4.00
57.39	57.39	162.93	1.85	0.32	1-S2n	0.85	1.02	0.85	0.82	7.05	4.21
66.87	66.87	163.16	2.08	0.50	1-S2n	0.94	1.13	0.94	0.89	7.44	4.39
76.35	76.35	163.40	2.32	0.70	1-S2n	1.03	1.24	1.03	0.95	7.79	4.56
85.82	85.82	163.63	2.55	0.89	1-S2n	1.12	1.34	1.12	1.01	8.11	4.71
95.30	95.30	163.86	2.78	1.10	1-S2n	1.21	1.44	1.21	1.06	8.36	4.85
104.78	104.78	164.07	2.99	1.31	1-S2n	1.29	1.53	1.30	1.11	8.62	4.97

Display

☐ Crossing Summary Table
 ☒ Culvert Summary Table
 ☐ Water Surface Profiles
 ☐ Tapered Inlet Table
 ☐ Customized Table

CULV C-4

Options...

Geometry

Inlet Elevation: 161.08 ft
 Outlet Elevation: 160.17 ft
 Culvert Length: 20.02 ft
 Culvert Slope: 0.0455
 Inlet Crest: 0.00 ft
 Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

Outlet Control: Profiles

* Full Flow Headwater elevation is below inlet invert.

Help

Flow Types...

Edit Input Data...

Energy Dissipation...

AOP...

Low Flow...

Export Report

Adobe PDF (*.pdf)

Close

Water Surface Profile Table - CULV C-4

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Length Full (ft)	Length Free (ft)
10.00	10.00	161.64	0.56	0.0*	1-S2n	0.00	20.00
19.48	19.48	161.96	0.88	0.0*	1-S2n	0.00	20.00
28.96	28.96	162.23	1.15	0.0*	1-S2n	0.00	20.00
38.43	38.43	162.47	1.39	0.0*	1-S2n	0.00	20.00
47.91	47.91	162.70	1.62	0.14	1-S2n	0.00	20.00
57.39	57.39	162.93	1.85	0.32	1-S2n	0.00	20.00
66.87	66.87	163.16	2.08	0.50	1-S2n	0.00	20.00
76.35	76.35	163.40	2.32	0.70	1-S2n	0.00	20.00
85.82	85.82	163.63	2.55	0.89	1-S2n	0.00	20.00
95.30	95.30	163.86	2.78	1.10	1-S2n	0.00	20.00
104.78	104.78	164.07	2.99	1.31	1-S2n	0.00	20.00

Display

☐ Crossing Summary Table
 ☐ Culvert Summary Table

CULV C-4

☒ Water Surface Profiles
 ☐ Tapered Inlet Table
 ☐ Customized Table

Options...

Geometry

Inlet Elevation: 161.08 ft
 Outlet Elevation: 160.17 ft
 Culvert Length: 20.02 ft
 Culvert Slope: 0.0455
 Inlet Crest: 0.00 ft
 Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

* Full Flow Headwater elevation is below inlet invert.

Outlet Control: Profiles

Help

Flow Types...

Edit Input Data...

Energy Dissipation...

AOP...

Low Flow...

Export Report

Adobe PDF (*.pdf)

Close

Tapered Inlet Table - CULV C-4

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Crest Control Elev(ft)	Face Control Elev(ft)	Throat Control Elev(ft)	Tailwater Elevation (ft)
10.00	10.00	161.64	0.56	0.0*	1-S2n	0.00	0.00	0.00	160.49
19.48	19.48	161.96	0.88	0.0*	1-S2n	0.00	0.00	0.00	160.63
28.96	28.96	162.23	1.15	0.0*	1-S2n	0.00	0.00	0.00	160.74
38.43	38.43	162.47	1.39	0.0*	1-S2n	0.00	0.00	0.00	160.84
47.91	47.91	162.70	1.62	0.14	1-S2n	0.00	0.00	0.00	160.92
57.39	57.39	162.93	1.85	0.32	1-S2n	0.00	0.00	0.00	160.99
66.87	66.87	163.16	2.08	0.50	1-S2n	0.00	0.00	0.00	161.06
76.35	76.35	163.40	2.32	0.70	1-S2n	0.00	0.00	0.00	161.12
85.82	85.82	163.63	2.55	0.89	1-S2n	0.00	0.00	0.00	161.18
95.30	95.30	163.86	2.78	1.10	1-S2n	0.00	0.00	0.00	161.23
104.78	104.78	164.07	2.99	1.31	1-S2n	0.00	0.00	0.00	161.28

Display

☐ Crossing Summary Table
 ☐ Culvert Summary Table

CULV C-4

☐ Water Surface Profiles
 ☒ Tapered Inlet Table
 ☐ Customized Table

Options...

Geometry

Inlet Elevation: 161.08 ft
 Outlet Elevation: 160.17 ft
 Culvert Length: 20.02 ft
 Culvert Slope: 0.0455
 Inlet Crest: 0.00 ft
 Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

* Full Flow Headwater elevation is below inlet invert.

Outlet Control: Profiles

Help

Flow Types...

Edit Input Data...

Energy Dissipation...

AOP...

Low Flow...

Export Report

Adobe PDF (*.pdf)

Close

Custom Table - CULV C-4

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Crest Control Elev (ft)	Face Control Elev (ft)	Throat Control Elev (ft)	Tailwater Elevation (ft)
10.00	10.00	161.64	0.56	0.0*	1-S2n	0.00	0.00	0.00	160.49
19.48	19.48	161.96	0.88	0.0*	1-S2n	0.00	0.00	0.00	160.63
28.96	28.96	162.23	1.15	0.0*	1-S2n	0.00	0.00	0.00	160.74
38.43	38.43	162.47	1.39	0.0*	1-S2n	0.00	0.00	0.00	160.84
47.91	47.91	162.70	1.62	0.14	1-S2n	0.00	0.00	0.00	160.92
57.39	57.39	162.93	1.85	0.32	1-S2n	0.00	0.00	0.00	160.99
66.87	66.87	163.16	2.08	0.50	1-S2n	0.00	0.00	0.00	161.06
76.35	76.35	163.40	2.32	0.70	1-S2n	0.00	0.00	0.00	161.12
85.82	85.82	163.63	2.55	0.89	1-S2n	0.00	0.00	0.00	161.18
95.30	95.30	163.86	2.78	1.10	1-S2n	0.00	0.00	0.00	161.23
104.78	104.78	164.07	2.99	1.31	1-S2n	0.00	0.00	0.00	161.28

Display

☐ Crossing Summary Table☐ Culvert Summary Table☐ Water Surface Profiles☐ Tapered Inlet Table☒ Customized Table

Options...

CULV C-4

Geometry

Inlet Elevation: 161.08 ft

Outlet Elevation: 160.17 ft

Culvert Length: 20.02 ft

Culvert Slope: 0.0455

Inlet Crest: 0.00 ft

Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

* Full Flow Headwater elevation is below inlet invert.

Outlet Control: Profiles

Help

Flow Types...

Edit Input Data...

Energy Dissipation...

AOP...

Low Flow...

Export Report

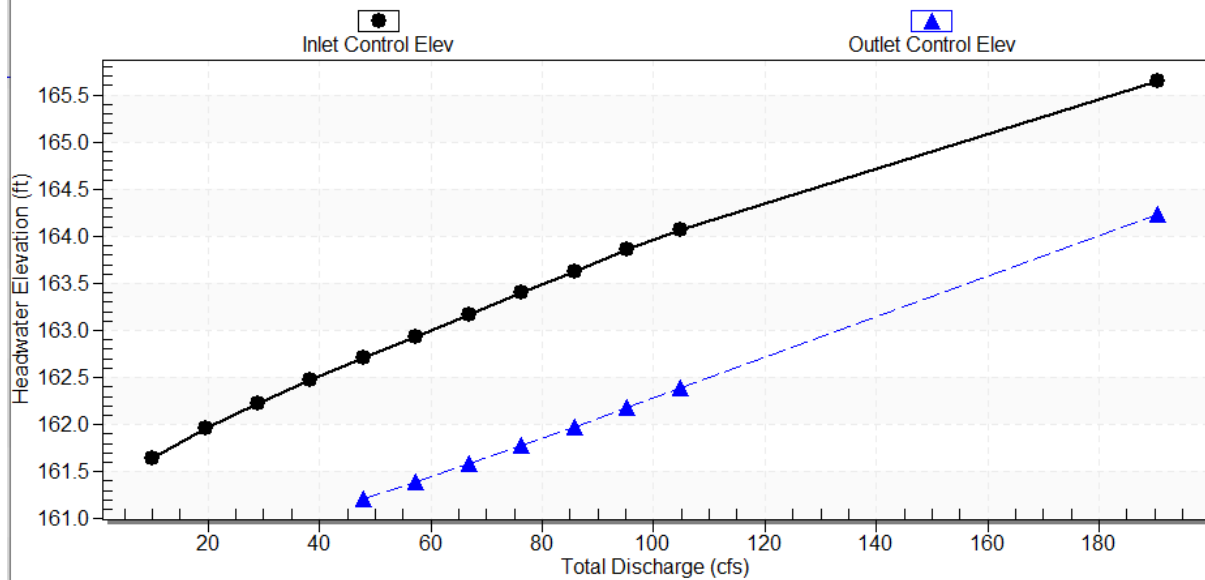
Adobe PDF (*.pdf)

Close

Performance Curve

Performance Curve

Culvert: CULV C-4



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Monday, May 24 2021

Culvert D1A

Invert Elev Dn (ft) = 126.00
Pipe Length (ft) = 69.00
Slope (%) = 0.93
Invert Elev Up (ft) = 126.64
Rise (in) = 12.0
Shape = Circular
Span (in) = 12.0
No. Barrels = 1
n-Value = 0.012
Culvert Type = Circular Concrete
Culvert Entrance = Square edge w/headwall (C)
Coeff. K,M,c,Y,k = 0.0098, 2, 0.0398, 0.67, 0.5

Embankment

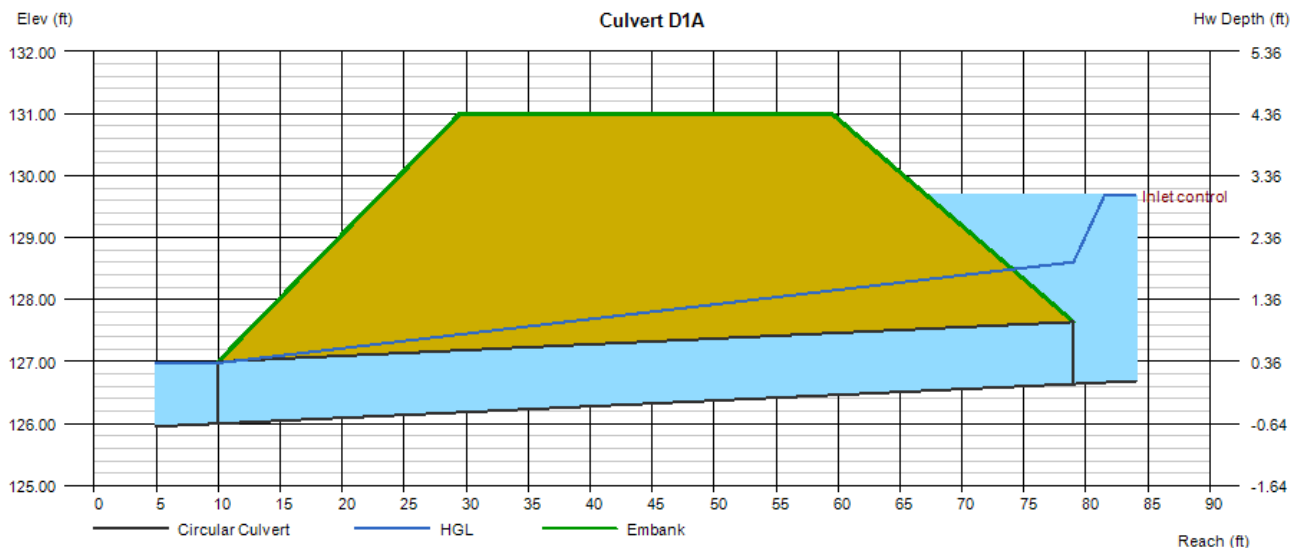
Top Elevation (ft) = 131.00
Top Width (ft) = 30.00
Crest Width (ft) = 0.00

Calculations

Qmin (cfs) = 6.07
Qmax (cfs) = 6.07
Tailwater Elev (ft) = (dc+D)/2

Highlighted

Qtotal (cfs) = 6.07
Qpipe (cfs) = 6.07
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 7.77
Veloc Up (ft/s) = 7.73
HGL Dn (ft) = 126.98
HGL Up (ft) = 128.60
Hw Elev (ft) = 129.68
Hw/D (ft) = 3.04
Flow Regime = Inlet Control



Stonington Solar Array Facility
 North Stonington, CT
 SRC

9/21/2020

Ditch Calculations

Storm Event: 10-yr 24-hr (Conveyance Protection, per DEEP storm manual 2004 Table 7-1)

Manning's "n": 0.025
 Desired Freeboard: 6"

Drainage Area and Design Flow						Ditch Slope					Ditch Dims and Results							
Drainage Area	Grading Area	Total Peak Runoff 10-yr Event (cfs)	Ditch	% of Drainage Area	Weighted Peak Runoff 10-yr Event (cfs)	Length	Starting Inv.	Ending Inv.	Fall (ft)	Avg. Slope (%)	Shape	Side Slope z:1	Bott. (ft)	Depth (ft)	Top Width (ft)	Flow Depth (ft)	Free-board (ft)	Free-board (in)
1A	A	7.03	1A	29%	2.02	341	129	127	2	0.59%	Tri.	3	0	1.1	6.5	0.59	0.51	6.12
1B	A	16.94	1B	30%	5.16	305	130	128	2	0.66%	Tri.	3	0	1.25	7	0.82	0.43	5.16
1C	A	16.1	1C	38%	6.12	800	140	132	8	1.00%	Trap.	3	2	1	8	0.56	0.44	5.28
2	D	11.17	2A	53%	5.92	221	200	179	21	9.50%	Tri.	3	0	1	6	0.53	0.47	5.64
			2B	47%	5.25	172	198	181	17	9.88%	Tri.	3	0	1	6	0.5	0.5	6
4	B	16.59	4A	41%	6.80	130	132	130	2	1.54%	Tri.	3	0	1.25	7.5	0.78	0.47	5.64
			4B	59%	9.79	660	138	129	9	1.36%	Trap.	3	1	1.25	10	0.76	0.49	5.88
5	F	34.49	5A	30%	10.41	870	170	125	45	5.17%	Trap.	3	1	1.1	9	0.58	0.52	6.24
			5B	70%	24.14	855	176	133	43	5.03%	Tri.	3	0	1.5	12	1	0.5	6

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Sunday, May 23 2021

Ditch 1A

Triangular

Side Slopes (z:1) = 3.00, 3.00
Total Depth (ft) = 1.10

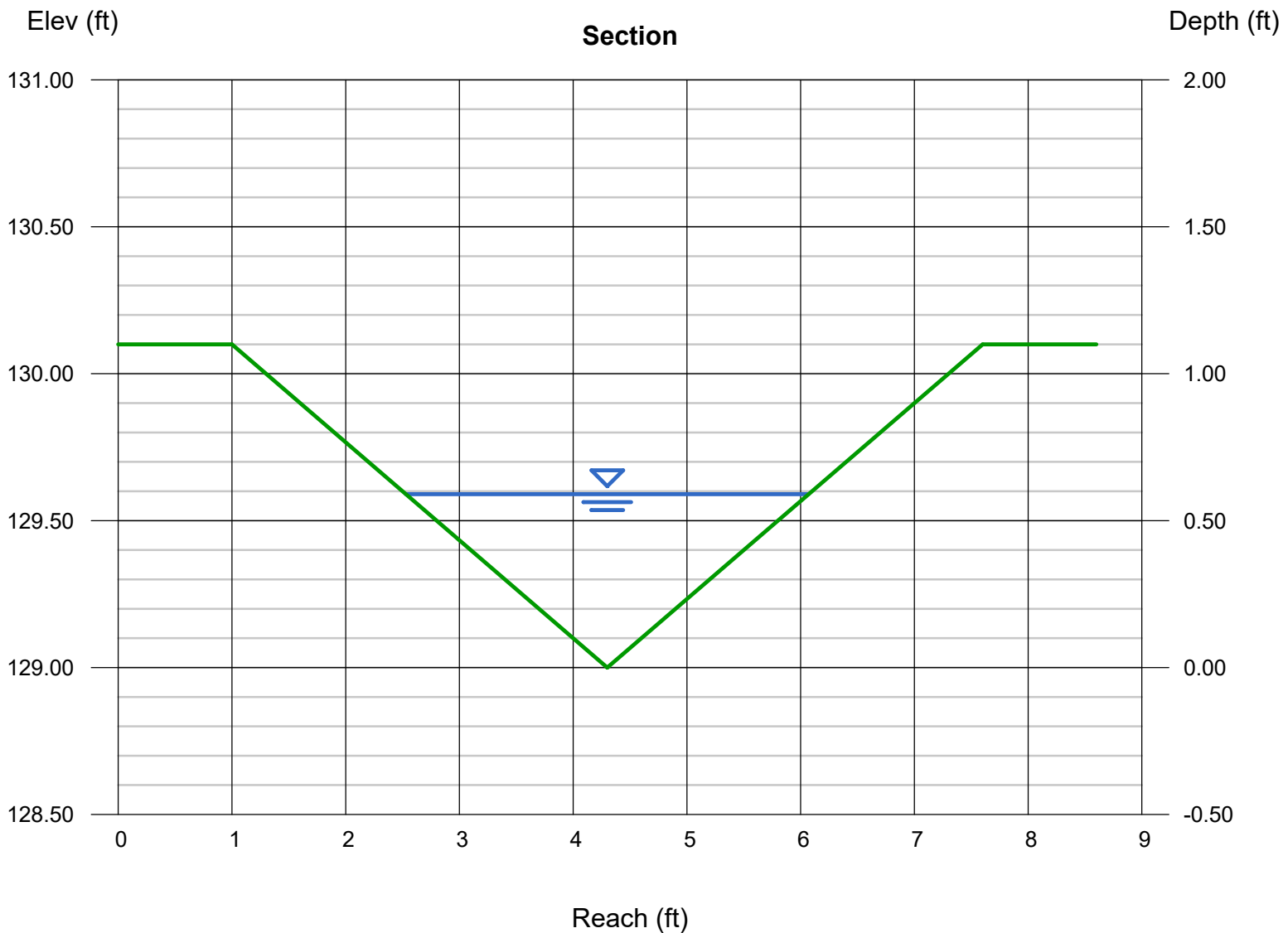
Invert Elev (ft) = 129.00
Slope (%) = 0.59
N-Value = 0.025

Calculations

Compute by: Known Q
Known Q (cfs) = 2.02

Highlighted

Depth (ft) = 0.59
Q (cfs) = 2.020
Area (sqft) = 1.04
Velocity (ft/s) = 1.93
Wetted Perim (ft) = 3.73
Crit Depth, Yc (ft) = 0.49
Top Width (ft) = 3.54
EGL (ft) = 0.65



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Sunday, May 23 2021

Ditch 1B

Triangular

Side Slopes (z:1) = 3.00, 3.00
Total Depth (ft) = 1.25

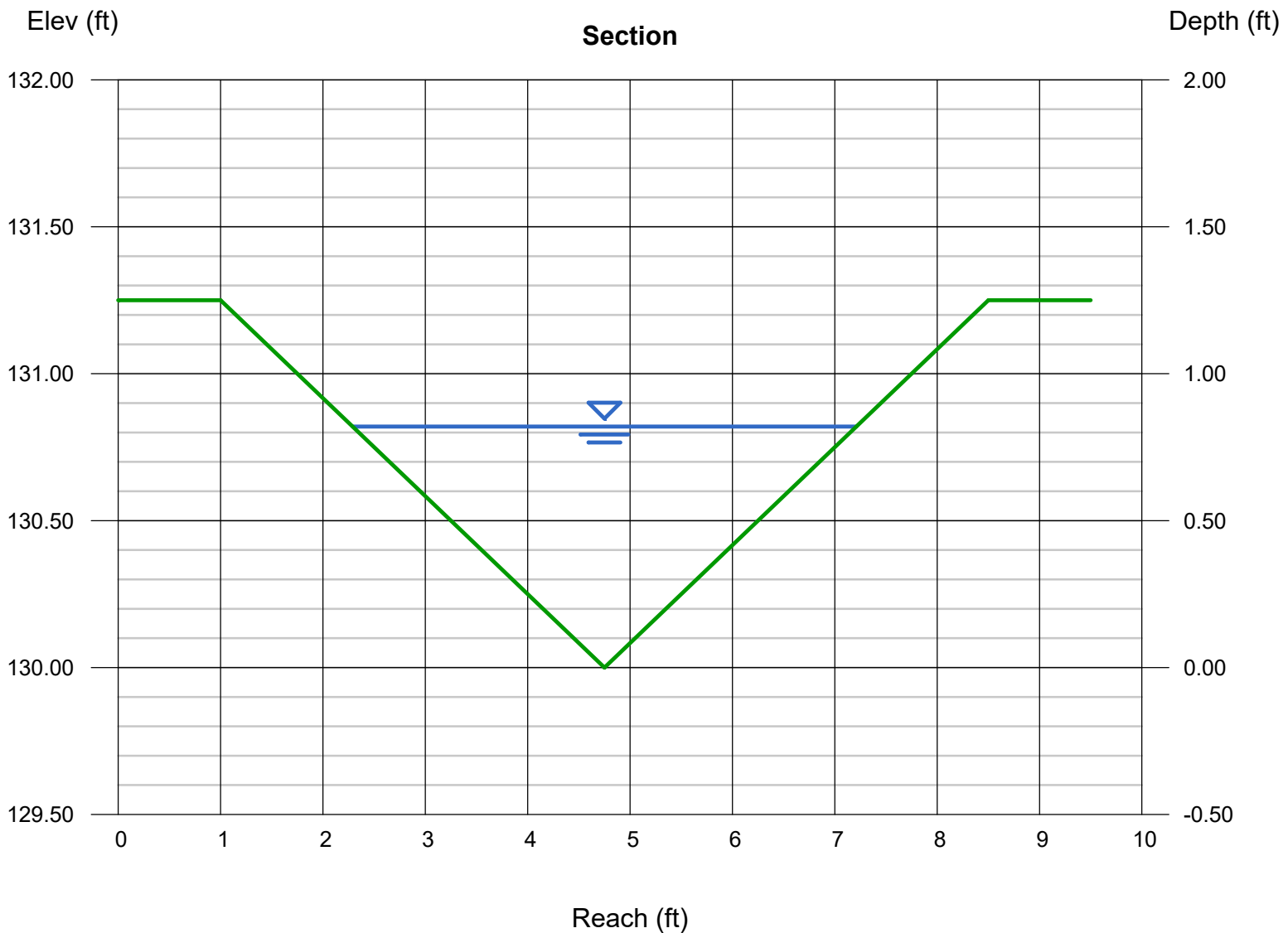
Invert Elev (ft) = 130.00
Slope (%) = 0.66
N-Value = 0.025

Calculations

Compute by: Known Q
Known Q (cfs) = 5.16

Highlighted

Depth (ft) = 0.82
Q (cfs) = 5.160
Area (sqft) = 2.02
Velocity (ft/s) = 2.56
Wetted Perim (ft) = 5.19
Crit Depth, Yc (ft) = 0.72
Top Width (ft) = 4.92
EGL (ft) = 0.92



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Sunday, May 23 2021

Ditch 1C

Trapezoidal

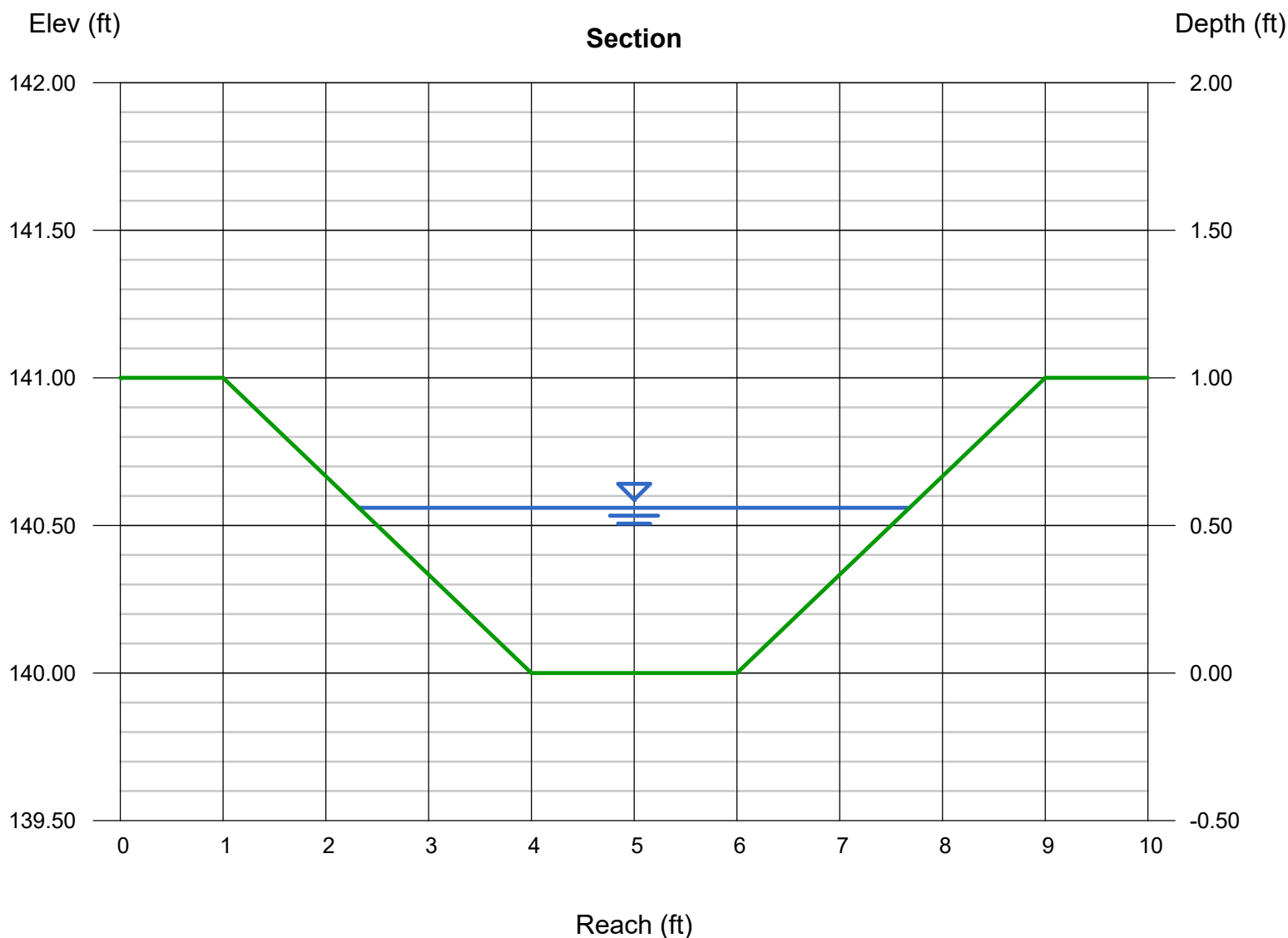
Bottom Width (ft) = 2.00
Side Slopes (z:1) = 3.00, 3.00
Total Depth (ft) = 1.00
Invert Elev (ft) = 140.00
Slope (%) = 1.00
N-Value = 0.025

Calculations

Compute by: Known Q
Known Q (cfs) = 6.12

Highlighted

Depth (ft) = 0.56
Q (cfs) = 6.120
Area (sqft) = 2.06
Velocity (ft/s) = 2.97
Wetted Perim (ft) = 5.54
Crit Depth, Yc (ft) = 0.52
Top Width (ft) = 5.36
EGL (ft) = 0.70



Channel Report

Ditch 2A

Triangular

Side Slopes (z:1) = 3.00, 3.00
Total Depth (ft) = 1.00

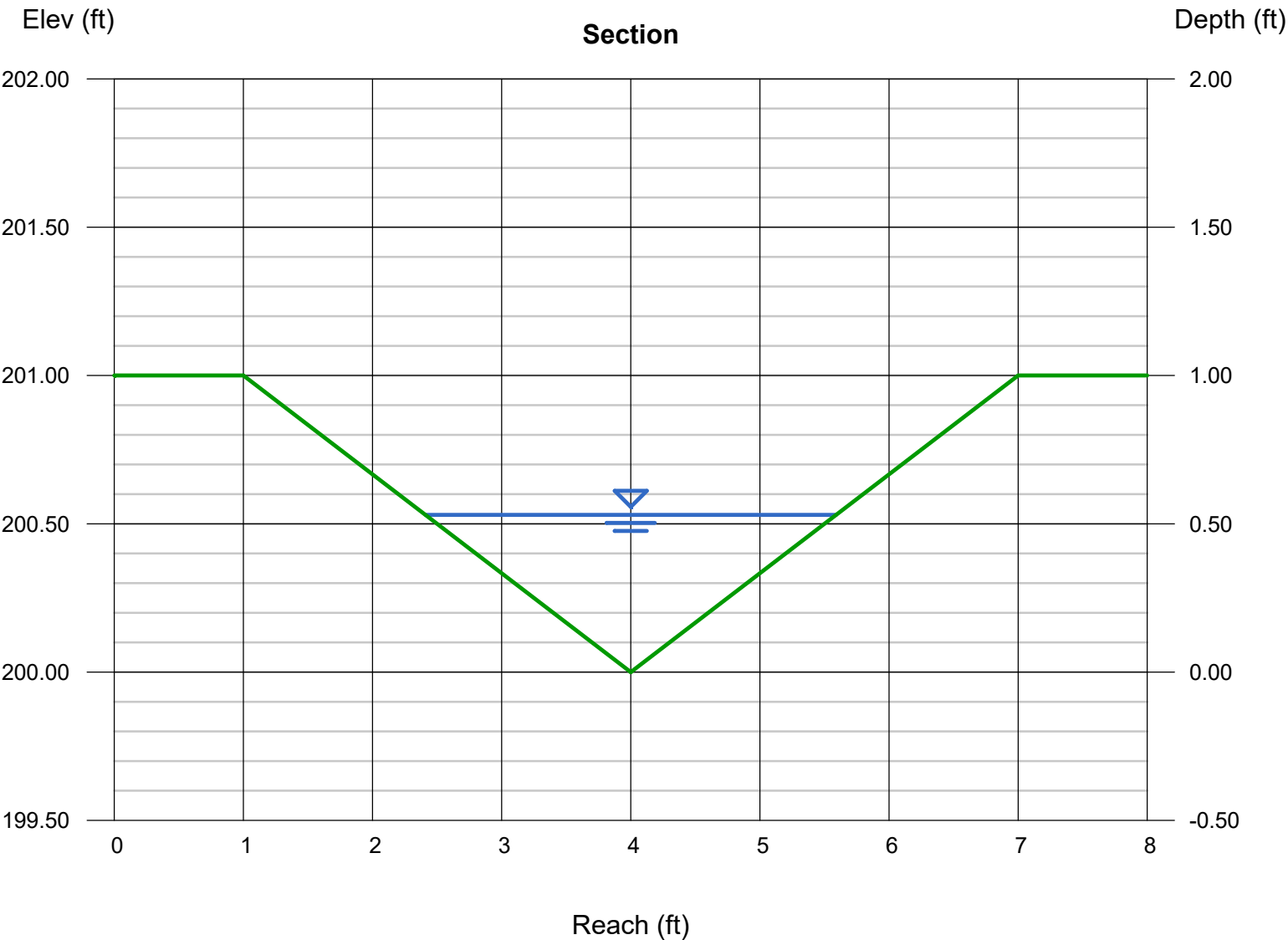
Invert Elev (ft) = 200.00
Slope (%) = 9.50
N-Value = 0.025

Calculations

Compute by: Known Q
Known Q (cfs) = 5.92

Highlighted

Depth (ft) = 0.53
Q (cfs) = 5.920
Area (sqft) = 0.84
Velocity (ft/s) = 7.03
Wetted Perim (ft) = 3.35
Crit Depth, Yc (ft) = 0.76
Top Width (ft) = 3.18
EGL (ft) = 1.30



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Sunday, May 23 2021

Ditch 2B

Triangular

Side Slopes (z:1) = 3.00, 3.00
Total Depth (ft) = 1.00

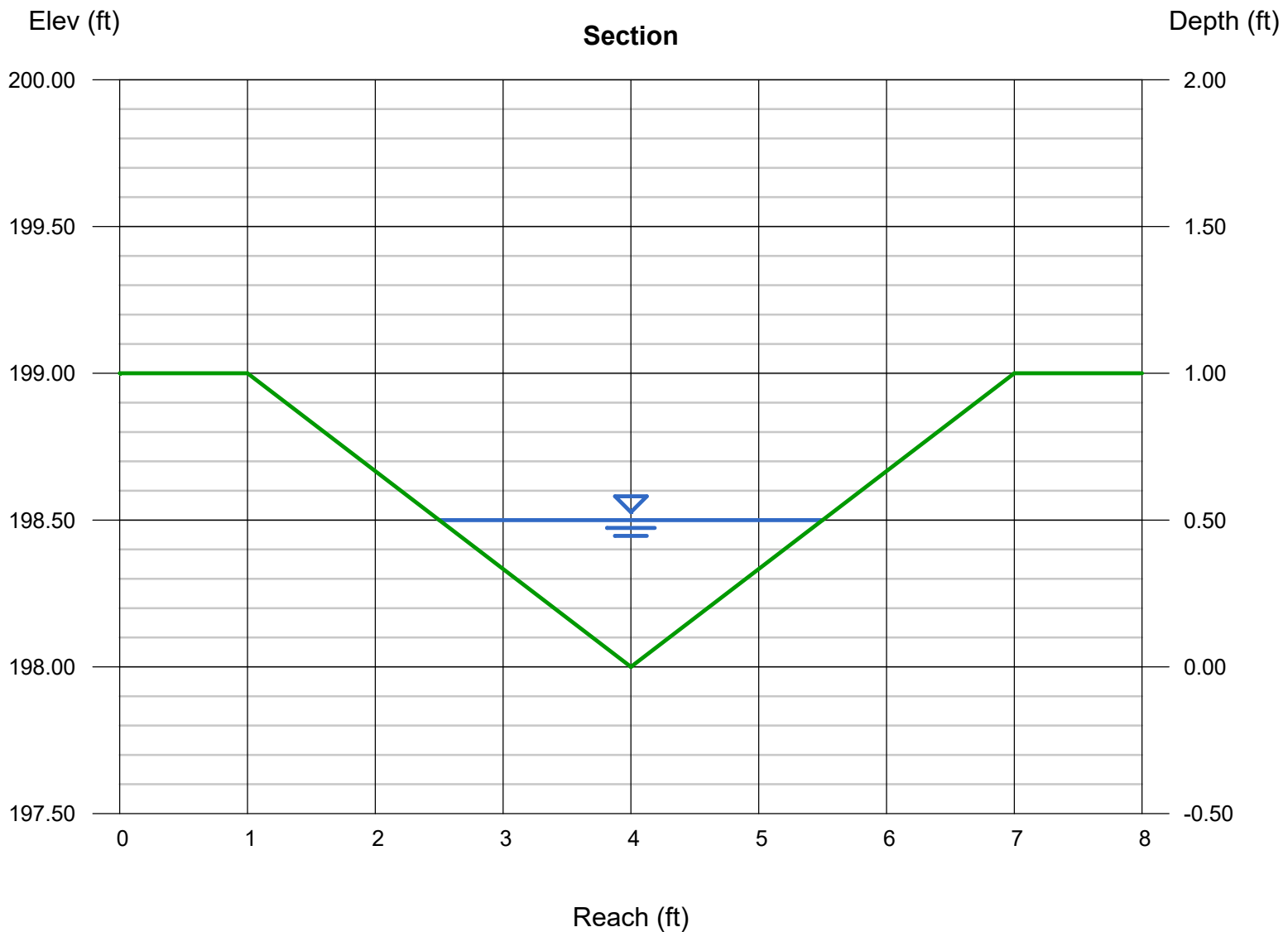
Invert Elev (ft) = 198.00
Slope (%) = 9.88
N-Value = 0.025

Calculations

Compute by: Known Q
Known Q (cfs) = 5.25

Highlighted

Depth (ft) = 0.50
Q (cfs) = 5.250
Area (sqft) = 0.75
Velocity (ft/s) = 7.00
Wetted Perim (ft) = 3.16
Crit Depth, Yc (ft) = 0.72
Top Width (ft) = 3.00
EGL (ft) = 1.26



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Sunday, May 23 2021

Ditch 4A

Triangular

Side Slopes (z:1) = 3.00, 3.00
Total Depth (ft) = 1.25

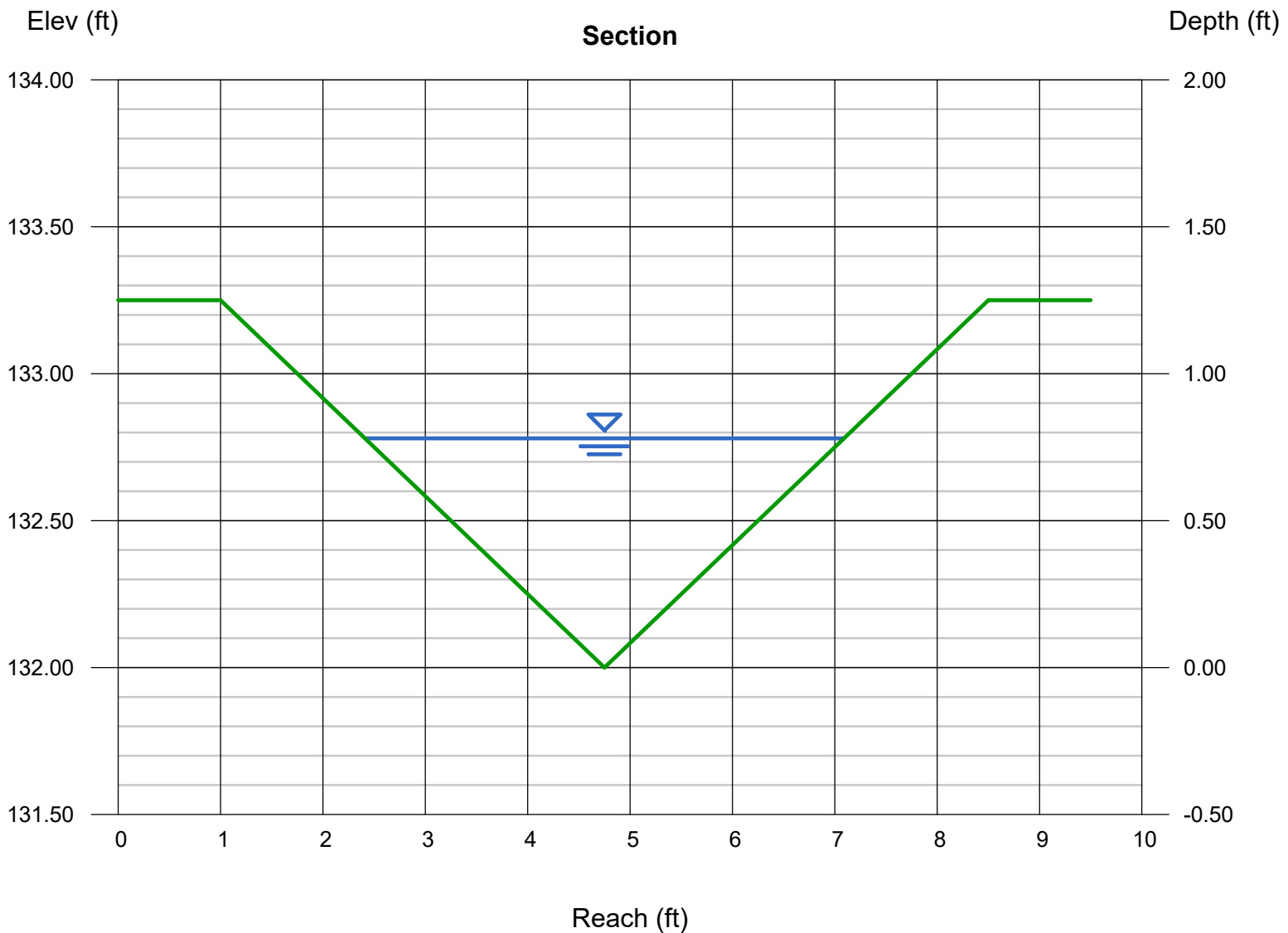
Invert Elev (ft) = 132.00
Slope (%) = 1.52
N-Value = 0.025

Calculations

Compute by: Known Q
Known Q (cfs) = 6.80

Highlighted

Depth (ft) = 0.78
Q (cfs) = 6.800
Area (sqft) = 1.83
Velocity (ft/s) = 3.73
Wetted Perim (ft) = 4.93
Crit Depth, Yc (ft) = 0.80
Top Width (ft) = 4.68
EGL (ft) = 1.00



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Sunday, May 23 2021

Ditch 4B

Trapezoidal

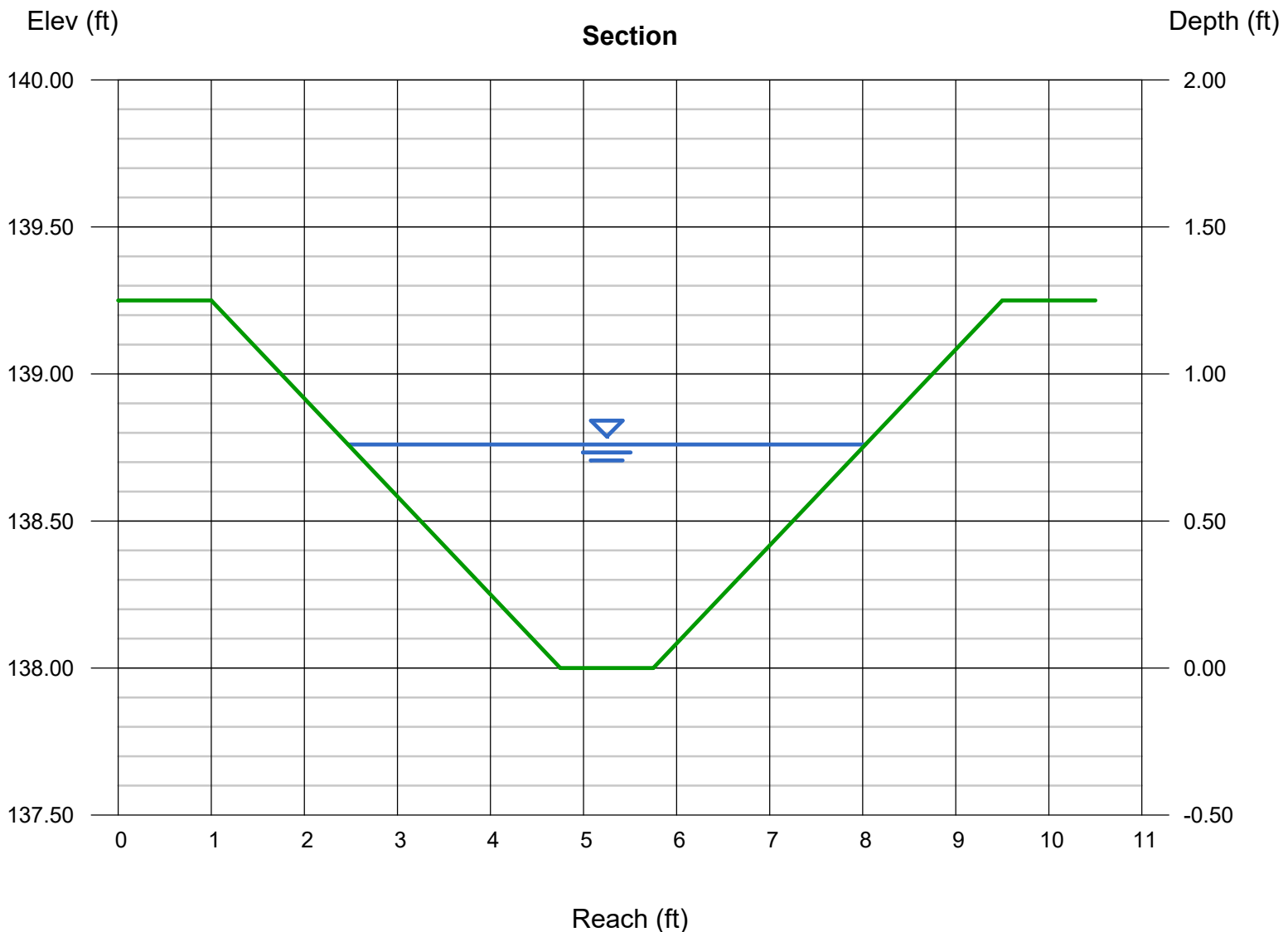
Bottom Width (ft) = 1.00
Side Slopes (z:1) = 3.00, 3.00
Total Depth (ft) = 1.25
Invert Elev (ft) = 138.00
Slope (%) = 1.36
N-Value = 0.025

Calculations

Compute by: Known Q
Known Q (cfs) = 9.79

Highlighted

Depth (ft) = 0.76
Q (cfs) = 9.790
Area (sqft) = 2.49
Velocity (ft/s) = 3.93
Wetted Perim (ft) = 5.81
Crit Depth, Yc (ft) = 0.78
Top Width (ft) = 5.56
EGL (ft) = 1.00



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Sunday, May 23 2021

Ditch 5A

Trapezoidal

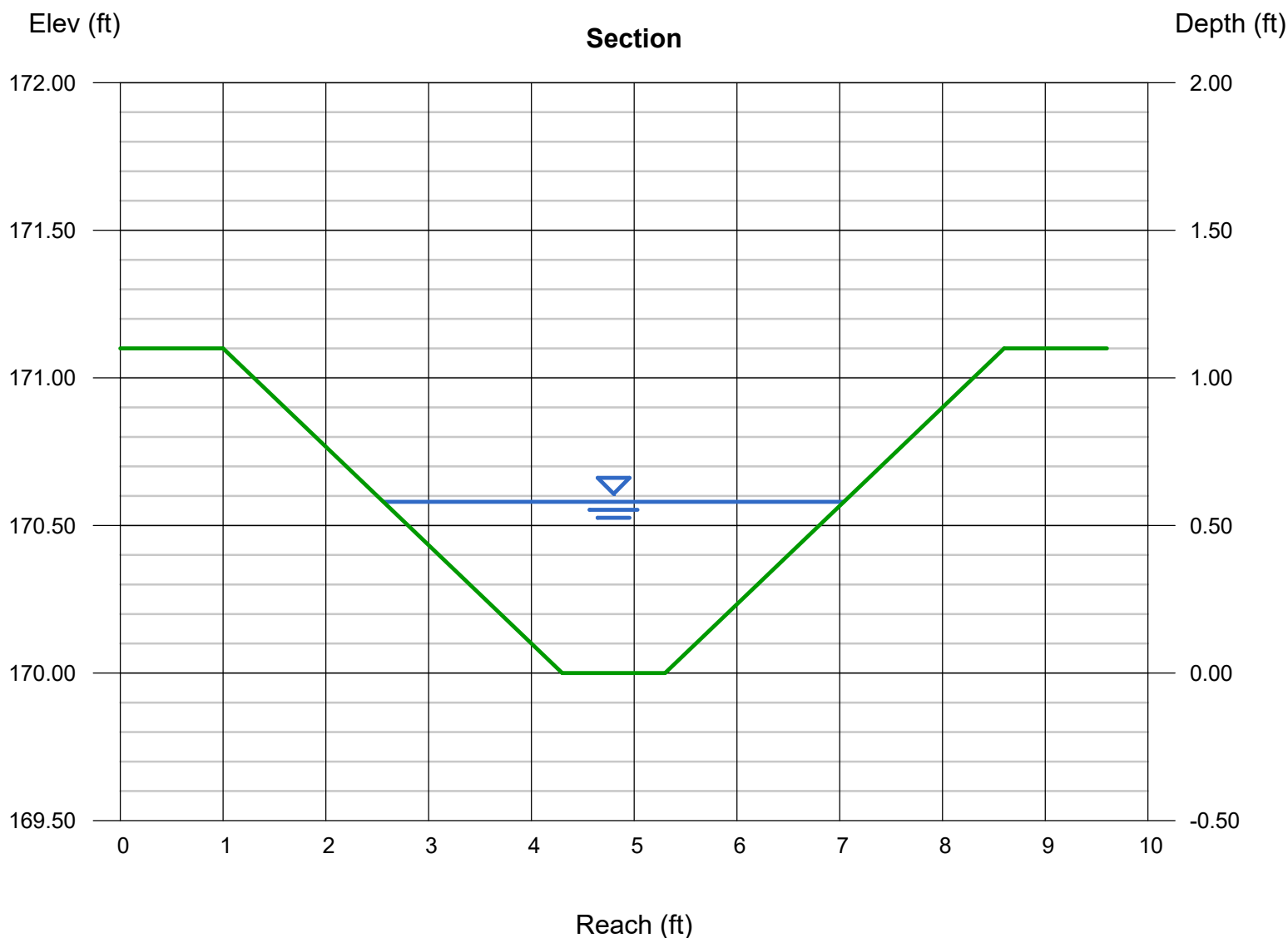
Bottom Width (ft) = 1.00
Side Slopes (z:1) = 3.00, 3.00
Total Depth (ft) = 1.10
Invert Elev (ft) = 170.00
Slope (%) = 5.17
N-Value = 0.025

Highlighted

Depth (ft) = 0.58
Q (cfs) = 10.41
Area (sqft) = 1.59
Velocity (ft/s) = 6.55
Wetted Perim (ft) = 4.67
Crit Depth, Yc (ft) = 0.80
Top Width (ft) = 4.48
EGL (ft) = 1.25

Calculations

Compute by: Known Q
Known Q (cfs) = 10.41



Channel Report

Ditch 5B

Triangular

Side Slopes (z:1) = 3.00, 3.00
Total Depth (ft) = 1.50

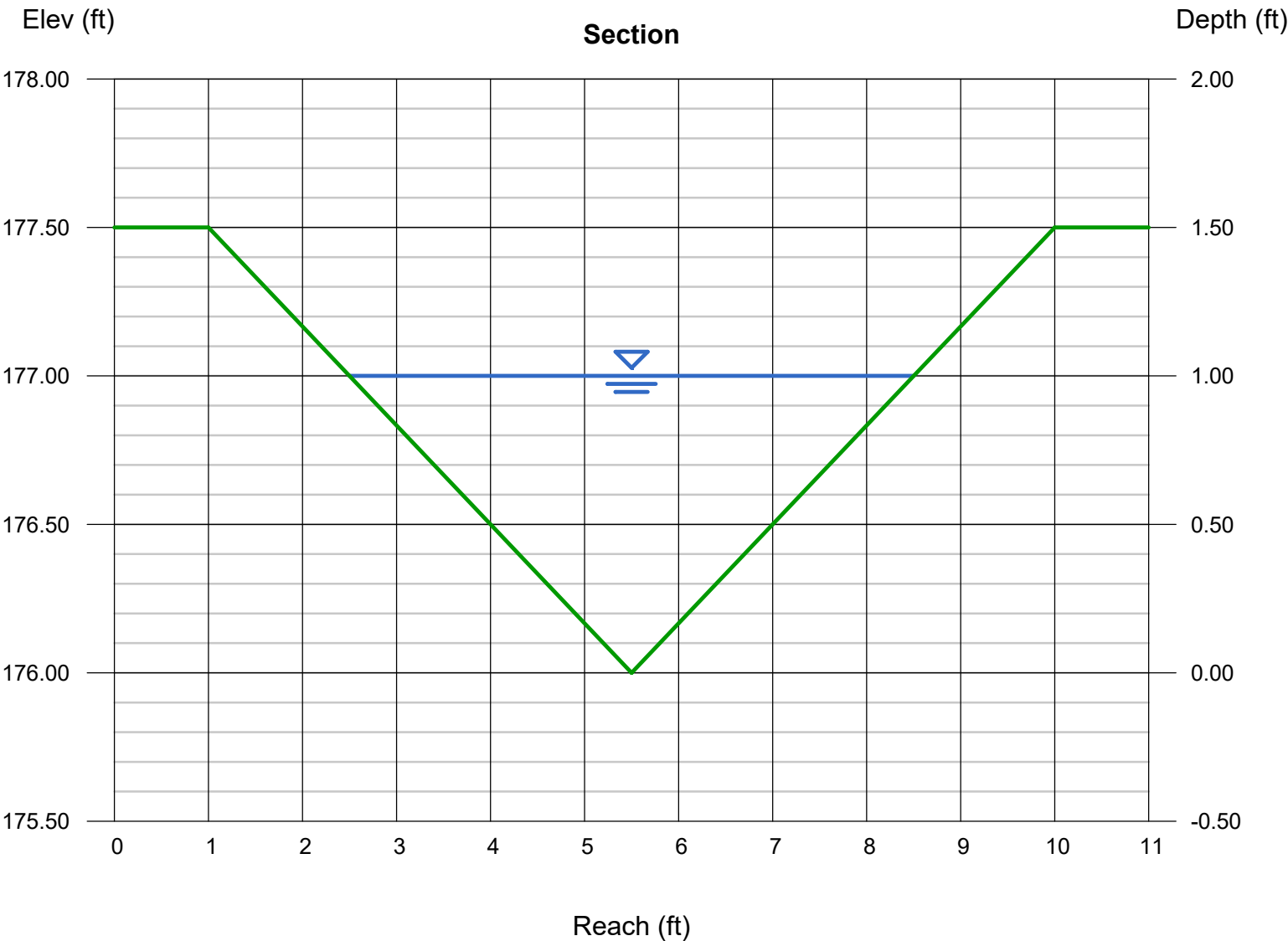
Invert Elev (ft) = 176.00
Slope (%) = 5.03
N-Value = 0.025

Calculations

Compute by: Known Q
Known Q (cfs) = 24.14

Highlighted

Depth (ft) = 1.00
Q (cfs) = 24.14
Area (sqft) = 3.00
Velocity (ft/s) = 8.05
Wetted Perim (ft) = 6.32
Crit Depth, Yc (ft) = 1.33
Top Width (ft) = 6.00
EGL (ft) = 2.01



Stonington Solar Array Facility
North Stonington, CT
SRC

5/11/2021

Water Quality Calculations

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

I = % Impervious Cover

R = Volumetric Runoff Coeff. = 0.05 + 0.009 (I)

A = Site Area (Ac)

Drainage Area	Area (A) (Ac)	Imp. Cover (I) (%)	Vol. Runoff Coeff. (R)	Required WQV (Ac-ft)	Required WQV (Cu-ft)	Provided WQV (Cu-ft)	Provided WQV (Ac ft)	Pond Stage Elev.	Impervious Area						
									Total Panel Array Area Slopes Above 10% (sf)	Total Array Area Slopes Above 10% (50% GCR) (sf)	Resulting Panel Imp. Area (Ac)	Length of Access Roads (ft)	Area of Access Roads (L x 16 ft) (sf)	Area of Access Roads (Lx16 ft) (Ac)	Total Impervious Area (Ac)
1A	4.69	3.63	0.083	0.03	1,407	1,438	0.03	126.40	0.0	0.0	0.00	463	7,408	0.17	0.17
1B	10.54	4.28	0.088	0.08	3,385	9,397	0.22	122.10	0.0	0.0	0.00	1,227	19,632	0.45	0.45
1C	8.58	1.58	0.064	0.05	2,001	2,201	0.05	116.20	0.0	0.0	0.00	370	5,920	0.14	0.14
2	4.8	1.18	0.061	0.02	1,056	2,282	0.05	171.55	84,767	42,384	0.97	1,235	19,760	0.45	1.43
4	9.08	15.60	0.190	0.14	6,276	6,605	0.15	120.90	100,383	50,192	1.15	720	11,520	0.26	1.42
5	15.23	12.48	0.162	0.21	8,976	9,197	0.21	123.60	87,235	43,618	1.00	2,450	39,200	0.90	1.90