Drainage Report

For:

Riverside Business Park
Arnold Street
Braintree, MA

Prepared For:
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Existing Site Conditions

The existing site is an area made up of five parcels of land located southeast of the intersection of Arnold Street and Adams Street in Braintree. The site is bounded by the Monatiquot River to the north and east and the MBTA tracks to the south. The land currently is a concrete facility and stockpile lot. A portion of the site is contaminated with buried automotive shredder residue. The existing impervious area is approximately 45,757 SF, consisting of the existing buildings and concrete structures throughout the site. Portion of the site is within FEMA Flood Hazard Area with various flood elevations along the river bank.

The topography of the site generally slopes toward the river and the MBTA tracks. No stormwater controls exist on site.

Soil boring tests were performed by Soil Exploration Drilling of Leominster, MA in September 2016. Those findings were presented in a Geotechnical Report by Green Environmental of Rockland, MA in October 2016 and were determined to be sands and silty sand of glacial till, which is Hydrologic Soil Group A. In the soil borings, groundwater was not detected or was determined to be 8-12 feet below the surface.

Methodology

This drainage analysis will utilize TR-55 drainage guidelines which is an industry standard for urban hydrology small watersheds. The accompanying calculations analyze the increase in runoff from the proposed site development under a 24-hour 6.8-inch rain event, which is approximate to a 100-year storm event. Calculations were also performed for 25-year, 10-year, and 2-year storm events.

The watershed area evaluated consisted of 682,179 SF of land which ultimately drains to the Monatiquot River. This area consists of woods along the river, a wetland area, and the portion of the site which is being disturbed by the proposed project. In the existing condition, the stormwater sheet flows into open channel flow and the time of concentration has been calculated to 5 minutes as a conservative approach. In the proposed condition, the stormwater sheet flows into catch basins which are routed to infiltration systems. The time of concentration was also calculated to be 5 minutes in the proposed condition.

Proposed Conditions

The applicant proposes the construction of a 139,000 SF manufacturing/warehouse building, a 49,800 SF flexible space in a commercial/warehouse building, and a 2,500 SF office building. Two existing buildings will remain.

The proposed impervious coverage on the site will be 457,000 SF, and increase of 411,000 SF. The proposed impervious area consists of the buildings, parking lot, sidewalk, and drive aisles. Runoff from the proposed roofs, parking, and driveway areas

will be routed into seven concrete 4’ x 4’ x 4’ galley systems. These systems are composed of 843 galleys.

The galleys and surrounding stone will provide a total 41,268 cubic feet of storage and were sized designed to decrease the existing peak flowrates and runoff volume for the 2-year, 10-year, 25-year, and 100-year rainfall events.

The following table depicts the peak runoff rates and volumes for the existing and proposed conditions for each storm event.

Peak Discharge Rates (cfs)

	2-year	10-year	25-year	100-year
Existing Conditions	26.67	46.80	61.45	81.39
Proposed Conditions	19.13	27.08	33.32	41.92

Runoff Volume (af)

	2-year	10-year	25-year	100-year
Existing Conditions	1.856	3.209	4.213	5.604
Proposed Conditions	1.390	2.409	3.189	4.301

The proposed infiltration systems were also designed to infiltrate all recharge volume within 72 hours.

Erosion and Sedimentation Control Measures

Erosion control measures to be employed include a filter sock erosion control barrier as depicted in the site plan. The barrier shall be inspected daily and be kept in place until such time that disturbed areas are re-vegetated or paved and are no longer a potential source of siltation.

A stone construction entrance is proposed as shown on the site plan to limit the sediment transfer off-site. Inlet protection is required to protect all on site catch basins.

The construction sequence has been planned to minimize the total area of disturbance and prevent off-site transport of sediment.

Flood Storage

Portion of the site is within FEMA Hazard Flood Area. The Flood Elevation varies within along the riverbank from elevation 50 to 45. The flood elevations were determined and approved through an ANRAD filing with the Town of Braintree Conservation

Commission back in 2016. The various flood elevations are shown on the ANARD Plan attached to this report. The function of the flood stages depends on the culvert that is under Adams Street at Arnold Street intersection. During heavy rain events, said culvert restricts the flood of the Monatiquot River that causes the river to crest above the roadway to flood the street and adjacent land. The flood elevation reduces downstream of the culvert as the water flow further away from the culvert. The proposed development will fill portion of area within the flood hazard area. In order to mitigate for flood storage volume, the site is designed such that the grading of the site will provide flood compensatory storage volume to exceed the volume filled within the flood plain in foot by foot basis.

The balance of the cut and fill for flood storage mitigation on- foot-by-foot basis is shown on table below:

	Exist. Flood Storage	Prop. Flood Storge			
	Approved ANRAD	"Wet Area"	Riverfront	Total	Net
Elev	CF	CF	CF	CF	CF
42-43	727	1983		1983	1256
43-44	9008	10265		10265	1257
44-45	21803	18330	9455	27785	5982
45-46	25354	9671	17631	27302	1948
46-47	21847		21933	21933	86
47-48	9678		17352	17352	7674

As shown on the table, there will be net increase of compensatory flood storage under the proposed conditions; therefore, there will be no negative impact of flooding causes by this development.

Conclusion

The stormwater management system will reduce the stormwater runoff flowrate by providing on-site infiltration systems. The system consists of a total of 843 concrete galleys and has been sized to match existing peak flowrates and runoff volumes for the 2-year, 10-year, 25-year, and 100-year rainfall events. The storage is also sized to drain within 72 hours. The site is also designed to provide net increase of flood storage volume to mitigate flooding impact from the proposed development.

During construction, the proposed erosion control measures protect sedimentation from construction activities from migrating off site onto the public street and abutting properties.

The proposed stormwater management and erosion control design of the proposed development will meet the Massachusetts Stormwater Management Standards and the City of Braintree’s Stormwater Ordinance.

Infiltration Structure Sizing Calculations

Assumptions

100-year storm = 6.8 inches

4'x4'x4' Galley Total Volume = 58.9 cf

4'x4'x4 Galley Total Storage = 44.3 cf

Stone Voids = 40%

Volume of Infiltration System

The volume of the infiltration system is shown in the table below. The numbers were calculated by the following formulas:

Chamber Storage = Number of Galleys x 44.3 cf

Displacement = Number of Galleys x 58.9 cf

Field Area = System Length x System Width

Field Volume = Field Area x 4' high

Stone Storage = (Field Volume – Chamber Storage) x 40% Stone Voids

System Storage = Chamber Storage + Stone Storage

DETENTION SYSTEM VOLUME CALCULATIONS								
	System 1	System 2	System 3	System 4	System 5	System 6	System 7	Total
No. Galleys	90	110	174	72	390	1	6	843
Field Layout (ft x ft)	60 x 26.4	20 x 96.8	24 x 127.6	72 x 17.6	52 x 132	4 x 4.4	12 x 8.8	
Field Area (sf)	1584	1936	3062.4	1267.2	6864	17.6	105.6	14836.8
Field Volume (cf)	6,336.00	7744	12249.6	5068.8	27456	70.4	422.4	59347.2
Chamber Storage (cf)	3991.1	4878.0	7716.0	3192.8	17294.6	44.3	266.1	37344.9
Displacement (cf)	5299.2	6476.8	10245.12	4239.36	22963.2	58.88	353.28	49652.7
Stone Storage (cf)	414.7	506.9	801.8	331.8	1797.1	4.6	27.6	3877.8
System Storage (cf)	4405.9	5385.0	8518.0	3524.7	19092.1	49.0	293.7	41268.4

Massachusetts Stormwater Standards - Required Recharge Volume

Rv = F x Impervious Area

Where:

Rv = Required Recharged Volume

F = Target Depth Factor, for Type A Soils = 0.6 inches

Impervious Area = 457,000 sf

Rv = 0.6 inches x 1 ft/12 inches x 442,618 sf = 22,850 cf

Provided Volume = 41,268 cf > 22,130.9 cf Required Volume

Time to Infiltrate – Static Method

Time to Infiltrate = Rv / (K x Bottom of Stone Area x n)

Where

Rv=Required Recharged Volume

K=Rawls Rate (per Table 2.3.3 in the Mass Stormwater Handbook) = Loamy Sand = 2.41 inches/hour

n=stone voids = 0.40

Bottom of Stone Area Infiltration Area (from above Table) = 14326.4 sf

Time to Infiltrate= 41,268 cf / (2.41in/hr x 1 ft/12 inches x 14836.8 sf x 0.40) = <u>34.6 hours</u>

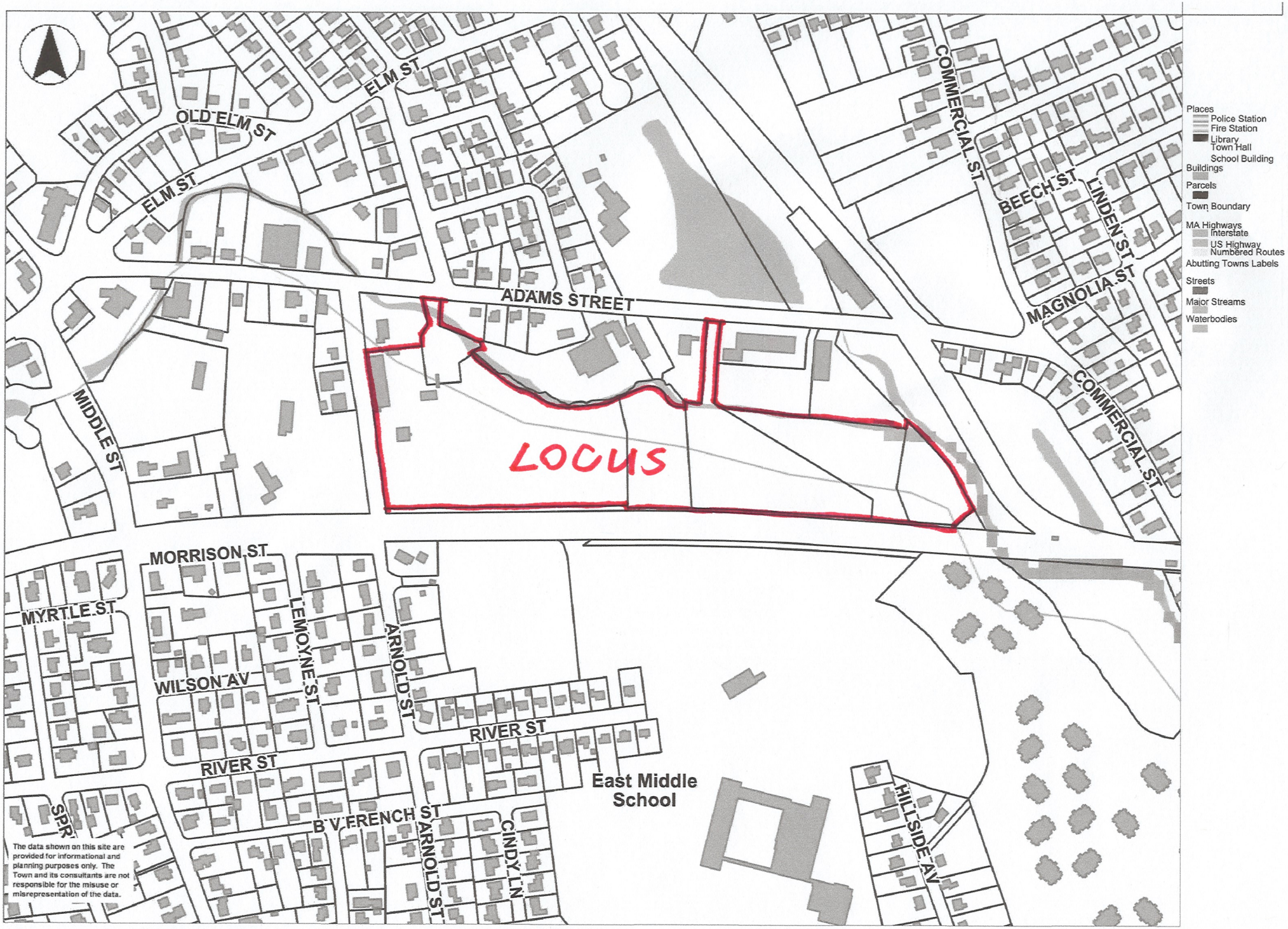
34.6 hours < 72 hours : Meets Standard

TSS Removal Calculations 10/28/2019

Riverside Business Park - Arnold Street, Braintree, MA

Starting TSS 100%

Treatment BMP	Treatment Rate, %	Unit Removal, %	Remaining TSS, %
Roadway Sweeping	10	10	90
Deep Sump Drain Manhole	25	22.5	67.5
Deep Sump Drain Manhole	25	16.875	50.625
Infiltration	80	54	13.5
		Total TSS Removed:	86.5



0 400 800 ft

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Vicinity Map

Custom Soil Resource Report
Soil Map

Map Scale: 1:5,050 if printed on A landscape (11" x 8.5") sheet.

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N 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 1:25,000.

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

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

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

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

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

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

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 14, Sep 12, 2018

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

Date(s) aerial images were photographed: Mar 30, 2011—Aug 25, 2014

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	0.6	0.5%
51	Swansea muck, 0 to 1 percent slopes	5.0	4.6%
305D	Paxton fine sandy loam, 15 to 25 percent slopes	1.8	1.7%
310B	Woodbridge fine sandy loam, 3 to 8 percent slopes	9.2	8.5%
325D	Newport silt loam, 15 to 25 percent slopes	1.7	1.6%
345B	Pittstown silt loam, 2 to 8 percent slopes	16.9	15.7%
602	Urban land, 0 to 15 percent slopes	2.5	2.3%
627C	Newport-Urban land complex, 3 to 15 percent slopes	34.1	31.8%
654	Udorthents, loamy	31.6	29.4%
655	Udorthents, wet substratum	4.1	3.8%
Totals for Area of Interest		**107.4**	**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.

Norfolk and Suffolk Counties, Massachusetts

1—Water

Map Unit Setting

National map unit symbol: vkyp
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

51—Swansea muck, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2trl2
Elevation: 0 to 1,140 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 unique importance

Map Unit Composition

Swansea and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Swansea

Setting

Landform: Swamps, bogs
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material over loose sandy and gravelly glaciofluvial deposits

Typical profile

Oa1 - 0 to 24 inches: muck
Oa2 - 24 to 34 inches: muck
Cg - 34 to 79 inches: coarse sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
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: Rare
Frequency of ponding: Frequent
Available water storage in profile: Very high (about 16.5 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Freetown
Percent of map unit: 10 percent
Landform: Swamps, bogs
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Whitman
Percent of map unit: 5 percent
Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro
Percent of map unit: 5 percent
Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

305D—Paxton fine sandy loam, 15 to 25 percent slopes

Map Unit Setting
National map unit symbol: 2w67j
Elevation: 0 to 1,450 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
Paxton and similar soils: 85 percent

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

Description of Paxton

Setting

Landform: Ground moraines, drumlins, 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 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

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Natural 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
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Charlton

Percent of map unit: 8 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

Percent of map unit: 6 percent
Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear

Hydric soil rating: No

Ridgebury

Percent of map unit: 1 percent
Landform: Hills, ground moraines, depressions, drumlins, drainageways
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

310B—Woodbridge fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t2ql
Elevation: 0 to 1,470 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

Woodbridge, fine sandy loam, and similar soils: 82 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge, Fine Sandy Loam

Setting

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

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 18 inches: fine sandy loam
Bw2 - 18 to 30 inches: fine sandy loam
Cd - 30 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Natural 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 18 to 30 inches

Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Paxton

Percent of map unit: 10 percent
Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury

Percent of map unit: 8 percent
Landform: Ground moraines, depressions, drainageways, hills
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

325D—Newport silt loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: vkws
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Newport

Setting

Landform: Drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope

Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Friable coarse-loamy eolian deposits over dense coarse-loamy lodgment till derived from metamorphic rock

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 26 inches: channery silt loam
H3 - 26 to 60 inches: channery silt loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Natural drainage class: Well drained
Runoff class: Very high
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 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Paxton

Percent of map unit: 10 percent
Hydric soil rating: No

Urban land

Percent of map unit: 5 percent
Hydric soil rating: Unranked

345B—Pittstown silt loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: vkxf
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Pittstown and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pittstown

Setting

Landform: Drumlins
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Head slope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Friable coarse-loamy eolian deposits over dense coarse-loamy lodgment till derived from metamorphic rock

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 60 inches: silt loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 15 to 30 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Newport

Percent of map unit: 15 percent
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Hydric soil rating: Unranked

602—Urban land, 0 to 15 percent slopes

Map Unit Setting

National map unit symbol: vkyj
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 99 percent
Minor components: 1 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Rock outcrops

Percent of map unit: 1 percent
Hydric soil rating: Unranked

627C—Newport-Urban land complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: vkwv
Mean annual precipitation: 32 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 120 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Newport and similar soils: 70 percent
Urban land: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Newport

Setting

Landform: Drumlins
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Friable coarse-loamy eolian deposits over dense coarse-loamy lodgment till derived from metamorphic rock

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 26 inches: channery silt loam
H3 - 26 to 60 inches: channery silt loam

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to densic material

Natural 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 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.4 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

Setting
Parent material: Excavated and filled land

Minor Components

Paxton
Percent of map unit: 4 percent
Hydric soil rating: No

Pittstown
Percent of map unit: 4 percent
Hydric soil rating: No

Udorthents
Percent of map unit: 2 percent
Hydric soil rating: Unranked

654—Udorthents, loamy

Map Unit Setting
National map unit symbol: vkyb
Elevation: 0 to 3,000 feet
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition
Udorthents and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Excavated and filled coarse-loamy human transported material

Typical profile

H1 - 0 to 6 inches: variable
H2 - 6 to 60 inches: variable

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Hydric soil rating: Unranked

Minor Components

Udorthents,sandy

Percent of map unit: 8 percent
Hydric soil rating: Unranked

Udorthents,wet substr.

Percent of map unit: 8 percent
Hydric soil rating: Unranked

Urban land

Percent of map unit: 4 percent
Hydric soil rating: Unranked

655—Udorthents, wet substratum

Map Unit Setting

National map unit symbol: vkyd
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Landform position (two-dimensional): Shoulder, footslope
Landform position (three-dimensional): Riser, tread
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Excavated and filled sandy and gravelly human transported material over highly-decomposed herbaceous organic material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Minor Components

Urban land

Percent of map unit: 3 percent
Hydric soil rating: Unranked

Ipswich

Percent of map unit: 2 percent
Landform: Marshes
Hydric soil rating: Yes

Stormwater Operation and Maintenance Plan

Riverside Business Park
Arnold Street
Braintree, MA
March 2, 2020

Stormwater Management System Owner:

Mr. George Lang, Adams Street Enterprises, LLC

The following Operation and Maintenance Plan is intended as a guide for maintaining the structural and non-structural BMP's post-construction. In order to document maintenance activities, the attached maintenance log should be kept on site. A minimum of two years' worth of records should be up to date and available for review and inspection, if requested by City officials. The transfer of ownership (e.g. from developer to owner) also includes the transfer of the maintenance obligation to the new owners. In order to ensure the proposed stormwater management system continues to function as designed and to prevent any adverse impacts down-gradient, proper maintenance is required. This maintenance plan shall be recorded at the Norfolk County Registry of Deeds.

Operation and Maintenance Plan During Construction

All erosion and sediment control measures must be in place prior to any disturbance.

Perimeter Silt Protection: A "Filter Mitt" (or approved equal) perimeter fence must be installed around the perimeter of work limits and material stockpiles. Installation shall be in accordance with manufacturer specifications and attached details. Silt fence shall be inspected daily. Trapped sediments shall be removed and repairs shall be made promptly.

Inlet Protection: Catch basins shall be protected from siltation during construction through the use of siltation fabric. The siltation fabric must be installed under the catch basin grates and the grates must be secured to prevent untreated seepage. The fabric should be inspected daily and immediately after a rainstorm. Sediment deposits must be removed promptly and fabric must be repaired as necessary.

Stabilized Construction Entrance: A stabilized construction entrance must be installed at the entrance to the construction site. Entrance shall be made of 1 ½" crushed stone for a depth of four inches. Construction entrance shall be inspected daily and repairs shall be made promptly.

Operation and Maintenance Activities

General Housekeeping: Paved areas should be kept clear of debris or leaf buildup to prevent clogging of the trench drain. All chemical and hazardous materials shall be store in secured designated locations with spill protection.

Catch Basins and Dump Sump Drain Manhole Inspection and Cleaning: Catch basins shall be inspected at least four (4) times per year and cleaned a minimum of two (2) times per year. Inspections should include the frame and grate, outlet pipe, hood and overall structure. Cleaning of catch basins shall be conducted in the early spring (after winter sanding and before spring rains), if there are 18-inches of accumulated sediments or if a noticeable hydrocarbon sheen is present. The sumps shall be cleaned utilizing a vacuum or clamshell type device.

Infiltration Basin Inspection and Cleaning: The subsurface infiltration basin does not require regular maintenance if pretreatment devices (trench drain and deep sump drain manhole) are properly maintained. The system has inspection ports that should be inspected when the other on-site stormwater devices are inspected. If sediment build-up within the retention system is found during inspection, the sediment shall be removed by vacuumed method through the inspection ports.

Snow Management: During winter season, snow shall be stockpile at landscape areas and/or paved surface for natural melting. The stockpile shall be kept away for wetland and riverback. The using of salt shall be kept to the minimum. Excessive snow shall be removed for off-site deposal by a private contractor.

Operation and Maintenance Budget

The project site shall require regular maintenance. The owner shall maintain a yearly budget to proper maintain the stormwater management system. The initial yearly budget shall be $5000 per year and shall be adjusted accordingly as required.

_____

Owner Signature Date

Long Term Operation and Maintenance Log
Riverside Business Park - Arnold Street, Braintree, MA

Driveway/Parking Lot Sweeping	March/April ☐ By: _____	July ☐ By: _____	Nov ☐ By: _____
Trench Drain/Area Drain Cleaning	March/April ☐ By: _____		Nov ☐ By: _____
Deep Sump Manhole Inspection/Pump Out	March/April ☐ By: _____ Pump Out: Yes No		Nov ☐ By: _____ Pump Out: Yes No
Infiltration System Inspection/Flushing	March/April ☐ By: _____ Flush Out: Yes No		Nov ☐ By: _____ Flush Out: Yes No
Gas/Oil Separator Inspection/Pump Out	March/April ☐ By: _____ Pump Out: Yes No		Nov ☐ By: _____ Pump Out: Yes No

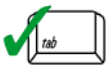
Note: O & M Log and maintenance record to be kept in management office and retain for miniumum 2 years and shall be made available for City inspection when necessay.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☒ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☒ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☒ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☒ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☒ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☐ The BMP is sized (and calculations provided) based on:

- ☐ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☒ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

Town of Braintree

Planning Board

Illicit Discharge Statement

I, as Owner Representative, certify that:

1) The existing buildings located at the proposed Riverside Business Park site on Arnold Street, Braintree, MA Massachusetts is to be demolished under the proposed Planning Board filing application. During the building demolition process, any illicit discharge, if exists, will be removed as part of the demolition process.
2) The plan accompanied the Planning Board application submittal clearly identifies the following:
    - The location of all on-site systems for conveying wastewater and stormwater.
    - The location of any measures taken to prevent the entry of illicit discharges int the Town of Braintree storm drain system.
    - There is no connects between the wastewater management and the Town of Braintree storm drain system.

Property Owner:
Adams Street Enterprise, LLC
288 Adams Street
Braintree, MA
Attn: George Lang

Signature:

COMMONWEALTH OF MASSACHUSETTS
CHI Y MAN
CIVIL
NO. 45441
REGISTERED PROFESSIONAL ENGINEER

10-28-19

Chi Y. Man, PE
Hardy + Man Design Group, PC

HARDY + MAN DESIGN GROUP, PC
CIVIL ENGINEERING & LAND DEVELOPMENT CONSULTING

COMMONWEALTH OF MASSACHUSETTS
PETER G. HOYT
No. 41609
PROFESSIONAL LAND SURVEYOR

PLAN REFERENCES:

- LAND COURT PLANS 29731 A, B AND C
- LAND COURT PLAN 22232 A
- PLAN NO. 944 OF 1949 (BK. 2855 PG. 482)
- PLAN NO. 43 OF 1923 (BK. 1544 PG. 270)
- PLAN NO. 1200 OF 1985 (PL. BK. 326)
- PLAN NO. 744 OF 2003 (PL. BK. 515)
- PLAN NO. 616 OF 1924 (BK. 1612 PG. 235)
- PLAN NO. 222 OF 1951 (BK. 2985 PG. 399)
- PLAN NO. 1129 OF 1957 (BK. 3599 PG. 453)
- PLAN NO. 34 OF 1969 (BK. 4570 PG. 179)
- PLAN NO. 1325 OF 1953 (BK. 3205 PG. 275)
- PLAN NO. 414 OF 1997 (PL. BK. 448)
- PLAN NO. 287 OF 1951 (BK. 2988 PG. 445)
- PLAN NO. 952 OF 1968 (BK. 4564 PG. 513)
- PLAN NO. 388 OF 1924 (PL. BK. 103)
- PLAN NO. 51 OF 1956 (BK. 3443 PG. 61)
- PLAN NO. 741 OF 1971 (BK. 4769 PG. 727)
- PLAN NO. 997 OF 1964 (BK. 4206 PG. 325)
- PLAN NO. 778 OF 1953 (BK. 3177 PG. 22)

GENERAL NOTES:

1. THE PROPERTY IS SHOWN ON THE TOWN OF BRAINTREE ASSESSORS MAP 2008 AS LOTS 3B, 4 AND 6 ASSESSORS MAP 3014 AS LOTS 1C AND 1D ASSESSORS MAP 3013 LOT 58 .

2. LOCUS TITLE IS RECORDED AT THE NORFOLK COUNTY REGISTRY OF DEEDS AND LAND COURT AS FOLLOWS:

OWNERS: M&G REALTY TRUST (JAMES A. GRAZIANO, TRUSTEE)

DEED BOOK 10836 PAGE 124 (PARCEL I)
DEED BOOK 10836 PAGE 122 (PARCEL II)
DEED BOOK 10836 PAGE 126 (PARCEL III)
LAND COURT CERTIFICATE #144239 (PARCEL IV)
LAND COURT CERTIFICATE #144238 (PARCEL V)
DEED BOOK 10386 PAGE 125 (PARCELS VI & VII)
DEED BOOK 10836 PAGE 123 (PARCEL VIII)

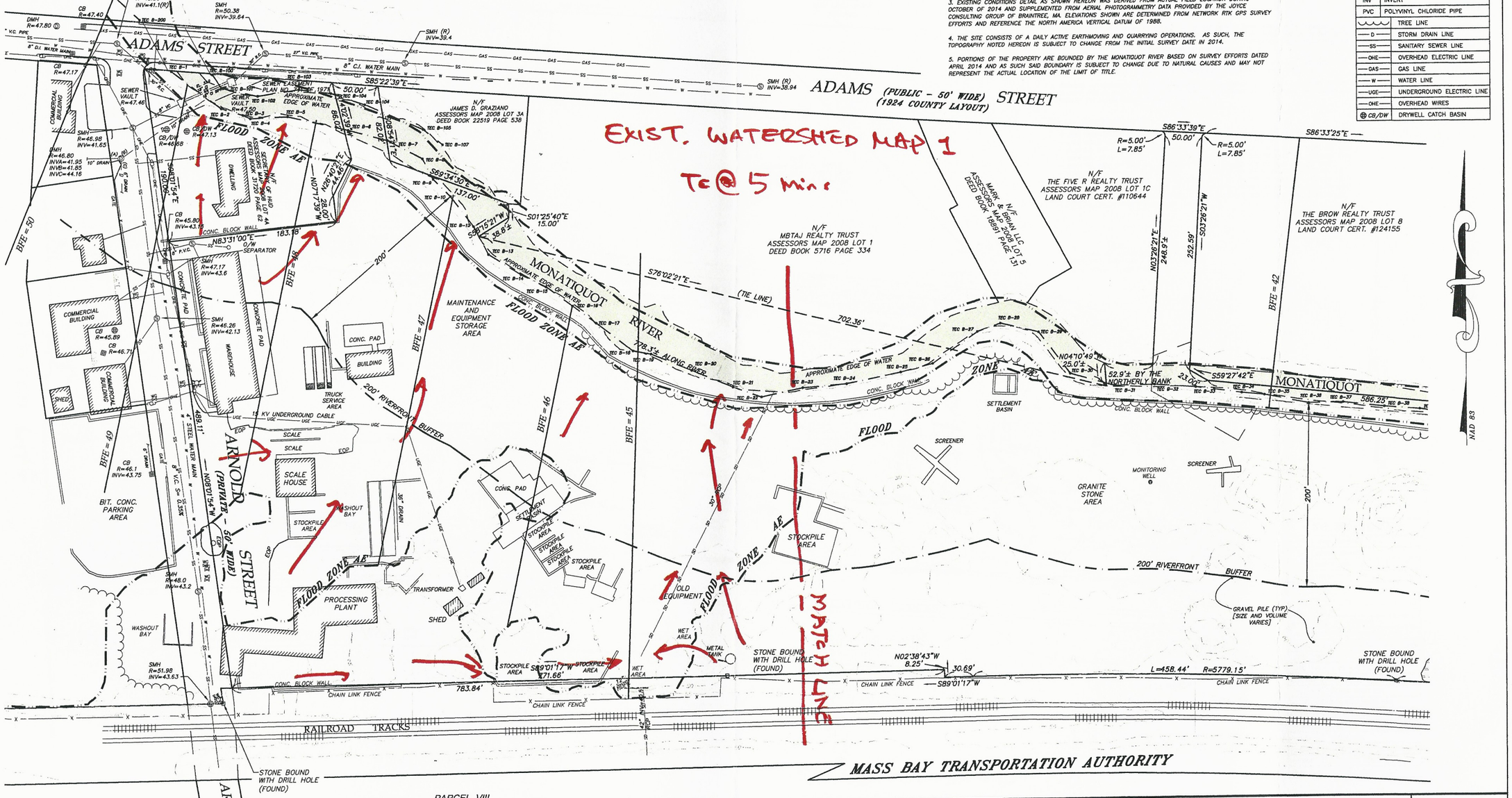
3. EXISTING CONDITIONS DETAIL AS SHOWN HEREON WAS DERIVED FROM ACTUAL FIELD LOCATION DURING OCTOBER OF 2014 AND SUPPLEMENTED FROM AERIAL PHOTOGRAMMETRY DATA PROVIDED BY THE JOYCE CONSULTING GROUP OF BRAINTREE, MA. ELEVATIONS SHOWN ARE DETERMINED FROM NETWORK RTK GPS SURVEY EFFORTS AND REFERENCE THE NORTH AMERICA VERTICAL DATUM OF 1988.

4. THE SITE CONSISTS OF A DAILY ACTIVE EARTHMOVING AND QUARRYING OPERATIONS. AS SUCH, THE TOPOGRAPHY NOTED HEREON IS SUBJECT TO CHANGE FROM THE INITIAL SURVEY DATE IN 2014.

5. PORTIONS OF THE PROPERTY ARE BOUNDED BY THE MONATIQUOT RIVER BASED ON SURVEY EFFORTS DATED APRIL 2014 AND AS SUCH SAID BOUNDARY IS SUBJECT TO CHANGE DUE TO NATURAL CAUSES AND MAY NOT REPRESENT THE ACTUAL LOCATION OF THE LIMIT OF TITLE.

SYMBOL LEGEND

Ⓓ	DRAIN MANHOLE
Ⓢ	SEWER MANHOLE
WG	WATER GATE
	HYDRANT
▦	CATCH BASIN
	UTILITY POLE
GG	GAS GATE
EOP	EDGE OF PAVEMENT
RCP	REINFORCED CONCRETE PIPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
INV	INVERT
PVC	POLYVINYL CHLORIDE PIPE
	TREE LINE
—D—	STORM DRAIN LINE
—SS—	SANITARY SEWER LINE
—OHE—	OVERHEAD ELECTRIC LINE
—GAS—	GAS LINE
—W—	WATER LINE
—UGE—	UNDERGROUND ELECTRIC LINE
—OHE—	OVERHEAD WIRES
⊕ CB/DW	DRYWELL CATCH BASIN



GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

NO	REVISIONS	DATE	MADE BY	CHECKED BY

PROJECT TITLE:
GRAZIANO LAND
ADAMS & ARNOLD STREETS
BRAINTREE, MASSACHUSETTS

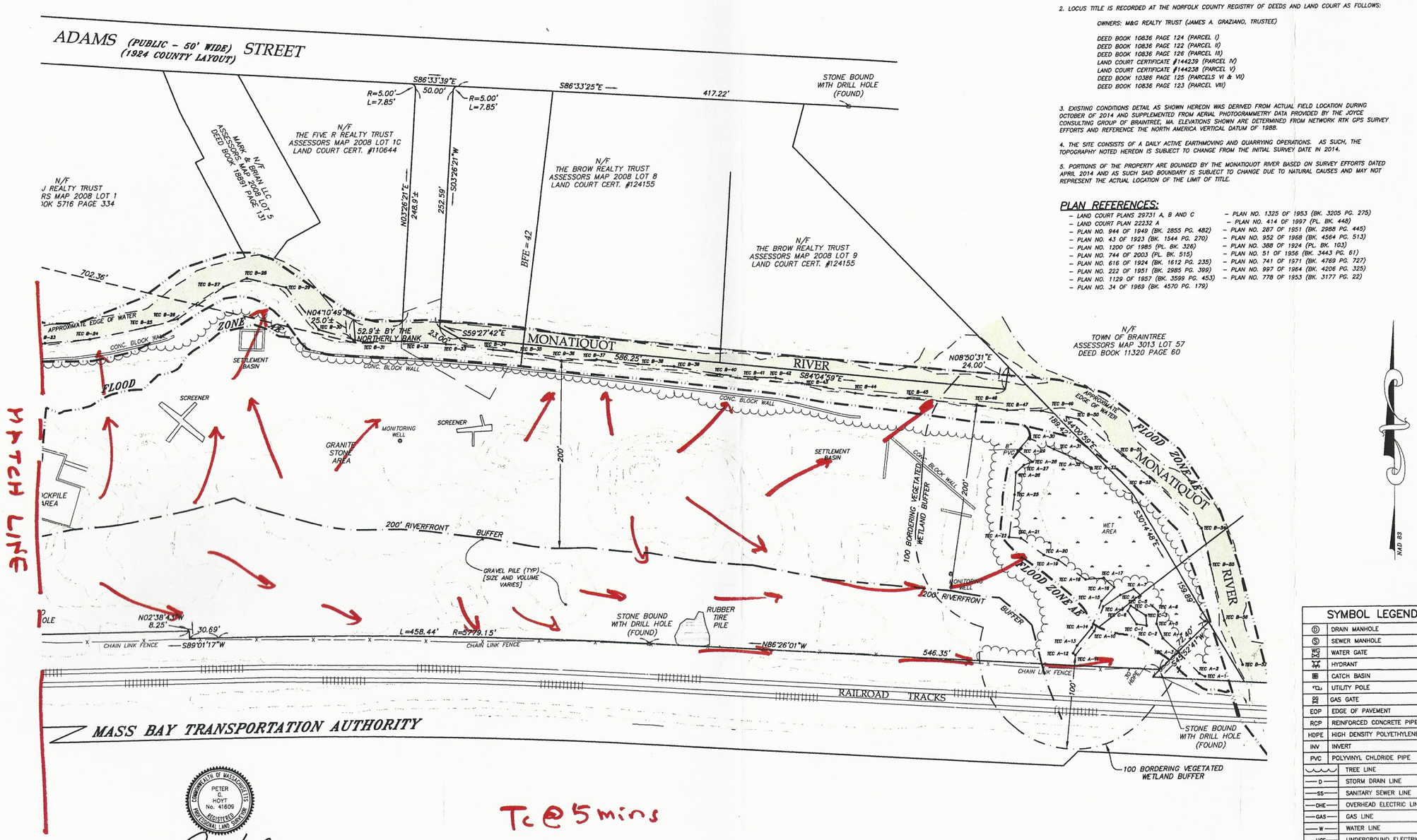
SHEET TITLE:
ANRAD PLAN

FILE NO.	PROJECT NO.	SCALE	APPROVED BY	CHECKED BY	DRAWN BY	DATE
		1"=50'	PGH	LGD/PGH	LGD	10-17-2016

HOYT LAND SURVEYING
1287 WASHINGTON STREET
WEYMOUTH, MASSACHUSETTS 02189
781-682-9192

1

SHEET 1 OF 2



GENERAL NOTES:

1. THE PROPERTY IS SHOWN ON THE TOWN OF BRAINTREE ASSESSORS MAP 2008 AS LOTS 3B, 4 AND 6 ASSESSORS MAP 3014 AS LOTS 1C AND 1D ASSESSORS MAP 3013 LOT 58 .

2. LOCUS TITLE IS RECORDED AT THE NORFOLK COUNTY REGISTRY OF DEEDS AND LAND COURT AS FOLLOWS:

OWNERS: M&G REALTY TRUST (JAMES A. GRAZIANO, TRUSTEE)

DEED BOOK 10836 PAGE 124 (PARCEL I)
DEED BOOK 10836 PAGE 122 (PARCEL II)
DEED BOOK 10836 PAGE 126 (PARCEL III)
LAND COURT CERTIFICATE #144239 (PARCEL IV)
LAND COURT CERTIFICATE #144238 (PARCEL V)
DEED BOOK 10386 PAGE 125 (PARCELS VI & VII)
DEED BOOK 10836 PAGE 123 (PARCEL VIII)

3. EXISTING CONDITIONS DETAIL AS SHOWN HEREON WAS DERIVED FROM ACTUAL FIELD LOCATION DURING OCTOBER OF 2014 AND SUPPLEMENTED FROM AERIAL PHOTOGRAMMETRY DATA PROVIDED BY THE JOYCE CONSULTING GROUP OF BRAINTREE, MA. ELEVATIONS SHOWN ARE DETERMINED FROM NETWORK RTK GPS SURVEY EFFORTS AND REFERENCE THE NORTH AMERICA VERTICAL DATUM OF 1988.

4. THE SITE CONSISTS OF A DAILY ACTIVE EARTHMOVING AND QUARRYING OPERATIONS. AS SUCH, THE TOPOGRAPHY NOTED HEREON IS SUBJECT TO CHANGE FROM THE INITIAL SURVEY DATE IN 2014.

5. PORTIONS OF THE PROPERTY ARE BOUNDED BY THE MONATIQUOT RIVER BASED ON SURVEY EFFORTS DATED APRIL 2014 AND AS SUCH SAID BOUNDARY IS SUBJECT TO CHANGE DUE TO NATURAL CAUSES AND MAY NOT REPRESENT THE ACTUAL LOCATION OF THE LIMIT OF TITLE.

PLAN REFERENCES:

- LAND COURT PLANS 29731 A, B AND C
- LAND COURT PLAN 22232 A
- PLAN NO. 944 OF 1949 (BK. 2855 PG. 482)
- PLAN NO. 43 OF 1923 (BK. 1544 PG. 270)
- PLAN NO. 1200 OF 1985 (PL. BK. 326)
- PLAN NO. 744 OF 2003 (PL. BK. 515)
- PLAN NO. 616 OF 1924 (BK. 1612 PG. 235)
- PLAN NO. 222 OF 1951 (BK. 2985 PG. 399)
- PLAN NO. 1129 OF 1957 (BK. 3599 PG. 453)
- PLAN NO. 34 OF 1969 (BK. 4570 PG. 179)
- PLAN NO. 1325 OF 1953 (BK. 3205 PG. 275)
- PLAN NO. 414 OF 1997 (PL. BK. 448)
- PLAN NO. 287 OF 1951 (BK. 2988 PG. 445)
- PLAN NO. 952 OF 1968 (BK. 4564 PG. 513)
- PLAN NO. 388 OF 1924 (PL. BK. 103)
- PLAN NO. 51 OF 1956 (BK. 3443 PG. 61)
- PLAN NO. 741 OF 1971 (BK. 4769 PG. 727)
- PLAN NO. 997 OF 1964 (BK. 4206 PG. 325)
- PLAN NO. 778 OF 1953 (BK. 3177 PG. 22)

SYMBOL LEGEND	
DM	DRAIN MANHOLE
SM	SEWER MANHOLE
WG	WATER GATE
HYD	HYDRANT
CB	CATCH BASIN
UP	UTILITY POLE
GG	GAS GATE
EOP	EDGE OF PAVEMENT
RCP	REINFORCED CONCRETE PIPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
INV	INVERT
PVC	POLYVINYL CHLORIDE PIPE
	TREE LINE
—D—	STORM DRAIN LINE
—SS—	SANITARY SEWER LINE
—OHE—	OVERHEAD ELECTRIC LINE
—GAS—	GAS LINE
—W—	WATER LINE
—UGE—	UNDERGROUND ELECTRIC LINE
—OHE—	OVERHEAD WIRES
CB/DW	DRYWELL CATCH BASIN

MATCH LINE

COMMONWEALTH OF MASSACHUSETTS PETER G. HOYT No. 41609 REGISTERED PROFESSIONAL LAND SURVEYOR

Tc @ 5 mins

EXIST WATERSHED MAP 2

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

NO	REVISIONS	DATE	MADE BY	CHECKED BY

PROJECT TITLE:
GRAZIANO LAND
ADAMS & ARNOLD STREETS
BRAINTREE, MASSACHUSETTS

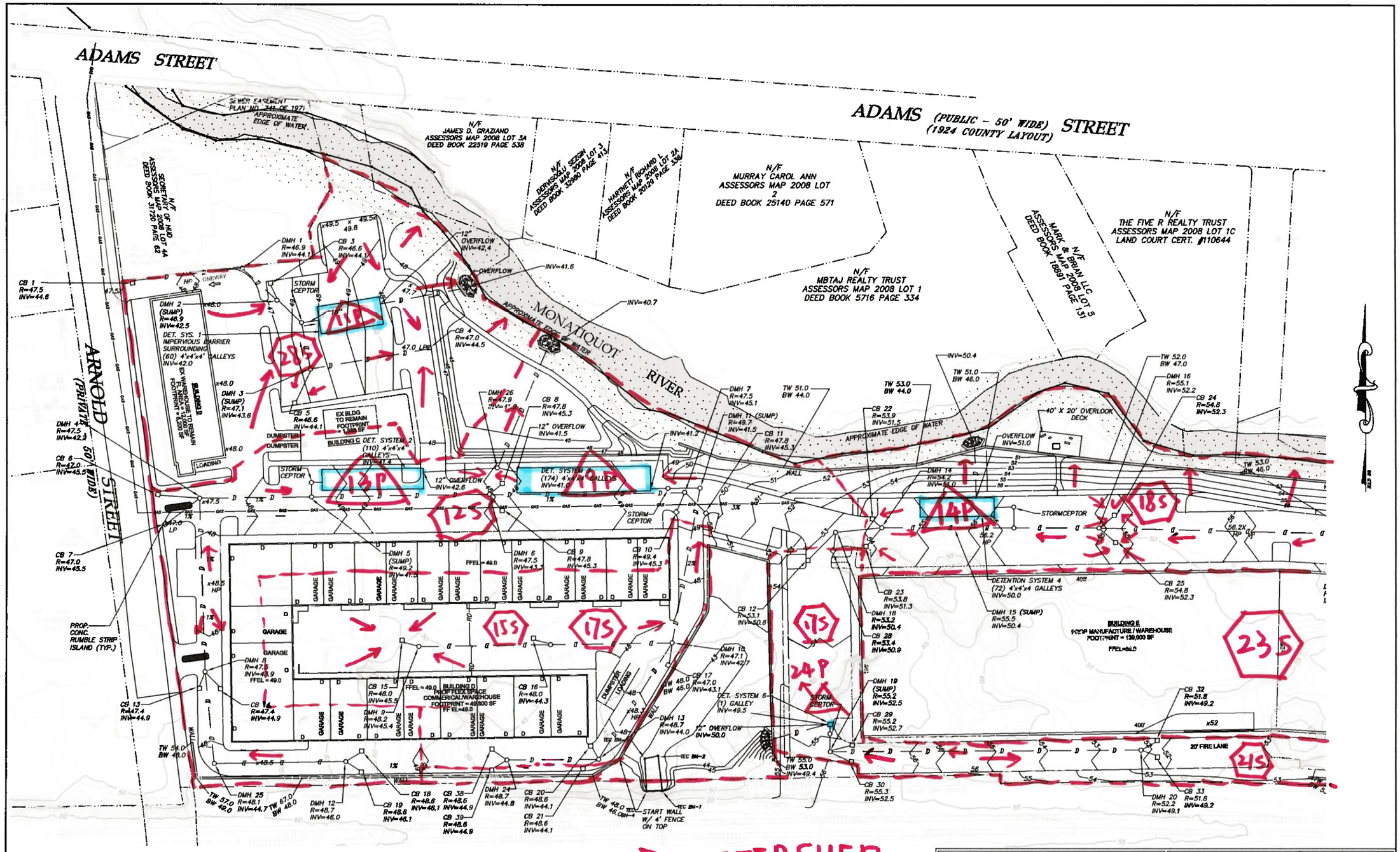
SHEET TITLE:
ANRAD PLAN

FILE NO.	PROJECT NO.	SCALE	APPROVED BY	CHECKED BY	DRAWN BY	DATE
		1"=50'	PGH	LGD/PGH	LGD	10-17-2016

HOYT LAND SURVEYING
1287 WASHINGTON STREET
WEYMOUTH, MASSACHUSETTS 02189
781-682-9192

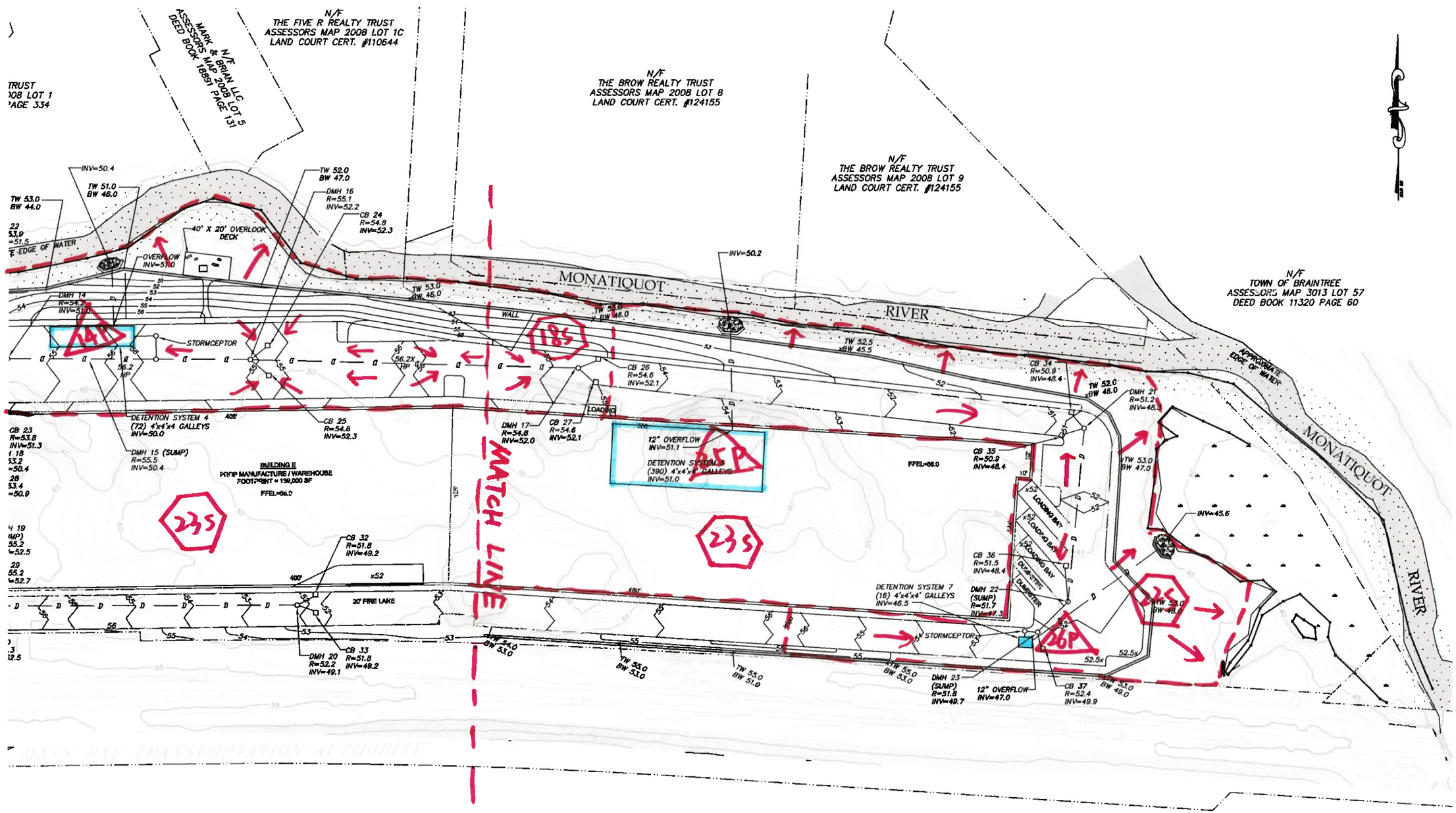
2

SHEET 2 OF 2

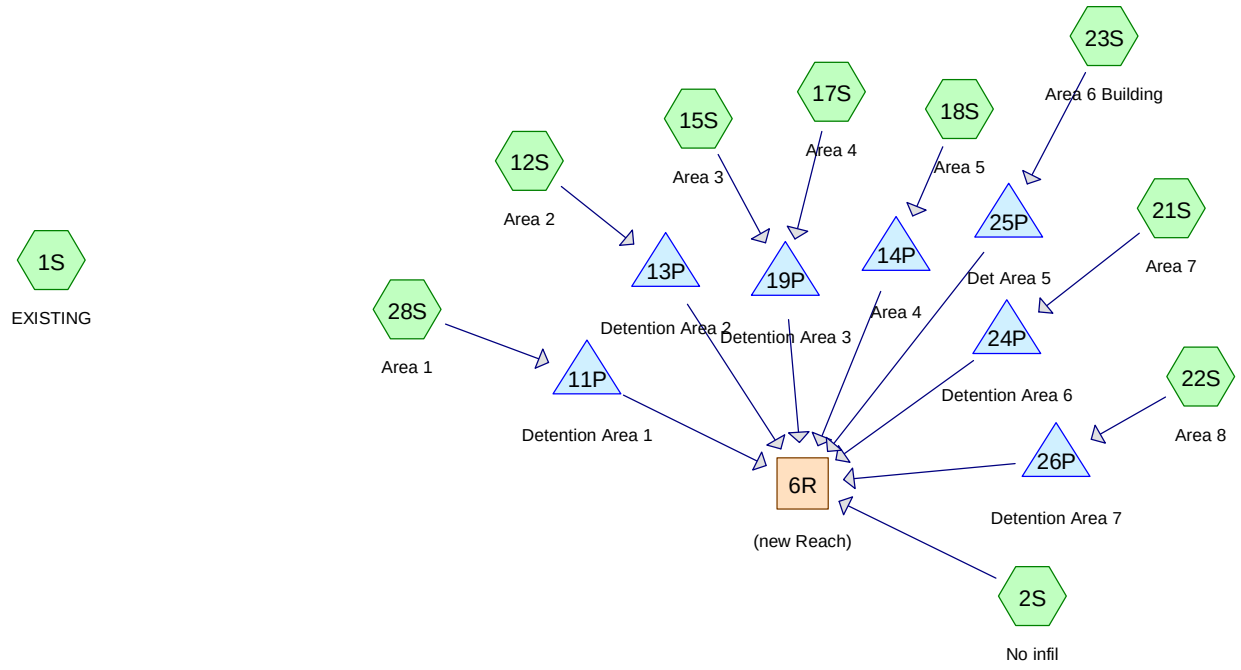


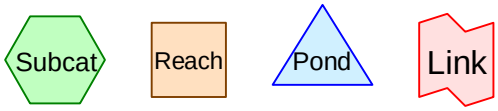
PROP. WATERSHED MAP 1

Grading and Drainage Plan 1 Riverside Business Park BRAINTREE, MASSACHUSETTS	HARDY + MAN DESIGN GROUP, PC CIVIL ENGINEERING & DEVELOPMENT CONSULTING	1285 WASHINGTON STREET WEYMOUTH, MA (781) 335-1464
DATE: MARCH 2, 2020	PREPARED FOR: Planning Board Permitting	SHEET C-4



Grading and Drainage Plan 2 Riverside Business Park BRAINTREE, MASSACHUSETTS	HARDY + MAN DESIGN GROUP, PC CIVIL ENGINEERING & LAND DEVELOPMENT CONSULTING	1285 WASHINGTON STREET WEYMOUTH, MA (781) 335-1464
DATE: MARCH 2, 2020	PREPARED FOR: Planning Board Permitting	SHEET C-5





Routing Diagram for Commercial Option 6
Prepared by HP, Printed 11/20/2019
HydroCAD® 10.00-25 s/n 10163 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.238	39	>75% Grass cover, Good, HSG A (2S, 12S, 17S, 18S, 22S, 28S)
4.334	98	Building (15S, 23S)
1.050	98	Existing Impervious (1S)
0.052	76	Gravel roads, HSG A (2S)
0.076	98	IMPERVIOUS (2S)
1.366	98	Roadway (21S, 22S)
0.089	98	Unconnected roofs, HSG A (28S)
12.715	81	Urban industrial, 72% imp, HSG A (1S)
0.932	98	Water Surface, 0% imp, HSG A (1S, 2S)
2.841	32	Woods/grass comb., Good, HSG A (1S, 2S)
3.348	98	driveway (12S, 17S, 18S)
0.188	98	ex bldg (2S)
1.091	98	pavement (28S)
31.321	**79**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
19.868	HSG A	1S, 2S, 12S, 17S, 18S, 22S, 28S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
11.454	Other	1S, 2S, 12S, 15S, 17S, 18S, 21S, 22S, 23S, 28S
31.321		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
3.238	0.000	0.000	0.000	0.000	3.238	>75% Grass cover, Good	2S, 12S, 17S, 18S, 22S, 28S
0.000	0.000	0.000	0.000	4.334	4.334	Building	15S, 23S
0.000	0.000	0.000	0.000	1.050	1.050	Existing Impervious	1S
0.052	0.000	0.000	0.000	0.000	0.052	Gravel roads	2S
0.000	0.000	0.000	0.000	0.076	0.076	IMPERVIOUS	2S
0.000	0.000	0.000	0.000	1.366	1.366	Roadway	21S, 22S
0.089	0.000	0.000	0.000	0.000	0.089	Unconnected roofs	28S
12.715	0.000	0.000	0.000	0.000	12.715	Urban industrial, 72% imp	1S
0.932	0.000	0.000	0.000	0.000	0.932	Water Surface, 0% imp	1S, 2S
2.841	0.000	0.000	0.000	0.000	2.841	Woods/grass comb., Good	1S, 2S
0.000	0.000	0.000	0.000	3.348	3.348	driveway	12S, 17S, 18S
0.000	0.000	0.000	0.000	0.188	0.188	ex bldg	2S
0.000	0.000	0.000	0.000	1.091	1.091	pavement	28S
19.868	**0.000**	**0.000**	**0.000**	**11.454**	**31.321**	**TOTAL AREA**	

Time span=0.00-76.00 hrs, dt=0.01 hrs, 7601 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: EXISTING Runoff Area=682,179 sf 65.16% Impervious Runoff Depth=1.42"
Tc=5.0 min CN=78 Runoff=26.67 cfs 1.856 af

Subcatchment 2S: No infil Runoff Area=209,877 sf 5.48% Impervious Runoff Depth=0.09"
Tc=5.0 min CN=46 Runoff=0.06 cfs 0.035 af

Subcatchment 12S: Area 2 Runoff Area=62,880 sf 93.39% Impervious Runoff Depth=2.74"
Tc=5.0 min CN=94 Runoff=4.58 cfs 0.329 af

Subcatchment 15S: Area 3 Runoff Area=49,802 sf 100.00% Impervious Runoff Depth=3.17"
Tc=5.0 min CN=98 Runoff=3.91 cfs 0.302 af

Subcatchment 17S: Area 4 Runoff Area=38,330 sf 96.89% Impervious Runoff Depth=2.95"
Tc=5.0 min CN=96 Runoff=2.92 cfs 0.216 af

Subcatchment 18S: Area 5 Runoff Area=52,288 sf 95.56% Impervious Runoff Depth=2.84"
Tc=5.0 min CN=95 Runoff=3.90 cfs 0.284 af

Subcatchment 21S: Area 7 Runoff Area=23,504 sf 100.00% Impervious Runoff Depth=3.17"
Tc=5.0 min CN=98 Runoff=1.85 cfs 0.142 af

Subcatchment 22S: Area 8 Runoff Area=43,400 sf 82.91% Impervious Runoff Depth=2.18"
Tc=5.0 min CN=88 Runoff=2.62 cfs 0.181 af

Subcatchment 23S: Area 6 Building Runoff Area=139,000 sf 100.00% Impervious Runoff Depth=3.17"
Tc=5.0 min CN=98 Runoff=10.93 cfs 0.842 af

Subcatchment 28S: Area 1 Runoff Area=63,098 sf 81.50% Impervious Runoff Depth=2.09"
Tc=5.0 min CN=87 Runoff=3.68 cfs 0.253 af

Reach 6R: (new Reach) Inflow=19.13 cfs 1.390 af
Outflow=19.13 cfs 1.390 af

Pond 11P: Detention Area 1 Peak Elev=43.93' Storage=0.054 af Inflow=3.68 cfs 0.253 af
Discarded=0.17 cfs 0.141 af Primary=2.49 cfs 0.112 af Outflow=2.66 cfs 0.253 af

Pond 13P: Detention Area 2 Peak Elev=43.50' Storage=0.072 af Inflow=4.58 cfs 0.329 af
Discarded=0.27 cfs 0.193 af Primary=2.92 cfs 0.136 af Outflow=3.19 cfs 0.329 af

Pond 14P: Area 4 Peak Elev=52.13' Storage=0.048 af Inflow=3.90 cfs 0.284 af
Discarded=0.09 cfs 0.119 af Primary=3.00 cfs 0.165 af Outflow=3.09 cfs 0.284 af

Pond 19P: Detention Area 3 Peak Elev=42.88' Storage=4,448 cf Inflow=6.83 cfs 0.518 af
Discarded=0.49 cfs 0.294 af Primary=3.55 cfs 0.224 af Outflow=4.04 cfs 0.518 af

Pond 24P: Detention Area 6 Peak Elev=51.75' Storage=30 cf Inflow=1.85 cfs 0.142 af
Discarded=0.00 cfs 0.003 af Primary=1.85 cfs 0.140 af Outflow=1.85 cfs 0.142 af

Pond 25P: Det Area 5 Peak Elev=52.65' Storage=8,735 cf Inflow=10.93 cfs 0.842 af
Discarded=0.44 cfs 0.434 af Primary=3.87 cfs 0.408 af Outflow=4.31 cfs 0.842 af

Pond 26P: Detention Area 7 Peak Elev=47.97' Storage=0.003 af Inflow=2.62 cfs 0.181 af
Discarded=0.01 cfs 0.010 af Primary=2.60 cfs 0.171 af Outflow=2.61 cfs 0.181 af

Total Runoff Area = 31.321 ac Runoff Volume = 4.440 af Average Runoff Depth = 1.70"
33.92% Pervious = 10.624 ac 66.08% Impervious = 20.697 ac

Summary for Subcatchment 1S: EXISTING

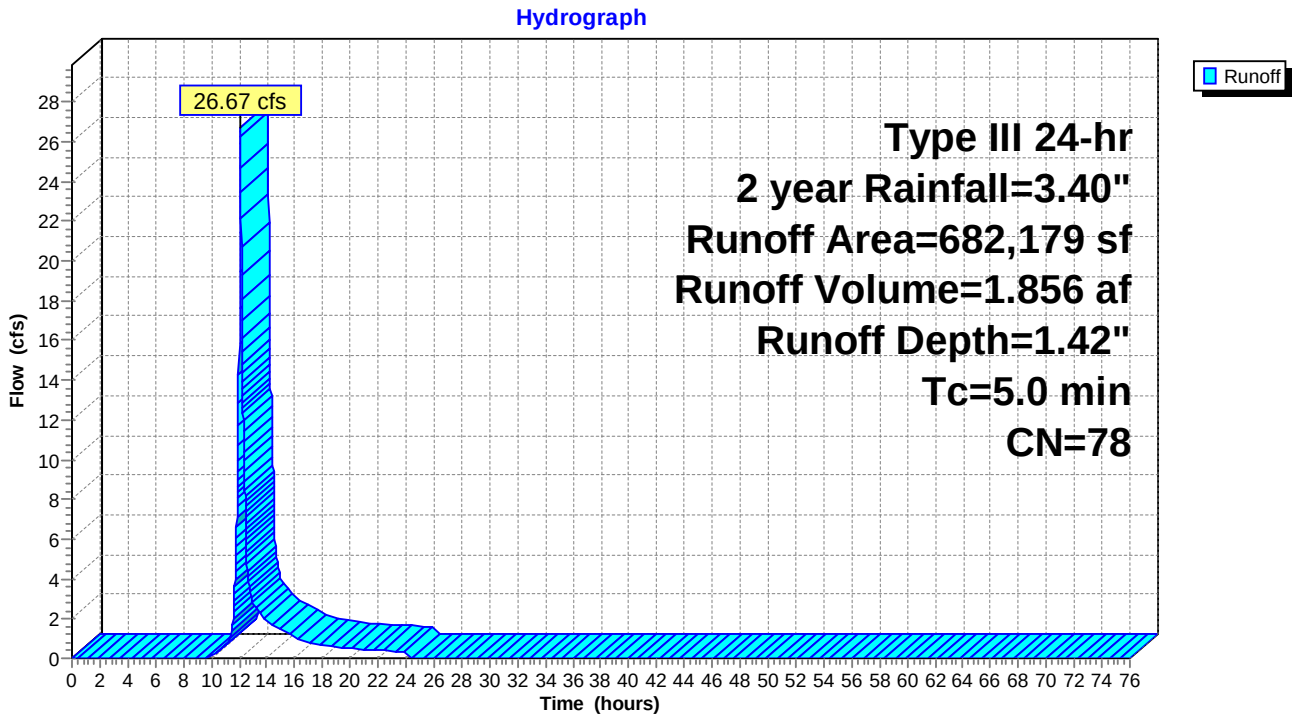
Runoff = 26.67 cfs @ 12.08 hrs, Volume= 1.856 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=3.40"

	Area (sf)	CN	Description
*	45,757	98	Existing Impervious
	553,853	81	Urban industrial, 72% imp, HSG A
	62,264	32	Woods/grass comb., Good, HSG A
	20,305	98	Water Surface, 0% imp, HSG A
	682,179	78	Weighted Average
	237,648		34.84% Pervious Area
	444,531		65.16% Impervious Area

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

Subcatchment 1S: EXISTING



Hydrograph for Subcatchment 1S: EXISTING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	3.40	1.42	0.00
1.00	0.03	0.00	0.00	54.00	3.40	1.42	0.00
2.00	0.07	0.00	0.00	55.00	3.40	1.42	0.00
3.00	0.10	0.00	0.00	56.00	3.40	1.42	0.00
4.00	0.15	0.00	0.00	57.00	3.40	1.42	0.00
5.00	0.19	0.00	0.00	58.00	3.40	1.42	0.00
6.00	0.24	0.00	0.00	59.00	3.40	1.42	0.00
7.00	0.31	0.00	0.00	60.00	3.40	1.42	0.00
8.00	0.39	0.00	0.00	61.00	3.40	1.42	0.00
9.00	0.50	0.00	0.00	62.00	3.40	1.42	0.00
10.00	0.64	0.00	0.12	63.00	3.40	1.42	0.00
11.00	0.85	0.03	0.63	64.00	3.40	1.42	0.00
12.00	1.70	0.33	**15.89**	65.00	3.40	1.42	0.00
13.00	2.55	0.82	**2.81**	66.00	3.40	1.42	0.00
14.00	2.76	0.96	1.86	67.00	3.40	1.42	0.00
15.00	2.90	1.06	1.44	68.00	3.40	1.42	0.00
16.00	3.01	1.14	1.03	69.00	3.40	1.42	0.00
17.00	3.09	1.20	0.83	70.00	3.40	1.42	0.00
18.00	3.16	1.24	0.64	71.00	3.40	1.42	0.00
19.00	3.21	1.28	0.58	72.00	3.40	1.42	0.00
20.00	3.25	1.31	0.52	73.00	3.40	1.42	0.00
21.00	3.30	1.34	0.48	74.00	3.40	1.42	0.00
22.00	3.33	1.37	0.43	75.00	3.40	1.42	0.00
23.00	3.37	1.40	0.39	76.00	3.40	1.42	0.00
24.00	**3.40**	**1.42**	0.35				
25.00	3.40	1.42	0.00				
26.00	3.40	1.42	0.00				
27.00	3.40	1.42	0.00				
28.00	3.40	1.42	0.00				
29.00	3.40	1.42	0.00				
30.00	3.40	1.42	0.00				
31.00	3.40	1.42	0.00				
32.00	3.40	1.42	0.00				
33.00	3.40	1.42	0.00				
34.00	3.40	1.42	0.00				
35.00	3.40	1.42	0.00				
36.00	3.40	1.42	0.00				
37.00	3.40	1.42	0.00				
38.00	3.40	1.42	0.00				
39.00	3.40	1.42	0.00				
40.00	3.40	1.42	0.00				
41.00	3.40	1.42	0.00				
42.00	3.40	1.42	0.00				
43.00	3.40	1.42	0.00				
44.00	3.40	1.42	0.00				
45.00	3.40	1.42	0.00				
46.00	3.40	1.42	0.00				
47.00	3.40	1.42	0.00				
48.00	3.40	1.42	0.00				
49.00	3.40	1.42	0.00				
50.00	3.40	1.42	0.00				
51.00	3.40	1.42	0.00				
52.00	3.40	1.42	0.00				

Summary for Subcatchment 2S: No infil

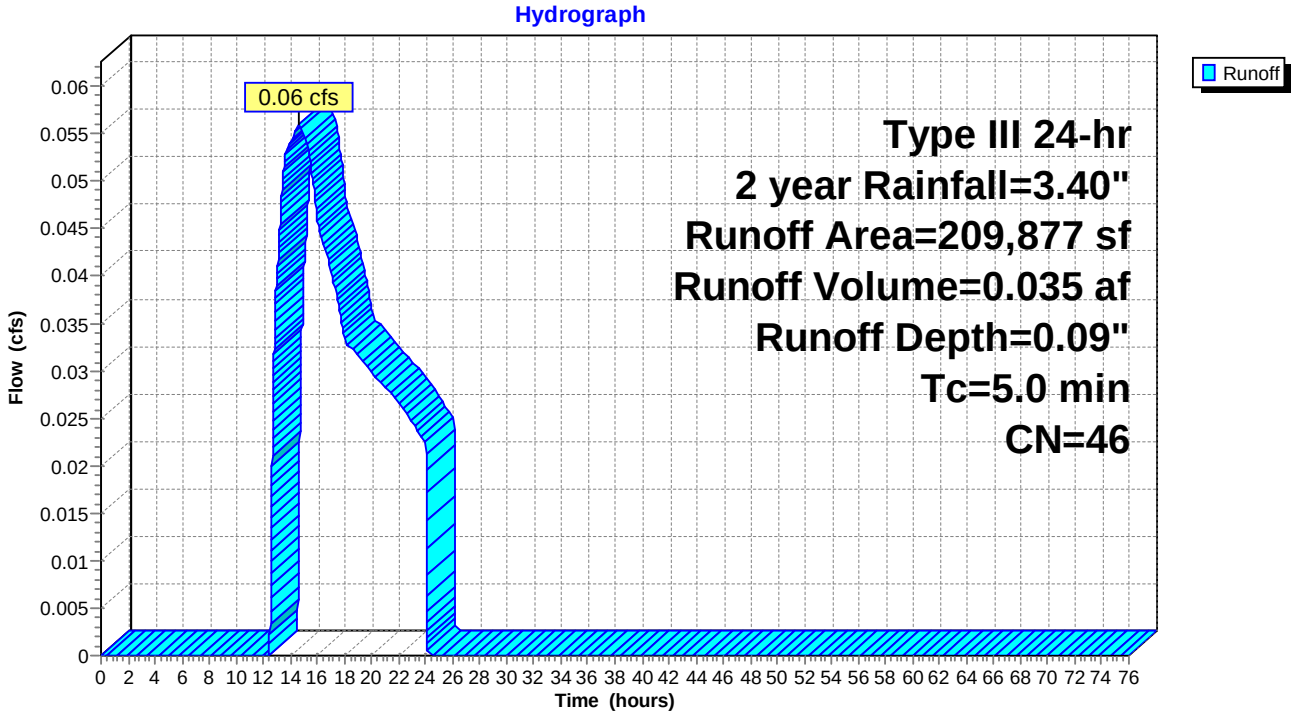
Runoff = 0.06 cfs @ 14.65 hrs, Volume= 0.035 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=3.40"

	Area (sf)	CN	Description
*	8,203	98	ex bldg
	114,294	39	>75% Grass cover, Good, HSG A
*	3,305	98	IMPERVIOUS
	20,305	98	Water Surface, 0% imp, HSG A
	61,509	32	Woods/grass comb., Good, HSG A
	2,261	76	Gravel roads, HSG A
	209,877	46	Weighted Average
	198,369		94.52% Pervious Area
	11,508		5.48% Impervious Area

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

Subcatchment 2S: No infil



Hydrograph for Subcatchment 2S: No infil

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	3.40	0.09	0.00
1.00	0.03	0.00	0.00	54.00	3.40	0.09	0.00
2.00	0.07	0.00	0.00	55.00	3.40	0.09	0.00
3.00	0.10	0.00	0.00	56.00	3.40	0.09	0.00
4.00	0.15	0.00	0.00	57.00	3.40	0.09	0.00
5.00	0.19	0.00	0.00	58.00	3.40	0.09	0.00
6.00	0.24	0.00	0.00	59.00	3.40	0.09	0.00
7.00	0.31	0.00	0.00	60.00	3.40	0.09	0.00
8.00	0.39	0.00	0.00	61.00	3.40	0.09	0.00
9.00	0.50	0.00	0.00	62.00	3.40	0.09	0.00
10.00	0.64	0.00	0.00	63.00	3.40	0.09	0.00
11.00	0.85	0.00	0.00	64.00	3.40	0.09	0.00
12.00	1.70	0.00	0.00	65.00	3.40	0.09	0.00
13.00	2.55	0.00	0.04	66.00	3.40	0.09	0.00
14.00	2.76	0.01	**0.05**	67.00	3.40	0.09	0.00
15.00	2.90	0.03	**0.06**	68.00	3.40	0.09	0.00
16.00	3.01	0.04	0.05	69.00	3.40	0.09	0.00
17.00	3.09	0.04	0.04	70.00	3.40	0.09	0.00
18.00	3.16	0.05	0.03	71.00	3.40	0.09	0.00
19.00	3.21	0.06	0.03	72.00	3.40	0.09	0.00
20.00	3.25	0.06	0.03	73.00	3.40	0.09	0.00
21.00	3.30	0.07	0.03	74.00	3.40	0.09	0.00
22.00	3.33	0.08	0.03	75.00	3.40	0.09	0.00
23.00	3.37	0.08	0.02	76.00	3.40	0.09	0.00
24.00	**3.40**	**0.09**	0.02				
25.00	3.40	0.09	0.00				
26.00	3.40	0.09	0.00				
27.00	3.40	0.09	0.00				
28.00	3.40	0.09	0.00				
29.00	3.40	0.09	0.00				
30.00	3.40	0.09	0.00				
31.00	3.40	0.09	0.00				
32.00	3.40	0.09	0.00				
33.00	3.40	0.09	0.00				
34.00	3.40	0.09	0.00				
35.00	3.40	0.09	0.00				
36.00	3.40	0.09	0.00				
37.00	3.40	0.09	0.00				
38.00	3.40	0.09	0.00				
39.00	3.40	0.09	0.00				
40.00	3.40	0.09	0.00				
41.00	3.40	0.09	0.00				
42.00	3.40	0.09	0.00				
43.00	3.40	0.09	0.00				
44.00	3.40	0.09	0.00				
45.00	3.40	0.09	0.00				
46.00	3.40	0.09	0.00				
47.00	3.40	0.09	0.00				
48.00	3.40	0.09	0.00				
49.00	3.40	0.09	0.00				
50.00	3.40	0.09	0.00				
51.00	3.40	0.09	0.00				
52.00	3.40	0.09	0.00				

Summary for Subcatchment 12S: Area 2

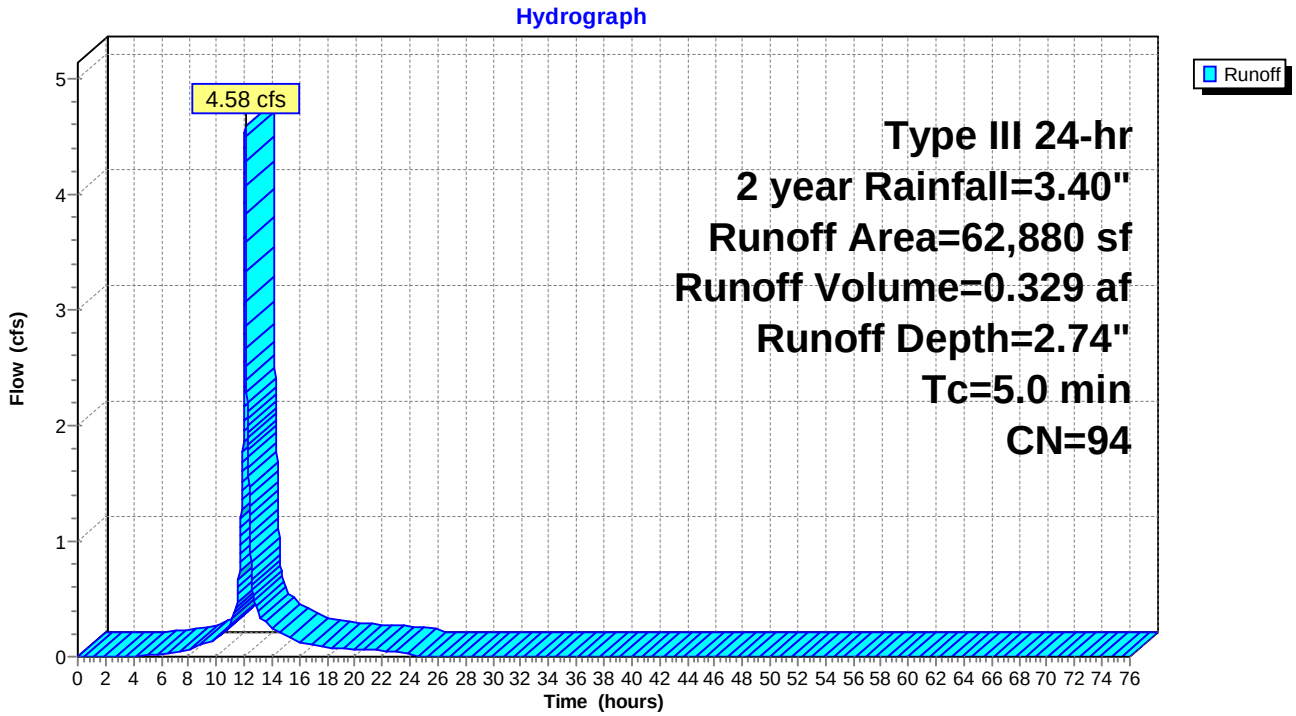
Runoff = 4.58 cfs @ 12.07 hrs, Volume= 0.329 af, Depth= 2.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=3.40"

	Area (sf)	CN	Description
*	58,726	98	driveway
	4,154	39	>75% Grass cover, Good, HSG A
	62,880	94	Weighted Average
	4,154		6.61% Pervious Area
	58,726		93.39% Impervious Area

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

Subcatchment 12S: Area 2



Hydrograph for Subcatchment 12S: Area 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	53.00	3.40	2.74	0.00
1.00	0.03	0.00	0.00	54.00	3.40	2.74	0.00
2.00	0.07	0.00	0.00	55.00	3.40	2.74	0.00
3.00	0.10	0.00	0.00	56.00	3.40	2.74	0.00
4.00	0.15	0.00	0.00	57.00	3.40	2.74	0.00
5.00	0.19	0.01	0.01	58.00	3.40	2.74	0.00
6.00	0.24	0.02	0.02	59.00	3.40	2.74	0.00
7.00	0.31	0.04	0.04	60.00	3.40	2.74	0.00
8.00	0.39	0.08	0.06	61.00	3.40	2.74	0.00
9.00	0.50	0.13	0.11	62.00	3.40	2.74	0.00
10.00	0.64	0.23	0.16	63.00	3.40	2.74	0.00
11.00	0.85	0.38	0.27	64.00	3.40	2.74	0.00
12.00	1.70	1.12	**3.04**	65.00	3.40	2.74	0.00
13.00	2.55	1.92	**0.38**	66.00	3.40	2.74	0.00
14.00	2.76	2.12	0.24	67.00	3.40	2.74	0.00
15.00	2.90	2.26	0.18	68.00	3.40	2.74	0.00
16.00	3.01	2.36	0.13	69.00	3.40	2.74	0.00
17.00	3.09	2.44	0.10	70.00	3.40	2.74	0.00
18.00	3.16	2.50	0.08	71.00	3.40	2.74	0.00
19.00	3.21	2.55	0.07	72.00	3.40	2.74	0.00
20.00	3.25	2.60	0.06	73.00	3.40	2.74	0.00
21.00	3.30	2.64	0.06	74.00	3.40	2.74	0.00
22.00	3.33	2.67	0.05	75.00	3.40	2.74	0.00
23.00	3.37	2.71	0.05	76.00	3.40	2.74	0.00
24.00	**3.40**	**2.74**	0.04				
25.00	3.40	2.74	0.00				
26.00	3.40	2.74	0.00				
27.00	3.40	2.74	0.00				
28.00	3.40	2.74	0.00				
29.00	3.40	2.74	0.00				
30.00	3.40	2.74	0.00				
31.00	3.40	2.74	0.00				
32.00	3.40	2.74	0.00				
33.00	3.40	2.74	0.00				
34.00	3.40	2.74	0.00				
35.00	3.40	2.74	0.00				
36.00	3.40	2.74	0.00				
37.00	3.40	2.74	0.00				
38.00	3.40	2.74	0.00				
39.00	3.40	2.74	0.00				
40.00	3.40	2.74	0.00				
41.00	3.40	2.74	0.00				
42.00	3.40	2.74	0.00				
43.00	3.40	2.74	0.00				
44.00	3.40	2.74	0.00				
45.00	3.40	2.74	0.00				
46.00	3.40	2.74	0.00				
47.00	3.40	2.74	0.00				
48.00	3.40	2.74	0.00				
49.00	3.40	2.74	0.00				
50.00	3.40	2.74	0.00				
51.00	3.40	2.74	0.00				
52.00	3.40	2.74	0.00				

Summary for Subcatchment 15S: Area 3

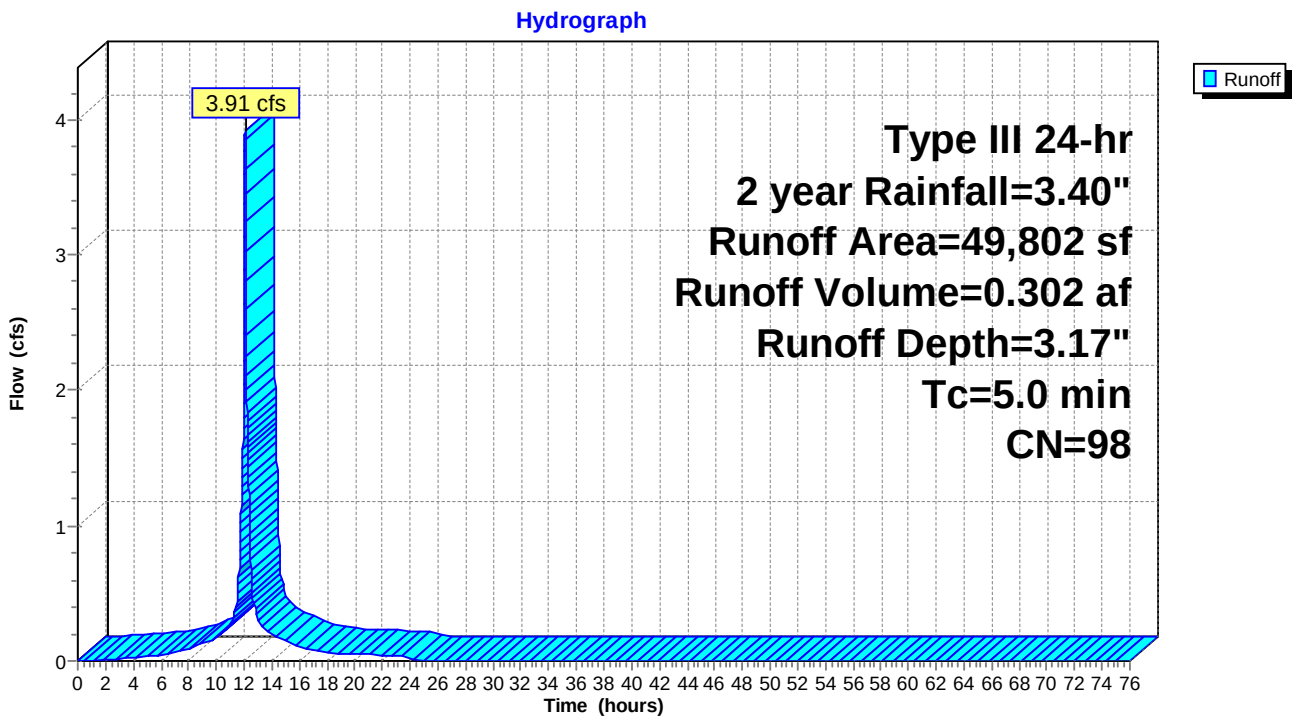
Runoff = 3.91 cfs @ 12.07 hrs, Volume= 0.302 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=3.40"

	Area (sf)	CN	Description
*	49,802	98	Building
	49,802		100.00% Impervious Area

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

Subcatchment 15S: Area 3



Hydrograph for Subcatchment 15S: Area 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	3.40	3.17	0.00
1.00	0.03	0.00	0.00	54.00	3.40	3.17	0.00
2.00	0.07	0.00	0.01	55.00	3.40	3.17	0.00
3.00	0.10	0.02	0.02	56.00	3.40	3.17	0.00
4.00	0.15	0.04	0.03	57.00	3.40	3.17	0.00
5.00	0.19	0.06	0.04	58.00	3.40	3.17	0.00
6.00	0.24	0.10	0.05	59.00	3.40	3.17	0.00
7.00	0.31	0.15	0.07	60.00	3.40	3.17	0.00
8.00	0.39	0.22	0.09	61.00	3.40	3.17	0.00
9.00	0.50	0.31	0.13	62.00	3.40	3.17	0.00
10.00	0.64	0.45	0.18	63.00	3.40	3.17	0.00
11.00	0.85	0.65	0.27	64.00	3.40	3.17	0.00
12.00	1.70	1.48	**2.64**	65.00	3.40	3.17	0.00
13.00	2.55	2.32	**0.31**	66.00	3.40	3.17	0.00
14.00	2.76	2.53	0.20	67.00	3.40	3.17	0.00
15.00	2.90	2.67	0.15	68.00	3.40	3.17	0.00
16.00	3.01	2.78	0.10	69.00	3.40	3.17	0.00
17.00	3.09	2.86	0.08	70.00	3.40	3.17	0.00
18.00	3.16	2.92	0.06	71.00	3.40	3.17	0.00
19.00	3.21	2.97	0.06	72.00	3.40	3.17	0.00
20.00	3.25	3.02	0.05	73.00	3.40	3.17	0.00
21.00	3.30	3.06	0.05	74.00	3.40	3.17	0.00
22.00	3.33	3.10	0.04	75.00	3.40	3.17	0.00
23.00	3.37	3.14	0.04	76.00	3.40	3.17	0.00
24.00	**3.40**	**3.17**	0.03				
25.00	3.40	3.17	0.00				
26.00	3.40	3.17	0.00				
27.00	3.40	3.17	0.00				
28.00	3.40	3.17	0.00				
29.00	3.40	3.17	0.00				
30.00	3.40	3.17	0.00				
31.00	3.40	3.17	0.00				
32.00	3.40	3.17	0.00				
33.00	3.40	3.17	0.00				
34.00	3.40	3.17	0.00				
35.00	3.40	3.17	0.00				
36.00	3.40	3.17	0.00				
37.00	3.40	3.17	0.00				
38.00	3.40	3.17	0.00				
39.00	3.40	3.17	0.00				
40.00	3.40	3.17	0.00				
41.00	3.40	3.17	0.00				
42.00	3.40	3.17	0.00				
43.00	3.40	3.17	0.00				
44.00	3.40	3.17	0.00				
45.00	3.40	3.17	0.00				
46.00	3.40	3.17	0.00				
47.00	3.40	3.17	0.00				
48.00	3.40	3.17	0.00				
49.00	3.40	3.17	0.00				
50.00	3.40	3.17	0.00				
51.00	3.40	3.17	0.00				
52.00	3.40	3.17	0.00				

Summary for Subcatchment 17S: Area 4

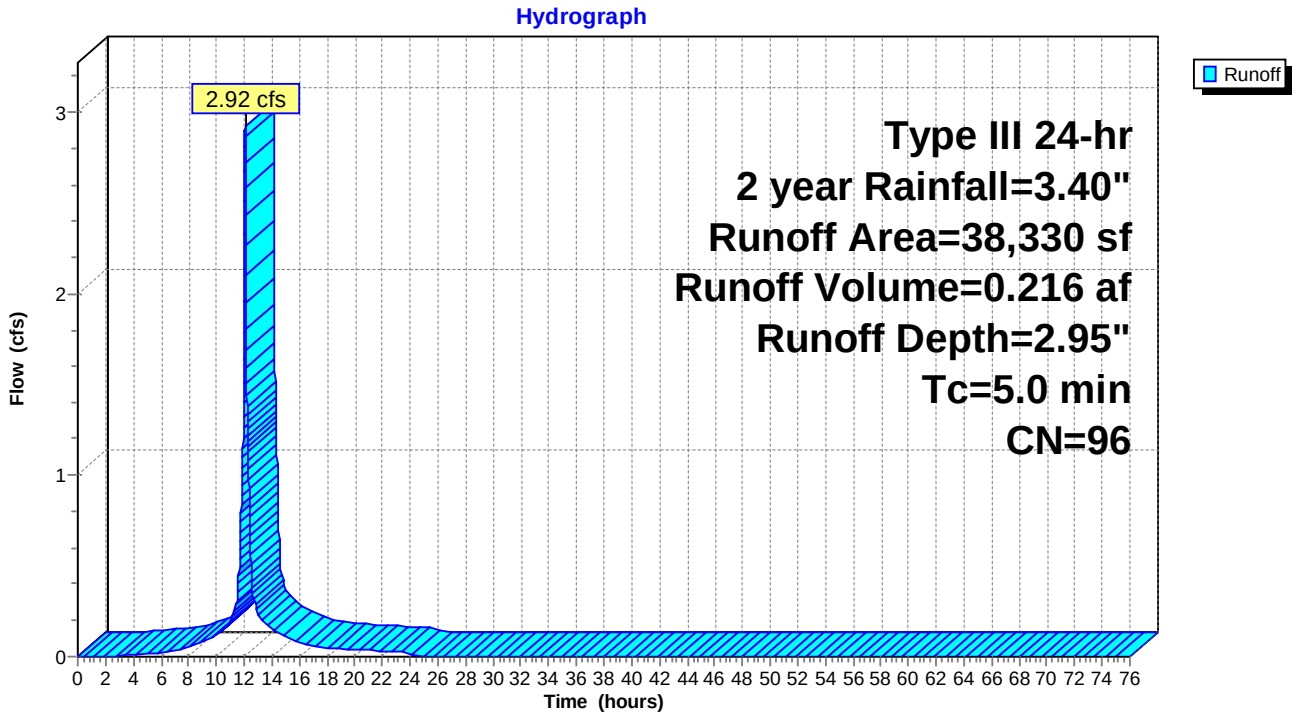
Runoff = 2.92 cfs @ 12.07 hrs, Volume= 0.216 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=3.40"

	Area (sf)	CN	Description
*	37,139	98	driveway
	1,191	39	>75% Grass cover, Good, HSG A
	38,330	96	Weighted Average
	1,191		3.11% Pervious Area
	37,139		96.89% Impervious Area

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

Subcatchment 17S: Area 4



Hydrograph for Subcatchment 17S: Area 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	53.00	3.40	2.95	0.00
1.00	0.03	0.00	0.00	54.00	3.40	2.95	0.00
2.00	0.07	0.00	0.00	55.00	3.40	2.95	0.00
3.00	0.10	0.00	0.00	56.00	3.40	2.95	0.00
4.00	0.15	0.01	0.01	57.00	3.40	2.95	0.00
5.00	0.19	0.02	0.02	58.00	3.40	2.95	0.00
6.00	0.24	0.05	0.02	59.00	3.40	2.95	0.00
7.00	0.31	0.08	0.04	60.00	3.40	2.95	0.00
8.00	0.39	0.13	0.05	61.00	3.40	2.95	0.00
9.00	0.50	0.21	0.08	62.00	3.40	2.95	0.00
10.00	0.64	0.32	0.12	63.00	3.40	2.95	0.00
11.00	0.85	0.50	0.19	64.00	3.40	2.95	0.00
12.00	1.70	1.29	**1.96**	65.00	3.40	2.95	0.00
13.00	2.55	2.11	**0.24**	66.00	3.40	2.95	0.00
14.00	2.76	2.31	0.15	67.00	3.40	2.95	0.00
15.00	2.90	2.46	0.11	68.00	3.40	2.95	0.00
16.00	3.01	2.56	0.08	69.00	3.40	2.95	0.00
17.00	3.09	2.64	0.06	70.00	3.40	2.95	0.00
18.00	3.16	2.70	0.05	71.00	3.40	2.95	0.00
19.00	3.21	2.76	0.04	72.00	3.40	2.95	0.00
20.00	3.25	2.80	0.04	73.00	3.40	2.95	0.00
21.00	3.30	2.84	0.04	74.00	3.40	2.95	0.00
22.00	3.33	2.88	0.03	75.00	3.40	2.95	0.00
23.00	3.37	2.92	0.03	76.00	3.40	2.95	0.00
24.00	**3.40**	**2.95**	0.03				
25.00	3.40	2.95	0.00				
26.00	3.40	2.95	0.00				
27.00	3.40	2.95	0.00				
28.00	3.40	2.95	0.00				
29.00	3.40	2.95	0.00				
30.00	3.40	2.95	0.00				
31.00	3.40	2.95	0.00				
32.00	3.40	2.95	0.00				
33.00	3.40	2.95	0.00				
34.00	3.40	2.95	0.00				
35.00	3.40	2.95	0.00				
36.00	3.40	2.95	0.00				
37.00	3.40	2.95	0.00				
38.00	3.40	2.95	0.00				
39.00	3.40	2.95	0.00				
40.00	3.40	2.95	0.00				
41.00	3.40	2.95	0.00				
42.00	3.40	2.95	0.00				
43.00	3.40	2.95	0.00				
44.00	3.40	2.95	0.00				
45.00	3.40	2.95	0.00				
46.00	3.40	2.95	0.00				
47.00	3.40	2.95	0.00				
48.00	3.40	2.95	0.00				
49.00	3.40	2.95	0.00				
50.00	3.40	2.95	0.00				
51.00	3.40	2.95	0.00				
52.00	3.40	2.95	0.00				

Summary for Subcatchment 18S: Area 5

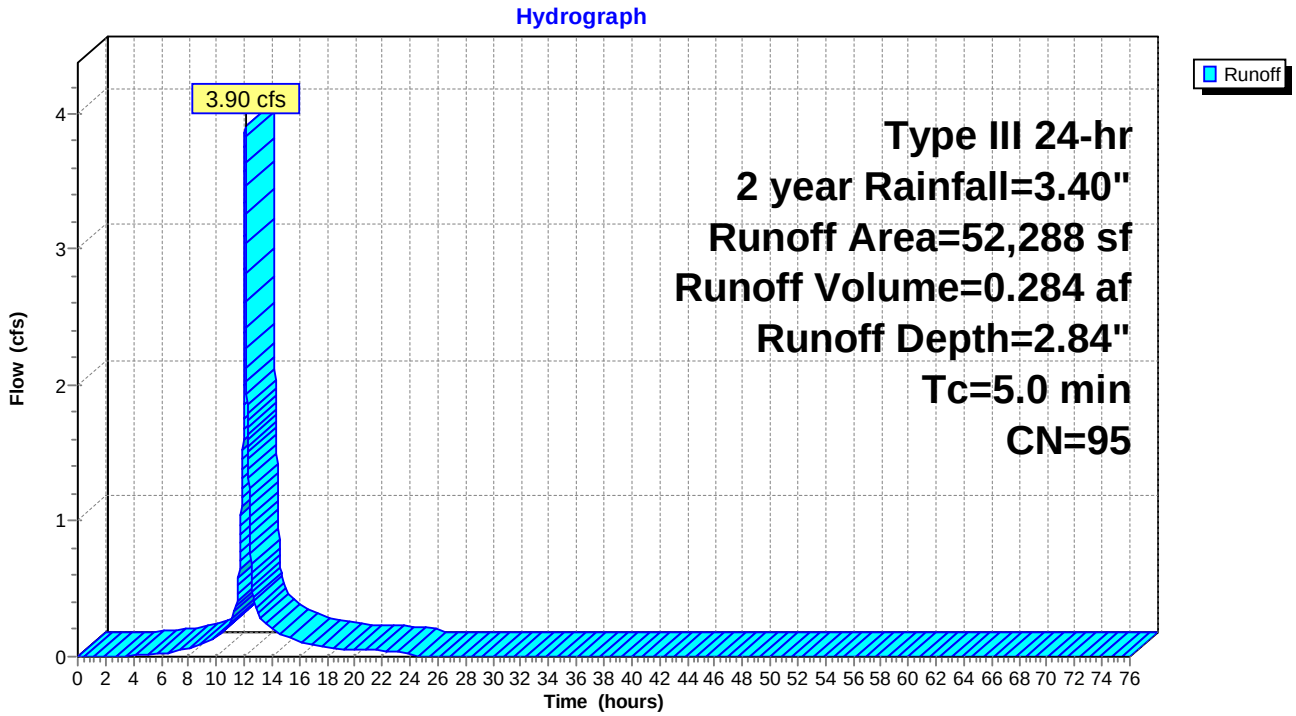
Runoff = 3.90 cfs @ 12.07 hrs, Volume= 0.284 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=3.40"

	Area (sf)	CN	Description
*	49,966	98	driveway
	2,322	39	>75% Grass cover, Good, HSG A
	52,288	95	Weighted Average
	2,322		4.44% Pervious Area
	49,966		95.56% Impervious Area

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

Subcatchment 18S: Area 5



Hydrograph for Subcatchment 18S: Area 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	53.00	3.40	2.84	0.00
1.00	0.03	0.00	0.00	54.00	3.40	2.84	0.00
2.00	0.07	0.00	0.00	55.00	3.40	2.84	0.00
3.00	0.10	0.00	0.00	56.00	3.40	2.84	0.00
4.00	0.15	0.00	0.01	57.00	3.40	2.84	0.00
5.00	0.19	0.01	0.02	58.00	3.40	2.84	0.00
6.00	0.24	0.03	0.02	59.00	3.40	2.84	0.00
7.00	0.31	0.06	0.04	60.00	3.40	2.84	0.00
8.00	0.39	0.10	0.06	61.00	3.40	2.84	0.00
9.00	0.50	0.17	0.10	62.00	3.40	2.84	0.00
10.00	0.64	0.27	0.15	63.00	3.40	2.84	0.00
11.00	0.85	0.44	0.24	64.00	3.40	2.84	0.00
12.00	1.70	1.20	**2.60**	65.00	3.40	2.84	0.00
13.00	2.55	2.01	**0.32**	66.00	3.40	2.84	0.00
14.00	2.76	2.21	0.20	67.00	3.40	2.84	0.00
15.00	2.90	2.36	0.15	68.00	3.40	2.84	0.00
16.00	3.01	2.46	0.11	69.00	3.40	2.84	0.00
17.00	3.09	2.54	0.09	70.00	3.40	2.84	0.00
18.00	3.16	2.60	0.07	71.00	3.40	2.84	0.00
19.00	3.21	2.65	0.06	72.00	3.40	2.84	0.00
20.00	3.25	2.70	0.05	73.00	3.40	2.84	0.00
21.00	3.30	2.74	0.05	74.00	3.40	2.84	0.00
22.00	3.33	2.78	0.04	75.00	3.40	2.84	0.00
23.00	3.37	2.81	0.04	76.00	3.40	2.84	0.00
24.00	**3.40**	**2.84**	0.03				
25.00	3.40	2.84	0.00				
26.00	3.40	2.84	0.00				
27.00	3.40	2.84	0.00				
28.00	3.40	2.84	0.00				
29.00	3.40	2.84	0.00				
30.00	3.40	2.84	0.00				
31.00	3.40	2.84	0.00				
32.00	3.40	2.84	0.00				
33.00	3.40	2.84	0.00				
34.00	3.40	2.84	0.00				
35.00	3.40	2.84	0.00				
36.00	3.40	2.84	0.00				
37.00	3.40	2.84	0.00				
38.00	3.40	2.84	0.00				
39.00	3.40	2.84	0.00				
40.00	3.40	2.84	0.00				
41.00	3.40	2.84	0.00				
42.00	3.40	2.84	0.00				
43.00	3.40	2.84	0.00				
44.00	3.40	2.84	0.00				
45.00	3.40	2.84	0.00				
46.00	3.40	2.84	0.00				
47.00	3.40	2.84	0.00				
48.00	3.40	2.84	0.00				
49.00	3.40	2.84	0.00				
50.00	3.40	2.84	0.00				
51.00	3.40	2.84	0.00				
52.00	3.40	2.84	0.00				

Summary for Subcatchment 21S: Area 7

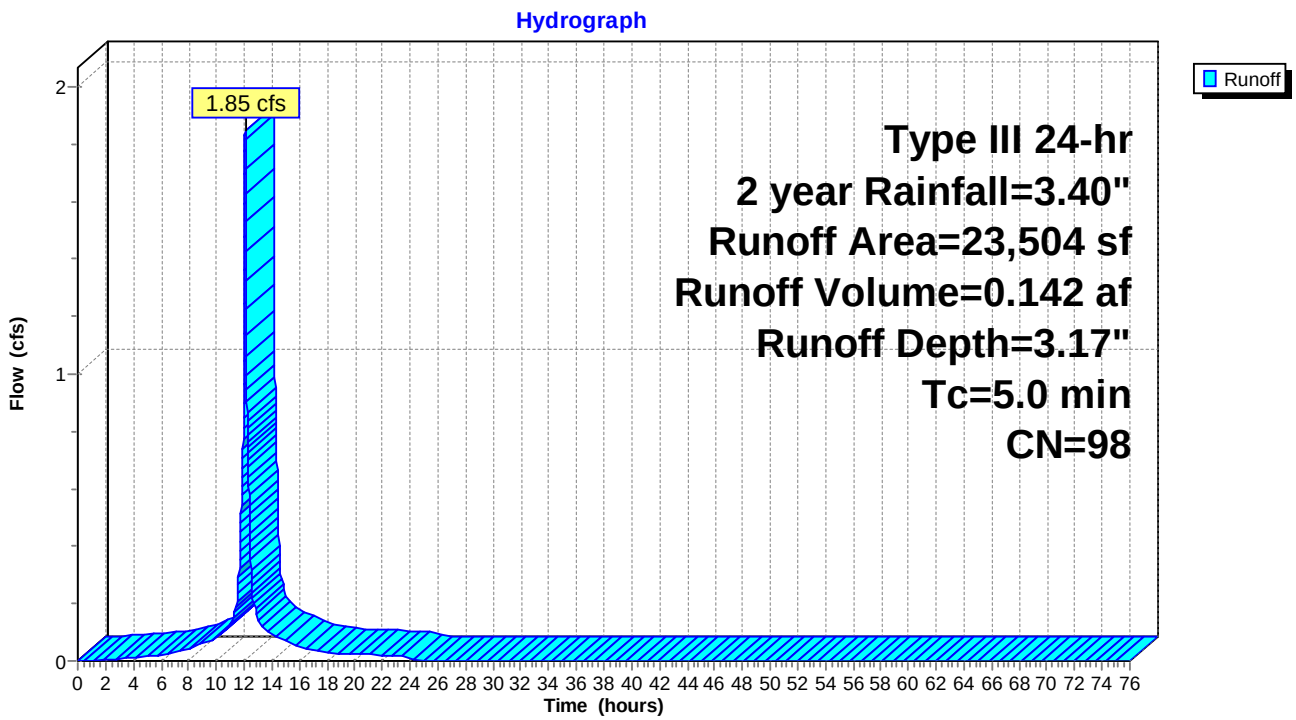
Runoff = 1.85 cfs @ 12.07 hrs, Volume= 0.142 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=3.40"

	Area (sf)	CN	Description
*	23,504	98	Roadway
	23,504		100.00% Impervious Area

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

Subcatchment 21S: Area 7



Hydrograph for Subcatchment 21S: Area 7

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	3.40	3.17	0.00
1.00	0.03	0.00	0.00	54.00	3.40	3.17	0.00
2.00	0.07	0.00	0.00	55.00	3.40	3.17	0.00
3.00	0.10	0.02	0.01	56.00	3.40	3.17	0.00
4.00	0.15	0.04	0.01	57.00	3.40	3.17	0.00
5.00	0.19	0.06	0.02	58.00	3.40	3.17	0.00
6.00	0.24	0.10	0.02	59.00	3.40	3.17	0.00
7.00	0.31	0.15	0.03	60.00	3.40	3.17	0.00
8.00	0.39	0.22	0.04	61.00	3.40	3.17	0.00
9.00	0.50	0.31	0.06	62.00	3.40	3.17	0.00
10.00	0.64	0.45	0.08	63.00	3.40	3.17	0.00
11.00	0.85	0.65	0.13	64.00	3.40	3.17	0.00
12.00	1.70	1.48	**1.25**	65.00	3.40	3.17	0.00
13.00	2.55	2.32	**0.15**	66.00	3.40	3.17	0.00
14.00	2.76	2.53	0.09	67.00	3.40	3.17	0.00
15.00	2.90	2.67	0.07	68.00	3.40	3.17	0.00
16.00	3.01	2.78	0.05	69.00	3.40	3.17	0.00
17.00	3.09	2.86	0.04	70.00	3.40	3.17	0.00
18.00	3.16	2.92	0.03	71.00	3.40	3.17	0.00
19.00	3.21	2.97	0.03	72.00	3.40	3.17	0.00
20.00	3.25	3.02	0.02	73.00	3.40	3.17	0.00
21.00	3.30	3.06	0.02	74.00	3.40	3.17	0.00
22.00	3.33	3.10	0.02	75.00	3.40	3.17	0.00
23.00	3.37	3.14	0.02	76.00	3.40	3.17	0.00
24.00	**3.40**	**3.17**	0.02				
25.00	3.40	3.17	0.00				
26.00	3.40	3.17	0.00				
27.00	3.40	3.17	0.00				
28.00	3.40	3.17	0.00				
29.00	3.40	3.17	0.00				
30.00	3.40	3.17	0.00				
31.00	3.40	3.17	0.00				
32.00	3.40	3.17	0.00				
33.00	3.40	3.17	0.00				
34.00	3.40	3.17	0.00				
35.00	3.40	3.17	0.00				
36.00	3.40	3.17	0.00				
37.00	3.40	3.17	0.00				
38.00	3.40	3.17	0.00				
39.00	3.40	3.17	0.00				
40.00	3.40	3.17	0.00				
41.00	3.40	3.17	0.00				
42.00	3.40	3.17	0.00				
43.00	3.40	3.17	0.00				
44.00	3.40	3.17	0.00				
45.00	3.40	3.17	0.00				
46.00	3.40	3.17	0.00				
47.00	3.40	3.17	0.00				
48.00	3.40	3.17	0.00				
49.00	3.40	3.17	0.00				
50.00	3.40	3.17	0.00				
51.00	3.40	3.17	0.00				
52.00	3.40	3.17	0.00				

Summary for Subcatchment 22S: Area 8

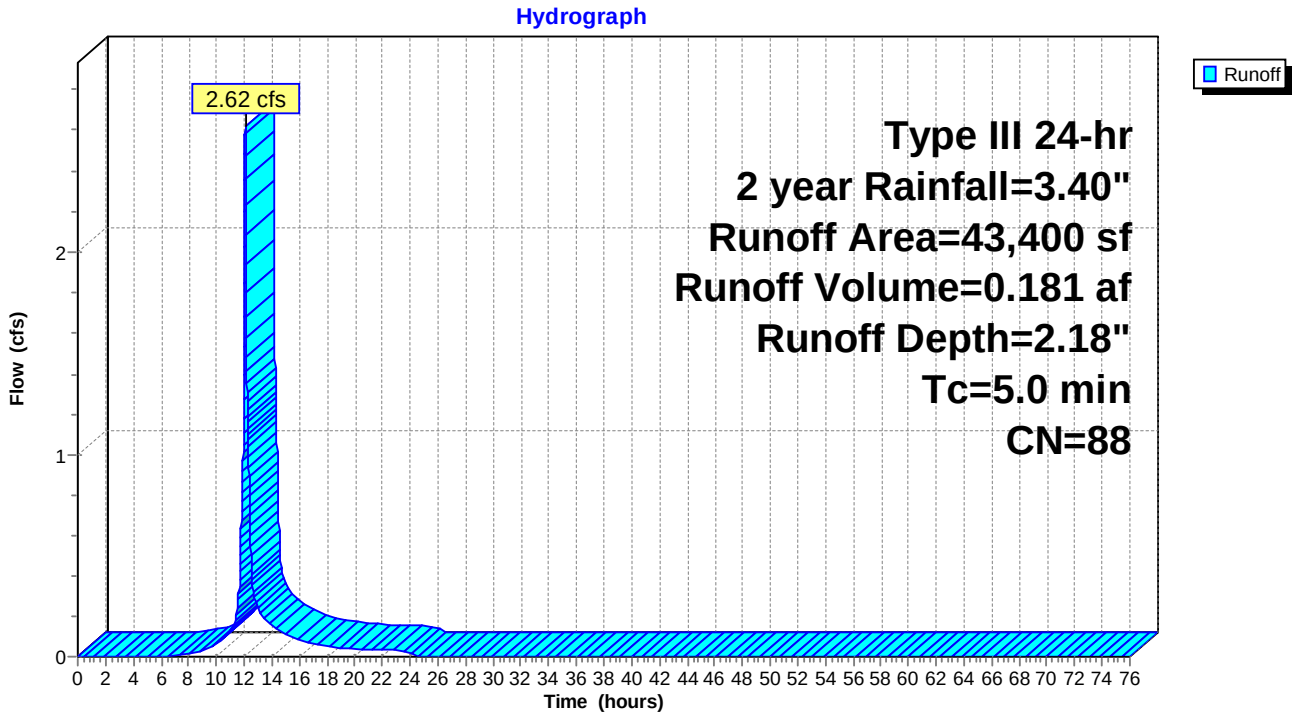
Runoff = 2.62 cfs @ 12.07 hrs, Volume= 0.181 af, Depth= 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=3.40"

	Area (sf)	CN	Description
*	35,981	98	Roadway
	7,419	39	>75% Grass cover, Good, HSG A
	43,400	88	Weighted Average
	7,419		17.09% Pervious Area
	35,981		82.91% Impervious Area

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

Subcatchment 22S: Area 8



Hydrograph for Subcatchment 22S: Area 8

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	3.40	2.18	0.00
1.00	0.03	0.00	0.00	54.00	3.40	2.18	0.00
2.00	0.07	0.00	0.00	55.00	3.40	2.18	0.00
3.00	0.10	0.00	0.00	56.00	3.40	2.18	0.00
4.00	0.15	0.00	0.00	57.00	3.40	2.18	0.00
5.00	0.19	0.00	0.00	58.00	3.40	2.18	0.00
6.00	0.24	0.00	0.00	59.00	3.40	2.18	0.00
7.00	0.31	0.00	0.00	60.00	3.40	2.18	0.00
8.00	0.39	0.01	0.01	61.00	3.40	2.18	0.00
9.00	0.50	0.03	0.03	62.00	3.40	2.18	0.00
10.00	0.64	0.08	0.06	63.00	3.40	2.18	0.00
11.00	0.85	0.17	0.12	64.00	3.40	2.18	0.00
12.00	1.70	0.73	**1.68**	65.00	3.40	2.18	0.00
13.00	2.55	1.42	**0.23**	66.00	3.40	2.18	0.00
14.00	2.76	1.60	0.15	67.00	3.40	2.18	0.00
15.00	2.90	1.73	0.12	68.00	3.40	2.18	0.00
16.00	3.01	1.83	0.08	69.00	3.40	2.18	0.00
17.00	3.09	1.90	0.07	70.00	3.40	2.18	0.00
18.00	3.16	1.96	0.05	71.00	3.40	2.18	0.00
19.00	3.21	2.00	0.04	72.00	3.40	2.18	0.00
20.00	3.25	2.05	0.04	73.00	3.40	2.18	0.00
21.00	3.30	2.08	0.04	74.00	3.40	2.18	0.00
22.00	3.33	2.12	0.03	75.00	3.40	2.18	0.00
23.00	3.37	2.15	0.03	76.00	3.40	2.18	0.00
24.00	**3.40**	**2.18**	0.03				
25.00	3.40	2.18	0.00				
26.00	3.40	2.18	0.00				
27.00	3.40	2.18	0.00				
28.00	3.40	2.18	0.00				
29.00	3.40	2.18	0.00				
30.00	3.40	2.18	0.00				
31.00	3.40	2.18	0.00				
32.00	3.40	2.18	0.00				
33.00	3.40	2.18	0.00				
34.00	3.40	2.18	0.00				
35.00	3.40	2.18	0.00				
36.00	3.40	2.18	0.00				
37.00	3.40	2.18	0.00				
38.00	3.40	2.18	0.00				
39.00	3.40	2.18	0.00				
40.00	3.40	2.18	0.00				
41.00	3.40	2.18	0.00				
42.00	3.40	2.18	0.00				
43.00	3.40	2.18	0.00				
44.00	3.40	2.18	0.00				
45.00	3.40	2.18	0.00				
46.00	3.40	2.18	0.00				
47.00	3.40	2.18	0.00				
48.00	3.40	2.18	0.00				
49.00	3.40	2.18	0.00				
50.00	3.40	2.18	0.00				
51.00	3.40	2.18	0.00				
52.00	3.40	2.18	0.00				

Summary for Subcatchment 23S: Area 6 Building

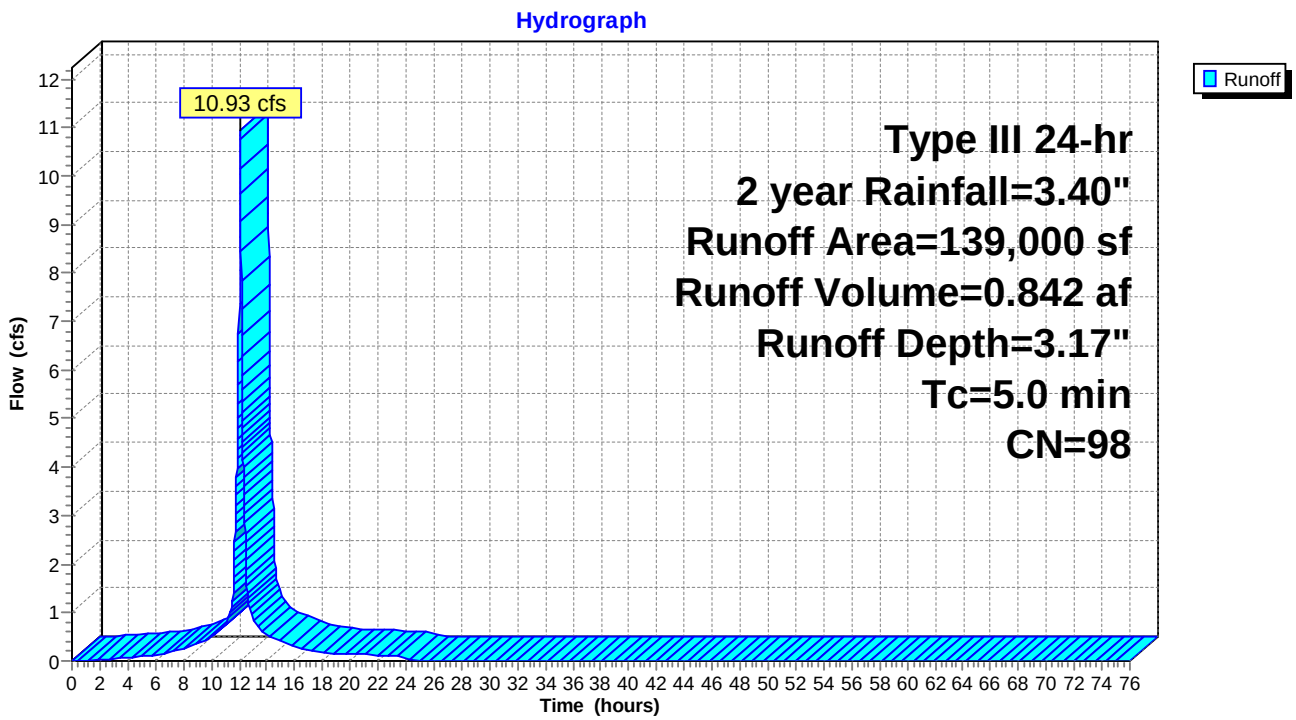
Runoff = 10.93 cfs @ 12.07 hrs, Volume= 0.842 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=3.40"

	Area (sf)	CN	Description
*	139,000	98	Building
	139,000		100.00% Impervious Area

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

Subcatchment 23S: Area 6 Building



Hydrograph for Subcatchment 23S: Area 6 Building

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	3.40	3.17	0.00
1.00	0.03	0.00	0.00	54.00	3.40	3.17	0.00
2.00	0.07	0.00	0.02	55.00	3.40	3.17	0.00
3.00	0.10	0.02	0.05	56.00	3.40	3.17	0.00
4.00	0.15	0.04	0.08	57.00	3.40	3.17	0.00
5.00	0.19	0.06	0.10	58.00	3.40	3.17	0.00
6.00	0.24	0.10	0.13	59.00	3.40	3.17	0.00
7.00	0.31	0.15	0.18	60.00	3.40	3.17	0.00
8.00	0.39	0.22	0.24	61.00	3.40	3.17	0.00
9.00	0.50	0.31	0.36	62.00	3.40	3.17	0.00
10.00	0.64	0.45	0.49	63.00	3.40	3.17	0.00
11.00	0.85	0.65	0.75	64.00	3.40	3.17	0.00
12.00	1.70	1.48	**7.37**	65.00	3.40	3.17	0.00
13.00	2.55	2.32	**0.87**	66.00	3.40	3.17	0.00
14.00	2.76	2.53	0.55	67.00	3.40	3.17	0.00
15.00	2.90	2.67	0.42	68.00	3.40	3.17	0.00
16.00	3.01	2.78	0.29	69.00	3.40	3.17	0.00
17.00	3.09	2.86	0.23	70.00	3.40	3.17	0.00
18.00	3.16	2.92	0.18	71.00	3.40	3.17	0.00
19.00	3.21	2.97	0.16	72.00	3.40	3.17	0.00
20.00	3.25	3.02	0.14	73.00	3.40	3.17	0.00
21.00	3.30	3.06	0.13	74.00	3.40	3.17	0.00
22.00	3.33	3.10	0.12	75.00	3.40	3.17	0.00
23.00	3.37	3.14	0.11	76.00	3.40	3.17	0.00
24.00	**3.40**	**3.17**	0.09				
25.00	3.40	3.17	0.00				
26.00	3.40	3.17	0.00				
27.00	3.40	3.17	0.00				
28.00	3.40	3.17	0.00				
29.00	3.40	3.17	0.00				
30.00	3.40	3.17	0.00				
31.00	3.40	3.17	0.00				
32.00	3.40	3.17	0.00				
33.00	3.40	3.17	0.00				
34.00	3.40	3.17	0.00				
35.00	3.40	3.17	0.00				
36.00	3.40	3.17	0.00				
37.00	3.40	3.17	0.00				
38.00	3.40	3.17	0.00				
39.00	3.40	3.17	0.00				
40.00	3.40	3.17	0.00				
41.00	3.40	3.17	0.00				
42.00	3.40	3.17	0.00				
43.00	3.40	3.17	0.00				
44.00	3.40	3.17	0.00				
45.00	3.40	3.17	0.00				
46.00	3.40	3.17	0.00				
47.00	3.40	3.17	0.00				
48.00	3.40	3.17	0.00				
49.00	3.40	3.17	0.00				
50.00	3.40	3.17	0.00				
51.00	3.40	3.17	0.00				
52.00	3.40	3.17	0.00				

Summary for Subcatchment 28S: Area 1

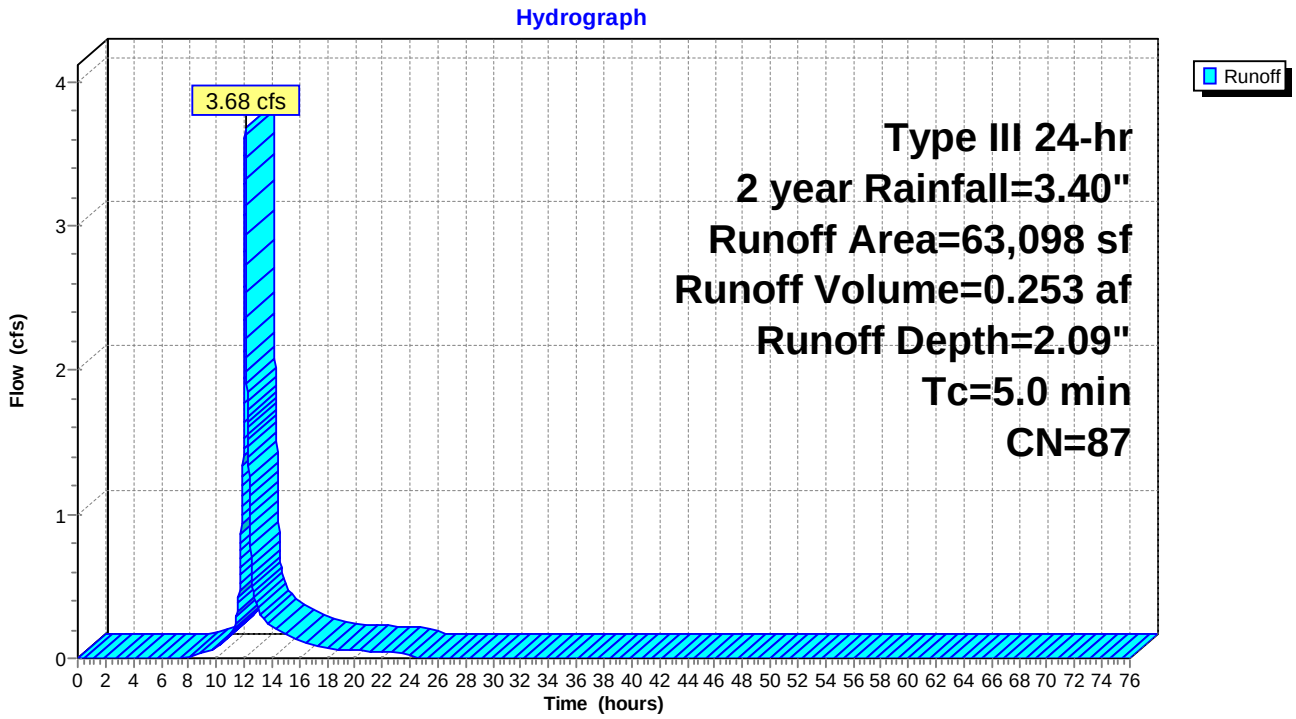
Runoff = 3.68 cfs @ 12.07 hrs, Volume= 0.253 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=3.40"

	Area (sf)	CN	Description
*	47,541	98	pavement
	3,883	98	Unconnected roofs, HSG A
	11,674	39	>75% Grass cover, Good, HSG A
	63,098	87	Weighted Average
	11,674		18.50% Pervious Area
	51,424		81.50% Impervious Area
	3,883		7.55% Unconnected

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

Subcatchment 28S: Area 1



Hydrograph for Subcatchment 28S: Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	3.40	2.09	0.00
1.00	0.03	0.00	0.00	54.00	3.40	2.09	0.00
2.00	0.07	0.00	0.00	55.00	3.40	2.09	0.00
3.00	0.10	0.00	0.00	56.00	3.40	2.09	0.00
4.00	0.15	0.00	0.00	57.00	3.40	2.09	0.00
5.00	0.19	0.00	0.00	58.00	3.40	2.09	0.00
6.00	0.24	0.00	0.00	59.00	3.40	2.09	0.00
7.00	0.31	0.00	0.00	60.00	3.40	2.09	0.00
8.00	0.39	0.00	0.01	61.00	3.40	2.09	0.00
9.00	0.50	0.02	0.04	62.00	3.40	2.09	0.00
10.00	0.64	0.06	0.08	63.00	3.40	2.09	0.00
11.00	0.85	0.15	0.16	64.00	3.40	2.09	0.00
12.00	1.70	0.68	**2.34**	65.00	3.40	2.09	0.00
13.00	2.55	1.35	**0.33**	66.00	3.40	2.09	0.00
14.00	2.76	1.53	0.22	67.00	3.40	2.09	0.00
15.00	2.90	1.66	0.17	68.00	3.40	2.09	0.00
16.00	3.01	1.75	0.12	69.00	3.40	2.09	0.00
17.00	3.09	1.82	0.09	70.00	3.40	2.09	0.00
18.00	3.16	1.88	0.07	71.00	3.40	2.09	0.00
19.00	3.21	1.92	0.06	72.00	3.40	2.09	0.00
20.00	3.25	1.96	0.06	73.00	3.40	2.09	0.00
21.00	3.30	2.00	0.05	74.00	3.40	2.09	0.00
22.00	3.33	2.03	0.05	75.00	3.40	2.09	0.00
23.00	3.37	2.07	0.04	76.00	3.40	2.09	0.00
24.00	**3.40**	**2.09**	0.04				
25.00	3.40	2.09	0.00				
26.00	3.40	2.09	0.00				
27.00	3.40	2.09	0.00				
28.00	3.40	2.09	0.00				
29.00	3.40	2.09	0.00				
30.00	3.40	2.09	0.00				
31.00	3.40	2.09	0.00				
32.00	3.40	2.09	0.00				
33.00	3.40	2.09	0.00				
34.00	3.40	2.09	0.00				
35.00	3.40	2.09	0.00				
36.00	3.40	2.09	0.00				
37.00	3.40	2.09	0.00				
38.00	3.40	2.09	0.00				
39.00	3.40	2.09	0.00				
40.00	3.40	2.09	0.00				
41.00	3.40	2.09	0.00				
42.00	3.40	2.09	0.00				
43.00	3.40	2.09	0.00				
44.00	3.40	2.09	0.00				
45.00	3.40	2.09	0.00				
46.00	3.40	2.09	0.00				
47.00	3.40	2.09	0.00				
48.00	3.40	2.09	0.00				
49.00	3.40	2.09	0.00				
50.00	3.40	2.09	0.00				
51.00	3.40	2.09	0.00				
52.00	3.40	2.09	0.00				

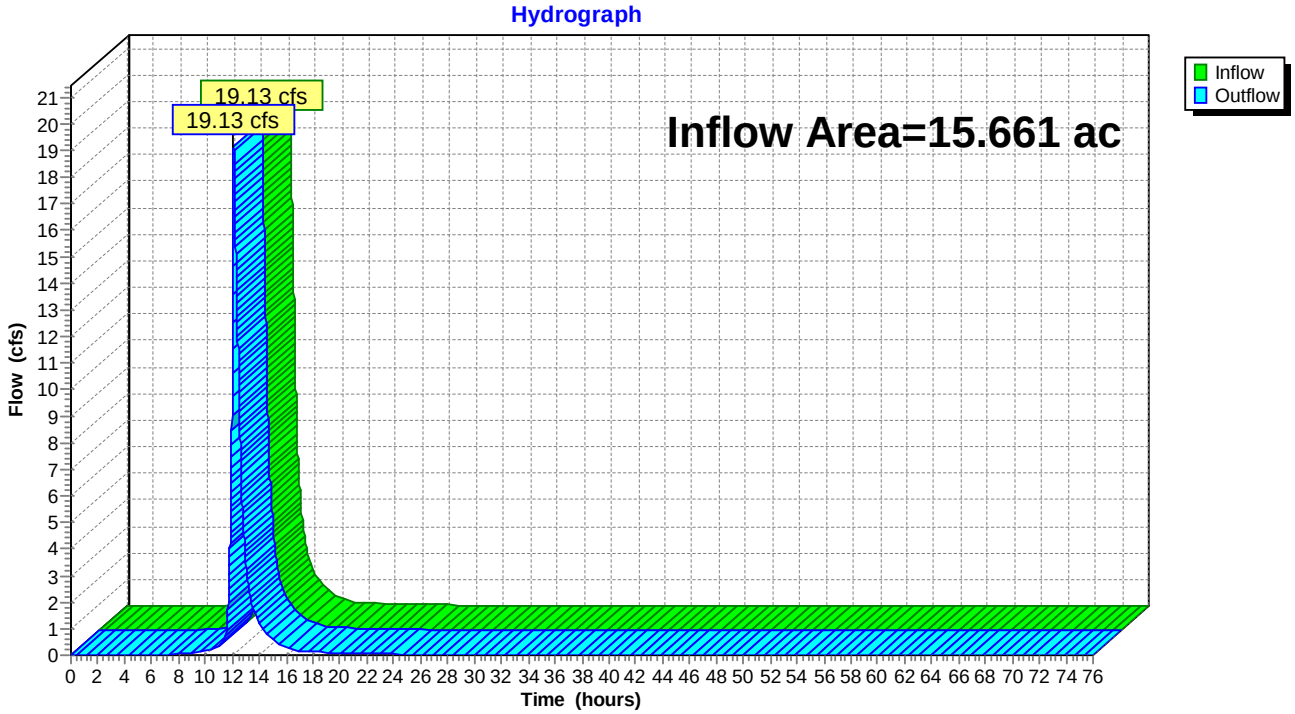
Summary for Reach 6R: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.661 ac, 67.00% Impervious, Inflow Depth = 1.07" for 2 year event
Inflow = 19.13 cfs @ 12.12 hrs, Volume= 1.390 af
Outflow = 19.13 cfs @ 12.12 hrs, Volume= 1.390 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs

Reach 6R: (new Reach)



Hydrograph for Reach 6R: (new Reach)

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	53.00	0.00		0.00
1.00	0.00		0.00	54.00	0.00		0.00
2.00	0.00		0.00	55.00	0.00		0.00
3.00	0.01		0.01	56.00	0.00		0.00
4.00	0.01		0.01	57.00	0.00		0.00
5.00	0.02		0.02	58.00	0.00		0.00
6.00	0.02		0.02	59.00	0.00		0.00
7.00	0.03		0.03	60.00	0.00		0.00
8.00	0.04		0.04	61.00	0.00		0.00
9.00	0.08		0.08	62.00	0.00		0.00
10.00	0.14		0.14	63.00	0.00		0.00
11.00	0.30		0.30	64.00	0.00		0.00
12.00	**10.62**		**10.62**	65.00	0.00		0.00
13.00	**3.52**		**3.52**	66.00	0.00		0.00
14.00	1.18		1.18	67.00	0.00		0.00
15.00	0.59		0.59	68.00	0.00		0.00
16.00	0.27		0.27	69.00	0.00		0.00
17.00	0.16		0.16	70.00	0.00		0.00
18.00	0.11		0.11	71.00	0.00		0.00
19.00	0.10		0.10	72.00	0.00		0.00
20.00	0.09		0.09	73.00	0.00		0.00
21.00	0.08		0.08	74.00	0.00		0.00
22.00	0.07		0.07	75.00	0.00		0.00
23.00	0.07		0.07	76.00	0.00		0.00
24.00	0.06		0.06				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				
52.00	0.00		0.00				

Summary for Pond 11P: Detention Area 1

Inflow Area =	1.449 ac, 81.50% Impervious, Inflow Depth = 2.09" for 2 year event				
Inflow =	3.68 cfs @	12.07 hrs,	Volume=	0.253 af	
Outflow =	2.66 cfs @	12.14 hrs,	Volume=	0.253 af,	Atten= 28%, Lag= 4.2 min
Discarded =	0.17 cfs @	12.14 hrs,	Volume=	0.141 af	
Primary =	2.49 cfs @	12.14 hrs,	Volume=	0.112 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 43.93' @ 12.14 hrs Surf.Area= 0.036 ac Storage= 0.054 af

Plug-Flow detention time= 63.2 min calculated for 0.253 af (100% of inflow)
Center-of-Mass det. time= 63.2 min (878.6 - 815.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	42.00'	0.010 af	**26.40'W x 60.00'L x 4.00'H Field A** 0.145 af Overall - 0.122 af Embedded = 0.024 af x 40.0% Voids
#2A	42.00'	0.092 af	**Concrete Galley 4x4x4** x 90 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 90 Chambers in 6 Rows
		0.101 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	43.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	42.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.17 cfs @ 12.14 hrs HW=43.93' (Free Discharge)
└**2=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=2.49 cfs @ 12.14 hrs HW=43.93' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 2.49 cfs @ 3.28 fps)

Pond 11P: Detention Area 1 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

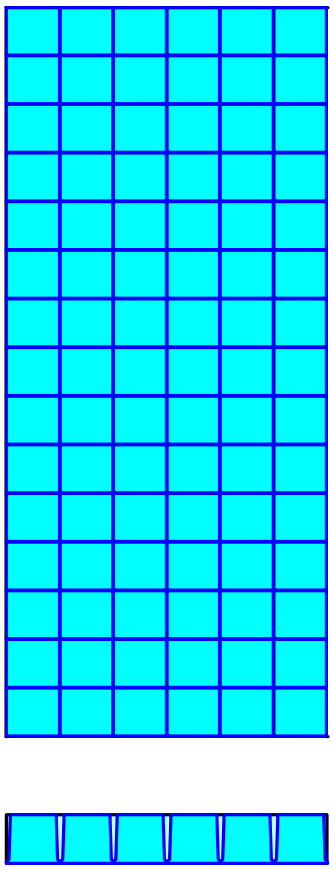
15 Chambers/Row x 4.00' Long = 60.00' Row Length
6 Rows x 52.8" Wide = 26.40' Base Width
48.0" Chamber Height = 4.00' Field Height

90 Chambers x 44.3 cf = 3,991.0 cf Chamber Storage
90 Chambers x 58.9 cf = 5,298.9 cf Displacement

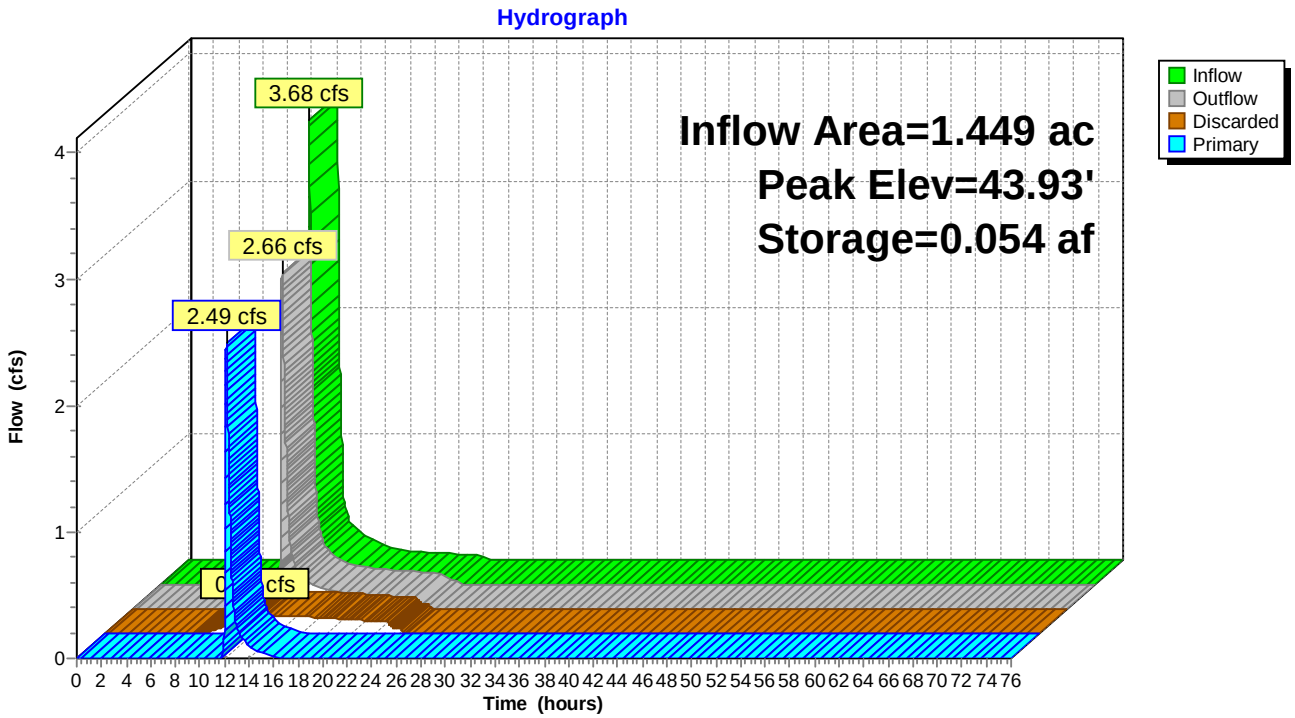
6,336.0 cf Field - 5,298.9 cf Chambers = 1,037.1 cf Stone x 40.0% Voids = 414.9 cf Stone Storage

Chamber Storage + Stone Storage = 4,405.9 cf = 0.101 af
Overall Storage Efficiency = 69.5%
Overall System Size = 60.00' x 26.40' x 4.00'

90 Chambers
234.7 cy Field
38.4 cy Stone



Pond 11P: Detention Area 1



Hydrograph for Pond 11P: Detention Area 1

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	42.00	0.00	0.00	0.00
2.00	0.00	0.000	42.00	0.00	0.00	0.00
4.00	0.00	0.000	42.00	0.00	0.00	0.00
6.00	0.00	0.000	42.00	0.00	0.00	0.00
8.00	0.01	0.000	42.00	0.01	0.01	0.00
10.00	0.08	0.001	42.03	0.07	0.07	0.00
12.00	**2.34**	**0.038**	**43.37**	**0.69**	**0.15**	**0.54**
14.00	**0.22**	**0.032**	**43.15**	**0.24**	**0.14**	**0.10**
16.00	0.12	0.029	43.04	0.14	0.13	0.01
18.00	0.07	0.023	42.82	0.12	0.12	0.00
20.00	0.06	0.014	42.51	0.11	0.11	0.00
22.00	0.05	0.006	42.21	0.10	0.10	0.00
24.00	0.04	0.000	42.02	0.04	0.04	0.00
26.00	0.00	0.000	42.00	0.00	0.00	0.00
28.00	0.00	0.000	42.00	0.00	0.00	0.00
30.00	0.00	0.000	42.00	0.00	0.00	0.00
32.00	0.00	0.000	42.00	0.00	0.00	0.00
34.00	0.00	0.000	42.00	0.00	0.00	0.00
36.00	0.00	0.000	42.00	0.00	0.00	0.00
38.00	0.00	0.000	42.00	0.00	0.00	0.00
40.00	0.00	0.000	42.00	0.00	0.00	0.00
42.00	0.00	0.000	42.00	0.00	0.00	0.00
44.00	0.00	0.000	42.00	0.00	0.00	0.00
46.00	0.00	0.000	42.00	0.00	0.00	0.00
48.00	0.00	0.000	42.00	0.00	0.00	0.00
50.00	0.00	0.000	42.00	0.00	0.00	0.00
52.00	0.00	0.000	42.00	0.00	0.00	0.00
54.00	0.00	0.000	42.00	0.00	0.00	0.00
56.00	0.00	0.000	42.00	0.00	0.00	0.00
58.00	0.00	0.000	42.00	0.00	0.00	0.00
60.00	0.00	0.000	42.00	0.00	0.00	0.00
62.00	0.00	0.000	42.00	0.00	0.00	0.00
64.00	0.00	0.000	42.00	0.00	0.00	0.00
66.00	0.00	0.000	42.00	0.00	0.00	0.00
68.00	0.00	0.000	42.00	0.00	0.00	0.00
70.00	0.00	0.000	42.00	0.00	0.00	0.00
72.00	0.00	0.000	42.00	0.00	0.00	0.00
74.00	0.00	0.000	42.00	0.00	0.00	0.00
76.00	0.00	0.000	42.00	0.00	0.00	0.00

Summary for Pond 13P: Detention Area 2

Inflow Area =	1.444 ac, 93.39% Impervious, Inflow Depth = 2.74" for 2 year event				
Inflow =	4.58 cfs @	12.07 hrs,	Volume=	0.329 af	
Outflow =	3.19 cfs @	12.15 hrs,	Volume=	0.329 af,	Atten= 30%, Lag= 4.5 min
Discarded =	0.27 cfs @	12.15 hrs,	Volume=	0.193 af	
Primary =	2.92 cfs @	12.15 hrs,	Volume=	0.136 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 43.50' @ 12.15 hrs Surf.Area= 0.044 ac Storage= 0.072 af

Plug-Flow detention time= 54.8 min calculated for 0.329 af (100% of inflow)
Center-of-Mass det. time= 54.8 min (839.0 - 784.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	41.40'	0.012 af	**96.80'W x 20.00'L x 4.00'H Field A** 0.178 af Overall - 0.149 af Embedded = 0.029 af x 40.0% Voids
#2A	41.40'	0.112 af	**Concrete Galley 4x4x4** x 110 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 110 Chambers in 22 Rows
		0.124 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	42.40'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	41.40'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.27 cfs @ 12.15 hrs HW=43.50' (Free Discharge)
└**2=Exfiltration** (Controls 0.27 cfs)

Primary OutFlow Max=2.92 cfs @ 12.15 hrs HW=43.50' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 2.92 cfs @ 3.72 fps)

Pond 13P: Detention Area 2 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

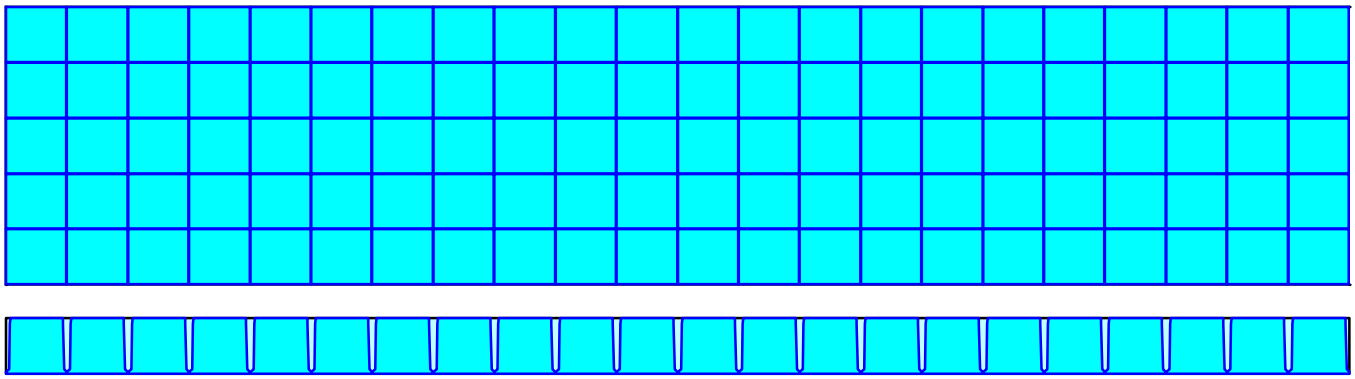
5 Chambers/Row x 4.00' Long = 20.00' Row Length
22 Rows x 52.8" Wide = 96.80' Base Width
48.0" Chamber Height = 4.00' Field Height

110 Chambers x 44.3 cf = 4,877.9 cf Chamber Storage
110 Chambers x 58.9 cf = 6,476.4 cf Displacement

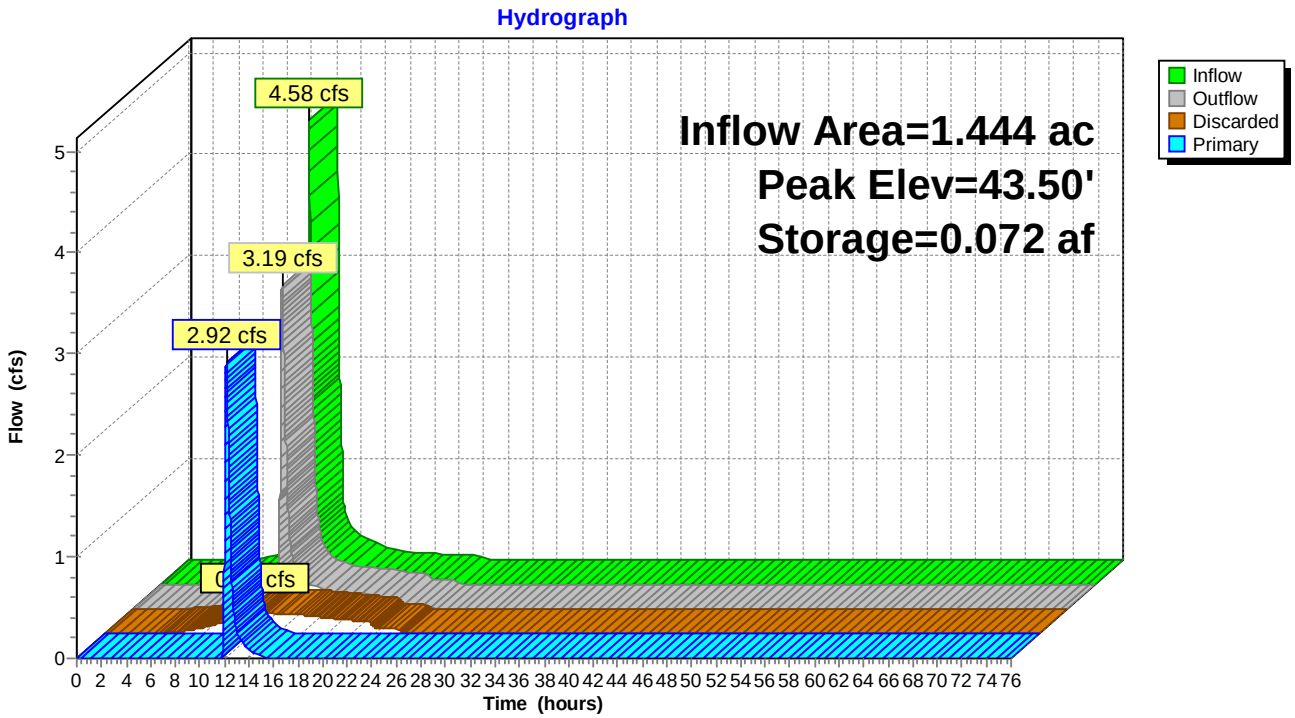
7,744.0 cf Field - 6,476.4 cf Chambers = 1,267.6 cf Stone x 40.0% Voids = 507.0 cf Stone Storage

Chamber Storage + Stone Storage = 5,385.0 cf = 0.124 af
Overall Storage Efficiency = 69.5%
Overall System Size = 20.00' x 96.80' x 4.00'

110 Chambers
286.8 cy Field
46.9 cy Stone



Pond 13P: Detention Area 2



Hydrograph for Pond 13P: Detention Area 2

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	41.40	0.00	0.00	0.00
2.00	0.00	0.000	41.40	0.00	0.00	0.00
4.00	0.00	0.000	41.40	0.00	0.00	0.00
6.00	0.02	0.000	41.41	0.02	0.02	0.00
8.00	0.06	0.001	41.42	0.06	0.06	0.00
10.00	0.16	0.003	41.49	0.12	0.12	0.00
12.00	**3.04**	**0.055**	**42.99**	**1.51**	**0.23**	**1.28**
14.00	**0.24**	**0.039**	**42.54**	**0.28**	**0.20**	**0.08**
16.00	0.13	0.033	42.38	0.18	0.18	0.00
18.00	0.08	0.022	42.05	0.16	0.16	0.00
20.00	0.06	0.010	41.69	0.13	0.13	0.00
22.00	0.05	0.001	41.42	0.06	0.06	0.00
24.00	0.04	0.001	41.42	0.04	0.04	0.00
26.00	0.00	0.000	41.40	0.00	0.00	0.00
28.00	0.00	0.000	41.40	0.00	0.00	0.00
30.00	0.00	0.000	41.40	0.00	0.00	0.00
32.00	0.00	0.000	41.40	0.00	0.00	0.00
34.00	0.00	0.000	41.40	0.00	0.00	0.00
36.00	0.00	0.000	41.40	0.00	0.00	0.00
38.00	0.00	0.000	41.40	0.00	0.00	0.00
40.00	0.00	0.000	41.40	0.00	0.00	0.00
42.00	0.00	0.000	41.40	0.00	0.00	0.00
44.00	0.00	0.000	41.40	0.00	0.00	0.00
46.00	0.00	0.000	41.40	0.00	0.00	0.00
48.00	0.00	0.000	41.40	0.00	0.00	0.00
50.00	0.00	0.000	41.40	0.00	0.00	0.00
52.00	0.00	0.000	41.40	0.00	0.00	0.00
54.00	0.00	0.000	41.40	0.00	0.00	0.00
56.00	0.00	0.000	41.40	0.00	0.00	0.00
58.00	0.00	0.000	41.40	0.00	0.00	0.00
60.00	0.00	0.000	41.40	0.00	0.00	0.00
62.00	0.00	0.000	41.40	0.00	0.00	0.00
64.00	0.00	0.000	41.40	0.00	0.00	0.00
66.00	0.00	0.000	41.40	0.00	0.00	0.00
68.00	0.00	0.000	41.40	0.00	0.00	0.00
70.00	0.00	0.000	41.40	0.00	0.00	0.00
72.00	0.00	0.000	41.40	0.00	0.00	0.00
74.00	0.00	0.000	41.40	0.00	0.00	0.00
76.00	0.00	0.000	41.40	0.00	0.00	0.00

Summary for Pond 14P: Area 4

Inflow Area = 1.200 ac, 95.56% Impervious, Inflow Depth = 2.84" for 2 year event
Inflow = 3.90 cfs @ 12.07 hrs, Volume= 0.284 af
Outflow = 3.09 cfs @ 12.13 hrs, Volume= 0.284 af, Atten= 21%, Lag= 3.4 min
Discarded = 0.09 cfs @ 12.13 hrs, Volume= 0.119 af
Primary = 3.00 cfs @ 12.13 hrs, Volume= 0.165 af

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 52.13' @ 12.13 hrs Surf.Area= 0.029 ac Storage= 0.048 af

Plug-Flow detention time= 66.0 min calculated for 0.284 af (100% of inflow)
Center-of-Mass det. time= 66.0 min (844.2 - 778.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	50.00'	0.008 af	**17.60'W x 72.00'L x 4.00'H Field A** 0.116 af Overall - 0.097 af Embedded = 0.019 af x 40.0% Voids
#2A	50.00'	0.073 af	**Concrete Galley 4x4x4** x 72 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 72 Chambers in 4 Rows
		0.081 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	50.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.09 cfs @ 12.13 hrs HW=52.13' (Free Discharge)
└**2=Exfiltration** (Controls 0.09 cfs)

Primary OutFlow Max=3.00 cfs @ 12.13 hrs HW=52.13' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 3.00 cfs @ 3.82 fps)

Pond 14P: Area 4 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

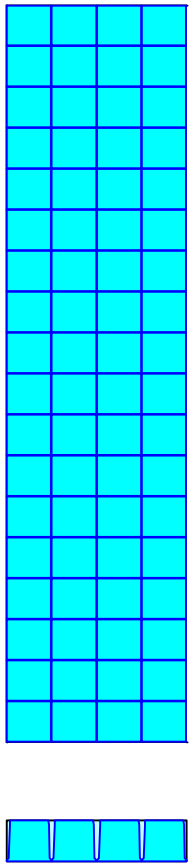
18 Chambers/Row x 4.00' Long = 72.00' Row Length
4 Rows x 52.8" Wide = 17.60' Base Width
48.0" Chamber Height = 4.00' Field Height

72 Chambers x 44.3 cf = 3,192.8 cf Chamber Storage
72 Chambers x 58.9 cf = 4,239.1 cf Displacement

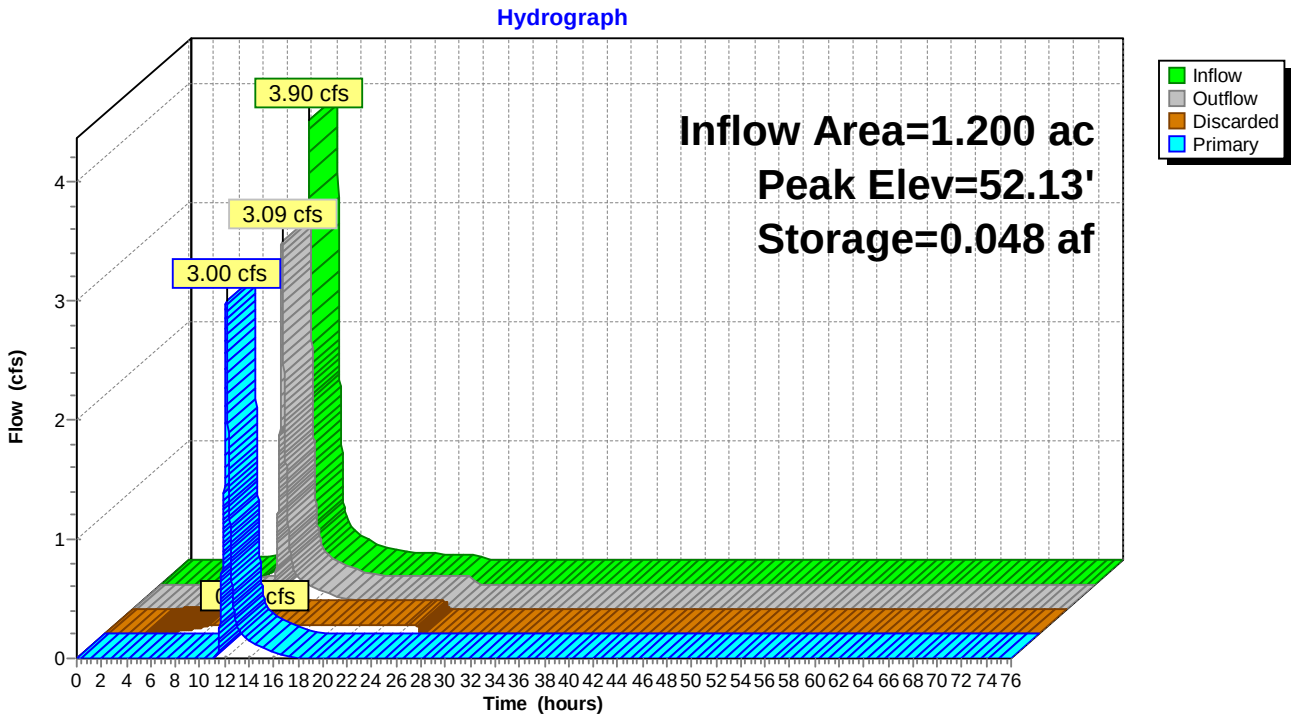
5,068.8 cf Field - 4,239.1 cf Chambers = 829.7 cf Stone x 40.0% Voids = 331.9 cf Stone Storage

Chamber Storage + Stone Storage = 3,524.7 cf = 0.081 af
Overall Storage Efficiency = 69.5%
Overall System Size = 72.00' x 17.60' x 4.00'

72 Chambers
187.7 cy Field
30.7 cy Stone



Pond 14P: Area 4



Hydrograph for Pond 14P: Area 4

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	50.00	0.00	0.00	0.00
2.00	0.00	0.000	50.00	0.00	0.00	0.00
4.00	0.01	0.000	50.00	0.01	0.01	0.00
6.00	0.02	0.000	50.01	0.02	0.02	0.00
8.00	0.06	0.001	50.03	0.06	0.06	0.00
10.00	0.15	0.006	50.27	0.07	0.07	0.00
12.00	**2.60**	**0.038**	**51.71**	**1.79**	**0.08**	**1.71**
14.00	**0.20**	**0.026**	**51.18**	**0.22**	**0.08**	**0.14**
16.00	0.11	0.025	51.10	0.12	0.08	0.04
18.00	0.07	0.023	51.02	0.08	0.08	0.00
20.00	0.05	0.020	50.88	0.08	0.08	0.00
22.00	0.04	0.015	50.68	0.08	0.08	0.00
24.00	0.03	0.009	50.42	0.07	0.07	0.00
26.00	0.00	0.000	50.00	0.00	0.00	0.00
28.00	0.00	0.000	50.00	0.00	0.00	0.00
30.00	0.00	0.000	50.00	0.00	0.00	0.00
32.00	0.00	0.000	50.00	0.00	0.00	0.00
34.00	0.00	0.000	50.00	0.00	0.00	0.00
36.00	0.00	0.000	50.00	0.00	0.00	0.00
38.00	0.00	0.000	50.00	0.00	0.00	0.00
40.00	0.00	0.000	50.00	0.00	0.00	0.00
42.00	0.00	0.000	50.00	0.00	0.00	0.00
44.00	0.00	0.000	50.00	0.00	0.00	0.00
46.00	0.00	0.000	50.00	0.00	0.00	0.00
48.00	0.00	0.000	50.00	0.00	0.00	0.00
50.00	0.00	0.000	50.00	0.00	0.00	0.00
52.00	0.00	0.000	50.00	0.00	0.00	0.00
54.00	0.00	0.000	50.00	0.00	0.00	0.00
56.00	0.00	0.000	50.00	0.00	0.00	0.00
58.00	0.00	0.000	50.00	0.00	0.00	0.00
60.00	0.00	0.000	50.00	0.00	0.00	0.00
62.00	0.00	0.000	50.00	0.00	0.00	0.00
64.00	0.00	0.000	50.00	0.00	0.00	0.00
66.00	0.00	0.000	50.00	0.00	0.00	0.00
68.00	0.00	0.000	50.00	0.00	0.00	0.00
70.00	0.00	0.000	50.00	0.00	0.00	0.00
72.00	0.00	0.000	50.00	0.00	0.00	0.00
74.00	0.00	0.000	50.00	0.00	0.00	0.00
76.00	0.00	0.000	50.00	0.00	0.00	0.00

Summary for Pond 19P: Detention Area 3

Inflow Area =	2.023 ac, 98.65% Impervious, Inflow Depth = 3.07" for 2 year event				
Inflow =	6.83 cfs @	12.07 hrs,	Volume=	0.518 af	
Outflow =	4.04 cfs @	12.17 hrs,	Volume=	0.518 af,	Atten= 41%, Lag= 5.8 min
Discarded =	0.49 cfs @	12.17 hrs,	Volume=	0.294 af	
Primary =	3.55 cfs @	12.17 hrs,	Volume=	0.224 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 42.88' @ 12.17 hrs Surf.Area= 3,062 sf Storage= 4,448 cf

Plug-Flow detention time= 33.9 min calculated for 0.518 af (100% of inflow)
Center-of-Mass det. time= 33.9 min (795.3 - 761.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	41.00'	802 cf	**127.60'W x 24.00'L x 4.00'H Field A** 12,250 cf Overall - 10,244 cf Embedded = 2,005 cf x 40.0% Voids
#2A	41.00'	7,716 cf	**Concrete Galley 4x4x4** x 174 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 174 Chambers in 29 Rows
		8,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	41.50'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	41.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.49 cfs @ 12.17 hrs HW=42.88' (Free Discharge)
↑└**2=Exfiltration** (Controls 0.49 cfs)

Primary OutFlow Max=3.55 cfs @ 12.17 hrs HW=42.88' (Free Discharge)
↑└**1=Orifice/Grate** (Orifice Controls 3.55 cfs @ 4.52 fps)

Pond 19P: Detention Area 3 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

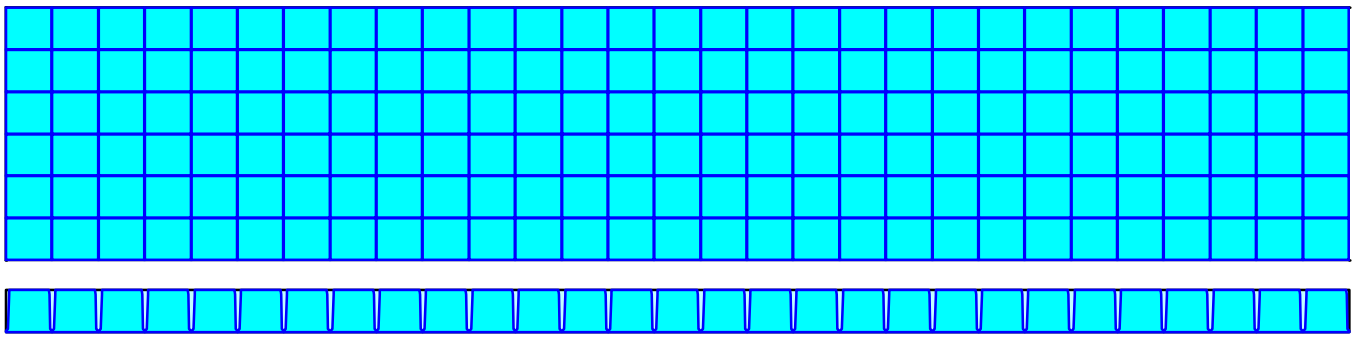
6 Chambers/Row x 4.00' Long = 24.00' Row Length
29 Rows x 52.8" Wide = 127.60' Base Width
48.0" Chamber Height = 4.00' Field Height

174 Chambers x 44.3 cf = 7,716.0 cf Chamber Storage
174 Chambers x 58.9 cf = 10,244.5 cf Displacement

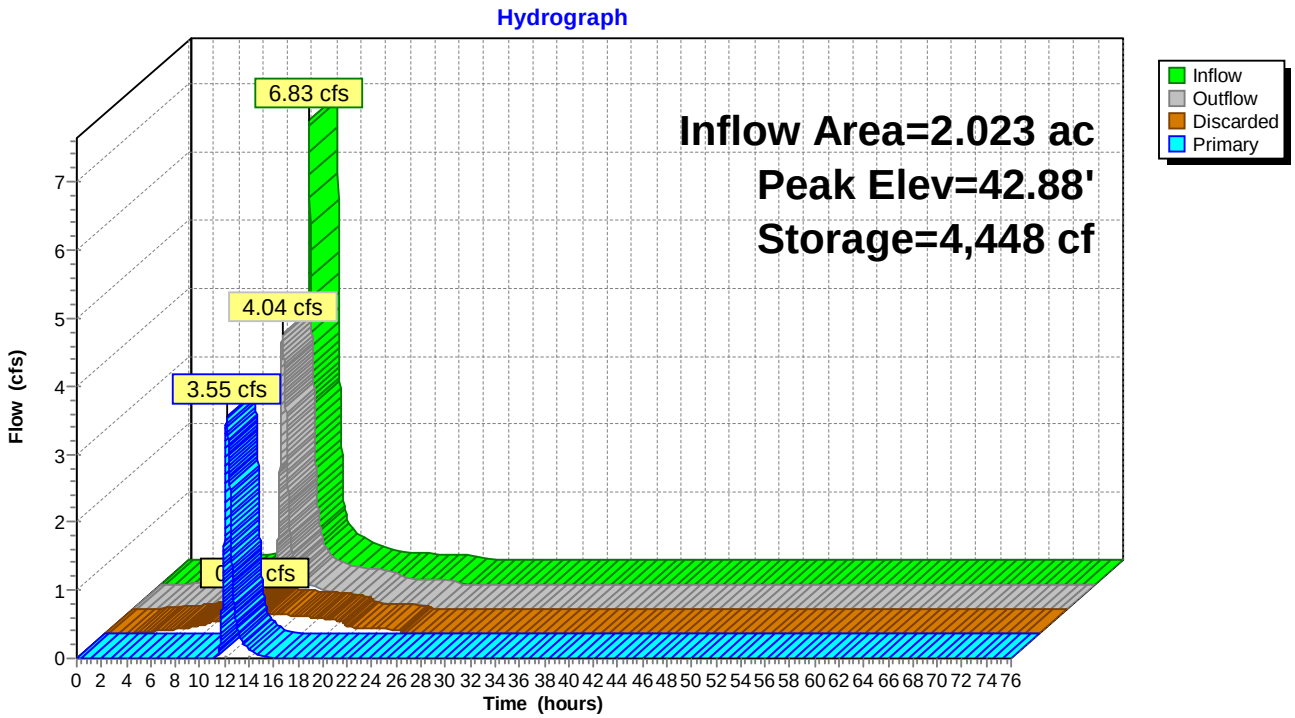
12,249.6 cf Field - 10,244.5 cf Chambers = 2,005.1 cf Stone x 40.0% Voids = 802.0 cf Stone Storage

Chamber Storage + Stone Storage = 8,518.0 cf = 0.196 af
Overall Storage Efficiency = 69.5%
Overall System Size = 24.00' x 127.60' x 4.00'

174 Chambers
453.7 cy Field
74.3 cy Stone



Pond 19P: Detention Area 3



Hydrograph for Pond 19P: Detention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	41.00	0.00	0.00	0.00
2.00	0.01	3	41.00	0.01	0.01	0.00
4.00	0.04	18	41.01	0.03	0.03	0.00
6.00	0.07	34	41.02	0.07	0.07	0.00
8.00	0.14	68	41.03	0.13	0.13	0.00
10.00	0.29	350	41.15	0.20	0.20	0.00
12.00	**4.60**	**3,061**	**42.30**	**2.43**	**0.39**	**2.03**
14.00	**0.35**	**1,586**	**41.67**	**0.42**	**0.29**	**0.13**
16.00	0.18	1,187	41.51	0.26	0.26	0.00
18.00	0.11	550	41.24	0.21	0.21	0.00
20.00	0.09	48	41.02	0.09	0.09	0.00
22.00	0.07	39	41.02	0.08	0.08	0.00
24.00	0.06	31	41.01	0.06	0.06	0.00
26.00	0.00	0	41.00	0.00	0.00	0.00
28.00	0.00	0	41.00	0.00	0.00	0.00
30.00	0.00	0	41.00	0.00	0.00	0.00
32.00	0.00	0	41.00	0.00	0.00	0.00
34.00	0.00	0	41.00	0.00	0.00	0.00
36.00	0.00	0	41.00	0.00	0.00	0.00
38.00	0.00	0	41.00	0.00	0.00	0.00
40.00	0.00	0	41.00	0.00	0.00	0.00
42.00	0.00	0	41.00	0.00	0.00	0.00
44.00	0.00	0	41.00	0.00	0.00	0.00
46.00	0.00	0	41.00	0.00	0.00	0.00
48.00	0.00	0	41.00	0.00	0.00	0.00
50.00	0.00	0	41.00	0.00	0.00	0.00
52.00	0.00	0	41.00	0.00	0.00	0.00
54.00	0.00	0	41.00	0.00	0.00	0.00
56.00	0.00	0	41.00	0.00	0.00	0.00
58.00	0.00	0	41.00	0.00	0.00	0.00
60.00	0.00	0	41.00	0.00	0.00	0.00
62.00	0.00	0	41.00	0.00	0.00	0.00
64.00	0.00	0	41.00	0.00	0.00	0.00
66.00	0.00	0	41.00	0.00	0.00	0.00
68.00	0.00	0	41.00	0.00	0.00	0.00
70.00	0.00	0	41.00	0.00	0.00	0.00
72.00	0.00	0	41.00	0.00	0.00	0.00
74.00	0.00	0	41.00	0.00	0.00	0.00
76.00	0.00	0	41.00	0.00	0.00	0.00

Summary for Pond 24P: Detention Area 6

Inflow Area =	0.540 ac,100.00% Impervious, Inflow Depth = 3.17" for 2 year event				
Inflow =	1.85 cfs @	12.07 hrs,	Volume=	0.142 af	
Outflow =	1.85 cfs @	12.07 hrs,	Volume=	0.142 af,	Atten= 0%, Lag= 0.1 min
Discarded =	0.00 cfs @	12.07 hrs,	Volume=	0.003 af	
Primary =	1.85 cfs @	12.07 hrs,	Volume=	0.140 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 51.75' @ 12.07 hrs Surf.Area= 18 sf Storage= 30 cf

Plug-Flow detention time= 5.1 min calculated for 0.142 af (100% of inflow)
Center-of-Mass det. time= 5.1 min (759.3 - 754.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	49.50'	5 cf	**4.40'W x 4.00'L x 4.00'H Field A** 70 cf Overall - 59 cf Embedded = 12 cf x 40.0% Voids
#2A	49.50'	44 cf	**Concrete Galley 4x4x4** Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf
		49 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	49.50'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.00 cfs @ 12.07 hrs HW=51.75' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.84 cfs @ 12.07 hrs HW=51.75' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 1.84 cfs @ 2.94 fps)

Pond 24P: Detention Area 6 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

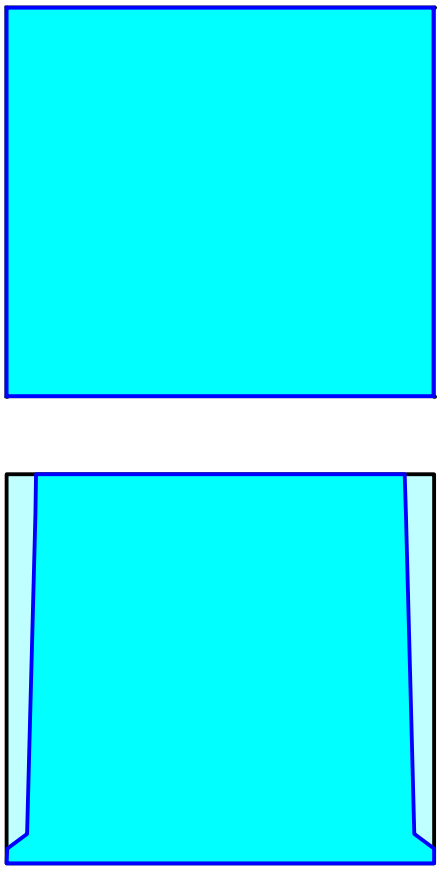
1 Chambers/Row x 4.00' Long = 4.00' Row Length
1 Rows x 52.8" Wide = 4.40' Base Width
48.0" Chamber Height = 4.00' Field Height

1 Chambers x 44.3 cf = 44.3 cf Chamber Storage
1 Chambers x 58.9 cf = 58.9 cf Displacement

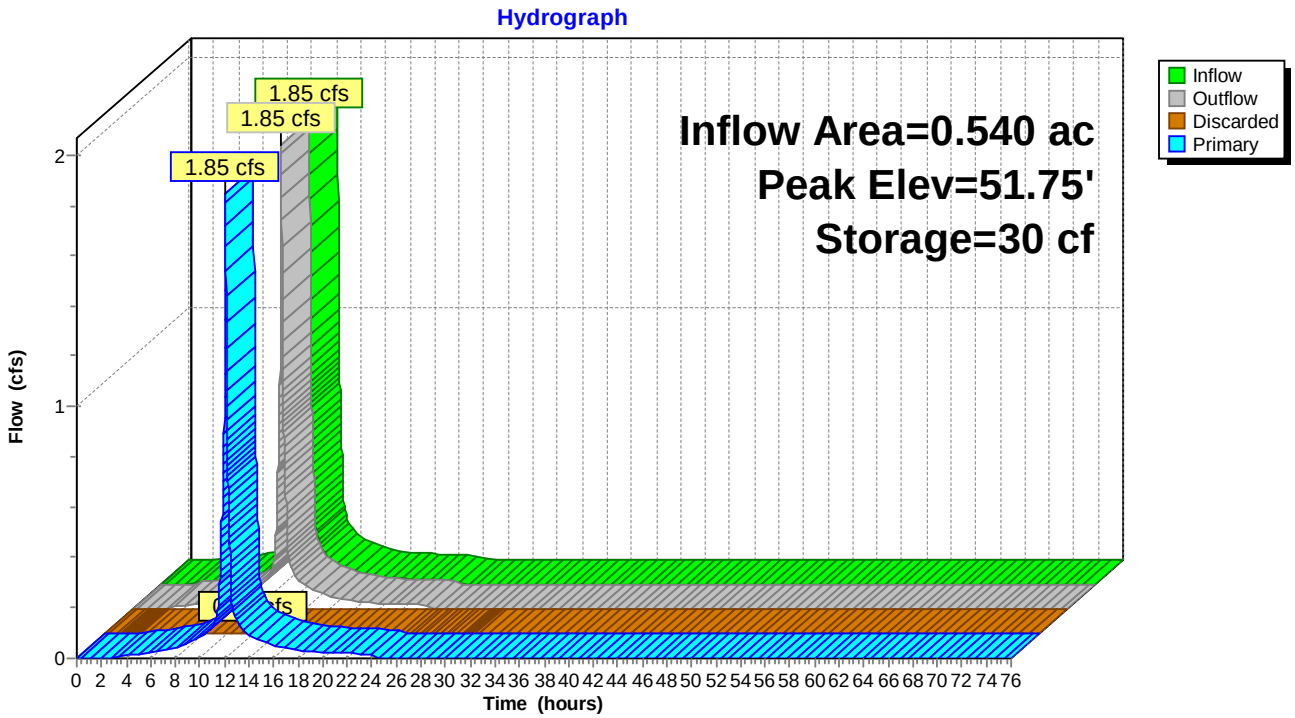
70.4 cf Field - 58.9 cf Chambers = 11.5 cf Stone x 40.0% Voids = 4.6 cf Stone Storage

Chamber Storage + Stone Storage = 49.0 cf = 0.001 af
Overall Storage Efficiency = 69.5%
Overall System Size = 4.00' x 4.40' x 4.00'

1 Chambers
2.6 cy Field
0.4 cy Stone



Pond 24P: Detention Area 6



Hydrograph for Pond 24P: Detention Area 6

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	49.50	0.00	0.00	0.00
2.00	0.00	3	49.74	0.00	0.00	0.00
4.00	0.01	21	51.05	0.01	0.00	0.01
6.00	0.02	21	51.07	0.02	0.00	0.02
8.00	0.04	22	51.09	0.04	0.00	0.04
10.00	0.08	22	51.14	0.08	0.00	0.08
12.00	**1.25**	**28**	**51.58**	**1.24**	**0.00**	**1.23**
14.00	**0.09**	**22**	**51.15**	**0.09**	**0.00**	**0.09**
16.00	0.05	22	51.10	0.05	0.00	0.05
18.00	0.03	21	51.08	0.03	0.00	0.03
20.00	0.02	21	51.07	0.02	0.00	0.02
22.00	0.02	21	51.06	0.02	0.00	0.02
24.00	0.02	21	51.06	0.02	0.00	0.01
26.00	0.00	13	50.47	0.00	0.00	0.00
28.00	0.00	6	49.91	0.00	0.00	0.00
30.00	0.00	0	49.50	0.00	0.00	0.00
32.00	0.00	0	49.50	0.00	0.00	0.00
34.00	0.00	0	49.50	0.00	0.00	0.00
36.00	0.00	0	49.50	0.00	0.00	0.00
38.00	0.00	0	49.50	0.00	0.00	0.00
40.00	0.00	0	49.50	0.00	0.00	0.00
42.00	0.00	0	49.50	0.00	0.00	0.00
44.00	0.00	0	49.50	0.00	0.00	0.00
46.00	0.00	0	49.50	0.00	0.00	0.00
48.00	0.00	0	49.50	0.00	0.00	0.00
50.00	0.00	0	49.50	0.00	0.00	0.00
52.00	0.00	0	49.50	0.00	0.00	0.00
54.00	0.00	0	49.50	0.00	0.00	0.00
56.00	0.00	0	49.50	0.00	0.00	0.00
58.00	0.00	0	49.50	0.00	0.00	0.00
60.00	0.00	0	49.50	0.00	0.00	0.00
62.00	0.00	0	49.50	0.00	0.00	0.00
64.00	0.00	0	49.50	0.00	0.00	0.00
66.00	0.00	0	49.50	0.00	0.00	0.00
68.00	0.00	0	49.50	0.00	0.00	0.00
70.00	0.00	0	49.50	0.00	0.00	0.00
72.00	0.00	0	49.50	0.00	0.00	0.00
74.00	0.00	0	49.50	0.00	0.00	0.00
76.00	0.00	0	49.50	0.00	0.00	0.00

Summary for Pond 25P: Det Area 5

Inflow Area = 3.191 ac,100.00% Impervious, Inflow Depth = 3.17" for 2 year event
Inflow = 10.93 cfs @ 12.07 hrs, Volume= 0.842 af
Outflow = 4.31 cfs @ 12.27 hrs, Volume= 0.842 af, Atten= 61%, Lag= 11.8 min
Discarded = 0.44 cfs @ 12.27 hrs, Volume= 0.434 af
Primary = 3.87 cfs @ 12.27 hrs, Volume= 0.408 af

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 52.65' @ 12.27 hrs Surf.Area= 6,864 sf Storage= 8,735 cf

Plug-Flow detention time= 29.8 min calculated for 0.842 af (100% of inflow)
Center-of-Mass det. time= 29.8 min (784.0 - 754.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	51.00'	1,798 cf	**132.00'W x 52.00'L x 4.00'H Field A** 27,456 cf Overall - 22,962 cf Embedded = 4,494 cf x 40.0% Voids
#2A	51.00'	17,294 cf	**Concrete Galley 4x4x4** x 390 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 390 Chambers in 30 Rows
		19,092 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.10'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	51.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.44 cfs @ 12.27 hrs HW=52.65' (Free Discharge)
└**2=Exfiltration** (Controls 0.44 cfs)

Primary OutFlow Max=3.87 cfs @ 12.27 hrs HW=52.65' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 3.87 cfs @ 4.93 fps)

Pond 25P: Det Area 5 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

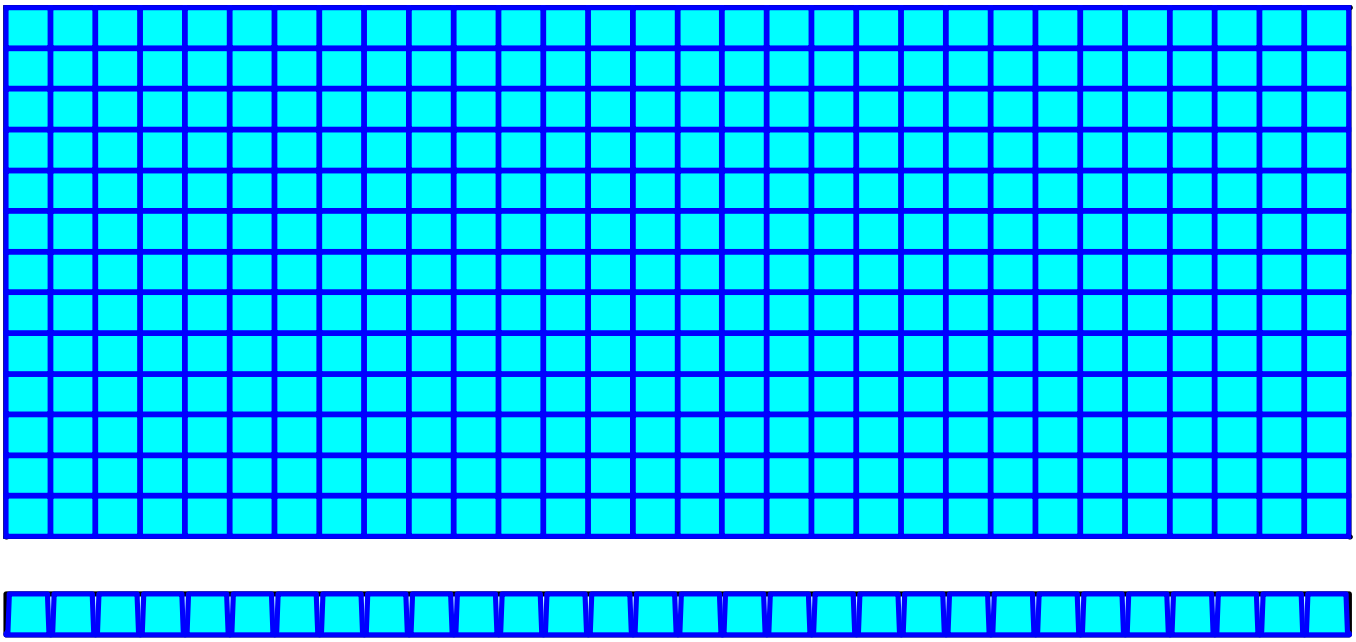
13 Chambers/Row x 4.00' Long = 52.00' Row Length
30 Rows x 52.8" Wide = 132.00' Base Width
48.0" Chamber Height = 4.00' Field Height

390 Chambers x 44.3 cf = 17,294.4 cf Chamber Storage
390 Chambers x 58.9 cf = 22,961.8 cf Displacement

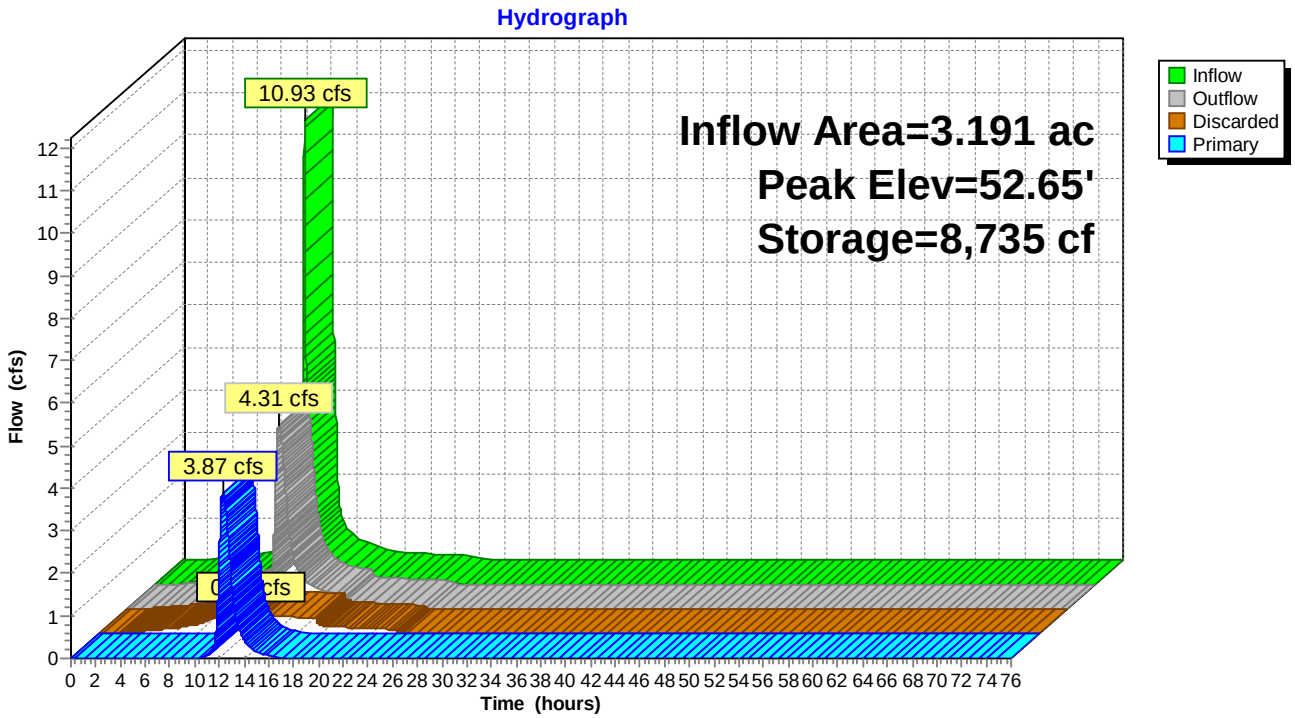
27,456.0 cf Field - 22,961.8 cf Chambers = 4,494.2 cf Stone x 40.0% Voids = 1,797.7 cf Stone Storage

Chamber Storage + Stone Storage = 19,092.1 cf = 0.438 af
Overall Storage Efficiency = 69.5%
Overall System Size = 52.00' x 132.00' x 4.00'

390 Chambers
1,016.9 cy Field
166.5 cy Stone



Pond 25P: Det Area 5



Hydrograph for Pond 25P: Det Area 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	51.00	0.00	0.00	0.00
2.00	0.02	10	51.00	0.02	0.02	0.00
4.00	0.08	40	51.01	0.07	0.07	0.00
6.00	0.13	67	51.01	0.13	0.13	0.00
8.00	0.24	124	51.02	0.23	0.23	0.00
10.00	0.49	357	51.07	0.39	0.39	0.00
12.00	**7.37**	**5,037**	**51.95**	**2.66**	**0.42**	**2.24**
14.00	**0.55**	**2,229**	**51.43**	**0.83**	**0.40**	**0.43**
16.00	0.29	1,045	51.20	0.44	0.39	0.05
18.00	0.18	104	51.02	0.19	0.19	0.00
20.00	0.14	78	51.02	0.15	0.15	0.00
22.00	0.12	64	51.01	0.12	0.12	0.00
24.00	0.09	51	51.01	0.10	0.10	0.00
26.00	0.00	0	51.00	0.00	0.00	0.00
28.00	0.00	0	51.00	0.00	0.00	0.00
30.00	0.00	0	51.00	0.00	0.00	0.00
32.00	0.00	0	51.00	0.00	0.00	0.00
34.00	0.00	0	51.00	0.00	0.00	0.00
36.00	0.00	0	51.00	0.00	0.00	0.00
38.00	0.00	0	51.00	0.00	0.00	0.00
40.00	0.00	0	51.00	0.00	0.00	0.00
42.00	0.00	0	51.00	0.00	0.00	0.00
44.00	0.00	0	51.00	0.00	0.00	0.00
46.00	0.00	0	51.00	0.00	0.00	0.00
48.00	0.00	0	51.00	0.00	0.00	0.00
50.00	0.00	0	51.00	0.00	0.00	0.00
52.00	0.00	0	51.00	0.00	0.00	0.00
54.00	0.00	0	51.00	0.00	0.00	0.00
56.00	0.00	0	51.00	0.00	0.00	0.00
58.00	0.00	0	51.00	0.00	0.00	0.00
60.00	0.00	0	51.00	0.00	0.00	0.00
62.00	0.00	0	51.00	0.00	0.00	0.00
64.00	0.00	0	51.00	0.00	0.00	0.00
66.00	0.00	0	51.00	0.00	0.00	0.00
68.00	0.00	0	51.00	0.00	0.00	0.00
70.00	0.00	0	51.00	0.00	0.00	0.00
72.00	0.00	0	51.00	0.00	0.00	0.00
74.00	0.00	0	51.00	0.00	0.00	0.00
76.00	0.00	0	51.00	0.00	0.00	0.00

Summary for Pond 26P: Detention Area 7

Inflow Area =	0.996 ac, 82.91% Impervious, Inflow Depth = 2.18" for 2 year event				
Inflow =	2.62 cfs @	12.07 hrs,	Volume=	0.181 af	
Outflow =	2.61 cfs @	12.08 hrs,	Volume=	0.181 af,	Atten= 1%, Lag= 0.5 min
Discarded =	0.01 cfs @	12.08 hrs,	Volume=	0.010 af	
Primary =	2.60 cfs @	12.08 hrs,	Volume=	0.171 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 47.97' @ 12.08 hrs Surf.Area= 0.002 ac Storage= 0.003 af

Plug-Flow detention time= 6.6 min calculated for 0.181 af (100% of inflow)
Center-of-Mass det. time= 6.6 min (818.3 - 811.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	46.50'	0.001 af	**8.80'W x 12.00'L x 4.00'H Field A** 0.010 af Overall - 0.008 af Embedded = 0.002 af x 40.0% Voids
#2A	46.50'	0.006 af	**Concrete Galley 4x4x4** x 6 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 6 Chambers in 2 Rows
		0.007 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	46.50'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.01 cfs @ 12.08 hrs HW=47.97' (Free Discharge)
└**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=2.60 cfs @ 12.08 hrs HW=47.97' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 2.60 cfs @ 3.35 fps)

Pond 26P: Detention Area 7 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

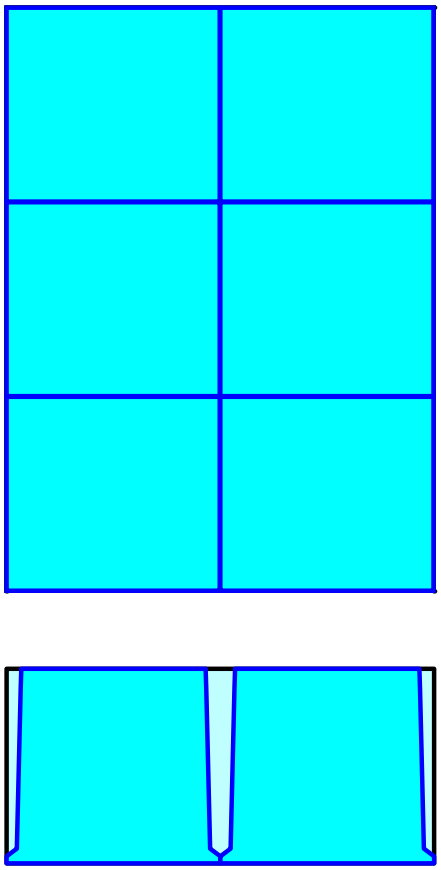
3 Chambers/Row x 4.00' Long = 12.00' Row Length
2 Rows x 52.8" Wide = 8.80' Base Width
48.0" Chamber Height = 4.00' Field Height

6 Chambers x 44.3 cf = 266.1 cf Chamber Storage
6 Chambers x 58.9 cf = 353.3 cf Displacement

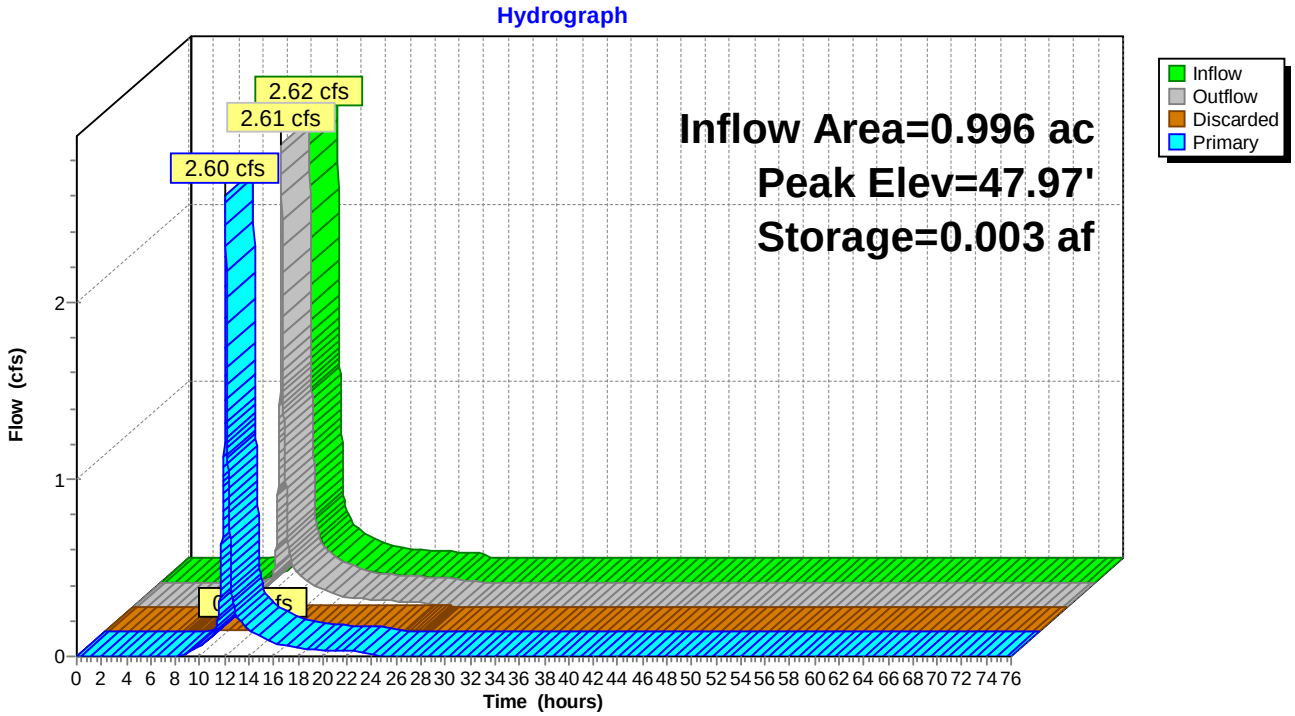
422.4 cf Field - 353.3 cf Chambers = 69.1 cf Stone x 40.0% Voids = 27.7 cf Stone Storage

Chamber Storage + Stone Storage = 293.7 cf = 0.007 af
Overall Storage Efficiency = 69.5%
Overall System Size = 12.00' x 8.80' x 4.00'

6 Chambers
15.6 cy Field
2.6 cy Stone



Pond 26P: Detention Area 7



Hydrograph for Pond 26P: Detention Area 7

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	46.50	0.00	0.00	0.00
2.00	0.00	0.000	46.50	0.00	0.00	0.00
4.00	0.00	0.000	46.50	0.00	0.00	0.00
6.00	0.00	0.000	46.50	0.00	0.00	0.00
8.00	0.01	0.000	46.63	0.01	0.01	0.00
10.00	0.06	0.001	47.11	0.06	0.01	0.05
12.00	**1.68**	**0.002**	**47.68**	**1.59**	**0.01**	**1.59**
14.00	**0.15**	**0.001**	**47.18**	**0.15**	**0.01**	**0.15**
16.00	0.08	0.001	47.13	0.08	0.01	0.08
18.00	0.05	0.001	47.10	0.05	0.01	0.04
20.00	0.04	0.001	47.09	0.04	0.01	0.03
22.00	0.03	0.001	47.08	0.03	0.01	0.03
24.00	0.03	0.001	47.07	0.03	0.01	0.02
26.00	0.00	0.000	46.52	0.00	0.00	0.00
28.00	0.00	0.000	46.50	0.00	0.00	0.00
30.00	0.00	0.000	46.50	0.00	0.00	0.00
32.00	0.00	0.000	46.50	0.00	0.00	0.00
34.00	0.00	0.000	46.50	0.00	0.00	0.00
36.00	0.00	0.000	46.50	0.00	0.00	0.00
38.00	0.00	0.000	46.50	0.00	0.00	0.00
40.00	0.00	0.000	46.50	0.00	0.00	0.00
42.00	0.00	0.000	46.50	0.00	0.00	0.00
44.00	0.00	0.000	46.50	0.00	0.00	0.00
46.00	0.00	0.000	46.50	0.00	0.00	0.00
48.00	0.00	0.000	46.50	0.00	0.00	0.00
50.00	0.00	0.000	46.50	0.00	0.00	0.00
52.00	0.00	0.000	46.50	0.00	0.00	0.00
54.00	0.00	0.000	46.50	0.00	0.00	0.00
56.00	0.00	0.000	46.50	0.00	0.00	0.00
58.00	0.00	0.000	46.50	0.00	0.00	0.00
60.00	0.00	0.000	46.50	0.00	0.00	0.00
62.00	0.00	0.000	46.50	0.00	0.00	0.00
64.00	0.00	0.000	46.50	0.00	0.00	0.00
66.00	0.00	0.000	46.50	0.00	0.00	0.00
68.00	0.00	0.000	46.50	0.00	0.00	0.00
70.00	0.00	0.000	46.50	0.00	0.00	0.00
72.00	0.00	0.000	46.50	0.00	0.00	0.00
74.00	0.00	0.000	46.50	0.00	0.00	0.00
76.00	0.00	0.000	46.50	0.00	0.00	0.00

Time span=0.00-76.00 hrs, dt=0.01 hrs, 7601 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: EXISTING Runoff Area=682,179 sf 65.16% Impervious Runoff Depth=2.46"
Tc=5.0 min CN=78 Runoff=46.80 cfs 3.209 af

Subcatchment 2S: No infil Runoff Area=209,877 sf 5.48% Impervious Runoff Depth=0.39"
Tc=5.0 min CN=46 Runoff=0.82 cfs 0.158 af

Subcatchment 12S: Area 2 Runoff Area=62,880 sf 93.39% Impervious Runoff Depth=4.01"
Tc=5.0 min CN=94 Runoff=6.57 cfs 0.483 af

Subcatchment 15S: Area 3 Runoff Area=49,802 sf 100.00% Impervious Runoff Depth=4.46"
Tc=5.0 min CN=98 Runoff=5.44 cfs 0.425 af

Subcatchment 17S: Area 4 Runoff Area=38,330 sf 96.89% Impervious Runoff Depth=4.23"
Tc=5.0 min CN=96 Runoff=4.11 cfs 0.311 af

Subcatchment 18S: Area 5 Runoff Area=52,288 sf 95.56% Impervious Runoff Depth=4.12"
Tc=5.0 min CN=95 Runoff=5.54 cfs 0.412 af

Subcatchment 21S: Area 7 Runoff Area=23,504 sf 100.00% Impervious Runoff Depth=4.46"
Tc=5.0 min CN=98 Runoff=2.57 cfs 0.201 af

Subcatchment 22S: Area 8 Runoff Area=43,400 sf 82.91% Impervious Runoff Depth=3.38"
Tc=5.0 min CN=88 Runoff=4.02 cfs 0.281 af

Subcatchment 23S: Area 6 Building Runoff Area=139,000 sf 100.00% Impervious Runoff Depth=4.46"
Tc=5.0 min CN=98 Runoff=15.19 cfs 1.187 af

Subcatchment 28S: Area 1 Runoff Area=63,098 sf 81.50% Impervious Runoff Depth=3.29"
Tc=5.0 min CN=87 Runoff=5.70 cfs 0.397 af

Reach 6R: (new Reach) Inflow=27.08 cfs 2.409 af
Outflow=27.08 cfs 2.409 af

Pond 11P: Detention Area 1 Peak Elev=44.52' Storage=0.071 af Inflow=5.70 cfs 0.397 af
Discarded=0.20 cfs 0.173 af Primary=3.82 cfs 0.224 af Outflow=4.02 cfs 0.397 af

Pond 13P: Detention Area 2 Peak Elev=44.04' Storage=0.090 af Inflow=6.57 cfs 0.483 af
Discarded=0.31 cfs 0.236 af Primary=4.04 cfs 0.246 af Outflow=4.35 cfs 0.483 af

Pond 14P: Area 4 Peak Elev=52.63' Storage=0.059 af Inflow=5.54 cfs 0.412 af
Discarded=0.09 cfs 0.138 af Primary=4.02 cfs 0.275 af Outflow=4.11 cfs 0.412 af

Pond 19P: Detention Area 3 Peak Elev=43.50' Storage=5,904 cf Inflow=9.55 cfs 0.736 af
Discarded=0.60 cfs 0.363 af Primary=4.63 cfs 0.373 af Outflow=5.23 cfs 0.736 af

Pond 24P: Detention Area 6 Peak Elev=51.95' Storage=33 cf Inflow=2.57 cfs 0.201 af
Discarded=0.00 cfs 0.003 af Primary=2.57 cfs 0.198 af Outflow=2.57 cfs 0.201 af

Pond 25P: Det Area 5 Peak Elev=53.36' Storage=12,467 cf Inflow=15.19 cfs 1.187 af
Discarded=0.46 cfs 0.522 af Primary=5.01 cfs 0.665 af Outflow=5.48 cfs 1.187 af

Pond 26P: Detention Area 7 Peak Elev=48.60' Storage=0.004 af Inflow=4.02 cfs 0.281 af
Discarded=0.01 cfs 0.011 af Primary=3.96 cfs 0.270 af Outflow=3.97 cfs 0.281 af

Total Runoff Area = 31.321 ac Runoff Volume = 7.063 af Average Runoff Depth = 2.71"
33.92% Pervious = 10.624 ac 66.08% Impervious = 20.697 ac

Summary for Subcatchment 1S: EXISTING

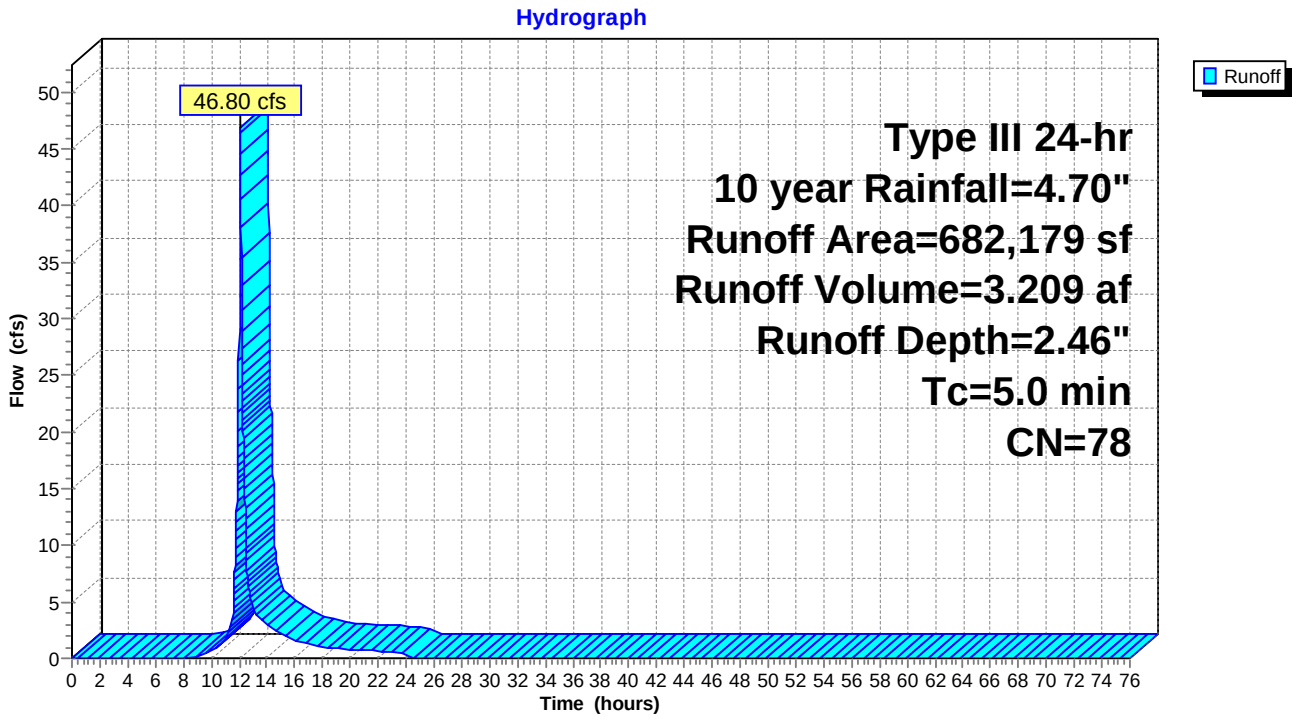
Runoff = 46.80 cfs @ 12.08 hrs, Volume= 3.209 af, Depth= 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.70"

	Area (sf)	CN	Description
*	45,757	98	Existing Impervious
	553,853	81	Urban industrial, 72% imp, HSG A
	62,264	32	Woods/grass comb., Good, HSG A
	20,305	98	Water Surface, 0% imp, HSG A
	682,179	78	Weighted Average
	237,648		34.84% Pervious Area
	444,531		65.16% Impervious Area

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

Subcatchment 1S: EXISTING



Hydrograph for Subcatchment 1S: EXISTING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	4.70	2.46	0.00
1.00	0.05	0.00	0.00	54.00	4.70	2.46	0.00
2.00	0.09	0.00	0.00	55.00	4.70	2.46	0.00
3.00	0.14	0.00	0.00	56.00	4.70	2.46	0.00
4.00	0.20	0.00	0.00	57.00	4.70	2.46	0.00
5.00	0.27	0.00	0.00	58.00	4.70	2.46	0.00
6.00	0.34	0.00	0.00	59.00	4.70	2.46	0.00
7.00	0.43	0.00	0.00	60.00	4.70	2.46	0.00
8.00	0.54	0.00	0.00	61.00	4.70	2.46	0.00
9.00	0.69	0.00	0.20	62.00	4.70	2.46	0.00
10.00	0.89	0.03	0.67	63.00	4.70	2.46	0.00
11.00	1.18	0.11	1.66	64.00	4.70	2.46	0.00
12.00	2.35	0.69	**29.06**	65.00	4.70	2.46	0.00
13.00	3.52	1.52	**4.52**	66.00	4.70	2.46	0.00
14.00	3.81	1.74	2.95	67.00	4.70	2.46	0.00
15.00	4.01	1.90	2.27	68.00	4.70	2.46	0.00
16.00	4.16	2.02	1.61	69.00	4.70	2.46	0.00
17.00	4.27	2.11	1.29	70.00	4.70	2.46	0.00
18.00	4.36	2.18	0.99	71.00	4.70	2.46	0.00
19.00	4.43	2.24	0.89	72.00	4.70	2.46	0.00
20.00	4.50	2.29	0.80	73.00	4.70	2.46	0.00
21.00	4.56	2.34	0.74	74.00	4.70	2.46	0.00
22.00	4.61	2.38	0.67	75.00	4.70	2.46	0.00
23.00	4.66	2.42	0.60	76.00	4.70	2.46	0.00
24.00	**4.70**	**2.46**	0.53				
25.00	4.70	2.46	0.00				
26.00	4.70	2.46	0.00				
27.00	4.70	2.46	0.00				
28.00	4.70	2.46	0.00				
29.00	4.70	2.46	0.00				
30.00	4.70	2.46	0.00				
31.00	4.70	2.46	0.00				
32.00	4.70	2.46	0.00				
33.00	4.70	2.46	0.00				
34.00	4.70	2.46	0.00				
35.00	4.70	2.46	0.00				
36.00	4.70	2.46	0.00				
37.00	4.70	2.46	0.00				
38.00	4.70	2.46	0.00				
39.00	4.70	2.46	0.00				
40.00	4.70	2.46	0.00				
41.00	4.70	2.46	0.00				
42.00	4.70	2.46	0.00				
43.00	4.70	2.46	0.00				
44.00	4.70	2.46	0.00				
45.00	4.70	2.46	0.00				
46.00	4.70	2.46	0.00				
47.00	4.70	2.46	0.00				
48.00	4.70	2.46	0.00				
49.00	4.70	2.46	0.00				
50.00	4.70	2.46	0.00				
51.00	4.70	2.46	0.00				
52.00	4.70	2.46	0.00				

Summary for Subcatchment 2S: No infil

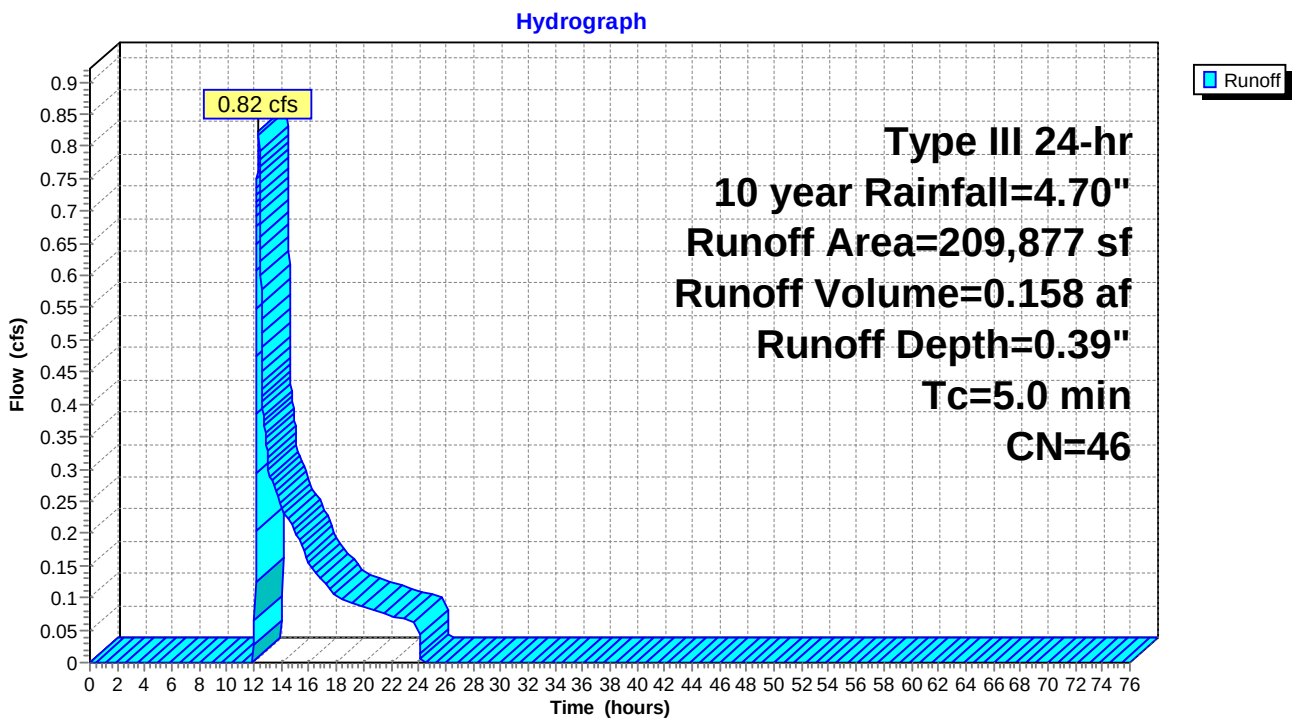
Runoff = 0.82 cfs @ 12.30 hrs, Volume= 0.158 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.70"

	Area (sf)	CN	Description
*	8,203	98	ex bldg
	114,294	39	>75% Grass cover, Good, HSG A
*	3,305	98	IMPERVIOUS
	20,305	98	Water Surface, 0% imp, HSG A
	61,509	32	Woods/grass comb., Good, HSG A
	2,261	76	Gravel roads, HSG A
	209,877	46	Weighted Average
	198,369		94.52% Pervious Area
	11,508		5.48% Impervious Area

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

Subcatchment 2S: No infil



Hydrograph for Subcatchment 2S: No infil

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	4.70	0.39	0.00
1.00	0.05	0.00	0.00	54.00	4.70	0.39	0.00
2.00	0.09	0.00	0.00	55.00	4.70	0.39	0.00
3.00	0.14	0.00	0.00	56.00	4.70	0.39	0.00
4.00	0.20	0.00	0.00	57.00	4.70	0.39	0.00
5.00	0.27	0.00	0.00	58.00	4.70	0.39	0.00
6.00	0.34	0.00	0.00	59.00	4.70	0.39	0.00
7.00	0.43	0.00	0.00	60.00	4.70	0.39	0.00
8.00	0.54	0.00	0.00	61.00	4.70	0.39	0.00
9.00	0.69	0.00	0.00	62.00	4.70	0.39	0.00
10.00	0.89	0.00	0.00	63.00	4.70	0.39	0.00
11.00	1.18	0.00	0.00	64.00	4.70	0.39	0.00
12.00	2.35	0.00	**0.00**	65.00	4.70	0.39	0.00
13.00	3.52	0.11	**0.31**	66.00	4.70	0.39	0.00
14.00	3.81	0.16	0.24	67.00	4.70	0.39	0.00
15.00	4.01	0.21	0.20	68.00	4.70	0.39	0.00
16.00	4.16	0.24	0.15	69.00	4.70	0.39	0.00
17.00	4.27	0.27	0.13	70.00	4.70	0.39	0.00
18.00	4.36	0.29	0.10	71.00	4.70	0.39	0.00
19.00	4.43	0.31	0.09	72.00	4.70	0.39	0.00
20.00	4.50	0.33	0.09	73.00	4.70	0.39	0.00
21.00	4.56	0.35	0.08	74.00	4.70	0.39	0.00
22.00	4.61	0.37	0.07	75.00	4.70	0.39	0.00
23.00	4.66	0.38	0.07	76.00	4.70	0.39	0.00
24.00	**4.70**	**0.39**	0.06				
25.00	4.70	0.39	0.00				
26.00	4.70	0.39	0.00				
27.00	4.70	0.39	0.00				
28.00	4.70	0.39	0.00				
29.00	4.70	0.39	0.00				
30.00	4.70	0.39	0.00				
31.00	4.70	0.39	0.00				
32.00	4.70	0.39	0.00				
33.00	4.70	0.39	0.00				
34.00	4.70	0.39	0.00				
35.00	4.70	0.39	0.00				
36.00	4.70	0.39	0.00				
37.00	4.70	0.39	0.00				
38.00	4.70	0.39	0.00				
39.00	4.70	0.39	0.00				
40.00	4.70	0.39	0.00				
41.00	4.70	0.39	0.00				
42.00	4.70	0.39	0.00				
43.00	4.70	0.39	0.00				
44.00	4.70	0.39	0.00				
45.00	4.70	0.39	0.00				
46.00	4.70	0.39	0.00				
47.00	4.70	0.39	0.00				
48.00	4.70	0.39	0.00				
49.00	4.70	0.39	0.00				
50.00	4.70	0.39	0.00				
51.00	4.70	0.39	0.00				
52.00	4.70	0.39	0.00				

Summary for Subcatchment 12S: Area 2

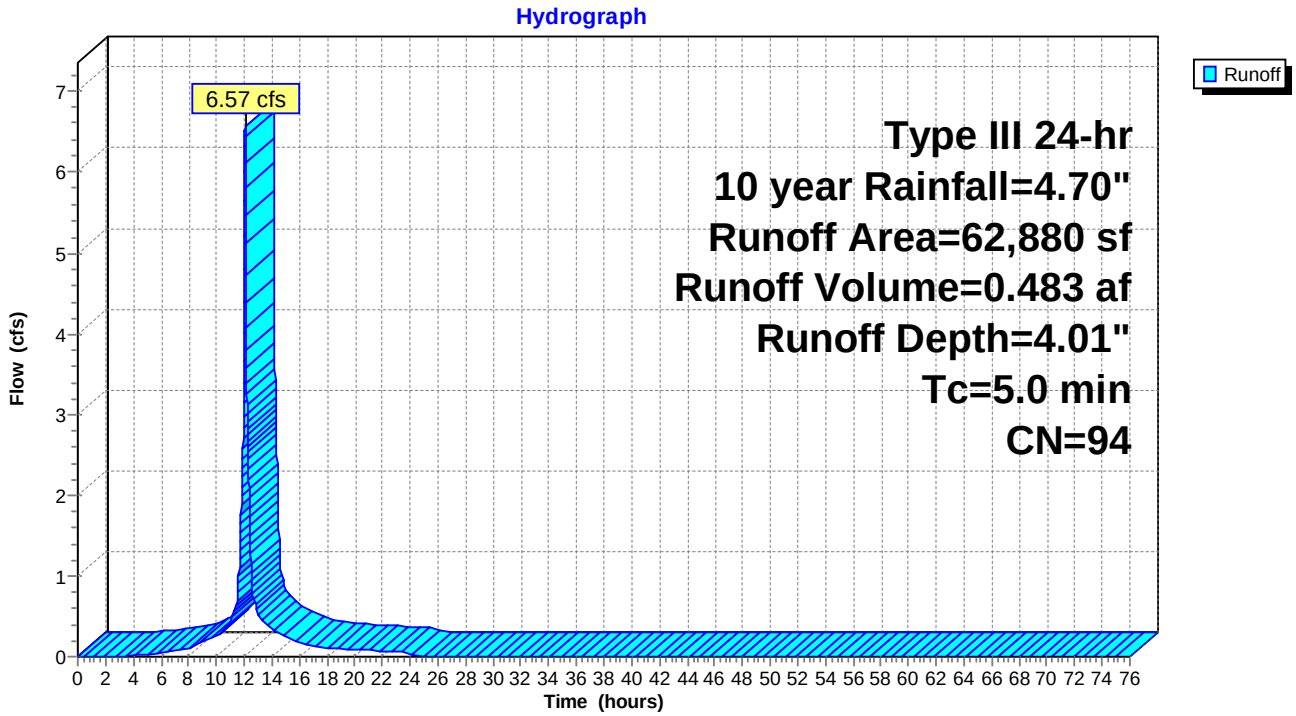
Runoff = 6.57 cfs @ 12.07 hrs, Volume= 0.483 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.70"

	Area (sf)	CN	Description
*	58,726	98	driveway
	4,154	39	>75% Grass cover, Good, HSG A
	62,880	94	Weighted Average
	4,154		6.61% Pervious Area
	58,726		93.39% Impervious Area

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

Subcatchment 12S: Area 2



Hydrograph for Subcatchment 12S: Area 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	53.00	4.70	4.01	0.00
1.00	0.05	0.00	0.00	54.00	4.70	4.01	0.00
2.00	0.09	0.00	0.00	55.00	4.70	4.01	0.00
3.00	0.14	0.00	0.00	56.00	4.70	4.01	0.00
4.00	0.20	0.01	0.02	57.00	4.70	4.01	0.00
5.00	0.27	0.02	0.03	58.00	4.70	4.01	0.00
6.00	0.34	0.05	0.05	59.00	4.70	4.01	0.00
7.00	0.43	0.09	0.07	60.00	4.70	4.01	0.00
8.00	0.54	0.16	0.11	61.00	4.70	4.01	0.00
9.00	0.69	0.26	0.18	62.00	4.70	4.01	0.00
10.00	0.89	0.41	0.26	63.00	4.70	4.01	0.00
11.00	1.18	0.65	0.41	64.00	4.70	4.01	0.00
12.00	2.35	1.73	**4.39**	65.00	4.70	4.01	0.00
13.00	3.52	2.86	**0.53**	66.00	4.70	4.01	0.00
14.00	3.81	3.14	0.34	67.00	4.70	4.01	0.00
15.00	4.01	3.34	0.26	68.00	4.70	4.01	0.00
16.00	4.16	3.49	0.18	69.00	4.70	4.01	0.00
17.00	4.27	3.59	0.14	70.00	4.70	4.01	0.00
18.00	4.36	3.68	0.11	71.00	4.70	4.01	0.00
19.00	4.43	3.75	0.10	72.00	4.70	4.01	0.00
20.00	4.50	3.81	0.09	73.00	4.70	4.01	0.00
21.00	4.56	3.87	0.08	74.00	4.70	4.01	0.00
22.00	4.61	3.92	0.07	75.00	4.70	4.01	0.00
23.00	4.66	3.97	0.07	76.00	4.70	4.01	0.00
24.00	**4.70**	**4.01**	0.06				
25.00	4.70	4.01	0.00				
26.00	4.70	4.01	0.00				
27.00	4.70	4.01	0.00				
28.00	4.70	4.01	0.00				
29.00	4.70	4.01	0.00				
30.00	4.70	4.01	0.00				
31.00	4.70	4.01	0.00				
32.00	4.70	4.01	0.00				
33.00	4.70	4.01	0.00				
34.00	4.70	4.01	0.00				
35.00	4.70	4.01	0.00				
36.00	4.70	4.01	0.00				
37.00	4.70	4.01	0.00				
38.00	4.70	4.01	0.00				
39.00	4.70	4.01	0.00				
40.00	4.70	4.01	0.00				
41.00	4.70	4.01	0.00				
42.00	4.70	4.01	0.00				
43.00	4.70	4.01	0.00				
44.00	4.70	4.01	0.00				
45.00	4.70	4.01	0.00				
46.00	4.70	4.01	0.00				
47.00	4.70	4.01	0.00				
48.00	4.70	4.01	0.00				
49.00	4.70	4.01	0.00				
50.00	4.70	4.01	0.00				
51.00	4.70	4.01	0.00				
52.00	4.70	4.01	0.00				

Summary for Subcatchment 15S: Area 3

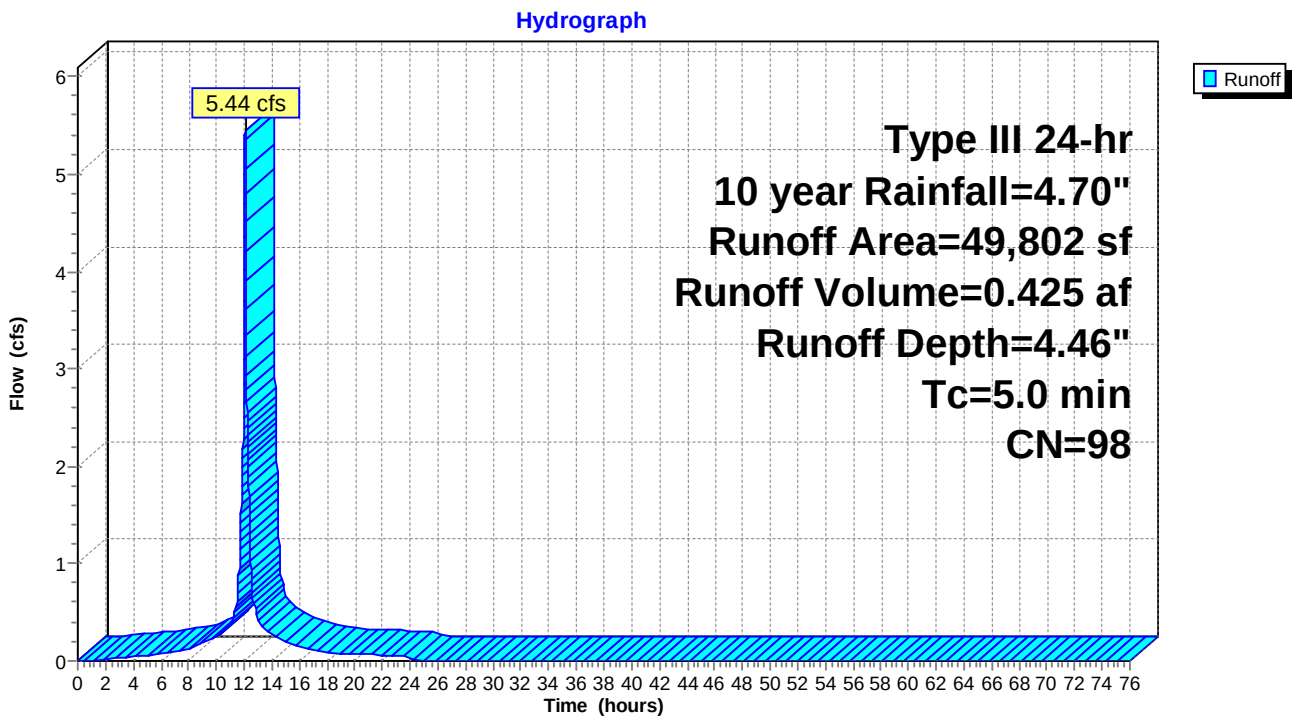
Runoff = 5.44 cfs @ 12.07 hrs, Volume= 0.425 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.70"

	Area (sf)	CN	Description
*	49,802	98	Building
	49,802		100.00% Impervious Area

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

Subcatchment 15S: Area 3



Hydrograph for Subcatchment 15S: Area 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	4.70	4.46	0.00
1.00	0.05	0.00	0.00	54.00	4.70	4.46	0.00
2.00	0.09	0.01	0.02	55.00	4.70	4.46	0.00
3.00	0.14	0.03	0.03	56.00	4.70	4.46	0.00
4.00	0.20	0.07	0.05	57.00	4.70	4.46	0.00
5.00	0.27	0.12	0.06	58.00	4.70	4.46	0.00
6.00	0.34	0.18	0.07	59.00	4.70	4.46	0.00
7.00	0.43	0.25	0.10	60.00	4.70	4.46	0.00
8.00	0.54	0.35	0.13	61.00	4.70	4.46	0.00
9.00	0.69	0.49	0.19	62.00	4.70	4.46	0.00
10.00	0.89	0.68	0.25	63.00	4.70	4.46	0.00
11.00	1.18	0.96	0.38	64.00	4.70	4.46	0.00
12.00	2.35	2.12	**3.68**	65.00	4.70	4.46	0.00
13.00	3.52	3.29	**0.43**	66.00	4.70	4.46	0.00
14.00	3.81	3.58	0.27	67.00	4.70	4.46	0.00
15.00	4.01	3.78	0.21	68.00	4.70	4.46	0.00
16.00	4.16	3.93	0.15	69.00	4.70	4.46	0.00
17.00	4.27	4.04	0.12	70.00	4.70	4.46	0.00
18.00	4.36	4.13	0.09	71.00	4.70	4.46	0.00
19.00	4.43	4.20	0.08	72.00	4.70	4.46	0.00
20.00	4.50	4.26	0.07	73.00	4.70	4.46	0.00
21.00	4.56	4.32	0.06	74.00	4.70	4.46	0.00
22.00	4.61	4.37	0.06	75.00	4.70	4.46	0.00
23.00	4.66	4.42	0.05	76.00	4.70	4.46	0.00
24.00	**4.70**	**4.46**	0.05				
25.00	4.70	4.46	0.00				
26.00	4.70	4.46	0.00				
27.00	4.70	4.46	0.00				
28.00	4.70	4.46	0.00				
29.00	4.70	4.46	0.00				
30.00	4.70	4.46	0.00				
31.00	4.70	4.46	0.00				
32.00	4.70	4.46	0.00				
33.00	4.70	4.46	0.00				
34.00	4.70	4.46	0.00				
35.00	4.70	4.46	0.00				
36.00	4.70	4.46	0.00				
37.00	4.70	4.46	0.00				
38.00	4.70	4.46	0.00				
39.00	4.70	4.46	0.00				
40.00	4.70	4.46	0.00				
41.00	4.70	4.46	0.00				
42.00	4.70	4.46	0.00				
43.00	4.70	4.46	0.00				
44.00	4.70	4.46	0.00				
45.00	4.70	4.46	0.00				
46.00	4.70	4.46	0.00				
47.00	4.70	4.46	0.00				
48.00	4.70	4.46	0.00				
49.00	4.70	4.46	0.00				
50.00	4.70	4.46	0.00				
51.00	4.70	4.46	0.00				
52.00	4.70	4.46	0.00				

Summary for Subcatchment 17S: Area 4

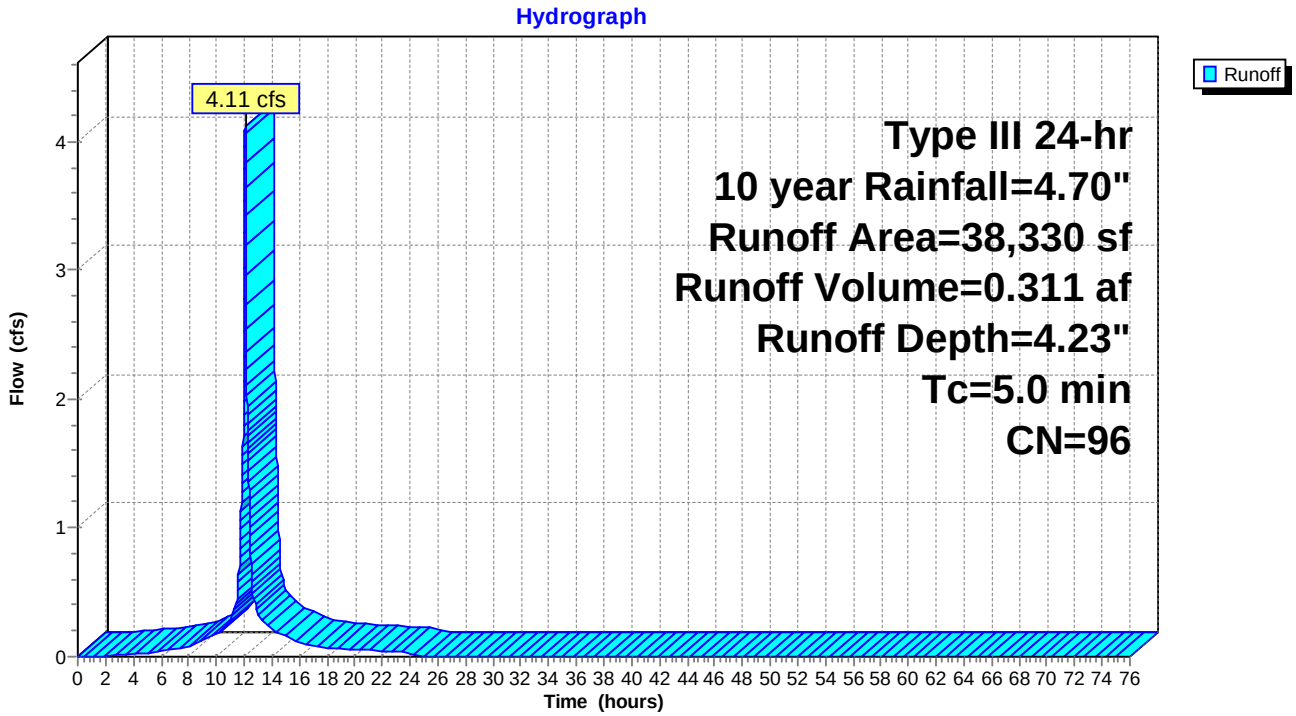
Runoff = 4.11 cfs @ 12.07 hrs, Volume= 0.311 af, Depth= 4.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.70"

	Area (sf)	CN	Description
*	37,139	98	driveway
	1,191	39	>75% Grass cover, Good, HSG A
	38,330	96	Weighted Average
	1,191		3.11% Pervious Area
	37,139		96.89% Impervious Area

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

Subcatchment 17S: Area 4



Hydrograph for Subcatchment 17S: Area 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	53.00	4.70	4.23	0.00
1.00	0.05	0.00	0.00	54.00	4.70	4.23	0.00
2.00	0.09	0.00	0.00	55.00	4.70	4.23	0.00
3.00	0.14	0.01	0.01	56.00	4.70	4.23	0.00
4.00	0.20	0.03	0.02	57.00	4.70	4.23	0.00
5.00	0.27	0.06	0.03	58.00	4.70	4.23	0.00
6.00	0.34	0.10	0.04	59.00	4.70	4.23	0.00
7.00	0.43	0.15	0.06	60.00	4.70	4.23	0.00
8.00	0.54	0.24	0.08	61.00	4.70	4.23	0.00
9.00	0.69	0.36	0.13	62.00	4.70	4.23	0.00
10.00	0.89	0.53	0.18	63.00	4.70	4.23	0.00
11.00	1.18	0.79	0.27	64.00	4.70	4.23	0.00
12.00	2.35	1.91	**2.77**	65.00	4.70	4.23	0.00
13.00	3.52	3.07	**0.33**	66.00	4.70	4.23	0.00
14.00	3.81	3.35	0.21	67.00	4.70	4.23	0.00
15.00	4.01	3.55	0.16	68.00	4.70	4.23	0.00
16.00	4.16	3.70	0.11	69.00	4.70	4.23	0.00
17.00	4.27	3.81	0.09	70.00	4.70	4.23	0.00
18.00	4.36	3.90	0.07	71.00	4.70	4.23	0.00
19.00	4.43	3.97	0.06	72.00	4.70	4.23	0.00
20.00	4.50	4.03	0.05	73.00	4.70	4.23	0.00
21.00	4.56	4.09	0.05	74.00	4.70	4.23	0.00
22.00	4.61	4.14	0.04	75.00	4.70	4.23	0.00
23.00	4.66	4.19	0.04	76.00	4.70	4.23	0.00
24.00	**4.70**	**4.23**	0.04				
25.00	4.70	4.23	0.00				
26.00	4.70	4.23	0.00				
27.00	4.70	4.23	0.00				
28.00	4.70	4.23	0.00				
29.00	4.70	4.23	0.00				
30.00	4.70	4.23	0.00				
31.00	4.70	4.23	0.00				
32.00	4.70	4.23	0.00				
33.00	4.70	4.23	0.00				
34.00	4.70	4.23	0.00				
35.00	4.70	4.23	0.00				
36.00	4.70	4.23	0.00				
37.00	4.70	4.23	0.00				
38.00	4.70	4.23	0.00				
39.00	4.70	4.23	0.00				
40.00	4.70	4.23	0.00				
41.00	4.70	4.23	0.00				
42.00	4.70	4.23	0.00				
43.00	4.70	4.23	0.00				
44.00	4.70	4.23	0.00				
45.00	4.70	4.23	0.00				
46.00	4.70	4.23	0.00				
47.00	4.70	4.23	0.00				
48.00	4.70	4.23	0.00				
49.00	4.70	4.23	0.00				
50.00	4.70	4.23	0.00				
51.00	4.70	4.23	0.00				
52.00	4.70	4.23	0.00				

Summary for Subcatchment 18S: Area 5

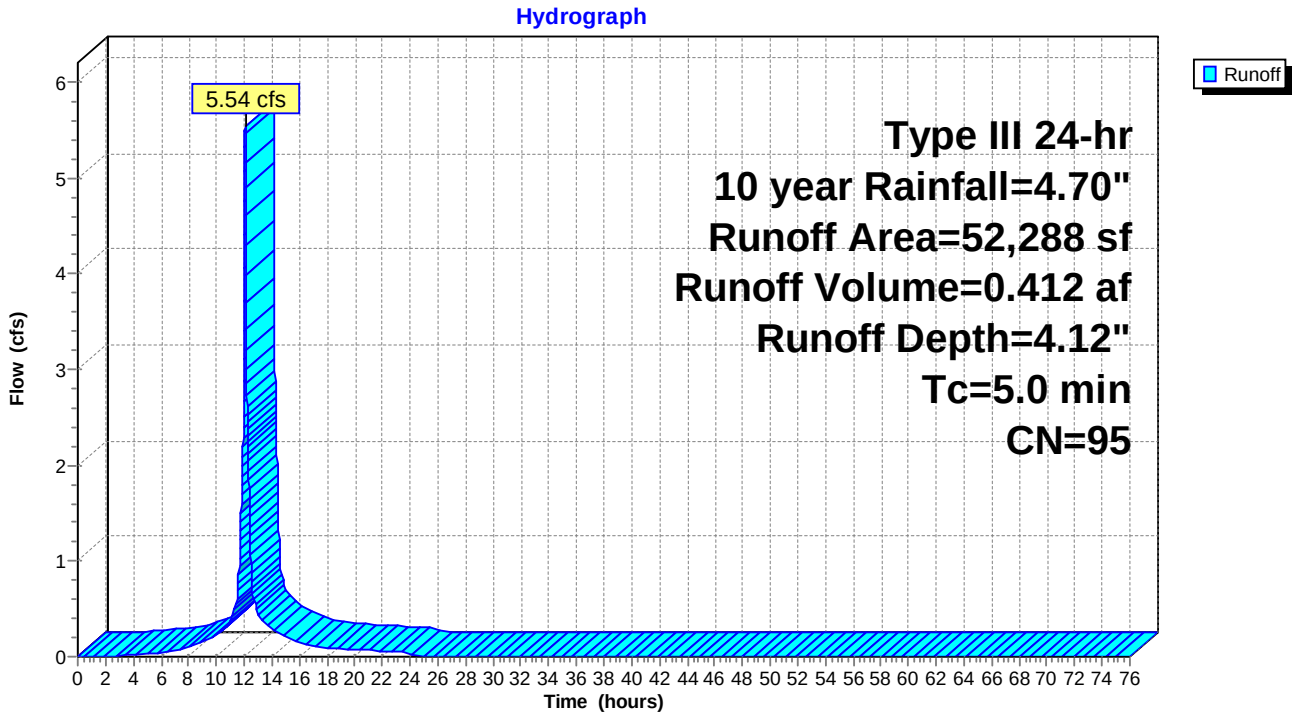
Runoff = 5.54 cfs @ 12.07 hrs, Volume= 0.412 af, Depth= 4.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.70"

	Area (sf)	CN	Description
*	49,966	98	driveway
	2,322	39	>75% Grass cover, Good, HSG A
	52,288	95	Weighted Average
	2,322		4.44% Pervious Area
	49,966		95.56% Impervious Area

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

Subcatchment 18S: Area 5



Hydrograph for Subcatchment 18S: Area 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	53.00	4.70	4.12	0.00
1.00	0.05	0.00	0.00	54.00	4.70	4.12	0.00
2.00	0.09	0.00	0.00	55.00	4.70	4.12	0.00
3.00	0.14	0.00	0.01	56.00	4.70	4.12	0.00
4.00	0.20	0.02	0.02	57.00	4.70	4.12	0.00
5.00	0.27	0.04	0.03	58.00	4.70	4.12	0.00
6.00	0.34	0.07	0.05	59.00	4.70	4.12	0.00
7.00	0.43	0.12	0.07	60.00	4.70	4.12	0.00
8.00	0.54	0.19	0.10	61.00	4.70	4.12	0.00
9.00	0.69	0.30	0.16	62.00	4.70	4.12	0.00
10.00	0.89	0.47	0.23	63.00	4.70	4.12	0.00
11.00	1.18	0.72	0.36	64.00	4.70	4.12	0.00
12.00	2.35	1.82	**3.72**	65.00	4.70	4.12	0.00
13.00	3.52	2.96	**0.45**	66.00	4.70	4.12	0.00
14.00	3.81	3.25	0.28	67.00	4.70	4.12	0.00
15.00	4.01	3.45	0.22	68.00	4.70	4.12	0.00
16.00	4.16	3.59	0.15	69.00	4.70	4.12	0.00
17.00	4.27	3.70	0.12	70.00	4.70	4.12	0.00
18.00	4.36	3.79	0.09	71.00	4.70	4.12	0.00
19.00	4.43	3.86	0.08	72.00	4.70	4.12	0.00
20.00	4.50	3.92	0.07	73.00	4.70	4.12	0.00
21.00	4.56	3.98	0.07	74.00	4.70	4.12	0.00
22.00	4.61	4.03	0.06	75.00	4.70	4.12	0.00
23.00	4.66	4.08	0.05	76.00	4.70	4.12	0.00
24.00	**4.70**	**4.12**	0.05				
25.00	4.70	4.12	0.00				
26.00	4.70	4.12	0.00				
27.00	4.70	4.12	0.00				
28.00	4.70	4.12	0.00				
29.00	4.70	4.12	0.00				
30.00	4.70	4.12	0.00				
31.00	4.70	4.12	0.00				
32.00	4.70	4.12	0.00				
33.00	4.70	4.12	0.00				
34.00	4.70	4.12	0.00				
35.00	4.70	4.12	0.00				
36.00	4.70	4.12	0.00				
37.00	4.70	4.12	0.00				
38.00	4.70	4.12	0.00				
39.00	4.70	4.12	0.00				
40.00	4.70	4.12	0.00				
41.00	4.70	4.12	0.00				
42.00	4.70	4.12	0.00				
43.00	4.70	4.12	0.00				
44.00	4.70	4.12	0.00				
45.00	4.70	4.12	0.00				
46.00	4.70	4.12	0.00				
47.00	4.70	4.12	0.00				
48.00	4.70	4.12	0.00				
49.00	4.70	4.12	0.00				
50.00	4.70	4.12	0.00				
51.00	4.70	4.12	0.00				
52.00	4.70	4.12	0.00				

Summary for Subcatchment 21S: Area 7

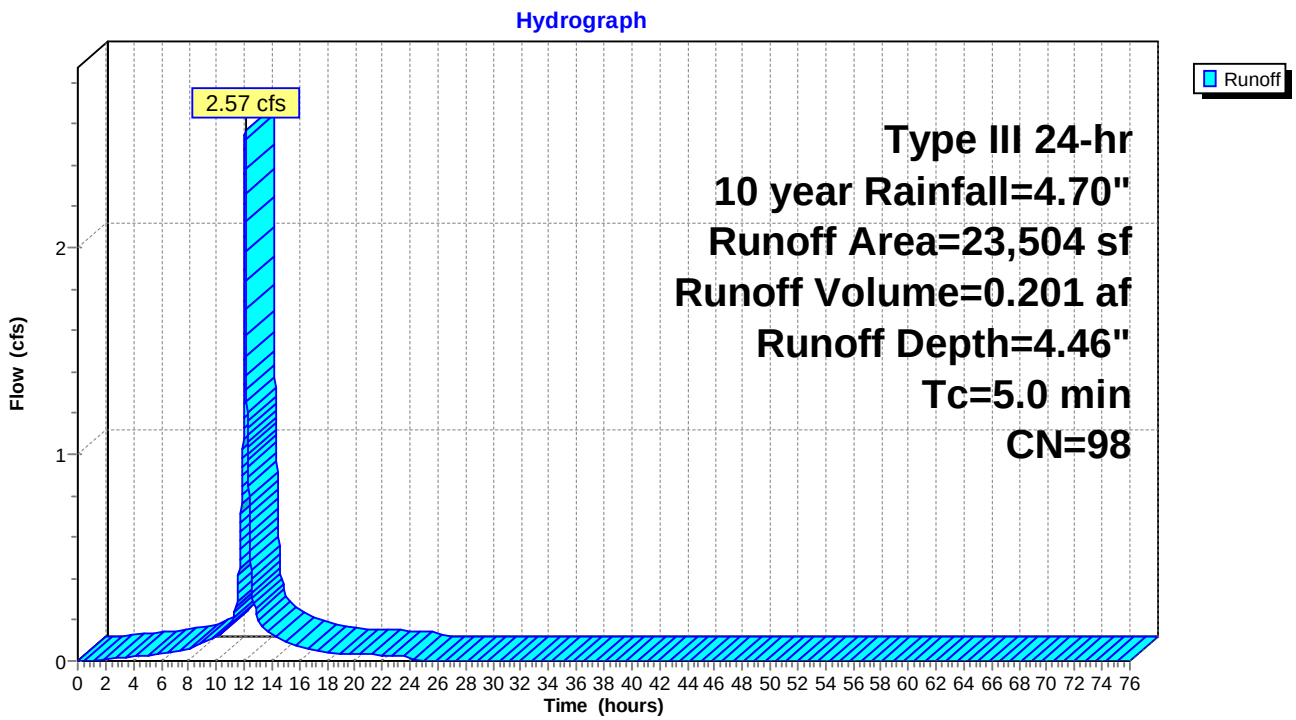
Runoff = 2.57 cfs @ 12.07 hrs, Volume= 0.201 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.70"

	Area (sf)	CN	Description
*	23,504	98	Roadway
	23,504		100.00% Impervious Area

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

Subcatchment 21S: Area 7



Hydrograph for Subcatchment 21S: Area 7

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	4.70	4.46	0.00
1.00	0.05	0.00	0.00	54.00	4.70	4.46	0.00
2.00	0.09	0.01	0.01	55.00	4.70	4.46	0.00
3.00	0.14	0.03	0.02	56.00	4.70	4.46	0.00
4.00	0.20	0.07	0.02	57.00	4.70	4.46	0.00
5.00	0.27	0.12	0.03	58.00	4.70	4.46	0.00
6.00	0.34	0.18	0.03	59.00	4.70	4.46	0.00
7.00	0.43	0.25	0.05	60.00	4.70	4.46	0.00
8.00	0.54	0.35	0.06	61.00	4.70	4.46	0.00
9.00	0.69	0.49	0.09	62.00	4.70	4.46	0.00
10.00	0.89	0.68	0.12	63.00	4.70	4.46	0.00
11.00	1.18	0.96	0.18	64.00	4.70	4.46	0.00
12.00	2.35	2.12	**1.74**	65.00	4.70	4.46	0.00
13.00	3.52	3.29	**0.20**	66.00	4.70	4.46	0.00
14.00	3.81	3.58	0.13	67.00	4.70	4.46	0.00
15.00	4.01	3.78	0.10	68.00	4.70	4.46	0.00
16.00	4.16	3.93	0.07	69.00	4.70	4.46	0.00
17.00	4.27	4.04	0.05	70.00	4.70	4.46	0.00
18.00	4.36	4.13	0.04	71.00	4.70	4.46	0.00
19.00	4.43	4.20	0.04	72.00	4.70	4.46	0.00
20.00	4.50	4.26	0.03	73.00	4.70	4.46	0.00
21.00	4.56	4.32	0.03	74.00	4.70	4.46	0.00
22.00	4.61	4.37	0.03	75.00	4.70	4.46	0.00
23.00	4.66	4.42	0.02	76.00	4.70	4.46	0.00
24.00	**4.70**	**4.46**	0.02				
25.00	4.70	4.46	0.00				
26.00	4.70	4.46	0.00				
27.00	4.70	4.46	0.00				
28.00	4.70	4.46	0.00				
29.00	4.70	4.46	0.00				
30.00	4.70	4.46	0.00				
31.00	4.70	4.46	0.00				
32.00	4.70	4.46	0.00				
33.00	4.70	4.46	0.00				
34.00	4.70	4.46	0.00				
35.00	4.70	4.46	0.00				
36.00	4.70	4.46	0.00				
37.00	4.70	4.46	0.00				
38.00	4.70	4.46	0.00				
39.00	4.70	4.46	0.00				
40.00	4.70	4.46	0.00				
41.00	4.70	4.46	0.00				
42.00	4.70	4.46	0.00				
43.00	4.70	4.46	0.00				
44.00	4.70	4.46	0.00				
45.00	4.70	4.46	0.00				
46.00	4.70	4.46	0.00				
47.00	4.70	4.46	0.00				
48.00	4.70	4.46	0.00				
49.00	4.70	4.46	0.00				
50.00	4.70	4.46	0.00				
51.00	4.70	4.46	0.00				
52.00	4.70	4.46	0.00				

Summary for Subcatchment 22S: Area 8

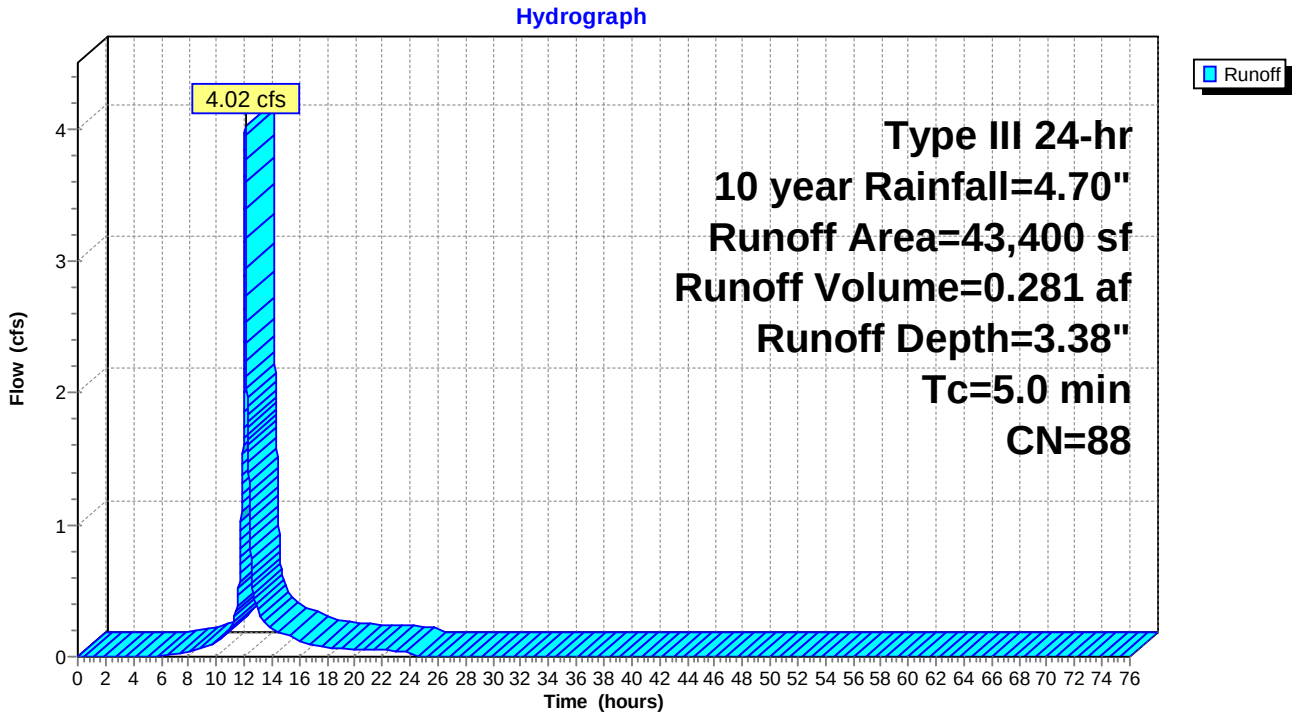
Runoff = 4.02 cfs @ 12.07 hrs, Volume= 0.281 af, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.70"

	Area (sf)	CN	Description
*	35,981	98	Roadway
	7,419	39	>75% Grass cover, Good, HSG A
	43,400	88	Weighted Average
	7,419		17.09% Pervious Area
	35,981		82.91% Impervious Area

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

Subcatchment 22S: Area 8



Hydrograph for Subcatchment 22S: Area 8

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	4.70	3.38	0.00
1.00	0.05	0.00	0.00	54.00	4.70	3.38	0.00
2.00	0.09	0.00	0.00	55.00	4.70	3.38	0.00
3.00	0.14	0.00	0.00	56.00	4.70	3.38	0.00
4.00	0.20	0.00	0.00	57.00	4.70	3.38	0.00
5.00	0.27	0.00	0.00	58.00	4.70	3.38	0.00
6.00	0.34	0.00	0.01	59.00	4.70	3.38	0.00
7.00	0.43	0.02	0.02	60.00	4.70	3.38	0.00
8.00	0.54	0.04	0.03	61.00	4.70	3.38	0.00
9.00	0.69	0.10	0.07	62.00	4.70	3.38	0.00
10.00	0.89	0.19	0.12	63.00	4.70	3.38	0.00
11.00	1.18	0.36	0.21	64.00	4.70	3.38	0.00
12.00	2.35	1.25	**2.62**	65.00	4.70	3.38	0.00
13.00	3.52	2.29	**0.34**	66.00	4.70	3.38	0.00
14.00	3.81	2.55	0.22	67.00	4.70	3.38	0.00
15.00	4.01	2.74	0.17	68.00	4.70	3.38	0.00
16.00	4.16	2.88	0.12	69.00	4.70	3.38	0.00
17.00	4.27	2.98	0.09	70.00	4.70	3.38	0.00
18.00	4.36	3.07	0.07	71.00	4.70	3.38	0.00
19.00	4.43	3.13	0.06	72.00	4.70	3.38	0.00
20.00	4.50	3.19	0.06	73.00	4.70	3.38	0.00
21.00	4.56	3.25	0.05	74.00	4.70	3.38	0.00
22.00	4.61	3.30	0.05	75.00	4.70	3.38	0.00
23.00	4.66	3.34	0.04	76.00	4.70	3.38	0.00
24.00	**4.70**	**3.38**	0.04				
25.00	4.70	3.38	0.00				
26.00	4.70	3.38	0.00				
27.00	4.70	3.38	0.00				
28.00	4.70	3.38	0.00				
29.00	4.70	3.38	0.00				
30.00	4.70	3.38	0.00				
31.00	4.70	3.38	0.00				
32.00	4.70	3.38	0.00				
33.00	4.70	3.38	0.00				
34.00	4.70	3.38	0.00				
35.00	4.70	3.38	0.00				
36.00	4.70	3.38	0.00				
37.00	4.70	3.38	0.00				
38.00	4.70	3.38	0.00				
39.00	4.70	3.38	0.00				
40.00	4.70	3.38	0.00				
41.00	4.70	3.38	0.00				
42.00	4.70	3.38	0.00				
43.00	4.70	3.38	0.00				
44.00	4.70	3.38	0.00				
45.00	4.70	3.38	0.00				
46.00	4.70	3.38	0.00				
47.00	4.70	3.38	0.00				
48.00	4.70	3.38	0.00				
49.00	4.70	3.38	0.00				
50.00	4.70	3.38	0.00				
51.00	4.70	3.38	0.00				
52.00	4.70	3.38	0.00				

Summary for Subcatchment 23S: Area 6 Building

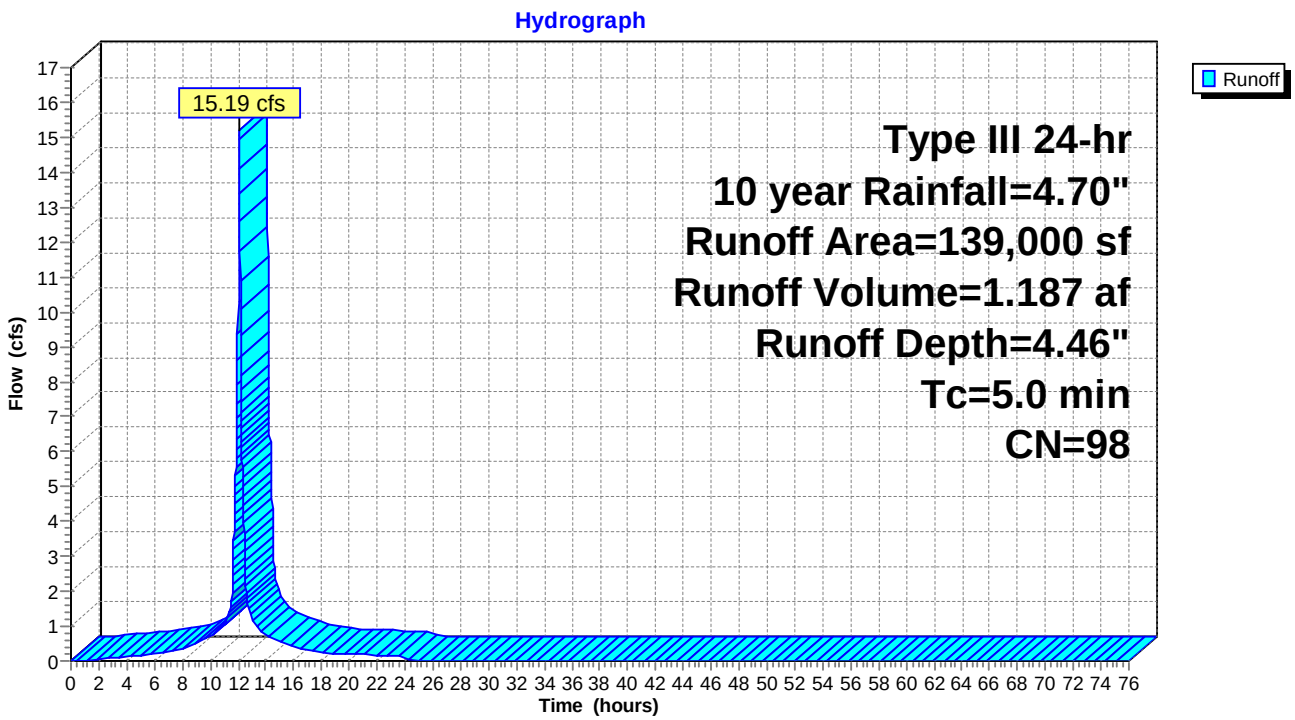
Runoff = 15.19 cfs @ 12.07 hrs, Volume= 1.187 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.70"

	Area (sf)	CN	Description
*	139,000	98	Building
	139,000		100.00% Impervious Area

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

Subcatchment 23S: Area 6 Building



Hydrograph for Subcatchment 23S: Area 6 Building

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	4.70	4.46	0.00
1.00	0.05	0.00	0.00	54.00	4.70	4.46	0.00
2.00	0.09	0.01	0.05	55.00	4.70	4.46	0.00
3.00	0.14	0.03	0.09	56.00	4.70	4.46	0.00
4.00	0.20	0.07	0.13	57.00	4.70	4.46	0.00
5.00	0.27	0.12	0.17	58.00	4.70	4.46	0.00
6.00	0.34	0.18	0.20	59.00	4.70	4.46	0.00
7.00	0.43	0.25	0.27	60.00	4.70	4.46	0.00
8.00	0.54	0.35	0.35	61.00	4.70	4.46	0.00
9.00	0.69	0.49	0.52	62.00	4.70	4.46	0.00
10.00	0.89	0.68	0.70	63.00	4.70	4.46	0.00
11.00	1.18	0.96	1.05	64.00	4.70	4.46	0.00
12.00	2.35	2.12	**10.26**	65.00	4.70	4.46	0.00
13.00	3.52	3.29	**1.21**	66.00	4.70	4.46	0.00
14.00	3.81	3.58	0.77	67.00	4.70	4.46	0.00
15.00	4.01	3.78	0.58	68.00	4.70	4.46	0.00
16.00	4.16	3.93	0.41	69.00	4.70	4.46	0.00
17.00	4.27	4.04	0.32	70.00	4.70	4.46	0.00
18.00	4.36	4.13	0.25	71.00	4.70	4.46	0.00
19.00	4.43	4.20	0.22	72.00	4.70	4.46	0.00
20.00	4.50	4.26	0.20	73.00	4.70	4.46	0.00
21.00	4.56	4.32	0.18	74.00	4.70	4.46	0.00
22.00	4.61	4.37	0.16	75.00	4.70	4.46	0.00
23.00	4.66	4.42	0.15	76.00	4.70	4.46	0.00
24.00	**4.70**	**4.46**	0.13				
25.00	4.70	4.46	0.00				
26.00	4.70	4.46	0.00				
27.00	4.70	4.46	0.00				
28.00	4.70	4.46	0.00				
29.00	4.70	4.46	0.00				
30.00	4.70	4.46	0.00				
31.00	4.70	4.46	0.00				
32.00	4.70	4.46	0.00				
33.00	4.70	4.46	0.00				
34.00	4.70	4.46	0.00				
35.00	4.70	4.46	0.00				
36.00	4.70	4.46	0.00				
37.00	4.70	4.46	0.00				
38.00	4.70	4.46	0.00				
39.00	4.70	4.46	0.00				
40.00	4.70	4.46	0.00				
41.00	4.70	4.46	0.00				
42.00	4.70	4.46	0.00				
43.00	4.70	4.46	0.00				
44.00	4.70	4.46	0.00				
45.00	4.70	4.46	0.00				
46.00	4.70	4.46	0.00				
47.00	4.70	4.46	0.00				
48.00	4.70	4.46	0.00				
49.00	4.70	4.46	0.00				
50.00	4.70	4.46	0.00				
51.00	4.70	4.46	0.00				
52.00	4.70	4.46	0.00				

Summary for Subcatchment 28S: Area 1

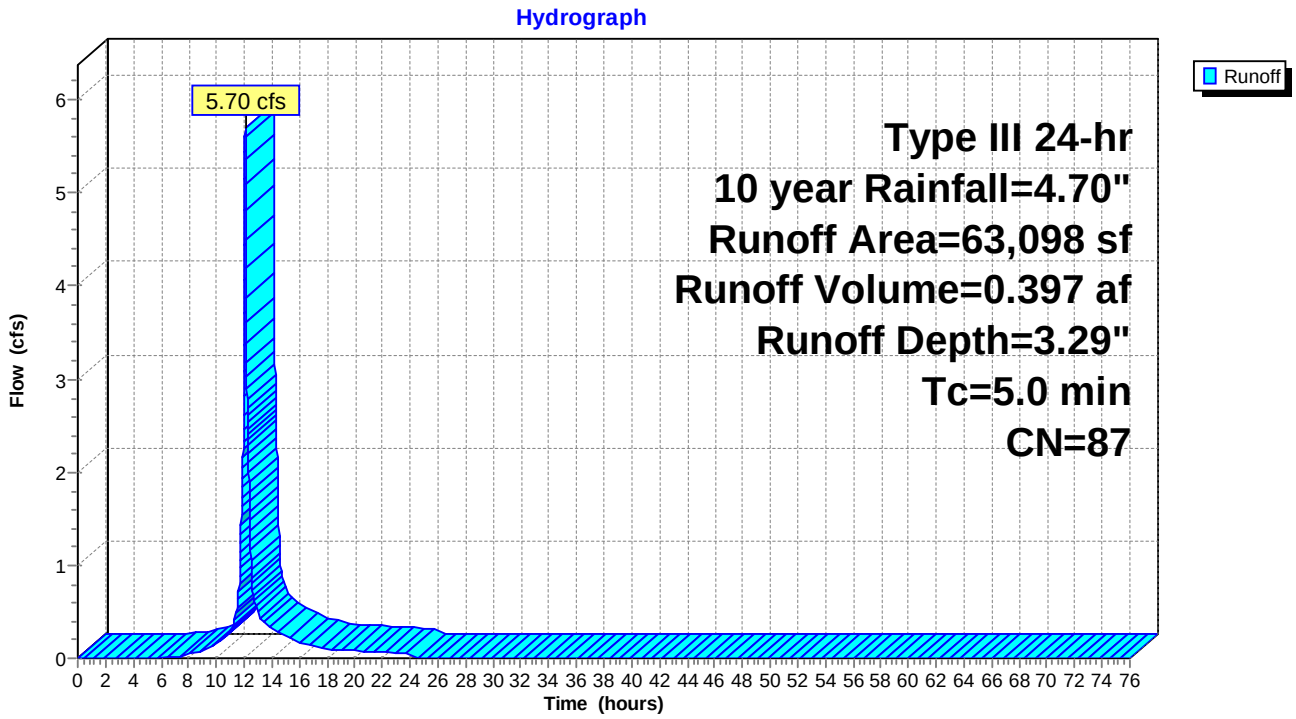
Runoff = 5.70 cfs @ 12.07 hrs, Volume= 0.397 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.70"

	Area (sf)	CN	Description
*	47,541	98	pavement
	3,883	98	Unconnected roofs, HSG A
	11,674	39	>75% Grass cover, Good, HSG A
	63,098	87	Weighted Average
	11,674		18.50% Pervious Area
	51,424		81.50% Impervious Area
	3,883		7.55% Unconnected

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

Subcatchment 28S: Area 1



Hydrograph for Subcatchment 28S: Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	4.70	3.29	0.00
1.00	0.05	0.00	0.00	54.00	4.70	3.29	0.00
2.00	0.09	0.00	0.00	55.00	4.70	3.29	0.00
3.00	0.14	0.00	0.00	56.00	4.70	3.29	0.00
4.00	0.20	0.00	0.00	57.00	4.70	3.29	0.00
5.00	0.27	0.00	0.00	58.00	4.70	3.29	0.00
6.00	0.34	0.00	0.00	59.00	4.70	3.29	0.00
7.00	0.43	0.01	0.02	60.00	4.70	3.29	0.00
8.00	0.54	0.03	0.04	61.00	4.70	3.29	0.00
9.00	0.69	0.08	0.09	62.00	4.70	3.29	0.00
10.00	0.89	0.17	0.16	63.00	4.70	3.29	0.00
11.00	1.18	0.32	0.29	64.00	4.70	3.29	0.00
12.00	2.35	1.19	**3.71**	65.00	4.70	3.29	0.00
13.00	3.52	2.20	**0.49**	66.00	4.70	3.29	0.00
14.00	3.81	2.46	0.32	67.00	4.70	3.29	0.00
15.00	4.01	2.65	0.24	68.00	4.70	3.29	0.00
16.00	4.16	2.79	0.17	69.00	4.70	3.29	0.00
17.00	4.27	2.89	0.14	70.00	4.70	3.29	0.00
18.00	4.36	2.97	0.10	71.00	4.70	3.29	0.00
19.00	4.43	3.04	0.09	72.00	4.70	3.29	0.00
20.00	4.50	3.10	0.08	73.00	4.70	3.29	0.00
21.00	4.56	3.15	0.08	74.00	4.70	3.29	0.00
22.00	4.61	3.20	0.07	75.00	4.70	3.29	0.00
23.00	4.66	3.25	0.06	76.00	4.70	3.29	0.00
24.00	**4.70**	**3.29**	0.06				
25.00	4.70	3.29	0.00				
26.00	4.70	3.29	0.00				
27.00	4.70	3.29	0.00				
28.00	4.70	3.29	0.00				
29.00	4.70	3.29	0.00				
30.00	4.70	3.29	0.00				
31.00	4.70	3.29	0.00				
32.00	4.70	3.29	0.00				
33.00	4.70	3.29	0.00				
34.00	4.70	3.29	0.00				
35.00	4.70	3.29	0.00				
36.00	4.70	3.29	0.00				
37.00	4.70	3.29	0.00				
38.00	4.70	3.29	0.00				
39.00	4.70	3.29	0.00				
40.00	4.70	3.29	0.00				
41.00	4.70	3.29	0.00				
42.00	4.70	3.29	0.00				
43.00	4.70	3.29	0.00				
44.00	4.70	3.29	0.00				
45.00	4.70	3.29	0.00				
46.00	4.70	3.29	0.00				
47.00	4.70	3.29	0.00				
48.00	4.70	3.29	0.00				
49.00	4.70	3.29	0.00				
50.00	4.70	3.29	0.00				
51.00	4.70	3.29	0.00				
52.00	4.70	3.29	0.00				

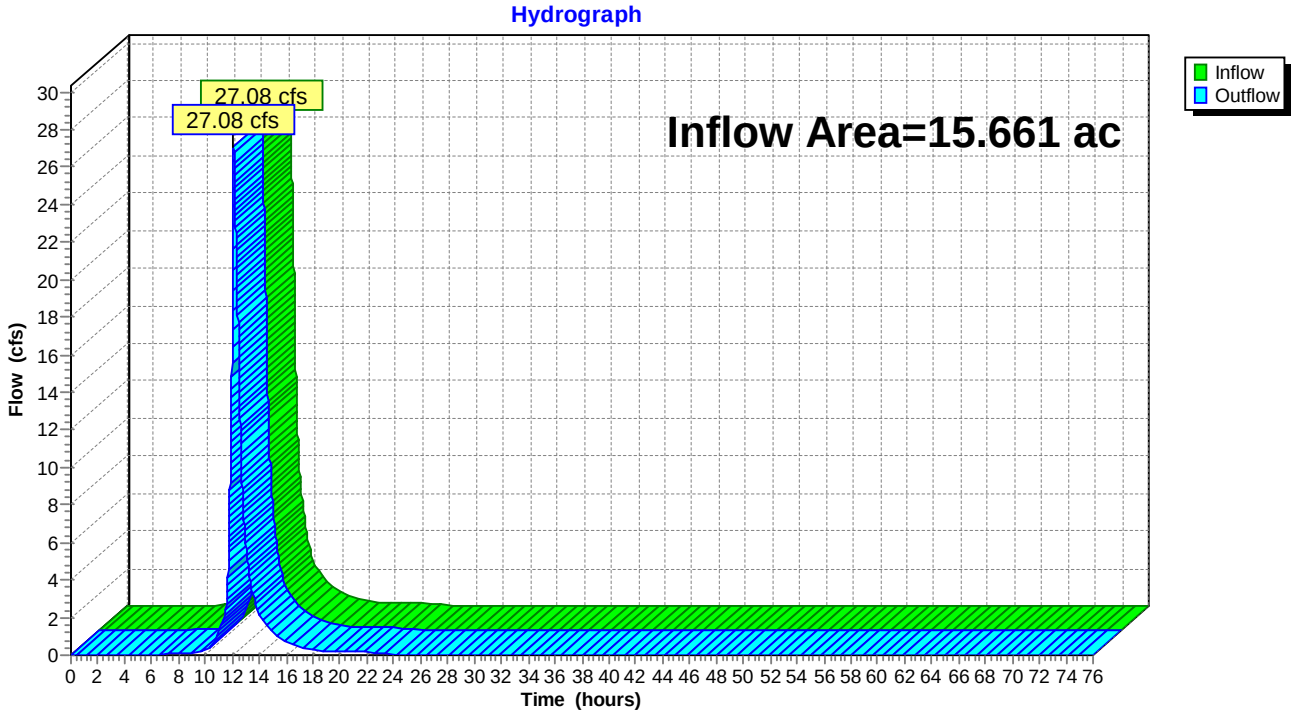
Summary for Reach 6R: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.661 ac, 67.00% Impervious, Inflow Depth = 1.85" for 10 year event
Inflow = 27.08 cfs @ 12.12 hrs, Volume= 2.409 af
Outflow = 27.08 cfs @ 12.12 hrs, Volume= 2.409 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs

Reach 6R: (new Reach)



Hydrograph for Reach 6R: (new Reach)

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	53.00	0.00		0.00
1.00	0.00		0.00	54.00	0.00		0.00
2.00	0.00		0.00	55.00	0.00		0.00
3.00	0.01		0.01	56.00	0.00		0.00
4.00	0.02		0.02	57.00	0.00		0.00
5.00	0.03		0.03	58.00	0.00		0.00
6.00	0.03		0.03	59.00	0.00		0.00
7.00	0.05		0.05	60.00	0.00		0.00
8.00	0.09		0.09	61.00	0.00		0.00
9.00	0.15		0.15	62.00	0.00		0.00
10.00	0.29		0.29	63.00	0.00		0.00
11.00	1.21		1.21	64.00	0.00		0.00
12.00	**17.34**		**17.34**	65.00	0.00		0.00
13.00	**5.99**		**5.99**	66.00	0.00		0.00
14.00	2.19		2.19	67.00	0.00		0.00
15.00	1.27		1.27	68.00	0.00		0.00
16.00	0.69		0.69	69.00	0.00		0.00
17.00	0.39		0.39	70.00	0.00		0.00
18.00	0.23		0.23	71.00	0.00		0.00
19.00	0.20		0.20	72.00	0.00		0.00
20.00	0.17		0.17	73.00	0.00		0.00
21.00	0.16		0.16	74.00	0.00		0.00
22.00	0.14		0.14	75.00	0.00		0.00
23.00	0.13		0.13	76.00	0.00		0.00
24.00	0.11		0.11				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				
52.00	0.00		0.00				

Summary for Pond 11P: Detention Area 1

Inflow Area =	1.449 ac, 81.50% Impervious, Inflow Depth = 3.29" for 10 year event				
Inflow =	5.70 cfs @	12.07 hrs,	Volume=	0.397 af	
Outflow =	4.02 cfs @	12.15 hrs,	Volume=	0.397 af,	Atten= 29%, Lag= 4.4 min
Discarded =	0.20 cfs @	12.15 hrs,	Volume=	0.173 af	
Primary =	3.82 cfs @	12.15 hrs,	Volume=	0.224 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 44.52' @ 12.15 hrs Surf.Area= 0.036 ac Storage= 0.071 af

Plug-Flow detention time= 55.1 min calculated for 0.397 af (100% of inflow)
Center-of-Mass det. time= 55.0 min (857.7 - 802.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	42.00'	0.010 af	**26.40'W x 60.00'L x 4.00'H Field A** 0.145 af Overall - 0.122 af Embedded = 0.024 af x 40.0% Voids
#2A	42.00'	0.092 af	**Concrete Galley 4x4x4** x 90 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 90 Chambers in 6 Rows
		0.101 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	43.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	42.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.20 cfs @ 12.15 hrs HW=44.52' (Free Discharge)
└**2=Exfiltration** (Controls 0.20 cfs)

Primary OutFlow Max=3.82 cfs @ 12.15 hrs HW=44.52' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 3.82 cfs @ 4.86 fps)

Pond 11P: Detention Area 1 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

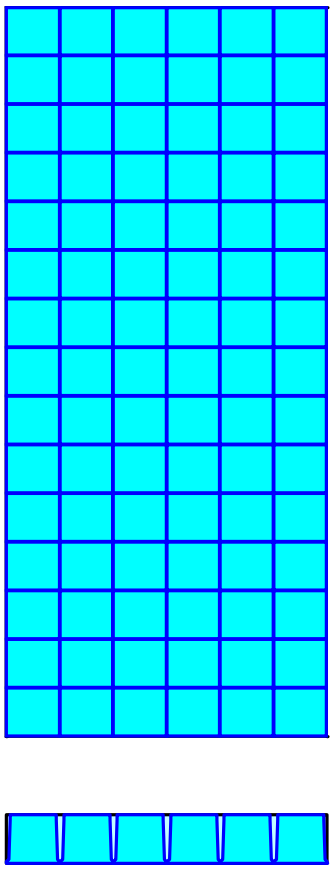
15 Chambers/Row x 4.00' Long = 60.00' Row Length
6 Rows x 52.8" Wide = 26.40' Base Width
48.0" Chamber Height = 4.00' Field Height

90 Chambers x 44.3 cf = 3,991.0 cf Chamber Storage
90 Chambers x 58.9 cf = 5,298.9 cf Displacement

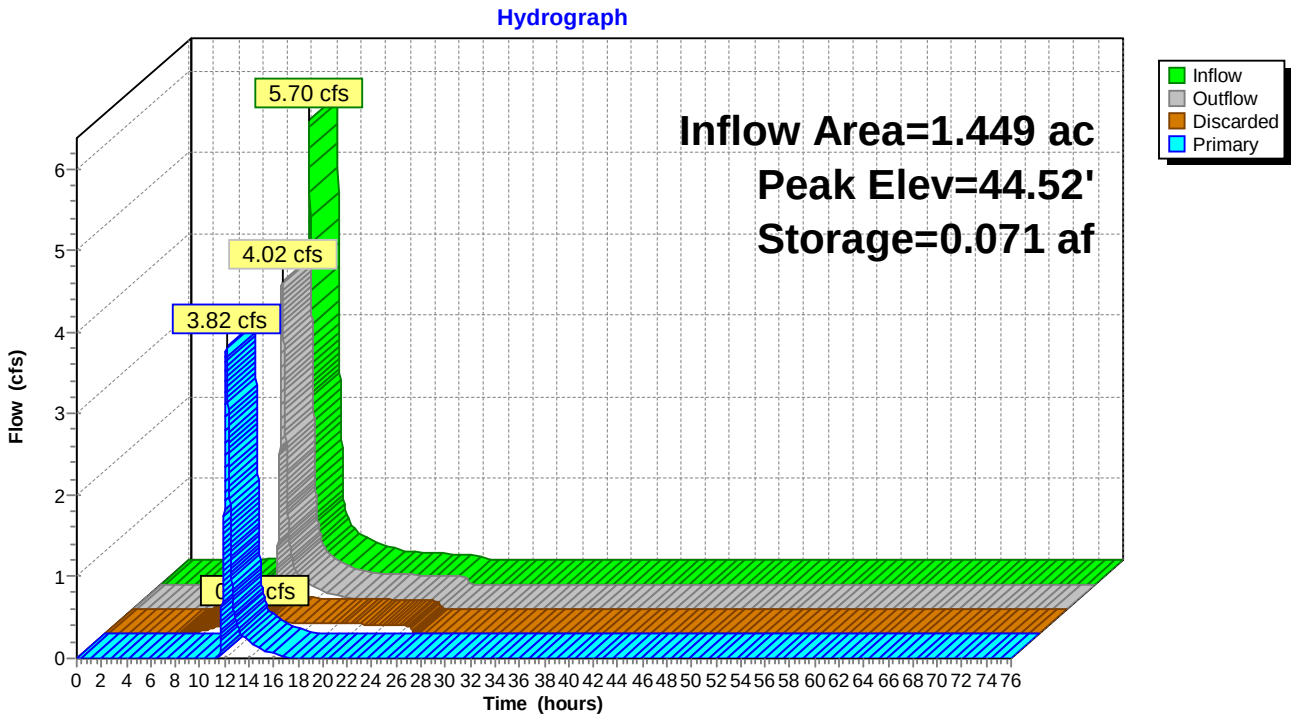
6,336.0 cf Field - 5,298.9 cf Chambers = 1,037.1 cf Stone x 40.0% Voids = 414.9 cf Stone Storage

Chamber Storage + Stone Storage = 4,405.9 cf = 0.101 af
Overall Storage Efficiency = 69.5%
Overall System Size = 60.00' x 26.40' x 4.00'

90 Chambers
234.7 cy Field
38.4 cy Stone



Pond 11P: Detention Area 1



Hydrograph for Pond 11P: Detention Area 1

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	42.00	0.00	0.00	0.00
2.00	0.00	0.000	42.00	0.00	0.00	0.00
4.00	0.00	0.000	42.00	0.00	0.00	0.00
6.00	0.00	0.000	42.00	0.00	0.00	0.00
8.00	0.04	0.000	42.02	0.04	0.04	0.00
10.00	0.16	0.004	42.13	0.09	0.09	0.00
12.00	**3.71**	**0.051**	**43.84**	**2.35**	**0.17**	**2.18**
14.00	**0.32**	**0.034**	**43.22**	**0.34**	**0.14**	**0.20**
16.00	0.17	0.031	43.11	0.19	0.14	0.05
18.00	0.10	0.028	43.00	0.13	0.13	0.00
20.00	0.08	0.022	42.79	0.12	0.12	0.00
22.00	0.07	0.015	42.55	0.11	0.11	0.00
24.00	0.06	0.008	42.29	0.10	0.10	0.00
26.00	0.00	0.000	42.00	0.00	0.00	0.00
28.00	0.00	0.000	42.00	0.00	0.00	0.00
30.00	0.00	0.000	42.00	0.00	0.00	0.00
32.00	0.00	0.000	42.00	0.00	0.00	0.00
34.00	0.00	0.000	42.00	0.00	0.00	0.00
36.00	0.00	0.000	42.00	0.00	0.00	0.00
38.00	0.00	0.000	42.00	0.00	0.00	0.00
40.00	0.00	0.000	42.00	0.00	0.00	0.00
42.00	0.00	0.000	42.00	0.00	0.00	0.00
44.00	0.00	0.000	42.00	0.00	0.00	0.00
46.00	0.00	0.000	42.00	0.00	0.00	0.00
48.00	0.00	0.000	42.00	0.00	0.00	0.00
50.00	0.00	0.000	42.00	0.00	0.00	0.00
52.00	0.00	0.000	42.00	0.00	0.00	0.00
54.00	0.00	0.000	42.00	0.00	0.00	0.00
56.00	0.00	0.000	42.00	0.00	0.00	0.00
58.00	0.00	0.000	42.00	0.00	0.00	0.00
60.00	0.00	0.000	42.00	0.00	0.00	0.00
62.00	0.00	0.000	42.00	0.00	0.00	0.00
64.00	0.00	0.000	42.00	0.00	0.00	0.00
66.00	0.00	0.000	42.00	0.00	0.00	0.00
68.00	0.00	0.000	42.00	0.00	0.00	0.00
70.00	0.00	0.000	42.00	0.00	0.00	0.00
72.00	0.00	0.000	42.00	0.00	0.00	0.00
74.00	0.00	0.000	42.00	0.00	0.00	0.00
76.00	0.00	0.000	42.00	0.00	0.00	0.00

Summary for Pond 13P: Detention Area 2

Inflow Area =	1.444 ac, 93.39% Impervious, Inflow Depth = 4.01" for 10 year event				
Inflow =	6.57 cfs @	12.07 hrs,	Volume=	0.483 af	
Outflow =	4.35 cfs @	12.15 hrs,	Volume=	0.483 af,	Atten= 34%, Lag= 4.8 min
Discarded =	0.31 cfs @	12.15 hrs,	Volume=	0.236 af	
Primary =	4.04 cfs @	12.15 hrs,	Volume=	0.246 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 44.04' @ 12.15 hrs Surf.Area= 0.044 ac Storage= 0.090 af

Plug-Flow detention time= 50.8 min calculated for 0.483 af (100% of inflow)
Center-of-Mass det. time= 50.8 min (825.1 - 774.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	41.40'	0.012 af	**96.80'W x 20.00'L x 4.00'H Field A** 0.178 af Overall - 0.149 af Embedded = 0.029 af x 40.0% Voids
#2A	41.40'	0.112 af	**Concrete Galley 4x4x4** x 110 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 110 Chambers in 22 Rows
		0.124 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	42.40'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	41.40'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.31 cfs @ 12.15 hrs HW=44.04' (Free Discharge)
└**2=Exfiltration** (Controls 0.31 cfs)

Primary OutFlow Max=4.04 cfs @ 12.15 hrs HW=44.04' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 4.04 cfs @ 5.14 fps)

Pond 13P: Detention Area 2 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

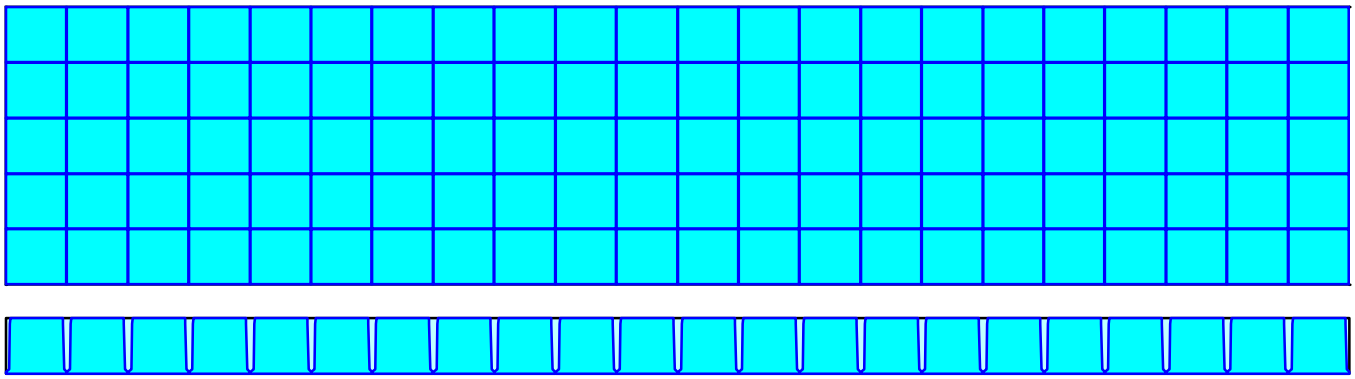
5 Chambers/Row x 4.00' Long = 20.00' Row Length
22 Rows x 52.8" Wide = 96.80' Base Width
48.0" Chamber Height = 4.00' Field Height

110 Chambers x 44.3 cf = 4,877.9 cf Chamber Storage
110 Chambers x 58.9 cf = 6,476.4 cf Displacement

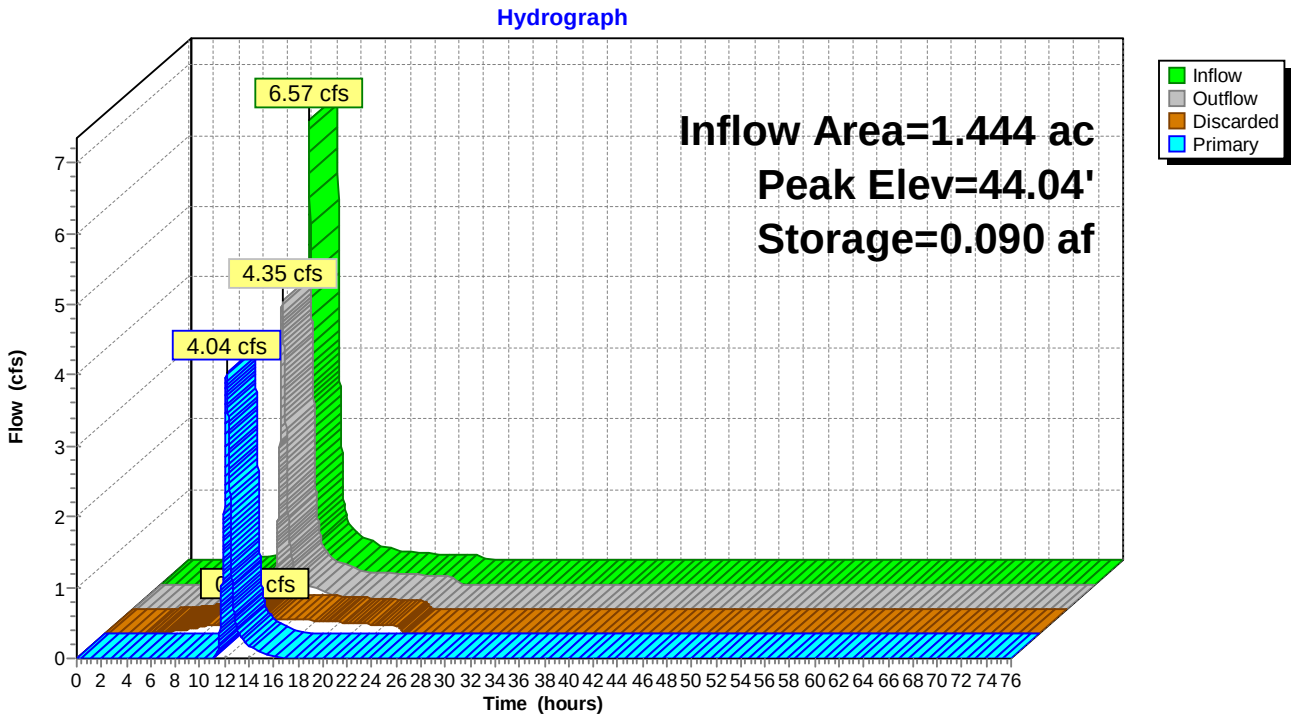
7,744.0 cf Field - 6,476.4 cf Chambers = 1,267.6 cf Stone x 40.0% Voids = 507.0 cf Stone Storage

Chamber Storage + Stone Storage = 5,385.0 cf = 0.124 af
Overall Storage Efficiency = 69.5%
Overall System Size = 20.00' x 96.80' x 4.00'

110 Chambers
286.8 cy Field
46.9 cy Stone



Pond 13P: Detention Area 2



Hydrograph for Pond 13P: Detention Area 2

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	41.40	0.00	0.00	0.00
2.00	0.00	0.000	41.40	0.00	0.00	0.00
4.00	0.02	0.000	41.41	0.01	0.01	0.00
6.00	0.05	0.001	41.42	0.04	0.04	0.00
8.00	0.11	0.001	41.44	0.10	0.10	0.00
10.00	0.26	0.011	41.74	0.13	0.13	0.00
12.00	**4.39**	**0.066**	**43.32**	**2.71**	**0.26**	**2.45**
14.00	**0.34**	**0.041**	**42.60**	**0.38**	**0.20**	**0.18**
16.00	0.18	0.037	42.47	0.21	0.19	0.02
18.00	0.11	0.029	42.26	0.17	0.17	0.00
20.00	0.09	0.019	41.95	0.15	0.15	0.00
22.00	0.07	0.009	41.67	0.13	0.13	0.00
24.00	0.06	0.001	41.42	0.07	0.07	0.00
26.00	0.00	0.000	41.40	0.00	0.00	0.00
28.00	0.00	0.000	41.40	0.00	0.00	0.00
30.00	0.00	0.000	41.40	0.00	0.00	0.00
32.00	0.00	0.000	41.40	0.00	0.00	0.00
34.00	0.00	0.000	41.40	0.00	0.00	0.00
36.00	0.00	0.000	41.40	0.00	0.00	0.00
38.00	0.00	0.000	41.40	0.00	0.00	0.00
40.00	0.00	0.000	41.40	0.00	0.00	0.00
42.00	0.00	0.000	41.40	0.00	0.00	0.00
44.00	0.00	0.000	41.40	0.00	0.00	0.00
46.00	0.00	0.000	41.40	0.00	0.00	0.00
48.00	0.00	0.000	41.40	0.00	0.00	0.00
50.00	0.00	0.000	41.40	0.00	0.00	0.00
52.00	0.00	0.000	41.40	0.00	0.00	0.00
54.00	0.00	0.000	41.40	0.00	0.00	0.00
56.00	0.00	0.000	41.40	0.00	0.00	0.00
58.00	0.00	0.000	41.40	0.00	0.00	0.00
60.00	0.00	0.000	41.40	0.00	0.00	0.00
62.00	0.00	0.000	41.40	0.00	0.00	0.00
64.00	0.00	0.000	41.40	0.00	0.00	0.00
66.00	0.00	0.000	41.40	0.00	0.00	0.00
68.00	0.00	0.000	41.40	0.00	0.00	0.00
70.00	0.00	0.000	41.40	0.00	0.00	0.00
72.00	0.00	0.000	41.40	0.00	0.00	0.00
74.00	0.00	0.000	41.40	0.00	0.00	0.00
76.00	0.00	0.000	41.40	0.00	0.00	0.00

Summary for Pond 14P: Area 4

Inflow Area =	1.200 ac, 95.56% Impervious, Inflow Depth = 4.12" for 10 year event				
Inflow =	5.54 cfs @	12.07 hrs,	Volume=	0.412 af	
Outflow =	4.11 cfs @	12.14 hrs,	Volume=	0.412 af,	Atten= 26%, Lag= 3.9 min
Discarded =	0.09 cfs @	12.14 hrs,	Volume=	0.138 af	
Primary =	4.02 cfs @	12.14 hrs,	Volume=	0.275 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 52.63' @ 12.14 hrs Surf.Area= 0.029 ac Storage= 0.059 af

Plug-Flow detention time= 58.1 min calculated for 0.412 af (100% of inflow)
Center-of-Mass det. time= 58.1 min (827.1 - 768.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	50.00'	0.008 af	**17.60'W x 72.00'L x 4.00'H Field A** 0.116 af Overall - 0.097 af Embedded = 0.019 af x 40.0% Voids
#2A	50.00'	0.073 af	**Concrete Galley 4x4x4** x 72 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 72 Chambers in 4 Rows
		0.081 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	50.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.09 cfs @ 12.14 hrs HW=52.63' (Free Discharge)
└**2=Exfiltration** (Controls 0.09 cfs)

Primary OutFlow Max=4.02 cfs @ 12.14 hrs HW=52.63' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 4.02 cfs @ 5.12 fps)

Pond 14P: Area 4 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

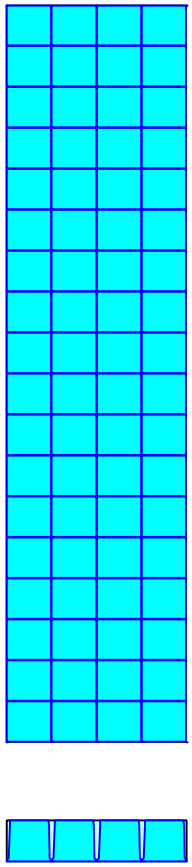
18 Chambers/Row x 4.00' Long = 72.00' Row Length
4 Rows x 52.8" Wide = 17.60' Base Width
48.0" Chamber Height = 4.00' Field Height

72 Chambers x 44.3 cf = 3,192.8 cf Chamber Storage
72 Chambers x 58.9 cf = 4,239.1 cf Displacement

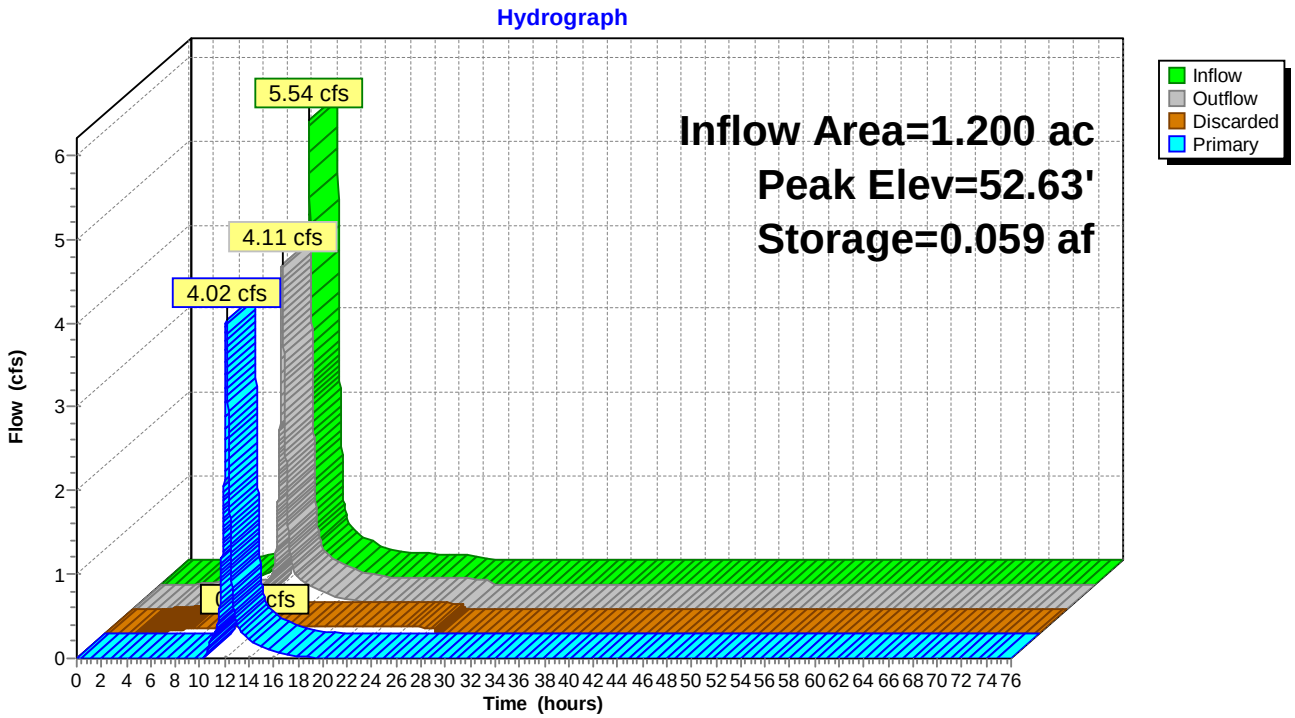
5,068.8 cf Field - 4,239.1 cf Chambers = 829.7 cf Stone x 40.0% Voids = 331.9 cf Stone Storage

Chamber Storage + Stone Storage = 3,524.7 cf = 0.081 af
Overall Storage Efficiency = 69.5%
Overall System Size = 72.00' x 17.60' x 4.00'

72 Chambers
187.7 cy Field
30.7 cy Stone



Pond 14P: Area 4



Hydrograph for Pond 14P: Area 4

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	50.00	0.00	0.00	0.00
2.00	0.00	0.000	50.00	0.00	0.00	0.00
4.00	0.02	0.000	50.01	0.02	0.02	0.00
6.00	0.05	0.001	50.02	0.04	0.04	0.00
8.00	0.10	0.002	50.09	0.07	0.07	0.00
10.00	0.23	0.017	50.74	0.08	0.08	0.00
12.00	**3.72**	**0.043**	**51.92**	**2.56**	**0.08**	**2.47**
14.00	**0.28**	**0.028**	**51.23**	**0.30**	**0.08**	**0.22**
16.00	0.15	0.026	51.14	0.17	0.08	0.09
18.00	0.09	0.024	51.07	0.10	0.08	0.02
20.00	0.07	0.023	51.02	0.08	0.08	0.00
22.00	0.06	0.021	50.94	0.08	0.08	0.00
24.00	0.05	0.017	50.78	0.08	0.08	0.00
26.00	0.00	0.005	50.25	0.07	0.07	0.00
28.00	0.00	0.000	50.00	0.00	0.00	0.00
30.00	0.00	0.000	50.00	0.00	0.00	0.00
32.00	0.00	0.000	50.00	0.00	0.00	0.00
34.00	0.00	0.000	50.00	0.00	0.00	0.00
36.00	0.00	0.000	50.00	0.00	0.00	0.00
38.00	0.00	0.000	50.00	0.00	0.00	0.00
40.00	0.00	0.000	50.00	0.00	0.00	0.00
42.00	0.00	0.000	50.00	0.00	0.00	0.00
44.00	0.00	0.000	50.00	0.00	0.00	0.00
46.00	0.00	0.000	50.00	0.00	0.00	0.00
48.00	0.00	0.000	50.00	0.00	0.00	0.00
50.00	0.00	0.000	50.00	0.00	0.00	0.00
52.00	0.00	0.000	50.00	0.00	0.00	0.00
54.00	0.00	0.000	50.00	0.00	0.00	0.00
56.00	0.00	0.000	50.00	0.00	0.00	0.00
58.00	0.00	0.000	50.00	0.00	0.00	0.00
60.00	0.00	0.000	50.00	0.00	0.00	0.00
62.00	0.00	0.000	50.00	0.00	0.00	0.00
64.00	0.00	0.000	50.00	0.00	0.00	0.00
66.00	0.00	0.000	50.00	0.00	0.00	0.00
68.00	0.00	0.000	50.00	0.00	0.00	0.00
70.00	0.00	0.000	50.00	0.00	0.00	0.00
72.00	0.00	0.000	50.00	0.00	0.00	0.00
74.00	0.00	0.000	50.00	0.00	0.00	0.00
76.00	0.00	0.000	50.00	0.00	0.00	0.00

Summary for Pond 19P: Detention Area 3

Inflow Area =	2.023 ac, 98.65% Impervious, Inflow Depth = 4.36" for 10 year event				
Inflow =	9.55 cfs @	12.07 hrs,	Volume=	0.736 af	
Outflow =	5.23 cfs @	12.18 hrs,	Volume=	0.736 af,	Atten= 45%, Lag= 6.5 min
Discarded =	0.60 cfs @	12.18 hrs,	Volume=	0.363 af	
Primary =	4.63 cfs @	12.18 hrs,	Volume=	0.373 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 43.50' @ 12.18 hrs Surf.Area= 3,062 sf Storage= 5,904 cf

Plug-Flow detention time= 33.6 min calculated for 0.736 af (100% of inflow)
Center-of-Mass det. time= 33.6 min (788.0 - 754.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	41.00'	802 cf	**127.60'W x 24.00'L x 4.00'H Field A** 12,250 cf Overall - 10,244 cf Embedded = 2,005 cf x 40.0% Voids
#2A	41.00'	7,716 cf	**Concrete Galley 4x4x4** x 174 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 174 Chambers in 29 Rows
		8,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	41.50'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	41.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.60 cfs @ 12.18 hrs HW=43.50' (Free Discharge)
└**2=Exfiltration** (Controls 0.60 cfs)

Primary OutFlow Max=4.63 cfs @ 12.18 hrs HW=43.50' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 4.63 cfs @ 5.90 fps)

Pond 19P: Detention Area 3 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

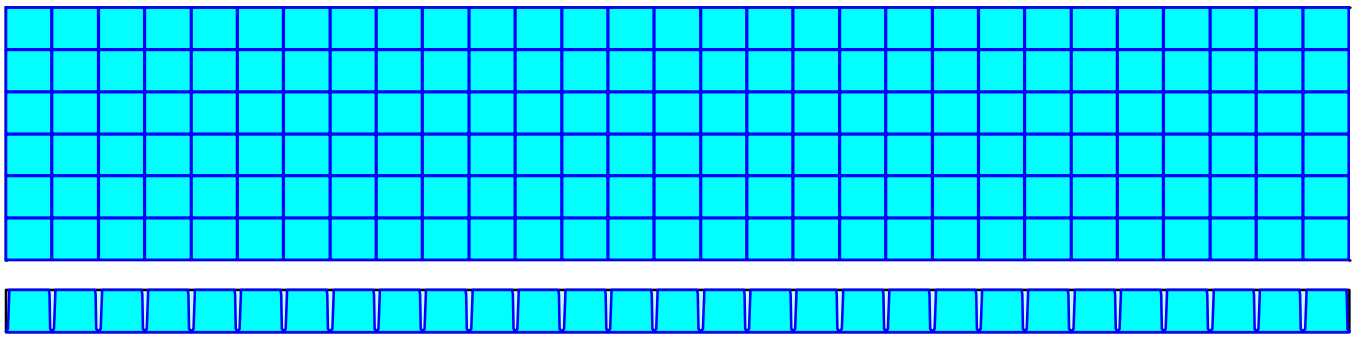
6 Chambers/Row x 4.00' Long = 24.00' Row Length
29 Rows x 52.8" Wide = 127.60' Base Width
48.0" Chamber Height = 4.00' Field Height

174 Chambers x 44.3 cf = 7,716.0 cf Chamber Storage
174 Chambers x 58.9 cf = 10,244.5 cf Displacement

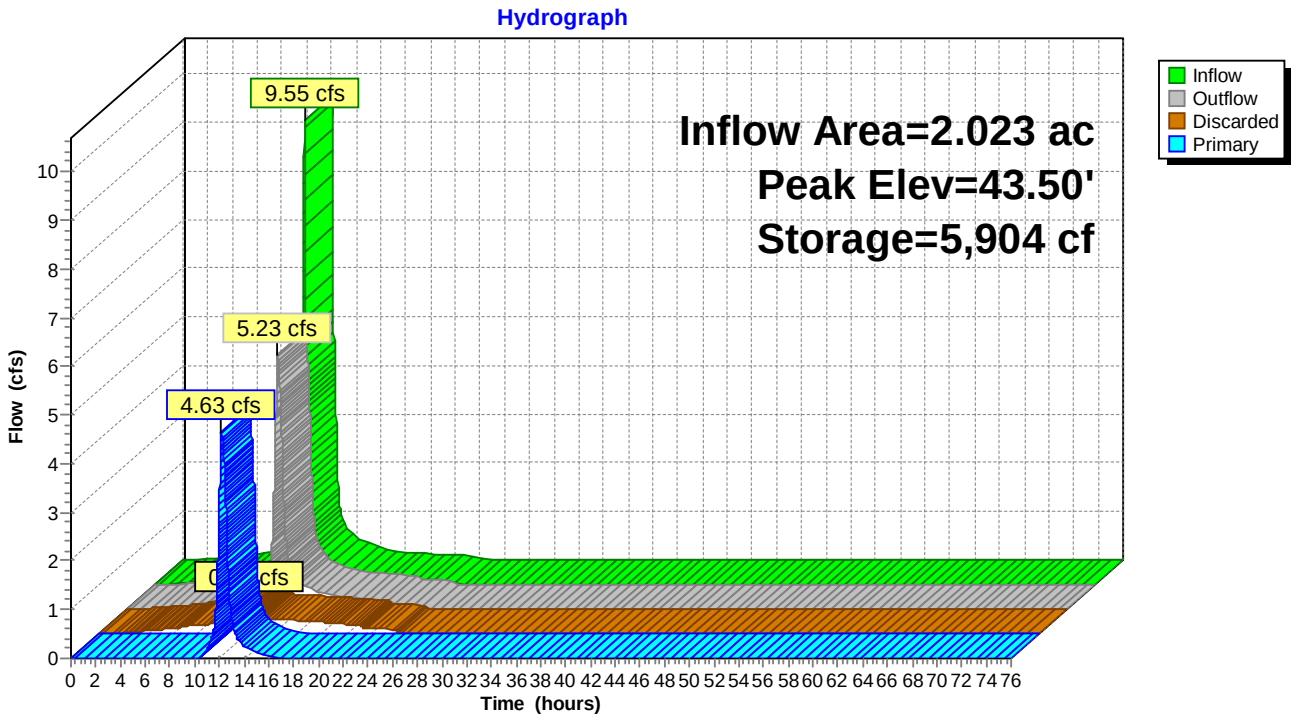
12,249.6 cf Field - 10,244.5 cf Chambers = 2,005.1 cf Stone x 40.0% Voids = 802.0 cf Stone Storage

Chamber Storage + Stone Storage = 8,518.0 cf = 0.196 af
Overall Storage Efficiency = 69.5%
Overall System Size = 24.00' x 127.60' x 4.00'

174 Chambers
453.7 cy Field
74.3 cy Stone



Pond 19P: Detention Area 3



Hydrograph for Pond 19P: Detention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	41.00	0.00	0.00	0.00
2.00	0.02	9	41.00	0.02	0.02	0.00
4.00	0.07	33	41.01	0.06	0.06	0.00
6.00	0.11	56	41.02	0.11	0.11	0.00
8.00	0.21	121	41.05	0.18	0.18	0.00
10.00	0.43	925	41.40	0.24	0.24	0.00
12.00	**6.45**	**3,754**	**42.59**	**3.34**	**0.44**	**2.90**
14.00	**0.48**	**1,760**	**41.75**	**0.56**	**0.30**	**0.26**
16.00	0.26	1,398	41.60	0.31	0.27	0.04
18.00	0.16	952	41.41	0.24	0.24	0.00
20.00	0.13	377	41.16	0.20	0.20	0.00
22.00	0.10	54	41.02	0.11	0.11	0.00
24.00	0.08	43	41.02	0.08	0.08	0.00
26.00	0.00	0	41.00	0.00	0.00	0.00
28.00	0.00	0	41.00	0.00	0.00	0.00
30.00	0.00	0	41.00	0.00	0.00	0.00
32.00	0.00	0	41.00	0.00	0.00	0.00
34.00	0.00	0	41.00	0.00	0.00	0.00
36.00	0.00	0	41.00	0.00	0.00	0.00
38.00	0.00	0	41.00	0.00	0.00	0.00
40.00	0.00	0	41.00	0.00	0.00	0.00
42.00	0.00	0	41.00	0.00	0.00	0.00
44.00	0.00	0	41.00	0.00	0.00	0.00
46.00	0.00	0	41.00	0.00	0.00	0.00
48.00	0.00	0	41.00	0.00	0.00	0.00
50.00	0.00	0	41.00	0.00	0.00	0.00
52.00	0.00	0	41.00	0.00	0.00	0.00
54.00	0.00	0	41.00	0.00	0.00	0.00
56.00	0.00	0	41.00	0.00	0.00	0.00
58.00	0.00	0	41.00	0.00	0.00	0.00
60.00	0.00	0	41.00	0.00	0.00	0.00
62.00	0.00	0	41.00	0.00	0.00	0.00
64.00	0.00	0	41.00	0.00	0.00	0.00
66.00	0.00	0	41.00	0.00	0.00	0.00
68.00	0.00	0	41.00	0.00	0.00	0.00
70.00	0.00	0	41.00	0.00	0.00	0.00
72.00	0.00	0	41.00	0.00	0.00	0.00
74.00	0.00	0	41.00	0.00	0.00	0.00
76.00	0.00	0	41.00	0.00	0.00	0.00

Summary for Pond 24P: Detention Area 6

Inflow Area = 0.540 ac,100.00% Impervious, Inflow Depth = 4.46" for 10 year event
Inflow = 2.57 cfs @ 12.07 hrs, Volume= 0.201 af
Outflow = 2.57 cfs @ 12.07 hrs, Volume= 0.201 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.07 hrs, Volume= 0.003 af
Primary = 2.57 cfs @ 12.07 hrs, Volume= 0.198 af

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 51.95' @ 12.07 hrs Surf.Area= 18 sf Storage= 33 cf

Plug-Flow detention time= 3.7 min calculated for 0.201 af (100% of inflow)
Center-of-Mass det. time= 3.8 min (751.9 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	49.50'	5 cf	**4.40'W x 4.00'L x 4.00'H Field A** 70 cf Overall - 59 cf Embedded = 12 cf x 40.0% Voids
#2A	49.50'	44 cf	**Concrete Galley 4x4x4** Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf
		49 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	49.50'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.00 cfs @ 12.07 hrs HW=51.95' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=2.57 cfs @ 12.07 hrs HW=51.95' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 2.57 cfs @ 3.32 fps)

Pond 24P: Detention Area 6 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

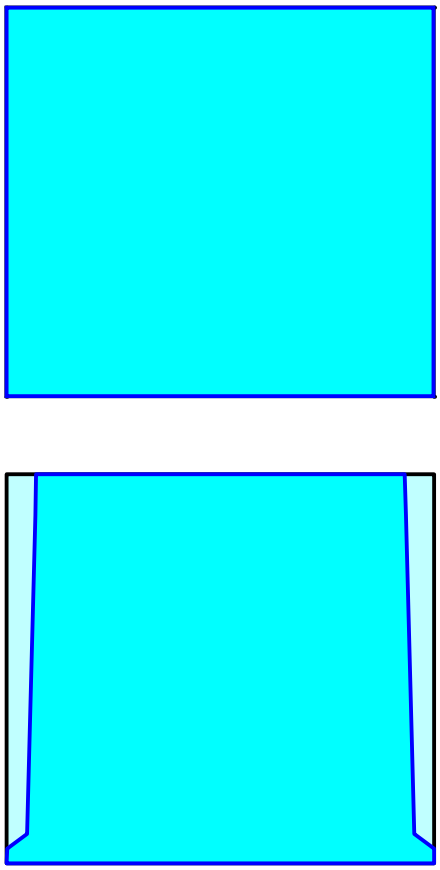
1 Chambers/Row x 4.00' Long = 4.00' Row Length
1 Rows x 52.8" Wide = 4.40' Base Width
48.0" Chamber Height = 4.00' Field Height

1 Chambers x 44.3 cf = 44.3 cf Chamber Storage
1 Chambers x 58.9 cf = 58.9 cf Displacement

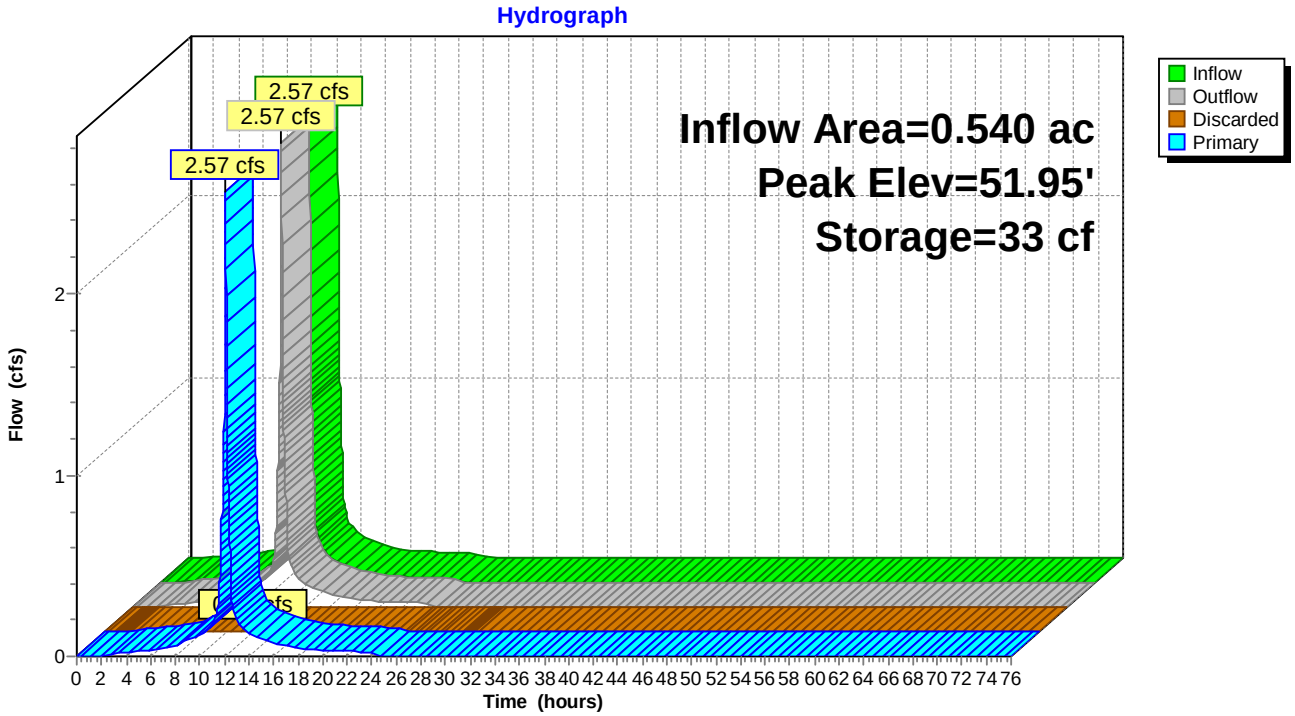
70.4 cf Field - 58.9 cf Chambers = 11.5 cf Stone x 40.0% Voids = 4.6 cf Stone Storage

Chamber Storage + Stone Storage = 49.0 cf = 0.001 af
Overall Storage Efficiency = 69.5%
Overall System Size = 4.00' x 4.40' x 4.00'

1 Chambers
2.6 cy Field
0.4 cy Stone



Pond 24P: Detention Area 6



Hydrograph for Pond 24P: Detention Area 6

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	49.50	0.00	0.00	0.00
2.00	0.01	16	50.64	0.00	0.00	0.00
4.00	0.02	21	51.07	0.02	0.00	0.02
6.00	0.03	22	51.08	0.03	0.00	0.03
8.00	0.06	22	51.11	0.06	0.00	0.06
10.00	0.12	23	51.16	0.12	0.00	0.12
12.00	**1.74**	**30**	**51.71**	**1.72**	**0.00**	**1.72**
14.00	**0.13**	**23**	**51.17**	**0.13**	**0.00**	**0.13**
16.00	0.07	22	51.12	0.07	0.00	0.07
18.00	0.04	22	51.10	0.04	0.00	0.04
20.00	0.03	22	51.08	0.03	0.00	0.03
22.00	0.03	21	51.07	0.03	0.00	0.03
24.00	0.02	21	51.07	0.02	0.00	0.02
26.00	0.00	13	50.47	0.00	0.00	0.00
28.00	0.00	6	49.92	0.00	0.00	0.00
30.00	0.00	0	49.50	0.00	0.00	0.00
32.00	0.00	0	49.50	0.00	0.00	0.00
34.00	0.00	0	49.50	0.00	0.00	0.00
36.00	0.00	0	49.50	0.00	0.00	0.00
38.00	0.00	0	49.50	0.00	0.00	0.00
40.00	0.00	0	49.50	0.00	0.00	0.00
42.00	0.00	0	49.50	0.00	0.00	0.00
44.00	0.00	0	49.50	0.00	0.00	0.00
46.00	0.00	0	49.50	0.00	0.00	0.00
48.00	0.00	0	49.50	0.00	0.00	0.00
50.00	0.00	0	49.50	0.00	0.00	0.00
52.00	0.00	0	49.50	0.00	0.00	0.00
54.00	0.00	0	49.50	0.00	0.00	0.00
56.00	0.00	0	49.50	0.00	0.00	0.00
58.00	0.00	0	49.50	0.00	0.00	0.00
60.00	0.00	0	49.50	0.00	0.00	0.00
62.00	0.00	0	49.50	0.00	0.00	0.00
64.00	0.00	0	49.50	0.00	0.00	0.00
66.00	0.00	0	49.50	0.00	0.00	0.00
68.00	0.00	0	49.50	0.00	0.00	0.00
70.00	0.00	0	49.50	0.00	0.00	0.00
72.00	0.00	0	49.50	0.00	0.00	0.00
74.00	0.00	0	49.50	0.00	0.00	0.00
76.00	0.00	0	49.50	0.00	0.00	0.00

Summary for Pond 25P: Det Area 5

Inflow Area =	3.191 ac,100.00% Impervious, Inflow Depth = 4.46" for 10 year event				
Inflow =	15.19 cfs @	12.07 hrs,	Volume=	1.187 af	
Outflow =	5.48 cfs @	12.30 hrs,	Volume=	1.187 af,	Atten= 64%, Lag= 13.9 min
Discarded =	0.46 cfs @	12.30 hrs,	Volume=	0.522 af	
Primary =	5.01 cfs @	12.30 hrs,	Volume=	0.665 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 53.36' @ 12.30 hrs Surf.Area= 6,864 sf Storage= 12,467 cf

Plug-Flow detention time= 32.2 min calculated for 1.187 af (100% of inflow)
Center-of-Mass det. time= 32.2 min (780.4 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	51.00'	1,798 cf	**132.00'W x 52.00'L x 4.00'H Field A** 27,456 cf Overall - 22,962 cf Embedded = 4,494 cf x 40.0% Voids
#2A	51.00'	17,294 cf	**Concrete Galley 4x4x4** x 390 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 390 Chambers in 30 Rows
		19,092 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.10'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	51.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.46 cfs @ 12.30 hrs HW=53.36' (Free Discharge)
└**2=Exfiltration** (Controls 0.46 cfs)

Primary OutFlow Max=5.01 cfs @ 12.30 hrs HW=53.36' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 5.01 cfs @ 6.38 fps)

Pond 25P: Det Area 5 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

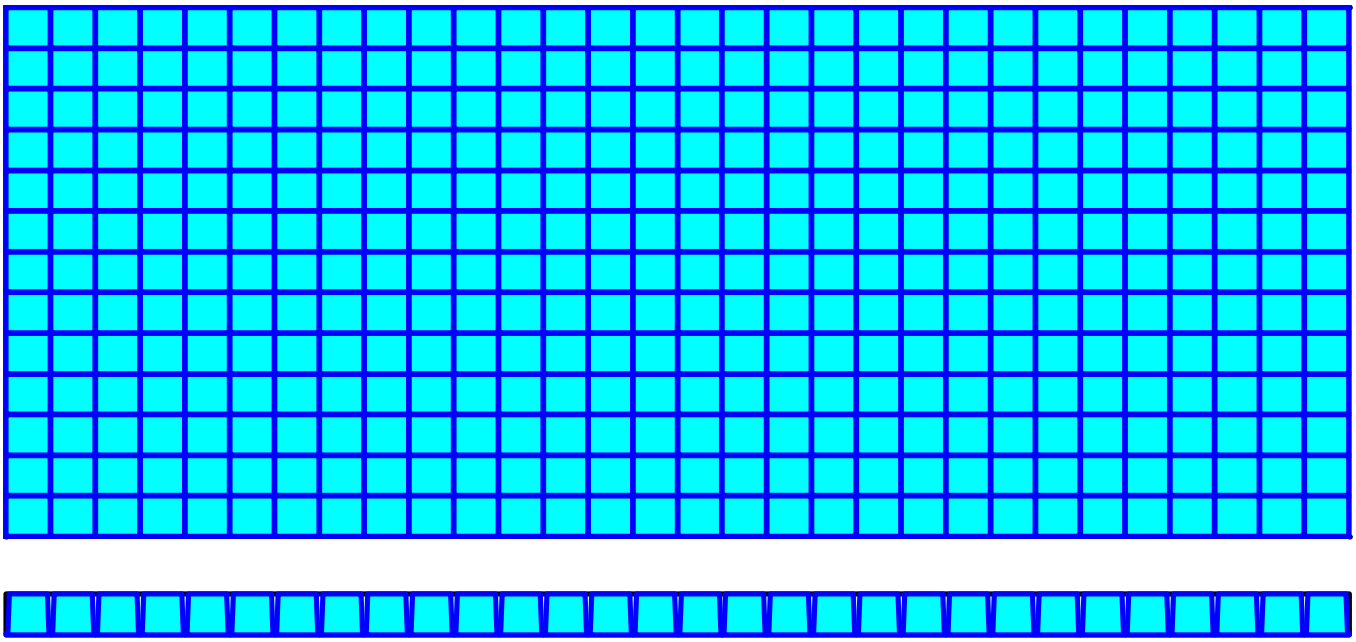
13 Chambers/Row x 4.00' Long = 52.00' Row Length
30 Rows x 52.8" Wide = 132.00' Base Width
48.0" Chamber Height = 4.00' Field Height

390 Chambers x 44.3 cf = 17,294.4 cf Chamber Storage
390 Chambers x 58.9 cf = 22,961.8 cf Displacement

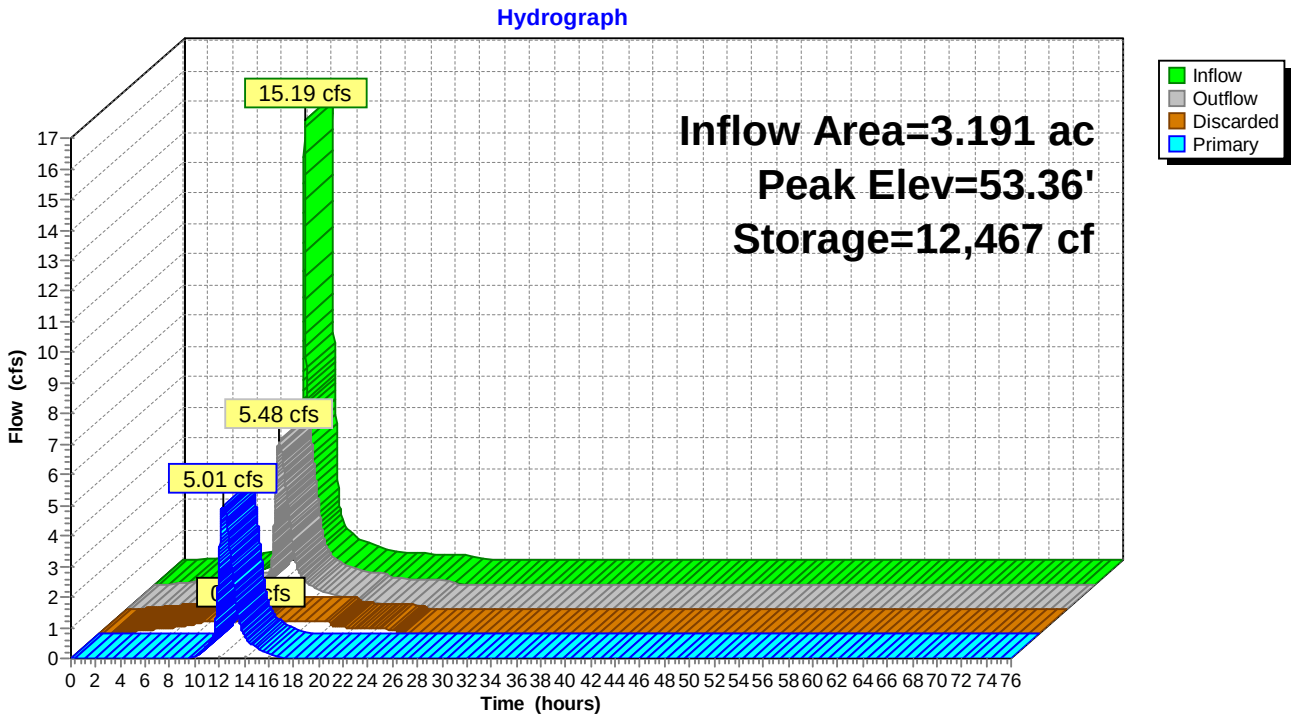
27,456.0 cf Field - 22,961.8 cf Chambers = 4,494.2 cf Stone x 40.0% Voids = 1,797.7 cf Stone Storage

Chamber Storage + Stone Storage = 19,092.1 cf = 0.438 af
Overall Storage Efficiency = 69.5%
Overall System Size = 52.00' x 132.00' x 4.00'

390 Chambers
1,016.9 cy Field
166.5 cy Stone



Pond 25P: Det Area 5



Hydrograph for Pond 25P: Det Area 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	51.00	0.00	0.00	0.00
2.00	0.05	25	51.00	0.05	0.05	0.00
4.00	0.13	68	51.01	0.13	0.13	0.00
6.00	0.20	104	51.02	0.19	0.19	0.00
8.00	0.35	182	51.04	0.34	0.34	0.00
10.00	0.70	1,130	51.22	0.45	0.39	0.06
12.00	**10.26**	**6,865**	**52.30**	**3.58**	**0.43**	**3.16**
14.00	**0.77**	**2,829**	**51.54**	**1.15**	**0.40**	**0.75**
16.00	0.41	1,500	51.29	0.55	0.39	0.15
18.00	0.25	601	51.12	0.39	0.39	0.00
20.00	0.20	108	51.02	0.20	0.20	0.00
22.00	0.16	89	51.02	0.17	0.17	0.00
24.00	0.13	71	51.01	0.13	0.13	0.00
26.00	0.00	0	51.00	0.00	0.00	0.00
28.00	0.00	0	51.00	0.00	0.00	0.00
30.00	0.00	0	51.00	0.00	0.00	0.00
32.00	0.00	0	51.00	0.00	0.00	0.00
34.00	0.00	0	51.00	0.00	0.00	0.00
36.00	0.00	0	51.00	0.00	0.00	0.00
38.00	0.00	0	51.00	0.00	0.00	0.00
40.00	0.00	0	51.00	0.00	0.00	0.00
42.00	0.00	0	51.00	0.00	0.00	0.00
44.00	0.00	0	51.00	0.00	0.00	0.00
46.00	0.00	0	51.00	0.00	0.00	0.00
48.00	0.00	0	51.00	0.00	0.00	0.00
50.00	0.00	0	51.00	0.00	0.00	0.00
52.00	0.00	0	51.00	0.00	0.00	0.00
54.00	0.00	0	51.00	0.00	0.00	0.00
56.00	0.00	0	51.00	0.00	0.00	0.00
58.00	0.00	0	51.00	0.00	0.00	0.00
60.00	0.00	0	51.00	0.00	0.00	0.00
62.00	0.00	0	51.00	0.00	0.00	0.00
64.00	0.00	0	51.00	0.00	0.00	0.00
66.00	0.00	0	51.00	0.00	0.00	0.00
68.00	0.00	0	51.00	0.00	0.00	0.00
70.00	0.00	0	51.00	0.00	0.00	0.00
72.00	0.00	0	51.00	0.00	0.00	0.00
74.00	0.00	0	51.00	0.00	0.00	0.00
76.00	0.00	0	51.00	0.00	0.00	0.00

Summary for Pond 26P: Detention Area 7

Inflow Area =	0.996 ac, 82.91% Impervious, Inflow Depth = 3.38" for 10 year event				
Inflow =	4.02 cfs @	12.07 hrs,	Volume=	0.281 af	
Outflow =	3.97 cfs @	12.08 hrs,	Volume=	0.281 af,	Atten= 1%, Lag= 0.7 min
Discarded =	0.01 cfs @	12.08 hrs,	Volume=	0.011 af	
Primary =	3.96 cfs @	12.08 hrs,	Volume=	0.270 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 48.60' @ 12.08 hrs Surf.Area= 0.002 ac Storage= 0.004 af

Plug-Flow detention time= 4.8 min calculated for 0.281 af (100% of inflow)
Center-of-Mass det. time= 4.8 min (804.0 - 799.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	46.50'	0.001 af	**8.80'W x 12.00'L x 4.00'H Field A** 0.010 af Overall - 0.008 af Embedded = 0.002 af x 40.0% Voids
#2A	46.50'	0.006 af	**Concrete Galley 4x4x4** x 6 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 6 Chambers in 2 Rows
		0.007 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	46.50'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.01 cfs @ 12.08 hrs HW=48.59' (Free Discharge)
└**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=3.95 cfs @ 12.08 hrs HW=48.59' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 3.95 cfs @ 5.03 fps)

Pond 26P: Detention Area 7 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

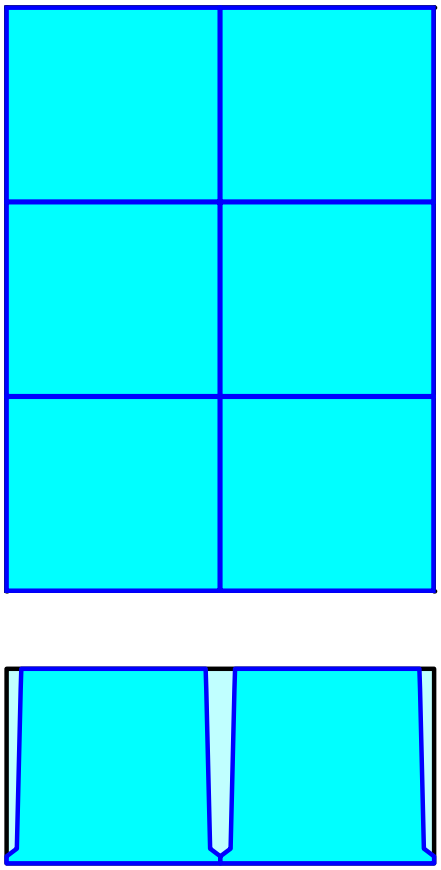
3 Chambers/Row x 4.00' Long = 12.00' Row Length
2 Rows x 52.8" Wide = 8.80' Base Width
48.0" Chamber Height = 4.00' Field Height

6 Chambers x 44.3 cf = 266.1 cf Chamber Storage
6 Chambers x 58.9 cf = 353.3 cf Displacement

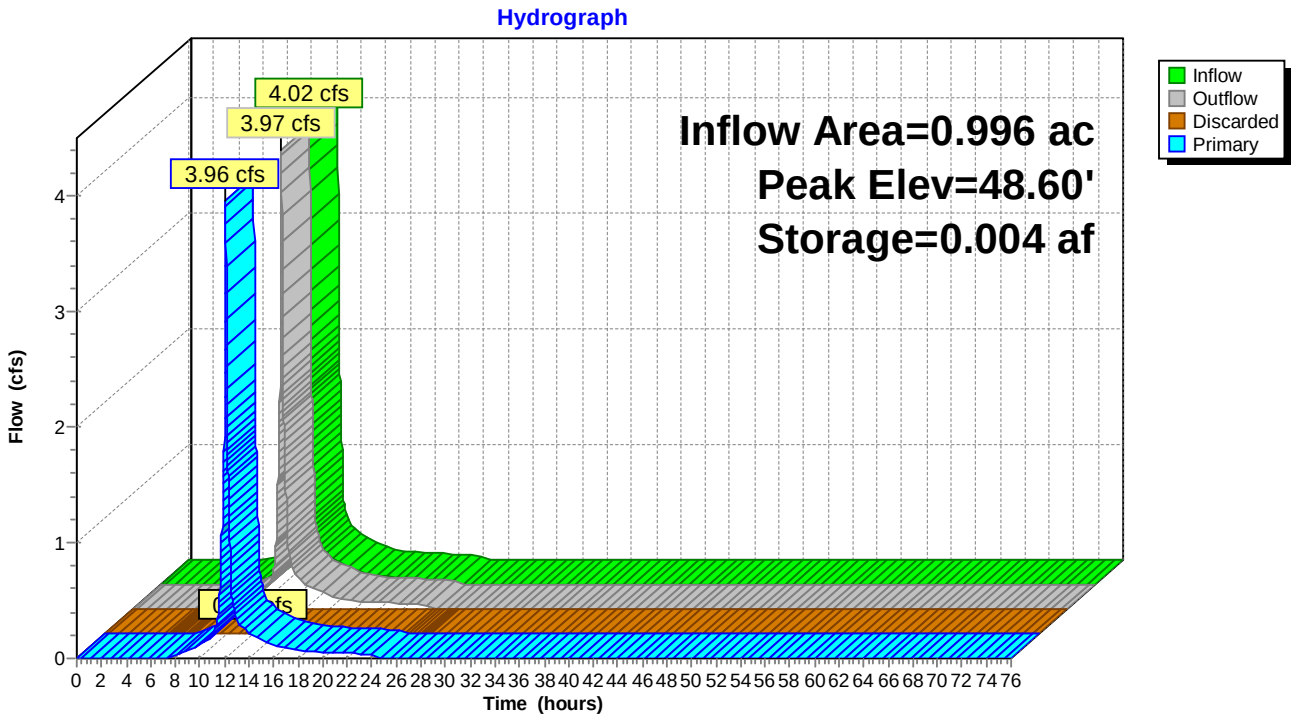
422.4 cf Field - 353.3 cf Chambers = 69.1 cf Stone x 40.0% Voids = 27.7 cf Stone Storage

Chamber Storage + Stone Storage = 293.7 cf = 0.007 af
Overall Storage Efficiency = 69.5%
Overall System Size = 12.00' x 8.80' x 4.00'

6 Chambers
15.6 cy Field
2.6 cy Stone



Pond 26P: Detention Area 7



Hydrograph for Pond 26P: Detention Area 7

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	46.50	0.00	0.00	0.00
2.00	0.00	0.000	46.50	0.00	0.00	0.00
4.00	0.00	0.000	46.50	0.00	0.00	0.00
6.00	0.01	0.000	46.53	0.01	0.01	0.00
8.00	0.03	0.001	47.08	0.03	0.01	0.03
10.00	0.12	0.001	47.16	0.12	0.01	0.11
12.00	**2.62**	**0.003**	**47.92**	**2.47**	**0.01**	**2.46**
14.00	**0.22**	**0.001**	**47.23**	**0.22**	**0.01**	**0.22**
16.00	0.12	0.001	47.16	0.12	0.01	0.11
18.00	0.07	0.001	47.12	0.07	0.01	0.07
20.00	0.06	0.001	47.11	0.06	0.01	0.05
22.00	0.05	0.001	47.10	0.05	0.01	0.04
24.00	0.04	0.001	47.08	0.04	0.01	0.03
26.00	0.00	0.000	46.52	0.00	0.00	0.00
28.00	0.00	0.000	46.50	0.00	0.00	0.00
30.00	0.00	0.000	46.50	0.00	0.00	0.00
32.00	0.00	0.000	46.50	0.00	0.00	0.00
34.00	0.00	0.000	46.50	0.00	0.00	0.00
36.00	0.00	0.000	46.50	0.00	0.00	0.00
38.00	0.00	0.000	46.50	0.00	0.00	0.00
40.00	0.00	0.000	46.50	0.00	0.00	0.00
42.00	0.00	0.000	46.50	0.00	0.00	0.00
44.00	0.00	0.000	46.50	0.00	0.00	0.00
46.00	0.00	0.000	46.50	0.00	0.00	0.00
48.00	0.00	0.000	46.50	0.00	0.00	0.00
50.00	0.00	0.000	46.50	0.00	0.00	0.00
52.00	0.00	0.000	46.50	0.00	0.00	0.00
54.00	0.00	0.000	46.50	0.00	0.00	0.00
56.00	0.00	0.000	46.50	0.00	0.00	0.00
58.00	0.00	0.000	46.50	0.00	0.00	0.00
60.00	0.00	0.000	46.50	0.00	0.00	0.00
62.00	0.00	0.000	46.50	0.00	0.00	0.00
64.00	0.00	0.000	46.50	0.00	0.00	0.00
66.00	0.00	0.000	46.50	0.00	0.00	0.00
68.00	0.00	0.000	46.50	0.00	0.00	0.00
70.00	0.00	0.000	46.50	0.00	0.00	0.00
72.00	0.00	0.000	46.50	0.00	0.00	0.00
74.00	0.00	0.000	46.50	0.00	0.00	0.00
76.00	0.00	0.000	46.50	0.00	0.00	0.00

Time span=0.00-76.00 hrs, dt=0.01 hrs, 7601 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: EXISTING Runoff Area=682,179 sf 65.16% Impervious Runoff Depth=3.23"
Tc=5.0 min CN=78 Runoff=61.45 cfs 4.213 af

Subcatchment 2S: No infil Runoff Area=209,877 sf 5.48% Impervious Runoff Depth=0.71"
Tc=5.0 min CN=46 Runoff=2.36 cfs 0.283 af

Subcatchment 12S: Area 2 Runoff Area=62,880 sf 93.39% Impervious Runoff Depth=4.90"
Tc=5.0 min CN=94 Runoff=7.93 cfs 0.590 af

Subcatchment 15S: Area 3 Runoff Area=49,802 sf 100.00% Impervious Runoff Depth=5.36"
Tc=5.0 min CN=98 Runoff=6.50 cfs 0.511 af

Subcatchment 17S: Area 4 Runoff Area=38,330 sf 96.89% Impervious Runoff Depth=5.13"
Tc=5.0 min CN=96 Runoff=4.93 cfs 0.376 af

Subcatchment 18S: Area 5 Runoff Area=52,288 sf 95.56% Impervious Runoff Depth=5.01"
Tc=5.0 min CN=95 Runoff=6.67 cfs 0.502 af

Subcatchment 21S: Area 7 Runoff Area=23,504 sf 100.00% Impervious Runoff Depth=5.36"
Tc=5.0 min CN=98 Runoff=3.07 cfs 0.241 af

Subcatchment 22S: Area 8 Runoff Area=43,400 sf 82.91% Impervious Runoff Depth=4.24"
Tc=5.0 min CN=88 Runoff=4.98 cfs 0.352 af

Subcatchment 23S: Area 6 Building Runoff Area=139,000 sf 100.00% Impervious Runoff Depth=5.36"
Tc=5.0 min CN=98 Runoff=18.13 cfs 1.426 af

Subcatchment 28S: Area 1 Runoff Area=63,098 sf 81.50% Impervious Runoff Depth=4.14"
Tc=5.0 min CN=87 Runoff=7.10 cfs 0.499 af

Reach 6R: (new Reach) Inflow=33.32 cfs 3.189 af
Outflow=33.32 cfs 3.189 af

Pond 11P: Detention Area 1 Peak Elev=44.96' Storage=0.083 af Inflow=7.10 cfs 0.499 af
Discarded=0.22 cfs 0.191 af Primary=4.57 cfs 0.308 af Outflow=4.79 cfs 0.499 af

Pond 13P: Detention Area 2 Peak Elev=44.44' Storage=0.104 af Inflow=7.93 cfs 0.590 af
Discarded=0.34 cfs 0.262 af Primary=4.69 cfs 0.327 af Outflow=5.03 cfs 0.590 af

Pond 14P: Area 4 Peak Elev=53.02' Storage=0.068 af Inflow=6.67 cfs 0.502 af
Discarded=0.09 cfs 0.146 af Primary=4.67 cfs 0.355 af Outflow=4.76 cfs 0.502 af

Pond 19P: Detention Area 3 Peak Elev=43.96' Storage=6,984 cf Inflow=11.43 cfs 0.887 af
Discarded=0.68 cfs 0.404 af Primary=5.30 cfs 0.483 af Outflow=5.98 cfs 0.887 af

Pond 24P: Detention Area 6 Peak Elev=52.16' Storage=36 cf Inflow=3.07 cfs 0.241 af
Discarded=0.00 cfs 0.003 af Primary=3.06 cfs 0.238 af Outflow=3.07 cfs 0.241 af

Pond 25P: Det Area 5 Peak Elev=53.87' Storage=15,172 cf Inflow=18.13 cfs 1.426 af
Discarded=0.48 cfs 0.573 af Primary=5.70 cfs 0.852 af Outflow=6.18 cfs 1.426 af

Pond 26P: Detention Area 7 Peak Elev=49.17' Storage=0.005 af Inflow=4.98 cfs 0.352 af
Discarded=0.01 cfs 0.011 af Primary=4.89 cfs 0.341 af Outflow=4.89 cfs 0.352 af

Total Runoff Area = 31.321 ac Runoff Volume = 8.993 af Average Runoff Depth = 3.45"
33.92% Pervious = 10.624 ac 66.08% Impervious = 20.697 ac

Summary for Subcatchment 1S: EXISTING

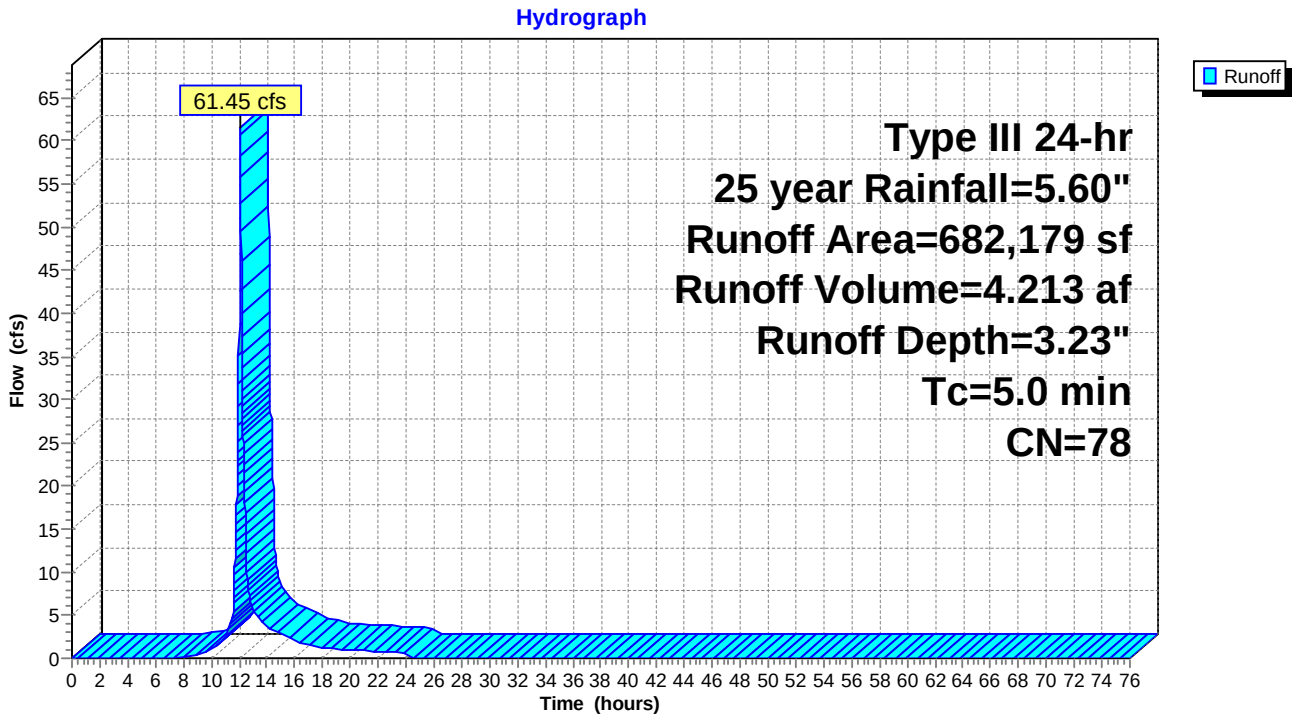
Runoff = 61.45 cfs @ 12.07 hrs, Volume= 4.213 af, Depth= 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.60"

	Area (sf)	CN	Description
*	45,757	98	Existing Impervious
	553,853	81	Urban industrial, 72% imp, HSG A
	62,264	32	Woods/grass comb., Good, HSG A
	20,305	98	Water Surface, 0% imp, HSG A
	682,179	78	Weighted Average
	237,648		34.84% Pervious Area
	444,531		65.16% Impervious Area

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

Subcatchment 1S: EXISTING



Hydrograph for Subcatchment 1S: EXISTING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	5.60	3.23	0.00
1.00	0.06	0.00	0.00	54.00	5.60	3.23	0.00
2.00	0.11	0.00	0.00	55.00	5.60	3.23	0.00
3.00	0.17	0.00	0.00	56.00	5.60	3.23	0.00
4.00	0.24	0.00	0.00	57.00	5.60	3.23	0.00
5.00	0.32	0.00	0.00	58.00	5.60	3.23	0.00
6.00	0.40	0.00	0.00	59.00	5.60	3.23	0.00
7.00	0.51	0.00	0.00	60.00	5.60	3.23	0.00
8.00	0.64	0.00	0.10	61.00	5.60	3.23	0.00
9.00	0.82	0.02	0.48	62.00	5.60	3.23	0.00
10.00	1.06	0.07	1.13	63.00	5.60	3.23	0.00
11.00	1.40	0.19	2.48	64.00	5.60	3.23	0.00
12.00	2.80	0.99	**38.78**	65.00	5.60	3.23	0.00
13.00	4.20	2.05	**5.72**	66.00	5.60	3.23	0.00
14.00	4.54	2.33	3.72	67.00	5.60	3.23	0.00
15.00	4.78	2.53	2.85	68.00	5.60	3.23	0.00
16.00	4.96	2.68	2.01	69.00	5.60	3.23	0.00
17.00	5.09	2.79	1.61	70.00	5.60	3.23	0.00
18.00	5.20	2.88	1.24	71.00	5.60	3.23	0.00
19.00	5.28	2.95	1.11	72.00	5.60	3.23	0.00
20.00	5.36	3.02	1.00	73.00	5.60	3.23	0.00
21.00	5.43	3.08	0.92	74.00	5.60	3.23	0.00
22.00	5.49	3.13	0.83	75.00	5.60	3.23	0.00
23.00	5.55	3.18	0.75	76.00	5.60	3.23	0.00
24.00	**5.60**	**3.23**	0.66				
25.00	5.60	3.23	0.00				
26.00	5.60	3.23	0.00				
27.00	5.60	3.23	0.00				
28.00	5.60	3.23	0.00				
29.00	5.60	3.23	0.00				
30.00	5.60	3.23	0.00				
31.00	5.60	3.23	0.00				
32.00	5.60	3.23	0.00				
33.00	5.60	3.23	0.00				
34.00	5.60	3.23	0.00				
35.00	5.60	3.23	0.00				
36.00	5.60	3.23	0.00				
37.00	5.60	3.23	0.00				
38.00	5.60	3.23	0.00				
39.00	5.60	3.23	0.00				
40.00	5.60	3.23	0.00				
41.00	5.60	3.23	0.00				
42.00	5.60	3.23	0.00				
43.00	5.60	3.23	0.00				
44.00	5.60	3.23	0.00				
45.00	5.60	3.23	0.00				
46.00	5.60	3.23	0.00				
47.00	5.60	3.23	0.00				
48.00	5.60	3.23	0.00				
49.00	5.60	3.23	0.00				
50.00	5.60	3.23	0.00				
51.00	5.60	3.23	0.00				
52.00	5.60	3.23	0.00				

Summary for Subcatchment 2S: No infil

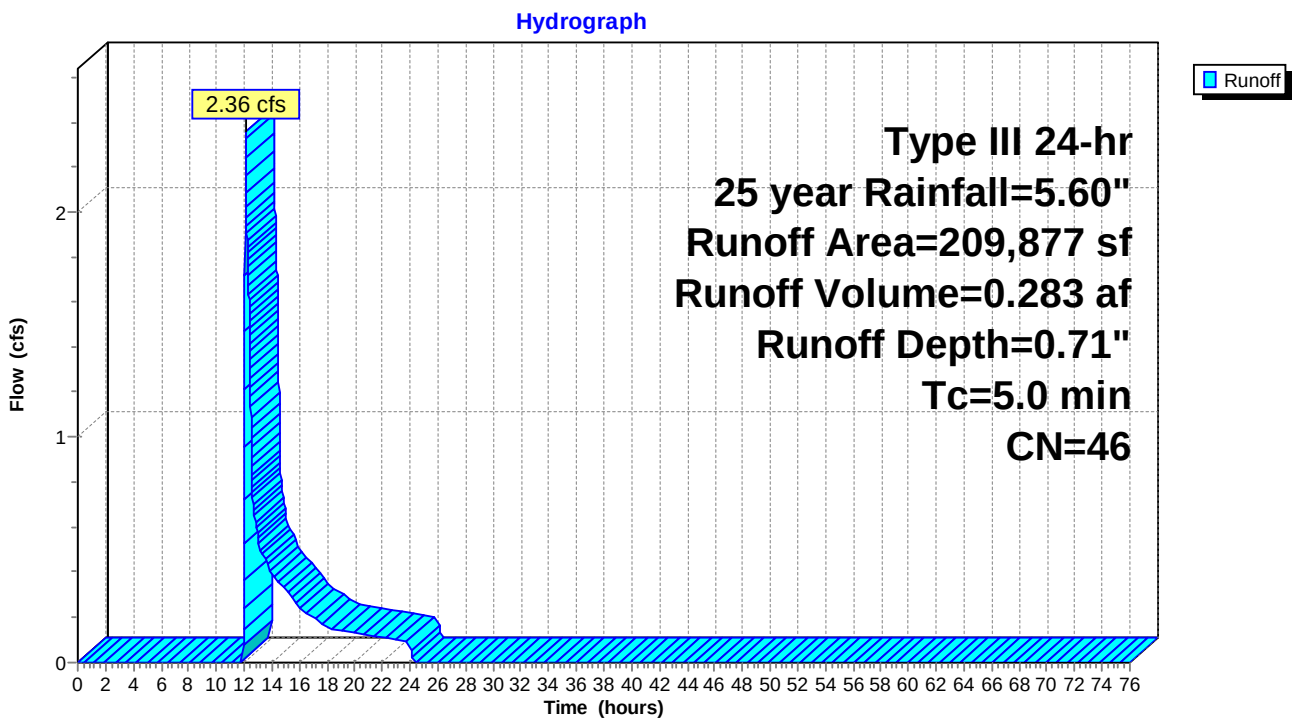
Runoff = 2.36 cfs @ 12.11 hrs, Volume= 0.283 af, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.60"

	Area (sf)	CN	Description
*	8,203	98	ex bldg
	114,294	39	>75% Grass cover, Good, HSG A
*	3,305	98	IMPERVIOUS
	20,305	98	Water Surface, 0% imp, HSG A
	61,509	32	Woods/grass comb., Good, HSG A
	2,261	76	Gravel roads, HSG A
	209,877	46	Weighted Average
	198,369		94.52% Pervious Area
	11,508		5.48% Impervious Area

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

Subcatchment 2S: No infil



Hydrograph for Subcatchment 2S: No infil

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	5.60	0.71	0.00
1.00	0.06	0.00	0.00	54.00	5.60	0.71	0.00
2.00	0.11	0.00	0.00	55.00	5.60	0.71	0.00
3.00	0.17	0.00	0.00	56.00	5.60	0.71	0.00
4.00	0.24	0.00	0.00	57.00	5.60	0.71	0.00
5.00	0.32	0.00	0.00	58.00	5.60	0.71	0.00
6.00	0.40	0.00	0.00	59.00	5.60	0.71	0.00
7.00	0.51	0.00	0.00	60.00	5.60	0.71	0.00
8.00	0.64	0.00	0.00	61.00	5.60	0.71	0.00
9.00	0.82	0.00	0.00	62.00	5.60	0.71	0.00
10.00	1.06	0.00	0.00	63.00	5.60	0.71	0.00
11.00	1.40	0.00	0.00	64.00	5.60	0.71	0.00
12.00	2.80	0.02	**0.37**	65.00	5.60	0.71	0.00
13.00	4.20	0.25	**0.55**	66.00	5.60	0.71	0.00
14.00	4.54	0.35	0.40	67.00	5.60	0.71	0.00
15.00	4.78	0.42	0.33	68.00	5.60	0.71	0.00
16.00	4.96	0.48	0.24	69.00	5.60	0.71	0.00
17.00	5.09	0.52	0.20	70.00	5.60	0.71	0.00
18.00	5.20	0.56	0.16	71.00	5.60	0.71	0.00
19.00	5.28	0.59	0.14	72.00	5.60	0.71	0.00
20.00	5.36	0.61	0.13	73.00	5.60	0.71	0.00
21.00	5.43	0.64	0.12	74.00	5.60	0.71	0.00
22.00	5.49	0.66	0.11	75.00	5.60	0.71	0.00
23.00	5.55	0.69	0.10	76.00	5.60	0.71	0.00
24.00	**5.60**	**0.71**	0.09				
25.00	5.60	0.71	0.00				
26.00	5.60	0.71	0.00				
27.00	5.60	0.71	0.00				
28.00	5.60	0.71	0.00				
29.00	5.60	0.71	0.00				
30.00	5.60	0.71	0.00				
31.00	5.60	0.71	0.00				
32.00	5.60	0.71	0.00				
33.00	5.60	0.71	0.00				
34.00	5.60	0.71	0.00				
35.00	5.60	0.71	0.00				
36.00	5.60	0.71	0.00				
37.00	5.60	0.71	0.00				
38.00	5.60	0.71	0.00				
39.00	5.60	0.71	0.00				
40.00	5.60	0.71	0.00				
41.00	5.60	0.71	0.00				
42.00	5.60	0.71	0.00				
43.00	5.60	0.71	0.00				
44.00	5.60	0.71	0.00				
45.00	5.60	0.71	0.00				
46.00	5.60	0.71	0.00				
47.00	5.60	0.71	0.00				
48.00	5.60	0.71	0.00				
49.00	5.60	0.71	0.00				
50.00	5.60	0.71	0.00				
51.00	5.60	0.71	0.00				
52.00	5.60	0.71	0.00				

Summary for Subcatchment 12S: Area 2

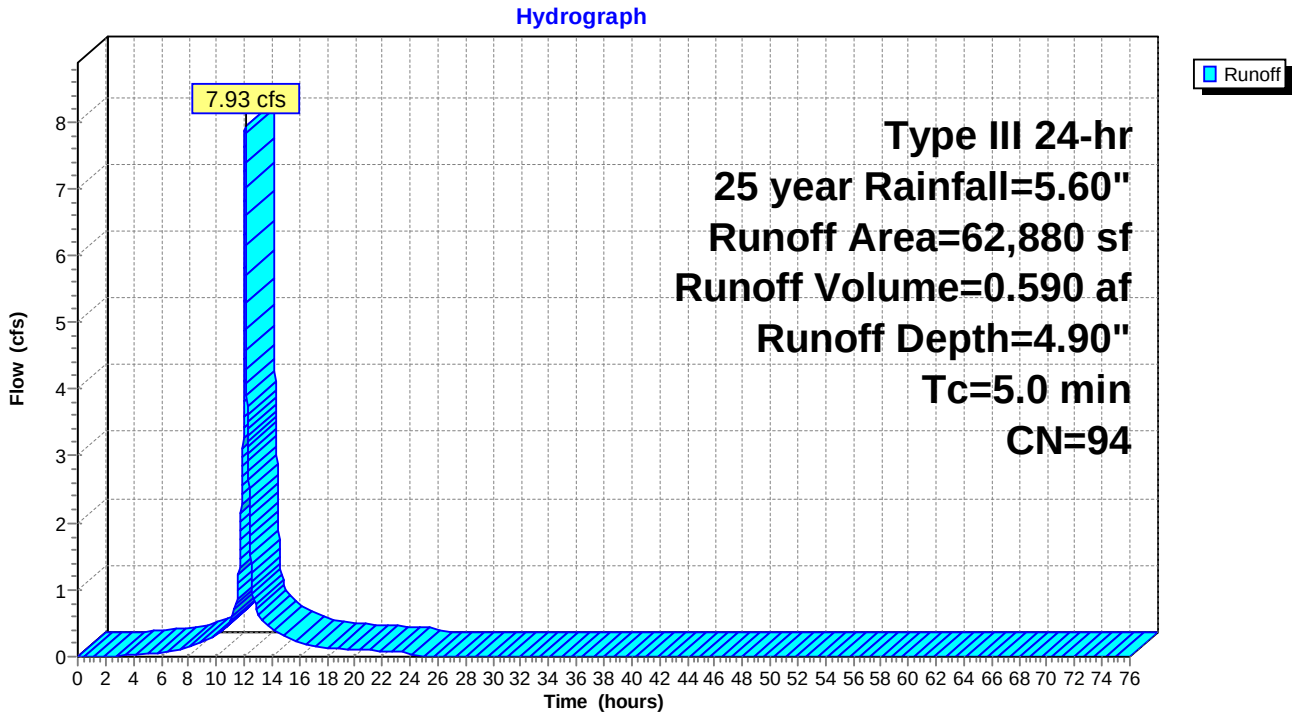
Runoff = 7.93 cfs @ 12.07 hrs, Volume= 0.590 af, Depth= 4.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.60"

	Area (sf)	CN	Description
*	58,726	98	driveway
	4,154	39	>75% Grass cover, Good, HSG A
	62,880	94	Weighted Average
	4,154		6.61% Pervious Area
	58,726		93.39% Impervious Area

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

Subcatchment 12S: Area 2



Hydrograph for Subcatchment 12S: Area 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	53.00	5.60	4.90	0.00
1.00	0.06	0.00	0.00	54.00	5.60	4.90	0.00
2.00	0.11	0.00	0.00	55.00	5.60	4.90	0.00
3.00	0.17	0.00	0.01	56.00	5.60	4.90	0.00
4.00	0.24	0.02	0.03	57.00	5.60	4.90	0.00
5.00	0.32	0.04	0.05	58.00	5.60	4.90	0.00
6.00	0.40	0.08	0.07	59.00	5.60	4.90	0.00
7.00	0.51	0.14	0.10	60.00	5.60	4.90	0.00
8.00	0.64	0.23	0.14	61.00	5.60	4.90	0.00
9.00	0.82	0.36	0.23	62.00	5.60	4.90	0.00
10.00	1.06	0.55	0.33	63.00	5.60	4.90	0.00
11.00	1.40	0.85	0.51	64.00	5.60	4.90	0.00
12.00	2.80	2.16	**5.32**	65.00	5.60	4.90	0.00
13.00	4.20	3.52	**0.64**	66.00	5.60	4.90	0.00
14.00	4.54	3.86	0.41	67.00	5.60	4.90	0.00
15.00	4.78	4.09	0.31	68.00	5.60	4.90	0.00
16.00	4.96	4.27	0.22	69.00	5.60	4.90	0.00
17.00	5.09	4.40	0.17	70.00	5.60	4.90	0.00
18.00	5.20	4.50	0.13	71.00	5.60	4.90	0.00
19.00	5.28	4.59	0.12	72.00	5.60	4.90	0.00
20.00	5.36	4.66	0.11	73.00	5.60	4.90	0.00
21.00	5.43	4.73	0.10	74.00	5.60	4.90	0.00
22.00	5.49	4.79	0.09	75.00	5.60	4.90	0.00
23.00	5.55	4.85	0.08	76.00	5.60	4.90	0.00
24.00	**5.60**	**4.90**	0.07				
25.00	5.60	4.90	0.00				
26.00	5.60	4.90	0.00				
27.00	5.60	4.90	0.00				
28.00	5.60	4.90	0.00				
29.00	5.60	4.90	0.00				
30.00	5.60	4.90	0.00				
31.00	5.60	4.90	0.00				
32.00	5.60	4.90	0.00				
33.00	5.60	4.90	0.00				
34.00	5.60	4.90	0.00				
35.00	5.60	4.90	0.00				
36.00	5.60	4.90	0.00				
37.00	5.60	4.90	0.00				
38.00	5.60	4.90	0.00				
39.00	5.60	4.90	0.00				
40.00	5.60	4.90	0.00				
41.00	5.60	4.90	0.00				
42.00	5.60	4.90	0.00				
43.00	5.60	4.90	0.00				
44.00	5.60	4.90	0.00				
45.00	5.60	4.90	0.00				
46.00	5.60	4.90	0.00				
47.00	5.60	4.90	0.00				
48.00	5.60	4.90	0.00				
49.00	5.60	4.90	0.00				
50.00	5.60	4.90	0.00				
51.00	5.60	4.90	0.00				
52.00	5.60	4.90	0.00				

Summary for Subcatchment 15S: Area 3

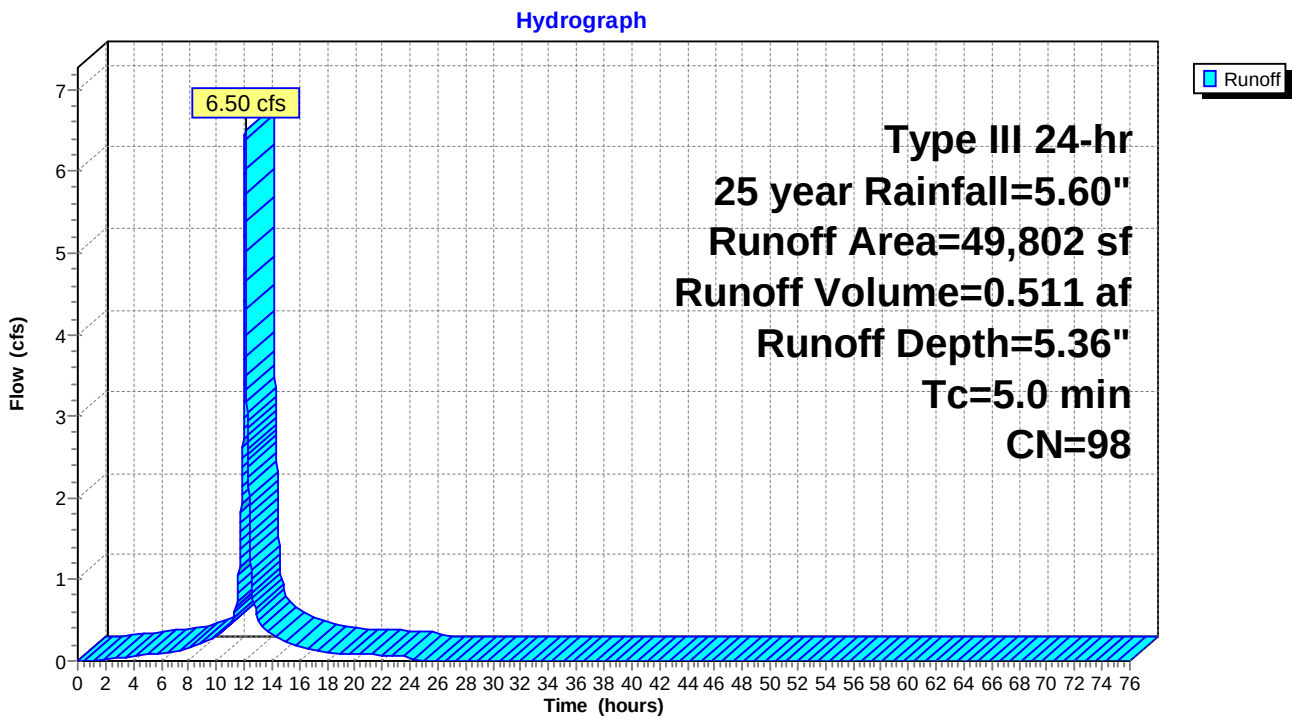
Runoff = 6.50 cfs @ 12.07 hrs, Volume= 0.511 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.60"

	Area (sf)	CN	Description
*	49,802	98	Building
	49,802		100.00% Impervious Area

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

Subcatchment 15S: Area 3



Hydrograph for Subcatchment 15S: Area 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	5.60	5.36	0.00
1.00	0.06	0.00	0.01	54.00	5.60	5.36	0.00
2.00	0.11	0.02	0.03	55.00	5.60	5.36	0.00
3.00	0.17	0.05	0.05	56.00	5.60	5.36	0.00
4.00	0.24	0.10	0.06	57.00	5.60	5.36	0.00
5.00	0.32	0.16	0.08	58.00	5.60	5.36	0.00
6.00	0.40	0.23	0.09	59.00	5.60	5.36	0.00
7.00	0.51	0.32	0.12	60.00	5.60	5.36	0.00
8.00	0.64	0.45	0.15	61.00	5.60	5.36	0.00
9.00	0.82	0.61	0.23	62.00	5.60	5.36	0.00
10.00	1.06	0.85	0.30	63.00	5.60	5.36	0.00
11.00	1.40	1.18	0.45	64.00	5.60	5.36	0.00
12.00	2.80	2.57	**4.39**	65.00	5.60	5.36	0.00
13.00	4.20	3.96	**0.52**	66.00	5.60	5.36	0.00
14.00	4.54	4.31	0.33	67.00	5.60	5.36	0.00
15.00	4.78	4.55	0.25	68.00	5.60	5.36	0.00
16.00	4.96	4.72	0.17	69.00	5.60	5.36	0.00
17.00	5.09	4.86	0.14	70.00	5.60	5.36	0.00
18.00	5.20	4.96	0.11	71.00	5.60	5.36	0.00
19.00	5.28	5.04	0.09	72.00	5.60	5.36	0.00
20.00	5.36	5.12	0.08	73.00	5.60	5.36	0.00
21.00	5.43	5.19	0.08	74.00	5.60	5.36	0.00
22.00	5.49	5.25	0.07	75.00	5.60	5.36	0.00
23.00	5.55	5.31	0.06	76.00	5.60	5.36	0.00
24.00	**5.60**	**5.36**	0.06				
25.00	5.60	5.36	0.00				
26.00	5.60	5.36	0.00				
27.00	5.60	5.36	0.00				
28.00	5.60	5.36	0.00				
29.00	5.60	5.36	0.00				
30.00	5.60	5.36	0.00				
31.00	5.60	5.36	0.00				
32.00	5.60	5.36	0.00				
33.00	5.60	5.36	0.00				
34.00	5.60	5.36	0.00				
35.00	5.60	5.36	0.00				
36.00	5.60	5.36	0.00				
37.00	5.60	5.36	0.00				
38.00	5.60	5.36	0.00				
39.00	5.60	5.36	0.00				
40.00	5.60	5.36	0.00				
41.00	5.60	5.36	0.00				
42.00	5.60	5.36	0.00				
43.00	5.60	5.36	0.00				
44.00	5.60	5.36	0.00				
45.00	5.60	5.36	0.00				
46.00	5.60	5.36	0.00				
47.00	5.60	5.36	0.00				
48.00	5.60	5.36	0.00				
49.00	5.60	5.36	0.00				
50.00	5.60	5.36	0.00				
51.00	5.60	5.36	0.00				
52.00	5.60	5.36	0.00				

Summary for Subcatchment 17S: Area 4

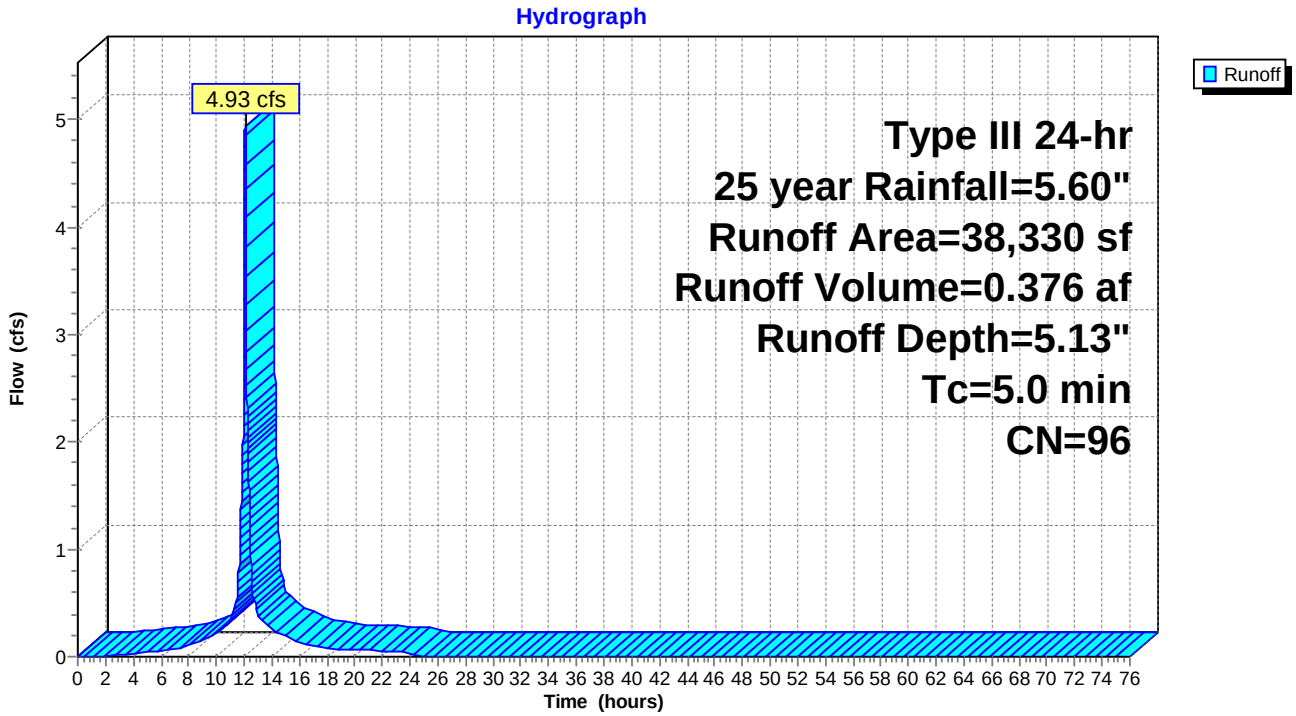
Runoff = 4.93 cfs @ 12.07 hrs, Volume= 0.376 af, Depth= 5.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.60"

	Area (sf)	CN	Description
*	37,139	98	driveway
	1,191	39	>75% Grass cover, Good, HSG A
	38,330	96	Weighted Average
	1,191		3.11% Pervious Area
	37,139		96.89% Impervious Area

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

Subcatchment 17S: Area 4



Hydrograph for Subcatchment 17S: Area 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	53.00	5.60	5.13	0.00
1.00	0.06	0.00	0.00	54.00	5.60	5.13	0.00
2.00	0.11	0.00	0.01	55.00	5.60	5.13	0.00
3.00	0.17	0.02	0.02	56.00	5.60	5.13	0.00
4.00	0.24	0.04	0.03	57.00	5.60	5.13	0.00
5.00	0.32	0.08	0.04	58.00	5.60	5.13	0.00
6.00	0.40	0.14	0.05	59.00	5.60	5.13	0.00
7.00	0.51	0.21	0.08	60.00	5.60	5.13	0.00
8.00	0.64	0.32	0.10	61.00	5.60	5.13	0.00
9.00	0.82	0.47	0.16	62.00	5.60	5.13	0.00
10.00	1.06	0.68	0.22	63.00	5.60	5.13	0.00
11.00	1.40	1.00	0.33	64.00	5.60	5.13	0.00
12.00	2.80	2.36	**3.32**	65.00	5.60	5.13	0.00
13.00	4.20	3.74	**0.39**	66.00	5.60	5.13	0.00
14.00	4.54	4.08	0.25	67.00	5.60	5.13	0.00
15.00	4.78	4.32	0.19	68.00	5.60	5.13	0.00
16.00	4.96	4.49	0.13	69.00	5.60	5.13	0.00
17.00	5.09	4.63	0.11	70.00	5.60	5.13	0.00
18.00	5.20	4.73	0.08	71.00	5.60	5.13	0.00
19.00	5.28	4.81	0.07	72.00	5.60	5.13	0.00
20.00	5.36	4.89	0.06	73.00	5.60	5.13	0.00
21.00	5.43	4.96	0.06	74.00	5.60	5.13	0.00
22.00	5.49	5.02	0.05	75.00	5.60	5.13	0.00
23.00	5.55	5.08	0.05	76.00	5.60	5.13	0.00
24.00	**5.60**	**5.13**	0.04				
25.00	5.60	5.13	0.00				
26.00	5.60	5.13	0.00				
27.00	5.60	5.13	0.00				
28.00	5.60	5.13	0.00				
29.00	5.60	5.13	0.00				
30.00	5.60	5.13	0.00				
31.00	5.60	5.13	0.00				
32.00	5.60	5.13	0.00				
33.00	5.60	5.13	0.00				
34.00	5.60	5.13	0.00				
35.00	5.60	5.13	0.00				
36.00	5.60	5.13	0.00				
37.00	5.60	5.13	0.00				
38.00	5.60	5.13	0.00				
39.00	5.60	5.13	0.00				
40.00	5.60	5.13	0.00				
41.00	5.60	5.13	0.00				
42.00	5.60	5.13	0.00				
43.00	5.60	5.13	0.00				
44.00	5.60	5.13	0.00				
45.00	5.60	5.13	0.00				
46.00	5.60	5.13	0.00				
47.00	5.60	5.13	0.00				
48.00	5.60	5.13	0.00				
49.00	5.60	5.13	0.00				
50.00	5.60	5.13	0.00				
51.00	5.60	5.13	0.00				
52.00	5.60	5.13	0.00				

Summary for Subcatchment 18S: Area 5

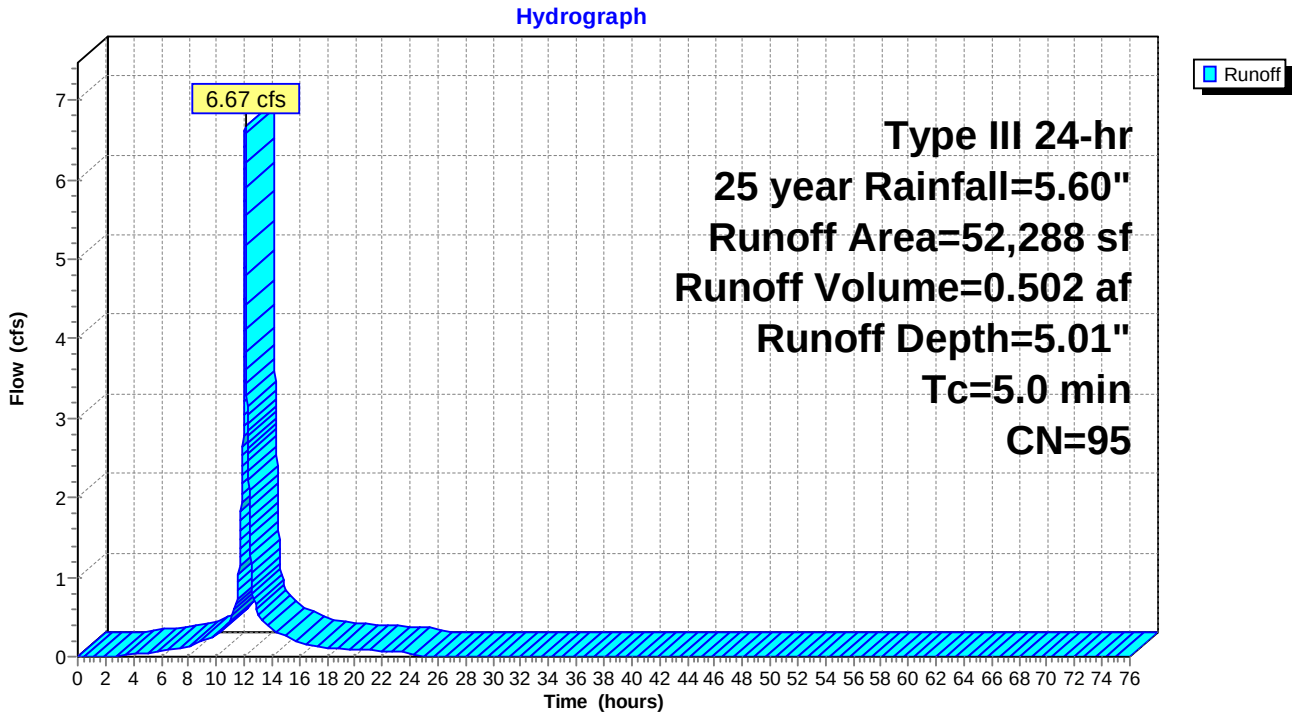
Runoff = 6.67 cfs @ 12.07 hrs, Volume= 0.502 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.60"

	Area (sf)	CN	Description
*	49,966	98	driveway
	2,322	39	>75% Grass cover, Good, HSG A
	52,288	95	Weighted Average
	2,322		4.44% Pervious Area
	49,966		95.56% Impervious Area

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

Subcatchment 18S: Area 5



Hydrograph for Subcatchment 18S: Area 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	53.00	5.60	5.01	0.00
1.00	0.06	0.00	0.00	54.00	5.60	5.01	0.00
2.00	0.11	0.00	0.00	55.00	5.60	5.01	0.00
3.00	0.17	0.01	0.02	56.00	5.60	5.01	0.00
4.00	0.24	0.03	0.03	57.00	5.60	5.01	0.00
5.00	0.32	0.06	0.05	58.00	5.60	5.01	0.00
6.00	0.40	0.11	0.06	59.00	5.60	5.01	0.00
7.00	0.51	0.17	0.09	60.00	5.60	5.01	0.00
8.00	0.64	0.27	0.13	61.00	5.60	5.01	0.00
9.00	0.82	0.41	0.20	62.00	5.60	5.01	0.00
10.00	1.06	0.61	0.28	63.00	5.60	5.01	0.00
11.00	1.40	0.92	0.44	64.00	5.60	5.01	0.00
12.00	2.80	2.25	**4.48**	65.00	5.60	5.01	0.00
13.00	4.20	3.63	**0.54**	66.00	5.60	5.01	0.00
14.00	4.54	3.97	0.34	67.00	5.60	5.01	0.00
15.00	4.78	4.21	0.26	68.00	5.60	5.01	0.00
16.00	4.96	4.38	0.18	69.00	5.60	5.01	0.00
17.00	5.09	4.51	0.14	70.00	5.60	5.01	0.00
18.00	5.20	4.61	0.11	71.00	5.60	5.01	0.00
19.00	5.28	4.70	0.10	72.00	5.60	5.01	0.00
20.00	5.36	4.78	0.09	73.00	5.60	5.01	0.00
21.00	5.43	4.84	0.08	74.00	5.60	5.01	0.00
22.00	5.49	4.91	0.07	75.00	5.60	5.01	0.00
23.00	5.55	4.96	0.07	76.00	5.60	5.01	0.00
24.00	**5.60**	**5.01**	0.06				
25.00	5.60	5.01	0.00				
26.00	5.60	5.01	0.00				
27.00	5.60	5.01	0.00				
28.00	5.60	5.01	0.00				
29.00	5.60	5.01	0.00				
30.00	5.60	5.01	0.00				
31.00	5.60	5.01	0.00				
32.00	5.60	5.01	0.00				
33.00	5.60	5.01	0.00				
34.00	5.60	5.01	0.00				
35.00	5.60	5.01	0.00				
36.00	5.60	5.01	0.00				
37.00	5.60	5.01	0.00				
38.00	5.60	5.01	0.00				
39.00	5.60	5.01	0.00				
40.00	5.60	5.01	0.00				
41.00	5.60	5.01	0.00				
42.00	5.60	5.01	0.00				
43.00	5.60	5.01	0.00				
44.00	5.60	5.01	0.00				
45.00	5.60	5.01	0.00				
46.00	5.60	5.01	0.00				
47.00	5.60	5.01	0.00				
48.00	5.60	5.01	0.00				
49.00	5.60	5.01	0.00				
50.00	5.60	5.01	0.00				
51.00	5.60	5.01	0.00				
52.00	5.60	5.01	0.00				

Summary for Subcatchment 21S: Area 7

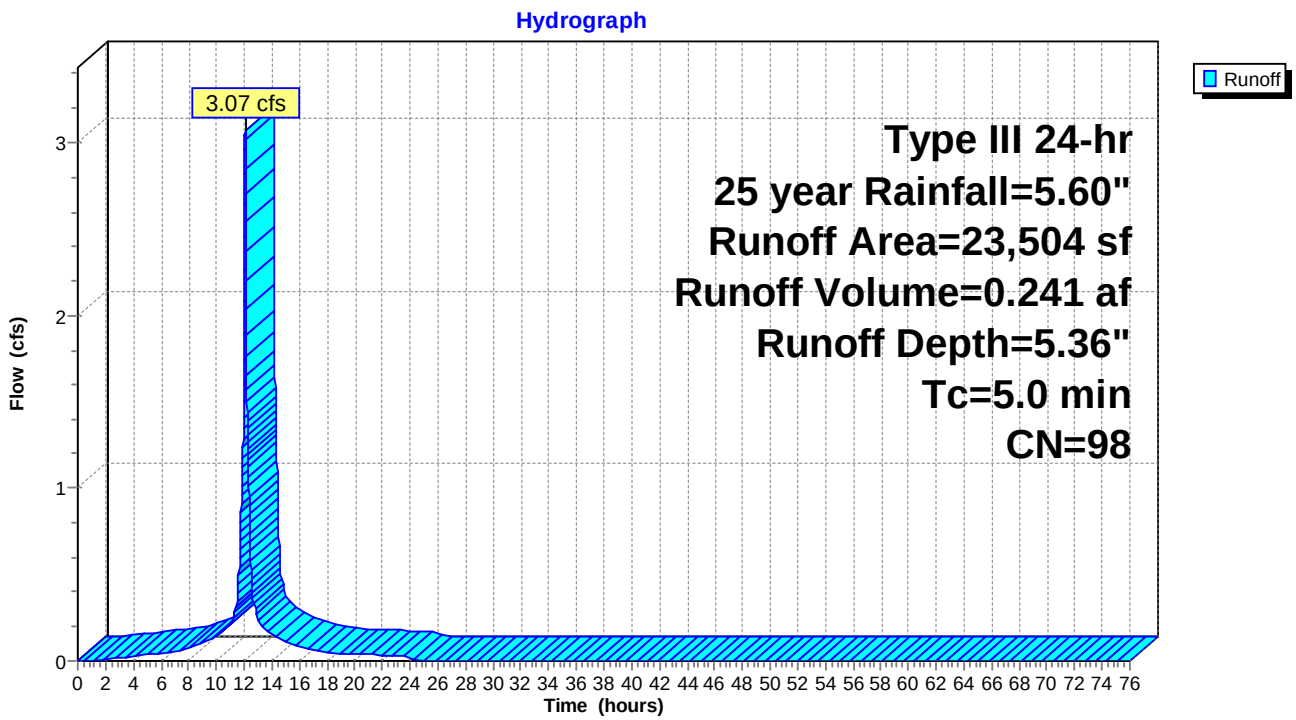
Runoff = 3.07 cfs @ 12.07 hrs, Volume= 0.241 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.60"

	Area (sf)	CN	Description
*	23,504	98	Roadway
	23,504		100.00% Impervious Area

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

Subcatchment 21S: Area 7



Hydrograph for Subcatchment 21S: Area 7

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	5.60	5.36	0.00
1.00	0.06	0.00	0.00	54.00	5.60	5.36	0.00
2.00	0.11	0.02	0.01	55.00	5.60	5.36	0.00
3.00	0.17	0.05	0.02	56.00	5.60	5.36	0.00
4.00	0.24	0.10	0.03	57.00	5.60	5.36	0.00
5.00	0.32	0.16	0.04	58.00	5.60	5.36	0.00
6.00	0.40	0.23	0.04	59.00	5.60	5.36	0.00
7.00	0.51	0.32	0.06	60.00	5.60	5.36	0.00
8.00	0.64	0.45	0.07	61.00	5.60	5.36	0.00
9.00	0.82	0.61	0.11	62.00	5.60	5.36	0.00
10.00	1.06	0.85	0.14	63.00	5.60	5.36	0.00
11.00	1.40	1.18	0.21	64.00	5.60	5.36	0.00
12.00	2.80	2.57	**2.07**	65.00	5.60	5.36	0.00
13.00	4.20	3.96	**0.24**	66.00	5.60	5.36	0.00
14.00	4.54	4.31	0.15	67.00	5.60	5.36	0.00
15.00	4.78	4.55	0.12	68.00	5.60	5.36	0.00
16.00	4.96	4.72	0.08	69.00	5.60	5.36	0.00
17.00	5.09	4.86	0.07	70.00	5.60	5.36	0.00
18.00	5.20	4.96	0.05	71.00	5.60	5.36	0.00
19.00	5.28	5.04	0.04	72.00	5.60	5.36	0.00
20.00	5.36	5.12	0.04	73.00	5.60	5.36	0.00
21.00	5.43	5.19	0.04	74.00	5.60	5.36	0.00
22.00	5.49	5.25	0.03	75.00	5.60	5.36	0.00
23.00	5.55	5.31	0.03	76.00	5.60	5.36	0.00
24.00	**5.60**	**5.36**	0.03				
25.00	5.60	5.36	0.00				
26.00	5.60	5.36	0.00				
27.00	5.60	5.36	0.00				
28.00	5.60	5.36	0.00				
29.00	5.60	5.36	0.00				
30.00	5.60	5.36	0.00				
31.00	5.60	5.36	0.00				
32.00	5.60	5.36	0.00				
33.00	5.60	5.36	0.00				
34.00	5.60	5.36	0.00				
35.00	5.60	5.36	0.00				
36.00	5.60	5.36	0.00				
37.00	5.60	5.36	0.00				
38.00	5.60	5.36	0.00				
39.00	5.60	5.36	0.00				
40.00	5.60	5.36	0.00				
41.00	5.60	5.36	0.00				
42.00	5.60	5.36	0.00				
43.00	5.60	5.36	0.00				
44.00	5.60	5.36	0.00				
45.00	5.60	5.36	0.00				
46.00	5.60	5.36	0.00				
47.00	5.60	5.36	0.00				
48.00	5.60	5.36	0.00				
49.00	5.60	5.36	0.00				
50.00	5.60	5.36	0.00				
51.00	5.60	5.36	0.00				
52.00	5.60	5.36	0.00				

Summary for Subcatchment 22S: Area 8

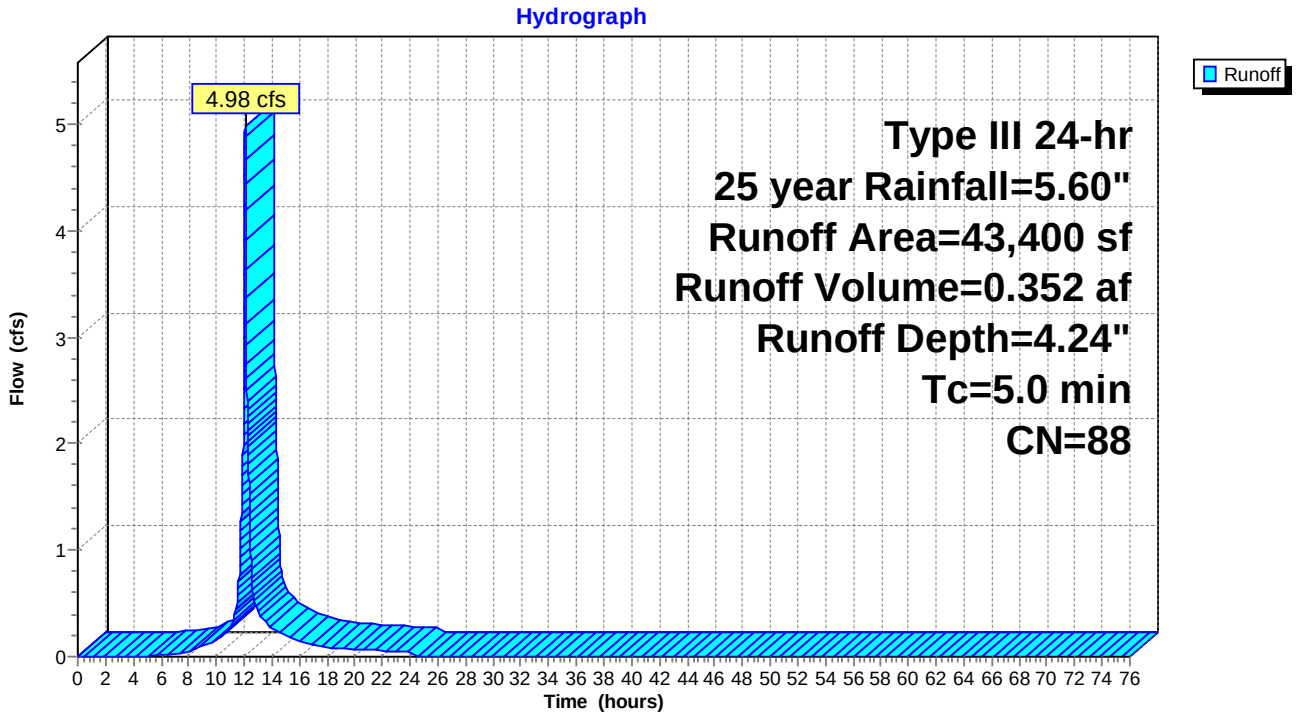
Runoff = 4.98 cfs @ 12.07 hrs, Volume= 0.352 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.60"

	Area (sf)	CN	Description
*	35,981	98	Roadway
	7,419	39	>75% Grass cover, Good, HSG A
	43,400	88	Weighted Average
	7,419		17.09% Pervious Area
	35,981		82.91% Impervious Area

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

Subcatchment 22S: Area 8



Hydrograph for Subcatchment 22S: Area 8

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	5.60	4.24	0.00
1.00	0.06	0.00	0.00	54.00	5.60	4.24	0.00
2.00	0.11	0.00	0.00	55.00	5.60	4.24	0.00
3.00	0.17	0.00	0.00	56.00	5.60	4.24	0.00
4.00	0.24	0.00	0.00	57.00	5.60	4.24	0.00
5.00	0.32	0.00	0.00	58.00	5.60	4.24	0.00
6.00	0.40	0.01	0.01	59.00	5.60	4.24	0.00
7.00	0.51	0.03	0.03	60.00	5.60	4.24	0.00
8.00	0.64	0.08	0.05	61.00	5.60	4.24	0.00
9.00	0.82	0.15	0.10	62.00	5.60	4.24	0.00
10.00	1.06	0.29	0.16	63.00	5.60	4.24	0.00
11.00	1.40	0.51	0.28	64.00	5.60	4.24	0.00
12.00	2.80	1.64	**3.28**	65.00	5.60	4.24	0.00
13.00	4.20	2.92	**0.42**	66.00	5.60	4.24	0.00
14.00	4.54	3.24	0.27	67.00	5.60	4.24	0.00
15.00	4.78	3.46	0.20	68.00	5.60	4.24	0.00
16.00	4.96	3.63	0.14	69.00	5.60	4.24	0.00
17.00	5.09	3.76	0.11	70.00	5.60	4.24	0.00
18.00	5.20	3.86	0.09	71.00	5.60	4.24	0.00
19.00	5.28	3.94	0.08	72.00	5.60	4.24	0.00
20.00	5.36	4.01	0.07	73.00	5.60	4.24	0.00
21.00	5.43	4.08	0.06	74.00	5.60	4.24	0.00
22.00	5.49	4.14	0.06	75.00	5.60	4.24	0.00
23.00	5.55	4.19	0.05	76.00	5.60	4.24	0.00
24.00	**5.60**	**4.24**	0.05				
25.00	5.60	4.24	0.00				
26.00	5.60	4.24	0.00				
27.00	5.60	4.24	0.00				
28.00	5.60	4.24	0.00				
29.00	5.60	4.24	0.00				
30.00	5.60	4.24	0.00				
31.00	5.60	4.24	0.00				
32.00	5.60	4.24	0.00				
33.00	5.60	4.24	0.00				
34.00	5.60	4.24	0.00				
35.00	5.60	4.24	0.00				
36.00	5.60	4.24	0.00				
37.00	5.60	4.24	0.00				
38.00	5.60	4.24	0.00				
39.00	5.60	4.24	0.00				
40.00	5.60	4.24	0.00				
41.00	5.60	4.24	0.00				
42.00	5.60	4.24	0.00				
43.00	5.60	4.24	0.00				
44.00	5.60	4.24	0.00				
45.00	5.60	4.24	0.00				
46.00	5.60	4.24	0.00				
47.00	5.60	4.24	0.00				
48.00	5.60	4.24	0.00				
49.00	5.60	4.24	0.00				
50.00	5.60	4.24	0.00				
51.00	5.60	4.24	0.00				
52.00	5.60	4.24	0.00				

Summary for Subcatchment 23S: Area 6 Building

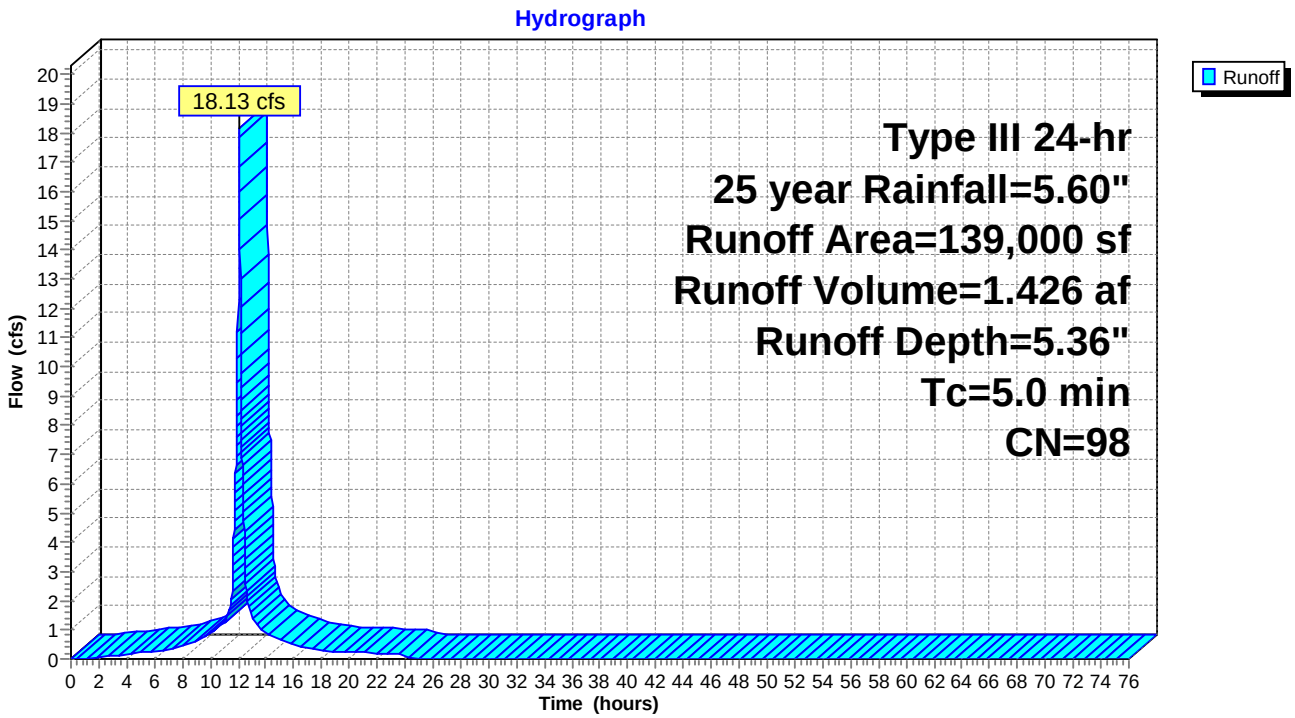
Runoff = 18.13 cfs @ 12.07 hrs, Volume= 1.426 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.60"

	Area (sf)	CN	Description
*	139,000	98	Building
	139,000		100.00% Impervious Area

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

Subcatchment 23S: Area 6 Building



Hydrograph for Subcatchment 23S: Area 6 Building

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	5.60	5.36	0.00
1.00	0.06	0.00	0.02	54.00	5.60	5.36	0.00
2.00	0.11	0.02	0.08	55.00	5.60	5.36	0.00
3.00	0.17	0.05	0.13	56.00	5.60	5.36	0.00
4.00	0.24	0.10	0.17	57.00	5.60	5.36	0.00
5.00	0.32	0.16	0.21	58.00	5.60	5.36	0.00
6.00	0.40	0.23	0.25	59.00	5.60	5.36	0.00
7.00	0.51	0.32	0.34	60.00	5.60	5.36	0.00
8.00	0.64	0.45	0.43	61.00	5.60	5.36	0.00
9.00	0.82	0.61	0.63	62.00	5.60	5.36	0.00
10.00	1.06	0.85	0.84	63.00	5.60	5.36	0.00
11.00	1.40	1.18	1.26	64.00	5.60	5.36	0.00
12.00	2.80	2.57	**12.26**	65.00	5.60	5.36	0.00
13.00	4.20	3.96	**1.44**	66.00	5.60	5.36	0.00
14.00	4.54	4.31	0.91	67.00	5.60	5.36	0.00
15.00	4.78	4.55	0.69	68.00	5.60	5.36	0.00
16.00	4.96	4.72	0.48	69.00	5.60	5.36	0.00
17.00	5.09	4.86	0.38	70.00	5.60	5.36	0.00
18.00	5.20	4.96	0.29	71.00	5.60	5.36	0.00
19.00	5.28	5.04	0.26	72.00	5.60	5.36	0.00
20.00	5.36	5.12	0.24	73.00	5.60	5.36	0.00
21.00	5.43	5.19	0.22	74.00	5.60	5.36	0.00
22.00	5.49	5.25	0.19	75.00	5.60	5.36	0.00
23.00	5.55	5.31	0.17	76.00	5.60	5.36	0.00
24.00	**5.60**	**5.36**	0.15				
25.00	5.60	5.36	0.00				
26.00	5.60	5.36	0.00				
27.00	5.60	5.36	0.00				
28.00	5.60	5.36	0.00				
29.00	5.60	5.36	0.00				
30.00	5.60	5.36	0.00				
31.00	5.60	5.36	0.00				
32.00	5.60	5.36	0.00				
33.00	5.60	5.36	0.00				
34.00	5.60	5.36	0.00				
35.00	5.60	5.36	0.00				
36.00	5.60	5.36	0.00				
37.00	5.60	5.36	0.00				
38.00	5.60	5.36	0.00				
39.00	5.60	5.36	0.00				
40.00	5.60	5.36	0.00				
41.00	5.60	5.36	0.00				
42.00	5.60	5.36	0.00				
43.00	5.60	5.36	0.00				
44.00	5.60	5.36	0.00				
45.00	5.60	5.36	0.00				
46.00	5.60	5.36	0.00				
47.00	5.60	5.36	0.00				
48.00	5.60	5.36	0.00				
49.00	5.60	5.36	0.00				
50.00	5.60	5.36	0.00				
51.00	5.60	5.36	0.00				
52.00	5.60	5.36	0.00				

Summary for Subcatchment 28S: Area 1

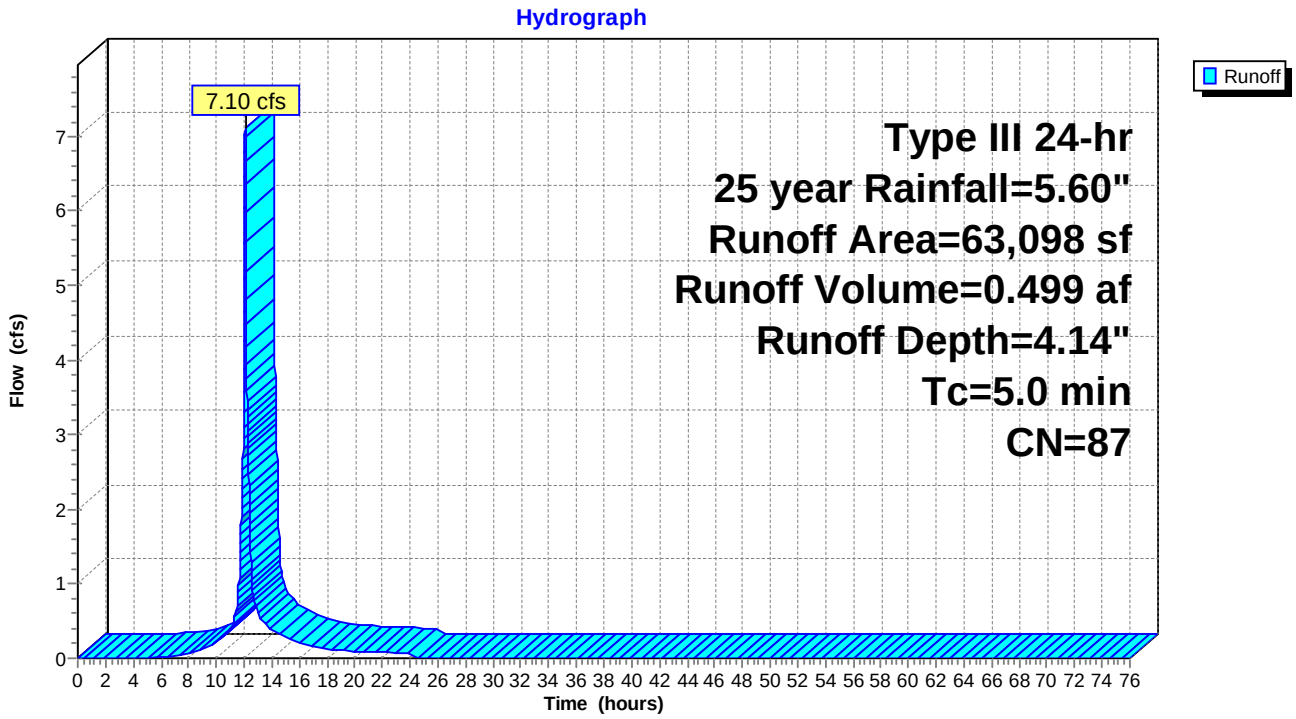
Runoff = 7.10 cfs @ 12.07 hrs, Volume= 0.499 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.60"

	Area (sf)	CN	Description
*	47,541	98	pavement
	3,883	98	Unconnected roofs, HSG A
	11,674	39	>75% Grass cover, Good, HSG A
	63,098	87	Weighted Average
	11,674		18.50% Pervious Area
	51,424		81.50% Impervious Area
	3,883		7.55% Unconnected

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

Subcatchment 28S: Area 1



Hydrograph for Subcatchment 28S: Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	5.60	4.14	0.00
1.00	0.06	0.00	0.00	54.00	5.60	4.14	0.00
2.00	0.11	0.00	0.00	55.00	5.60	4.14	0.00
3.00	0.17	0.00	0.00	56.00	5.60	4.14	0.00
4.00	0.24	0.00	0.00	57.00	5.60	4.14	0.00
5.00	0.32	0.00	0.00	58.00	5.60	4.14	0.00
6.00	0.40	0.01	0.02	59.00	5.60	4.14	0.00
7.00	0.51	0.03	0.04	60.00	5.60	4.14	0.00
8.00	0.64	0.06	0.07	61.00	5.60	4.14	0.00
9.00	0.82	0.13	0.13	62.00	5.60	4.14	0.00
10.00	1.06	0.26	0.22	63.00	5.60	4.14	0.00
11.00	1.40	0.47	0.38	64.00	5.60	4.14	0.00
12.00	2.80	1.57	**4.66**	65.00	5.60	4.14	0.00
13.00	4.20	2.82	**0.60**	66.00	5.60	4.14	0.00
14.00	4.54	3.14	0.39	67.00	5.60	4.14	0.00
15.00	4.78	3.36	0.29	68.00	5.60	4.14	0.00
16.00	4.96	3.53	0.21	69.00	5.60	4.14	0.00
17.00	5.09	3.66	0.17	70.00	5.60	4.14	0.00
18.00	5.20	3.75	0.13	71.00	5.60	4.14	0.00
19.00	5.28	3.83	0.11	72.00	5.60	4.14	0.00
20.00	5.36	3.91	0.10	73.00	5.60	4.14	0.00
21.00	5.43	3.97	0.09	74.00	5.60	4.14	0.00
22.00	5.49	4.03	0.08	75.00	5.60	4.14	0.00
23.00	5.55	4.09	0.08	76.00	5.60	4.14	0.00
24.00	**5.60**	**4.14**	0.07				
25.00	5.60	4.14	0.00				
26.00	5.60	4.14	0.00				
27.00	5.60	4.14	0.00				
28.00	5.60	4.14	0.00				
29.00	5.60	4.14	0.00				
30.00	5.60	4.14	0.00				
31.00	5.60	4.14	0.00				
32.00	5.60	4.14	0.00				
33.00	5.60	4.14	0.00				
34.00	5.60	4.14	0.00				
35.00	5.60	4.14	0.00				
36.00	5.60	4.14	0.00				
37.00	5.60	4.14	0.00				
38.00	5.60	4.14	0.00				
39.00	5.60	4.14	0.00				
40.00	5.60	4.14	0.00				
41.00	5.60	4.14	0.00				
42.00	5.60	4.14	0.00				
43.00	5.60	4.14	0.00				
44.00	5.60	4.14	0.00				
45.00	5.60	4.14	0.00				
46.00	5.60	4.14	0.00				
47.00	5.60	4.14	0.00				
48.00	5.60	4.14	0.00				
49.00	5.60	4.14	0.00				
50.00	5.60	4.14	0.00				
51.00	5.60	4.14	0.00				
52.00	5.60	4.14	0.00				

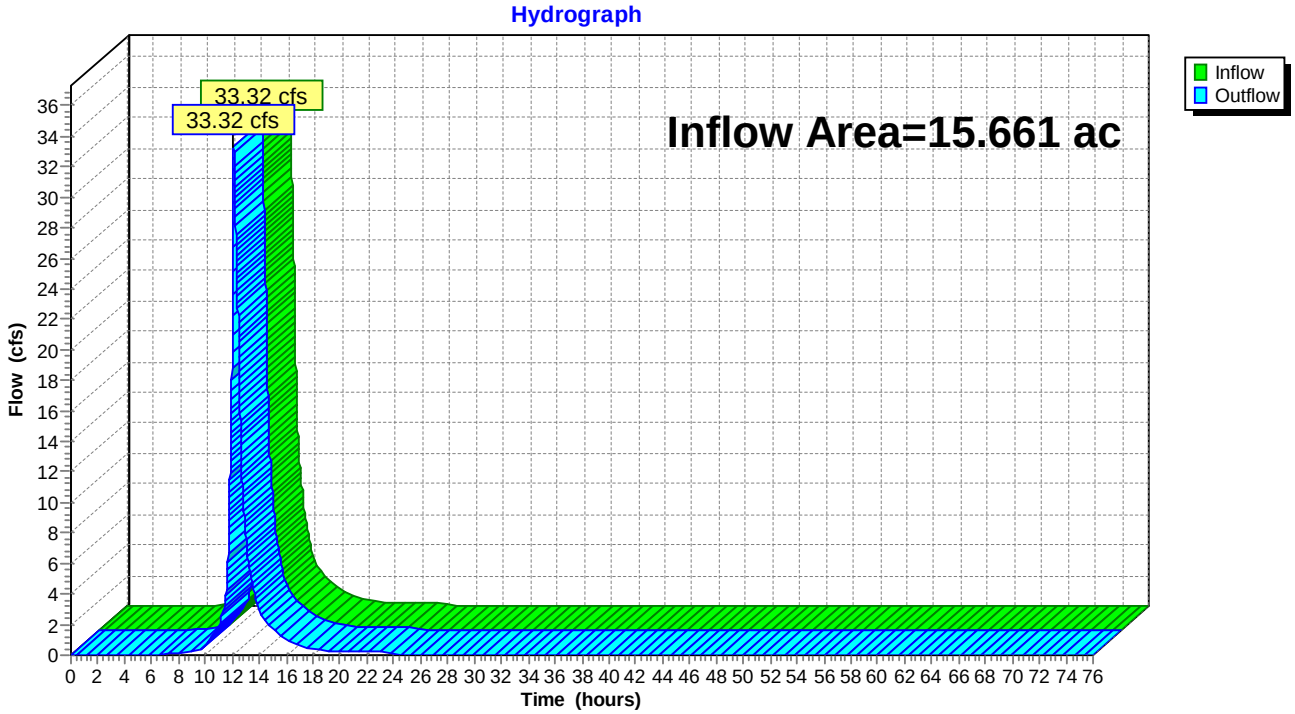
Summary for Reach 6R: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.661 ac, 67.00% Impervious, Inflow Depth = 2.44" for 25 year event
Inflow = 33.32 cfs @ 12.12 hrs, Volume= 3.189 af
Outflow = 33.32 cfs @ 12.12 hrs, Volume= 3.189 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs

Reach 6R: (new Reach)



Hydrograph for Reach 6R: (new Reach)

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	53.00	0.00		0.00
1.00	0.00		0.00	54.00	0.00		0.00
2.00	0.01		0.01	55.00	0.00		0.00
3.00	0.02		0.02	56.00	0.00		0.00
4.00	0.03		0.03	57.00	0.00		0.00
5.00	0.03		0.03	58.00	0.00		0.00
6.00	0.04		0.04	59.00	0.00		0.00
7.00	0.08		0.08	60.00	0.00		0.00
8.00	0.12		0.12	61.00	0.00		0.00
9.00	0.21		0.21	62.00	0.00		0.00
10.00	0.62		0.62	63.00	0.00		0.00
11.00	1.89		1.89	64.00	0.00		0.00
12.00	**20.96**		**20.96**	65.00	0.00		0.00
13.00	**7.68**		**7.68**	66.00	0.00		0.00
14.00	2.98		2.98	67.00	0.00		0.00
15.00	1.78		1.78	68.00	0.00		0.00
16.00	1.04		1.04	69.00	0.00		0.00
17.00	0.62		0.62	70.00	0.00		0.00
18.00	0.37		0.37	71.00	0.00		0.00
19.00	0.28		0.28	72.00	0.00		0.00
20.00	0.25		0.25	73.00	0.00		0.00
21.00	0.22		0.22	74.00	0.00		0.00
22.00	0.20		0.20	75.00	0.00		0.00
23.00	0.18		0.18	76.00	0.00		0.00
24.00	0.16		0.16				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				
52.00	0.00		0.00				

Summary for Pond 11P: Detention Area 1

Inflow Area =	1.449 ac, 81.50% Impervious, Inflow Depth = 4.14" for 25 year event				
Inflow =	7.10 cfs @	12.07 hrs,	Volume=	0.499 af	
Outflow =	4.79 cfs @	12.15 hrs,	Volume=	0.499 af,	Atten= 33%, Lag= 4.8 min
Discarded =	0.22 cfs @	12.15 hrs,	Volume=	0.191 af	
Primary =	4.57 cfs @	12.15 hrs,	Volume=	0.308 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 44.96' @ 12.15 hrs Surf.Area= 0.036 ac Storage= 0.083 af

Plug-Flow detention time= 51.4 min calculated for 0.499 af (100% of inflow)
Center-of-Mass det. time= 51.4 min (847.6 - 796.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	42.00'	0.010 af	**26.40'W x 60.00'L x 4.00'H Field A** 0.145 af Overall - 0.122 af Embedded = 0.024 af x 40.0% Voids
#2A	42.00'	0.092 af	**Concrete Galley 4x4x4** x 90 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 90 Chambers in 6 Rows
		0.101 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	43.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	42.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.22 cfs @ 12.15 hrs HW=44.96' (Free Discharge)
└**2=Exfiltration** (Controls 0.22 cfs)

Primary OutFlow Max=4.57 cfs @ 12.15 hrs HW=44.96' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 4.57 cfs @ 5.81 fps)

Pond 11P: Detention Area 1 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

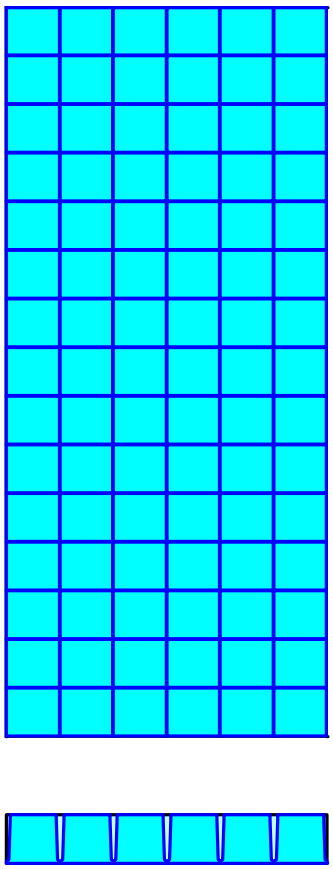
15 Chambers/Row x 4.00' Long = 60.00' Row Length
6 Rows x 52.8" Wide = 26.40' Base Width
48.0" Chamber Height = 4.00' Field Height

90 Chambers x 44.3 cf = 3,991.0 cf Chamber Storage
90 Chambers x 58.9 cf = 5,298.9 cf Displacement

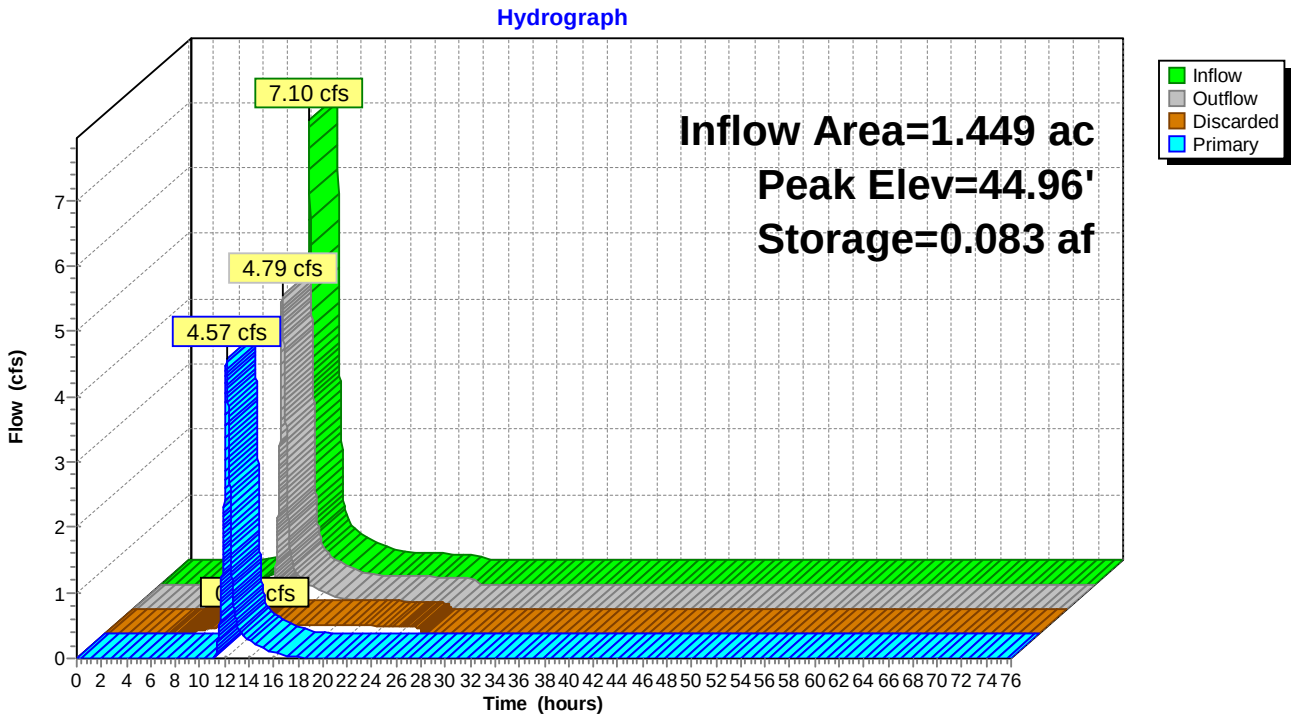
6,336.0 cf Field - 5,298.9 cf Chambers = 1,037.1 cf Stone x 40.0% Voids = 414.9 cf Stone Storage

Chamber Storage + Stone Storage = 4,405.9 cf = 0.101 af
Overall Storage Efficiency = 69.5%
Overall System Size = 60.00' x 26.40' x 4.00'

90 Chambers
234.7 cy Field
38.4 cy Stone



Pond 11P: Detention Area 1



Hydrograph for Pond 11P: Detention Area 1

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	42.00	0.00	0.00	0.00
2.00	0.00	0.000	42.00	0.00	0.00	0.00
4.00	0.00	0.000	42.00	0.00	0.00	0.00
6.00	0.02	0.000	42.01	0.01	0.01	0.00
8.00	0.07	0.001	42.03	0.06	0.06	0.00
10.00	0.22	0.008	42.30	0.10	0.10	0.00
12.00	**4.66**	**0.057**	**44.02**	**2.90**	**0.18**	**2.72**
14.00	**0.39**	**0.035**	**43.25**	**0.42**	**0.14**	**0.27**
16.00	0.21	0.032	43.14	0.23	0.14	0.09
18.00	0.13	0.029	43.05	0.15	0.13	0.01
20.00	0.10	0.026	42.93	0.13	0.13	0.00
22.00	0.08	0.021	42.74	0.12	0.12	0.00
24.00	0.07	0.014	42.50	0.11	0.11	0.00
26.00	0.00	0.000	42.00	0.01	0.01	0.00
28.00	0.00	0.000	42.00	0.00	0.00	0.00
30.00	0.00	0.000	42.00	0.00	0.00	0.00
32.00	0.00	0.000	42.00	0.00	0.00	0.00
34.00	0.00	0.000	42.00	0.00	0.00	0.00
36.00	0.00	0.000	42.00	0.00	0.00	0.00
38.00	0.00	0.000	42.00	0.00	0.00	0.00
40.00	0.00	0.000	42.00	0.00	0.00	0.00
42.00	0.00	0.000	42.00	0.00	0.00	0.00
44.00	0.00	0.000	42.00	0.00	0.00	0.00
46.00	0.00	0.000	42.00	0.00	0.00	0.00
48.00	0.00	0.000	42.00	0.00	0.00	0.00
50.00	0.00	0.000	42.00	0.00	0.00	0.00
52.00	0.00	0.000	42.00	0.00	0.00	0.00
54.00	0.00	0.000	42.00	0.00	0.00	0.00
56.00	0.00	0.000	42.00	0.00	0.00	0.00
58.00	0.00	0.000	42.00	0.00	0.00	0.00
60.00	0.00	0.000	42.00	0.00	0.00	0.00
62.00	0.00	0.000	42.00	0.00	0.00	0.00
64.00	0.00	0.000	42.00	0.00	0.00	0.00
66.00	0.00	0.000	42.00	0.00	0.00	0.00
68.00	0.00	0.000	42.00	0.00	0.00	0.00
70.00	0.00	0.000	42.00	0.00	0.00	0.00
72.00	0.00	0.000	42.00	0.00	0.00	0.00
74.00	0.00	0.000	42.00	0.00	0.00	0.00
76.00	0.00	0.000	42.00	0.00	0.00	0.00

Summary for Pond 13P: Detention Area 2

Inflow Area =	1.444 ac, 93.39% Impervious, Inflow Depth = 4.90" for 25 year event				
Inflow =	7.93 cfs @	12.07 hrs,	Volume=	0.590 af	
Outflow =	5.03 cfs @	12.16 hrs,	Volume=	0.590 af,	Atten= 37%, Lag= 5.2 min
Discarded =	0.34 cfs @	12.16 hrs,	Volume=	0.262 af	
Primary =	4.69 cfs @	12.16 hrs,	Volume=	0.327 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 44.44' @ 12.16 hrs Surf.Area= 0.044 ac Storage= 0.104 af

Plug-Flow detention time= 49.1 min calculated for 0.589 af (100% of inflow)
Center-of-Mass det. time= 49.1 min (818.5 - 769.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	41.40'	0.012 af	**96.80'W x 20.00'L x 4.00'H Field A** 0.178 af Overall - 0.149 af Embedded = 0.029 af x 40.0% Voids
#2A	41.40'	0.112 af	**Concrete Galley 4x4x4** x 110 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 110 Chambers in 22 Rows
		0.124 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	42.40'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	41.40'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.34 cfs @ 12.16 hrs HW=44.44' (Free Discharge)
└**2=Exfiltration** (Controls 0.34 cfs)

Primary OutFlow Max=4.69 cfs @ 12.16 hrs HW=44.44' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 4.69 cfs @ 5.97 fps)

Pond 13P: Detention Area 2 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

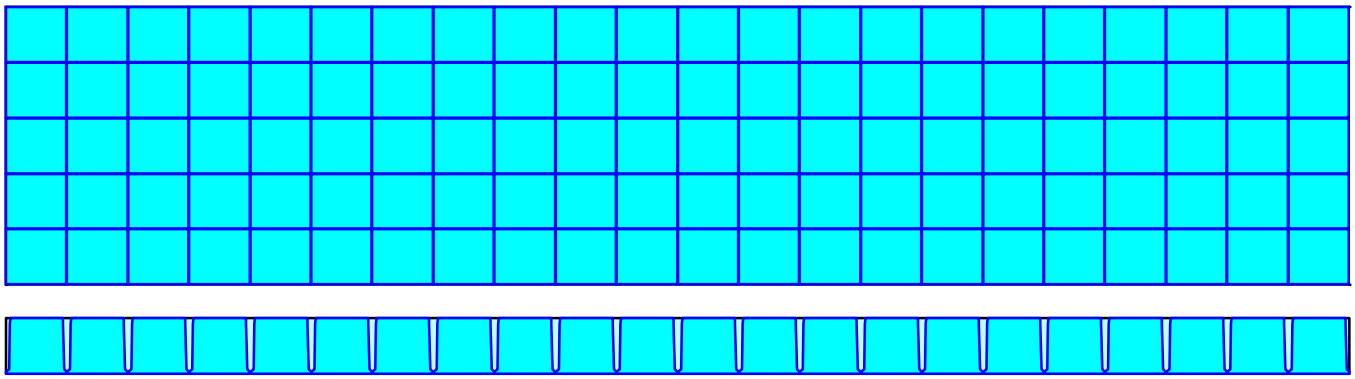
5 Chambers/Row x 4.00' Long = 20.00' Row Length
22 Rows x 52.8" Wide = 96.80' Base Width
48.0" Chamber Height = 4.00' Field Height

110 Chambers x 44.3 cf = 4,877.9 cf Chamber Storage
110 Chambers x 58.9 cf = 6,476.4 cf Displacement

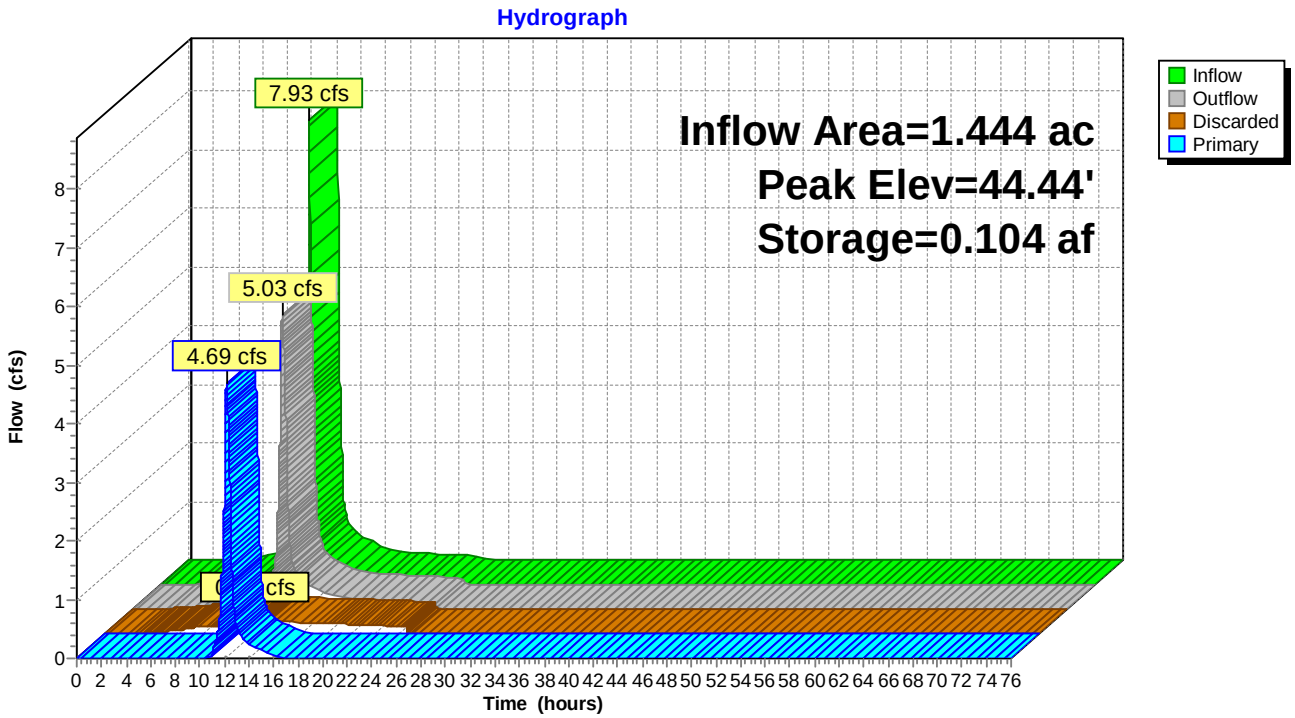
7,744.0 cf Field - 6,476.4 cf Chambers = 1,267.6 cf Stone x 40.0% Voids = 507.0 cf Stone Storage

Chamber Storage + Stone Storage = 5,385.0 cf = 0.124 af
Overall Storage Efficiency = 69.5%
Overall System Size = 20.00' x 96.80' x 4.00'

110 Chambers
286.8 cy Field
46.9 cy Stone



Pond 13P: Detention Area 2



Hydrograph for Pond 13P: Detention Area 2

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	41.40	0.00	0.00	0.00
2.00	0.00	0.000	41.40	0.00	0.00	0.00
4.00	0.03	0.000	41.41	0.03	0.03	0.00
6.00	0.07	0.001	41.42	0.06	0.06	0.00
8.00	0.14	0.002	41.47	0.11	0.11	0.00
10.00	0.33	0.019	41.96	0.15	0.15	0.00
12.00	**5.32**	**0.071**	**43.49**	**3.16**	**0.27**	**2.89**
14.00	**0.41**	**0.043**	**42.64**	**0.45**	**0.20**	**0.24**
16.00	0.22	0.038	42.51	0.25	0.19	0.05
18.00	0.13	0.033	42.36	0.18	0.18	0.00
20.00	0.11	0.024	42.10	0.16	0.16	0.00
22.00	0.09	0.015	41.83	0.14	0.14	0.00
24.00	0.07	0.006	41.58	0.12	0.12	0.00
26.00	0.00	0.000	41.40	0.00	0.00	0.00
28.00	0.00	0.000	41.40	0.00	0.00	0.00
30.00	0.00	0.000	41.40	0.00	0.00	0.00
32.00	0.00	0.000	41.40	0.00	0.00	0.00
34.00	0.00	0.000	41.40	0.00	0.00	0.00
36.00	0.00	0.000	41.40	0.00	0.00	0.00
38.00	0.00	0.000	41.40	0.00	0.00	0.00
40.00	0.00	0.000	41.40	0.00	0.00	0.00
42.00	0.00	0.000	41.40	0.00	0.00	0.00
44.00	0.00	0.000	41.40	0.00	0.00	0.00
46.00	0.00	0.000	41.40	0.00	0.00	0.00
48.00	0.00	0.000	41.40	0.00	0.00	0.00
50.00	0.00	0.000	41.40	0.00	0.00	0.00
52.00	0.00	0.000	41.40	0.00	0.00	0.00
54.00	0.00	0.000	41.40	0.00	0.00	0.00
56.00	0.00	0.000	41.40	0.00	0.00	0.00
58.00	0.00	0.000	41.40	0.00	0.00	0.00
60.00	0.00	0.000	41.40	0.00	0.00	0.00
62.00	0.00	0.000	41.40	0.00	0.00	0.00
64.00	0.00	0.000	41.40	0.00	0.00	0.00
66.00	0.00	0.000	41.40	0.00	0.00	0.00
68.00	0.00	0.000	41.40	0.00	0.00	0.00
70.00	0.00	0.000	41.40	0.00	0.00	0.00
72.00	0.00	0.000	41.40	0.00	0.00	0.00
74.00	0.00	0.000	41.40	0.00	0.00	0.00
76.00	0.00	0.000	41.40	0.00	0.00	0.00

Summary for Pond 14P: Area 4

Inflow Area =	1.200 ac, 95.56% Impervious, Inflow Depth = 5.01" for 25 year event				
Inflow =	6.67 cfs @	12.07 hrs,	Volume=	0.502 af	
Outflow =	4.76 cfs @	12.14 hrs,	Volume=	0.502 af,	Atten= 29%, Lag= 4.2 min
Discarded =	0.09 cfs @	12.14 hrs,	Volume=	0.146 af	
Primary =	4.67 cfs @	12.14 hrs,	Volume=	0.355 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 53.02' @ 12.14 hrs Surf.Area= 0.029 ac Storage= 0.068 af

Plug-Flow detention time= 53.2 min calculated for 0.502 af (100% of inflow)
Center-of-Mass det. time= 53.2 min (817.6 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	50.00'	0.008 af	**17.60'W x 72.00'L x 4.00'H Field A** 0.116 af Overall - 0.097 af Embedded = 0.019 af x 40.0% Voids
#2A	50.00'	0.073 af	**Concrete Galley 4x4x4** x 72 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 72 Chambers in 4 Rows
		0.081 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	50.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.09 cfs @ 12.14 hrs HW=53.02' (Free Discharge)
└**2=Exfiltration** (Controls 0.09 cfs)

Primary OutFlow Max=4.67 cfs @ 12.14 hrs HW=53.02' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 4.67 cfs @ 5.94 fps)

Pond 14P: Area 4 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

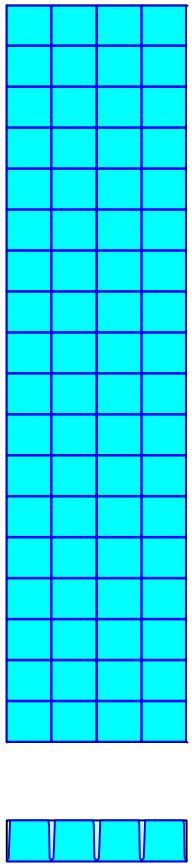
18 Chambers/Row x 4.00' Long = 72.00' Row Length
4 Rows x 52.8" Wide = 17.60' Base Width
48.0" Chamber Height = 4.00' Field Height

72 Chambers x 44.3 cf = 3,192.8 cf Chamber Storage
72 Chambers x 58.9 cf = 4,239.1 cf Displacement

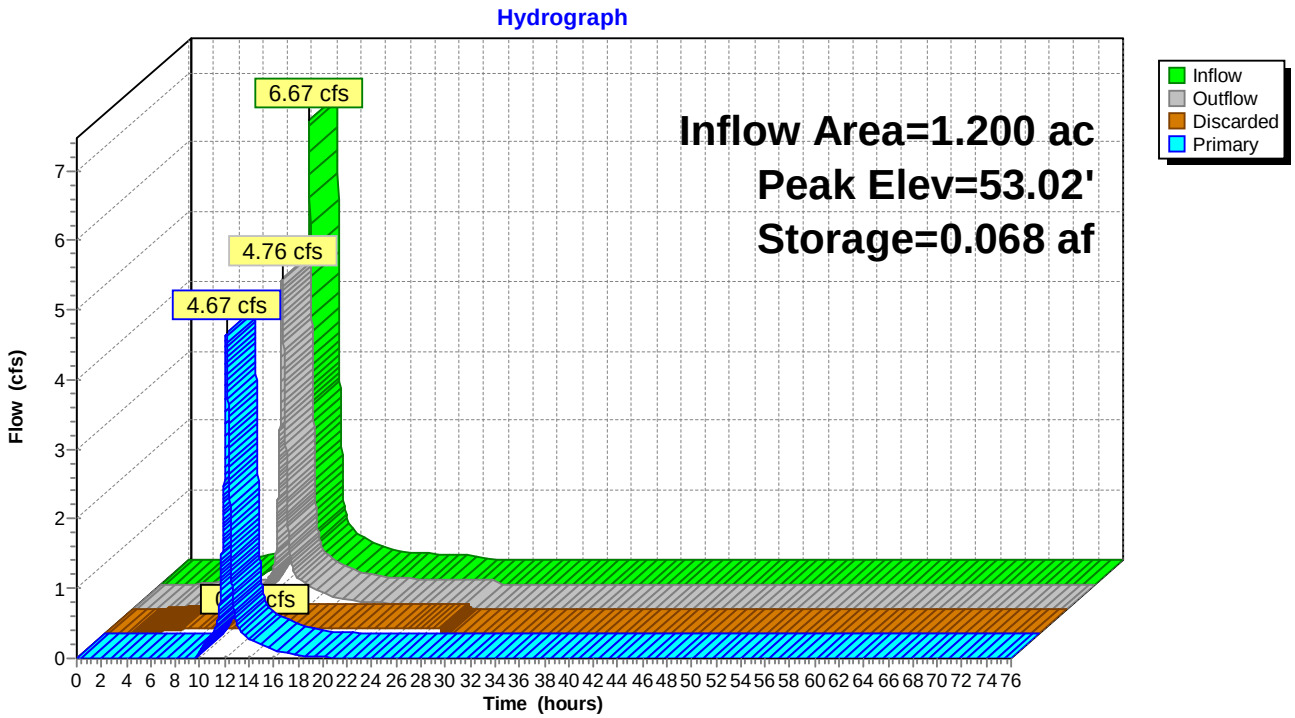
5,068.8 cf Field - 4,239.1 cf Chambers = 829.7 cf Stone x 40.0% Voids = 331.9 cf Stone Storage

Chamber Storage + Stone Storage = 3,524.7 cf = 0.081 af
Overall Storage Efficiency = 69.5%
Overall System Size = 72.00' x 17.60' x 4.00'

72 Chambers
187.7 cy Field
30.7 cy Stone



Pond 14P: Area 4



Hydrograph for Pond 14P: Area 4

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	50.00	0.00	0.00	0.00
2.00	0.00	0.000	50.00	0.00	0.00	0.00
4.00	0.03	0.000	50.02	0.03	0.03	0.00
6.00	0.06	0.001	50.03	0.06	0.06	0.00
8.00	0.13	0.005	50.22	0.07	0.07	0.00
10.00	0.28	0.025	51.13	0.16	0.08	0.08
12.00	**4.48**	**0.047**	**52.08**	**2.96**	**0.09**	**2.88**
14.00	**0.34**	**0.028**	**51.26**	**0.36**	**0.08**	**0.28**
16.00	0.18	0.026	51.16	0.19	0.08	0.12
18.00	0.11	0.025	51.10	0.12	0.08	0.04
20.00	0.09	0.024	51.05	0.09	0.08	0.02
22.00	0.07	0.023	51.02	0.08	0.08	0.00
24.00	0.06	0.021	50.92	0.08	0.08	0.00
26.00	0.00	0.009	50.39	0.07	0.07	0.00
28.00	0.00	0.000	50.00	0.00	0.00	0.00
30.00	0.00	0.000	50.00	0.00	0.00	0.00
32.00	0.00	0.000	50.00	0.00	0.00	0.00
34.00	0.00	0.000	50.00	0.00	0.00	0.00
36.00	0.00	0.000	50.00	0.00	0.00	0.00
38.00	0.00	0.000	50.00	0.00	0.00	0.00
40.00	0.00	0.000	50.00	0.00	0.00	0.00
42.00	0.00	0.000	50.00	0.00	0.00	0.00
44.00	0.00	0.000	50.00	0.00	0.00	0.00
46.00	0.00	0.000	50.00	0.00	0.00	0.00
48.00	0.00	0.000	50.00	0.00	0.00	0.00
50.00	0.00	0.000	50.00	0.00	0.00	0.00
52.00	0.00	0.000	50.00	0.00	0.00	0.00
54.00	0.00	0.000	50.00	0.00	0.00	0.00
56.00	0.00	0.000	50.00	0.00	0.00	0.00
58.00	0.00	0.000	50.00	0.00	0.00	0.00
60.00	0.00	0.000	50.00	0.00	0.00	0.00
62.00	0.00	0.000	50.00	0.00	0.00	0.00
64.00	0.00	0.000	50.00	0.00	0.00	0.00
66.00	0.00	0.000	50.00	0.00	0.00	0.00
68.00	0.00	0.000	50.00	0.00	0.00	0.00
70.00	0.00	0.000	50.00	0.00	0.00	0.00
72.00	0.00	0.000	50.00	0.00	0.00	0.00
74.00	0.00	0.000	50.00	0.00	0.00	0.00
76.00	0.00	0.000	50.00	0.00	0.00	0.00

Summary for Pond 19P: Detention Area 3

Inflow Area =	2.023 ac, 98.65% Impervious, Inflow Depth = 5.26" for 25 year event				
Inflow =	11.43 cfs @	12.07 hrs,	Volume=	0.887 af	
Outflow =	5.98 cfs @	12.19 hrs,	Volume=	0.887 af,	Atten= 48%, Lag= 7.0 min
Discarded =	0.68 cfs @	12.19 hrs,	Volume=	0.404 af	
Primary =	5.30 cfs @	12.19 hrs,	Volume=	0.483 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 43.96' @ 12.19 hrs Surf.Area= 3,062 sf Storage= 6,984 cf

Plug-Flow detention time= 33.4 min calculated for 0.887 af (100% of inflow)
Center-of-Mass det. time= 33.4 min (784.4 - 751.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	41.00'	802 cf	**127.60'W x 24.00'L x 4.00'H Field A** 12,250 cf Overall - 10,244 cf Embedded = 2,005 cf x 40.0% Voids
#2A	41.00'	7,716 cf	**Concrete Galley 4x4x4** x 174 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 174 Chambers in 29 Rows
		8,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	41.50'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	41.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.68 cfs @ 12.19 hrs HW=43.96' (Free Discharge)
└**2=Exfiltration** (Controls 0.68 cfs)

Primary OutFlow Max=5.30 cfs @ 12.19 hrs HW=43.96' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 5.30 cfs @ 6.75 fps)

Pond 19P: Detention Area 3 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

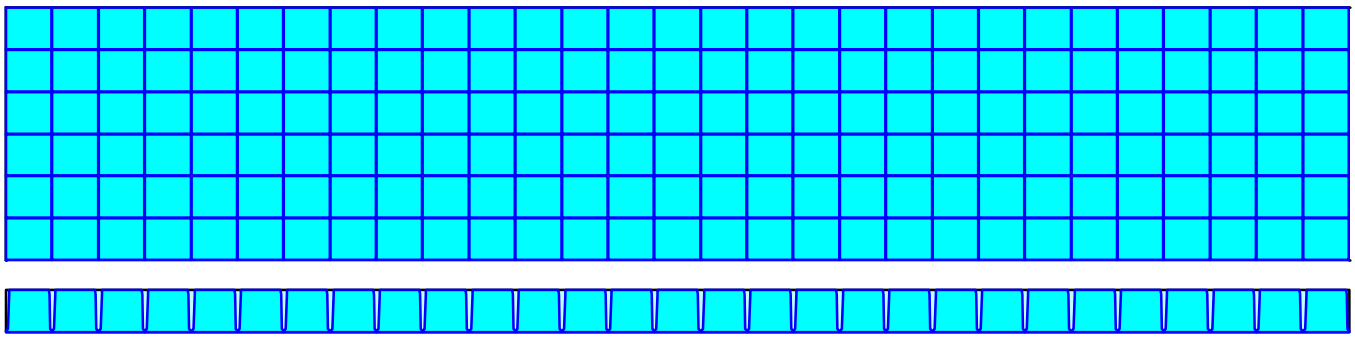
6 Chambers/Row x 4.00' Long = 24.00' Row Length
29 Rows x 52.8" Wide = 127.60' Base Width
48.0" Chamber Height = 4.00' Field Height

174 Chambers x 44.3 cf = 7,716.0 cf Chamber Storage
174 Chambers x 58.9 cf = 10,244.5 cf Displacement

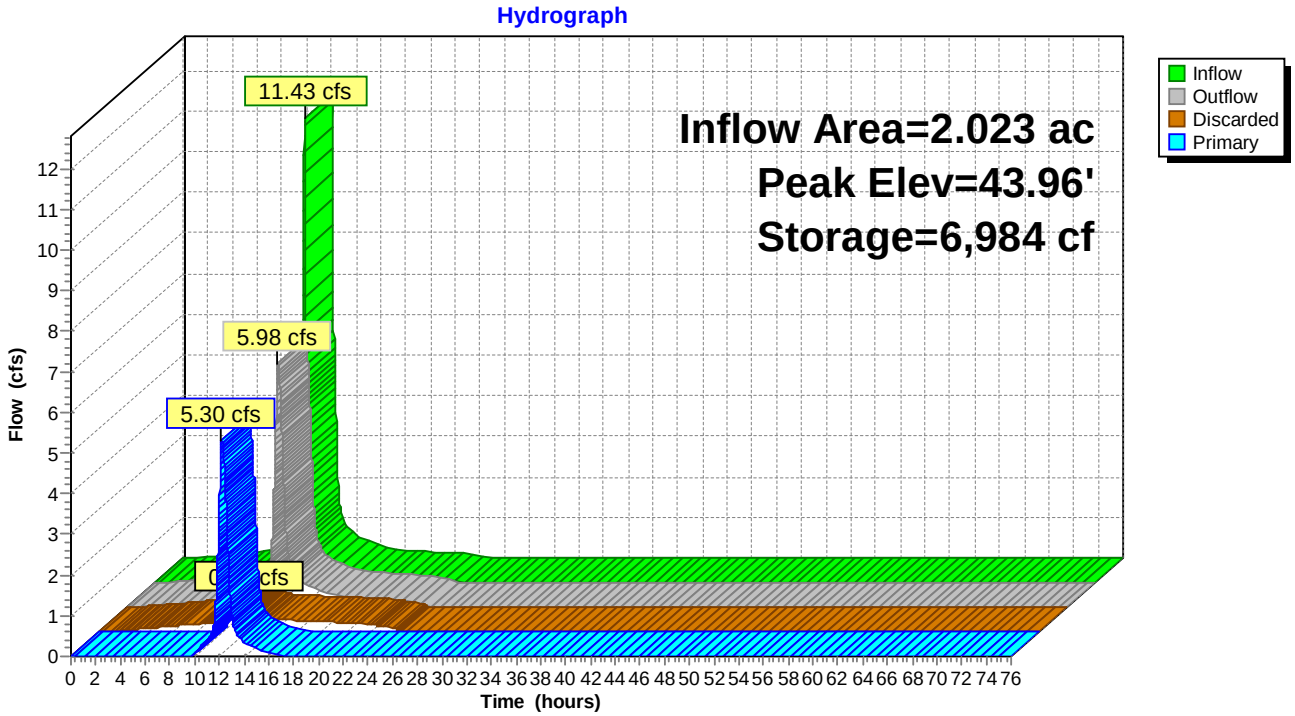
12,249.6 cf Field - 10,244.5 cf Chambers = 2,005.1 cf Stone x 40.0% Voids = 802.0 cf Stone Storage

Chamber Storage + Stone Storage = 8,518.0 cf = 0.196 af
Overall Storage Efficiency = 69.5%
Overall System Size = 24.00' x 127.60' x 4.00'

174 Chambers
453.7 cy Field
74.3 cy Stone



Pond 19P: Detention Area 3



Hydrograph for Pond 19P: Detention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	41.00	0.00	0.00	0.00
2.00	0.03	15	41.01	0.03	0.03	0.00
4.00	0.09	45	41.02	0.09	0.09	0.00
6.00	0.14	71	41.03	0.14	0.14	0.00
8.00	0.26	259	41.11	0.19	0.19	0.00
10.00	0.52	1,396	41.59	0.31	0.27	0.04
12.00	**7.72**	**4,244**	**42.80**	**3.85**	**0.48**	**3.37**
14.00	**0.58**	**1,862**	**41.79**	**0.65**	**0.31**	**0.35**
16.00	0.31	1,497	41.64	0.36	0.28	0.08
18.00	0.19	1,137	41.49	0.25	0.25	0.00
20.00	0.15	637	41.28	0.22	0.22	0.00
22.00	0.12	174	41.08	0.18	0.18	0.00
24.00	0.10	51	41.02	0.10	0.10	0.00
26.00	0.00	0	41.00	0.00	0.00	0.00
28.00	0.00	0	41.00	0.00	0.00	0.00
30.00	0.00	0	41.00	0.00	0.00	0.00
32.00	0.00	0	41.00	0.00	0.00	0.00
34.00	0.00	0	41.00	0.00	0.00	0.00
36.00	0.00	0	41.00	0.00	0.00	0.00
38.00	0.00	0	41.00	0.00	0.00	0.00
40.00	0.00	0	41.00	0.00	0.00	0.00
42.00	0.00	0	41.00	0.00	0.00	0.00
44.00	0.00	0	41.00	0.00	0.00	0.00
46.00	0.00	0	41.00	0.00	0.00	0.00
48.00	0.00	0	41.00	0.00	0.00	0.00
50.00	0.00	0	41.00	0.00	0.00	0.00
52.00	0.00	0	41.00	0.00	0.00	0.00
54.00	0.00	0	41.00	0.00	0.00	0.00
56.00	0.00	0	41.00	0.00	0.00	0.00
58.00	0.00	0	41.00	0.00	0.00	0.00
60.00	0.00	0	41.00	0.00	0.00	0.00
62.00	0.00	0	41.00	0.00	0.00	0.00
64.00	0.00	0	41.00	0.00	0.00	0.00
66.00	0.00	0	41.00	0.00	0.00	0.00
68.00	0.00	0	41.00	0.00	0.00	0.00
70.00	0.00	0	41.00	0.00	0.00	0.00
72.00	0.00	0	41.00	0.00	0.00	0.00
74.00	0.00	0	41.00	0.00	0.00	0.00
76.00	0.00	0	41.00	0.00	0.00	0.00

Summary for Pond 24P: Detention Area 6

Inflow Area = 0.540 ac,100.00% Impervious, Inflow Depth = 5.36" for 25 year event
Inflow = 3.07 cfs @ 12.07 hrs, Volume= 0.241 af
Outflow = 3.07 cfs @ 12.07 hrs, Volume= 0.241 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.07 hrs, Volume= 0.003 af
Primary = 3.06 cfs @ 12.07 hrs, Volume= 0.238 af

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 52.16' @ 12.07 hrs Surf.Area= 18 sf Storage= 36 cf

Plug-Flow detention time= 3.2 min calculated for 0.241 af (100% of inflow)
Center-of-Mass det. time= 3.2 min (748.5 - 745.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	49.50'	5 cf	**4.40'W x 4.00'L x 4.00'H Field A** 70 cf Overall - 59 cf Embedded = 12 cf x 40.0% Voids
#2A	49.50'	44 cf	**Concrete Galley 4x4x4** Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf
		49 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	49.50'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.00 cfs @ 12.07 hrs HW=52.16' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=3.06 cfs @ 12.07 hrs HW=52.16' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 3.06 cfs @ 3.90 fps)

Pond 24P: Detention Area 6 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

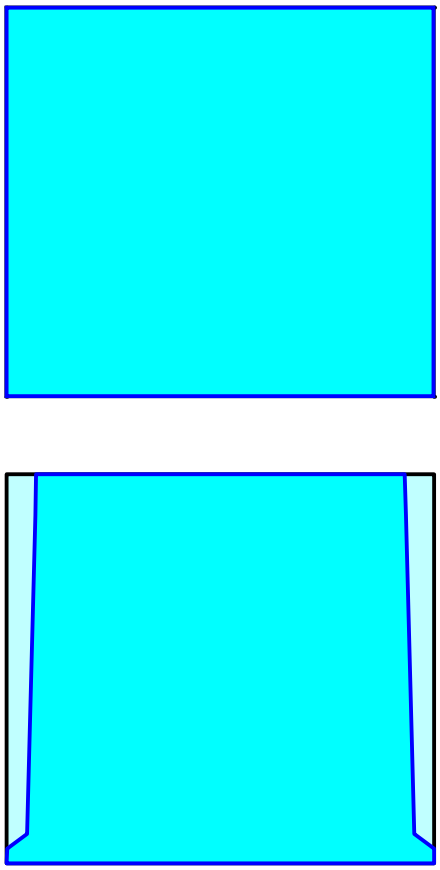
1 Chambers/Row x 4.00' Long = 4.00' Row Length
1 Rows x 52.8" Wide = 4.40' Base Width
48.0" Chamber Height = 4.00' Field Height

1 Chambers x 44.3 cf = 44.3 cf Chamber Storage
1 Chambers x 58.9 cf = 58.9 cf Displacement

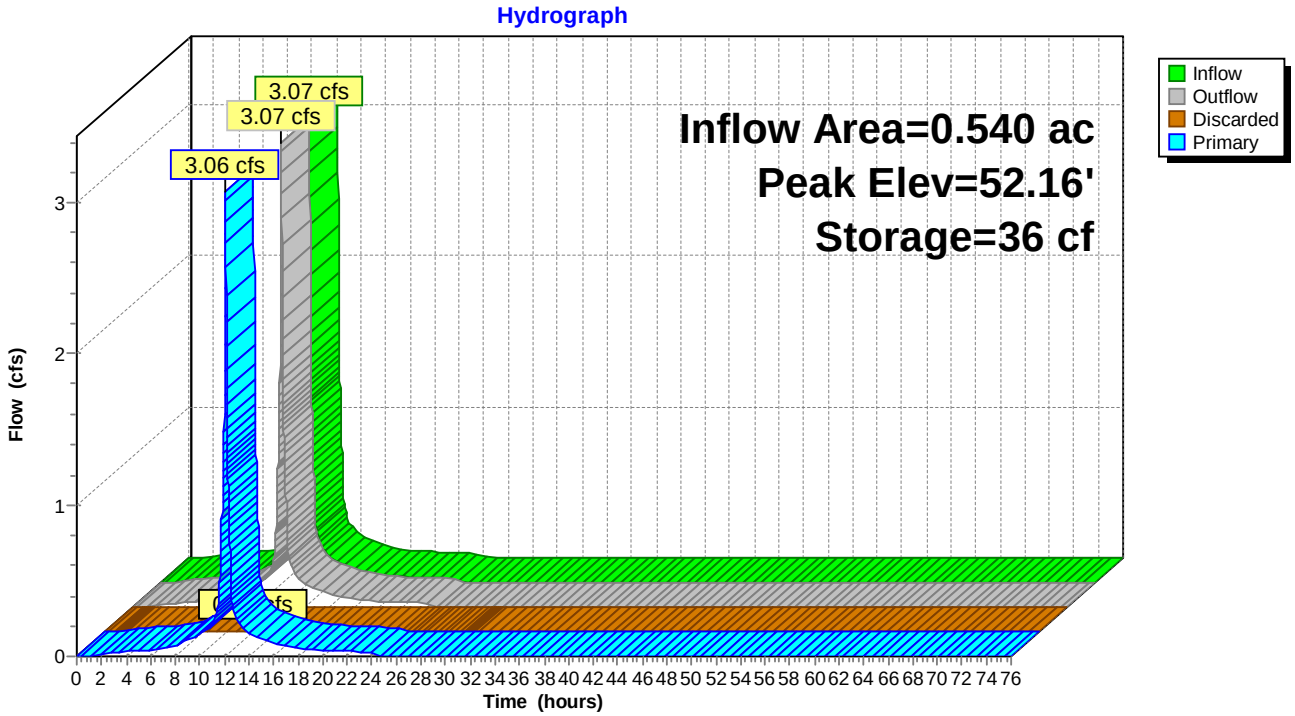
70.4 cf Field - 58.9 cf Chambers = 11.5 cf Stone x 40.0% Voids = 4.6 cf Stone Storage

Chamber Storage + Stone Storage = 49.0 cf = 0.001 af
Overall Storage Efficiency = 69.5%
Overall System Size = 4.00' x 4.40' x 4.00'

1 Chambers
2.6 cy Field
0.4 cy Stone



Pond 24P: Detention Area 6



Hydrograph for Pond 24P: Detention Area 6

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	49.50	0.00	0.00	0.00
2.00	0.01	21	51.05	0.01	0.00	0.01
4.00	0.03	21	51.08	0.03	0.00	0.03
6.00	0.04	22	51.10	0.04	0.00	0.04
8.00	0.07	22	51.13	0.07	0.00	0.07
10.00	0.14	23	51.18	0.14	0.00	0.14
12.00	**2.07**	**31**	**51.80**	**2.05**	**0.00**	**2.05**
14.00	**0.15**	**23**	**51.19**	**0.15**	**0.00**	**0.15**
16.00	0.08	22	51.14	0.08	0.00	0.08
18.00	0.05	22	51.10	0.05	0.00	0.05
20.00	0.04	22	51.09	0.04	0.00	0.04
22.00	0.03	21	51.08	0.03	0.00	0.03
24.00	0.03	21	51.07	0.03	0.00	0.03
26.00	0.00	13	50.47	0.00	0.00	0.00
28.00	0.00	6	49.92	0.00	0.00	0.00
30.00	0.00	0	49.50	0.00	0.00	0.00
32.00	0.00	0	49.50	0.00	0.00	0.00
34.00	0.00	0	49.50	0.00	0.00	0.00
36.00	0.00	0	49.50	0.00	0.00	0.00
38.00	0.00	0	49.50	0.00	0.00	0.00
40.00	0.00	0	49.50	0.00	0.00	0.00
42.00	0.00	0	49.50	0.00	0.00	0.00
44.00	0.00	0	49.50	0.00	0.00	0.00
46.00	0.00	0	49.50	0.00	0.00	0.00
48.00	0.00	0	49.50	0.00	0.00	0.00
50.00	0.00	0	49.50	0.00	0.00	0.00
52.00	0.00	0	49.50	0.00	0.00	0.00
54.00	0.00	0	49.50	0.00	0.00	0.00
56.00	0.00	0	49.50	0.00	0.00	0.00
58.00	0.00	0	49.50	0.00	0.00	0.00
60.00	0.00	0	49.50	0.00	0.00	0.00
62.00	0.00	0	49.50	0.00	0.00	0.00
64.00	0.00	0	49.50	0.00	0.00	0.00
66.00	0.00	0	49.50	0.00	0.00	0.00
68.00	0.00	0	49.50	0.00	0.00	0.00
70.00	0.00	0	49.50	0.00	0.00	0.00
72.00	0.00	0	49.50	0.00	0.00	0.00
74.00	0.00	0	49.50	0.00	0.00	0.00
76.00	0.00	0	49.50	0.00	0.00	0.00

Summary for Pond 25P: Det Area 5

Inflow Area =	3.191 ac,100.00% Impervious, Inflow Depth = 5.36" for 25 year event				
Inflow =	18.13 cfs @	12.07 hrs,	Volume=	1.426 af	
Outflow =	6.18 cfs @	12.32 hrs,	Volume=	1.426 af,	Atten= 66%, Lag= 15.1 min
Discarded =	0.48 cfs @	12.32 hrs,	Volume=	0.573 af	
Primary =	5.70 cfs @	12.32 hrs,	Volume=	0.852 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 53.87' @ 12.32 hrs Surf.Area= 6,864 sf Storage= 15,172 cf

Plug-Flow detention time= 33.6 min calculated for 1.426 af (100% of inflow)
Center-of-Mass det. time= 33.6 min (778.9 - 745.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	51.00'	1,798 cf	**132.00'W x 52.00'L x 4.00'H Field A** 27,456 cf Overall - 22,962 cf Embedded = 4,494 cf x 40.0% Voids
#2A	51.00'	17,294 cf	**Concrete Galley 4x4x4** x 390 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 390 Chambers in 30 Rows
		19,092 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.10'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	51.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.48 cfs @ 12.32 hrs HW=53.87' (Free Discharge)
└**2=Exfiltration** (Controls 0.48 cfs)

Primary OutFlow Max=5.70 cfs @ 12.32 hrs HW=53.87' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 5.70 cfs @ 7.26 fps)

Pond 25P: Det Area 5 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

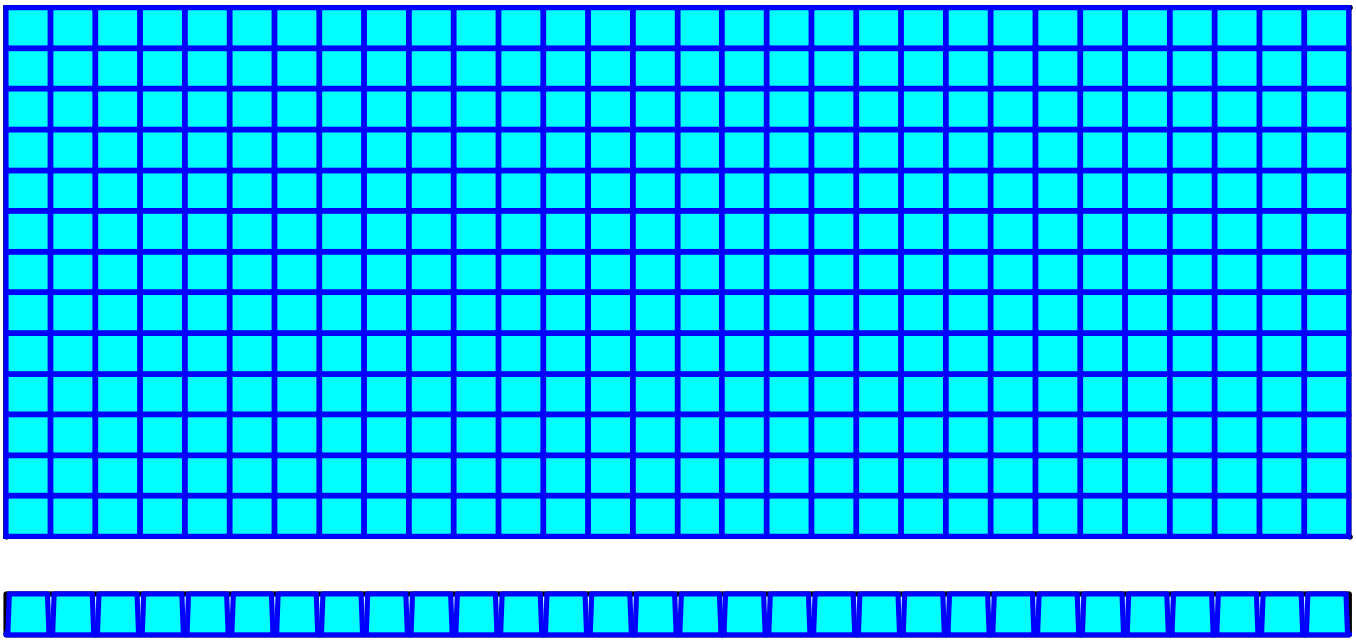
13 Chambers/Row x 4.00' Long = 52.00' Row Length
30 Rows x 52.8" Wide = 132.00' Base Width
48.0" Chamber Height = 4.00' Field Height

390 Chambers x 44.3 cf = 17,294.4 cf Chamber Storage
390 Chambers x 58.9 cf = 22,961.8 cf Displacement

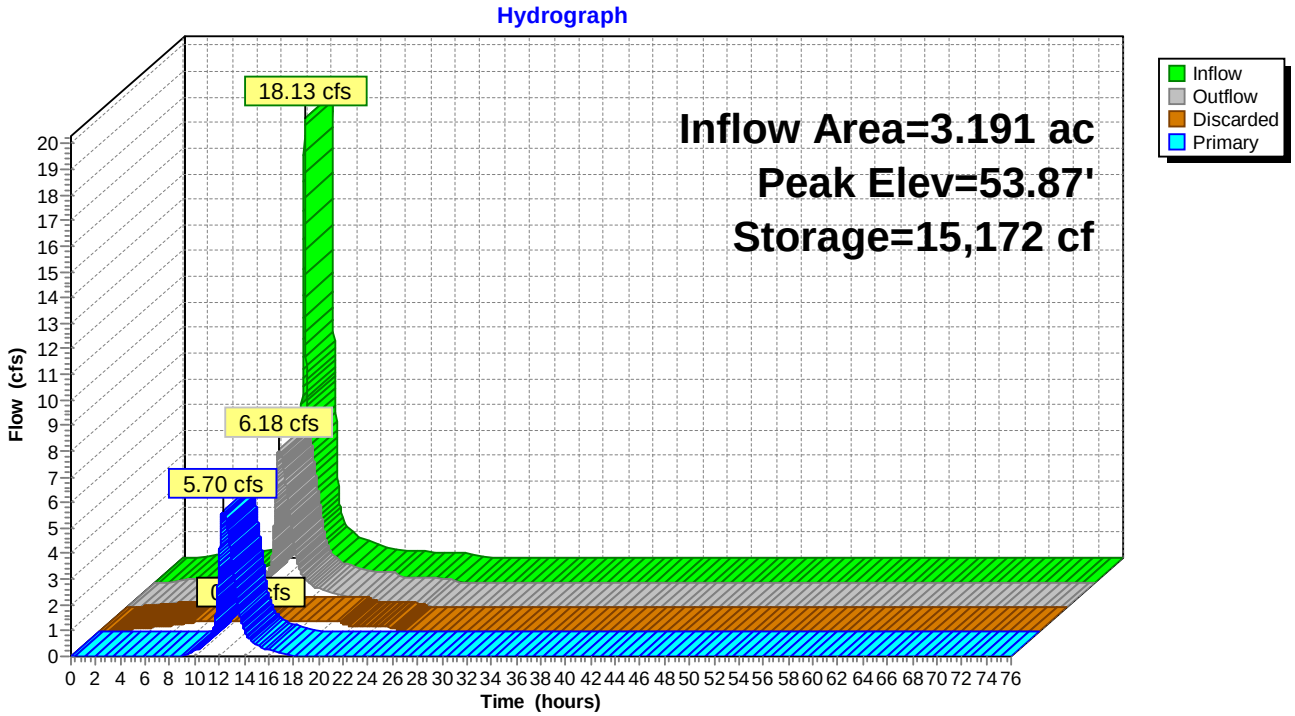
27,456.0 cf Field - 22,961.8 cf Chambers = 4,494.2 cf Stone x 40.0% Voids = 1,797.7 cf Stone Storage

Chamber Storage + Stone Storage = 19,092.1 cf = 0.438 af
Overall Storage Efficiency = 69.5%
Overall System Size = 52.00' x 132.00' x 4.00'

390 Chambers
1,016.9 cy Field
166.5 cy Stone



Pond 25P: Det Area 5



Hydrograph for Pond 25P: Det Area 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	51.00	0.00	0.00	0.00
2.00	0.08	38	51.01	0.07	0.07	0.00
4.00	0.17	88	51.02	0.16	0.16	0.00
6.00	0.25	130	51.03	0.24	0.24	0.00
8.00	0.43	242	51.05	0.38	0.38	0.00
10.00	0.84	1,666	51.32	0.60	0.39	0.21
12.00	**12.26**	**8,109**	**52.53**	**4.08**	**0.44**	**3.65**
14.00	**0.91**	**3,274**	**51.62**	**1.42**	**0.40**	**1.02**
16.00	0.48	1,748	51.34	0.63	0.39	0.24
18.00	0.29	902	51.18	0.42	0.39	0.03
20.00	0.24	132	51.03	0.25	0.25	0.00
22.00	0.19	106	51.02	0.20	0.20	0.00
24.00	0.15	84	51.02	0.16	0.16	0.00
26.00	0.00	0	51.00	0.00	0.00	0.00
28.00	0.00	0	51.00	0.00	0.00	0.00
30.00	0.00	0	51.00	0.00	0.00	0.00
32.00	0.00	0	51.00	0.00	0.00	0.00
34.00	0.00	0	51.00	0.00	0.00	0.00
36.00	0.00	0	51.00	0.00	0.00	0.00
38.00	0.00	0	51.00	0.00	0.00	0.00
40.00	0.00	0	51.00	0.00	0.00	0.00
42.00	0.00	0	51.00	0.00	0.00	0.00
44.00	0.00	0	51.00	0.00	0.00	0.00
46.00	0.00	0	51.00	0.00	0.00	0.00
48.00	0.00	0	51.00	0.00	0.00	0.00
50.00	0.00	0	51.00	0.00	0.00	0.00
52.00	0.00	0	51.00	0.00	0.00	0.00
54.00	0.00	0	51.00	0.00	0.00	0.00
56.00	0.00	0	51.00	0.00	0.00	0.00
58.00	0.00	0	51.00	0.00	0.00	0.00
60.00	0.00	0	51.00	0.00	0.00	0.00
62.00	0.00	0	51.00	0.00	0.00	0.00
64.00	0.00	0	51.00	0.00	0.00	0.00
66.00	0.00	0	51.00	0.00	0.00	0.00
68.00	0.00	0	51.00	0.00	0.00	0.00
70.00	0.00	0	51.00	0.00	0.00	0.00
72.00	0.00	0	51.00	0.00	0.00	0.00
74.00	0.00	0	51.00	0.00	0.00	0.00
76.00	0.00	0	51.00	0.00	0.00	0.00

Summary for Pond 26P: Detention Area 7

Inflow Area =	0.996 ac, 82.91% Impervious, Inflow Depth = 4.24" for 25 year event				
Inflow =	4.98 cfs @	12.07 hrs,	Volume=	0.352 af	
Outflow =	4.89 cfs @	12.09 hrs,	Volume=	0.352 af,	Atten= 2%, Lag= 0.9 min
Discarded =	0.01 cfs @	12.09 hrs,	Volume=	0.011 af	
Primary =	4.89 cfs @	12.09 hrs,	Volume=	0.341 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 49.17' @ 12.09 hrs Surf.Area= 0.002 ac Storage= 0.005 af

Plug-Flow detention time= 4.1 min calculated for 0.352 af (100% of inflow)
Center-of-Mass det. time= 4.1 min (797.1 - 792.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	46.50'	0.001 af	**8.80'W x 12.00'L x 4.00'H Field A** 0.010 af Overall - 0.008 af Embedded = 0.002 af x 40.0% Voids
#2A	46.50'	0.006 af	**Concrete Galley 4x4x4** x 6 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 6 Chambers in 2 Rows
		0.007 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	46.50'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.01 cfs @ 12.09 hrs HW=49.16' (Free Discharge)
└**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=4.88 cfs @ 12.09 hrs HW=49.16' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 4.88 cfs @ 6.21 fps)

Pond 26P: Detention Area 7 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

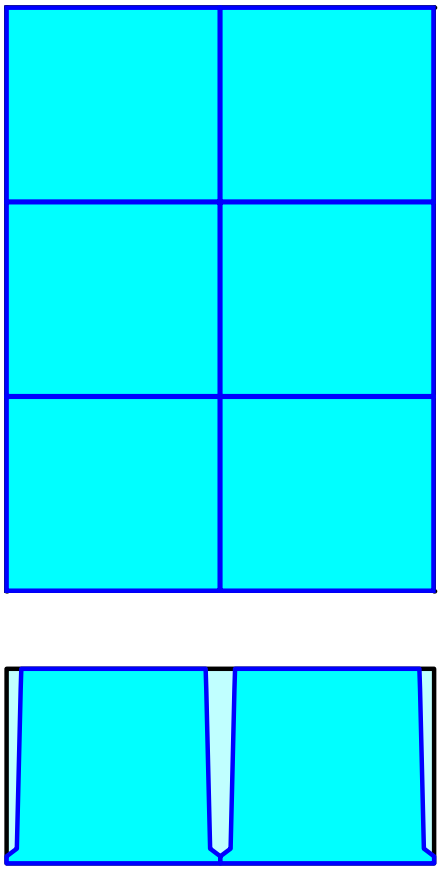
3 Chambers/Row x 4.00' Long = 12.00' Row Length
2 Rows x 52.8" Wide = 8.80' Base Width
48.0" Chamber Height = 4.00' Field Height

6 Chambers x 44.3 cf = 266.1 cf Chamber Storage
6 Chambers x 58.9 cf = 353.3 cf Displacement

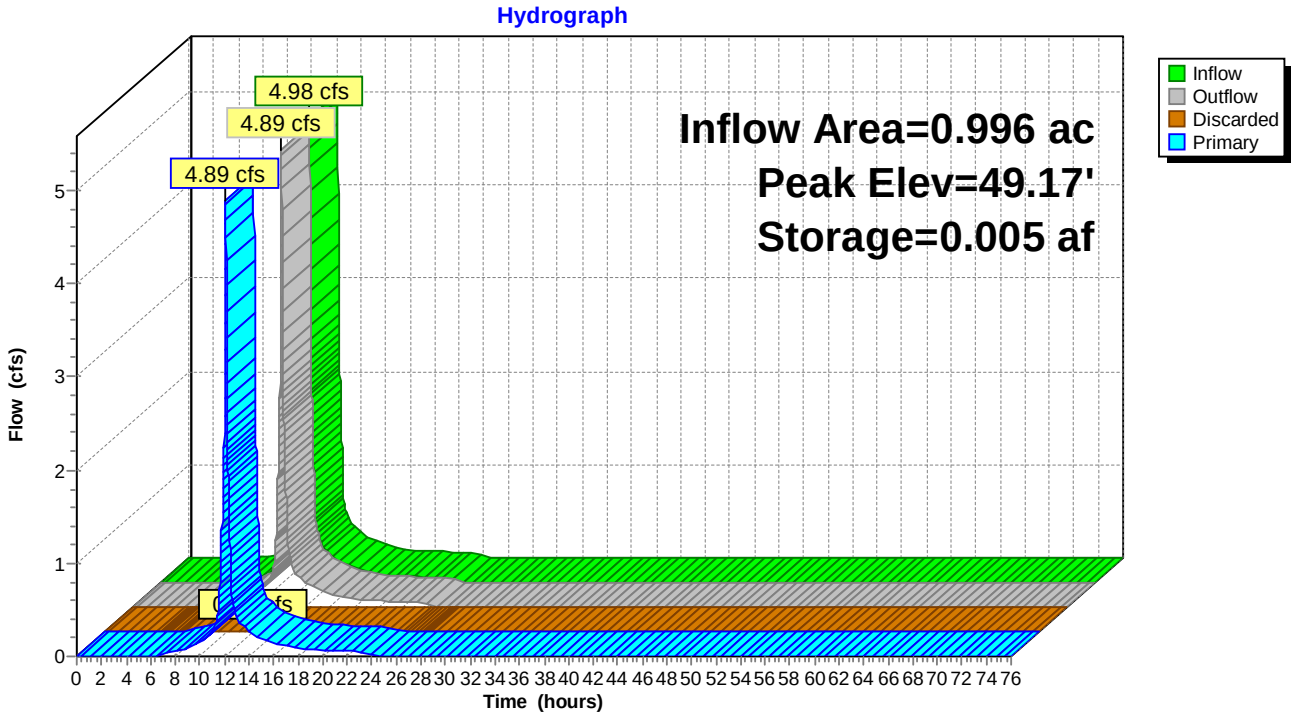
422.4 cf Field - 353.3 cf Chambers = 69.1 cf Stone x 40.0% Voids = 27.7 cf Stone Storage

Chamber Storage + Stone Storage = 293.7 cf = 0.007 af
Overall Storage Efficiency = 69.5%
Overall System Size = 12.00' x 8.80' x 4.00'

6 Chambers
15.6 cy Field
2.6 cy Stone



Pond 26P: Detention Area 7



Hydrograph for Pond 26P: Detention Area 7

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	46.50	0.00	0.00	0.00
2.00	0.00	0.000	46.50	0.00	0.00	0.00
4.00	0.00	0.000	46.50	0.00	0.00	0.00
6.00	0.01	0.000	46.69	0.01	0.01	0.00
8.00	0.05	0.001	47.10	0.05	0.01	0.05
10.00	0.16	0.001	47.19	0.16	0.01	0.15
12.00	**3.28**	**0.003**	**48.14**	**3.03**	**0.01**	**3.02**
14.00	**0.27**	**0.001**	**47.25**	**0.27**	**0.01**	**0.26**
16.00	0.14	0.001	47.18	0.14	0.01	0.14
18.00	0.09	0.001	47.14	0.09	0.01	0.08
20.00	0.07	0.001	47.12	0.07	0.01	0.06
22.00	0.06	0.001	47.11	0.06	0.01	0.05
24.00	0.05	0.001	47.09	0.05	0.01	0.04
26.00	0.00	0.000	46.53	0.00	0.00	0.00
28.00	0.00	0.000	46.50	0.00	0.00	0.00
30.00	0.00	0.000	46.50	0.00	0.00	0.00
32.00	0.00	0.000	46.50	0.00	0.00	0.00
34.00	0.00	0.000	46.50	0.00	0.00	0.00
36.00	0.00	0.000	46.50	0.00	0.00	0.00
38.00	0.00	0.000	46.50	0.00	0.00	0.00
40.00	0.00	0.000	46.50	0.00	0.00	0.00
42.00	0.00	0.000	46.50	0.00	0.00	0.00
44.00	0.00	0.000	46.50	0.00	0.00	0.00
46.00	0.00	0.000	46.50	0.00	0.00	0.00
48.00	0.00	0.000	46.50	0.00	0.00	0.00
50.00	0.00	0.000	46.50	0.00	0.00	0.00
52.00	0.00	0.000	46.50	0.00	0.00	0.00
54.00	0.00	0.000	46.50	0.00	0.00	0.00
56.00	0.00	0.000	46.50	0.00	0.00	0.00
58.00	0.00	0.000	46.50	0.00	0.00	0.00
60.00	0.00	0.000	46.50	0.00	0.00	0.00
62.00	0.00	0.000	46.50	0.00	0.00	0.00
64.00	0.00	0.000	46.50	0.00	0.00	0.00
66.00	0.00	0.000	46.50	0.00	0.00	0.00
68.00	0.00	0.000	46.50	0.00	0.00	0.00
70.00	0.00	0.000	46.50	0.00	0.00	0.00
72.00	0.00	0.000	46.50	0.00	0.00	0.00
74.00	0.00	0.000	46.50	0.00	0.00	0.00
76.00	0.00	0.000	46.50	0.00	0.00	0.00

Time span=0.00-76.00 hrs, dt=0.01 hrs, 7601 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: EXISTING Runoff Area=682,179 sf 65.16% Impervious Runoff Depth=4.29"
Tc=5.0 min CN=78 Runoff=81.39 cfs 5.604 af

Subcatchment 2S: No infil Runoff Area=209,877 sf 5.48% Impervious Runoff Depth=1.22"
Tc=5.0 min CN=46 Runoff=5.48 cfs 0.492 af

Subcatchment 12S: Area 2 Runoff Area=62,880 sf 93.39% Impervious Runoff Depth=6.09"
Tc=5.0 min CN=94 Runoff=9.74 cfs 0.733 af

Subcatchment 15S: Area 3 Runoff Area=49,802 sf 100.00% Impervious Runoff Depth=6.56"
Tc=5.0 min CN=98 Runoff=7.90 cfs 0.625 af

Subcatchment 17S: Area 4 Runoff Area=38,330 sf 96.89% Impervious Runoff Depth=6.32"
Tc=5.0 min CN=96 Runoff=6.02 cfs 0.464 af

Subcatchment 18S: Area 5 Runoff Area=52,288 sf 95.56% Impervious Runoff Depth=6.21"
Tc=5.0 min CN=95 Runoff=8.16 cfs 0.621 af

Subcatchment 21S: Area 7 Runoff Area=23,504 sf 100.00% Impervious Runoff Depth=6.56"
Tc=5.0 min CN=98 Runoff=3.73 cfs 0.295 af

Subcatchment 22S: Area 8 Runoff Area=43,400 sf 82.91% Impervious Runoff Depth=5.40"
Tc=5.0 min CN=88 Runoff=6.26 cfs 0.448 af

Subcatchment 23S: Area 6 Building Runoff Area=139,000 sf 100.00% Impervious Runoff Depth=6.56"
Tc=5.0 min CN=98 Runoff=22.05 cfs 1.745 af

Subcatchment 28S: Area 1 Runoff Area=63,098 sf 81.50% Impervious Runoff Depth=5.29"
Tc=5.0 min CN=87 Runoff=8.97 cfs 0.638 af

Reach 6R: (new Reach) Inflow=41.92 cfs 4.301 af
Outflow=41.92 cfs 4.301 af

Pond 11P: Detention Area 1 Peak Elev=45.73' Storage=0.100 af Inflow=8.97 cfs 0.638 af
Discarded=0.25 cfs 0.212 af Primary=5.64 cfs 0.426 af Outflow=5.90 cfs 0.638 af

Pond 13P: Detention Area 2 Peak Elev=45.17' Storage=0.123 af Inflow=9.74 cfs 0.733 af
Discarded=0.40 cfs 0.292 af Primary=5.70 cfs 0.440 af Outflow=6.10 cfs 0.733 af

Pond 14P: Area 4 Peak Elev=53.73' Storage=0.080 af Inflow=8.16 cfs 0.621 af
Discarded=0.10 cfs 0.154 af Primary=5.64 cfs 0.467 af Outflow=5.74 cfs 0.621 af

Pond 19P: Detention Area 3 Peak Elev=44.86' Storage=8,485 cf Inflow=13.92 cfs 1.089 af
Discarded=0.83 cfs 0.455 af Primary=6.39 cfs 0.634 af Outflow=7.22 cfs 1.089 af

Pond 24P: Detention Area 6 Peak Elev=52.47' Storage=40 cf Inflow=3.73 cfs 0.295 af
Discarded=0.00 cfs 0.003 af Primary=3.73 cfs 0.292 af Outflow=3.73 cfs 0.295 af

Pond 25P: Det Area 5 Peak Elev=54.67' Storage=18,923 cf Inflow=22.05 cfs 1.745 af
Discarded=0.51 cfs 0.632 af Primary=6.63 cfs 1.113 af Outflow=7.14 cfs 1.745 af

Pond 26P: Detention Area 7 Peak Elev=50.15' Storage=0.007 af Inflow=6.26 cfs 0.448 af
Discarded=0.01 cfs 0.012 af Primary=6.16 cfs 0.437 af Outflow=6.16 cfs 0.448 af

Total Runoff Area = 31.321 ac Runoff Volume = 11.664 af Average Runoff Depth = 4.47"
33.92% Pervious = 10.624 ac 66.08% Impervious = 20.697 ac

Summary for Subcatchment 1S: EXISTING

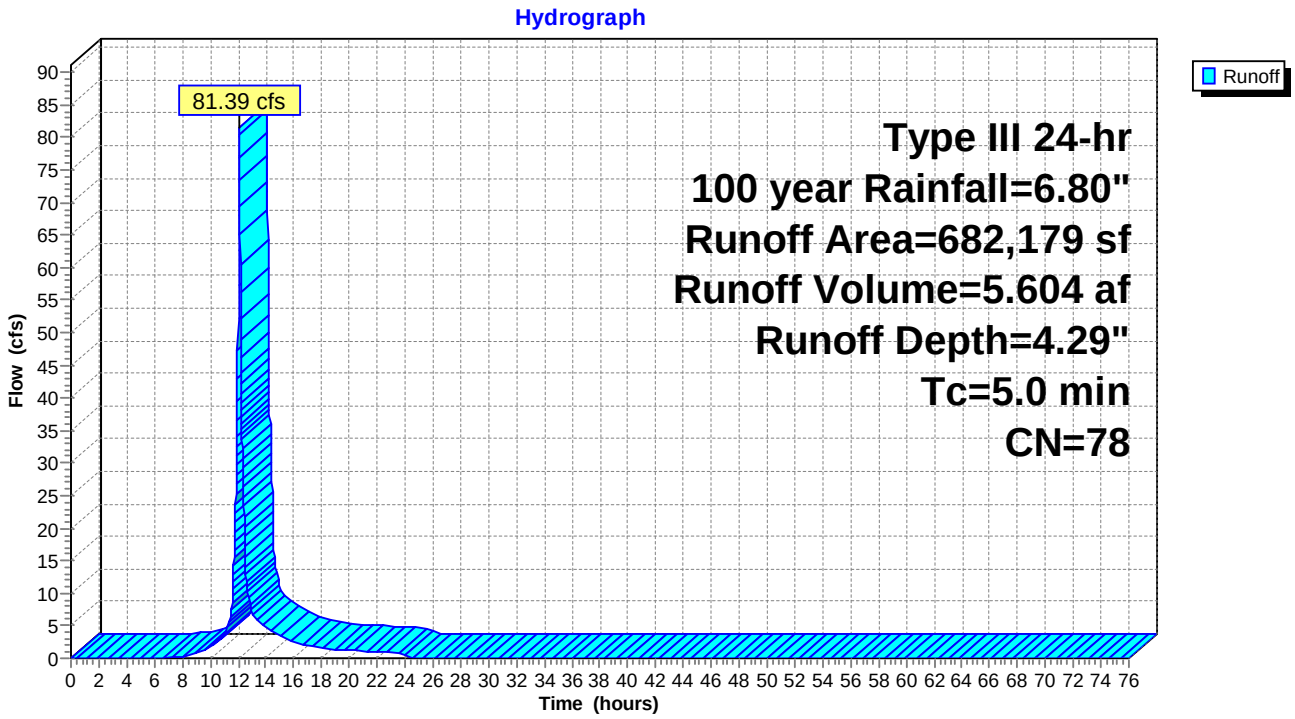
Runoff = 81.39 cfs @ 12.07 hrs, Volume= 5.604 af, Depth= 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=6.80"

	Area (sf)	CN	Description
*	45,757	98	Existing Impervious
	553,853	81	Urban industrial, 72% imp, HSG A
	62,264	32	Woods/grass comb., Good, HSG A
	20,305	98	Water Surface, 0% imp, HSG A
	682,179	78	Weighted Average
	237,648		34.84% Pervious Area
	444,531		65.16% Impervious Area

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

Subcatchment 1S: EXISTING



Hydrograph for Subcatchment 1S: EXISTING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	6.80	4.29	0.00
1.00	0.07	0.00	0.00	54.00	6.80	4.29	0.00
2.00	0.14	0.00	0.00	55.00	6.80	4.29	0.00
3.00	0.21	0.00	0.00	56.00	6.80	4.29	0.00
4.00	0.29	0.00	0.00	57.00	6.80	4.29	0.00
5.00	0.39	0.00	0.00	58.00	6.80	4.29	0.00
6.00	0.49	0.00	0.00	59.00	6.80	4.29	0.00
7.00	0.62	0.00	0.06	60.00	6.80	4.29	0.00
8.00	0.78	0.01	0.35	61.00	6.80	4.29	0.00
9.00	0.99	0.06	0.93	62.00	6.80	4.29	0.00
10.00	1.29	0.15	1.84	63.00	6.80	4.29	0.00
11.00	1.70	0.33	3.68	64.00	6.80	4.29	0.00
12.00	3.40	1.42	**52.12**	65.00	6.80	4.29	0.00
13.00	5.10	2.80	**7.32**	66.00	6.80	4.29	0.00
14.00	5.51	3.15	4.74	67.00	6.80	4.29	0.00
15.00	5.81	3.41	3.62	68.00	6.80	4.29	0.00
16.00	6.02	3.60	2.55	69.00	6.80	4.29	0.00
17.00	6.18	3.74	2.04	70.00	6.80	4.29	0.00
18.00	6.31	3.85	1.57	71.00	6.80	4.29	0.00
19.00	6.41	3.95	1.40	72.00	6.80	4.29	0.00
20.00	6.51	4.03	1.26	73.00	6.80	4.29	0.00
21.00	6.59	4.11	1.15	74.00	6.80	4.29	0.00
22.00	6.67	4.18	1.05	75.00	6.80	4.29	0.00
23.00	6.74	4.24	0.94	76.00	6.80	4.29	0.00
24.00	**6.80**	**4.29**	0.83				
25.00	6.80	4.29	0.00				
26.00	6.80	4.29	0.00				
27.00	6.80	4.29	0.00				
28.00	6.80	4.29	0.00				
29.00	6.80	4.29	0.00				
30.00	6.80	4.29	0.00				
31.00	6.80	4.29	0.00				
32.00	6.80	4.29	0.00				
33.00	6.80	4.29	0.00				
34.00	6.80	4.29	0.00				
35.00	6.80	4.29	0.00				
36.00	6.80	4.29	0.00				
37.00	6.80	4.29	0.00				
38.00	6.80	4.29	0.00				
39.00	6.80	4.29	0.00				
40.00	6.80	4.29	0.00				
41.00	6.80	4.29	0.00				
42.00	6.80	4.29	0.00				
43.00	6.80	4.29	0.00				
44.00	6.80	4.29	0.00				
45.00	6.80	4.29	0.00				
46.00	6.80	4.29	0.00				
47.00	6.80	4.29	0.00				
48.00	6.80	4.29	0.00				
49.00	6.80	4.29	0.00				
50.00	6.80	4.29	0.00				
51.00	6.80	4.29	0.00				
52.00	6.80	4.29	0.00				

Summary for Subcatchment 2S: No infil

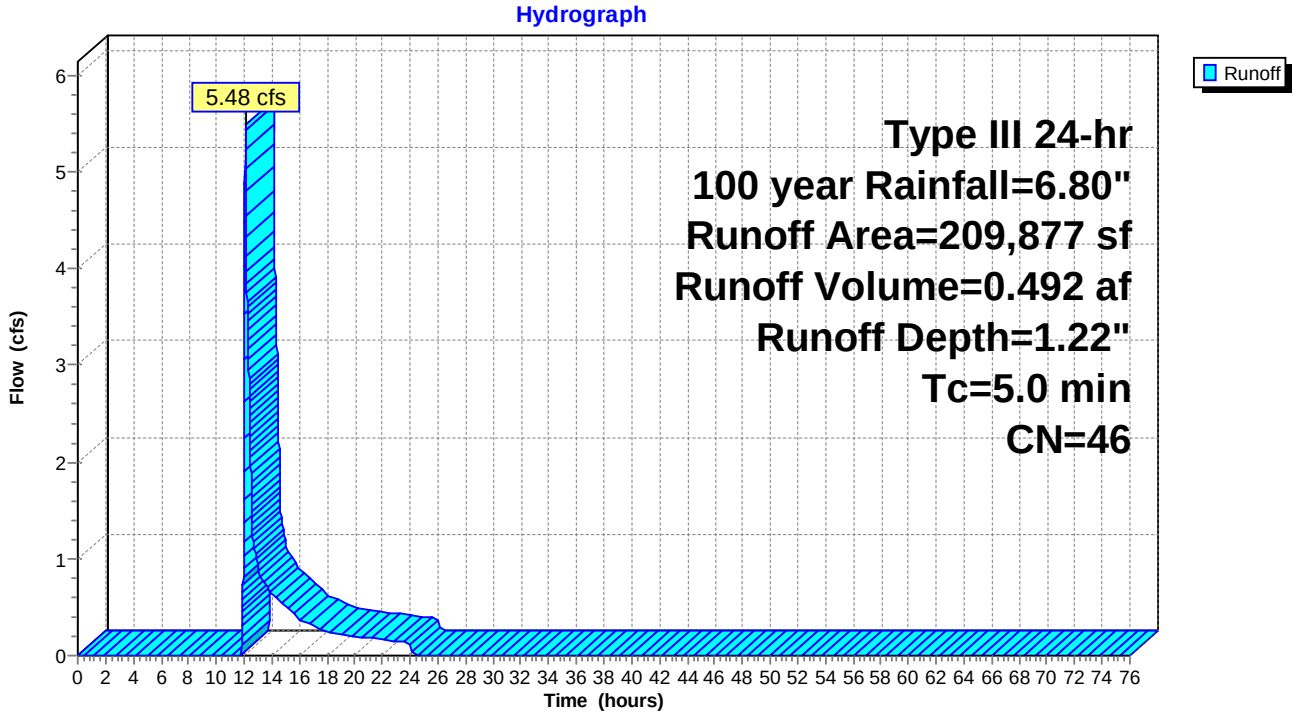
Runoff = 5.48 cfs @ 12.10 hrs, Volume= 0.492 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=6.80"

	Area (sf)	CN	Description
*	8,203	98	ex bldg
	114,294	39	>75% Grass cover, Good, HSG A
*	3,305	98	IMPERVIOUS
	20,305	98	Water Surface, 0% imp, HSG A
	61,509	32	Woods/grass comb., Good, HSG A
	2,261	76	Gravel roads, HSG A
	209,877	46	Weighted Average
	198,369		94.52% Pervious Area
	11,508		5.48% Impervious Area

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

Subcatchment 2S: No infil



Hydrograph for Subcatchment 2S: No infil

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	6.80	1.22	0.00
1.00	0.07	0.00	0.00	54.00	6.80	1.22	0.00
2.00	0.14	0.00	0.00	55.00	6.80	1.22	0.00
3.00	0.21	0.00	0.00	56.00	6.80	1.22	0.00
4.00	0.29	0.00	0.00	57.00	6.80	1.22	0.00
5.00	0.39	0.00	0.00	58.00	6.80	1.22	0.00
6.00	0.49	0.00	0.00	59.00	6.80	1.22	0.00
7.00	0.62	0.00	0.00	60.00	6.80	1.22	0.00
8.00	0.78	0.00	0.00	61.00	6.80	1.22	0.00
9.00	0.99	0.00	0.00	62.00	6.80	1.22	0.00
10.00	1.29	0.00	0.00	63.00	6.80	1.22	0.00
11.00	1.70	0.00	0.00	64.00	6.80	1.22	0.00
12.00	3.40	0.09	**2.24**	65.00	6.80	1.22	0.00
13.00	5.10	0.52	**0.90**	66.00	6.80	1.22	0.00
14.00	5.51	0.67	0.63	67.00	6.80	1.22	0.00
15.00	5.81	0.79	0.51	68.00	6.80	1.22	0.00
16.00	6.02	0.88	0.37	69.00	6.80	1.22	0.00
17.00	6.18	0.95	0.30	70.00	6.80	1.22	0.00
18.00	6.31	1.00	0.24	71.00	6.80	1.22	0.00
19.00	6.41	1.05	0.22	72.00	6.80	1.22	0.00
20.00	6.51	1.09	0.20	73.00	6.80	1.22	0.00
21.00	6.59	1.13	0.18	74.00	6.80	1.22	0.00
22.00	6.67	1.16	0.17	75.00	6.80	1.22	0.00
23.00	6.74	1.20	0.15	76.00	6.80	1.22	0.00
24.00	**6.80**	**1.22**	0.13				
25.00	6.80	1.22	0.00				
26.00	6.80	1.22	0.00				
27.00	6.80	1.22	0.00				
28.00	6.80	1.22	0.00				
29.00	6.80	1.22	0.00				
30.00	6.80	1.22	0.00				
31.00	6.80	1.22	0.00				
32.00	6.80	1.22	0.00				
33.00	6.80	1.22	0.00				
34.00	6.80	1.22	0.00				
35.00	6.80	1.22	0.00				
36.00	6.80	1.22	0.00				
37.00	6.80	1.22	0.00				
38.00	6.80	1.22	0.00				
39.00	6.80	1.22	0.00				
40.00	6.80	1.22	0.00				
41.00	6.80	1.22	0.00				
42.00	6.80	1.22	0.00				
43.00	6.80	1.22	0.00				
44.00	6.80	1.22	0.00				
45.00	6.80	1.22	0.00				
46.00	6.80	1.22	0.00				
47.00	6.80	1.22	0.00				
48.00	6.80	1.22	0.00				
49.00	6.80	1.22	0.00				
50.00	6.80	1.22	0.00				
51.00	6.80	1.22	0.00				
52.00	6.80	1.22	0.00				

Summary for Subcatchment 12S: Area 2

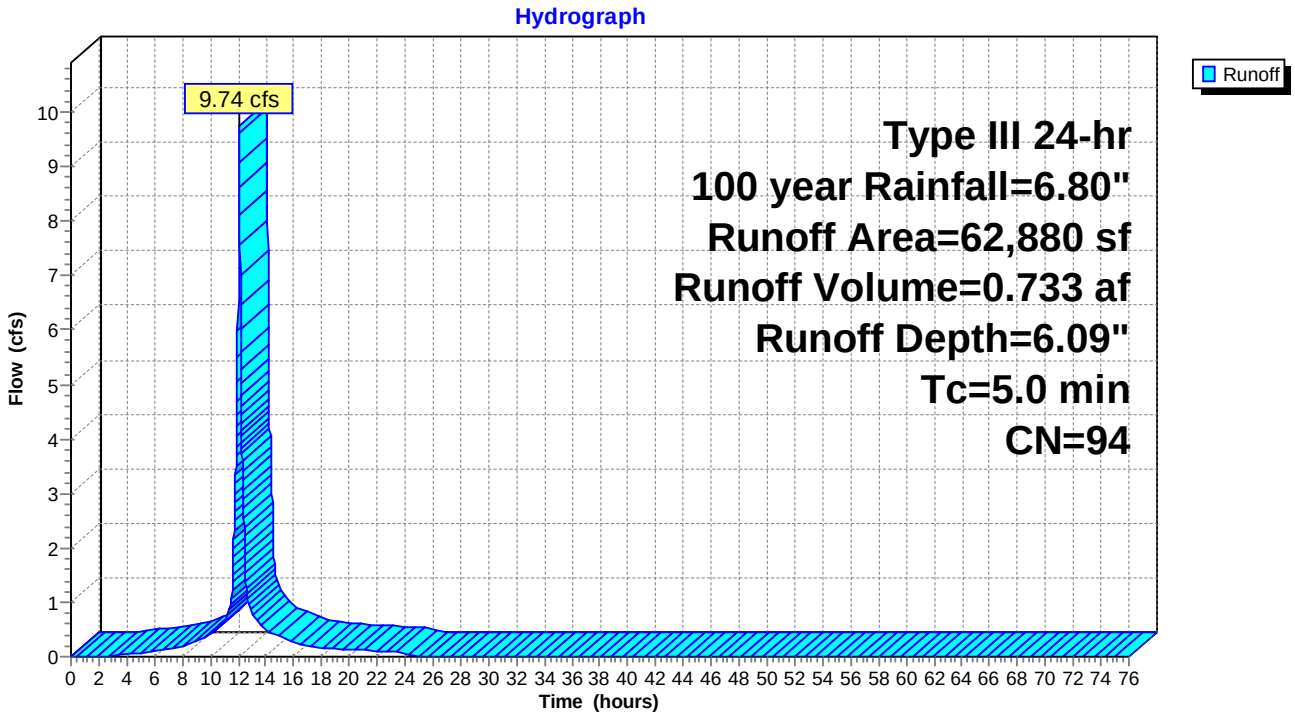
Runoff = 9.74 cfs @ 12.07 hrs, Volume= 0.733 af, Depth= 6.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=6.80"

	Area (sf)	CN	Description
*	58,726	98	driveway
	4,154	39	>75% Grass cover, Good, HSG A
	62,880	94	Weighted Average
	4,154		6.61% Pervious Area
	58,726		93.39% Impervious Area

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

Subcatchment 12S: Area 2



Hydrograph for Subcatchment 12S: Area 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	53.00	6.80	6.09	0.00
1.00	0.07	0.00	0.00	54.00	6.80	6.09	0.00
2.00	0.14	0.00	0.00	55.00	6.80	6.09	0.00
3.00	0.21	0.01	0.02	56.00	6.80	6.09	0.00
4.00	0.29	0.03	0.05	57.00	6.80	6.09	0.00
5.00	0.39	0.07	0.07	58.00	6.80	6.09	0.00
6.00	0.49	0.13	0.09	59.00	6.80	6.09	0.00
7.00	0.62	0.21	0.14	60.00	6.80	6.09	0.00
8.00	0.78	0.33	0.19	61.00	6.80	6.09	0.00
9.00	0.99	0.50	0.30	62.00	6.80	6.09	0.00
10.00	1.29	0.75	0.41	63.00	6.80	6.09	0.00
11.00	1.70	1.12	0.64	64.00	6.80	6.09	0.00
12.00	3.40	2.74	**6.55**	65.00	6.80	6.09	0.00
13.00	5.10	4.41	**0.78**	66.00	6.80	6.09	0.00
14.00	5.51	4.82	0.50	67.00	6.80	6.09	0.00
15.00	5.81	5.11	0.38	68.00	6.80	6.09	0.00
16.00	6.02	5.32	0.26	69.00	6.80	6.09	0.00
17.00	6.18	5.48	0.21	70.00	6.80	6.09	0.00
18.00	6.31	5.60	0.16	71.00	6.80	6.09	0.00
19.00	6.41	5.71	0.14	72.00	6.80	6.09	0.00
20.00	6.51	5.80	0.13	73.00	6.80	6.09	0.00
21.00	6.59	5.88	0.12	74.00	6.80	6.09	0.00
22.00	6.67	5.96	0.11	75.00	6.80	6.09	0.00
23.00	6.74	6.03	0.10	76.00	6.80	6.09	0.00
24.00	**6.80**	**6.09**	0.08				
25.00	6.80	6.09	0.00				
26.00	6.80	6.09	0.00				
27.00	6.80	6.09	0.00				
28.00	6.80	6.09	0.00				
29.00	6.80	6.09	0.00				
30.00	6.80	6.09	0.00				
31.00	6.80	6.09	0.00				
32.00	6.80	6.09	0.00				
33.00	6.80	6.09	0.00				
34.00	6.80	6.09	0.00				
35.00	6.80	6.09	0.00				
36.00	6.80	6.09	0.00				
37.00	6.80	6.09	0.00				
38.00	6.80	6.09	0.00				
39.00	6.80	6.09	0.00				
40.00	6.80	6.09	0.00				
41.00	6.80	6.09	0.00				
42.00	6.80	6.09	0.00				
43.00	6.80	6.09	0.00				
44.00	6.80	6.09	0.00				
45.00	6.80	6.09	0.00				
46.00	6.80	6.09	0.00				
47.00	6.80	6.09	0.00				
48.00	6.80	6.09	0.00				
49.00	6.80	6.09	0.00				
50.00	6.80	6.09	0.00				
51.00	6.80	6.09	0.00				
52.00	6.80	6.09	0.00				

Summary for Subcatchment 15S: Area 3

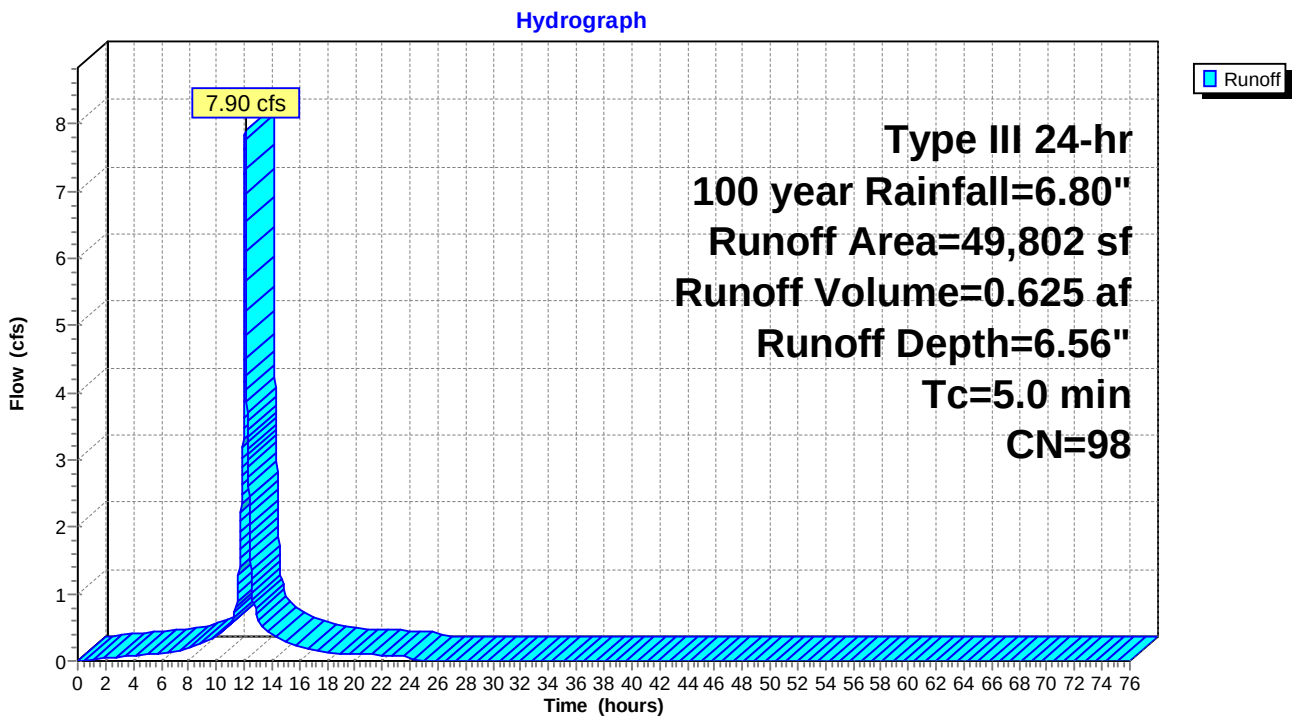
Runoff = 7.90 cfs @ 12.07 hrs, Volume= 0.625 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=6.80"

	Area (sf)	CN	Description
*	49,802	98	Building
	49,802		100.00% Impervious Area

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

Subcatchment 15S: Area 3



Hydrograph for Subcatchment 15S: Area 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	6.80	6.56	0.00
1.00	0.07	0.00	0.01	54.00	6.80	6.56	0.00
2.00	0.14	0.03	0.04	55.00	6.80	6.56	0.00
3.00	0.21	0.08	0.06	56.00	6.80	6.56	0.00
4.00	0.29	0.14	0.08	57.00	6.80	6.56	0.00
5.00	0.39	0.22	0.10	58.00	6.80	6.56	0.00
6.00	0.49	0.31	0.11	59.00	6.80	6.56	0.00
7.00	0.62	0.42	0.15	60.00	6.80	6.56	0.00
8.00	0.78	0.57	0.19	61.00	6.80	6.56	0.00
9.00	0.99	0.78	0.28	62.00	6.80	6.56	0.00
10.00	1.29	1.07	0.37	63.00	6.80	6.56	0.00
11.00	1.70	1.48	0.55	64.00	6.80	6.56	0.00
12.00	3.40	3.17	**5.34**	65.00	6.80	6.56	0.00
13.00	5.10	4.86	**0.63**	66.00	6.80	6.56	0.00
14.00	5.51	5.28	0.40	67.00	6.80	6.56	0.00
15.00	5.81	5.57	0.30	68.00	6.80	6.56	0.00
16.00	6.02	5.79	0.21	69.00	6.80	6.56	0.00
17.00	6.18	5.95	0.17	70.00	6.80	6.56	0.00
18.00	6.31	6.07	0.13	71.00	6.80	6.56	0.00
19.00	6.41	6.18	0.11	72.00	6.80	6.56	0.00
20.00	6.51	6.27	0.10	73.00	6.80	6.56	0.00
21.00	6.59	6.35	0.09	74.00	6.80	6.56	0.00
22.00	6.67	6.43	0.08	75.00	6.80	6.56	0.00
23.00	6.74	6.50	0.08	76.00	6.80	6.56	0.00
24.00	**6.80**	**6.56**	0.07				
25.00	6.80	6.56	0.00				
26.00	6.80	6.56	0.00				
27.00	6.80	6.56	0.00				
28.00	6.80	6.56	0.00				
29.00	6.80	6.56	0.00				
30.00	6.80	6.56	0.00				
31.00	6.80	6.56	0.00				
32.00	6.80	6.56	0.00				
33.00	6.80	6.56	0.00				
34.00	6.80	6.56	0.00				
35.00	6.80	6.56	0.00				
36.00	6.80	6.56	0.00				
37.00	6.80	6.56	0.00				
38.00	6.80	6.56	0.00				
39.00	6.80	6.56	0.00				
40.00	6.80	6.56	0.00				
41.00	6.80	6.56	0.00				
42.00	6.80	6.56	0.00				
43.00	6.80	6.56	0.00				
44.00	6.80	6.56	0.00				
45.00	6.80	6.56	0.00				
46.00	6.80	6.56	0.00				
47.00	6.80	6.56	0.00				
48.00	6.80	6.56	0.00				
49.00	6.80	6.56	0.00				
50.00	6.80	6.56	0.00				
51.00	6.80	6.56	0.00				
52.00	6.80	6.56	0.00				

Summary for Subcatchment 17S: Area 4

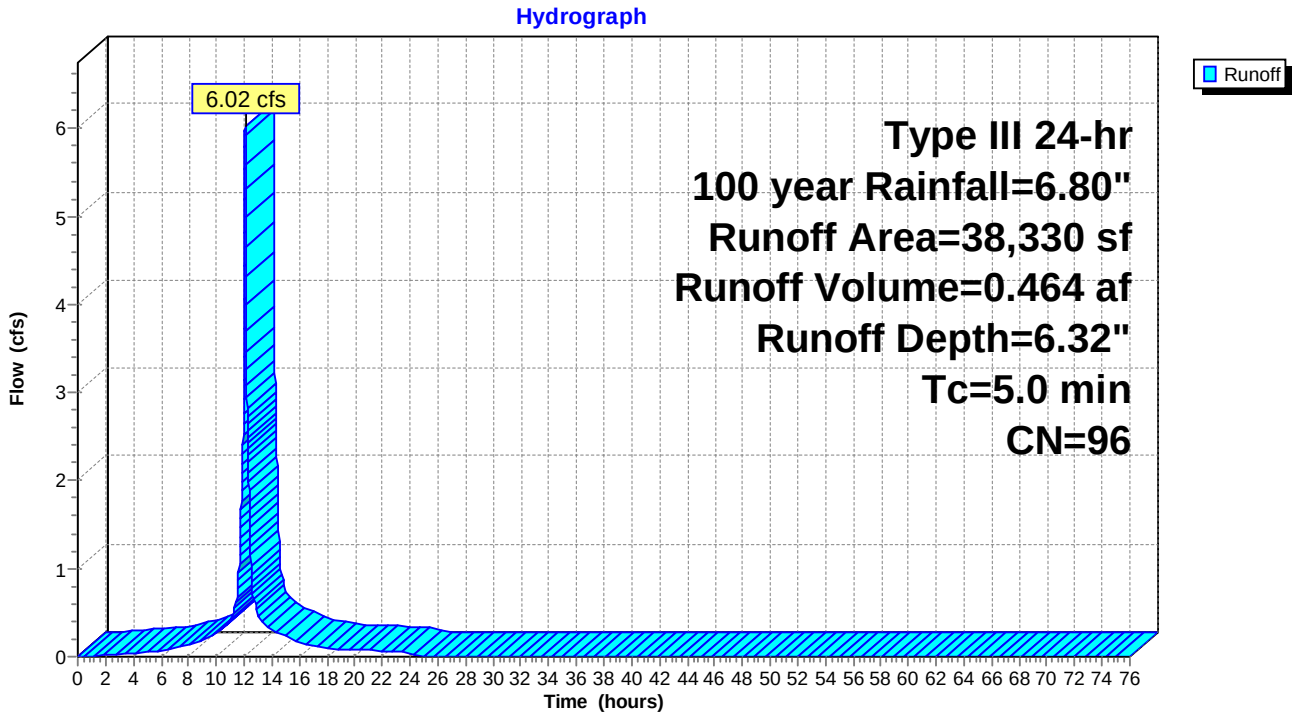
Runoff = 6.02 cfs @ 12.07 hrs, Volume= 0.464 af, Depth= 6.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=6.80"

	Area (sf)	CN	Description
*	37,139	98	driveway
	1,191	39	>75% Grass cover, Good, HSG A
	38,330	96	Weighted Average
	1,191		3.11% Pervious Area
	37,139		96.89% Impervious Area

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

Subcatchment 17S: Area 4



Hydrograph for Subcatchment 17S: Area 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	53.00	6.80	6.32	0.00
1.00	0.07	0.00	0.00	54.00	6.80	6.32	0.00
2.00	0.14	0.01	0.01	55.00	6.80	6.32	0.00
3.00	0.21	0.03	0.03	56.00	6.80	6.32	0.00
4.00	0.29	0.07	0.04	57.00	6.80	6.32	0.00
5.00	0.39	0.13	0.06	58.00	6.80	6.32	0.00
6.00	0.49	0.20	0.07	59.00	6.80	6.32	0.00
7.00	0.62	0.30	0.10	60.00	6.80	6.32	0.00
8.00	0.78	0.43	0.13	61.00	6.80	6.32	0.00
9.00	0.99	0.62	0.20	62.00	6.80	6.32	0.00
10.00	1.29	0.89	0.27	63.00	6.80	6.32	0.00
11.00	1.70	1.29	0.41	64.00	6.80	6.32	0.00
12.00	3.40	2.95	**4.06**	65.00	6.80	6.32	0.00
13.00	5.10	4.63	**0.48**	66.00	6.80	6.32	0.00
14.00	5.51	5.04	0.31	67.00	6.80	6.32	0.00
15.00	5.81	5.34	0.23	68.00	6.80	6.32	0.00
16.00	6.02	5.55	0.16	69.00	6.80	6.32	0.00
17.00	6.18	5.71	0.13	70.00	6.80	6.32	0.00
18.00	6.31	5.84	0.10	71.00	6.80	6.32	0.00
19.00	6.41	5.94	0.09	72.00	6.80	6.32	0.00
20.00	6.51	6.03	0.08	73.00	6.80	6.32	0.00
21.00	6.59	6.12	0.07	74.00	6.80	6.32	0.00
22.00	6.67	6.19	0.07	75.00	6.80	6.32	0.00
23.00	6.74	6.26	0.06	76.00	6.80	6.32	0.00
24.00	**6.80**	**6.32**	0.05				
25.00	6.80	6.32	0.00				
26.00	6.80	6.32	0.00				
27.00	6.80	6.32	0.00				
28.00	6.80	6.32	0.00				
29.00	6.80	6.32	0.00				
30.00	6.80	6.32	0.00				
31.00	6.80	6.32	0.00				
32.00	6.80	6.32	0.00				
33.00	6.80	6.32	0.00				
34.00	6.80	6.32	0.00				
35.00	6.80	6.32	0.00				
36.00	6.80	6.32	0.00				
37.00	6.80	6.32	0.00				
38.00	6.80	6.32	0.00				
39.00	6.80	6.32	0.00				
40.00	6.80	6.32	0.00				
41.00	6.80	6.32	0.00				
42.00	6.80	6.32	0.00				
43.00	6.80	6.32	0.00				
44.00	6.80	6.32	0.00				
45.00	6.80	6.32	0.00				
46.00	6.80	6.32	0.00				
47.00	6.80	6.32	0.00				
48.00	6.80	6.32	0.00				
49.00	6.80	6.32	0.00				
50.00	6.80	6.32	0.00				
51.00	6.80	6.32	0.00				
52.00	6.80	6.32	0.00				

Summary for Subcatchment 18S: Area 5

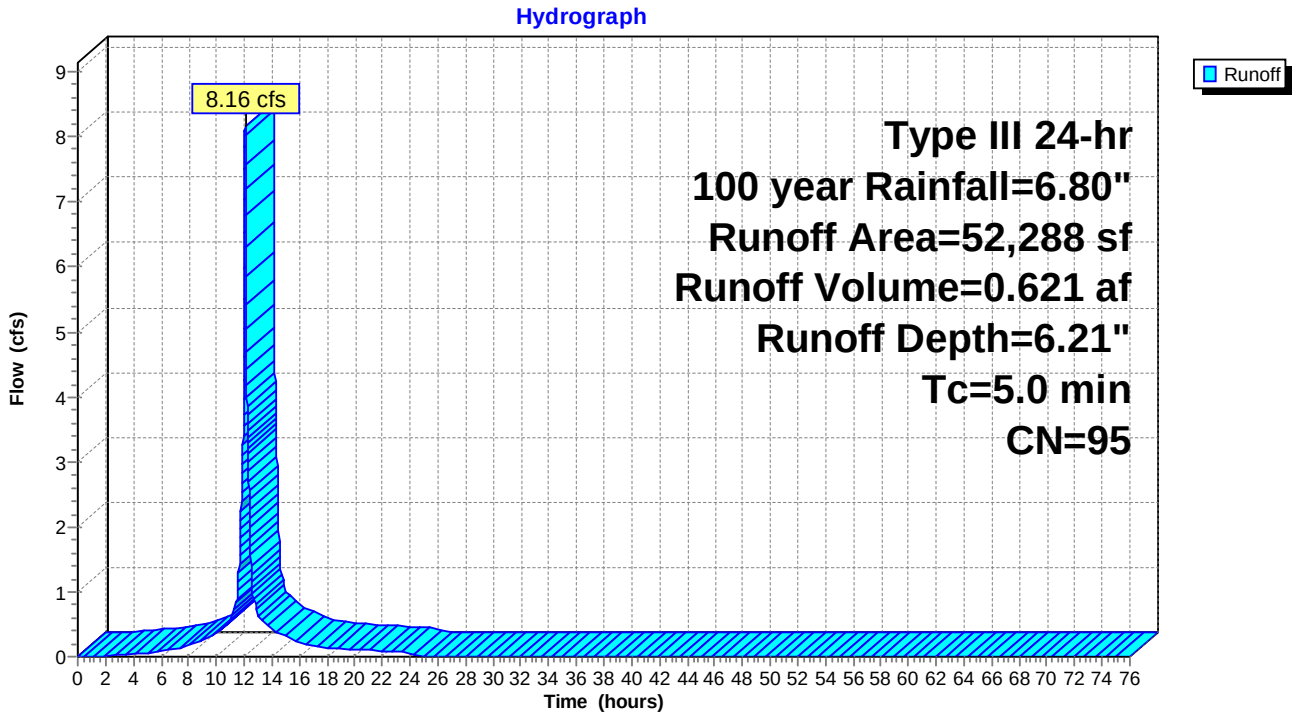
Runoff = 8.16 cfs @ 12.07 hrs, Volume= 0.621 af, Depth= 6.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=6.80"

	Area (sf)	CN	Description
*	49,966	98	driveway
	2,322	39	>75% Grass cover, Good, HSG A
	52,288	95	Weighted Average
	2,322		4.44% Pervious Area
	49,966		95.56% Impervious Area

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

Subcatchment 18S: Area 5



Hydrograph for Subcatchment 18S: Area 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	53.00	6.80	6.21	0.00
1.00	0.07	0.00	0.00	54.00	6.80	6.21	0.00
2.00	0.14	0.00	0.01	55.00	6.80	6.21	0.00
3.00	0.21	0.02	0.03	56.00	6.80	6.21	0.00
4.00	0.29	0.05	0.05	57.00	6.80	6.21	0.00
5.00	0.39	0.10	0.07	58.00	6.80	6.21	0.00
6.00	0.49	0.16	0.09	59.00	6.80	6.21	0.00
7.00	0.62	0.25	0.12	60.00	6.80	6.21	0.00
8.00	0.78	0.38	0.17	61.00	6.80	6.21	0.00
9.00	0.99	0.56	0.26	62.00	6.80	6.21	0.00
10.00	1.29	0.82	0.36	63.00	6.80	6.21	0.00
11.00	1.70	1.20	0.55	64.00	6.80	6.21	0.00
12.00	3.40	2.84	**5.50**	65.00	6.80	6.21	0.00
13.00	5.10	4.52	**0.65**	66.00	6.80	6.21	0.00
14.00	5.51	4.93	0.42	67.00	6.80	6.21	0.00
15.00	5.81	5.22	0.31	68.00	6.80	6.21	0.00
16.00	6.02	5.44	0.22	69.00	6.80	6.21	0.00
17.00	6.18	5.59	0.17	70.00	6.80	6.21	0.00
18.00	6.31	5.72	0.13	71.00	6.80	6.21	0.00
19.00	6.41	5.82	0.12	72.00	6.80	6.21	0.00
20.00	6.51	5.92	0.11	73.00	6.80	6.21	0.00
21.00	6.59	6.00	0.10	74.00	6.80	6.21	0.00
22.00	6.67	6.08	0.09	75.00	6.80	6.21	0.00
23.00	6.74	6.15	0.08	76.00	6.80	6.21	0.00
24.00	**6.80**	**6.21**	0.07				
25.00	6.80	6.21	0.00				
26.00	6.80	6.21	0.00				
27.00	6.80	6.21	0.00				
28.00	6.80	6.21	0.00				
29.00	6.80	6.21	0.00				
30.00	6.80	6.21	0.00				
31.00	6.80	6.21	0.00				
32.00	6.80	6.21	0.00				
33.00	6.80	6.21	0.00				
34.00	6.80	6.21	0.00				
35.00	6.80	6.21	0.00				
36.00	6.80	6.21	0.00				
37.00	6.80	6.21	0.00				
38.00	6.80	6.21	0.00				
39.00	6.80	6.21	0.00				
40.00	6.80	6.21	0.00				
41.00	6.80	6.21	0.00				
42.00	6.80	6.21	0.00				
43.00	6.80	6.21	0.00				
44.00	6.80	6.21	0.00				
45.00	6.80	6.21	0.00				
46.00	6.80	6.21	0.00				
47.00	6.80	6.21	0.00				
48.00	6.80	6.21	0.00				
49.00	6.80	6.21	0.00				
50.00	6.80	6.21	0.00				
51.00	6.80	6.21	0.00				
52.00	6.80	6.21	0.00				

Summary for Subcatchment 21S: Area 7

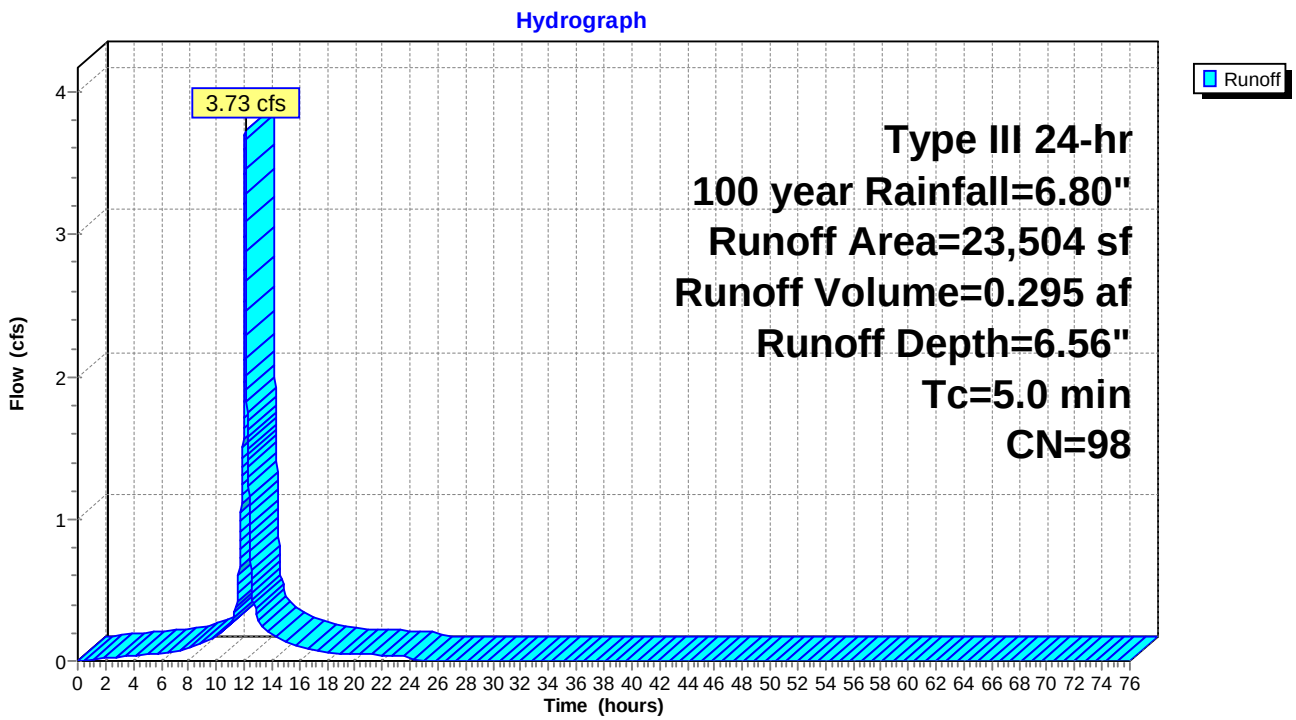
Runoff = 3.73 cfs @ 12.07 hrs, Volume= 0.295 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=6.80"

	Area (sf)	CN	Description
*	23,504	98	Roadway
	23,504		100.00% Impervious Area

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

Subcatchment 21S: Area 7



Hydrograph for Subcatchment 21S: Area 7

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	6.80	6.56	0.00
1.00	0.07	0.00	0.01	54.00	6.80	6.56	0.00
2.00	0.14	0.03	0.02	55.00	6.80	6.56	0.00
3.00	0.21	0.08	0.03	56.00	6.80	6.56	0.00
4.00	0.29	0.14	0.04	57.00	6.80	6.56	0.00
5.00	0.39	0.22	0.05	58.00	6.80	6.56	0.00
6.00	0.49	0.31	0.05	59.00	6.80	6.56	0.00
7.00	0.62	0.42	0.07	60.00	6.80	6.56	0.00
8.00	0.78	0.57	0.09	61.00	6.80	6.56	0.00
9.00	0.99	0.78	0.13	62.00	6.80	6.56	0.00
10.00	1.29	1.07	0.17	63.00	6.80	6.56	0.00
11.00	1.70	1.48	0.26	64.00	6.80	6.56	0.00
12.00	3.40	3.17	**2.52**	65.00	6.80	6.56	0.00
13.00	5.10	4.86	**0.30**	66.00	6.80	6.56	0.00
14.00	5.51	5.28	0.19	67.00	6.80	6.56	0.00
15.00	5.81	5.57	0.14	68.00	6.80	6.56	0.00
16.00	6.02	5.79	0.10	69.00	6.80	6.56	0.00
17.00	6.18	5.95	0.08	70.00	6.80	6.56	0.00
18.00	6.31	6.07	0.06	71.00	6.80	6.56	0.00
19.00	6.41	6.18	0.05	72.00	6.80	6.56	0.00
20.00	6.51	6.27	0.05	73.00	6.80	6.56	0.00
21.00	6.59	6.35	0.04	74.00	6.80	6.56	0.00
22.00	6.67	6.43	0.04	75.00	6.80	6.56	0.00
23.00	6.74	6.50	0.04	76.00	6.80	6.56	0.00
24.00	**6.80**	**6.56**	0.03				
25.00	6.80	6.56	0.00				
26.00	6.80	6.56	0.00				
27.00	6.80	6.56	0.00				
28.00	6.80	6.56	0.00				
29.00	6.80	6.56	0.00				
30.00	6.80	6.56	0.00				
31.00	6.80	6.56	0.00				
32.00	6.80	6.56	0.00				
33.00	6.80	6.56	0.00				
34.00	6.80	6.56	0.00				
35.00	6.80	6.56	0.00				
36.00	6.80	6.56	0.00				
37.00	6.80	6.56	0.00				
38.00	6.80	6.56	0.00				
39.00	6.80	6.56	0.00				
40.00	6.80	6.56	0.00				
41.00	6.80	6.56	0.00				
42.00	6.80	6.56	0.00				
43.00	6.80	6.56	0.00				
44.00	6.80	6.56	0.00				
45.00	6.80	6.56	0.00				
46.00	6.80	6.56	0.00				
47.00	6.80	6.56	0.00				
48.00	6.80	6.56	0.00				
49.00	6.80	6.56	0.00				
50.00	6.80	6.56	0.00				
51.00	6.80	6.56	0.00				
52.00	6.80	6.56	0.00				

Summary for Subcatchment 22S: Area 8

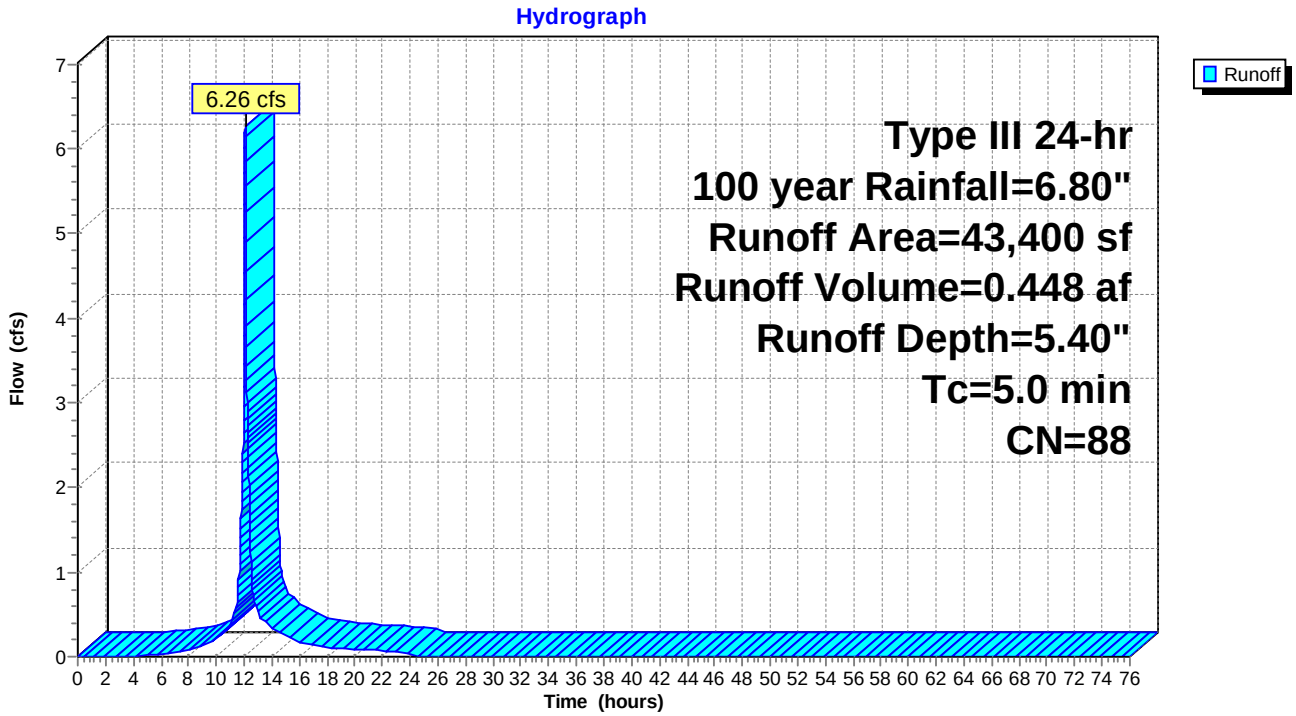
Runoff = 6.26 cfs @ 12.07 hrs, Volume= 0.448 af, Depth= 5.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=6.80"

	Area (sf)	CN	Description
*	35,981	98	Roadway
	7,419	39	>75% Grass cover, Good, HSG A
	43,400	88	Weighted Average
	7,419		17.09% Pervious Area
	35,981		82.91% Impervious Area

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

Subcatchment 22S: Area 8



Hydrograph for Subcatchment 22S: Area 8

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	6.80	5.40	0.00
1.00	0.07	0.00	0.00	54.00	6.80	5.40	0.00
2.00	0.14	0.00	0.00	55.00	6.80	5.40	0.00
3.00	0.21	0.00	0.00	56.00	6.80	5.40	0.00
4.00	0.29	0.00	0.00	57.00	6.80	5.40	0.00
5.00	0.39	0.01	0.01	58.00	6.80	5.40	0.00
6.00	0.49	0.03	0.03	59.00	6.80	5.40	0.00
7.00	0.62	0.07	0.05	60.00	6.80	5.40	0.00
8.00	0.78	0.14	0.08	61.00	6.80	5.40	0.00
9.00	0.99	0.25	0.14	62.00	6.80	5.40	0.00
10.00	1.29	0.43	0.22	63.00	6.80	5.40	0.00
11.00	1.70	0.73	0.37	64.00	6.80	5.40	0.00
12.00	3.40	2.18	**4.15**	65.00	6.80	5.40	0.00
13.00	5.10	3.76	**0.52**	66.00	6.80	5.40	0.00
14.00	5.51	4.16	0.33	67.00	6.80	5.40	0.00
15.00	5.81	4.44	0.25	68.00	6.80	5.40	0.00
16.00	6.02	4.65	0.18	69.00	6.80	5.40	0.00
17.00	6.18	4.80	0.14	70.00	6.80	5.40	0.00
18.00	6.31	4.93	0.11	71.00	6.80	5.40	0.00
19.00	6.41	5.03	0.10	72.00	6.80	5.40	0.00
20.00	6.51	5.12	0.09	73.00	6.80	5.40	0.00
21.00	6.59	5.20	0.08	74.00	6.80	5.40	0.00
22.00	6.67	5.27	0.07	75.00	6.80	5.40	0.00
23.00	6.74	5.34	0.06	76.00	6.80	5.40	0.00
24.00	**6.80**	**5.40**	0.06				
25.00	6.80	5.40	0.00				
26.00	6.80	5.40	0.00				
27.00	6.80	5.40	0.00				
28.00	6.80	5.40	0.00				
29.00	6.80	5.40	0.00				
30.00	6.80	5.40	0.00				
31.00	6.80	5.40	0.00				
32.00	6.80	5.40	0.00				
33.00	6.80	5.40	0.00				
34.00	6.80	5.40	0.00				
35.00	6.80	5.40	0.00				
36.00	6.80	5.40	0.00				
37.00	6.80	5.40	0.00				
38.00	6.80	5.40	0.00				
39.00	6.80	5.40	0.00				
40.00	6.80	5.40	0.00				
41.00	6.80	5.40	0.00				
42.00	6.80	5.40	0.00				
43.00	6.80	5.40	0.00				
44.00	6.80	5.40	0.00				
45.00	6.80	5.40	0.00				
46.00	6.80	5.40	0.00				
47.00	6.80	5.40	0.00				
48.00	6.80	5.40	0.00				
49.00	6.80	5.40	0.00				
50.00	6.80	5.40	0.00				
51.00	6.80	5.40	0.00				
52.00	6.80	5.40	0.00				

Summary for Subcatchment 23S: Area 6 Building

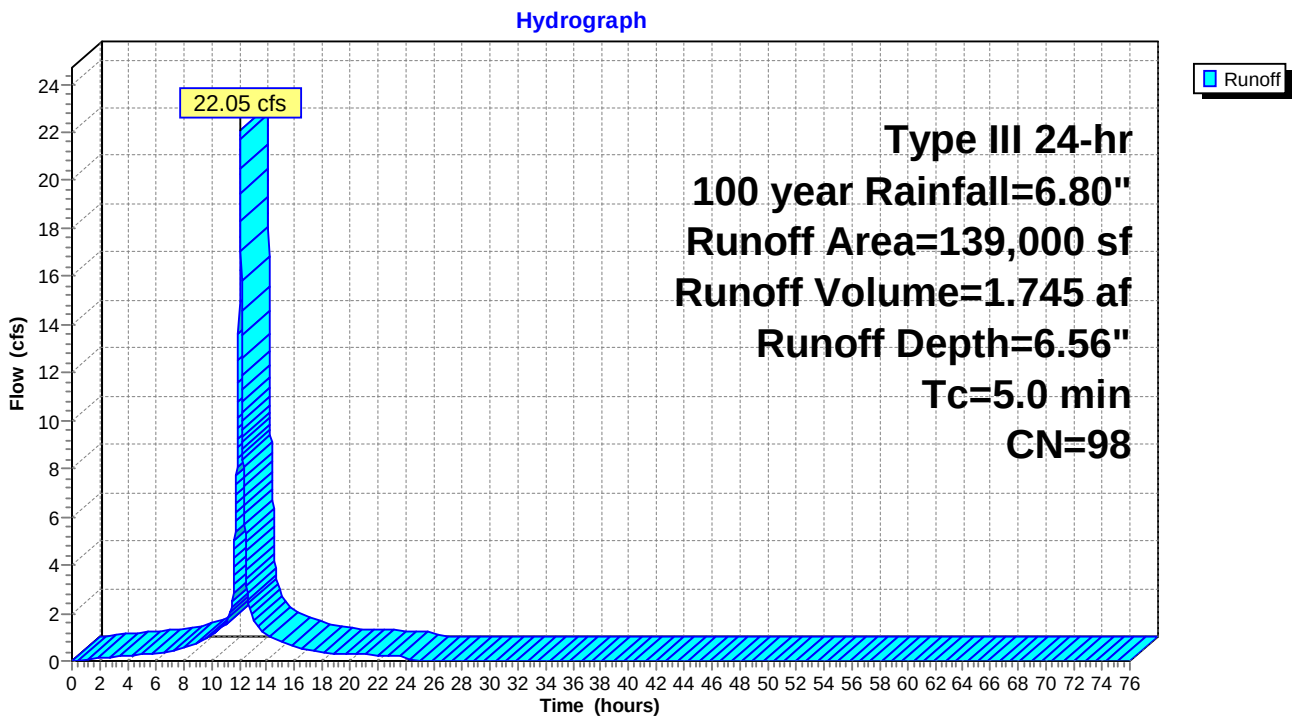
Runoff = 22.05 cfs @ 12.07 hrs, Volume= 1.745 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=6.80"

	Area (sf)	CN	Description
*	139,000	98	Building
	139,000		100.00% Impervious Area

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

Subcatchment 23S: Area 6 Building



Hydrograph for Subcatchment 23S: Area 6 Building

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	6.80	6.56	0.00
1.00	0.07	0.00	0.04	54.00	6.80	6.56	0.00
2.00	0.14	0.03	0.11	55.00	6.80	6.56	0.00
3.00	0.21	0.08	0.17	56.00	6.80	6.56	0.00
4.00	0.29	0.14	0.22	57.00	6.80	6.56	0.00
5.00	0.39	0.22	0.27	58.00	6.80	6.56	0.00
6.00	0.49	0.31	0.31	59.00	6.80	6.56	0.00
7.00	0.62	0.42	0.42	60.00	6.80	6.56	0.00
8.00	0.78	0.57	0.53	61.00	6.80	6.56	0.00
9.00	0.99	0.78	0.78	62.00	6.80	6.56	0.00
10.00	1.29	1.07	1.03	63.00	6.80	6.56	0.00
11.00	1.70	1.48	1.54	64.00	6.80	6.56	0.00
12.00	3.40	3.17	**14.91**	65.00	6.80	6.56	0.00
13.00	5.10	4.86	**1.75**	66.00	6.80	6.56	0.00
14.00	5.51	5.28	1.11	67.00	6.80	6.56	0.00
15.00	5.81	5.57	0.84	68.00	6.80	6.56	0.00
16.00	6.02	5.79	0.59	69.00	6.80	6.56	0.00
17.00	6.18	5.95	0.47	70.00	6.80	6.56	0.00
18.00	6.31	6.07	0.36	71.00	6.80	6.56	0.00
19.00	6.41	6.18	0.32	72.00	6.80	6.56	0.00
20.00	6.51	6.27	0.29	73.00	6.80	6.56	0.00
21.00	6.59	6.35	0.26	74.00	6.80	6.56	0.00
22.00	6.67	6.43	0.24	75.00	6.80	6.56	0.00
23.00	6.74	6.50	0.21	76.00	6.80	6.56	0.00
24.00	**6.80**	**6.56**	0.19				
25.00	6.80	6.56	0.00				
26.00	6.80	6.56	0.00				
27.00	6.80	6.56	0.00				
28.00	6.80	6.56	0.00				
29.00	6.80	6.56	0.00				
30.00	6.80	6.56	0.00				
31.00	6.80	6.56	0.00				
32.00	6.80	6.56	0.00				
33.00	6.80	6.56	0.00				
34.00	6.80	6.56	0.00				
35.00	6.80	6.56	0.00				
36.00	6.80	6.56	0.00				
37.00	6.80	6.56	0.00				
38.00	6.80	6.56	0.00				
39.00	6.80	6.56	0.00				
40.00	6.80	6.56	0.00				
41.00	6.80	6.56	0.00				
42.00	6.80	6.56	0.00				
43.00	6.80	6.56	0.00				
44.00	6.80	6.56	0.00				
45.00	6.80	6.56	0.00				
46.00	6.80	6.56	0.00				
47.00	6.80	6.56	0.00				
48.00	6.80	6.56	0.00				
49.00	6.80	6.56	0.00				
50.00	6.80	6.56	0.00				
51.00	6.80	6.56	0.00				
52.00	6.80	6.56	0.00				

Summary for Subcatchment 28S: Area 1

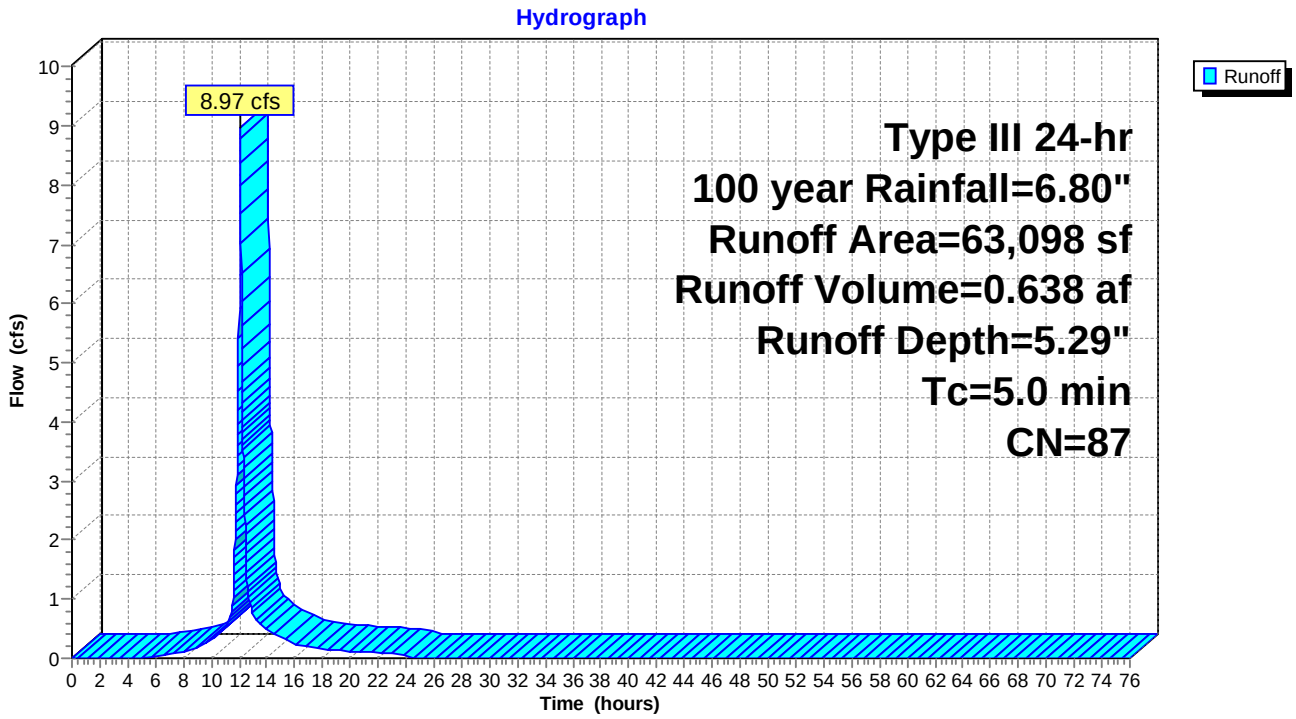
Runoff = 8.97 cfs @ 12.07 hrs, Volume= 0.638 af, Depth= 5.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=6.80"

	Area (sf)	CN	Description
*	47,541	98	pavement
	3,883	98	Unconnected roofs, HSG A
	11,674	39	>75% Grass cover, Good, HSG A
	63,098	87	Weighted Average
	11,674		18.50% Pervious Area
	51,424		81.50% Impervious Area
	3,883		7.55% Unconnected

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

Subcatchment 28S: Area 1



Hydrograph for Subcatchment 28S: Area 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	6.80	5.29	0.00
1.00	0.07	0.00	0.00	54.00	6.80	5.29	0.00
2.00	0.14	0.00	0.00	55.00	6.80	5.29	0.00
3.00	0.21	0.00	0.00	56.00	6.80	5.29	0.00
4.00	0.29	0.00	0.00	57.00	6.80	5.29	0.00
5.00	0.39	0.00	0.01	58.00	6.80	5.29	0.00
6.00	0.49	0.02	0.03	59.00	6.80	5.29	0.00
7.00	0.62	0.06	0.06	60.00	6.80	5.29	0.00
8.00	0.78	0.12	0.11	61.00	6.80	5.29	0.00
9.00	0.99	0.22	0.19	62.00	6.80	5.29	0.00
10.00	1.29	0.39	0.30	63.00	6.80	5.29	0.00
11.00	1.70	0.68	0.51	64.00	6.80	5.29	0.00
12.00	3.40	2.09	**5.92**	65.00	6.80	5.29	0.00
13.00	5.10	3.66	**0.75**	66.00	6.80	5.29	0.00
14.00	5.51	4.05	0.48	67.00	6.80	5.29	0.00
15.00	5.81	4.33	0.36	68.00	6.80	5.29	0.00
16.00	6.02	4.54	0.26	69.00	6.80	5.29	0.00
17.00	6.18	4.69	0.20	70.00	6.80	5.29	0.00
18.00	6.31	4.81	0.16	71.00	6.80	5.29	0.00
19.00	6.41	4.91	0.14	72.00	6.80	5.29	0.00
20.00	6.51	5.00	0.13	73.00	6.80	5.29	0.00
21.00	6.59	5.09	0.11	74.00	6.80	5.29	0.00
22.00	6.67	5.16	0.10	75.00	6.80	5.29	0.00
23.00	6.74	5.23	0.09	76.00	6.80	5.29	0.00
24.00	**6.80**	**5.29**	0.08				
25.00	6.80	5.29	0.00				
26.00	6.80	5.29	0.00				
27.00	6.80	5.29	0.00				
28.00	6.80	5.29	0.00				
29.00	6.80	5.29	0.00				
30.00	6.80	5.29	0.00				
31.00	6.80	5.29	0.00				
32.00	6.80	5.29	0.00				
33.00	6.80	5.29	0.00				
34.00	6.80	5.29	0.00				
35.00	6.80	5.29	0.00				
36.00	6.80	5.29	0.00				
37.00	6.80	5.29	0.00				
38.00	6.80	5.29	0.00				
39.00	6.80	5.29	0.00				
40.00	6.80	5.29	0.00				
41.00	6.80	5.29	0.00				
42.00	6.80	5.29	0.00				
43.00	6.80	5.29	0.00				
44.00	6.80	5.29	0.00				
45.00	6.80	5.29	0.00				
46.00	6.80	5.29	0.00				
47.00	6.80	5.29	0.00				
48.00	6.80	5.29	0.00				
49.00	6.80	5.29	0.00				
50.00	6.80	5.29	0.00				
51.00	6.80	5.29	0.00				
52.00	6.80	5.29	0.00				

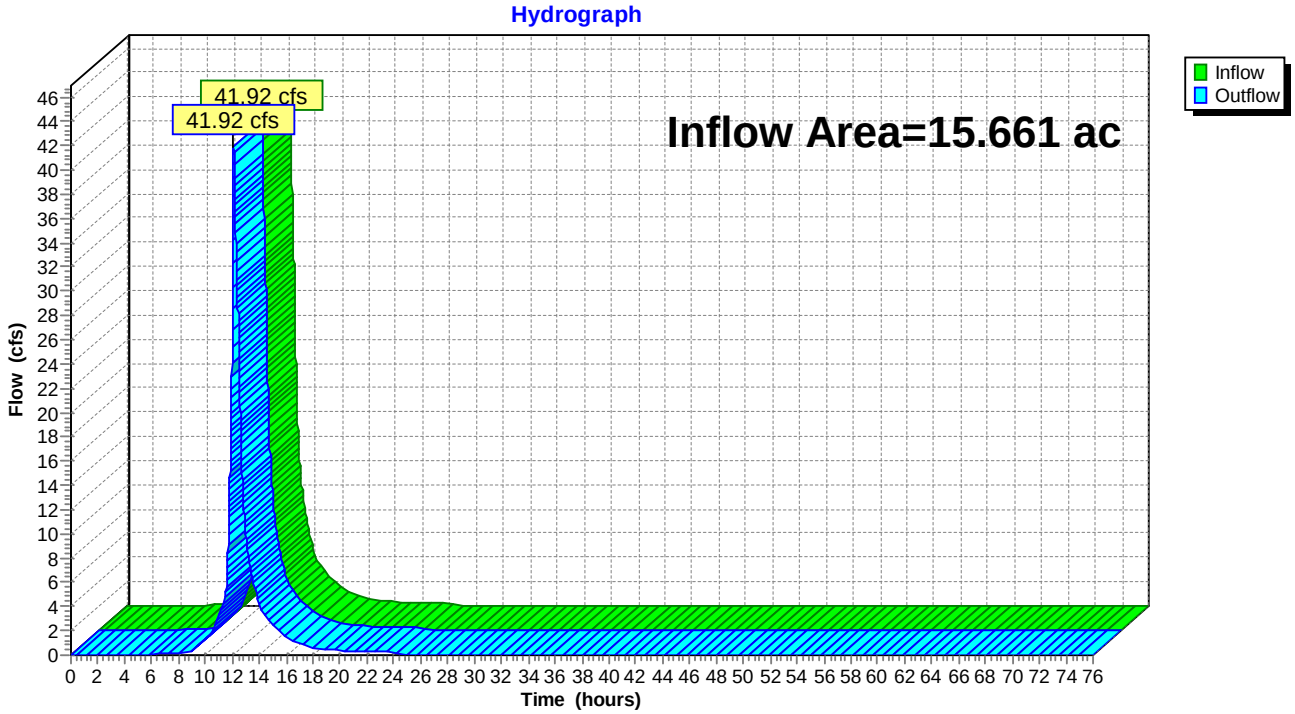
Summary for Reach 6R: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.661 ac, 67.00% Impervious, Inflow Depth = 3.30" for 100 year event
Inflow = 41.92 cfs @ 12.11 hrs, Volume= 4.301 af
Outflow = 41.92 cfs @ 12.11 hrs, Volume= 4.301 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs

Reach 6R: (new Reach)



Hydrograph for Reach 6R: (new Reach)

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	53.00	0.00		0.00
1.00	0.00		0.00	54.00	0.00		0.00
2.00	0.02		0.02	55.00	0.00		0.00
3.00	0.03		0.03	56.00	0.00		0.00
4.00	0.04		0.04	57.00	0.00		0.00
5.00	0.04		0.04	58.00	0.00		0.00
6.00	0.07		0.07	59.00	0.00		0.00
7.00	0.11		0.11	60.00	0.00		0.00
8.00	0.16		0.16	61.00	0.00		0.00
9.00	0.38		0.38	62.00	0.00		0.00
10.00	1.33		1.33	63.00	0.00		0.00
11.00	3.17		3.17	64.00	0.00		0.00
12.00	**26.88**		**26.88**	65.00	0.00		0.00
13.00	**9.98**		**9.98**	66.00	0.00		0.00
14.00	4.19		4.19	67.00	0.00		0.00
15.00	2.49		2.49	68.00	0.00		0.00
16.00	1.52		1.52	69.00	0.00		0.00
17.00	0.98		0.98	70.00	0.00		0.00
18.00	0.60		0.60	71.00	0.00		0.00
19.00	0.44		0.44	72.00	0.00		0.00
20.00	0.36		0.36	73.00	0.00		0.00
21.00	0.32		0.32	74.00	0.00		0.00
22.00	0.29		0.29	75.00	0.00		0.00
23.00	0.25		0.25	76.00	0.00		0.00
24.00	0.22		0.22				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				
52.00	0.00		0.00				

Summary for Pond 11P: Detention Area 1

Inflow Area =	1.449 ac, 81.50% Impervious, Inflow Depth = 5.29" for 100 year event				
Inflow =	8.97 cfs @	12.07 hrs,	Volume=	0.638 af	
Outflow =	5.90 cfs @	12.15 hrs,	Volume=	0.638 af,	Atten= 34%, Lag= 5.0 min
Discarded =	0.25 cfs @	12.15 hrs,	Volume=	0.212 af	
Primary =	5.64 cfs @	12.15 hrs,	Volume=	0.426 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 45.73' @ 12.15 hrs Surf.Area= 0.036 ac Storage= 0.100 af

Plug-Flow detention time= 47.3 min calculated for 0.638 af (100% of inflow)
Center-of-Mass det. time= 47.3 min (836.8 - 789.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	42.00'	0.010 af	**26.40'W x 60.00'L x 4.00'H Field A** 0.145 af Overall - 0.122 af Embedded = 0.024 af x 40.0% Voids
#2A	42.00'	0.092 af	**Concrete Galley 4x4x4** x 90 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 90 Chambers in 6 Rows
		0.101 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	43.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	42.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.25 cfs @ 12.15 hrs HW=45.71' (Free Discharge)
└**2=Exfiltration** (Controls 0.25 cfs)

Primary OutFlow Max=5.62 cfs @ 12.15 hrs HW=45.71' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 5.62 cfs @ 7.16 fps)

Pond 11P: Detention Area 1 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

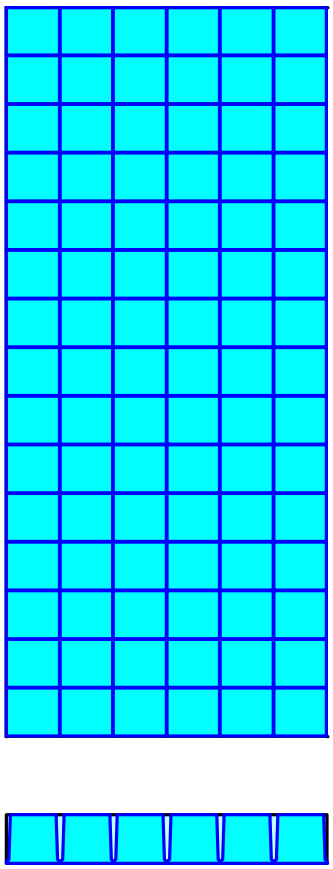
15 Chambers/Row x 4.00' Long = 60.00' Row Length
6 Rows x 52.8" Wide = 26.40' Base Width
48.0" Chamber Height = 4.00' Field Height

90 Chambers x 44.3 cf = 3,991.0 cf Chamber Storage
90 Chambers x 58.9 cf = 5,298.9 cf Displacement

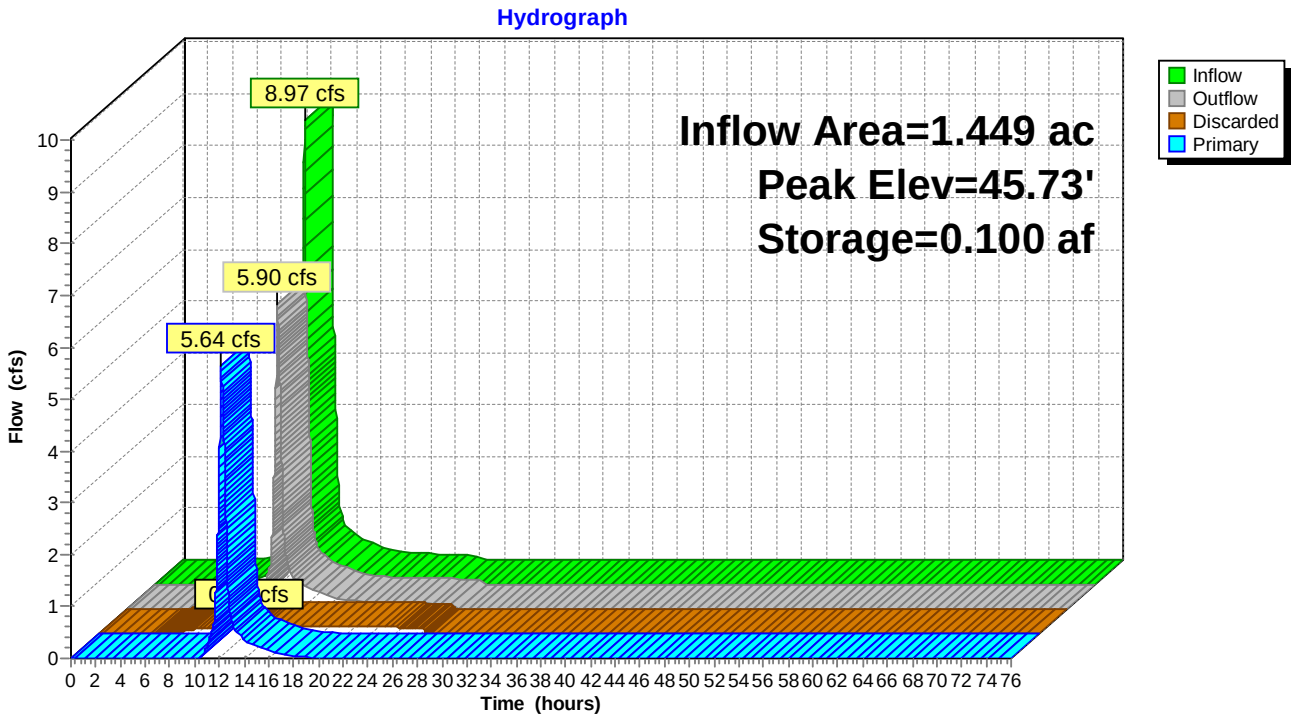
6,336.0 cf Field - 5,298.9 cf Chambers = 1,037.1 cf Stone x 40.0% Voids = 414.9 cf Stone Storage

Chamber Storage + Stone Storage = 4,405.9 cf = 0.101 af
Overall Storage Efficiency = 69.5%
Overall System Size = 60.00' x 26.40' x 4.00'

90 Chambers
234.7 cy Field
38.4 cy Stone



Pond 11P: Detention Area 1



Hydrograph for Pond 11P: Detention Area 1

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	42.00	0.00	0.00	0.00
2.00	0.00	0.000	42.00	0.00	0.00	0.00
4.00	0.00	0.000	42.00	0.00	0.00	0.00
6.00	0.03	0.000	42.01	0.03	0.03	0.00
8.00	0.11	0.001	42.05	0.09	0.09	0.00
10.00	0.30	0.017	42.61	0.12	0.12	0.00
12.00	**5.92**	**0.064**	**44.28**	**3.53**	**0.19**	**3.34**
14.00	**0.48**	**0.036**	**43.30**	**0.51**	**0.15**	**0.37**
16.00	0.26	0.033	43.18	0.28	0.14	0.14
18.00	0.16	0.031	43.09	0.17	0.14	0.04
20.00	0.13	0.029	43.02	0.14	0.13	0.00
22.00	0.10	0.026	42.92	0.13	0.13	0.00
24.00	0.08	0.020	42.73	0.12	0.12	0.00
26.00	0.00	0.003	42.12	0.09	0.09	0.00
28.00	0.00	0.000	42.00	0.00	0.00	0.00
30.00	0.00	0.000	42.00	0.00	0.00	0.00
32.00	0.00	0.000	42.00	0.00	0.00	0.00
34.00	0.00	0.000	42.00	0.00	0.00	0.00
36.00	0.00	0.000	42.00	0.00	0.00	0.00
38.00	0.00	0.000	42.00	0.00	0.00	0.00
40.00	0.00	0.000	42.00	0.00	0.00	0.00
42.00	0.00	0.000	42.00	0.00	0.00	0.00
44.00	0.00	0.000	42.00	0.00	0.00	0.00
46.00	0.00	0.000	42.00	0.00	0.00	0.00
48.00	0.00	0.000	42.00	0.00	0.00	0.00
50.00	0.00	0.000	42.00	0.00	0.00	0.00
52.00	0.00	0.000	42.00	0.00	0.00	0.00
54.00	0.00	0.000	42.00	0.00	0.00	0.00
56.00	0.00	0.000	42.00	0.00	0.00	0.00
58.00	0.00	0.000	42.00	0.00	0.00	0.00
60.00	0.00	0.000	42.00	0.00	0.00	0.00
62.00	0.00	0.000	42.00	0.00	0.00	0.00
64.00	0.00	0.000	42.00	0.00	0.00	0.00
66.00	0.00	0.000	42.00	0.00	0.00	0.00
68.00	0.00	0.000	42.00	0.00	0.00	0.00
70.00	0.00	0.000	42.00	0.00	0.00	0.00
72.00	0.00	0.000	42.00	0.00	0.00	0.00
74.00	0.00	0.000	42.00	0.00	0.00	0.00
76.00	0.00	0.000	42.00	0.00	0.00	0.00

Summary for Pond 13P: Detention Area 2

Inflow Area =	1.444 ac, 93.39% Impervious, Inflow Depth = 6.09" for 100 year event				
Inflow =	9.74 cfs @	12.07 hrs,	Volume=	0.733 af	
Outflow =	6.10 cfs @	12.16 hrs,	Volume=	0.733 af,	Atten= 37%, Lag= 5.3 min
Discarded =	0.40 cfs @	12.16 hrs,	Volume=	0.292 af	
Primary =	5.70 cfs @	12.16 hrs,	Volume=	0.440 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 45.17' @ 12.16 hrs Surf.Area= 0.044 ac Storage= 0.123 af

Plug-Flow detention time= 47.0 min calculated for 0.732 af (100% of inflow)
Center-of-Mass det. time= 47.0 min (811.3 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	41.40'	0.012 af	**96.80'W x 20.00'L x 4.00'H Field A** 0.178 af Overall - 0.149 af Embedded = 0.029 af x 40.0% Voids
#2A	41.40'	0.112 af	**Concrete Galley 4x4x4** x 110 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 110 Chambers in 22 Rows
		0.124 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	42.40'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	41.40'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.40 cfs @ 12.16 hrs HW=45.17' (Free Discharge)
└**2=Exfiltration** (Controls 0.40 cfs)

Primary OutFlow Max=5.69 cfs @ 12.16 hrs HW=45.17' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 5.69 cfs @ 7.25 fps)

Pond 13P: Detention Area 2 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

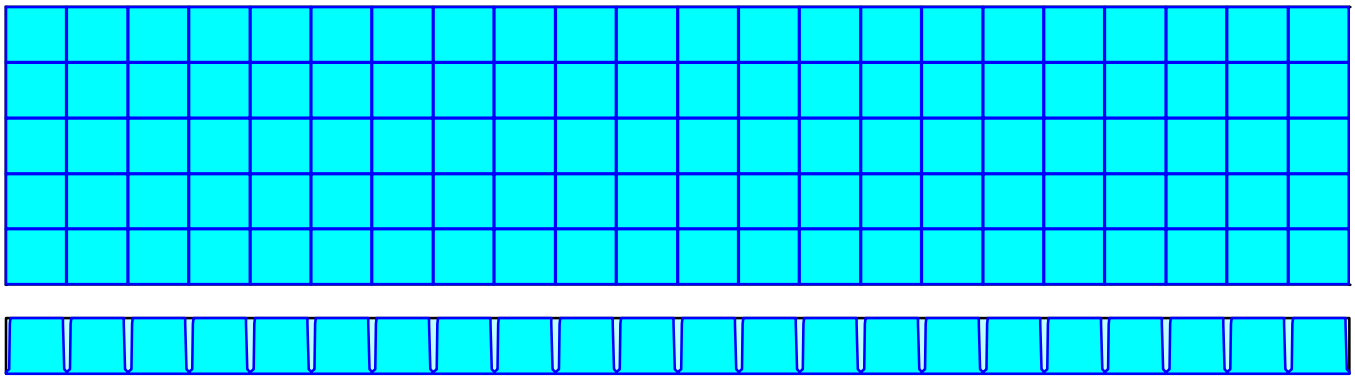
5 Chambers/Row x 4.00' Long = 20.00' Row Length
22 Rows x 52.8" Wide = 96.80' Base Width
48.0" Chamber Height = 4.00' Field Height

110 Chambers x 44.3 cf = 4,877.9 cf Chamber Storage
110 Chambers x 58.9 cf = 6,476.4 cf Displacement

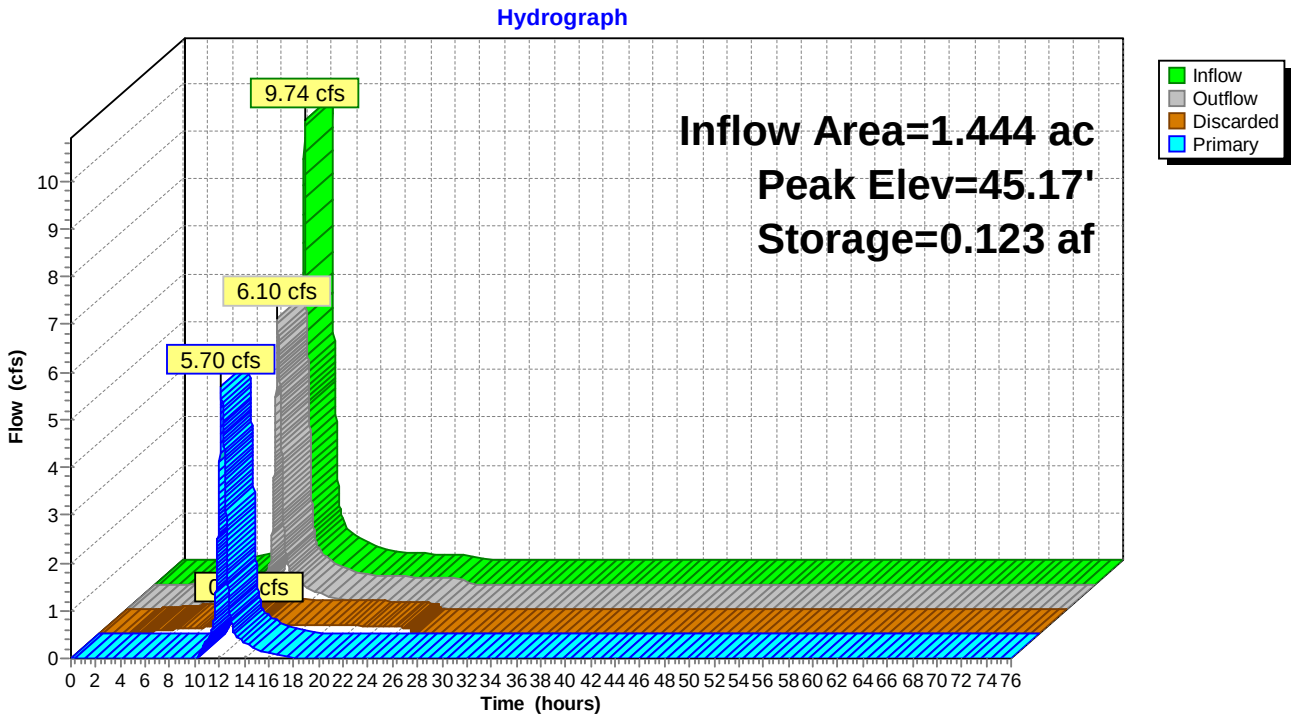
7,744.0 cf Field - 6,476.4 cf Chambers = 1,267.6 cf Stone x 40.0% Voids = 507.0 cf Stone Storage

Chamber Storage + Stone Storage = 5,385.0 cf = 0.124 af
Overall Storage Efficiency = 69.5%
Overall System Size = 20.00' x 96.80' x 4.00'

110 Chambers
286.8 cy Field
46.9 cy Stone



Pond 13P: Detention Area 2



Hydrograph for Pond 13P: Detention Area 2

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	41.40	0.00	0.00	0.00
2.00	0.00	0.000	41.40	0.00	0.00	0.00
4.00	0.05	0.001	41.42	0.04	0.04	0.00
6.00	0.09	0.001	41.43	0.09	0.09	0.00
8.00	0.19	0.006	41.57	0.12	0.12	0.00
10.00	0.41	0.031	42.30	0.18	0.18	0.00
12.00	**6.55**	**0.080**	**43.73**	**3.73**	**0.29**	**3.45**
14.00	**0.50**	**0.044**	**42.68**	**0.54**	**0.21**	**0.33**
16.00	0.26	0.039	42.55	0.30	0.20	0.10
18.00	0.16	0.035	42.43	0.19	0.19	0.01
20.00	0.13	0.029	42.25	0.17	0.17	0.00
22.00	0.11	0.021	42.02	0.16	0.16	0.00
24.00	0.08	0.013	41.78	0.14	0.14	0.00
26.00	0.00	0.000	41.40	0.00	0.00	0.00
28.00	0.00	0.000	41.40	0.00	0.00	0.00
30.00	0.00	0.000	41.40	0.00	0.00	0.00
32.00	0.00	0.000	41.40	0.00	0.00	0.00
34.00	0.00	0.000	41.40	0.00	0.00	0.00
36.00	0.00	0.000	41.40	0.00	0.00	0.00
38.00	0.00	0.000	41.40	0.00	0.00	0.00
40.00	0.00	0.000	41.40	0.00	0.00	0.00
42.00	0.00	0.000	41.40	0.00	0.00	0.00
44.00	0.00	0.000	41.40	0.00	0.00	0.00
46.00	0.00	0.000	41.40	0.00	0.00	0.00
48.00	0.00	0.000	41.40	0.00	0.00	0.00
50.00	0.00	0.000	41.40	0.00	0.00	0.00
52.00	0.00	0.000	41.40	0.00	0.00	0.00
54.00	0.00	0.000	41.40	0.00	0.00	0.00
56.00	0.00	0.000	41.40	0.00	0.00	0.00
58.00	0.00	0.000	41.40	0.00	0.00	0.00
60.00	0.00	0.000	41.40	0.00	0.00	0.00
62.00	0.00	0.000	41.40	0.00	0.00	0.00
64.00	0.00	0.000	41.40	0.00	0.00	0.00
66.00	0.00	0.000	41.40	0.00	0.00	0.00
68.00	0.00	0.000	41.40	0.00	0.00	0.00
70.00	0.00	0.000	41.40	0.00	0.00	0.00
72.00	0.00	0.000	41.40	0.00	0.00	0.00
74.00	0.00	0.000	41.40	0.00	0.00	0.00
76.00	0.00	0.000	41.40	0.00	0.00	0.00

Summary for Pond 14P: Area 4

Inflow Area =	1.200 ac, 95.56% Impervious, Inflow Depth = 6.21" for 100 year event				
Inflow =	8.16 cfs @	12.07 hrs,	Volume=	0.621 af	
Outflow =	5.74 cfs @	12.14 hrs,	Volume=	0.621 af,	Atten= 30%, Lag= 4.4 min
Discarded =	0.10 cfs @	12.14 hrs,	Volume=	0.154 af	
Primary =	5.64 cfs @	12.14 hrs,	Volume=	0.467 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 53.73' @ 12.14 hrs Surf.Area= 0.029 ac Storage= 0.080 af

Plug-Flow detention time= 47.3 min calculated for 0.621 af (100% of inflow)
Center-of-Mass det. time= 47.3 min (807.1 - 759.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	50.00'	0.008 af	**17.60'W x 72.00'L x 4.00'H Field A** 0.116 af Overall - 0.097 af Embedded = 0.019 af x 40.0% Voids
#2A	50.00'	0.073 af	**Concrete Galley 4x4x4** x 72 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 72 Chambers in 4 Rows
		0.081 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	50.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.10 cfs @ 12.14 hrs HW=53.71' (Free Discharge)
└**2=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=5.62 cfs @ 12.14 hrs HW=53.71' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 5.62 cfs @ 7.15 fps)

Pond 14P: Area 4 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

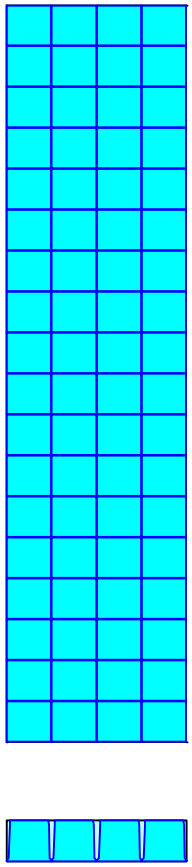
18 Chambers/Row x 4.00' Long = 72.00' Row Length
4 Rows x 52.8" Wide = 17.60' Base Width
48.0" Chamber Height = 4.00' Field Height

72 Chambers x 44.3 cf = 3,192.8 cf Chamber Storage
72 Chambers x 58.9 cf = 4,239.1 cf Displacement

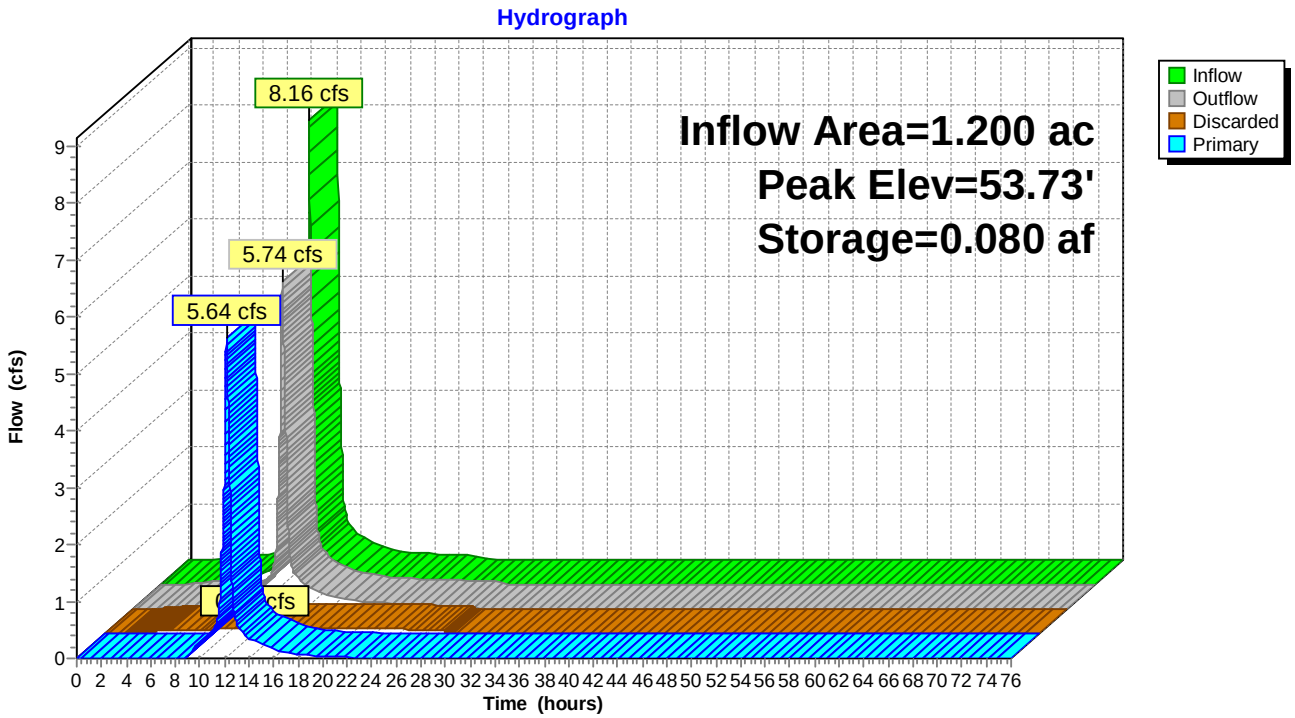
5,068.8 cf Field - 4,239.1 cf Chambers = 829.7 cf Stone x 40.0% Voids = 331.9 cf Stone Storage

Chamber Storage + Stone Storage = 3,524.7 cf = 0.081 af
Overall Storage Efficiency = 69.5%
Overall System Size = 72.00' x 17.60' x 4.00'

72 Chambers
187.7 cy Field
30.7 cy Stone



Pond 14P: Area 4



Hydrograph for Pond 14P: Area 4

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	50.00	0.00	0.00	0.00
2.00	0.01	0.000	50.00	0.00	0.00	0.00
4.00	0.05	0.001	50.02	0.04	0.04	0.00
6.00	0.09	0.001	50.06	0.07	0.07	0.00
8.00	0.17	0.010	50.46	0.07	0.07	0.00
10.00	0.36	0.028	51.25	0.34	0.08	0.26
12.00	**5.50**	**0.052**	**52.31**	**3.50**	**0.09**	**3.41**
14.00	**0.42**	**0.029**	**51.29**	**0.44**	**0.08**	**0.36**
16.00	0.22	0.027	51.19	0.24	0.08	0.16
18.00	0.13	0.025	51.12	0.14	0.08	0.06
20.00	0.11	0.024	51.09	0.11	0.08	0.03
22.00	0.09	0.024	51.06	0.09	0.08	0.02
24.00	0.07	0.023	51.01	0.08	0.08	0.00
26.00	0.00	0.011	50.47	0.07	0.07	0.00
28.00	0.00	0.000	50.00	0.01	0.01	0.00
30.00	0.00	0.000	50.00	0.00	0.00	0.00
32.00	0.00	0.000	50.00	0.00	0.00	0.00
34.00	0.00	0.000	50.00	0.00	0.00	0.00
36.00	0.00	0.000	50.00	0.00	0.00	0.00
38.00	0.00	0.000	50.00	0.00	0.00	0.00
40.00	0.00	0.000	50.00	0.00	0.00	0.00
42.00	0.00	0.000	50.00	0.00	0.00	0.00
44.00	0.00	0.000	50.00	0.00	0.00	0.00
46.00	0.00	0.000	50.00	0.00	0.00	0.00
48.00	0.00	0.000	50.00	0.00	0.00	0.00
50.00	0.00	0.000	50.00	0.00	0.00	0.00
52.00	0.00	0.000	50.00	0.00	0.00	0.00
54.00	0.00	0.000	50.00	0.00	0.00	0.00
56.00	0.00	0.000	50.00	0.00	0.00	0.00
58.00	0.00	0.000	50.00	0.00	0.00	0.00
60.00	0.00	0.000	50.00	0.00	0.00	0.00
62.00	0.00	0.000	50.00	0.00	0.00	0.00
64.00	0.00	0.000	50.00	0.00	0.00	0.00
66.00	0.00	0.000	50.00	0.00	0.00	0.00
68.00	0.00	0.000	50.00	0.00	0.00	0.00
70.00	0.00	0.000	50.00	0.00	0.00	0.00
72.00	0.00	0.000	50.00	0.00	0.00	0.00
74.00	0.00	0.000	50.00	0.00	0.00	0.00
76.00	0.00	0.000	50.00	0.00	0.00	0.00

Summary for Pond 19P: Detention Area 3

Inflow Area =	2.023 ac, 98.65% Impervious, Inflow Depth = 6.46" for 100 year event				
Inflow =	13.92 cfs @	12.07 hrs,	Volume=	1.089 af	
Outflow =	7.22 cfs @	12.19 hrs,	Volume=	1.089 af,	Atten= 48%, Lag= 7.1 min
Discarded =	0.83 cfs @	12.19 hrs,	Volume=	0.455 af	
Primary =	6.39 cfs @	12.19 hrs,	Volume=	0.634 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 44.86' @ 12.19 hrs Surf.Area= 3,062 sf Storage= 8,485 cf

Plug-Flow detention time= 33.3 min calculated for 1.089 af (100% of inflow)
Center-of-Mass det. time= 33.3 min (781.0 - 747.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	41.00'	802 cf	**127.60'W x 24.00'L x 4.00'H Field A** 12,250 cf Overall - 10,244 cf Embedded = 2,005 cf x 40.0% Voids
#2A	41.00'	7,716 cf	**Concrete Galley 4x4x4** x 174 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 174 Chambers in 29 Rows
		8,518 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	41.50'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	41.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.83 cfs @ 12.19 hrs HW=44.85' (Free Discharge)
└**2=Exfiltration** (Controls 0.83 cfs)

Primary OutFlow Max=6.39 cfs @ 12.19 hrs HW=44.85' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 6.39 cfs @ 8.13 fps)

Pond 19P: Detention Area 3 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

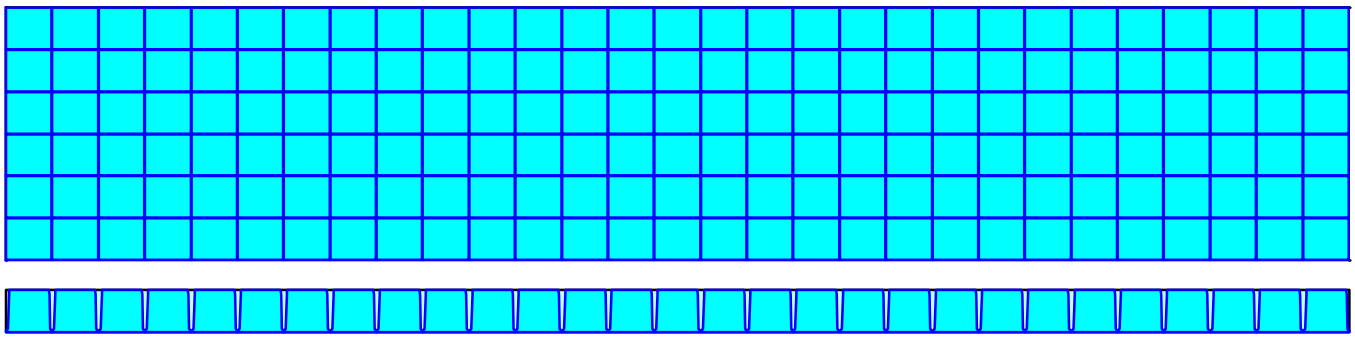
6 Chambers/Row x 4.00' Long = 24.00' Row Length
29 Rows x 52.8" Wide = 127.60' Base Width
48.0" Chamber Height = 4.00' Field Height

174 Chambers x 44.3 cf = 7,716.0 cf Chamber Storage
174 Chambers x 58.9 cf = 10,244.5 cf Displacement

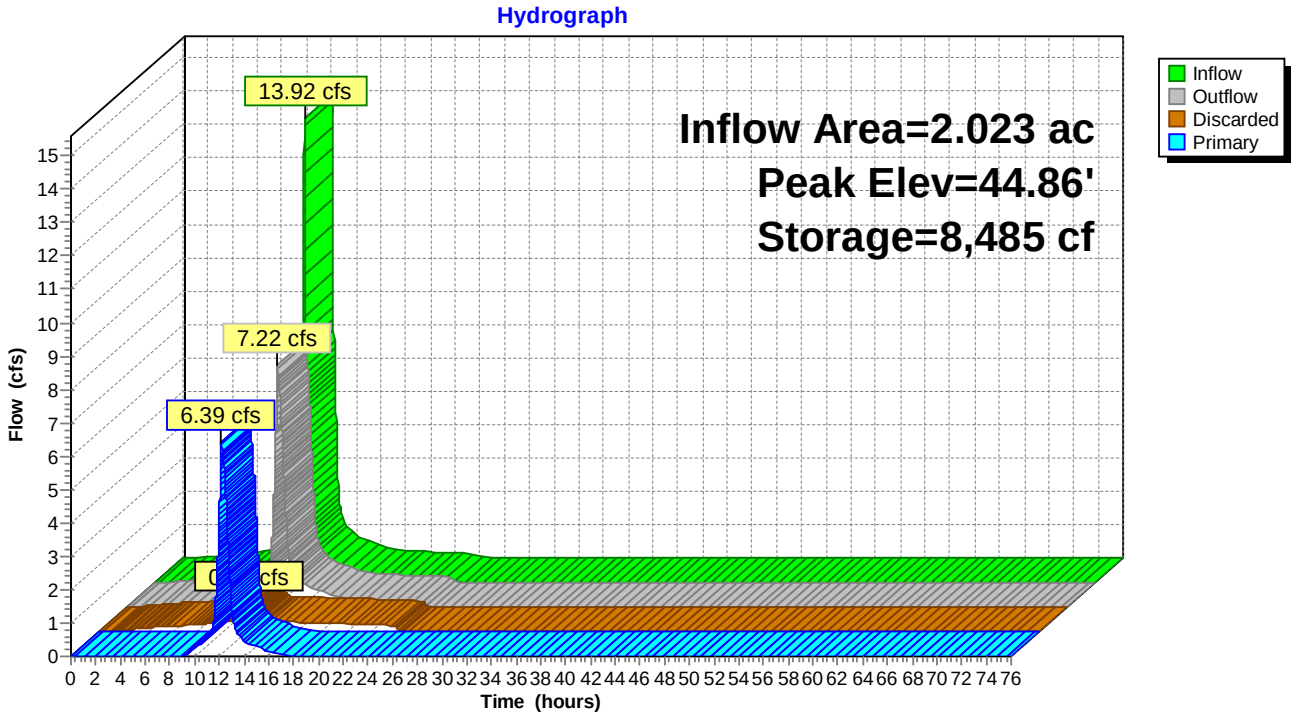
12,249.6 cf Field - 10,244.5 cf Chambers = 2,005.1 cf Stone x 40.0% Voids = 802.0 cf Stone Storage

Chamber Storage + Stone Storage = 8,518.0 cf = 0.196 af
Overall Storage Efficiency = 69.5%
Overall System Size = 24.00' x 127.60' x 4.00'

174 Chambers
453.7 cy Field
74.3 cy Stone



Pond 19P: Detention Area 3



Hydrograph for Pond 19P: Detention Area 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	41.00	0.00	0.00	0.00
2.00	0.05	24	41.01	0.05	0.05	0.00
4.00	0.12	61	41.03	0.12	0.12	0.00
6.00	0.18	92	41.04	0.18	0.18	0.00
8.00	0.32	534	41.23	0.21	0.21	0.00
10.00	0.64	1,756	41.75	0.55	0.30	0.25
12.00	**9.41**	**4,936**	**43.09**	**4.48**	**0.53**	**3.95**
14.00	**0.70**	**1,982**	**41.84**	**0.78**	**0.31**	**0.47**
16.00	0.37	1,602	41.68	0.43	0.29	0.14
18.00	0.23	1,290	41.55	0.28	0.26	0.01
20.00	0.18	922	41.40	0.24	0.24	0.00
22.00	0.15	505	41.22	0.21	0.21	0.00
24.00	0.12	85	41.04	0.17	0.17	0.00
26.00	0.00	0	41.00	0.00	0.00	0.00
28.00	0.00	0	41.00	0.00	0.00	0.00
30.00	0.00	0	41.00	0.00	0.00	0.00
32.00	0.00	0	41.00	0.00	0.00	0.00
34.00	0.00	0	41.00	0.00	0.00	0.00
36.00	0.00	0	41.00	0.00	0.00	0.00
38.00	0.00	0	41.00	0.00	0.00	0.00
40.00	0.00	0	41.00	0.00	0.00	0.00
42.00	0.00	0	41.00	0.00	0.00	0.00
44.00	0.00	0	41.00	0.00	0.00	0.00
46.00	0.00	0	41.00	0.00	0.00	0.00
48.00	0.00	0	41.00	0.00	0.00	0.00
50.00	0.00	0	41.00	0.00	0.00	0.00
52.00	0.00	0	41.00	0.00	0.00	0.00
54.00	0.00	0	41.00	0.00	0.00	0.00
56.00	0.00	0	41.00	0.00	0.00	0.00
58.00	0.00	0	41.00	0.00	0.00	0.00
60.00	0.00	0	41.00	0.00	0.00	0.00
62.00	0.00	0	41.00	0.00	0.00	0.00
64.00	0.00	0	41.00	0.00	0.00	0.00
66.00	0.00	0	41.00	0.00	0.00	0.00
68.00	0.00	0	41.00	0.00	0.00	0.00
70.00	0.00	0	41.00	0.00	0.00	0.00
72.00	0.00	0	41.00	0.00	0.00	0.00
74.00	0.00	0	41.00	0.00	0.00	0.00
76.00	0.00	0	41.00	0.00	0.00	0.00

Summary for Pond 24P: Detention Area 6

Inflow Area =	0.540 ac,100.00% Impervious, Inflow Depth = 6.56" for 100 year event				
Inflow =	3.73 cfs @	12.07 hrs,	Volume=	0.295 af	
Outflow =	3.73 cfs @	12.07 hrs,	Volume=	0.295 af,	Atten= 0%, Lag= 0.1 min
Discarded =	0.00 cfs @	12.07 hrs,	Volume=	0.003 af	
Primary =	3.73 cfs @	12.07 hrs,	Volume=	0.292 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 52.47' @ 12.07 hrs Surf.Area= 18 sf Storage= 40 cf

Plug-Flow detention time= 2.6 min calculated for 0.295 af (100% of inflow)
Center-of-Mass det. time= 2.7 min (745.1 - 742.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	49.50'	5 cf	**4.40'W x 4.00'L x 4.00'H Field A** 70 cf Overall - 59 cf Embedded = 12 cf x 40.0% Voids
#2A	49.50'	44 cf	**Concrete Galley 4x4x4** Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf
		49 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	49.50'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.00 cfs @ 12.07 hrs HW=52.47' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=3.72 cfs @ 12.07 hrs HW=52.47' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 3.72 cfs @ 4.74 fps)

Pond 24P: Detention Area 6 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

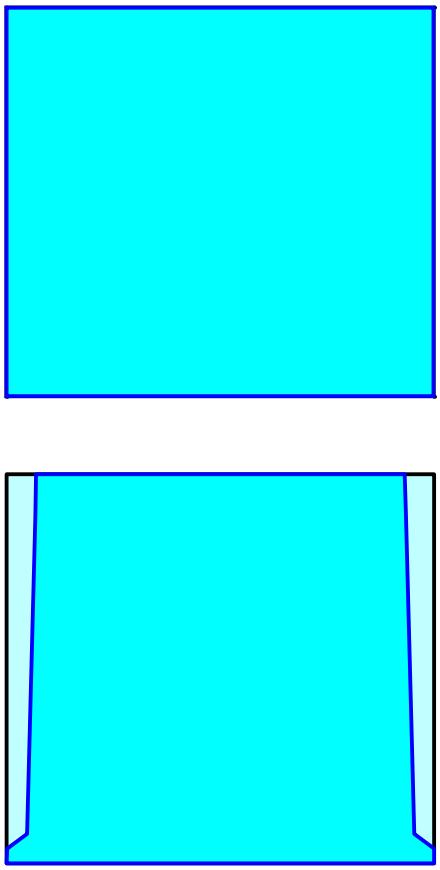
1 Chambers/Row x 4.00' Long = 4.00' Row Length
1 Rows x 52.8" Wide = 4.40' Base Width
48.0" Chamber Height = 4.00' Field Height

1 Chambers x 44.3 cf = 44.3 cf Chamber Storage
1 Chambers x 58.9 cf = 58.9 cf Displacement

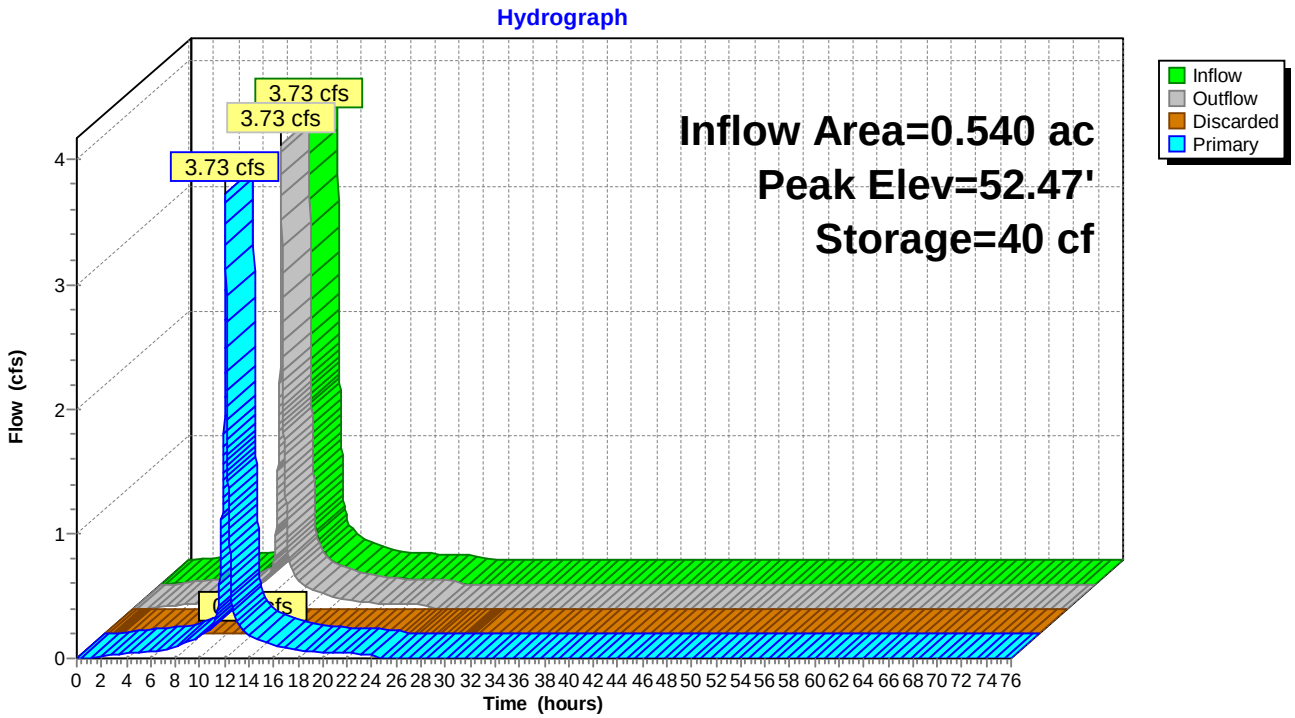
70.4 cf Field - 58.9 cf Chambers = 11.5 cf Stone x 40.0% Voids = 4.6 cf Stone Storage

Chamber Storage + Stone Storage = 49.0 cf = 0.001 af
Overall Storage Efficiency = 69.5%
Overall System Size = 4.00' x 4.40' x 4.00'

1 Chambers
2.6 cy Field
0.4 cy Stone



Pond 24P: Detention Area 6



Hydrograph for Pond 24P: Detention Area 6

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	49.50	0.00	0.00	0.00
2.00	0.02	21	51.06	0.02	0.00	0.02
4.00	0.04	22	51.09	0.04	0.00	0.04
6.00	0.05	22	51.11	0.05	0.00	0.05
8.00	0.09	22	51.14	0.09	0.00	0.09
10.00	0.17	23	51.20	0.17	0.00	0.17
12.00	**2.52**	**33**	**51.93**	**2.50**	**0.00**	**2.49**
14.00	**0.19**	**23**	**51.21**	**0.19**	**0.00**	**0.19**
16.00	0.10	22	51.15	0.10	0.00	0.10
18.00	0.06	22	51.12	0.06	0.00	0.06
20.00	0.05	22	51.10	0.05	0.00	0.05
22.00	0.04	22	51.09	0.04	0.00	0.04
24.00	0.03	21	51.08	0.03	0.00	0.03
26.00	0.00	13	50.48	0.00	0.00	0.00
28.00	0.00	6	49.92	0.00	0.00	0.00
30.00	0.00	0	49.50	0.00	0.00	0.00
32.00	0.00	0	49.50	0.00	0.00	0.00
34.00	0.00	0	49.50	0.00	0.00	0.00
36.00	0.00	0	49.50	0.00	0.00	0.00
38.00	0.00	0	49.50	0.00	0.00	0.00
40.00	0.00	0	49.50	0.00	0.00	0.00
42.00	0.00	0	49.50	0.00	0.00	0.00
44.00	0.00	0	49.50	0.00	0.00	0.00
46.00	0.00	0	49.50	0.00	0.00	0.00
48.00	0.00	0	49.50	0.00	0.00	0.00
50.00	0.00	0	49.50	0.00	0.00	0.00
52.00	0.00	0	49.50	0.00	0.00	0.00
54.00	0.00	0	49.50	0.00	0.00	0.00
56.00	0.00	0	49.50	0.00	0.00	0.00
58.00	0.00	0	49.50	0.00	0.00	0.00
60.00	0.00	0	49.50	0.00	0.00	0.00
62.00	0.00	0	49.50	0.00	0.00	0.00
64.00	0.00	0	49.50	0.00	0.00	0.00
66.00	0.00	0	49.50	0.00	0.00	0.00
68.00	0.00	0	49.50	0.00	0.00	0.00
70.00	0.00	0	49.50	0.00	0.00	0.00
72.00	0.00	0	49.50	0.00	0.00	0.00
74.00	0.00	0	49.50	0.00	0.00	0.00
76.00	0.00	0	49.50	0.00	0.00	0.00

Summary for Pond 25P: Det Area 5

Inflow Area =	3.191 ac,100.00% Impervious, Inflow Depth = 6.56" for 100 year event				
Inflow =	22.05 cfs @	12.07 hrs,	Volume=	1.745 af	
Outflow =	7.14 cfs @	12.34 hrs,	Volume=	1.745 af,	Atten= 68%, Lag= 16.3 min
Discarded =	0.51 cfs @	12.34 hrs,	Volume=	0.632 af	
Primary =	6.63 cfs @	12.34 hrs,	Volume=	1.113 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 54.67' @ 12.34 hrs Surf.Area= 6,864 sf Storage= 18,923 cf

Plug-Flow detention time= 35.4 min calculated for 1.744 af (100% of inflow)
Center-of-Mass det. time= 35.4 min (777.8 - 742.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	51.00'	1,798 cf	**132.00'W x 52.00'L x 4.00'H Field A** 27,456 cf Overall - 22,962 cf Embedded = 4,494 cf x 40.0% Voids
#2A	51.00'	17,294 cf	**Concrete Galley 4x4x4** x 390 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 390 Chambers in 30 Rows
		19,092 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.10'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	51.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.51 cfs @ 12.34 hrs HW=54.67' (Free Discharge)
└**2=Exfiltration** (Controls 0.51 cfs)

Primary OutFlow Max=6.63 cfs @ 12.34 hrs HW=54.67' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 6.63 cfs @ 8.44 fps)

Pond 25P: Det Area 5 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

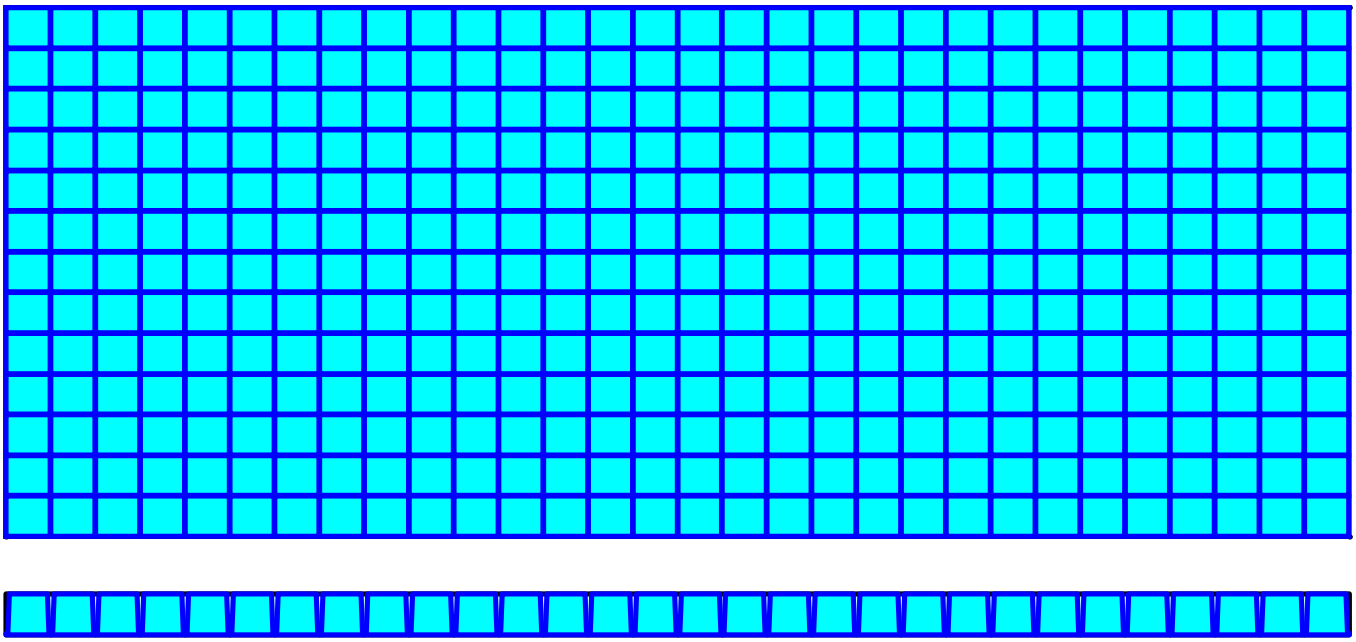
13 Chambers/Row x 4.00' Long = 52.00' Row Length
30 Rows x 52.8" Wide = 132.00' Base Width
48.0" Chamber Height = 4.00' Field Height

390 Chambers x 44.3 cf = 17,294.4 cf Chamber Storage
390 Chambers x 58.9 cf = 22,961.8 cf Displacement

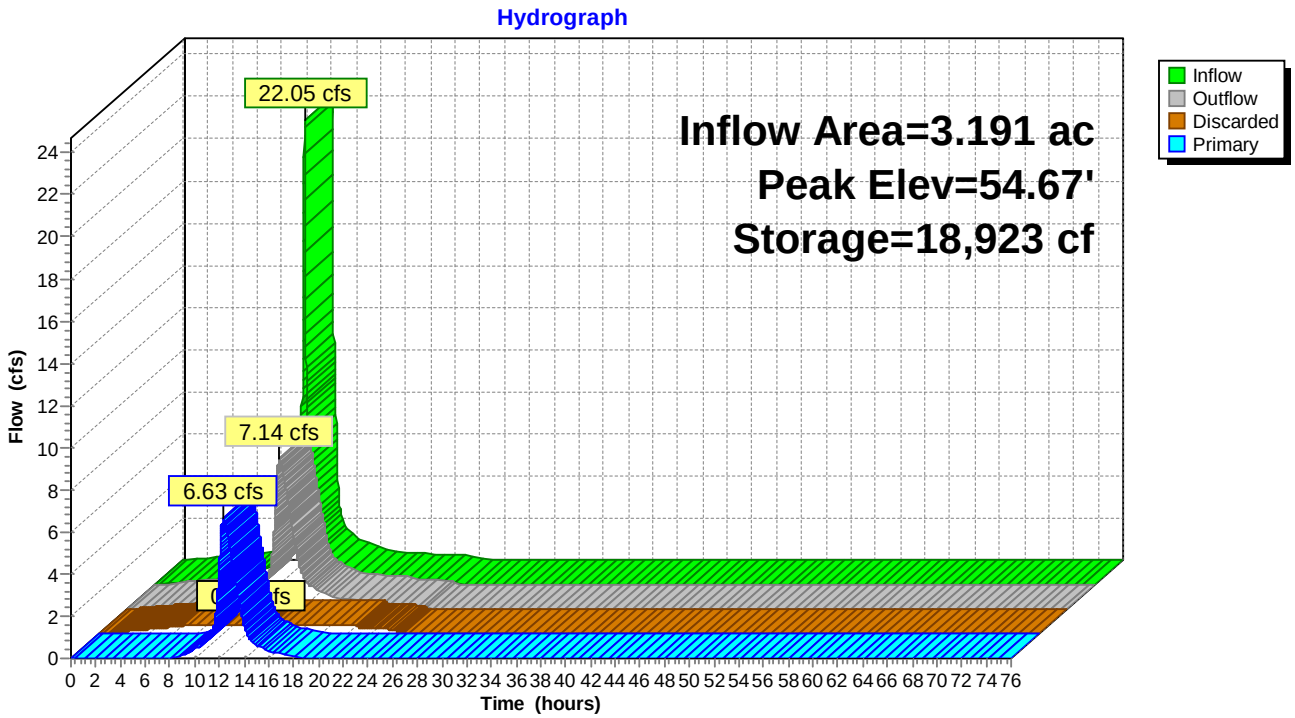
27,456.0 cf Field - 22,961.8 cf Chambers = 4,494.2 cf Stone x 40.0% Voids = 1,797.7 cf Stone Storage

Chamber Storage + Stone Storage = 19,092.1 cf = 0.438 af
Overall Storage Efficiency = 69.5%
Overall System Size = 52.00' x 132.00' x 4.00'

390 Chambers
1,016.9 cy Field
166.5 cy Stone



Pond 25P: Det Area 5



Hydrograph for Pond 25P: Det Area 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	51.00	0.00	0.00	0.00
2.00	0.11	56	51.01	0.11	0.11	0.00
4.00	0.22	116	51.02	0.22	0.22	0.00
6.00	0.31	164	51.03	0.31	0.31	0.00
8.00	0.53	547	51.11	0.39	0.39	0.00
10.00	1.03	2,226	51.43	0.83	0.40	0.43
12.00	**14.91**	**9,798**	**52.85**	**4.68**	**0.45**	**4.23**
14.00	**1.11**	**4,001**	**51.76**	**1.92**	**0.41**	**1.51**
16.00	0.59	2,035	51.39	0.74	0.40	0.35
18.00	0.36	1,202	51.23	0.47	0.39	0.08
20.00	0.29	518	51.10	0.39	0.39	0.00
22.00	0.24	129	51.03	0.24	0.24	0.00
24.00	0.19	102	51.02	0.19	0.19	0.00
26.00	0.00	0	51.00	0.00	0.00	0.00
28.00	0.00	0	51.00	0.00	0.00	0.00
30.00	0.00	0	51.00	0.00	0.00	0.00
32.00	0.00	0	51.00	0.00	0.00	0.00
34.00	0.00	0	51.00	0.00	0.00	0.00
36.00	0.00	0	51.00	0.00	0.00	0.00
38.00	0.00	0	51.00	0.00	0.00	0.00
40.00	0.00	0	51.00	0.00	0.00	0.00
42.00	0.00	0	51.00	0.00	0.00	0.00
44.00	0.00	0	51.00	0.00	0.00	0.00
46.00	0.00	0	51.00	0.00	0.00	0.00
48.00	0.00	0	51.00	0.00	0.00	0.00
50.00	0.00	0	51.00	0.00	0.00	0.00
52.00	0.00	0	51.00	0.00	0.00	0.00
54.00	0.00	0	51.00	0.00	0.00	0.00
56.00	0.00	0	51.00	0.00	0.00	0.00
58.00	0.00	0	51.00	0.00	0.00	0.00
60.00	0.00	0	51.00	0.00	0.00	0.00
62.00	0.00	0	51.00	0.00	0.00	0.00
64.00	0.00	0	51.00	0.00	0.00	0.00
66.00	0.00	0	51.00	0.00	0.00	0.00
68.00	0.00	0	51.00	0.00	0.00	0.00
70.00	0.00	0	51.00	0.00	0.00	0.00
72.00	0.00	0	51.00	0.00	0.00	0.00
74.00	0.00	0	51.00	0.00	0.00	0.00
76.00	0.00	0	51.00	0.00	0.00	0.00

Summary for Pond 26P: Detention Area 7

Inflow Area =	0.996 ac, 82.91% Impervious, Inflow Depth = 5.40" for 100 year event				
Inflow =	6.26 cfs @	12.07 hrs,	Volume=	0.448 af	
Outflow =	6.16 cfs @	12.09 hrs,	Volume=	0.448 af,	Atten= 2%, Lag= 1.1 min
Discarded =	0.01 cfs @	12.09 hrs,	Volume=	0.012 af	
Primary =	6.16 cfs @	12.09 hrs,	Volume=	0.437 af	

Routing by Stor-Ind method, Time Span= 0.00-76.00 hrs, dt= 0.01 hrs
Peak Elev= 50.15' @ 12.09 hrs Surf.Area= 0.002 ac Storage= 0.007 af

Plug-Flow detention time= 3.5 min calculated for 0.448 af (100% of inflow)
Center-of-Mass det. time= 3.5 min (789.9 - 786.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	46.50'	0.001 af	**8.80'W x 12.00'L x 4.00'H Field A** 0.010 af Overall - 0.008 af Embedded = 0.002 af x 40.0% Voids
#2A	46.50'	0.006 af	**Concrete Galley 4x4x4** x 6 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 6 Chambers in 2 Rows
		0.007 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	46.50'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 40.00'

Discarded OutFlow Max=0.01 cfs @ 12.09 hrs HW=50.14' (Free Discharge)
└**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=6.14 cfs @ 12.09 hrs HW=50.14' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 6.14 cfs @ 7.82 fps)

Pond 26P: Detention Area 7 - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x4x4 (Concrete Galley, UCPI 4x4x4 Galley or equivalent)
Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf
Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf

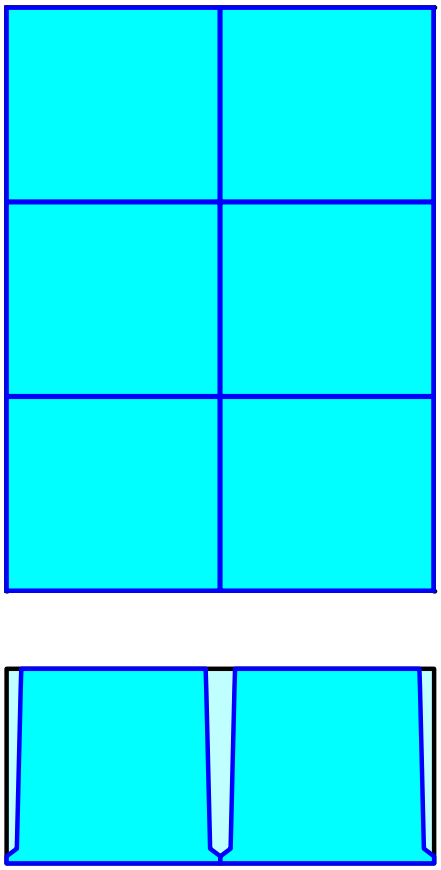
3 Chambers/Row x 4.00' Long = 12.00' Row Length
2 Rows x 52.8" Wide = 8.80' Base Width
48.0" Chamber Height = 4.00' Field Height

6 Chambers x 44.3 cf = 266.1 cf Chamber Storage
6 Chambers x 58.9 cf = 353.3 cf Displacement

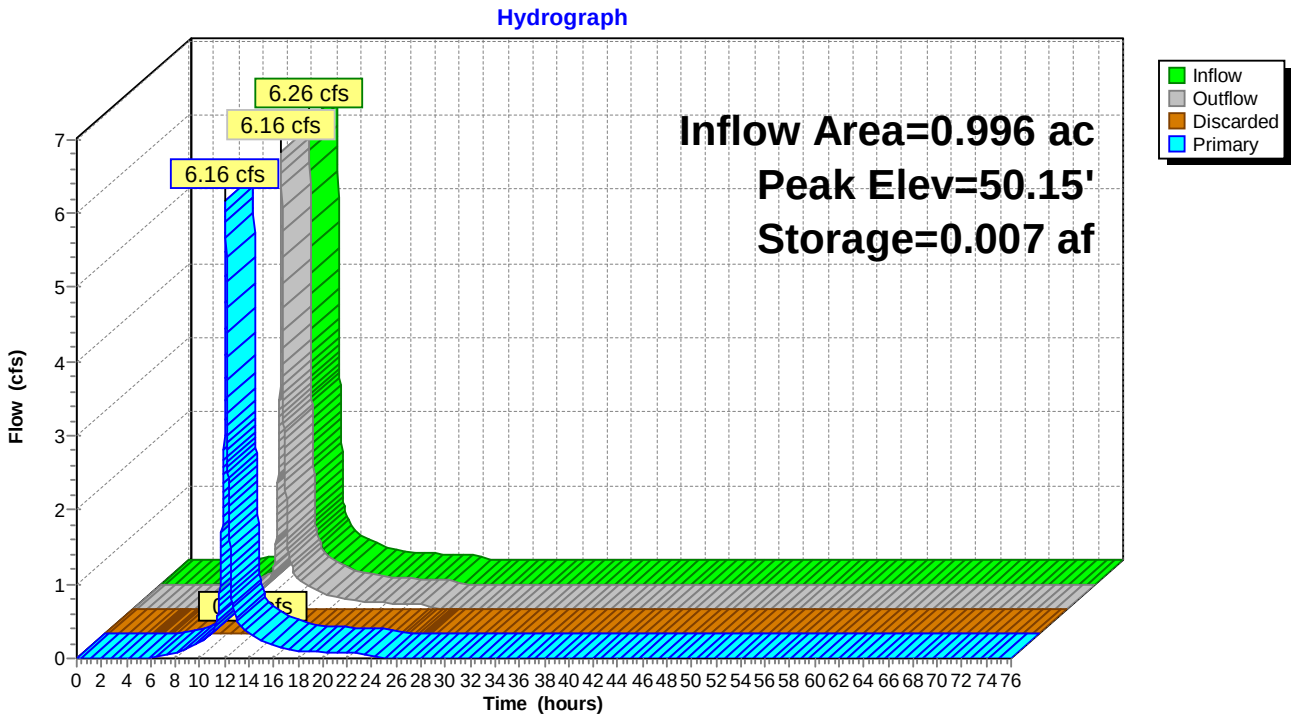
422.4 cf Field - 353.3 cf Chambers = 69.1 cf Stone x 40.0% Voids = 27.7 cf Stone Storage

Chamber Storage + Stone Storage = 293.7 cf = 0.007 af
Overall Storage Efficiency = 69.5%
Overall System Size = 12.00' x 8.80' x 4.00'

6 Chambers
15.6 cy Field
2.6 cy Stone



Pond 26P: Detention Area 7



Hydrograph for Pond 26P: Detention Area 7

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	46.50	0.00	0.00	0.00
2.00	0.00	0.000	46.50	0.00	0.00	0.00
4.00	0.00	0.000	46.50	0.00	0.00	0.00
6.00	0.03	0.001	47.07	0.03	0.01	0.02
8.00	0.08	0.001	47.13	0.08	0.01	0.07
10.00	0.22	0.001	47.22	0.22	0.01	0.21
12.00	**4.15**	**0.004**	**48.49**	**3.78**	**0.01**	**3.77**
14.00	**0.33**	**0.001**	**47.28**	**0.33**	**0.01**	**0.33**
16.00	0.18	0.001	47.20	0.18	0.01	0.17
18.00	0.11	0.001	47.15	0.11	0.01	0.10
20.00	0.09	0.001	47.14	0.09	0.01	0.08
22.00	0.07	0.001	47.12	0.07	0.01	0.07
24.00	0.06	0.001	47.11	0.06	0.01	0.05
26.00	0.00	0.000	46.53	0.00	0.00	0.00
28.00	0.00	0.000	46.50	0.00	0.00	0.00
30.00	0.00	0.000	46.50	0.00	0.00	0.00
32.00	0.00	0.000	46.50	0.00	0.00	0.00
34.00	0.00	0.000	46.50	0.00	0.00	0.00
36.00	0.00	0.000	46.50	0.00	0.00	0.00
38.00	0.00	0.000	46.50	0.00	0.00	0.00
40.00	0.00	0.000	46.50	0.00	0.00	0.00
42.00	0.00	0.000	46.50	0.00	0.00	0.00
44.00	0.00	0.000	46.50	0.00	0.00	0.00
46.00	0.00	0.000	46.50	0.00	0.00	0.00
48.00	0.00	0.000	46.50	0.00	0.00	0.00
50.00	0.00	0.000	46.50	0.00	0.00	0.00
52.00	0.00	0.000	46.50	0.00	0.00	0.00
54.00	0.00	0.000	46.50	0.00	0.00	0.00
56.00	0.00	0.000	46.50	0.00	0.00	0.00
58.00	0.00	0.000	46.50	0.00	0.00	0.00
60.00	0.00	0.000	46.50	0.00	0.00	0.00
62.00	0.00	0.000	46.50	0.00	0.00	0.00
64.00	0.00	0.000	46.50	0.00	0.00	0.00
66.00	0.00	0.000	46.50	0.00	0.00	0.00
68.00	0.00	0.000	46.50	0.00	0.00	0.00
70.00	0.00	0.000	46.50	0.00	0.00	0.00
72.00	0.00	0.000	46.50	0.00	0.00	0.00
74.00	0.00	0.000	46.50	0.00	0.00	0.00
76.00	0.00	0.000	46.50	0.00	0.00	0.00