Preliminary Stormwater Management Summary

To:	Jerome Township, Union County
From:	Matt Stechschulte, PE, CFM 1 Easton Oval #400 Columbus, OH 43219 Matthew.Stechschulte@Woolpert.com
Date:	April 23, 2026
Subject:	Proposed Meijer Development – Hyland-Croy Road, Jerome Township, Plain City, Union County, Ohio – Stormwater Management Summary

INTRODUCTION

This stormwater management report provides the explanation/methodology to show how stormwater management of the proposed Meijer development meets the requirements of Jerome Township and Union County. The development will be constructed northwest of Post Road and Hyland-Croy, Plain City, Union County, Ohio. The site will be developed as a Meijer main store.

SITE DESCRIPTION

1. The existing site is an undeveloped farm field. The site is bordered by The Gorden Tri-County Ditch to the north, farm field to the south, Hyland-Croy Road to the east, and US-33 to the west.

2. A Meijer main store with associated parking areas and access drives will be constructed. One entrance drive will be constructed to access the site on Hyland-Croy. An internal drive will be constructed to connect the Meijer development to the Kia development to the north and proposed commercial development to the south. Storm sewer and utility services will be constructed and connect to the existing utility infrastructure.

3. The proposed stormwater collection and management system is designed to accept and manage runoff from the entire Developer Outlots in addition to the Meijer portion of the development.

4. The site will route 9.05 acres of offsite drainage from the undeveloped area to the south. The above-ground detention basin will be designed to route this offsite flow.

OVERALL SITE STORMWATER MANAGEMENT STUDY

For the overall site, stormwater management detention and water quality will be provided in accordance with County requirements. This will include post-developed routing complying with allowable releases.

In pre-developed conditions and post-developed conditions all subareas are within the same watershed as the study area which drains to the Gorden Tri-County Ditch, the stream located immediately north of the Meijer development. The project also accounts for the future development of the outlots along Hyland Croy Road. This design assumes that the proposed outlots will be developed at 85% impervious cover and runoff from it will be routed to the proposed wet basins.

HYDROLOGIC SUMMARY

Pre-Developed Runoff:

In pre-developed conditions all on-site soils are Brookston silty clay loam (Bs) and Crosby silt loam (CrA). Hydrologic Soil Group of C has been used for the pre-developed conditions. The pre-developed site consists of pervious farm land.

Table 1
Pre-Developed Subarea Characteristics

Subarea	HydroCAD Node	Land Use	Area (acres)	Hydrologic Soil Group	Curve Number	Time of Concentration (minutes)	1-Year Runoff Volume (ac-ft)
PRE	1S	Farm Field	27.36	C (Bs, CrA)	78	44.5	1.579
OFFSITE	5S	Woods	9.05	C (Bs, CrA)	70	55.2	-

Post-Developed Runoff:

All on-site soils are to be treated as HSG Group D, so only cover type will determine CN. CN values are 98 for impervious area and 80 for open space, good condition.

Table 2
Post-Developed Subarea Characteristics

Subarea	HydroCAD Node	Land Use	Area (acres)	Hydrologic Soil Group	Curve Number	Time of Concentration (minutes)	1-Year Runoff Volume (ac-ft)
POST	2S	Open Space, Impervious Area, 85% impervious commercial development	27.36	D (Bs, CrA)	94	15.0	3.936
OFFSITE	5S	Woods	9.05	C (Bs, CrA)	70	55.2	-

STORMWATER QUALITY

Post Construction Water Quality is provided by the proposed wet basin. Calculations supporting the water quality design meeting the requirements of the Ohio EPA are attached to this memo.

SUMMARY OF STORMWATER RELEASES

Union County uses the Critical Storm method to determine allowable release rates. This method ensures that post-development peak discharge rates from the Critical Storm and more frequent storms do not exceed pre-development peak discharge rates from a 1-year, 24-hour storm. For less frequent storms, up to the 100-year, 24-hour storm, peak runoff discharge rates must not exceed those from equivalent pre-development storms. The increase in runoff generated from the development generates a 25-year critical storm. Calculations supporting the critical storm determination are provided below.

1-Year Pre-developed Volume = 1.579 ac-ft
1-Year Post-Developed Volume = 3.936 ac-ft
% increase = 149%
Critical Storm = 25-Year

See Table 3 below for basin routing and total post-developed runoff results.

Table 3
Stormwater Summary

Recurrence Interval	24-Hr Precip (in.)	Pre-Developed Runoff (cfs)	Post-Developed Runoff (cfs)	Offsite Runoff (cfs)	Total Flow to Basin (cfs)	Basin Elevation (ft)	Basin Volume (ac-ft)	Total Post-Developed Runoff (cfs)	Allowable Release Rates* (cfs)
1	2.35	11.25	59.46	1.39	59.57	928.77	2.396	5.88	12.64
2	2.55	13.66	65.70	1.85	65.87	928.88	2.614	7.13	13.10
5	3.30	23.58	88.98	3.94	89.55	929.35	3.567	11.32	15.19
10	3.80	30.78	104.41	5.60	105.41	929.68	4.231	13.99	16.85
25	4.30	38.31	119.76	7.40	121.29	930.01	4.934	15.97	18.65
50	4.75	45.26	133.53	9.11	135.56	930.34	5.631	16.96	54.37
100	5.00	49.18	141.16	10.10	143.49	930.52	5.999	18.38	59.28
HydroCAD Node		1S	2S	5S	3P	3P	3P	3P	

*Allowable Discharge (includes Offsite) is based on the following:

-1-year event: 1-year pre-developed runoff + 1-year Offsite Runoff = 11.25 cfs + 1.39 cfs = 12.64 cfs
-2-year event: 1-year pre-developed runoff + 2-year Offsite Runoff = 11.25 cfs + 1.85 cfs = 13.10 cfs
-5-year event: 1-year pre-developed runoff + 5-year Offsite Runoff = 11.25 cfs + 3.94 cfs = 15.19 cfs
-10-year event: 1-year pre-developed runoff + 10-year Offsite Runoff = 11.25 cfs + 5.60 cfs = 16.85 cfs
-25-year event: 1-year pre-developed runoff + 25-year Offsite Runoff = 11.25 cfs + 7.40 cfs = 18.65 cfs
-50-year event: 50-year pre-developed runoff + 50-year Offsite Runoff = 45.26 cfs + 9.11 cfs = 54.37 cfs
-100-year event: 100-year pre-developed runoff + 100-year Offsite Runoff = 49.18 cfs + 10.10 cfs = 59.28 cfs

EROSION AND SEDIMENT CONTROL

The project will utilize the proposed wet basin as a sediment basin during construction activities. The required dewatering volume to be treated by the sediment basin is 1.505 ac-ft based on the 36.41 acre drainage area. The dewatering volume will be managed by a skimmer with a 5'' orifice which will provide the required 48-hour drawdown. The basin has 15.94 ac-ft of storage capacity below normal pool which meets and exceeds the required sediment storage volume of 0.628 ac-ft based on the 27.36 acres of disturbed area. The site will also utilize perimeter sediment controls such as silt fence and storm sewer inlet protection during construction activities. Runoff will be routed to the proposed sediment basin during construction by means of temporary diversion channels.

CONCLUSION

The proposed design meets the requirements for detention and water quality described by Union County and the Ohio EPA.

ATTACHMENTS

Vicinity Map

NRCS Web Soil Survey

OEPA Water Quality Volume BMP Compliance Worksheet

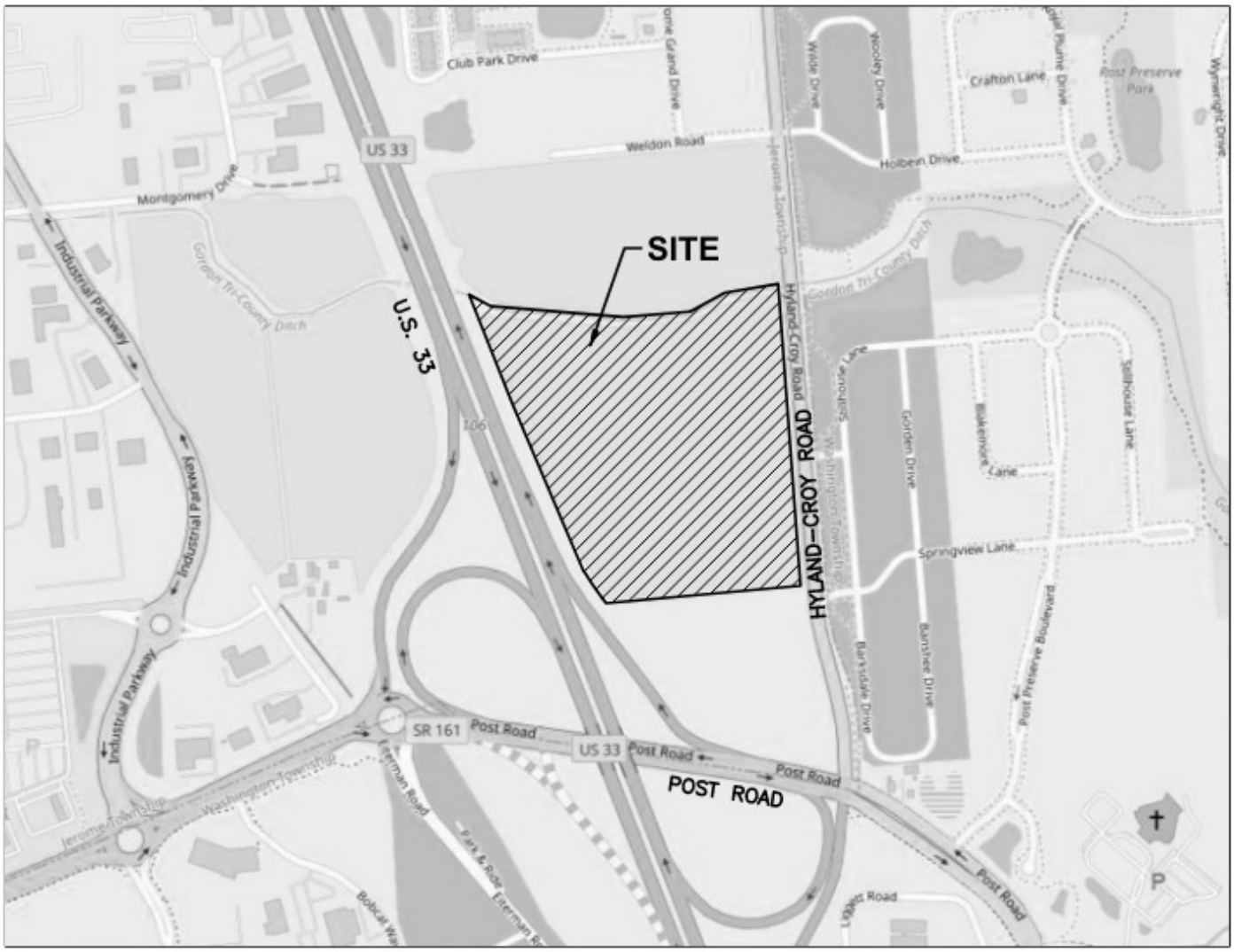
OEPA Sediment Basin Sizing and Dewatering Compliance Tool

HydroCAD Output

EXH 1 – Pre-Developed Drainage Plan

EXH 2 – Post-Developed Drainage Plan

Woolpert, Inc.
1 Easton Oval #400
Columbus, OH 43219
614.476.6000



A5 VICINITY MAP
NTS

Woolpert, Inc.
1 Easton Oval #400
Columbus, OH 43219
614.476.6000

United States Department of Agriculture

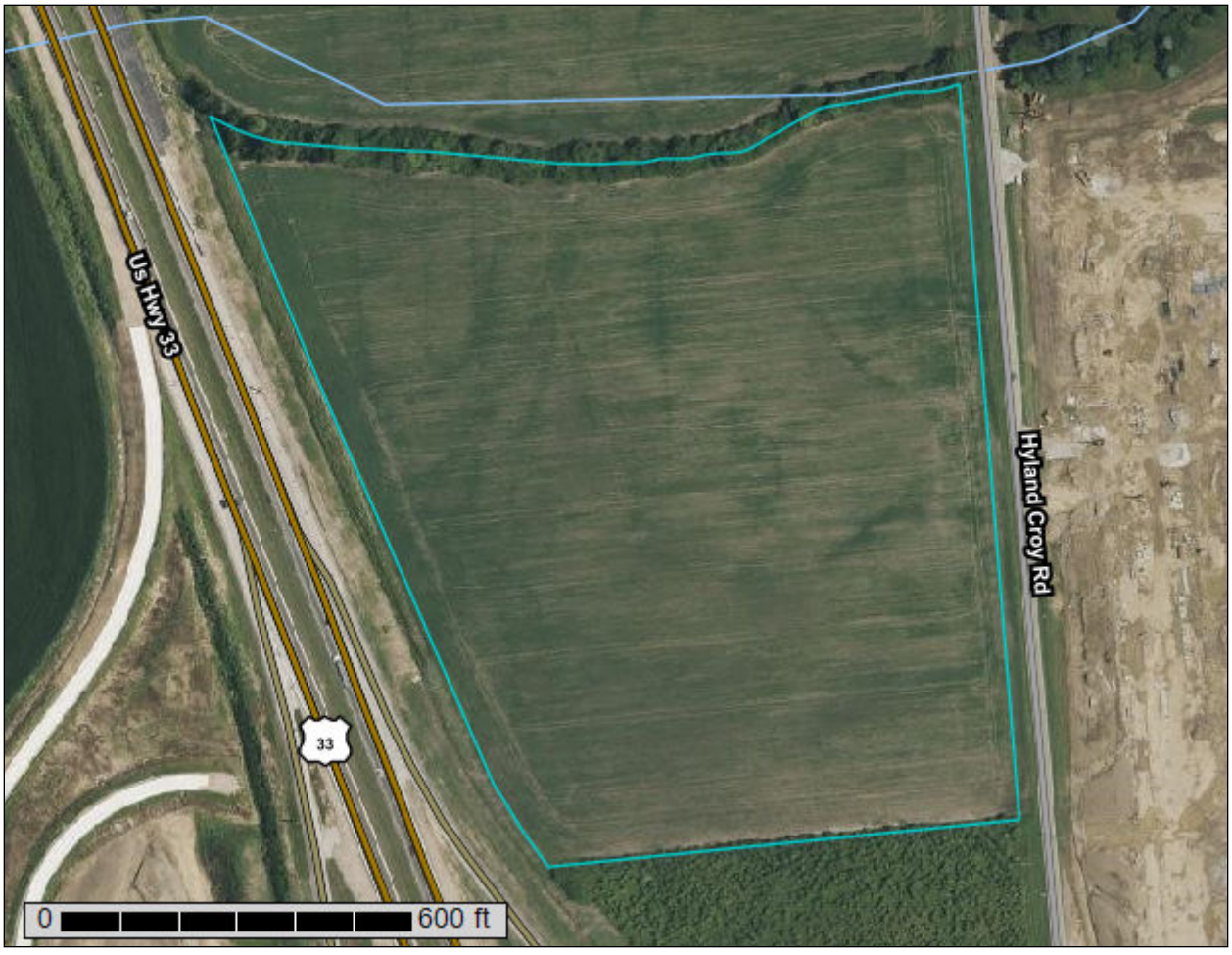
NRCS

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 Union County, Ohio

Meijer JRM



February 15, 2024

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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Contents

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

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

Map Scale: 1:3,440 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

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 1:15,800.

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

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

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

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

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

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

Soil Survey Area: Union County, Ohio
Survey Area Data: Version 22, Sep 11, 2023

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

Date(s) aerial images were photographed: May 21, 2023—Aug 8, 2023

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
Bs	Brookston silty clay loam, fine texture, 0 to 2 percent slopes	11.1	37.5%
CrA	Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	18.4	62.5%
Totals for Area of Interest		**29.5**	**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.

Union County, Ohio

Bs—Brookston silty clay loam, fine texture, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t98m
Elevation: 820 to 1,140 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Brookston and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brookston

Setting

Landform: Ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy glaciofluvial deposits derived from sedimentary rock over loamy till derived from limestone and dolomite

Typical profile

Ap - 0 to 12 inches: silty clay loam
Btg - 12 to 39 inches: silty clay loam
2C - 39 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F111XA007IN - Till Depression Flatwood
Hydric soil rating: Yes

Minor Components

Celina

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111XA009IN - Till Ridge
Hydric soil rating: No

Crosby

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F111XA008IN - Wet Till Ridge
Hydric soil rating: No

CrA—Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2thy7
Elevation: 520 to 1,550 feet
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Crosby and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crosby

Setting

Landform: Recessionial moraines, ground moraines, water-lain moraines
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Silty material or loess over loamy till

Typical profile

Ap - 0 to 8 inches: silt loam
BE - 8 to 11 inches: silt loam

Bt1 - 11 to 14 inches: silt loam
2Bt2 - 14 to 28 inches: silty clay loam
2BCt - 28 to 36 inches: loam
2Cd - 36 to 79 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 24 to 40 inches to densic material
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F111XA008IN - Wet Till Ridge
Hydric soil rating: No

Minor Components

Kokomo, drained

Percent of map unit: 5 percent
Landform: Swales, water-lain moraines, depressions
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F111XA007IN - Till Depression Flatwood
Hydric soil rating: Yes

Celina, eroded

Percent of map unit: 4 percent
Landform: Recessionial moraines, ground moraines, water-lain moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear
Ecological site: F111XA009IN - Till Ridge
Hydric soil rating: No

Miamian, eroded

Percent of map unit: 1 percent
Landform: Recessionial moraines, ground moraines, water-lain moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear

Ecological site: F111XA009IN - Till Ridge
Hydric soil rating: No

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test

Project and Watershed Information; WQv Calculation

version 3.2 2020-07-07

Project Details

Project Name:	Meijer JRM
Project Location:	Hyland-Croy Road
	Jerome Townsip, OH 43064
Project Latitude:	40.114502
Project Longitude:	-83.178881
NPDES Permit Applicant:	
Submitted by:	Matt Stechschulte, PE, CFM
Date:	4/22/2026

Subwatershed Details

Subwatershed ID/Label: Gorden Tri-County Ditch

Subwatershed Drainage Area, A_{total} =	**36.41**	**acres**	=	**1,586,020**	**ft^2**
Subwatershed Impervious Area, A_{imp} =	**23.26**	**acres**	=	**1,013,206**	**ft^2**
Imperviousness fraction, i =	**0.64**		=	**64**	**%**
Volumetric Runoff Coefficient, Rv =	**0.62**				
Water Quality Volume, WQv =	**74,339**	**ft^3**	=	**1.707**	**ac-ft**

Wet Extended Detention Basin WQv Compliance Tool

version 3.2 2020-07-07

Project Summary

Project Name: Meijer JRM
Subwatershed ID/Label: Gorden Tri-County Ditch
Submitted by: Matt Stechschulte, PE, CFM
Date: 4/22/2026

Subwatershed Drainage Area, A_{total} =	36.41	acres	=	1,586,020	ft2
Subwatershed Impervious Area, A_{imp} =	23.26	acres	=	1,013,206	ft2
Imperviousness fraction, i =	0.64			64	%
Water Quality Volume, WQv =	74,339	ft^3	=	1.71	ac-ft

Step 1 - Soil Suitability

Soil Series: [ ] HSG: D

Step 2 - Wet ED Basin Volume Requirements

Extended Detention Volume, EDv =	74339	ft^3
Minimum Sediment Storage Volume, $V_{sediment}$ =	14868	ft^3
Minimum Permanent Pool Volume, PPv =	89207	ft^3

Step 3 - Basin Stage-Storage Relationship

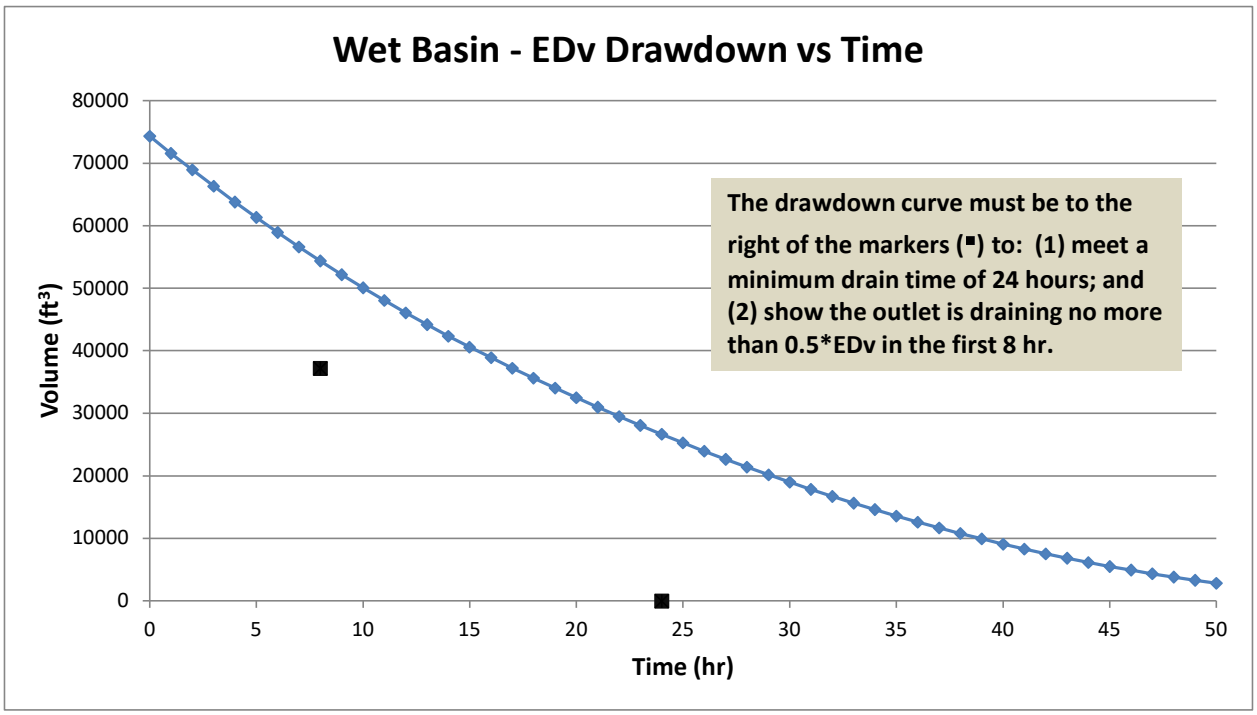
	Elevation ft	Area ft^2		Incremental Volume ft^3	Cumulative Volume ft^3
Bottom of Permanent Micropool =	916.00	48380			
	917.00	50271		49,322	49,322
	918.00	52197		51,231	100,553
	919.00	54160		53,176	153,729
	920.00	56158		55,156	208,885
	921.00	58193		57,173	266,058
	922.00	60263		59,225	325,282
	923.00	62369		61,313	386,595
	924.00	64510		63,436	450,031
	925.00	66687		65,596	515,627
	926.00	68901		67,791	583,418
	927.50	79330		111,081	694,500
	928.50	84052		81,680	776,179
	929.50	88875		86,452	862,632
	930.50	93799		91,326	953,958
	931.50	98823		96,300	1,050,257

Step 4 - Outlet Elevations and Storage Volumes

WQ Orifice Invert Elevation =	927.50				
Elevation of Top of EDv =	928.42				
Secondary Outlet Invert Elevation =	928.50				OKAY
WQ Treatment Volume Provided, $V_{treatment}$ =	81,680	ft^3			
Treatment Vol Provided Relative to EDv, $V_{treatment}/EDv$ =	1.10		=	110%	OKAY
Permanent Pool Volume Provided, PPv =	694,500	ft^3			
Ratio PPv Provided to PPv Required =	7.79		=	779%	OKAY

Step 5 - Outlet (Orifice) Sizing

Maximum Hydraulic Head, Hmax =	0.92	ft			
Orifice Coefficient, C =	0.6				
Target (Minimum) Draw-down Time, T_d =	24	hr			
Target Average Discharge, Q_{avg} =	0.86	cfs			
Average Hydraulic Head, H_{avg} =	0.46	ft			
Estimated Orifice Area, $A_{orifice}$ =	37.94	in^2	=	0.263	ft^2
Estimated Orifice Diameter, $D_{orifice}$ =	6.95	in	=	0.58	ft
Design Orifice Diameter, $D_{orifice}$ =	6.00	in	=	0.50	ft
Design Orifice Area, $A_{orifice}$ =	28.09	in^2	=	0.195	ft^2
Time to Completely Drain EDv, T_d =	60	hr	must be ≥ 24 hr		OKAY
Volume Drained in First 8 hr =	19,953	ft^3			
% of EDv =	26.8	%	must be ≤ 50%		OKAY



Sediment Basin Sizing and Dewatering Compliance Tool

version 1.3 2023-05-15

Project Summary

Project Name:	Meijer JRM	
Project Location:	Hyland-Croy Road	Street address (or street name and nearest intersection), City, state, zip code
Subwatershed ID/Label:	Jerome Townsip, OH 43064	
Project Latitude:	40.11450240.114502, -83.17888140.114502,	Enter latitude at entrance to site in decimal degrees (format: 40.947544)
Project Longitude:	-83.178881	Enter longitude at entrance to site in decimal degrees (format: -81.465240)
NPDES Permit Applicant:		
Submitted by:	Matt Stechschulte, PE, CFM	Name of design engineer
Date:	4/22/2026	mm/dd/yyyy
Watershed:	Statewide	Select from dropdown which watershed the project is located in, select "Statewide" if not in the Big Darby Creek Watershed

Subwatershed Total Drainage Area, A_{total} =	36.41	acres	=	1,586,020	ft^2
Subwatershed Disturbed Drainage Area, A_{dist} =	27.36	acres	=	1,191,802	ft^2

Report to the nearest 0.01 acre; include any drainage from off-site

All Basin dewatering discharge calculations in these worksheets assume free discharge from the outlet (i.e., no tailwater)

Step 1 - Sediment Basin Volume Requirements

For Statewide Watersheds

Minimum Sediment Storage Volume, Vsediment =	27360	ft3	=	1,013	yd3	=	0.628 acre-ft
Minimum Dewatering Zone Volume, Vdewatering =	65538	ft3	=	2,427	yd3	=	1.505 acre-ft

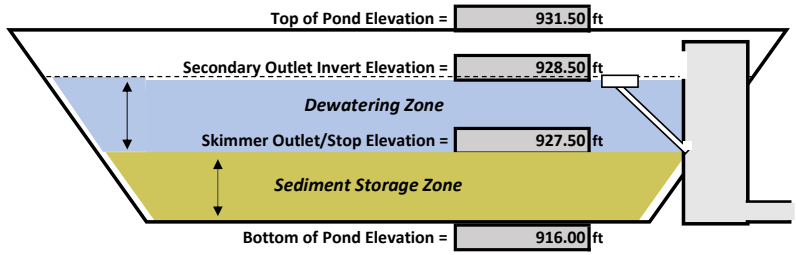
Requirement: Minimum Sediment Volume = 1000 ft3/acre of disturbed drainage area
Requirement: Minimum Dewatering Volume = 1800 ft3/acre of total drainage area

Step 2 - Basin Stage-Storage Relationship

IMPORTANT: Must include the exact Skimmer Outlet/Skimmer Stop Elevation and the Secondary Outlet Invert Elevation in the Stage-Storage Table

	Elevation ft	Area ft^2	Incremental Volume ft^3	Cumulative Volume ft^3
Bottom of Sediment Storage (Pond) =	916.00	48,380		
	917.00	50,271	49,322	49,322
	918.00	52,197	51,231	100,553
	919.00	54,160	53,176	153,729
	920.00	56,158	55,156	208,885
	921.00	58,193	57,173	266,058
	922.00	60,263	59,225	325,282
	923.00	62,369	61,313	386,595
	924.00	64,510	63,436	450,031
	925.00	66,687	65,596	515,627
	926.00	68,901	67,791	583,418
	927.50	79,330	111,081	694,500
	928.50	84,052	81,680	776,179
	929.50	88,875	86,452	862,632
	930.50	93,799	91,326	953,958
	931.50	98,823	96,300	1,050,257

Basin Schematic



Note: The basin dewatering discharge calculation in this worksheet assumes a free discharge from the outlet (i.e., no tailwater). The skimmer outlet elevation may need to be adjusted upward to account for tailwater as appropriate. Tailwater is common to low gradient ditches or water bodies with prolonged increases in water level

Step 3 - Outlet Elevations and Storage Volumes

Skimmer Outlet Invert/Skimmer Stop Elevation =	927.50	ft	OKAY
Secondary Outlet Invert Elevation =	928.50	ft	OKAY
Provided Sediment Storage Volume =	694,500	ft^3	OKAY
Provided Dewatering Volume =	81,680	ft^3	OKAY

The invert of the Skimmer Outlet/Skimmer Stop (e.g. stone pad) corresponds to the top of the sediment storage zone/permanent pool and the bottom of the Dewatering Volume. It cannot be below the bottom of the pond.

The invert elevation for the next (usually peak discharge or flood control) outlet. This elevation must exceed that of the Skimmer Outlet Invert Elevation and be below the top of the pond. *Check - The difference between the skimmer outlet invert/skimmer stop elevation and the secondary outlet invert elevation (dewatering zone depth) must not exceed 5ft.

The Sediment Storage Volume must exceed the requirement listed above in Step 1

The Dewatering Volume must exceed the requirement listed above in Step 1

ERROR Check - The Step 2 Stage Storage Table above must include the exact Skimmer Outlet/Skimmer Stop Elevation and the Secondary Outlet Invert Elevation provided in Step 3

Step 4 - Skimmer-Type Outlet Sizing

Select Skimmer Type or Manufacturer: Delaware DOT Skimmer

Delaware: See Calculator Below

Follow Step 5 below to identify skimmer orifice size to meet dewatering time requirement

Orifice Size Selected:	5	in
Dewatering Drawdown Time:	48	hrs

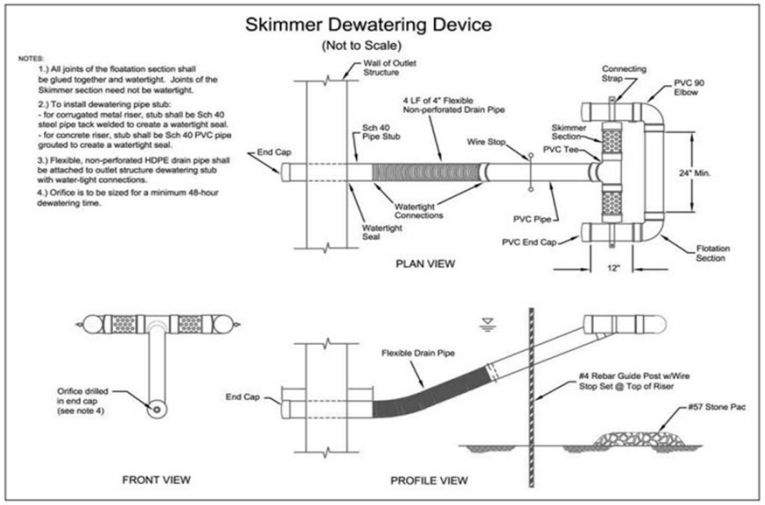
Check to ensure that orifice sizing calculation is done using required, NOT provided dewatering volume

Check that dewatering drawdown time is greater than 2 days and less than 7 days

The skimmer orifice size estimate uses a variable head skimmer with the orifice drilled in an end cap inside the outlet structure

Example Delaware Skimmer Spec Sheet

Please note the drawing and image shown below are provided solely to assist with identification of the skimmer type and its associated componants. The drawing and photo below does not necessarily depict an installation that complies with the General Permit or Rainwater & Land Development specification, especially where the sediment storage zone in omitted.

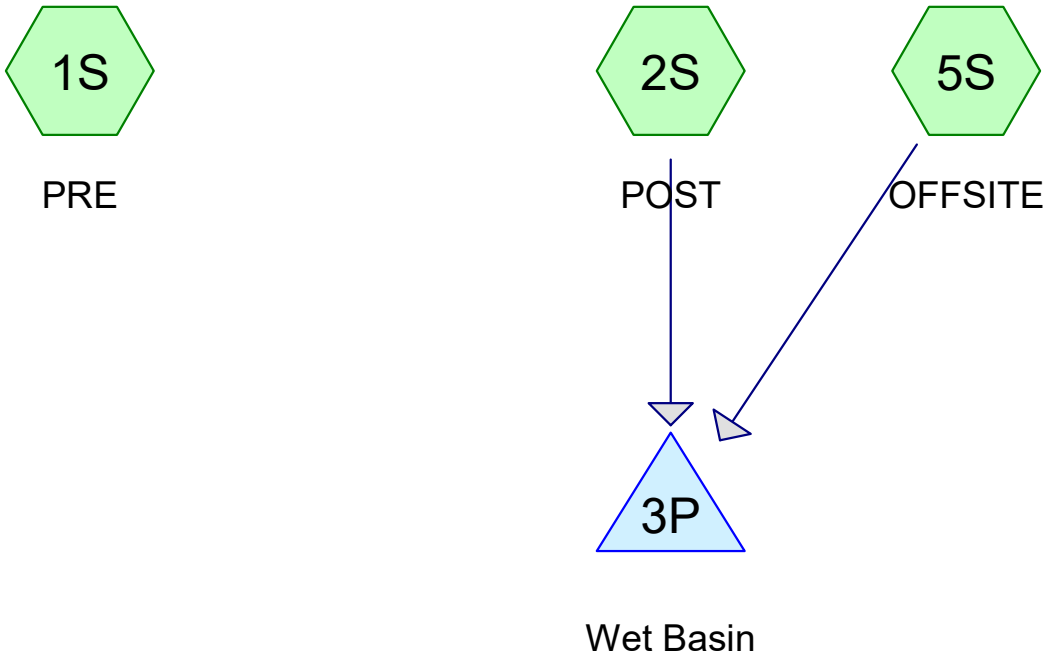


Delaware Skimmer Photo

Maximum Hydraulic Head, Hmax =	0.79	ft				
Orifice Coefficient, C =	0.6					
Target (Minimum) Draw-down Time, Td-min =	48	hr				
Target Average Discharge, Qavg =	0.47	cfs				
Average Hydraulic Head, Havg =	0.40	ft				
Estimated Orifice Area, Aorifice =	22.47	in2	=	0.16	ft2	
Estimated Orifice Diameter, Dorifice =	5.35	in	=	0.45	ft	OKAY
Design Orifice Diameter, Dorifice =	5.00	in	=	0.42	ft	
Design Orifice Area, Aorifice =	19.51	in2	=	0.14	ft2	
Time to Completely Drain Dewatering Volume, Td =	55.28	hr	must be > 48 hrs			OKAY
			should be < 168 hrs (7 days)			OKAY

Hmax is the dewatering depth measured from the skimmer orifice invert to top of the dewatering zone
Orifice equation discharge coefficient, Corifice = 0.6 is typical (range 0.59-0.62)
Minimum drawdown time specified by CGP and RLD
Qavg = Dewatering Volume/Td-min
Havg = Hmax/2
Orifice Area, Aorifice = Qavg/[C(2*g*Havg)0.5]

Enter a design orifice diameter similar to the estimated diameter, but orifice diameter cannot exceed max head
Oftentimes the diameter can be slightly increased or decreased to meet a standard dimension, provided it meet:
- The dewatering drawdown time (Td) must be at least 48 hrs and less than 7 days for a sediment basin



Subcat Reach Pond Link

Routing Diagram for JRM SWM
Prepared by Woolpert, Inc, Printed 12/11/2025

Project Notes

Rainfall events imported from "Atlas-14-Rain.txt" for 571 OH Franklin

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type II 24-hr		Default	24.00	1	2.35	2
2	2-Year	Type II 24-hr		Default	24.00	1	2.55	2
3	5-Year	Type II 24-hr		Default	24.00	1	3.30	2
4	10-Year	Type II 24-hr		Default	24.00	1	3.80	2
5	25-Year	Type II 24-hr		Default	24.00	1	4.30	2
6	50-Year	Type II 24-hr		Default	24.00	1	4.75	2
7	100-Year	Type II 24-hr		Default	24.00	1	5.00	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.760	74	>75% Grass cover, Good, HSG C (2S)
15.650	98	Paved parking, HSG C (2S)
27.360	78	Row crops, C&T, Good, HSG C (1S)
8.950	94	Urban commercial, 85% imp, HSG C (2S)
9.050	70	Woods, Good, HSG C (5S)
63.770	**84**	**TOTAL AREA**

Soil Listing (selected nodes)

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

Ground Covers (selected 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	2.760	0.000	0.000	2.760	>75% Grass cover, Good	2S
0.000	0.000	15.650	0.000	0.000	15.650	Paved parking	2S
0.000	0.000	27.360	0.000	0.000	27.360	Row crops, C&T, Good	1S
0.000	0.000	8.950	0.000	0.000	8.950	Urban commercial, 85% imp	2S
0.000	0.000	9.050	0.000	0.000	9.050	Woods, Good	5S
0.000	**0.000**	**63.770**	**0.000**	**0.000**	**63.770**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Nod Nam
1	3P	927.50	926.95	126.7	0.0043	0.013	0.0	24.0	0.0	

Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=27.360 ac 0.00% Impervious Runoff Depth=0.69"
Flow Length=1,196' Tc=44.5 min CN=78 Runoff=11.25 cfs 1.579 af

Subcatchment 2S: POST Runoff Area=27.360 ac 85.01% Impervious Runoff Depth=1.73"
Tc=15.0 min CN=94 Runoff=59.46 cfs 3.936 af

Subcatchment 5S: OFFSITE Runoff Area=9.050 ac 0.00% Impervious Runoff Depth=0.39"
Flow Length=747' Tc=55.2 min CN=70 Runoff=1.39 cfs 0.291 af

Pond 3P: Wet Basin Peak Elev=928.77' Storage=2.396 af Inflow=59.57 cfs 4.227 af
Primary=5.88 cfs 3.901 af Secondary=0.00 cfs 0.000 af Outflow=5.88 cfs 3.901 af

Total Runoff Area = 63.770 ac Runoff Volume = 5.806 af Average Runoff Depth = 1.09"
63.53% Pervious = 40.512 ac 36.47% Impervious = 23.258 ac

Summary for Subcatchment 1S: PRE

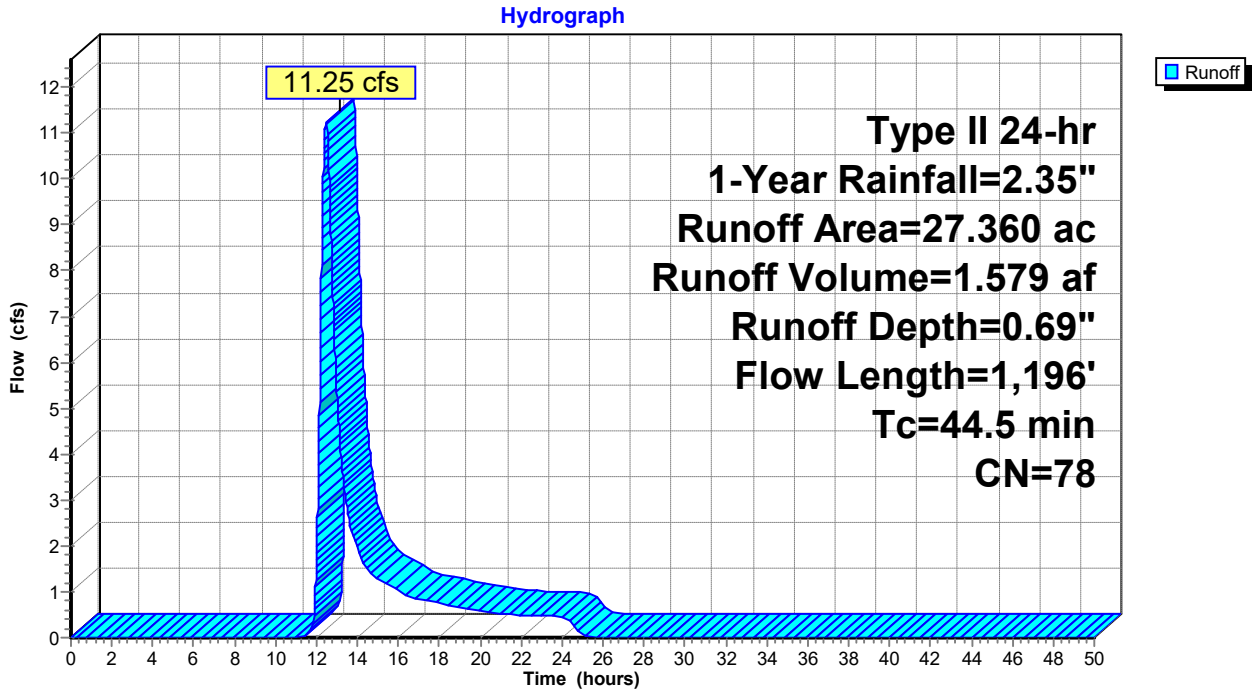
Runoff = 11.25 cfs @ 12.46 hrs, Volume= 1.579 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.35"

Area (ac)	CN	Description
27.360	78	Row crops, C&T, Good, HSG C
27.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0190	0.14		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
32.5	1,096	0.0039	0.56		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
44.5	1,196	Total			

Subcatchment 1S: PRE



Summary for Subcatchment 2S: POST

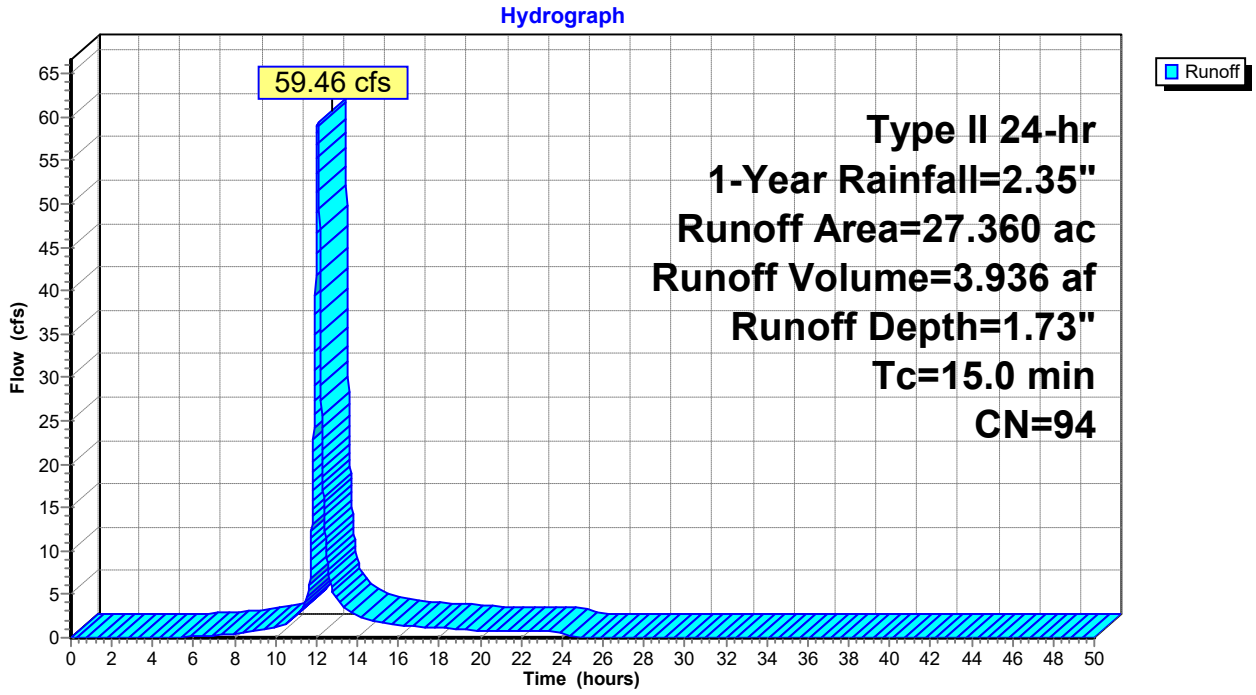
Runoff = 59.46 cfs @ 12.07 hrs, Volume= 3.936 af, Depth= 1.73"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.35"

Area (ac)	CN	Description
8.950	94	Urban commercial, 85% imp, HSG C
2.760	74	>75% Grass cover, Good, HSG C
15.650	98	Paved parking, HSG C
27.360	94	Weighted Average
4.103		14.99% Pervious Area
23.258		85.01% Impervious Area

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

Subcatchment 2S: POST



Summary for Subcatchment 5S: OFFSITE

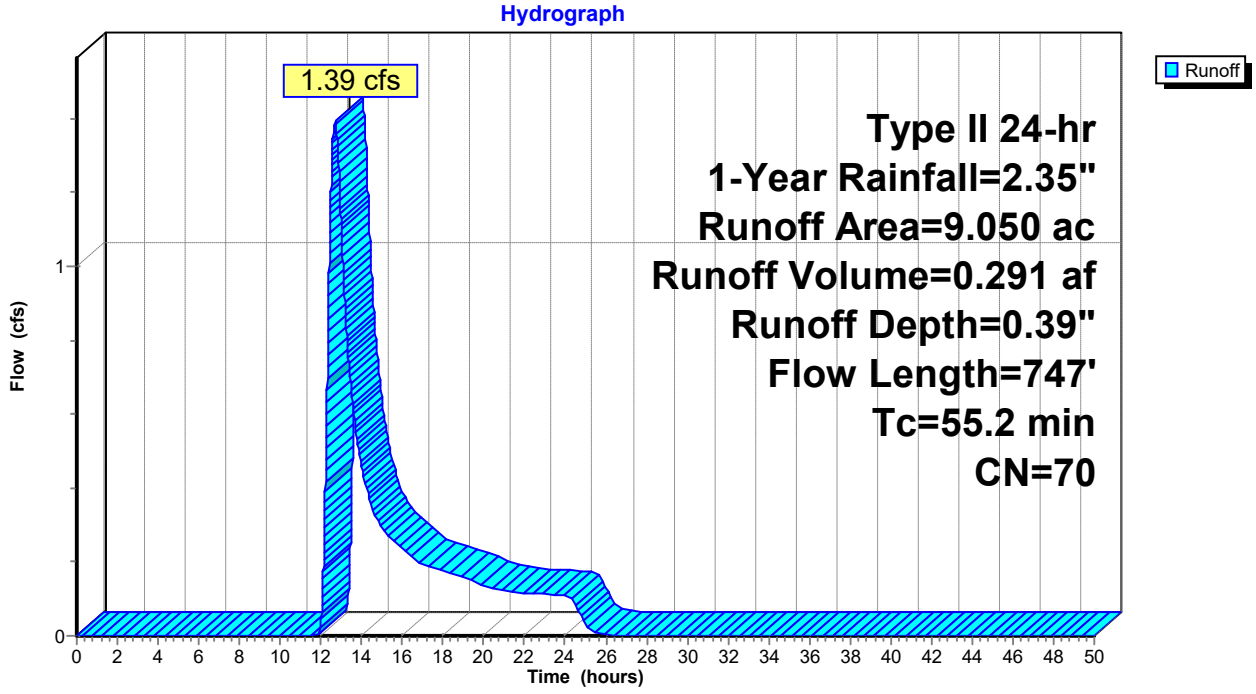
Runoff = 1.39 cfs @ 12.70 hrs, Volume= 0.291 af, Depth= 0.39"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.35"

Area (ac)	CN	Description
9.050	70	Woods, Good, HSG C
9.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0199	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"
31.8	647	0.0046	0.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
55.2	747	Total			

Subcatchment 5S: OFFSITE



Summary for Pond 3P: Wet Basin

Inflow Area = 36.410 ac, 63.88% Impervious, Inflow Depth = 1.39" for 1-Year event
Inflow = 59.57 cfs @ 12.07 hrs, Volume= 4.227 af
Outflow = 5.88 cfs @ 12.92 hrs, Volume= 3.901 af, Atten= 90%, Lag= 51.3 min
Primary = 5.88 cfs @ 12.92 hrs, Volume= 3.901 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 928.77' @ 12.92 hrs Surf.Area= 1.963 ac Storage= 2.396 af

Plug-Flow detention time= 528.9 min calculated for 3.900 af (92% of inflow)
Center-of-Mass det. time= 486.9 min (1,299.8 - 812.9)

Volume	Invert	Avail.Storage	Storage Description
#1	927.50'	8.180 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

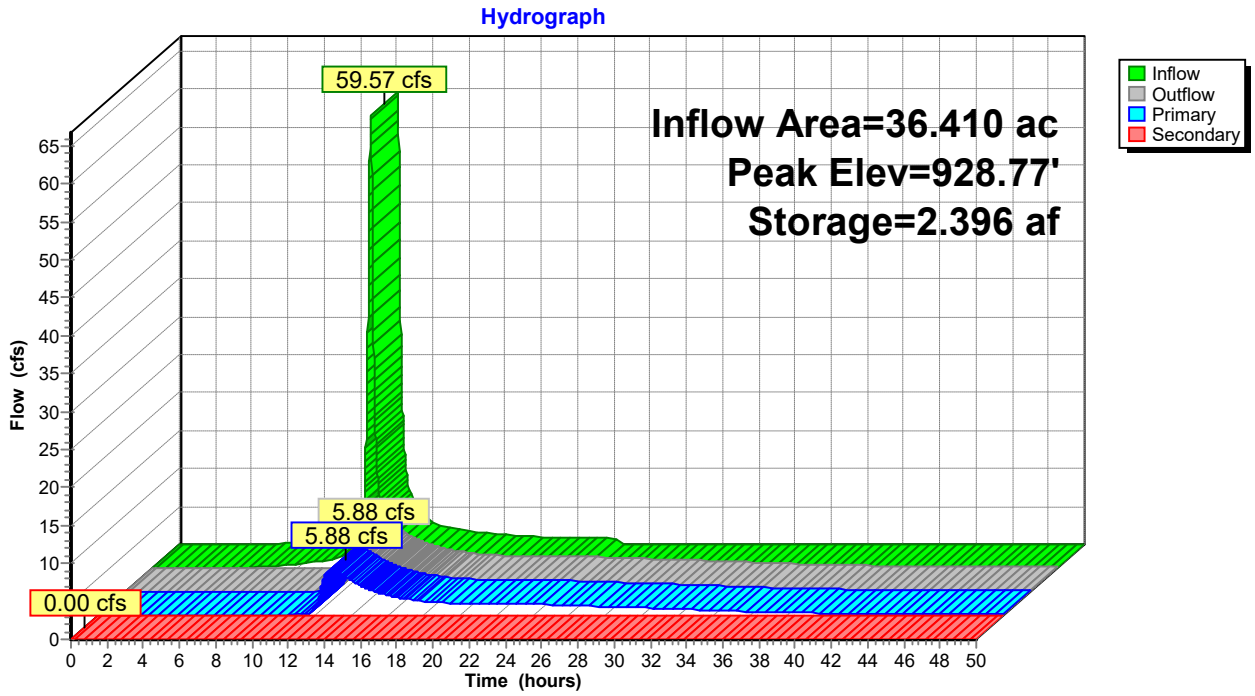
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
927.50	1.821	0.000	0.000
931.50	2.269	8.180	8.180

Device	Routing	Invert	Outlet Devices
#1	Primary	927.50'	**24.0" Round RCP_Round 24"** L= 126.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 927.50' / 926.95' S= 0.0043 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Device 1	927.50'	**6.0" Vert. WQ Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	928.50'	**36.0" W x 6.0" H Vert. Window X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	930.30'	**1.5" x 5.0" Horiz. Grate X 9.00 columns** X 4 rows C= 0.600 in 27.5" x 27.5" Grate (36% open area) Limited to weir flow at low heads
#5	Secondary	930.50'	**55.0' long + 4.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=5.87 cfs @ 12.92 hrs HW=928.77' (Free Discharge)
└**1=RCP_Round 24"** (Passes 5.87 cfs of 6.19 cfs potential flow)
  ├**2=WQ Orifice** (Orifice Controls 1.91 cfs @ 4.85 fps)
  ├**3=Window** (Orifice Controls 3.97 cfs @ 1.66 fps)
  └**4=Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=927.50' (Free Discharge)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Wet Basin



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=27.360 ac 0.00% Impervious Runoff Depth=0.82"
Flow Length=1,196' Tc=44.5 min CN=78 Runoff=13.66 cfs 1.871 af

Subcatchment 2S: POST Runoff Area=27.360 ac 85.01% Impervious Runoff Depth=1.92"
Tc=15.0 min CN=94 Runoff=65.70 cfs 4.371 af

Subcatchment 5S: OFFSITE Runoff Area=9.050 ac 0.00% Impervious Runoff Depth=0.48"
Flow Length=747' Tc=55.2 min CN=70 Runoff=1.85 cfs 0.362 af

Pond 3P: Wet Basin Peak Elev=928.88' Storage=2.614 af Inflow=65.87 cfs 4.733 af
Primary=7.13 cfs 4.401 af Secondary=0.00 cfs 0.000 af Outflow=7.13 cfs 4.401 af

Total Runoff Area = 63.770 ac Runoff Volume = 6.603 af Average Runoff Depth = 1.24"
63.53% Pervious = 40.512 ac 36.47% Impervious = 23.258 ac

Summary for Subcatchment 1S: PRE

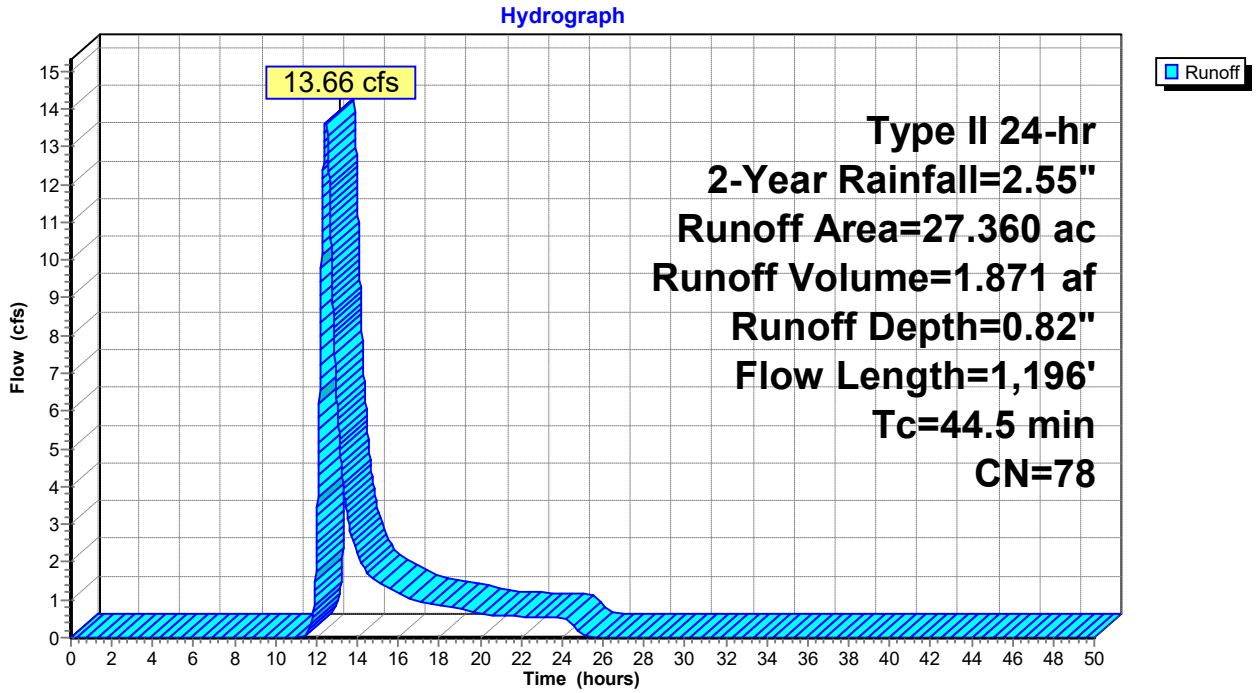
Runoff = 13.66 cfs @ 12.46 hrs, Volume= 1.871 af, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.55"

Area (ac)	CN	Description
27.360	78	Row crops, C&T, Good, HSG C
27.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0190	0.14		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
32.5	1,096	0.0039	0.56		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
44.5	1,196	Total			

Subcatchment 1S: PRE



Summary for Subcatchment 2S: POST

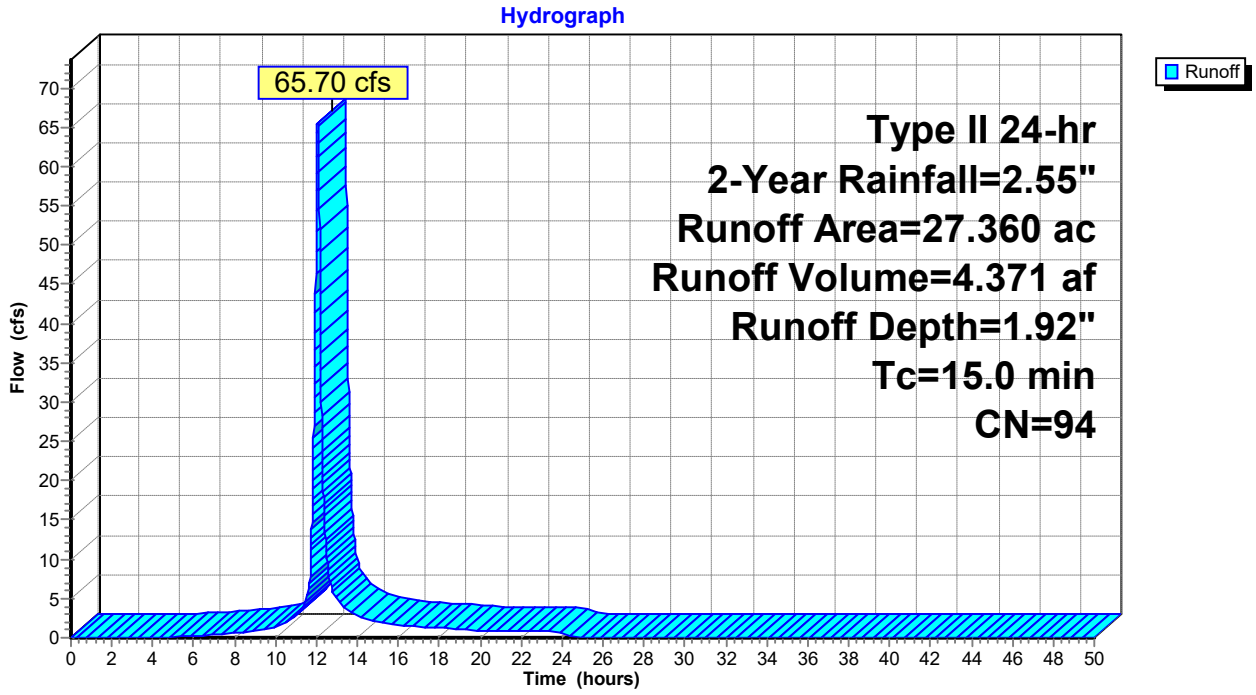
Runoff = 65.70 cfs @ 12.07 hrs, Volume= 4.371 af, Depth= 1.92"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.55"

Area (ac)	CN	Description
8.950	94	Urban commercial, 85% imp, HSG C
2.760	74	>75% Grass cover, Good, HSG C
15.650	98	Paved parking, HSG C
27.360	94	Weighted Average
4.103		14.99% Pervious Area
23.258		85.01% Impervious Area

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

Subcatchment 2S: POST



Summary for Subcatchment 5S: OFFSITE

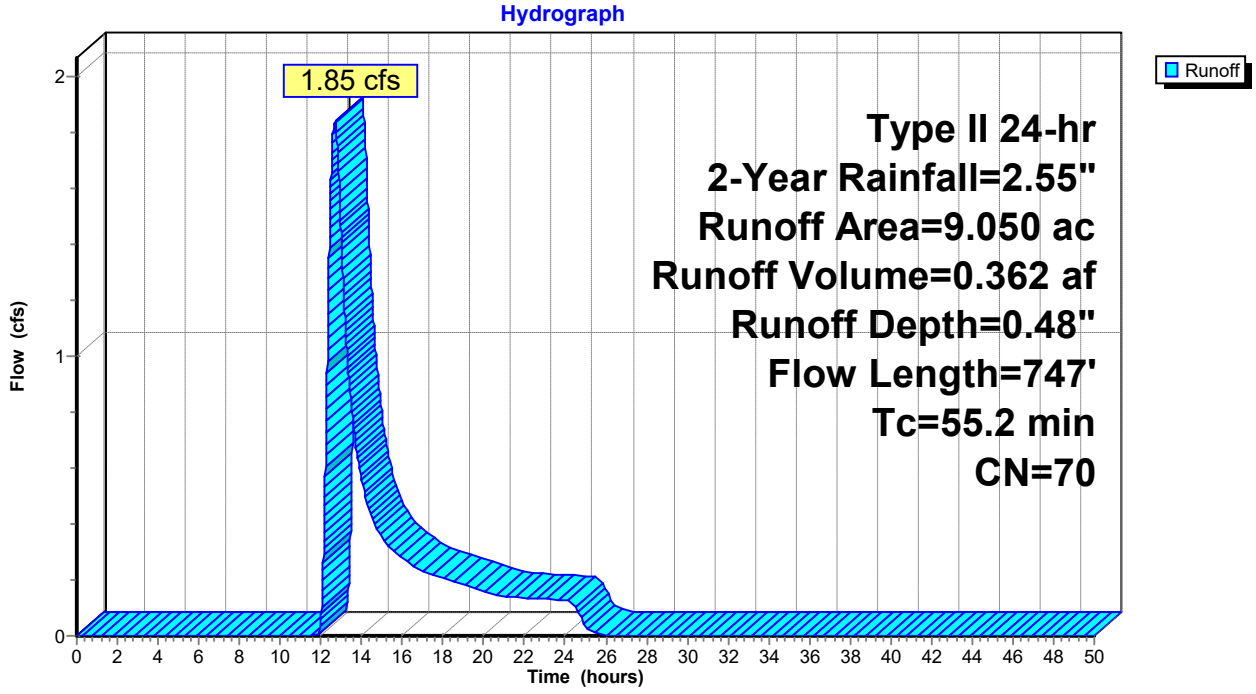
Runoff = 1.85 cfs @ 12.69 hrs, Volume= 0.362 af, Depth= 0.48"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.55"

Area (ac)	CN	Description
9.050	70	Woods, Good, HSG C
9.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0199	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"
31.8	647	0.0046	0.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
55.2	747	Total			

Subcatchment 5S: OFFSITE



Summary for Pond 3P: Wet Basin

Inflow Area = 36.410 ac, 63.88% Impervious, Inflow Depth = 1.56" for 2-Year event
Inflow = 65.87 cfs @ 12.07 hrs, Volume= 4.733 af
Outflow = 7.13 cfs @ 12.85 hrs, Volume= 4.401 af, Atten= 89%, Lag= 47.0 min
Primary = 7.13 cfs @ 12.85 hrs, Volume= 4.401 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 928.88' @ 12.85 hrs Surf.Area= 1.975 ac Storage= 2.614 af

Plug-Flow detention time= 490.7 min calculated for 4.400 af (93% of inflow)
Center-of-Mass det. time= 451.9 min (1,262.5 - 810.6)

Volume	Invert	Avail.Storage	Storage Description
#1	927.50'	8.180 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

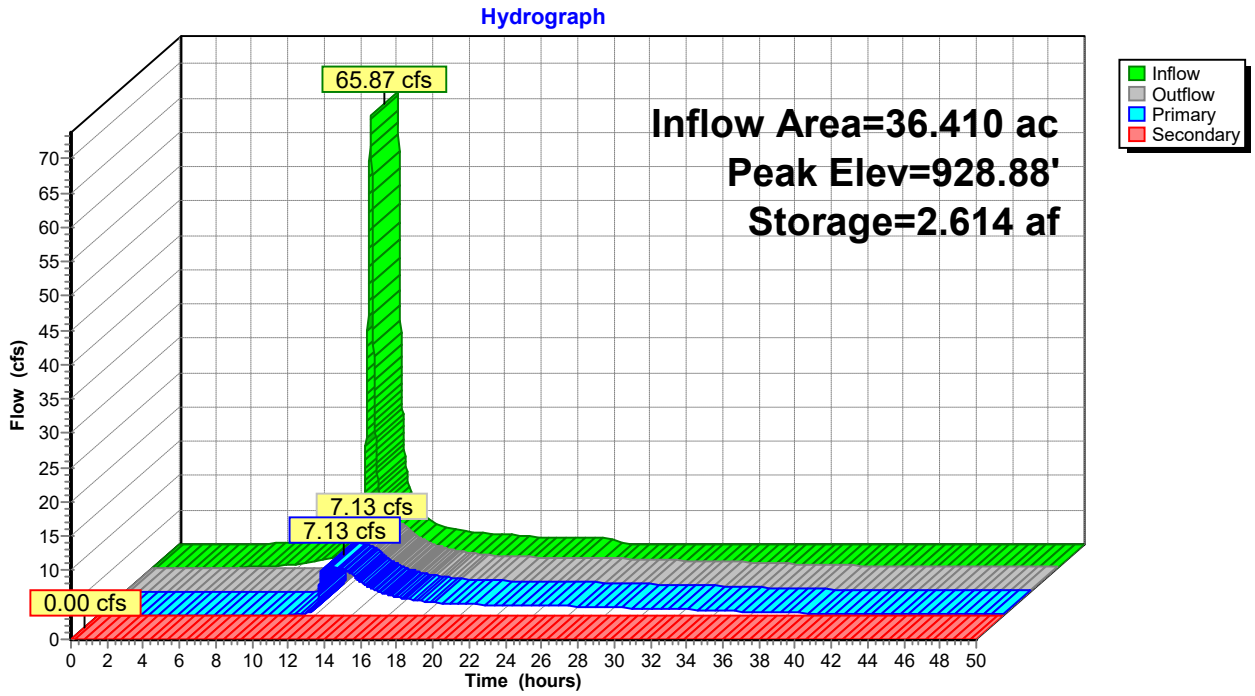
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
927.50	1.821	0.000	0.000
931.50	2.269	8.180	8.180

Device	Routing	Invert	Outlet Devices
#1	Primary	927.50'	**24.0" Round RCP_Round 24"** L= 126.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 927.50' / 926.95' S= 0.0043 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Device 1	927.50'	**6.0" Vert. WQ Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	928.50'	**36.0" W x 6.0" H Vert. Window X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	930.30'	**1.5" x 5.0" Horiz. Grate X 9.00 columns** X 4 rows C= 0.600 in 27.5" x 27.5" Grate (36% open area) Limited to weir flow at low heads
#5	Secondary	930.50'	**55.0' long + 4.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=7.13 cfs @ 12.85 hrs HW=928.88' (Free Discharge)
└─**1=RCP_Round 24"** (Barrel Controls 7.13 cfs @ 4.35 fps)
  ├─**2=WQ Orifice** (Passes < 2.01 cfs potential flow)
  ├─**3=Window** (Passes < 6.69 cfs potential flow)
  └─**4=Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=927.50' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Wet Basin



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=27.360 ac 0.00% Impervious Runoff Depth=1.35"
Flow Length=1,196' Tc=44.5 min CN=78 Runoff=23.58 cfs 3.071 af

Subcatchment 2S: POST Runoff Area=27.360 ac 85.01% Impervious Runoff Depth=2.64"
Tc=15.0 min CN=94 Runoff=88.98 cfs 6.021 af

Subcatchment 5S: OFFSITE Runoff Area=9.050 ac 0.00% Impervious Runoff Depth=0.89"
Flow Length=747' Tc=55.2 min CN=70 Runoff=3.94 cfs 0.669 af

Pond 3P: Wet Basin Peak Elev=929.35' Storage=3.567 af Inflow=89.55 cfs 6.690 af
Primary=11.32 cfs 6.343 af Secondary=0.00 cfs 0.000 af Outflow=11.32 cfs 6.343 af

Total Runoff Area = 63.770 ac Runoff Volume = 9.762 af Average Runoff Depth = 1.84"
63.53% Pervious = 40.512 ac 36.47% Impervious = 23.258 ac

Summary for Subcatchment 1S: PRE

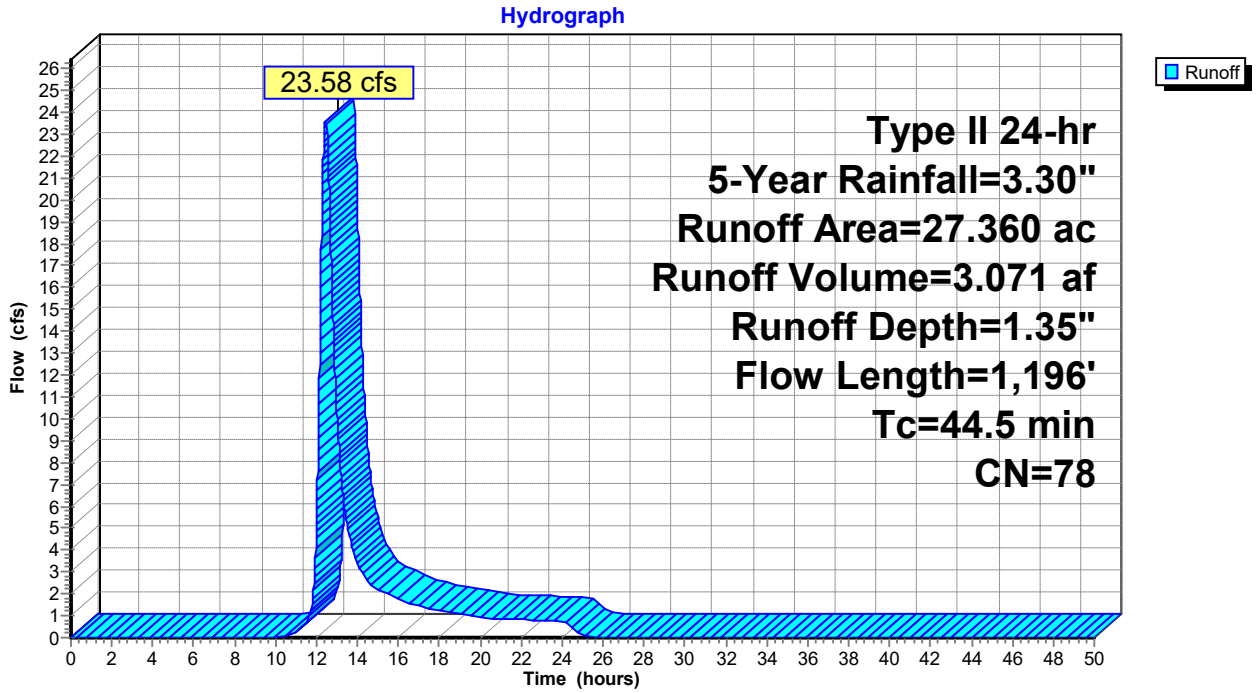
Runoff = 23.58 cfs @ 12.42 hrs, Volume= 3.071 af, Depth= 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=3.30"

Area (ac)	CN	Description
27.360	78	Row crops, C&T, Good, HSG C
27.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0190	0.14		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
32.5	1,096	0.0039	0.56		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
44.5	1,196	Total			

Subcatchment 1S: PRE



Summary for Subcatchment 2S: POST

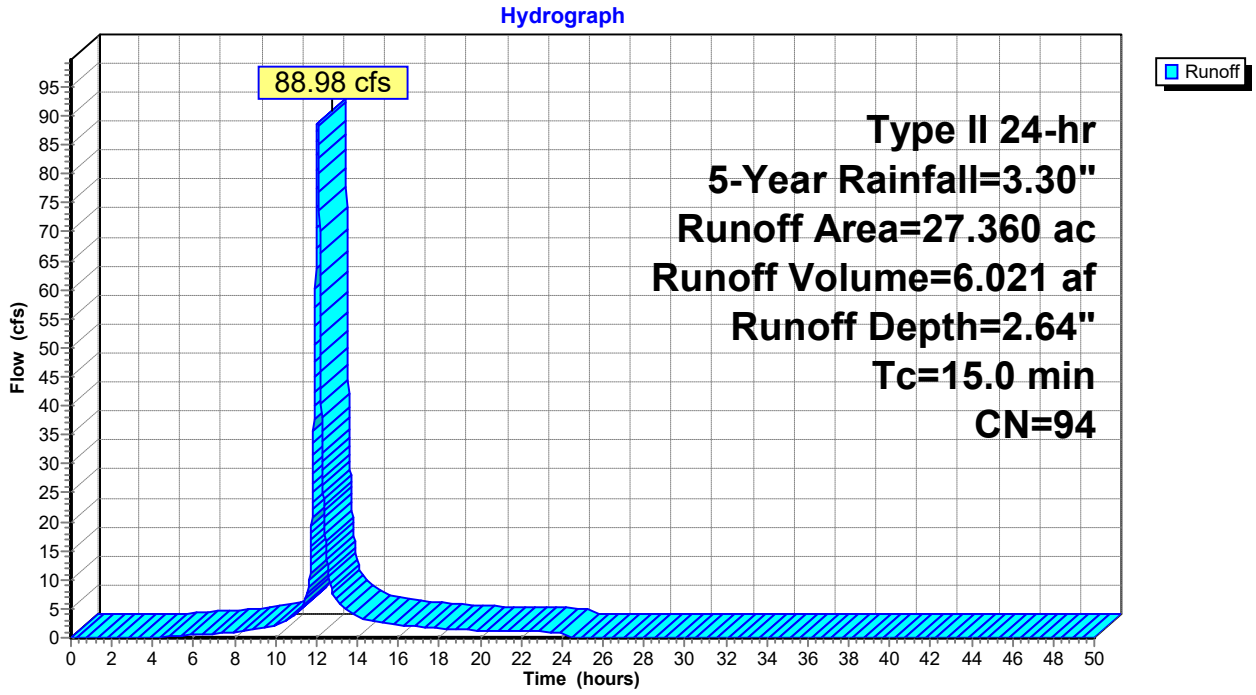
Runoff = 88.98 cfs @ 12.06 hrs, Volume= 6.021 af, Depth= 2.64"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=3.30"

Area (ac)	CN	Description
8.950	94	Urban commercial, 85% imp, HSG C
2.760	74	>75% Grass cover, Good, HSG C
15.650	98	Paved parking, HSG C
27.360	94	Weighted Average
4.103		14.99% Pervious Area
23.258		85.01% Impervious Area

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

Subcatchment 2S: POST



Summary for Subcatchment 5S: OFFSITE

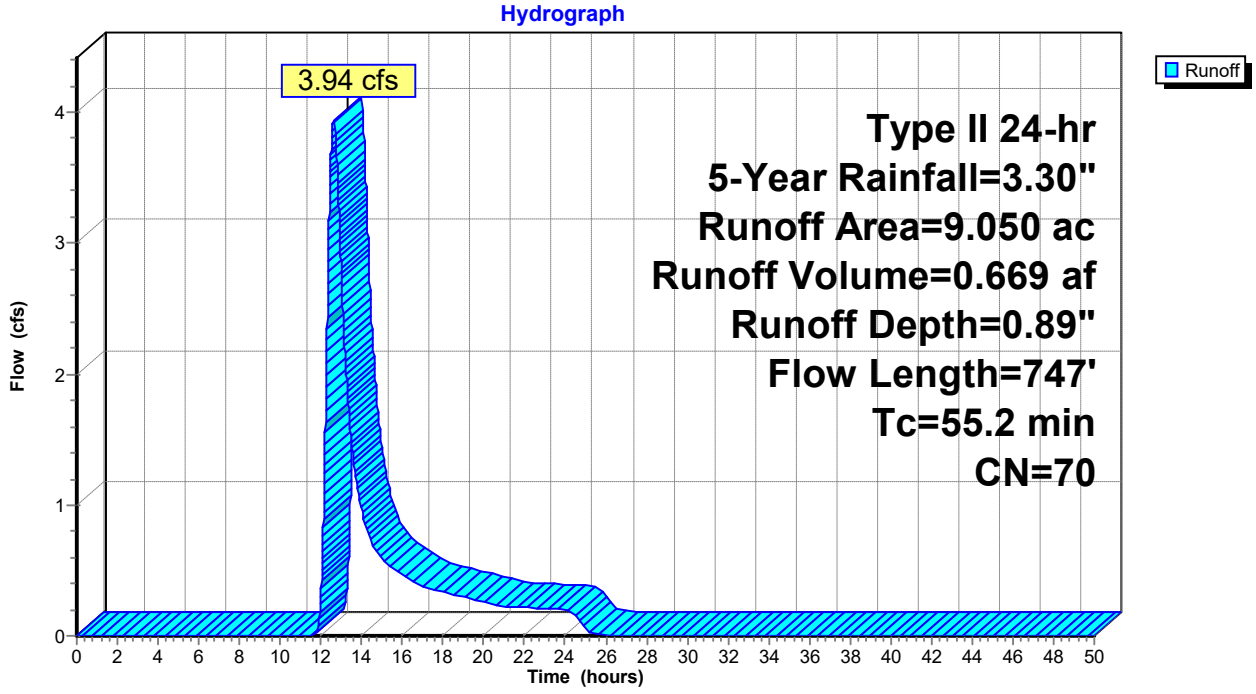
Runoff = 3.94 cfs @ 12.63 hrs, Volume= 0.669 af, Depth= 0.89"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=3.30"

Area (ac)	CN	Description
9.050	70	Woods, Good, HSG C
9.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0199	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"
31.8	647	0.0046	0.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
55.2	747	Total			

Subcatchment 5S: OFFSITE



Summary for Pond 3P: Wet Basin

Inflow Area = 36.410 ac, 63.88% Impervious, Inflow Depth = 2.20" for 5-Year event
Inflow = 89.55 cfs @ 12.06 hrs, Volume= 6.690 af
Outflow = 11.32 cfs @ 12.79 hrs, Volume= 6.343 af, Atten= 87%, Lag= 43.4 min
Primary = 11.32 cfs @ 12.79 hrs, Volume= 6.343 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 929.35' @ 12.79 hrs Surf.Area= 2.029 ac Storage= 3.567 af

Plug-Flow detention time= 401.3 min calculated for 6.342 af (95% of inflow)
Center-of-Mass det. time= 371.2 min (1,174.9 - 803.6)

Volume	Invert	Avail.Storage	Storage Description
#1	927.50'	8.180 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

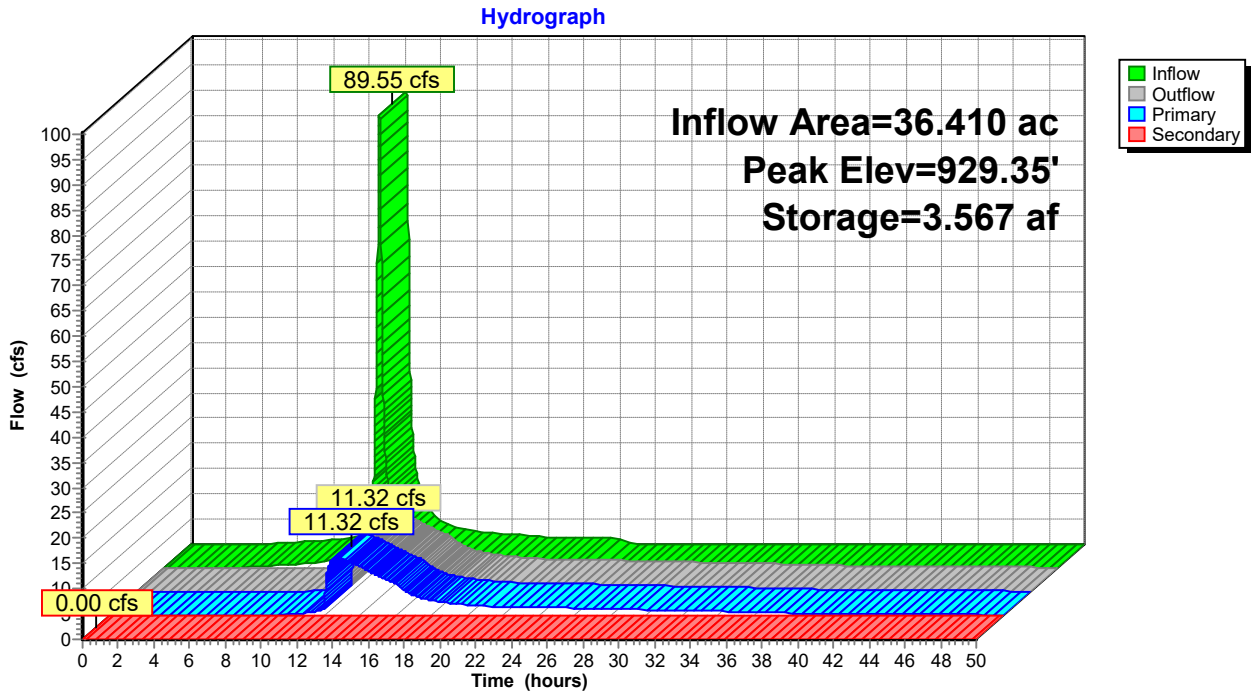
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
927.50	1.821	0.000	0.000
931.50	2.269	8.180	8.180

Device	Routing	Invert	Outlet Devices
#1	Primary	927.50'	**24.0" Round RCP_Round 24"** L= 126.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 927.50' / 926.95' S= 0.0043 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Device 1	927.50'	**6.0" Vert. WQ Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	928.50'	**36.0" W x 6.0" H Vert. Window X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	930.30'	**1.5" x 5.0" Horiz. Grate X 9.00 columns** X 4 rows C= 0.600 in 27.5" x 27.5" Grate (36% open area) Limited to weir flow at low heads
#5	Secondary	930.50'	**55.0' long + 4.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=11.33 cfs @ 12.79 hrs HW=929.35' (Free Discharge)
└**1=RCP_Round 24"** (Barrel Controls 11.33 cfs @ 4.86 fps)
  ├**2=WQ Orifice** (Passes < 2.39 cfs potential flow)
  ├**3=Window** (Passes < 16.70 cfs potential flow)
  └**4=Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=927.50' (Free Discharge)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Wet Basin



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=27.360 ac 0.00% Impervious Runoff Depth=1.73"
Flow Length=1,196' Tc=44.5 min CN=78 Runoff=30.78 cfs 3.942 af

Subcatchment 2S: POST Runoff Area=27.360 ac 85.01% Impervious Runoff Depth=3.13"
Tc=15.0 min CN=94 Runoff=104.41 cfs 7.133 af

Subcatchment 5S: OFFSITE Runoff Area=9.050 ac 0.00% Impervious Runoff Depth=1.20"
Flow Length=747' Tc=55.2 min CN=70 Runoff=5.60 cfs 0.904 af

Pond 3P: Wet Basin Peak Elev=929.68' Storage=4.231 af Inflow=105.41 cfs 8.037 af
Primary=13.99 cfs 7.683 af Secondary=0.00 cfs 0.000 af Outflow=13.99 cfs 7.683 af

Total Runoff Area = 63.770 ac Runoff Volume = 11.979 af Average Runoff Depth = 2.25"
63.53% Pervious = 40.512 ac 36.47% Impervious = 23.258 ac

Summary for Subcatchment 1S: PRE

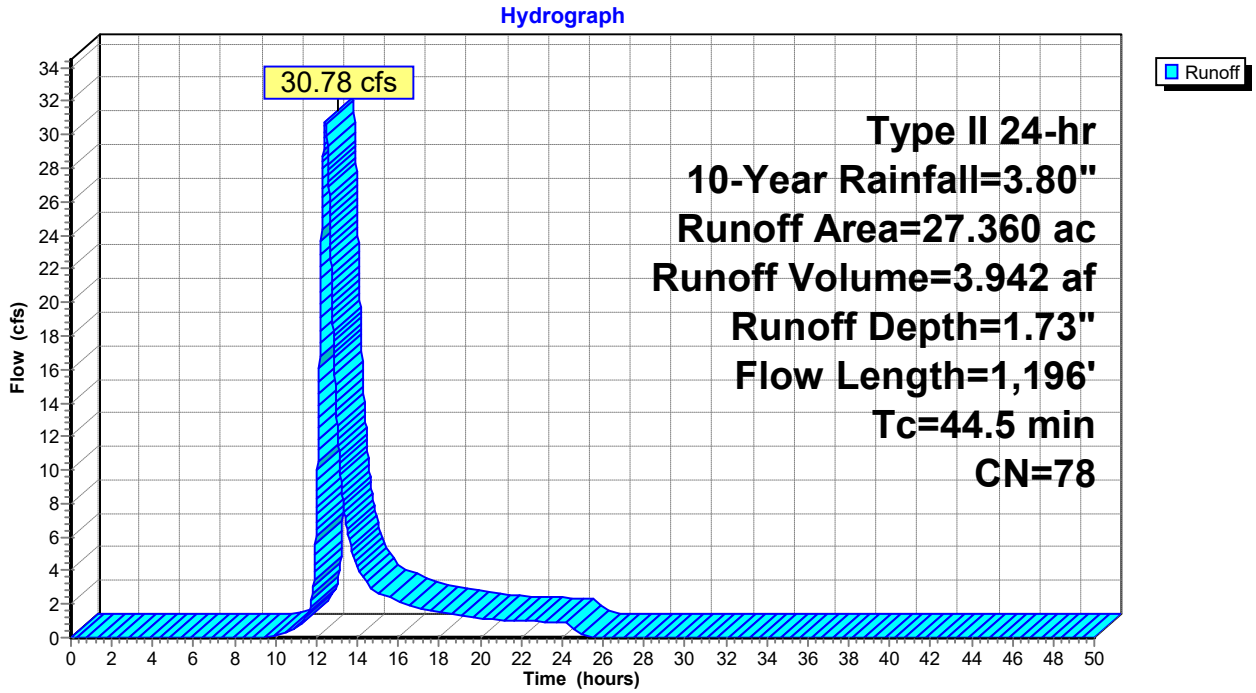
Runoff = 30.78 cfs @ 12.42 hrs, Volume= 3.942 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.80"

Area (ac)	CN	Description
27.360	78	Row crops, C&T, Good, HSG C
27.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0190	0.14		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
32.5	1,096	0.0039	0.56		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
44.5	1,196	Total			

Subcatchment 1S: PRE



Summary for Subcatchment 2S: POST

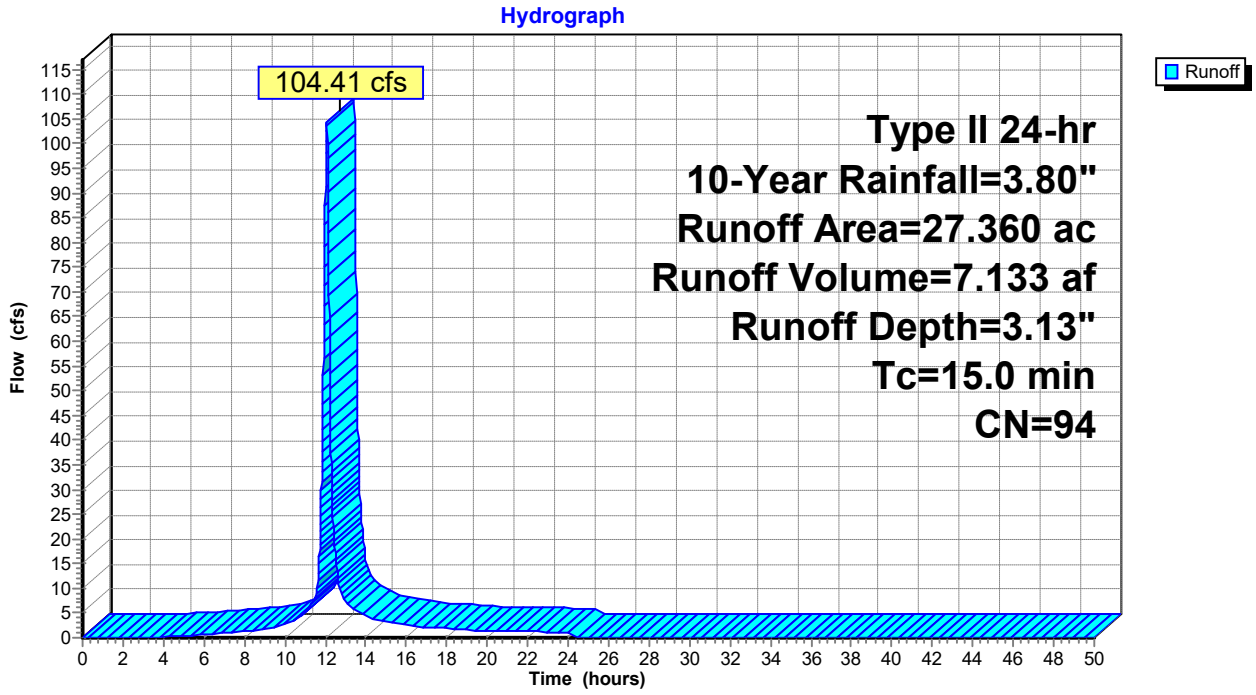
Runoff = 104.41 cfs @ 12.06 hrs, Volume= 7.133 af, Depth= 3.13"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.80"

Area (ac)	CN	Description
8.950	94	Urban commercial, 85% imp, HSG C
2.760	74	>75% Grass cover, Good, HSG C
15.650	98	Paved parking, HSG C
27.360	94	Weighted Average
4.103		14.99% Pervious Area
23.258		85.01% Impervious Area

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

Subcatchment 2S: POST



Summary for Subcatchment 5S: OFFSITE

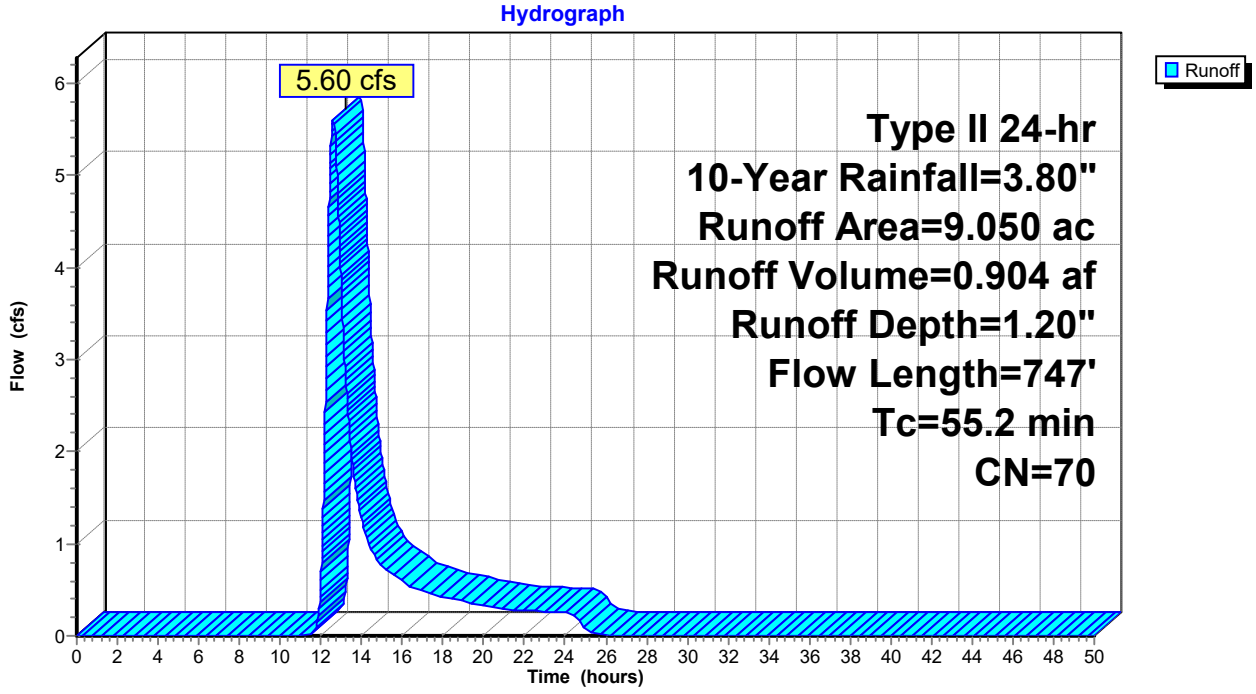
Runoff = 5.60 cfs @ 12.58 hrs, Volume= 0.904 af, Depth= 1.20"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.80"

Area (ac)	CN	Description
9.050	70	Woods, Good, HSG C
9.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0199	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"
31.8	647	0.0046	0.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
55.2	747	Total			

Subcatchment 5S: OFFSITE



Summary for Pond 3P: Wet Basin

Inflow Area = 36.410 ac, 63.88% Impervious, Inflow Depth = 2.65" for 10-Year event
Inflow = 105.41 cfs @ 12.06 hrs, Volume= 8.037 af
Outflow = 13.99 cfs @ 12.79 hrs, Volume= 7.683 af, Atten= 87%, Lag= 43.5 min
Primary = 13.99 cfs @ 12.79 hrs, Volume= 7.683 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 929.68' @ 12.79 hrs Surf.Area= 2.065 ac Storage= 4.231 af

Plug-Flow detention time= 364.5 min calculated for 7.682 af (96% of inflow)
Center-of-Mass det. time= 338.5 min (1,138.5 - 800.0)

Volume	Invert	Avail.Storage	Storage Description
#1	927.50'	8.180 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

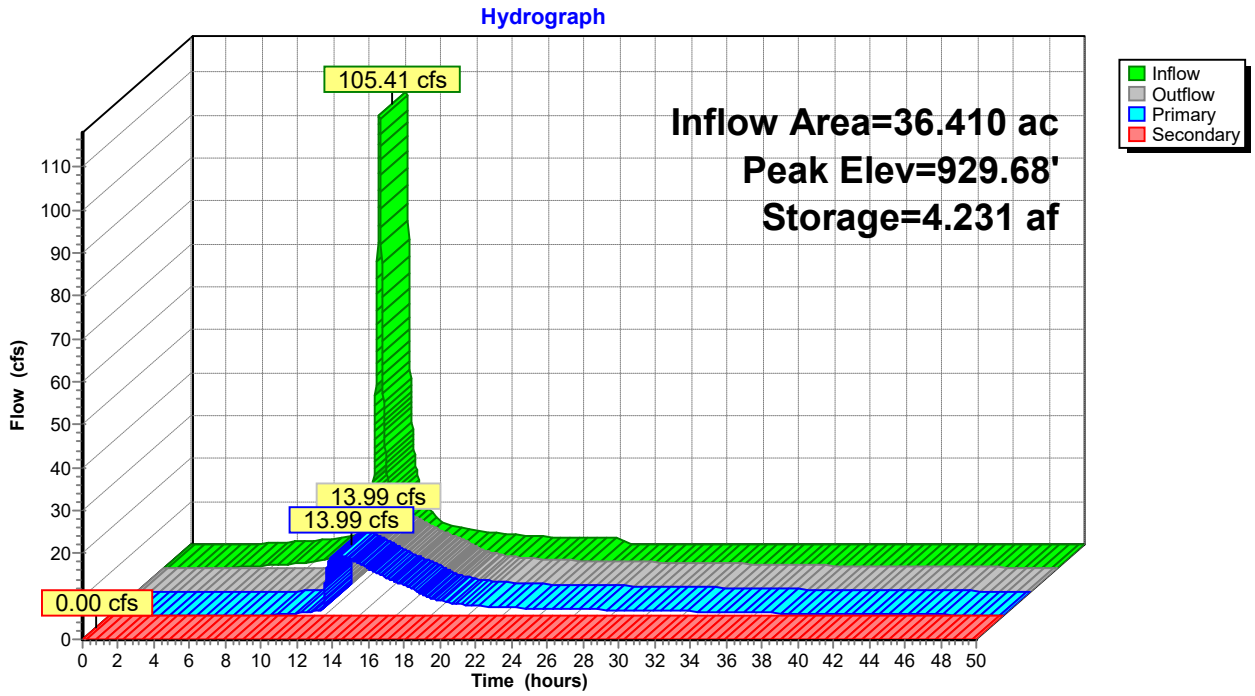
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
927.50	1.821	0.000	0.000
931.50	2.269	8.180	8.180

Device	Routing	Invert	Outlet Devices
#1	Primary	927.50'	**24.0" Round RCP_Round 24"** L= 126.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 927.50' / 926.95' S= 0.0043 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Device 1	927.50'	**6.0" Vert. WQ Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	928.50'	**36.0" W x 6.0" H Vert. Window X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	930.30'	**1.5" x 5.0" Horiz. Grate X 9.00 columns** X 4 rows C= 0.600 in 27.5" x 27.5" Grate (36% open area) Limited to weir flow at low heads
#5	Secondary	930.50'	**55.0' long + 4.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=13.99 cfs @ 12.79 hrs HW=929.68' (Free Discharge)
└─**1=RCP_Round 24"** (Barrel Controls 13.99 cfs @ 5.09 fps)
  ├─**2=WQ Orifice** (Passes < 2.63 cfs potential flow)
  ├─**3=Window** (Passes < 20.80 cfs potential flow)
  └─**4=Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=927.50' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Wet Basin



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=27.360 ac 0.00% Impervious Runoff Depth=2.13"
Flow Length=1,196' Tc=44.5 min CN=78 Runoff=38.31 cfs 4.854 af

Subcatchment 2S: POST Runoff Area=27.360 ac 85.01% Impervious Runoff Depth=3.62"
Tc=15.0 min CN=94 Runoff=119.76 cfs 8.251 af

Subcatchment 5S: OFFSITE Runoff Area=9.050 ac 0.00% Impervious Runoff Depth=1.53"
Flow Length=747' Tc=55.2 min CN=70 Runoff=7.40 cfs 1.157 af

Pond 3P: Wet Basin Peak Elev=930.01' Storage=4.934 af Inflow=121.29 cfs 9.407 af
Primary=15.97 cfs 9.050 af Secondary=0.00 cfs 0.000 af Outflow=15.97 cfs 9.050 af

Total Runoff Area = 63.770 ac Runoff Volume = 14.261 af Average Runoff Depth = 2.68"
63.53% Pervious = 40.512 ac 36.47% Impervious = 23.258 ac

Summary for Subcatchment 1S: PRE

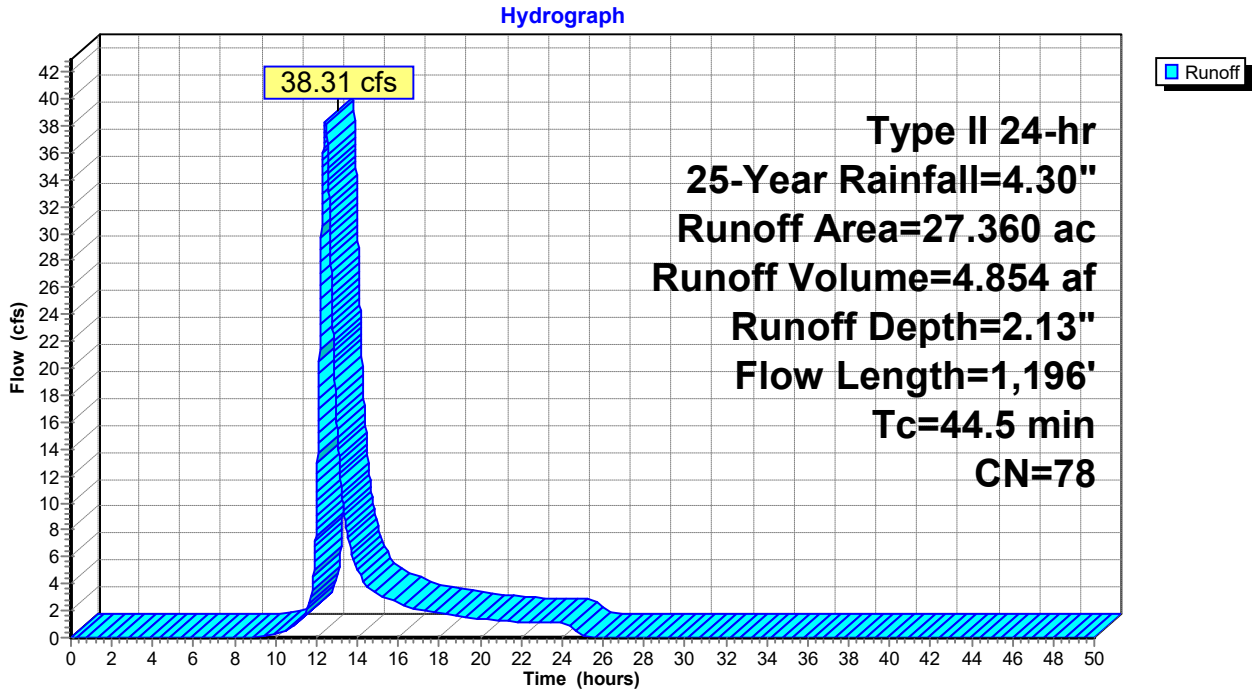
Runoff = 38.31 cfs @ 12.41 hrs, Volume= 4.854 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=4.30"

Area (ac)	CN	Description
27.360	78	Row crops, C&T, Good, HSG C
27.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0190	0.14		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
32.5	1,096	0.0039	0.56		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
44.5	1,196	Total			

Subcatchment 1S: PRE



Summary for Subcatchment 2S: POST

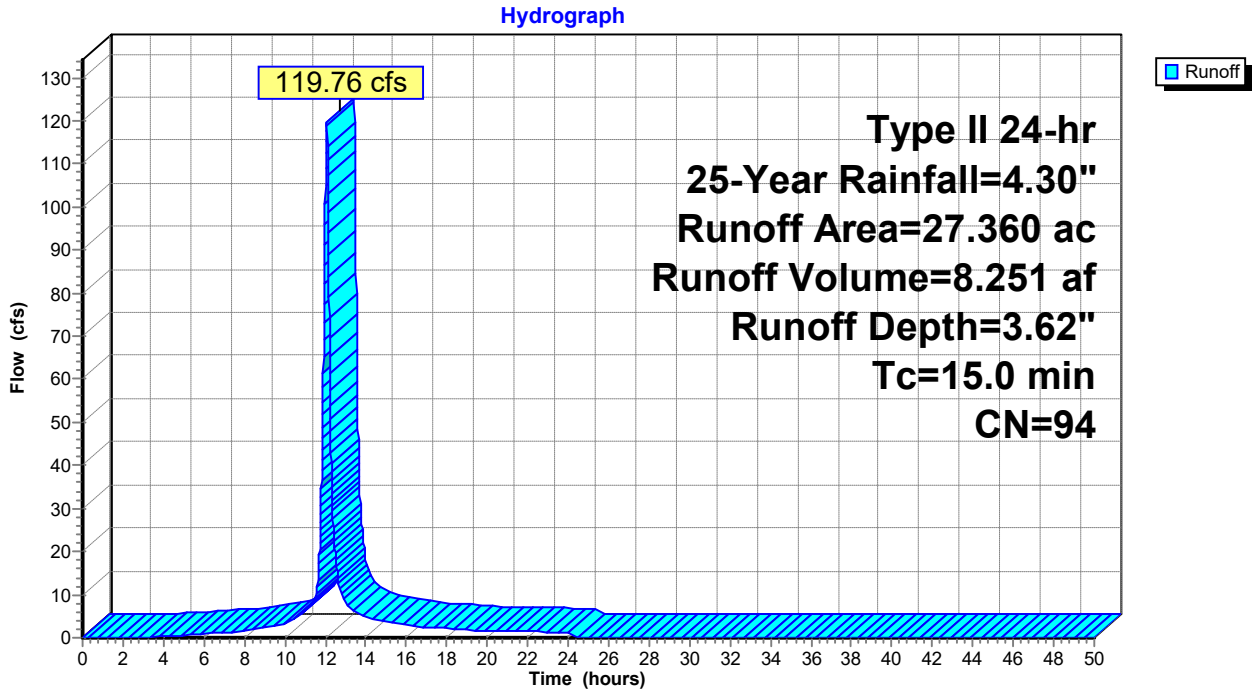
Runoff = 119.76 cfs @ 12.06 hrs, Volume= 8.251 af, Depth= 3.62"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=4.30"

Area (ac)	CN	Description
8.950	94	Urban commercial, 85% imp, HSG C
2.760	74	>75% Grass cover, Good, HSG C
15.650	98	Paved parking, HSG C
27.360	94	Weighted Average
4.103		14.99% Pervious Area
23.258		85.01% Impervious Area

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

Subcatchment 2S: POST



Summary for Subcatchment 5S: OFFSITE

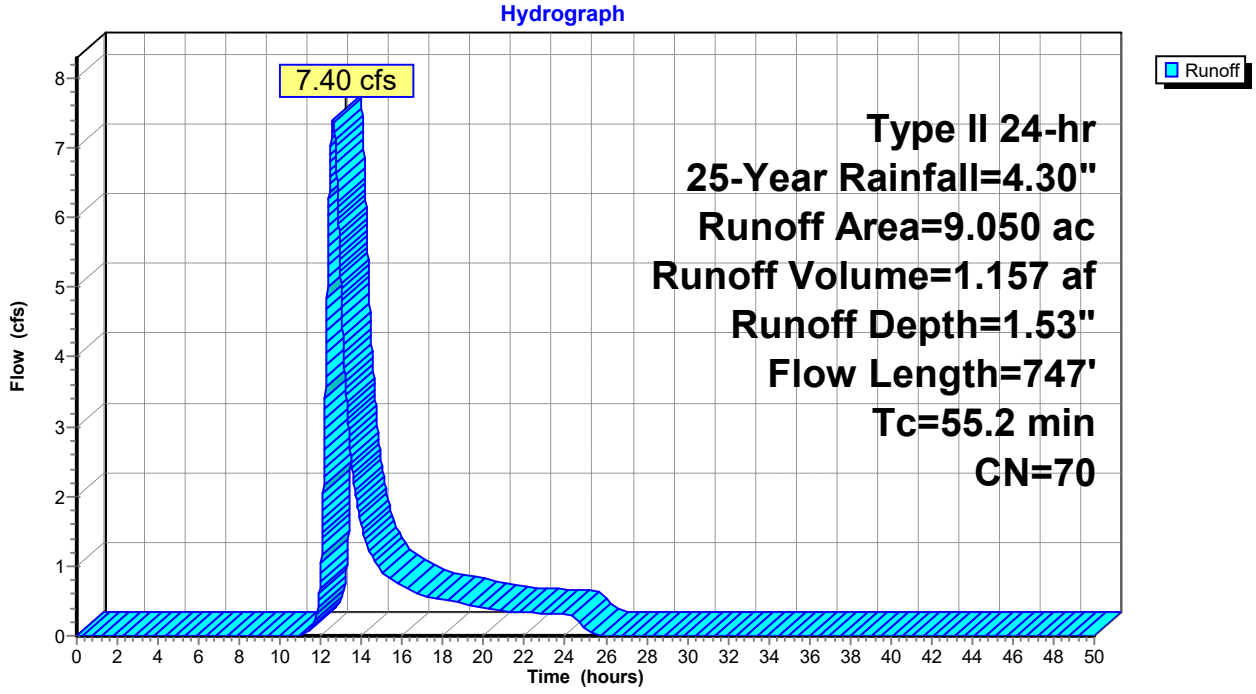
Runoff = 7.40 cfs @ 12.58 hrs, Volume= 1.157 af, Depth= 1.53"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=4.30"

Area (ac)	CN	Description
9.050	70	Woods, Good, HSG C
9.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0199	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"
31.8	647	0.0046	0.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
55.2	747	Total			

Subcatchment 5S: OFFSITE



Summary for Pond 3P: Wet Basin

Inflow Area = 36.410 ac, 63.88% Impervious, Inflow Depth = 3.10" for 25-Year event
Inflow = 121.29 cfs @ 12.06 hrs, Volume= 9.407 af
Outflow = 15.97 cfs @ 12.83 hrs, Volume= 9.050 af, Atten= 87%, Lag= 46.2 min
Primary = 15.97 cfs @ 12.83 hrs, Volume= 9.050 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 930.01' @ 12.83 hrs Surf.Area= 2.103 ac Storage= 4.934 af

Plug-Flow detention time= 339.3 min calculated for 9.048 af (96% of inflow)
Center-of-Mass det. time= 316.4 min (1,113.4 - 797.0)

Volume	Invert	Avail.Storage	Storage Description
#1	927.50'	8.180 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

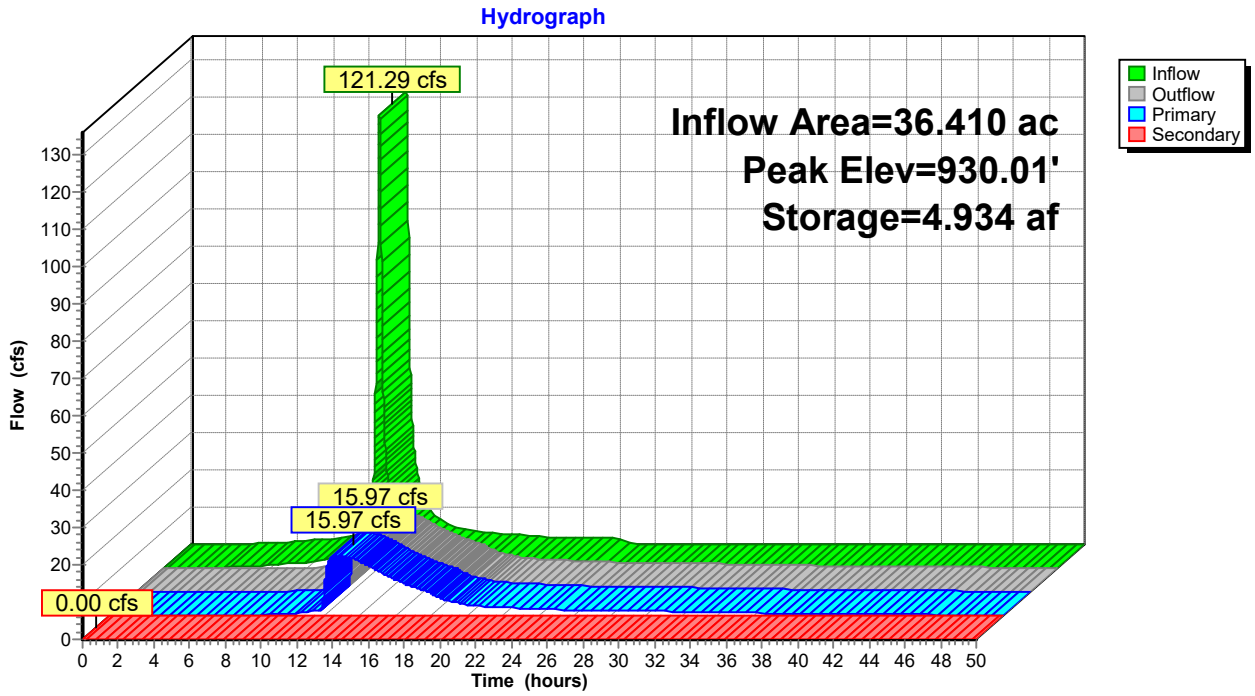
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
927.50	1.821	0.000	0.000
931.50	2.269	8.180	8.180

Device	Routing	Invert	Outlet Devices
#1	Primary	927.50'	**24.0" Round RCP_Round 24"** L= 126.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 927.50' / 926.95' S= 0.0043 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Device 1	927.50'	**6.0" Vert. WQ Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	928.50'	**36.0" W x 6.0" H Vert. Window X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	930.30'	**1.5" x 5.0" Horiz. Grate X 9.00 columns** X 4 rows C= 0.600 in 27.5" x 27.5" Grate (36% open area) Limited to weir flow at low heads
#5	Secondary	930.50'	**55.0' long + 4.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=15.98 cfs @ 12.83 hrs HW=930.01' (Free Discharge)
└─**1=RCP_Round 24"** (Barrel Controls 15.98 cfs @ 5.20 fps)
  ├─**2=WQ Orifice** (Passes < 2.85 cfs potential flow)
  ├─**3=Window** (Passes < 24.33 cfs potential flow)
  └─**4=Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=927.50' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Wet Basin



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=27.360 ac 0.00% Impervious Runoff Depth=2.50"
Flow Length=1,196' Tc=44.5 min CN=78 Runoff=45.26 cfs 5.702 af

Subcatchment 2S: POST Runoff Area=27.360 ac 85.01% Impervious Runoff Depth=4.06"
Tc=15.0 min CN=94 Runoff=133.53 cfs 9.260 af

Subcatchment 5S: OFFSITE Runoff Area=9.050 ac 0.00% Impervious Runoff Depth=1.85"
Flow Length=747' Tc=55.2 min CN=70 Runoff=9.11 cfs 1.397 af

Pond 3P: Wet Basin Peak Elev=930.34' Storage=5.631 af Inflow=135.56 cfs 10.658 af
Primary=16.96 cfs 10.297 af Secondary=0.00 cfs 0.000 af Outflow=16.96 cfs 10.297 af

Total Runoff Area = 63.770 ac Runoff Volume = 16.359 af Average Runoff Depth = 3.08"
63.53% Pervious = 40.512 ac 36.47% Impervious = 23.258 ac

Summary for Subcatchment 1S: PRE

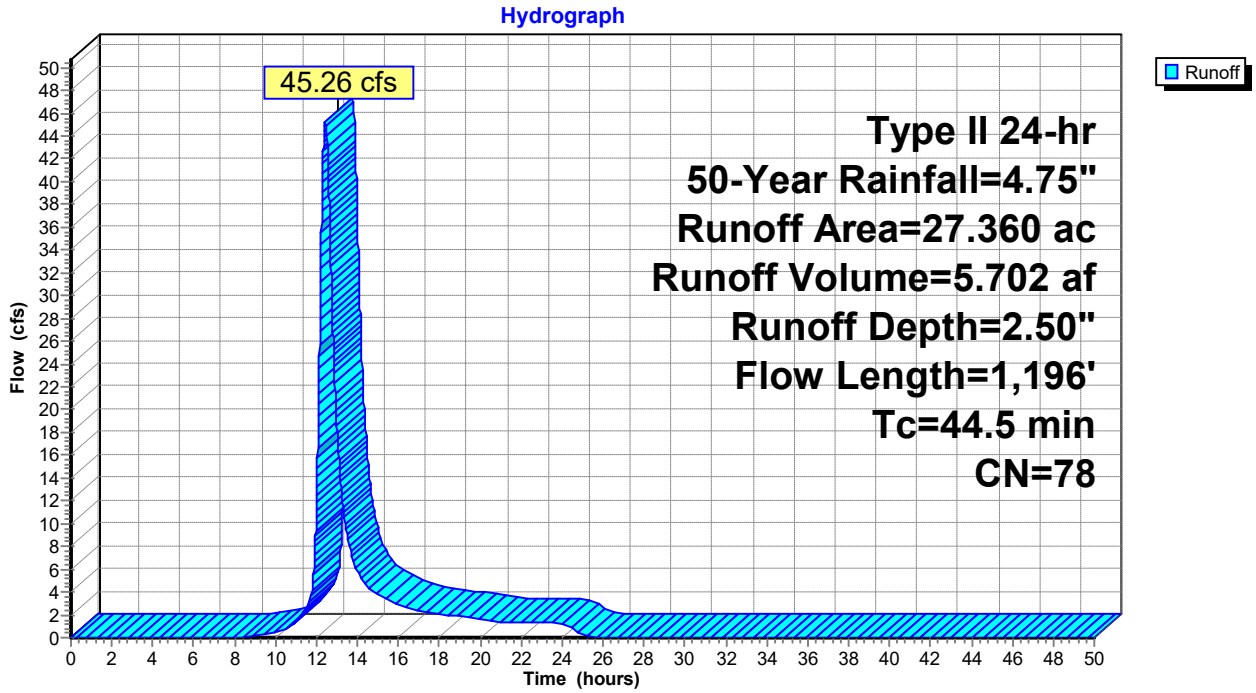
Runoff = 45.26 cfs @ 12.41 hrs, Volume= 5.702 af, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.75"

Area (ac)	CN	Description
27.360	78	Row crops, C&T, Good, HSG C
27.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0190	0.14		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
32.5	1,096	0.0039	0.56		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
44.5	1,196	Total			

Subcatchment 1S: PRE



Summary for Subcatchment 2S: POST

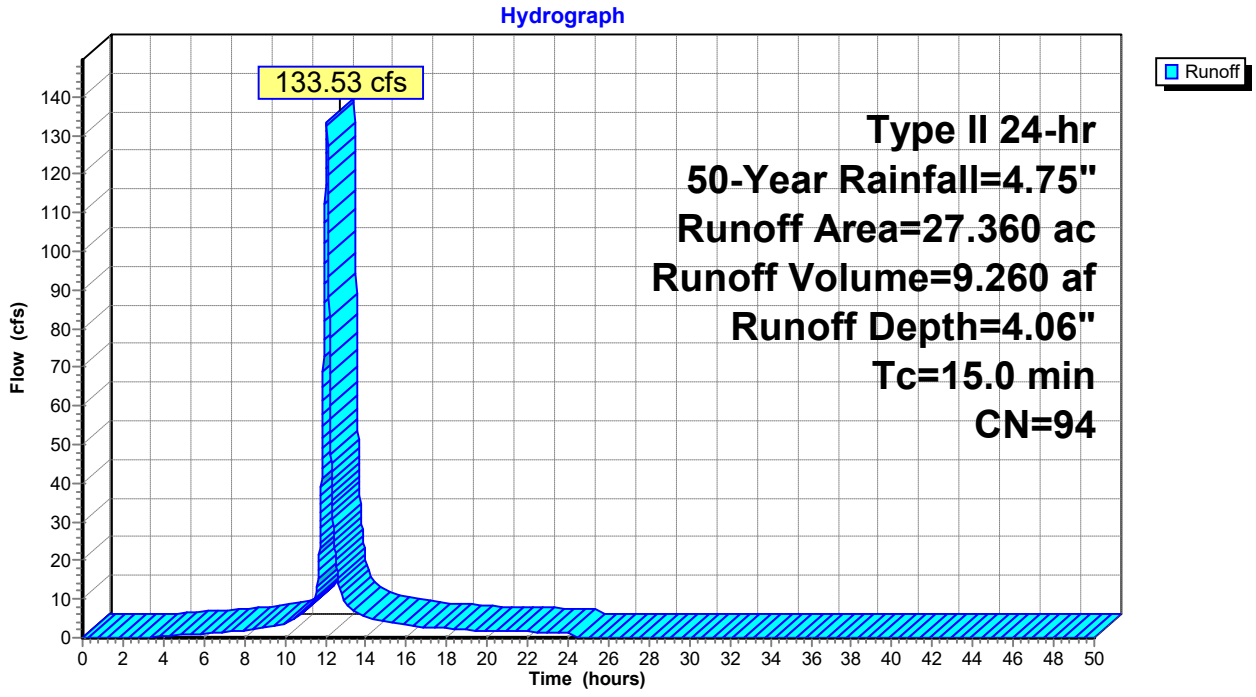
Runoff = 133.53 cfs @ 12.06 hrs, Volume= 9.260 af, Depth= 4.06"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.75"

Area (ac)	CN	Description
8.950	94	Urban commercial, 85% imp, HSG C
2.760	74	>75% Grass cover, Good, HSG C
15.650	98	Paved parking, HSG C
27.360	94	Weighted Average
4.103		14.99% Pervious Area
23.258		85.01% Impervious Area

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

Subcatchment 2S: POST



Summary for Subcatchment 5S: OFFSITE

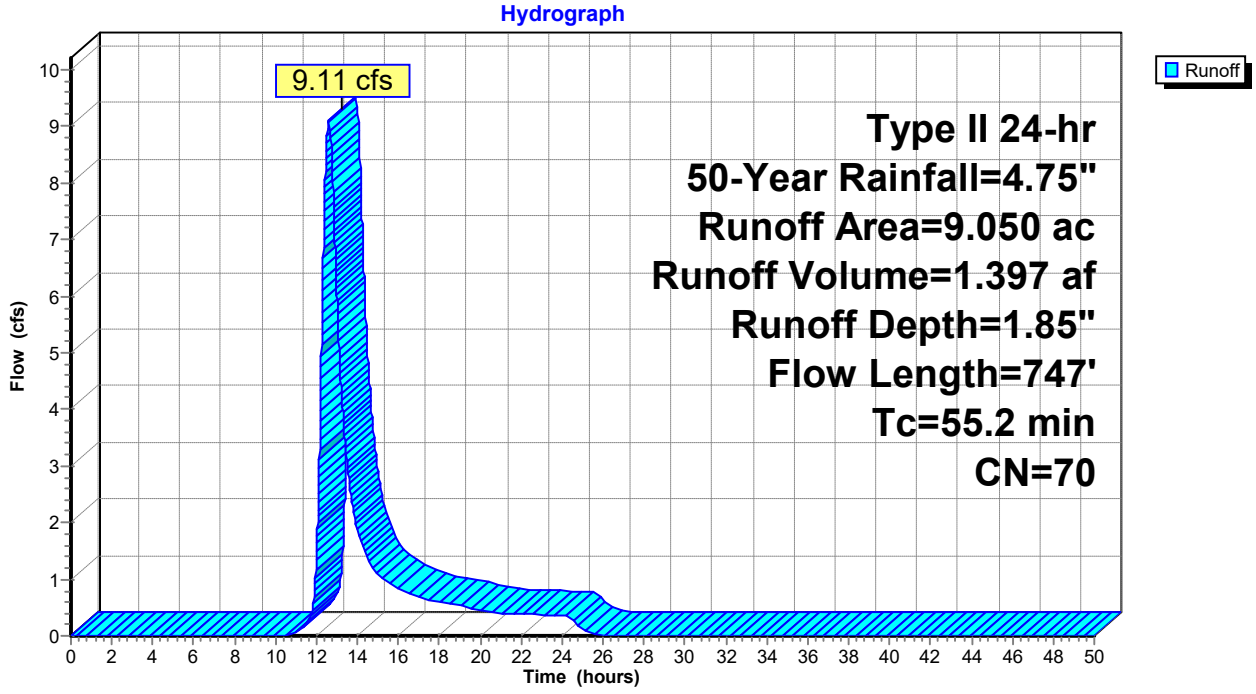
Runoff = 9.11 cfs @ 12.58 hrs, Volume= 1.397 af, Depth= 1.85"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.75"

Area (ac)	CN	Description
9.050	70	Woods, Good, HSG C
9.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0199	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"
31.8	647	0.0046	0.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
55.2	747	Total			

Subcatchment 5S: OFFSITE



Summary for Pond 3P: Wet Basin

Inflow Area = 36.410 ac, 63.88% Impervious, Inflow Depth = 3.51" for 50-Year event
Inflow = 135.56 cfs @ 12.06 hrs, Volume= 10.658 af
Outflow = 16.96 cfs @ 12.91 hrs, Volume= 10.297 af, Atten= 87%, Lag= 50.7 min
Primary = 16.96 cfs @ 12.91 hrs, Volume= 10.297 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 930.34' @ 12.91 hrs Surf.Area= 2.139 ac Storage= 5.631 af

Plug-Flow detention time= 326.1 min calculated for 10.297 af (97% of inflow)
Center-of-Mass det. time= 305.2 min (1,099.8 - 794.6)

Volume	Invert	Avail.Storage	Storage Description
#1	927.50'	8.180 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

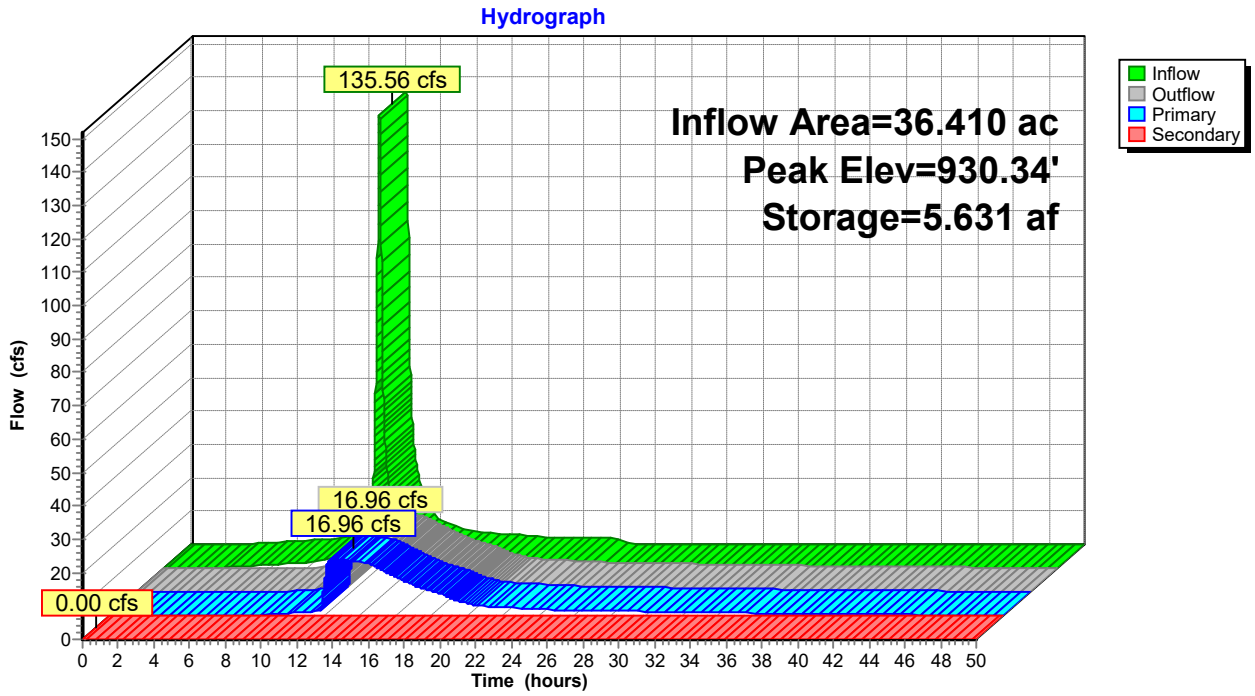
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
927.50	1.821	0.000	0.000
931.50	2.269	8.180	8.180

Device	Routing	Invert	Outlet Devices
#1	Primary	927.50'	**24.0" Round RCP_Round 24"** L= 126.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 927.50' / 926.95' S= 0.0043 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Device 1	927.50'	**6.0" Vert. WQ Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	928.50'	**36.0" W x 6.0" H Vert. Window X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	930.30'	**1.5" x 5.0" Horiz. Grate X 9.00 columns** X 4 rows C= 0.600 in 27.5" x 27.5" Grate (36% open area) Limited to weir flow at low heads
#5	Secondary	930.50'	**55.0' long + 4.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=16.96 cfs @ 12.91 hrs HW=930.34' (Free Discharge)
└─**1=RCP_Round 24"** (Barrel Controls 16.96 cfs @ 5.40 fps)
  ├─**2=WQ Orifice** (Passes < 3.05 cfs potential flow)
  ├─**3=Window** (Passes < 27.32 cfs potential flow)
  └─**4=Grate** (Passes < 0.27 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=927.50' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Wet Basin



Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PRE Runoff Area=27.360 ac 0.00% Impervious Runoff Depth=2.71"
Flow Length=1,196' Tc=44.5 min CN=78 Runoff=49.18 cfs 6.183 af

Subcatchment 2S: POST Runoff Area=27.360 ac 85.01% Impervious Runoff Depth=4.31"
Tc=15.0 min CN=94 Runoff=141.16 cfs 9.822 af

Subcatchment 5S: OFFSITE Runoff Area=9.050 ac 0.00% Impervious Runoff Depth=2.04"
Flow Length=747' Tc=55.2 min CN=70 Runoff=10.10 cfs 1.536 af

Pond 3P: Wet Basin Peak Elev=930.52' Storage=5.999 af Inflow=143.49 cfs 11.358 af
Primary=17.97 cfs 10.987 af Secondary=0.40 cfs 0.009 af Outflow=18.38 cfs 10.995 af

Total Runoff Area = 63.770 ac Runoff Volume = 17.541 af Average Runoff Depth = 3.30"
63.53% Pervious = 40.512 ac 36.47% Impervious = 23.258 ac

Summary for Subcatchment 1S: PRE

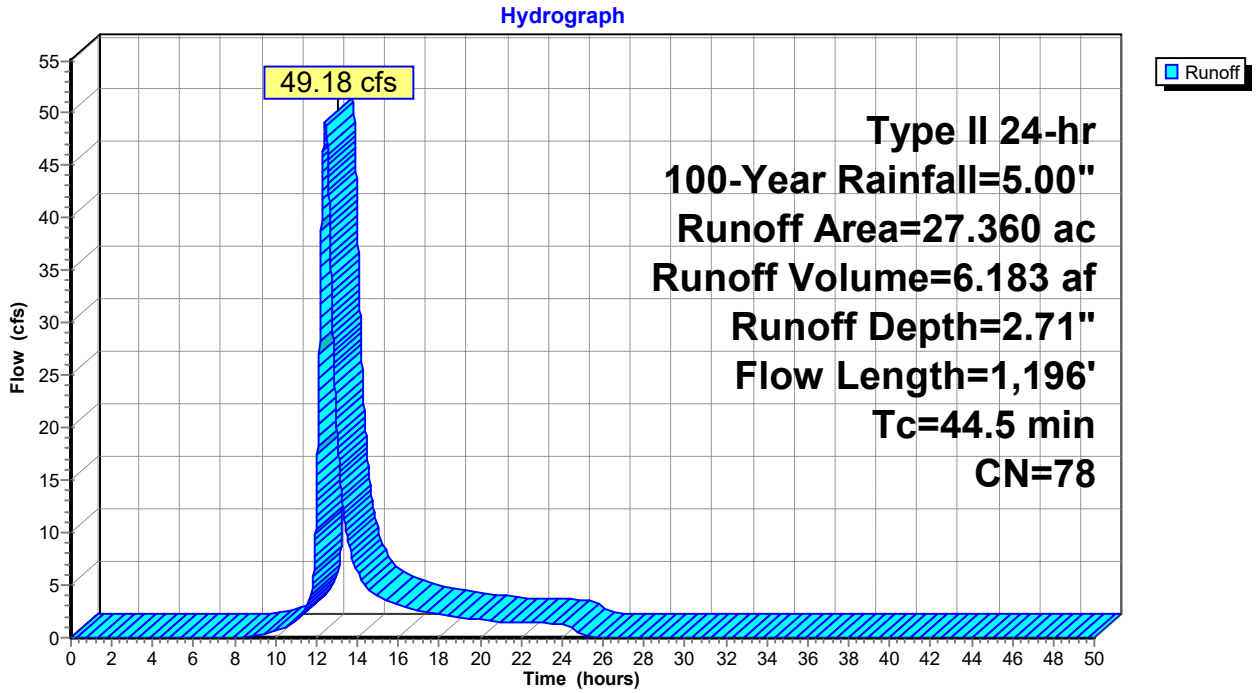
Runoff = 49.18 cfs @ 12.41 hrs, Volume= 6.183 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.00"

Area (ac)	CN	Description
27.360	78	Row crops, C&T, Good, HSG C
27.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0190	0.14		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
32.5	1,096	0.0039	0.56		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
44.5	1,196	Total			

Subcatchment 1S: PRE



Summary for Subcatchment 2S: POST

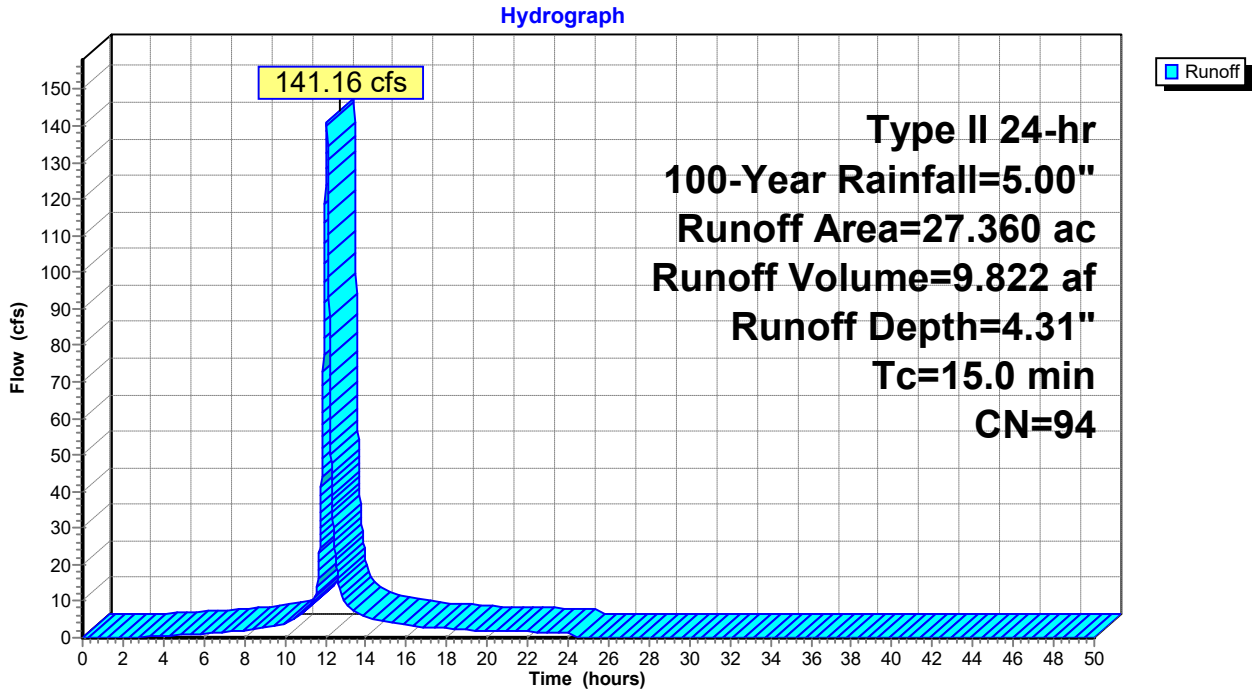
Runoff = 141.16 cfs @ 12.06 hrs, Volume= 9.822 af, Depth= 4.31"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.00"

Area (ac)	CN	Description
8.950	94	Urban commercial, 85% imp, HSG C
2.760	74	>75% Grass cover, Good, HSG C
15.650	98	Paved parking, HSG C
27.360	94	Weighted Average
4.103		14.99% Pervious Area
23.258		85.01% Impervious Area

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

Subcatchment 2S: POST



Summary for Subcatchment 5S: OFFSITE

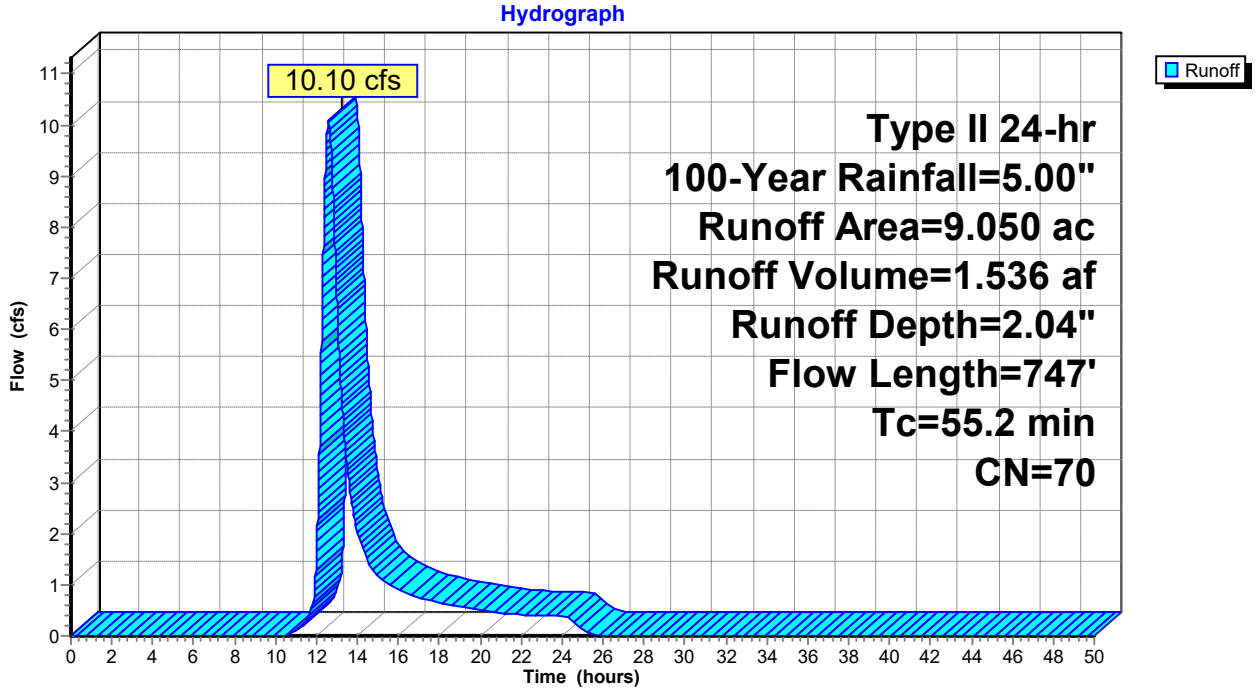
Runoff = 10.10 cfs @ 12.57 hrs, Volume= 1.536 af, Depth= 2.04"
Routed to Pond 3P : Wet Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.00"

Area (ac)	CN	Description
9.050	70	Woods, Good, HSG C
9.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0199	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"
31.8	647	0.0046	0.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
55.2	747	Total			

Subcatchment 5S: OFFSITE



Summary for Pond 3P: Wet Basin

Inflow Area = 36.410 ac, 63.88% Impervious, Inflow Depth = 3.74" for 100-Year event
Inflow = 143.49 cfs @ 12.06 hrs, Volume= 11.358 af
Outflow = 18.38 cfs @ 12.90 hrs, Volume= 10.995 af, Atten= 87%, Lag= 50.2 min
Primary = 17.97 cfs @ 12.90 hrs, Volume= 10.987 af
Secondary = 0.40 cfs @ 12.90 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Peak Elev= 930.52' @ 12.90 hrs Surf.Area= 2.158 ac Storage= 5.999 af

Plug-Flow detention time= 319.3 min calculated for 10.993 af (97% of inflow)
Center-of-Mass det. time= 299.8 min (1,093.2 - 793.4)

Volume	Invert	Avail.Storage	Storage Description
#1	927.50'	8.180 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

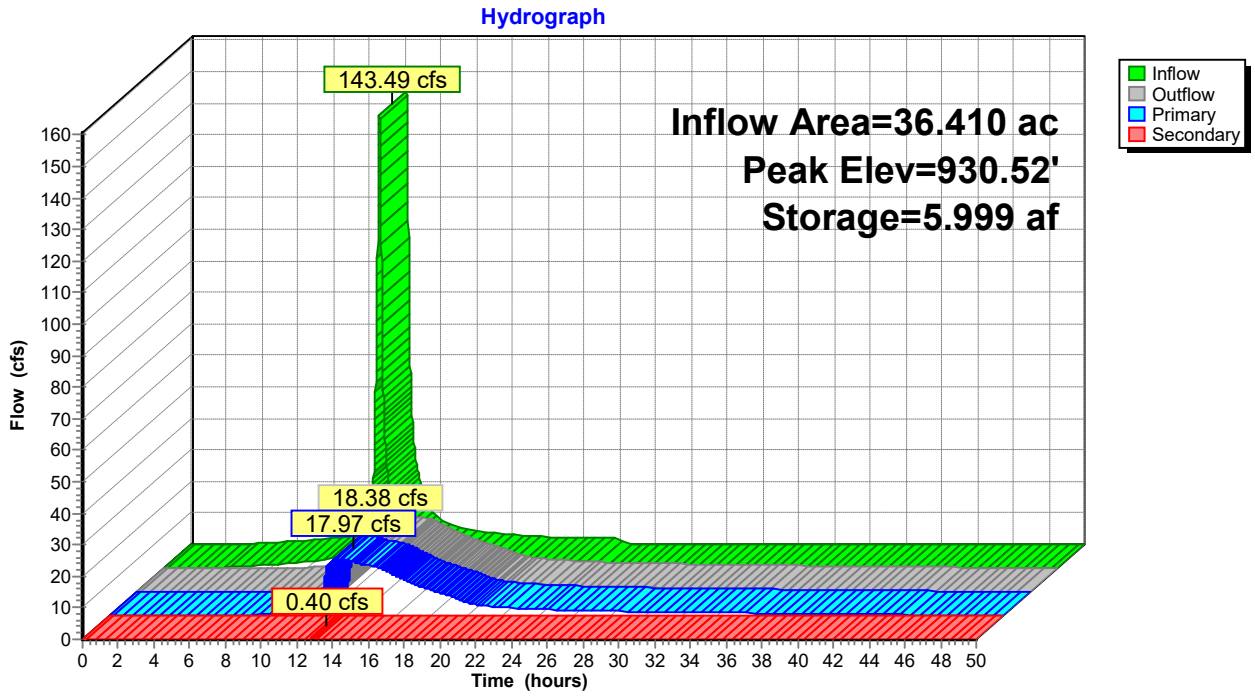
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
927.50	1.821	0.000	0.000
931.50	2.269	8.180	8.180

Device	Routing	Invert	Outlet Devices
#1	Primary	927.50'	**24.0" Round RCP_Round 24"** L= 126.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 927.50' / 926.95' S= 0.0043 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Device 1	927.50'	**6.0" Vert. WQ Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	928.50'	**36.0" W x 6.0" H Vert. Window X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	930.30'	**1.5" x 5.0" Horiz. Grate X 9.00 columns** X 4 rows C= 0.600 in 27.5" x 27.5" Grate (36% open area) Limited to weir flow at low heads
#5	Secondary	930.50'	**55.0' long + 4.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=17.97 cfs @ 12.90 hrs HW=930.52' (Free Discharge)
└─**1=RCP_Round 24"** (Barrel Controls 17.97 cfs @ 5.72 fps)
  ├─**2=WQ Orifice** (Passes < 3.14 cfs potential flow)
  ├─**3=Window** (Passes < 28.76 cfs potential flow)
  └─**4=Grate** (Passes < 2.99 cfs potential flow)

Secondary OutFlow Max=0.25 cfs @ 12.90 hrs HW=930.52' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Weir Controls 0.25 cfs @ 0.30 fps)

Pond 3P: Wet Basin



Events for Subcatchment 1S: PRE

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-Year	2.35	11.25	1.579	0.69
2-Year	2.55	13.66	1.871	0.82
5-Year	3.30	23.58	3.071	1.35
10-Year	3.80	30.78	3.942	1.73
25-Year	4.30	38.31	4.854	2.13
50-Year	4.75	45.26	5.702	2.50
100-Year	**5.00**	**49.18**	**6.183**	**2.71**

Events for Subcatchment 2S: POST

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-Year	2.35	59.46	3.936	1.73
2-Year	2.55	65.70	4.371	1.92
5-Year	3.30	88.98	6.021	2.64
10-Year	3.80	104.41	7.133	3.13
25-Year	4.30	119.76	8.251	3.62
50-Year	4.75	133.53	9.260	4.06
100-Year	**5.00**	**141.16**	**9.822**	**4.31**

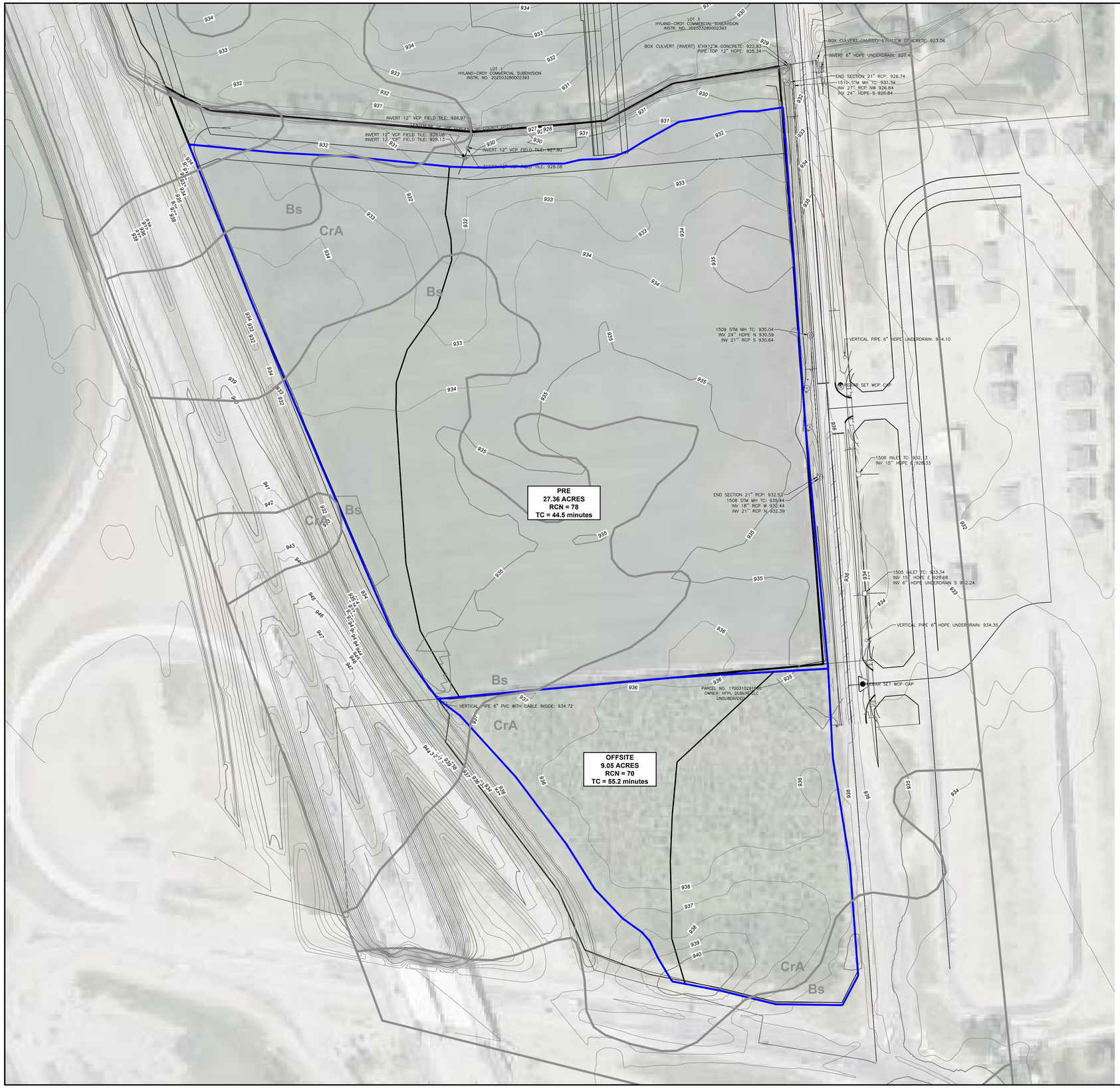
Events for Subcatchment 5S: OFFSITE

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-Year	2.35	1.39	0.291	0.39
2-Year	2.55	1.85	0.362	0.48
5-Year	3.30	3.94	0.669	0.89
10-Year	3.80	5.60	0.904	1.20
25-Year	4.30	7.40	1.157	1.53
50-Year	4.75	9.11	1.397	1.85
100-Year	**5.00**	**10.10**	**1.536**	**2.04**

Events for Pond 3P: Wet Basin

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (acre-feet)
1-Year	59.57	5.88	5.88	0.00	928.77	2.396
2-Year	65.87	7.13	7.13	0.00	928.88	2.614
5-Year	89.55	11.32	11.32	0.00	929.35	3.567
10-Year	105.41	13.99	13.99	0.00	929.68	4.231
25-Year	121.29	15.97	15.97	0.00	930.01	4.934
50-Year	135.56	16.96	16.96	0.00	930.34	5.631
100-Year	**143.49**	**18.38**	**17.97**	**0.40**	**930.52**	**5.999**

TABLE OF CONTENTS



LEGEND

- EXISTING DRAINAGE STRUCTURE
- EXISTING STORM SEWER
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- STORM SEWER
- DRAINAGE STRUCTURE
- STORM STRUCTURE ID
- PROJECT BOUNDARY
- DRAINAGE AREA BOUNDARY

SOILS LEGEND

Bs BROOKSTON SILTY CLAY LOAM, 0-2% SLOPES.
HYDROLOGIC GROUP: C/D

CrA CROSBY SILT LOAM, 0-2% SLOPES
HYDROLOGIC GROUP: C/D

DRAINAGE AREA SUMMARY

PRE	27.36 AC
OFFSITE	9.05 AC
TOTAL DRAINAGE AREA	36.41 ACRES

NORTH

0 100 200 300

GRAPHIC SCALE IN FEET

WOOLPERT
ARCHITECTURE | ENGINEERING | GEOSPATIAL
4454 Idea Center Boulevard
Dayton, OH 45430
937.461.5660

meijer
2929 WALKER AVENUE
GRAND RAPIDS, MICHIGAN 49544
(616) 453-6711

REV.	DATE	DESCRIPTION

MEIJER STORE JRM
HYLAND-CROY ROAD
PLAIN CITY, OHIO 43064

PRE-DEVELOPED DRAINAGE PLAN

ISSUED FOR:	
PERMIT	MM/DD/YY
BID	MM/DD/YY
CONSTRUCTION	MM/DD/YY

PROJECT MANAGER	DESIGNER
BLS	MRS

JOB NO.
10020719

EXH-1

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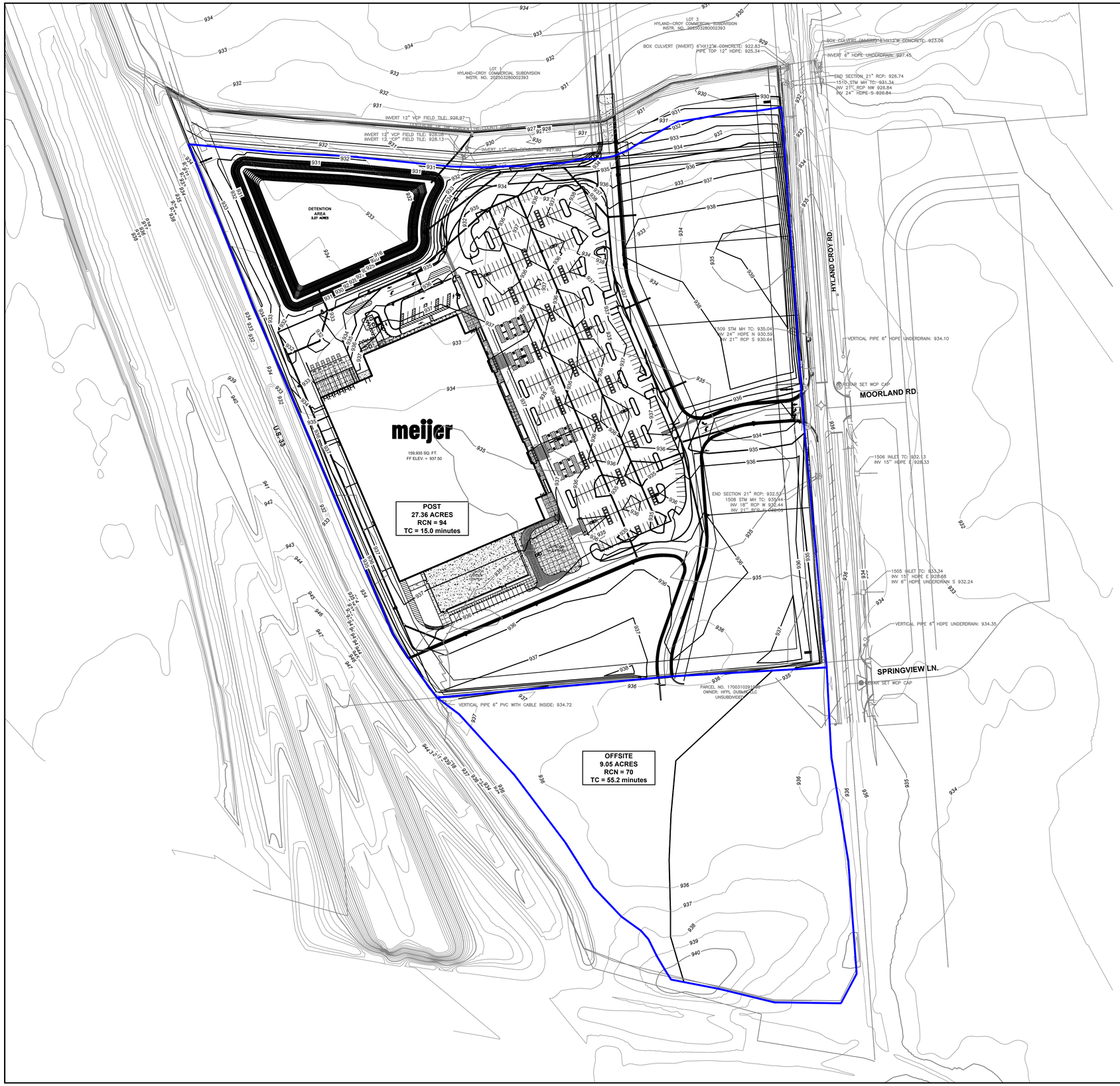

LEGEND

- EXISTING DRAINAGE STRUCTURE
- SD — EXISTING STORM SEWER
- 1179 — EXISTING 1' CONTOUR
- 1180 — EXISTING 5' CONTOUR
- 799 — PROPOSED 1' CONTOUR
- 800 — PROPOSED 5' CONTOUR
- STORM SEWER
- DRAINAGE STRUCTURE
- XX — STORM STRUCTURE ID
- PROJECT BOUNDARY
- DRAINAGE AREA BOUNDARY

SOILS LEGEND

Bs BROOKSTON SILTY CLAY LOAM, 0-2% SLOPES.
HYDROLOGIC GROUP: C/D

CrA CROSBY SILT LOAM, 0-2% SLOPES
HYDROLOGIC GROUP: C/D

DRAINAGE AREA SUMMARY

POST	27.36 AC
OFFSITE	9.05 AC
TOTAL DRAINAGE AREA	36.41 ACRES

NORTH

0 100 200 300

GRAPHIC SCALE IN FEET

WOOLPERT
ARCHITECTURE | ENGINEERING | GEOSPATIAL
4454 Idea Center Boulevard
Dayton, OH 45430
937.461.5660

meijer
2929 WALKER AVENUE
GRAND RAPIDS, MICHIGAN 49544
(616) 453-6711

REV.	DATE	DESCRIPTION

MEIJER STORE JRM
HYLAND-CROY ROAD
PLAIN CITY, OHIO 43064

POST-DEVELOPED DRAINAGE PLAN

ISSUED FOR:	
PERMIT	MM/DD/YY
BID	MM/DD/YY
CONSTRUCTION	MM/DD/YY

PROJECT MANAGER	DESIGNER
BLS	MRS

JOB NO.
10020719

EXH-2