



TECHNICAL MEMORANDUM

Date: 6/17/2021
To: City of Salem Engineering Department
From: Ian Feltis, PE - Emerio Design, LLC

Subject: Meyer Farm 138-Lot Subdivision – Preliminary Stormwater Analysis

This memorandum and the associated attachments are intended to address the preliminary stormwater requirements for the Meyer Farm 138 lot subdivision project, located at 4540 Pringle Road SE, in Salem, Oregon.

Existing Site Conditions:

The existing property, located at 4540 Pringle Road SE in Salem, is bordered by Hillrose Street SE to the east, Pringle Road SE to the northeast, 12th Street SE to the west, and Hilfiker Lane SE to the southwest. The site is located within the City of Salem Single-Family Residential (RS) and Residential Agriculture (RA) zones and is within the Morningside Neighborhood Association. The subject property is currently being used as a working farm with a single-family home and several accessory structures.

There are many trees located on the subject property, and there is an existing creek located at the northwest corner of the site. Per the NRCS Web Soil Survey data explorer, the site consists of soils in the “C” Hydrologic Soil Group. Refer to the attached Web Soil Survey Hydrologic Soil Group map for the subject property for additional information.

Proposed Site Conditions:

Proposed improvements associated with the proposed 138-lot subdivision to the subject property include the extension of Hilfiker Lane SE as a City of Salem type “B” collector through the site to intersect with Pringle Road SE, the construction of multiple local roads, and ¾ street improvements to both 12th Street SE and Hillrose Street SE. To serve the proposed 138 single-family lots, sanitary sewer, water, stormwater, and franchise utility improvements will also be constructed.

Stormwater Methodology:

Stormwater methods for runoff generated by impervious areas for this site are designated by local drainage basins, based on a preliminary grading plan. See the attached Tentative Grading Plan, Existing Drainage Basin Map, and Proposed Drainage Basin Map for additional information.

Per the existing site conditions, the site is divided into three global drainage basins. The following table lists the areas that comprise each drainage basin in the predeveloped condition:

Basin ID	Area (SF)	CN
West – Predeveloped	143,000	72
Mid – Predeveloped	517,000	72
East – Predeveloped	663,000	72

For the predeveloped conditions, a CN value of 72 was assumed based on the site Hydrologic Soil Group “C” and the surface conditions described as woods/grass combination.



Per the Tentative Grading Plan, the site was divided into two global drainage basins. The following tables list the areas that comprise each drainage basin in the postdeveloped condition.

Basin 1 - Postdeveloped		
Surface Type	Area (SF)	CN
Streets and Curb	141,300	98
Sidewalk	32,300	98
Lot Impervious	268,450	98
Lot Pervious	144,550	72
Area to Remain	158,600	72
Remaining Impervious	90,800	72
Total	836,000	86

Basin 2 - Postdeveloped		
Surface Type	Area (SF)	CN
Streets and Curb	84,200	98
Sidewalk	19,600	98
Lot Impervious	124,800	98
Lot Pervious	67,200	72
Remaining Impervious	187,200	72
Total	483,000	84

For postdeveloped conditions, a CN value of 72 was assumed for pervious areas based on the site Hydrologic Soil Group “C” and the surface conditions described as woods/grass combination.

Runoff generated in each drainage basin in the predeveloped condition discharges into three locations. “West-Predeveloped” discharges into the creek in the northwest corner of the property and will ultimately be the outfall location for the proposed stormwater facility for “Basin 2-Postdeveloped”. “Mid-Predeveloped” currently drains to the north of the property, into a private area drain and into the existing Mandy Avenue SE right of way. “East-Predeveloped” currently drains to the northeast corner of the property and will ultimately be the outfall location for the proposed stormwater facility for “Basin 1-Postdeveloped”.

Due to the nature of the existing site conditions, and per the tentative postdeveloped grading plan, runoff from all three of the predeveloped basins must be accounted for in the two postdeveloped basins/stormwater facilities.

Please note, drainage basins areas and stormwater quantities may vary as final engineering is conducted.

Water Quality

Per City of Salem Standards, the proposed treatment methods shall be designed to treat runoff generated during the Water Quality Storm event, 1.38 inches in 24 hours.

Two treatment facilities are proposed. Runoff from each basin will be treated using an infiltration facility, sized to treat and infiltrate runoff generated by the water quality storm event. Each basin



will have its own individual facility, located in the northeast and north-northwest areas of the site. Refer to the Tentative Grading Plan for additional information.

The following table summarizes the water quality flow rates and volumes for each of the predeveloped and postdeveloped drainage basins:

Water Quality Peak Flow Rates and Volumes		
Basin ID	WQ Peak Flow Rate (CFS)	WQ Volume (CF)
West-Predeveloped	0.02	903
Mid-Predeveloped	0.08	3,266
East-Predeveloped	0.10	4,189
Basin 1-Postdeveloped	2.99	44,574
Basin 2-Postdeveloped	1.55	23,371

Additional runoff that cannot be conveyed to the water quality facilities will be treated using Contech Stormfilter catch basins, per the manufacturer's specifications. For example, due to the proposed $\frac{3}{4}$ street improvements to 12th Street SE, additional impervious area will be constructed and must be treated using an alternate method.

Flow Control

Per City of Salem Standards, the proposed flow control methods shall be designed such that one-half of the post-development peak runoff rate of the two-year design storm must equal to or less than one-half of the peak runoff rate of the pre-developed two-year, 24-hour storm; and the peak runoff rate of the post-development ten-year, 24-hour storm must be equal to or less than the peak runoff rate of the pre-developed ten-year, 24-hour storm event.

In addition to these requirements, all volume-based facilities shall be sized to detain the post-developed 100-year design storm with a release rate no greater than the pre-developed, 100-year design storm.

The design storms for the 2-year 24-hour storm, 10-year 24-hour storm, and 100-year 24-hour storm are 2.2 inches in 24 hours, 3.2 inches in 24 hours, and 4.4 inches in 24 hours, respectively.

Each drainage basin will have flow control requirements satisfied using large, volume-based detention facilities that discharge into flow control manholes that limit the post-developed peak runoff rates to the necessary pre-developed peak runoff rates. Each basin will have its own individual facility.

The following tables summarize the postdeveloped peak runoff rates for the 2-year, 10-year, and 100-year storms for each of the proposed stormwater facilities, as well as the predeveloped rates each facility is limited to:

2-Year Peak Runoff Rates		
Basin ID	2-Year Predeveloped (CFS)	2-Year Postdeveloped (CFS)
Basin 1	0.43	0.38
Basin 2	0.09	0.09



10-Year Peak Runoff Rates		
Basin ID	10-Year Predeveloped (CFS)	10-Year Postdeveloped (CFS)
Basin 1	2.46	1.67
Basin 2	0.53	0.53

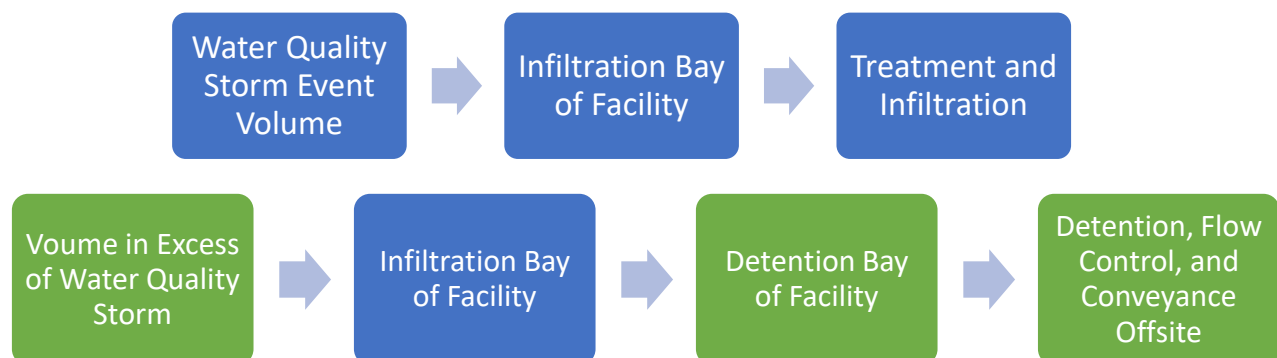
100-Year Peak Runoff Rates		
Basin ID	100-Year Predeveloped (CFS)	100-Year Postdeveloped (CFS)
Basin 1	5.64	5.0
Basin 2	1.22	0.82

Stormwater Facility Functionality

It is proposed that the stormwater facilities for each basin will be designed such that water quality and flow control requirements are met. Each facility will work in tandem to meet these requirements in the following way:

- Runoff from the water quality storm event will be conveyed to the water quality bay of the facility. These bays will be designed such that the required volume from this event will be treated and infiltrated without spilling into the detention bay of the facility.
- When runoff from a storm event exceeds the water quality volume, it is intended for runoff to spill over from the water quality bay of the facility into the detention bay of the facility using a weir-type system. Once runoff reaches the detention bay of the facility, it will then be conveyed offsite through a flow control manhole that will limit the peak runoff rates to the pre-developed conditions.

The following chart provides a visual example of what is proposed:



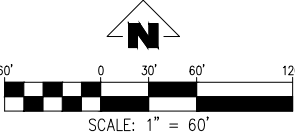
Preliminary Engineering Conclusions:

The proposed design satisfies the water quality and flow control standards set forth in the 2014 City of Salem Stormwater Design Handbook and the 2016 City of Salem Department of Public Works Design Standards.



Attachments:

- Tentative Grading Plan
- Existing Drainage Basin Map
- Proposed Drainage Basin Map
- Web Soil Survey Hydrologic Soil Group Map
- Preliminary Predeveloped HydroCAD Calculations
- Preliminary Postdeveloped HydroCAD Calculations



4540 PRINGLE RD SE
TAX MAP - 3000 & 3002
TAX MAP - 083W11BC
SW1/4 NW1/4 SEC11 T8S R3W W.M.
SALEM, OREGON

TENTATIVE GRADING PLAN

[illegible]

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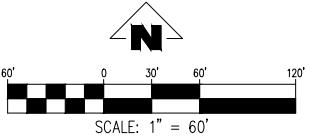
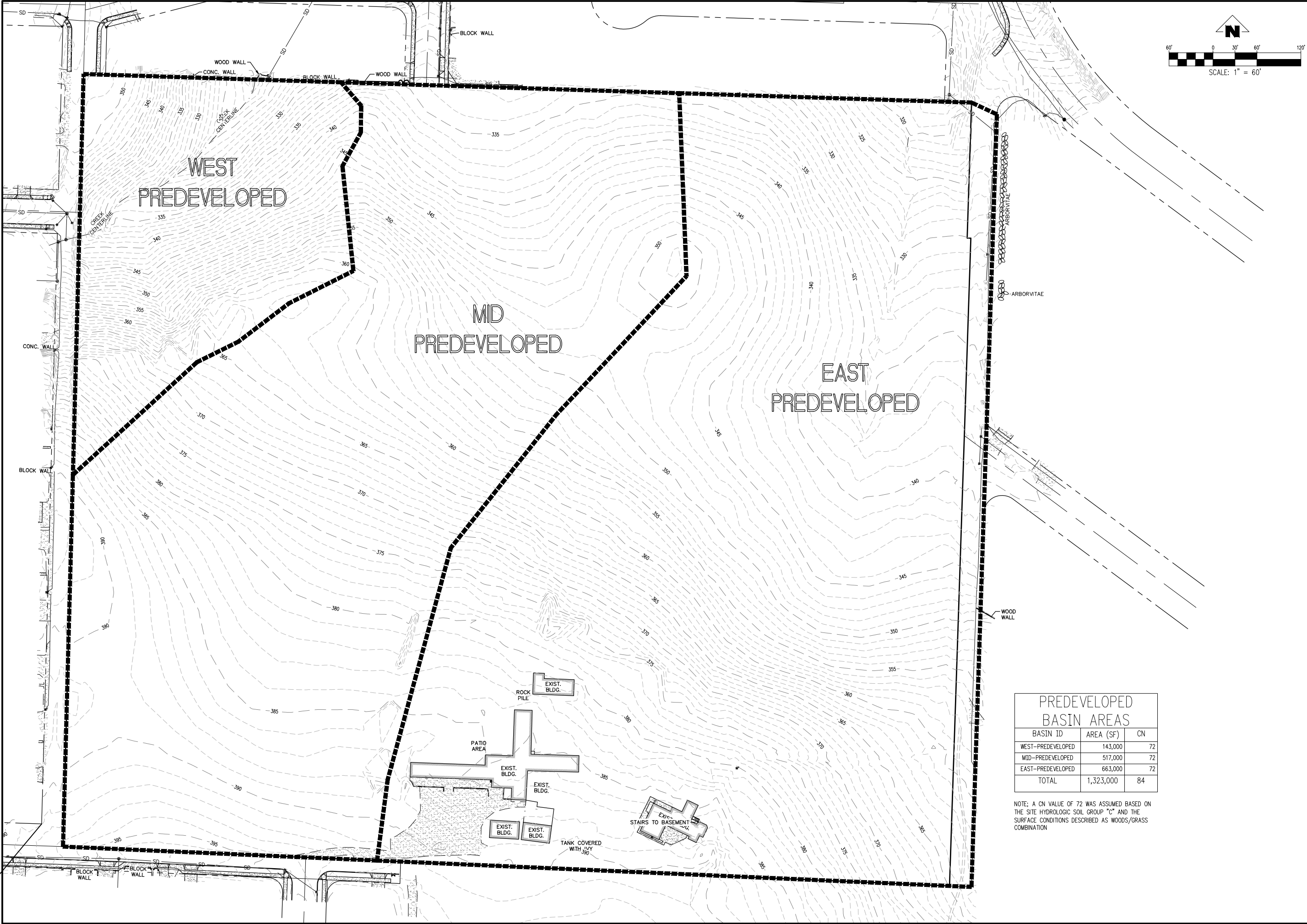
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www.emeriodesign.com

SHEET
P7.0 OF

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FILE:P:\0742-003 Meyer Farm\dwg\plan\0742-003_P7.0pgrad, Layout: P7.0 - TENTATIVE GRADING, Plot Date: 6/14/2021 9:19 AM, by: Ian Felits

TENTATIVE EARTHWORK SUMMARY	
	VOLUME IN CY
6" STRIPPINGS	17,500
CUT	50,000
FILL	66,500
NET	16,500 CY FILL/IMPORT
NOTE: TRENCH SPOILS ARE NOT INCLUDED IN THIS CALCULATION, CONTRACTOR SHALL INDEPENDENTLY VERIFY VOLUMES.	



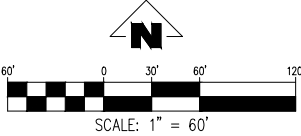
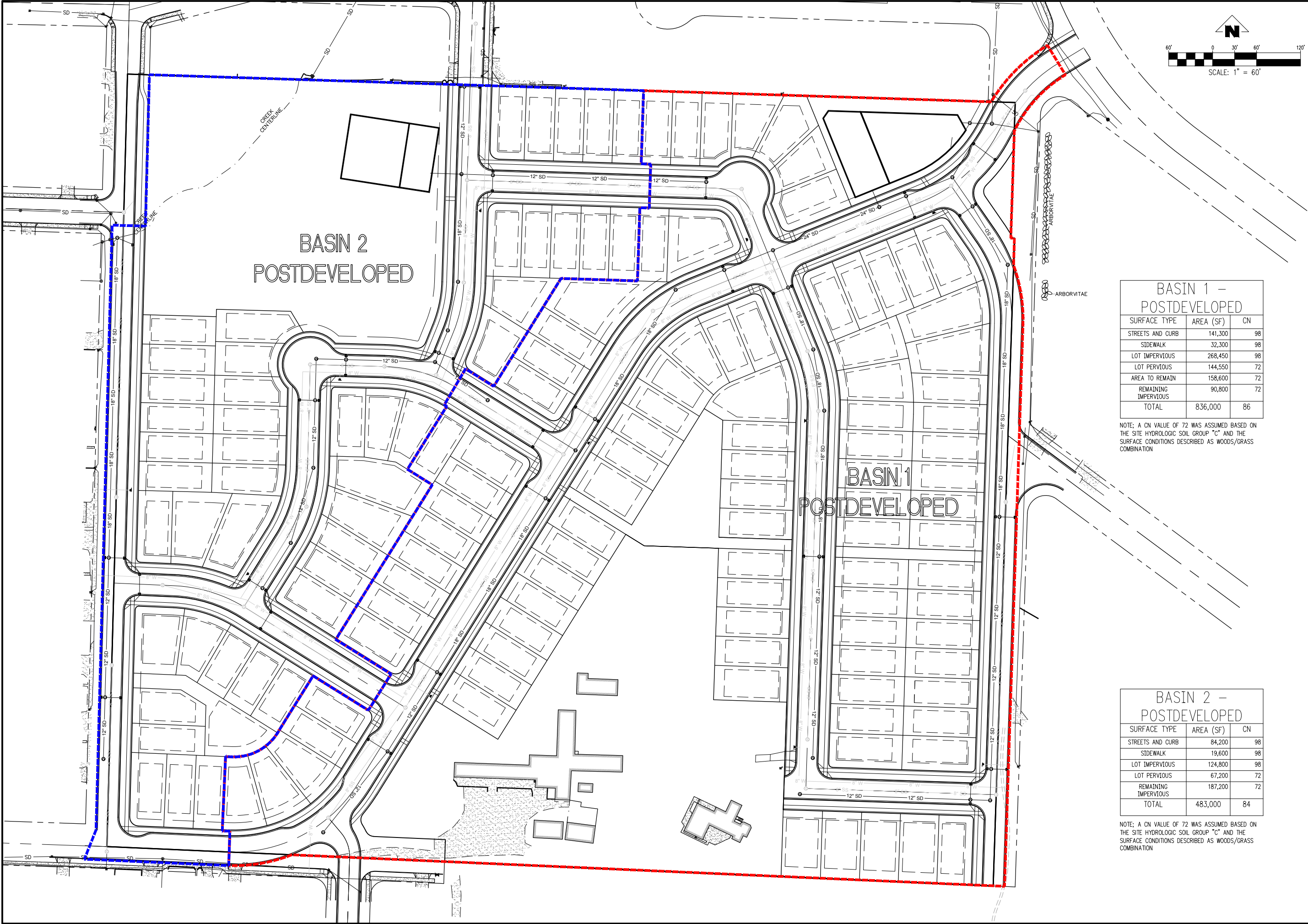
4540 PRINGLE RD SE
TAX MAP - 3000 & 3002
TAX MAP - 083W11BC
SW1/4 NW1/4 SEC11 T8S R3W W.M.
SALEM, OREGON

EXISTING DRAINAGE BASIN
MAP

REVISIONS	
NO.	DESCRIPTION

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BASIN 1 – POSTDEVELOPED		
SURFACE TYPE	AREA (SF)	CN
STREETS AND CURB	141,300	98
SIDEWALK	32,300	98
LOT IMPERVIOUS	268,450	98
LOT PERVIOUS	144,550	72
AREA TO REMAIN	158,600	72
REMAINING IMPERVIOUS	90,800	72
TOTAL	836,000	86

NOTE: A CN VALUE OF 72 WAS ASSUMED BASED ON THE SITE HYDROLOGIC SOIL GROUP "C" AND THE SURFACE CONDITIONS DESCRIBED AS WOODS/GRASS COMBINATION

BASIN 2 – POSTDEVELOPED		
SURFACE TYPE	AREA (SF)	CN
STREETS AND CURB	84,200	98
SIDEWALK	19,600	98
LOT IMPERVIOUS	124,800	98
LOT PERVIOUS	67,200	72
REMAINING IMPERVIOUS	187,200	72
TOTAL	483,000	84

NOTE: A CN VALUE OF 72 WAS ASSUMED BASED ON THE SITE HYDROLOGIC SOIL GROUP "C" AND THE SURFACE CONDITIONS DESCRIBED AS WOODS/GRASS COMBINATION

4540 PRINGLE RD SE
TAX MAP - 3000 & 3002
TAX MAP - 083W11BC
SW1/4 NW1/4 SEC11 T8S R3W W.M.
SALEM, OREGON

PROPOSED DRAINAGE
BASIN MAP

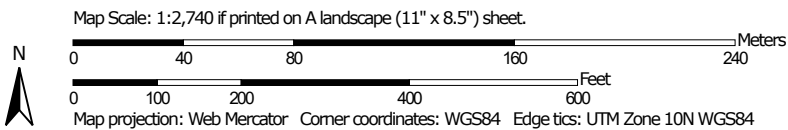
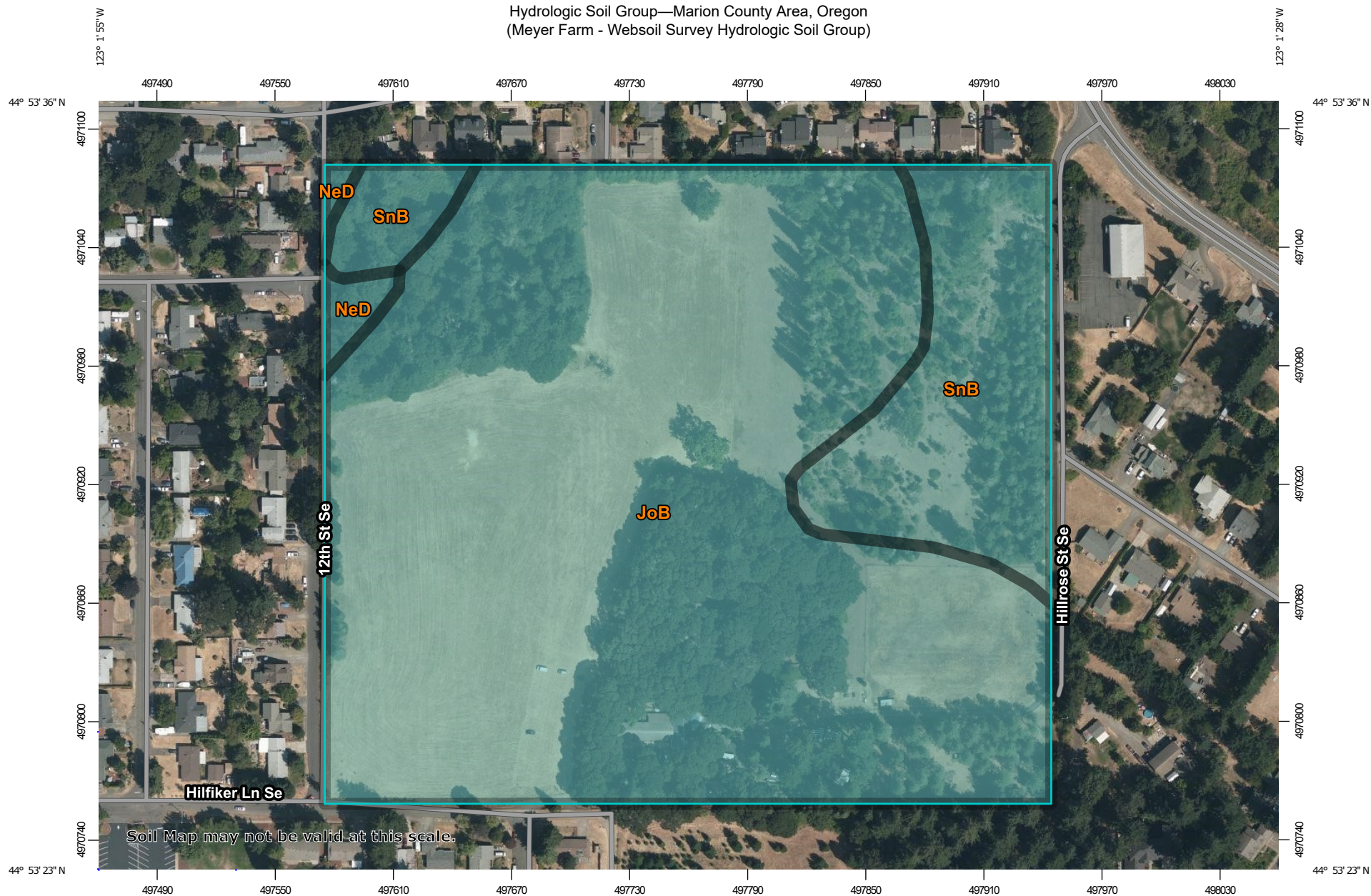
REVISIONS	
NO.	DESCRIPTION

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Hydrologic Soil Group—Marion County Area, Oregon (Meyer Farm - Websoil Survey Hydrologic Soil Group)



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

6/9/2021
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MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





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

Soil Rating Lines

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

Soil Rating Points





 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available


Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Marion County Area, Oregon
 Survey Area Data: Version 17, Jun 11, 2020

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

Date(s) aerial images were photographed: Aug 1, 2018—Aug 31, 2018

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
JoB	Jory silty clay loam, 2 to 7 percent slopes	C	24.2	81.8%
NeD	Nekia silty clay loam, 12 to 20 percent slopes	C	0.4	1.2%
SnB	Santiam silt loam, 3 to 6 percent slopes	C	5.0	17.0%
Totals for Area of Interest			29.6	100.0%

Description

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

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

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

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

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

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

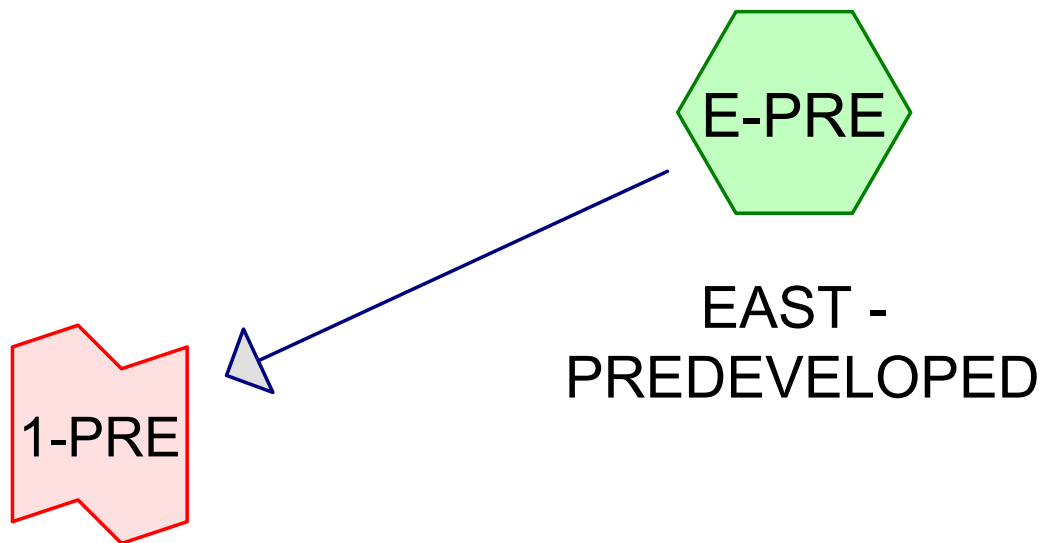
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

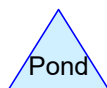
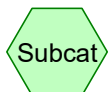
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



PREDEVELOPED TO
BASIN 1



0742-003 - Meyer Farm - HydroCAD Model

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Page 2

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
663,000	72	(E-PRE)
663,000	72	TOTAL AREA

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Page 3

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE-PRE: EAST -

Runoff Area=663,000 sf 0.00% Impervious Runoff Depth=0.38"

Tc=5.0 min CN=72/0 Runoff=0.43 cfs 21,042 cf

Link 1-PRE: PREDEVELOPED TO BASIN 1

Inflow=0.43 cfs 21,042 cf

Primary=0.43 cfs 21,042 cf

Total Runoff Area = 663,000 sf Runoff Volume = 21,042 cf Average Runoff Depth = 0.38"
100.00% Pervious = 663,000 sf 0.00% Impervious = 0 sf

0742-003 - Meyer Farm - HydroCAD Model

Prepared by Microsoft

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Type IA 24-hr 2-Year Rainfall=2.20"

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Summary for Subcatchment E-PRE: EAST - PREDEVELOPED

Runoff = 0.43 cfs @ 8.01 hrs, Volume= 21,042 cf, Depth= 0.38"

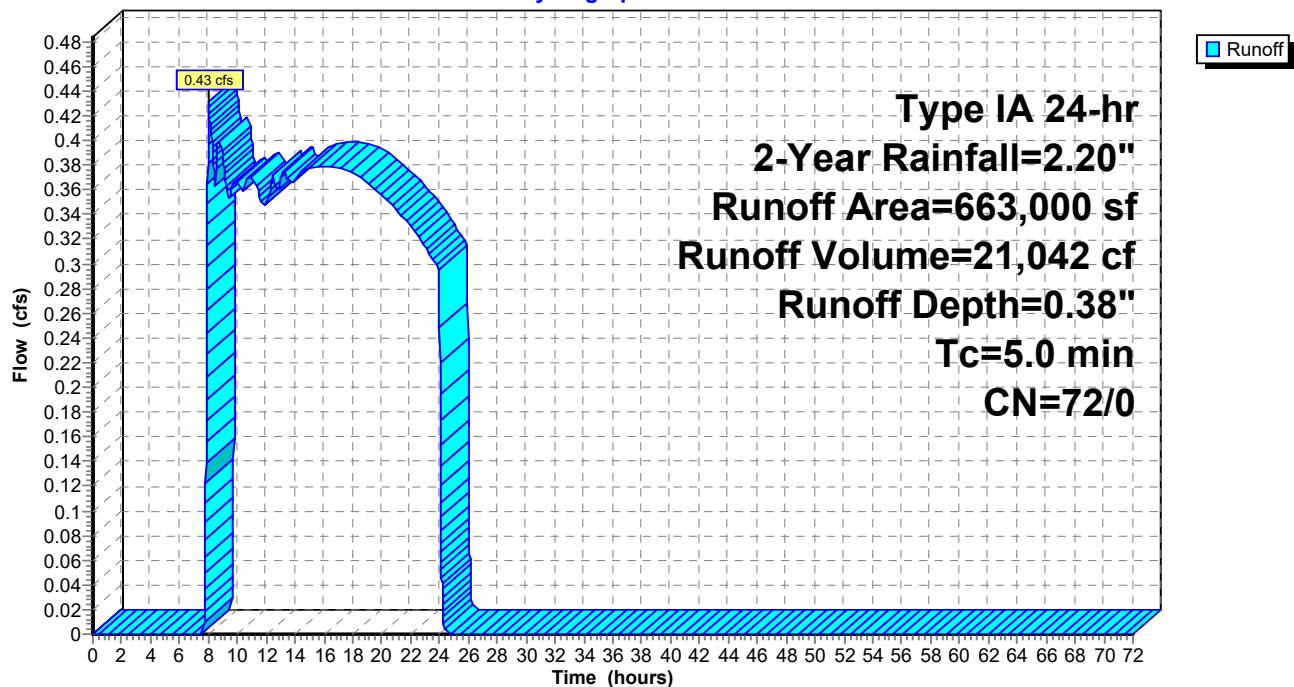
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-Year Rainfall=2.20"

	Area (sf)	CN	Description
*	663,000	72	
	663,000	72	100.00% Pervious Area

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

Subcatchment E-PRE: EAST - PREDEVELOPED

Hydrograph



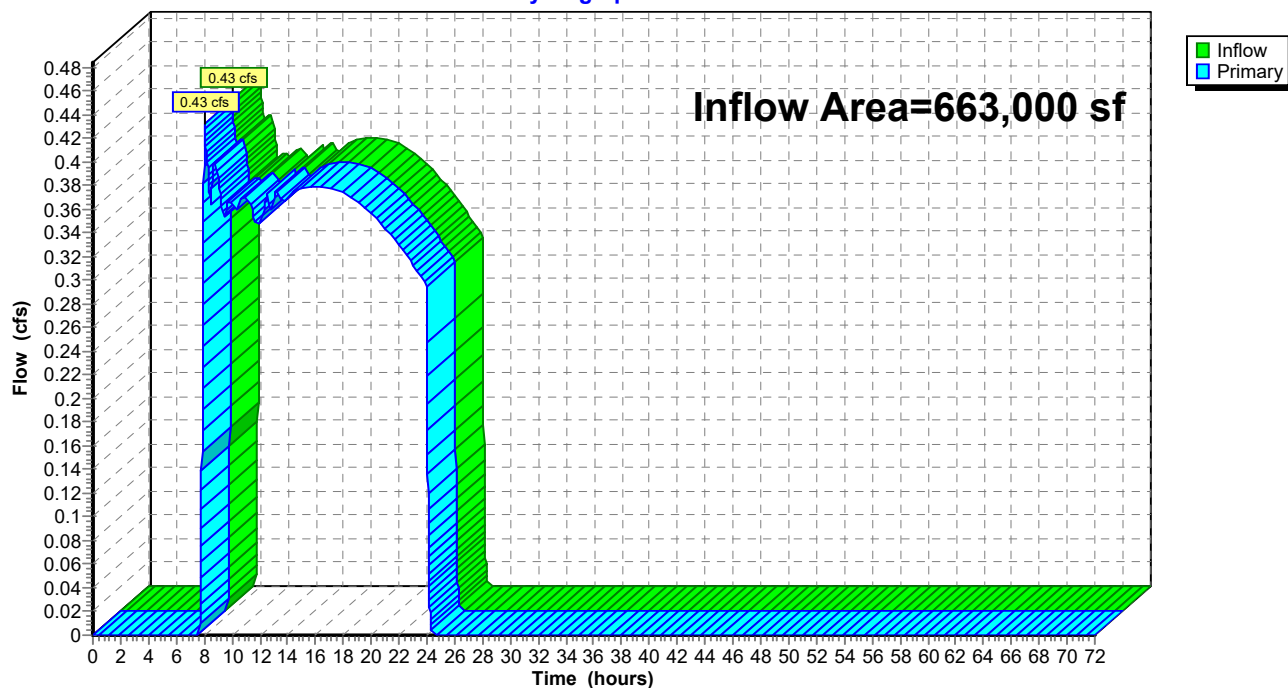
Summary for Link 1-PRE: PREDEVELOPED TO BASIN 1

Inflow Area = 663,000 sf, 0.00% Impervious, Inflow Depth = 0.38" for 2-Year event
Inflow = 0.43 cfs @ 8.01 hrs, Volume= 21,042 cf
Primary = 0.43 cfs @ 8.01 hrs, Volume= 21,042 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1-PRE: PREDEVELOPED TO BASIN 1

Hydrograph



0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 10-Year Rainfall=3.20"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE-PRE: EAST -

Runoff Area=663,000 sf 0.00% Impervious Runoff Depth=0.93"

Tc=5.0 min CN=72/0 Runoff=2.46 cfs 51,363 cf

Link 1-PRE: PREDEVELOPED TO BASIN 1

Inflow=2.46 cfs 51,363 cf

Primary=2.46 cfs 51,363 cf

Total Runoff Area = 663,000 sf Runoff Volume = 51,363 cf Average Runoff Depth = 0.93"
100.00% Pervious = 663,000 sf 0.00% Impervious = 0 sf

Summary for Subcatchment E-PRE: EAST - PREDEVELOPED

Runoff = 2.46 cfs @ 8.00 hrs, Volume= 51,363 cf, Depth= 0.93"

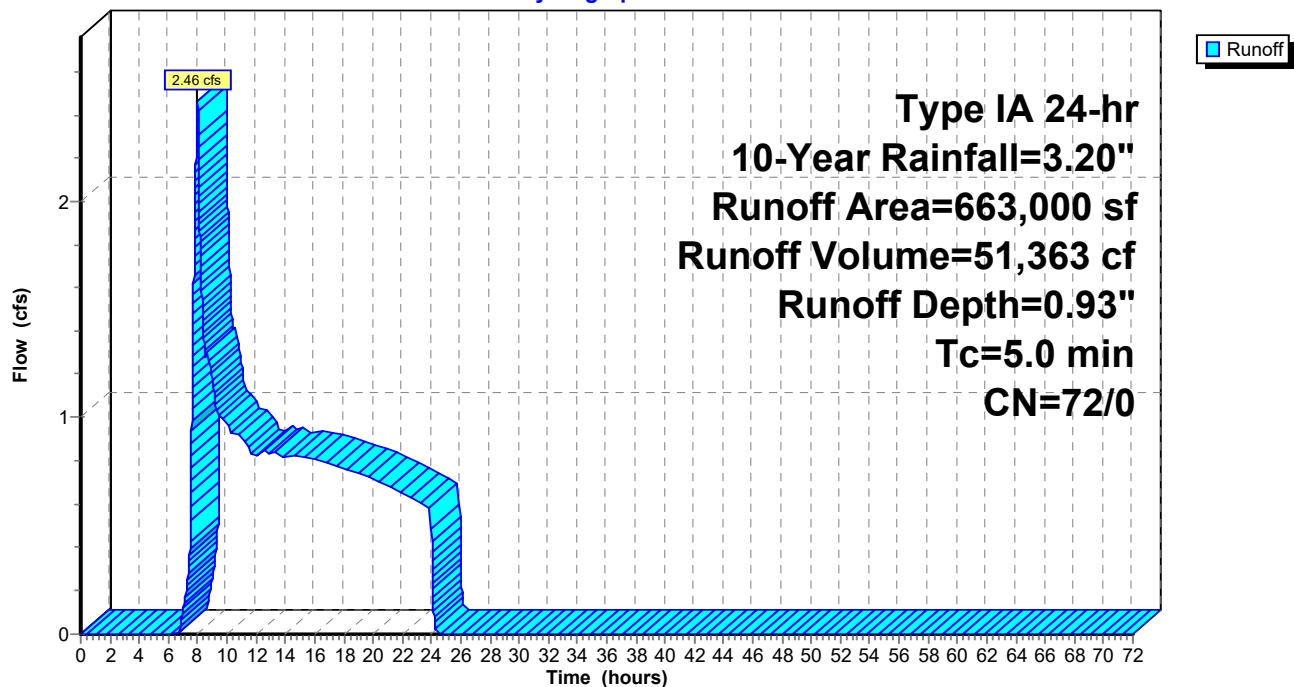
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-Year Rainfall=3.20"

Area (sf)	CN	Description
* 663,000	72	
663,000	72	100.00% Pervious Area

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

Subcatchment E-PRE: EAST - PREDEVELOPED

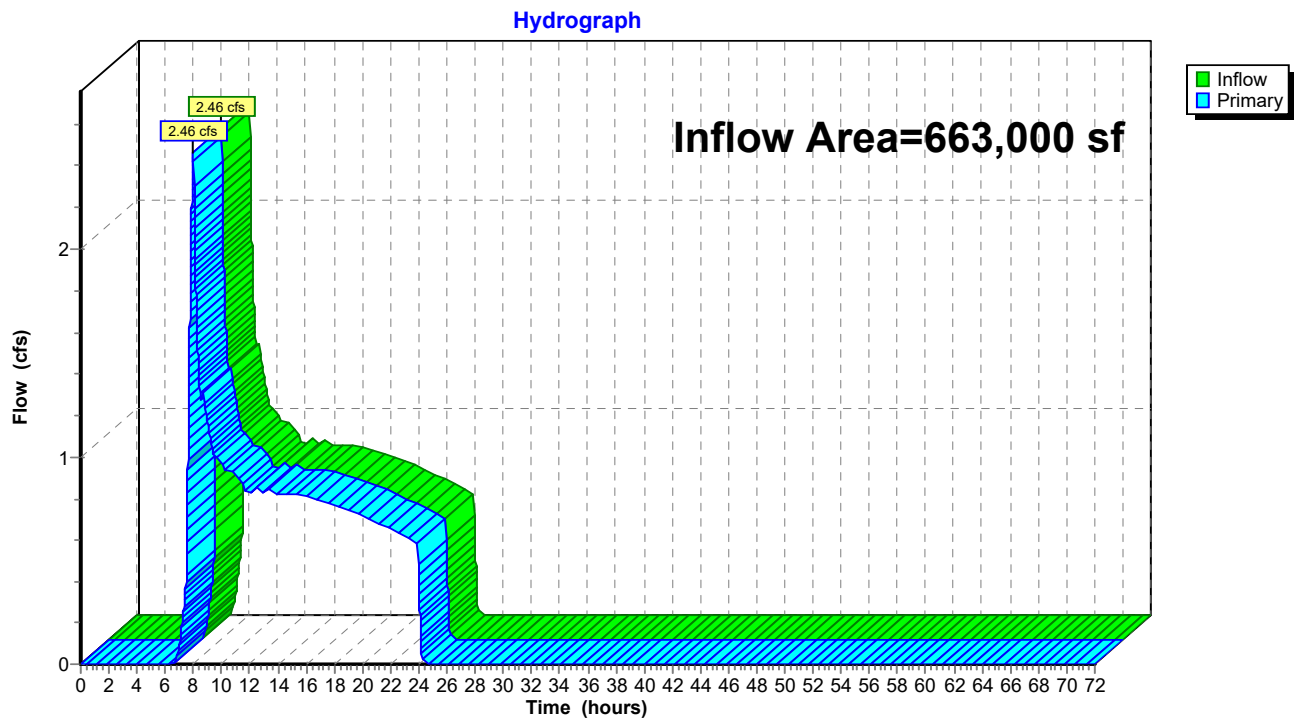
Hydrograph



Summary for Link 1-PRE: PREDEVELOPED TO BASIN 1

Inflow Area = 663,000 sf, 0.00% Impervious, Inflow Depth = 0.93" for 10-Year event
Inflow = 2.46 cfs @ 8.00 hrs, Volume= 51,363 cf
Primary = 2.46 cfs @ 8.00 hrs, Volume= 51,363 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1-PRE: PREDEVELOPED TO BASIN 1

0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 100-Year Rainfall=4.40"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE-PRE: EAST -

Runoff Area=663,000 sf 0.00% Impervious Runoff Depth=1.75"

Tc=5.0 min CN=72/0 Runoff=5.64 cfs 96,511 cf

Link 1-PRE: PREDEVELOPED TO BASIN 1

Inflow=5.64 cfs 96,511 cf

Primary=5.64 cfs 96,511 cf

Total Runoff Area = 663,000 sf Runoff Volume = 96,511 cf Average Runoff Depth = 1.75"
100.00% Pervious = 663,000 sf 0.00% Impervious = 0 sf

0742-003 - Meyer Farm - HydroCAD Model

Type IA 24-hr 100-Year Rainfall=4.40"

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Page 10

Summary for Subcatchment E-PRE: EAST - PREDEVELOPED

Runoff = 5.64 cfs @ 8.00 hrs, Volume= 96,511 cf, Depth= 1.75"

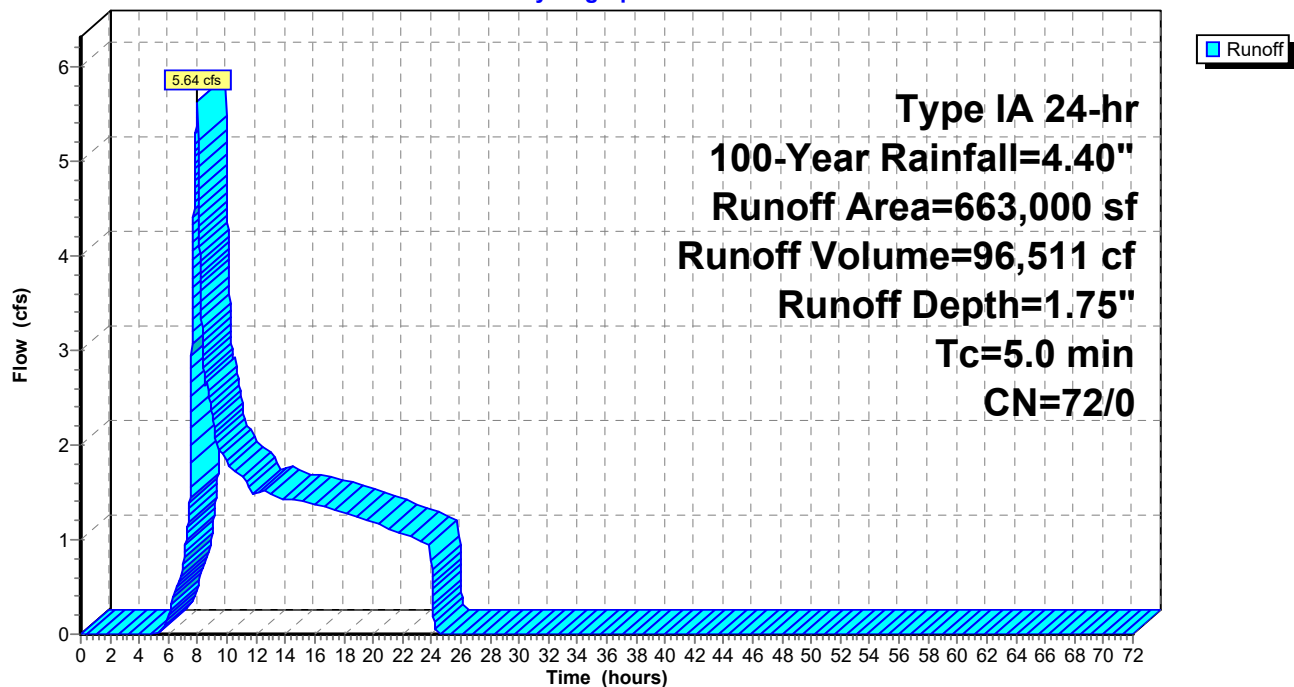
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 100-Year Rainfall=4.40"

	Area (sf)	CN	Description
*	663,000	72	
	663,000	72	100.00% Pervious Area

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

Subcatchment E-PRE: EAST - PREDEVELOPED

Hydrograph



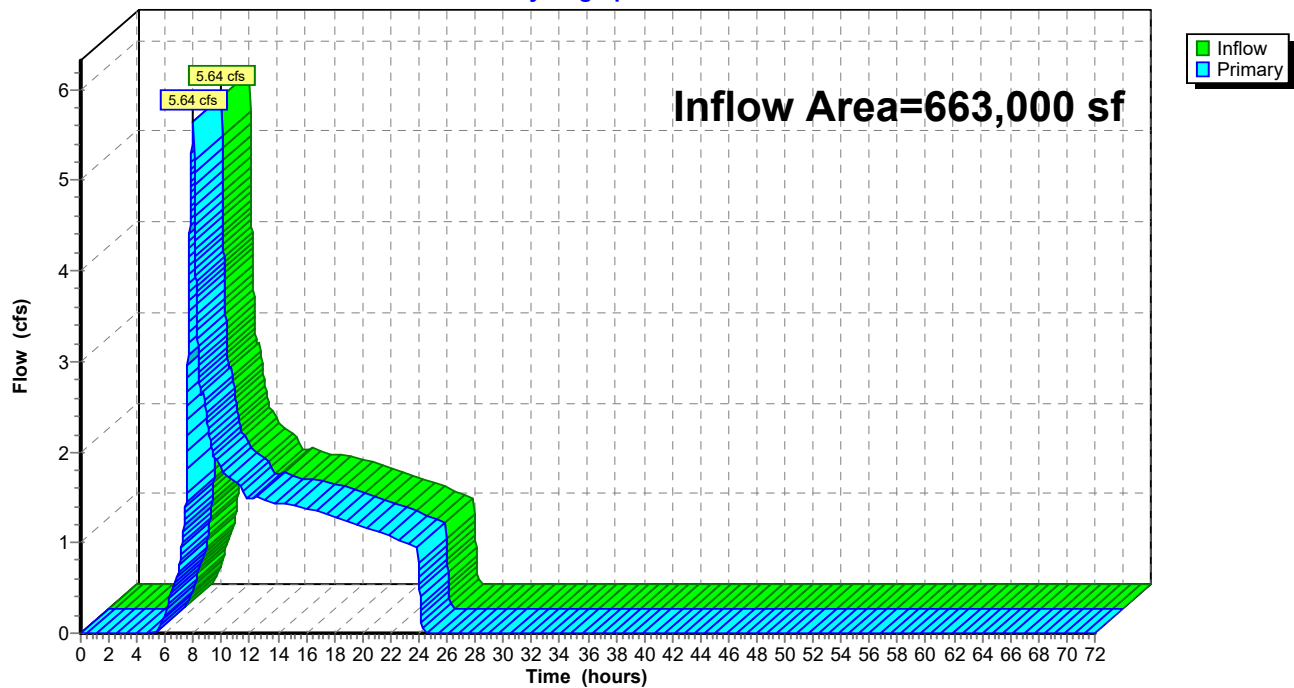
Summary for Link 1-PRE: PREDEVELOPED TO BASIN 1

Inflow Area = 663,000 sf, 0.00% Impervious, Inflow Depth = 1.75" for 100-Year event
Inflow = 5.64 cfs @ 8.00 hrs, Volume= 96,511 cf
Primary = 5.64 cfs @ 8.00 hrs, Volume= 96,511 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1-PRE: PREDEVELOPED TO BASIN 1

Hydrograph



0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr WQ Rainfall=1.36"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE-PRE: EAST -

Runoff Area=663,000 sf 0.00% Impervious Runoff Depth=0.08"

Tc=5.0 min CN=72/0 Runoff=0.10 cfs 4,189 cf

Link 1-PRE: PREDEVELOPED TO BASIN 1

Inflow=0.10 cfs 4,189 cf

Primary=0.10 cfs 4,189 cf

Total Runoff Area = 663,000 sf Runoff Volume = 4,189 cf Average Runoff Depth = 0.08"
100.00% Pervious = 663,000 sf 0.00% Impervious = 0 sf

0742-003 - Meyer Farm - HydroCAD Model

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Type IA 24-hr WQ Rainfall=1.36"

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Summary for Subcatchment E-PRE: EAST - PREDEVELOPED

Runoff = 0.10 cfs @ 20.13 hrs, Volume= 4,189 cf, Depth= 0.08"

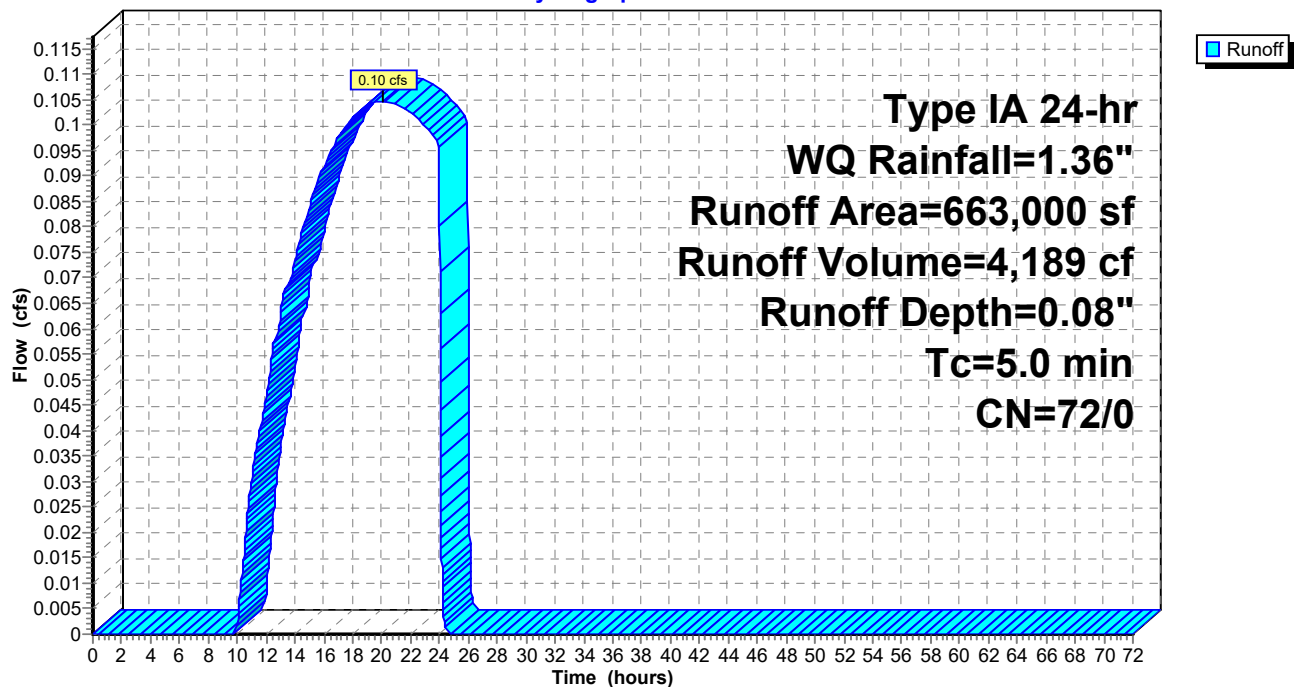
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.36"

	Area (sf)	CN	Description
*	663,000	72	
	663,000	72	100.00% Pervious Area

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

Subcatchment E-PRE: EAST - PREDEVELOPED

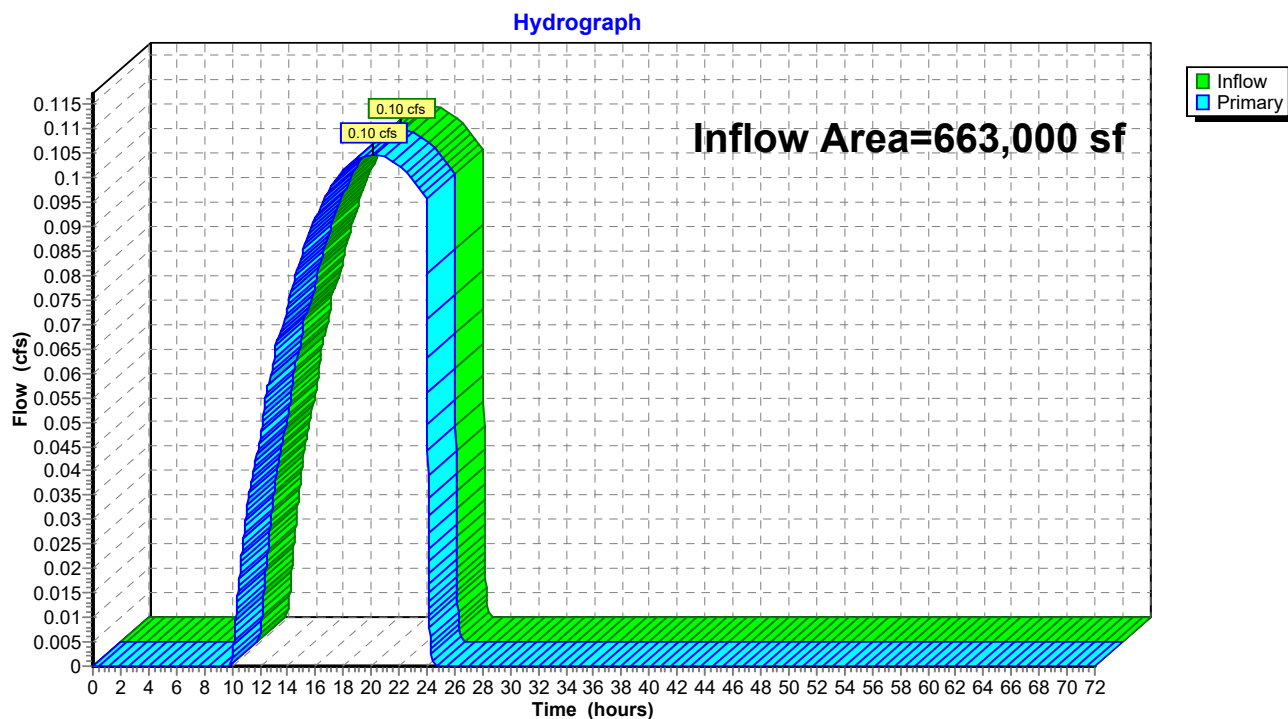
Hydrograph

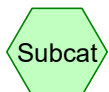
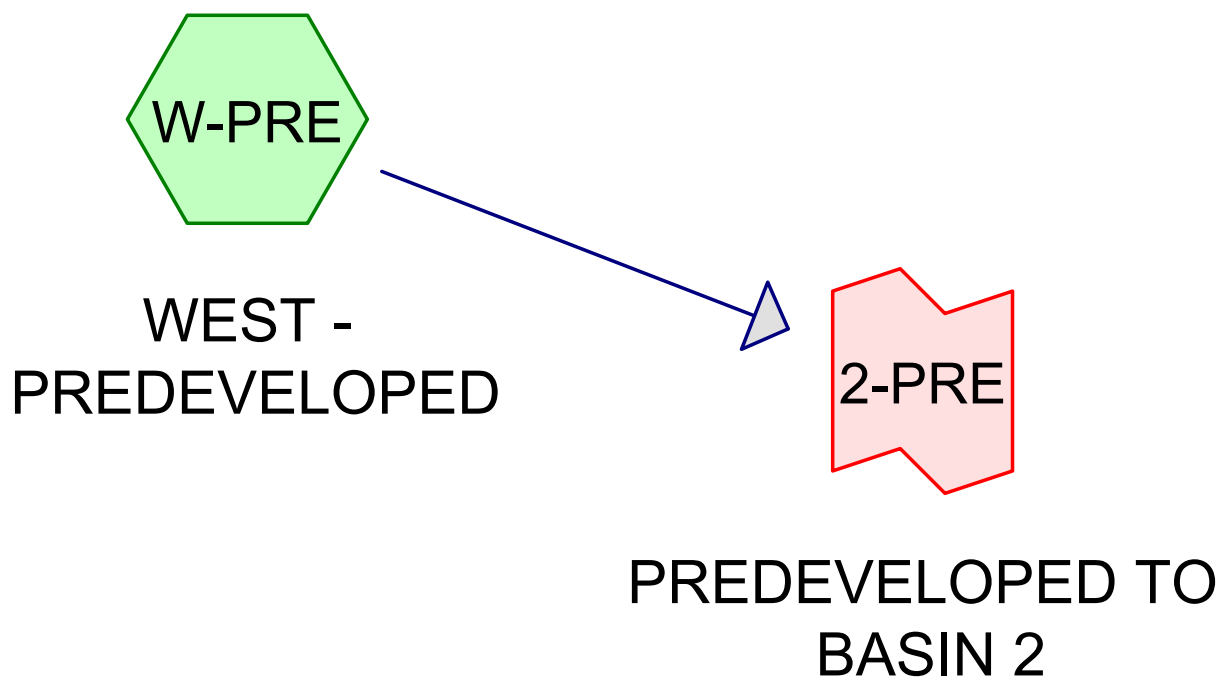


Summary for Link 1-PRE: PREDEVELOPED TO BASIN 1

Inflow Area = 663,000 sf, 0.00% Impervious, Inflow Depth = 0.08" for WQ event
Inflow = 0.10 cfs @ 20.13 hrs, Volume= 4,189 cf
Primary = 0.10 cfs @ 20.13 hrs, Volume= 4,189 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

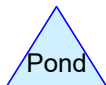
Link 1-PRE: PREDEVELOPED TO BASIN 1



Subcat



Reach



Pond



Link

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0742-003 - Meyer Farm - HydroCAD Model

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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
143,000	72	(W-PRE)
143,000	72	TOTAL AREA

0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 2-Year Rainfall=2.20"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentW-PRE: WEST -

Runoff Area=143,000 sf 0.00% Impervious Runoff Depth=0.38"

Tc=5.0 min CN=72/0 Runoff=0.09 cfs 4,538 cf

Link 2-PRE: PREDEVELOPED TO BASIN 2

Inflow=0.09 cfs 4,538 cf

Primary=0.09 cfs 4,538 cf

Total Runoff Area = 143,000 sf Runoff Volume = 4,538 cf Average Runoff Depth = 0.38"
100.00% Pervious = 143,000 sf 0.00% Impervious = 0 sf

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Type IA 24-hr 2-Year Rainfall=2.20"

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Summary for Subcatchment W-PRE: WEST - PREDEVELOPED

Runoff = 0.09 cfs @ 8.01 hrs, Volume= 4,538 cf, Depth= 0.38"

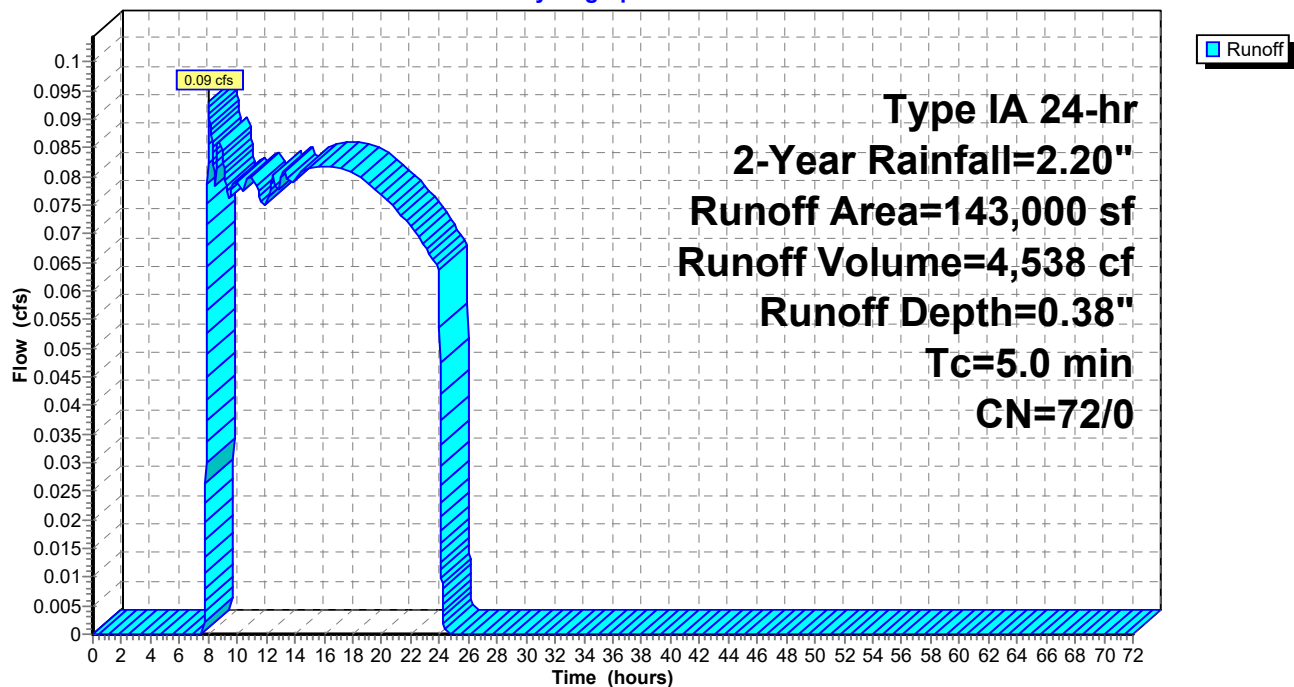
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-Year Rainfall=2.20"

	Area (sf)	CN	Description
*	143,000	72	
	143,000	72	100.00% Pervious Area

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

Subcatchment W-PRE: WEST - PREDEVELOPED

Hydrograph



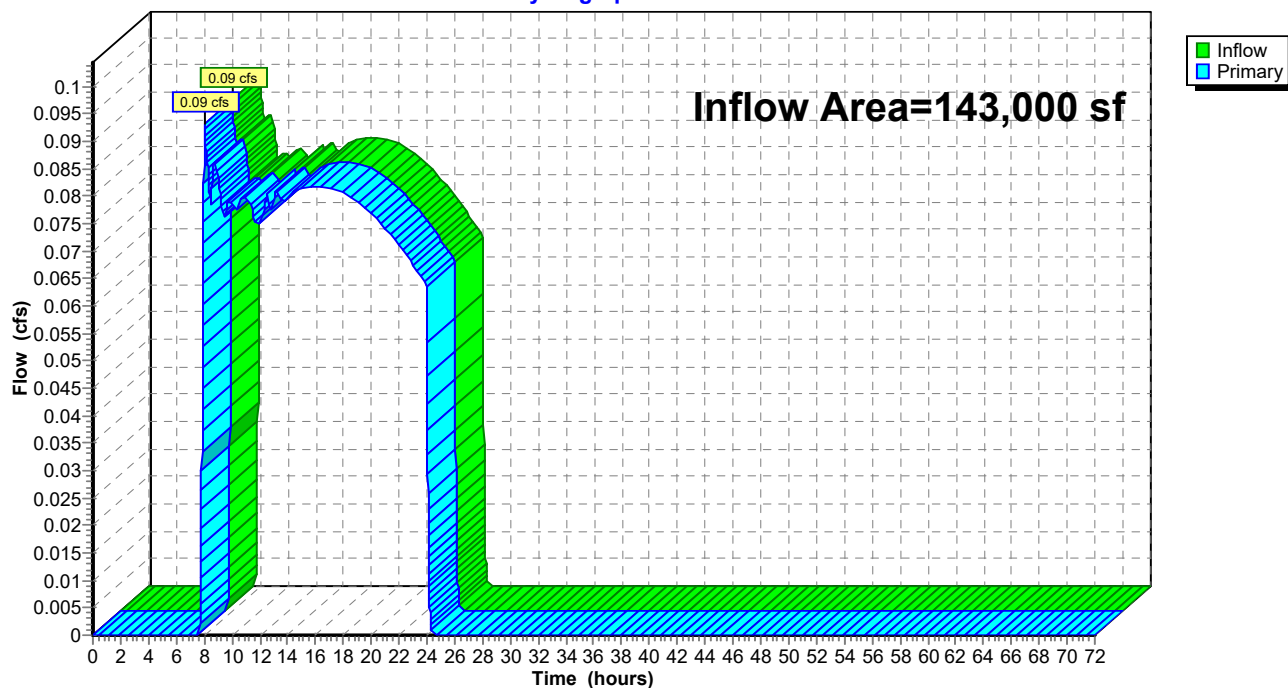
Summary for Link 2-PRE: PREDEVELOPED TO BASIN 2

Inflow Area = 143,000 sf, 0.00% Impervious, Inflow Depth = 0.38" for 2-Year event
Inflow = 0.09 cfs @ 8.01 hrs, Volume= 4,538 cf
Primary = 0.09 cfs @ 8.01 hrs, Volume= 4,538 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 2-PRE: PREDEVELOPED TO BASIN 2

Hydrograph



0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 10-Year Rainfall=3.20"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentW-PRE: WEST -

Runoff Area=143,000 sf 0.00% Impervious Runoff Depth=0.93"

Tc=5.0 min CN=72/0 Runoff=0.53 cfs 11,078 cf

Link 2-PRE: PREDEVELOPED TO BASIN 2

Inflow=0.53 cfs 11,078 cf

Primary=0.53 cfs 11,078 cf

Total Runoff Area = 143,000 sf Runoff Volume = 11,078 cf Average Runoff Depth = 0.93"
100.00% Pervious = 143,000 sf 0.00% Impervious = 0 sf

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Type IA 24-hr 10-Year Rainfall=3.20"

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Summary for Subcatchment W-PRE: WEST - PREDEVELOPED

Runoff = 0.53 cfs @ 8.00 hrs, Volume= 11,078 cf, Depth= 0.93"

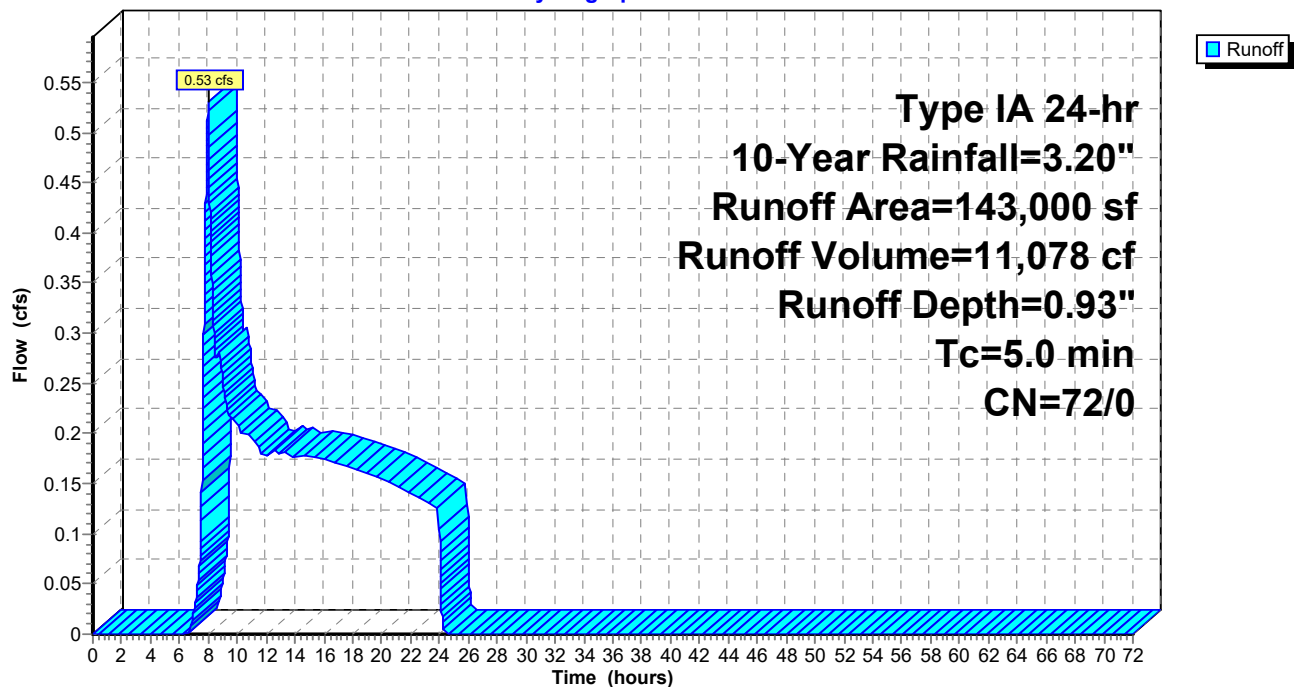
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	143,000	72	
	143,000	72	100.00% Pervious Area

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

Subcatchment W-PRE: WEST - PREDEVELOPED

Hydrograph



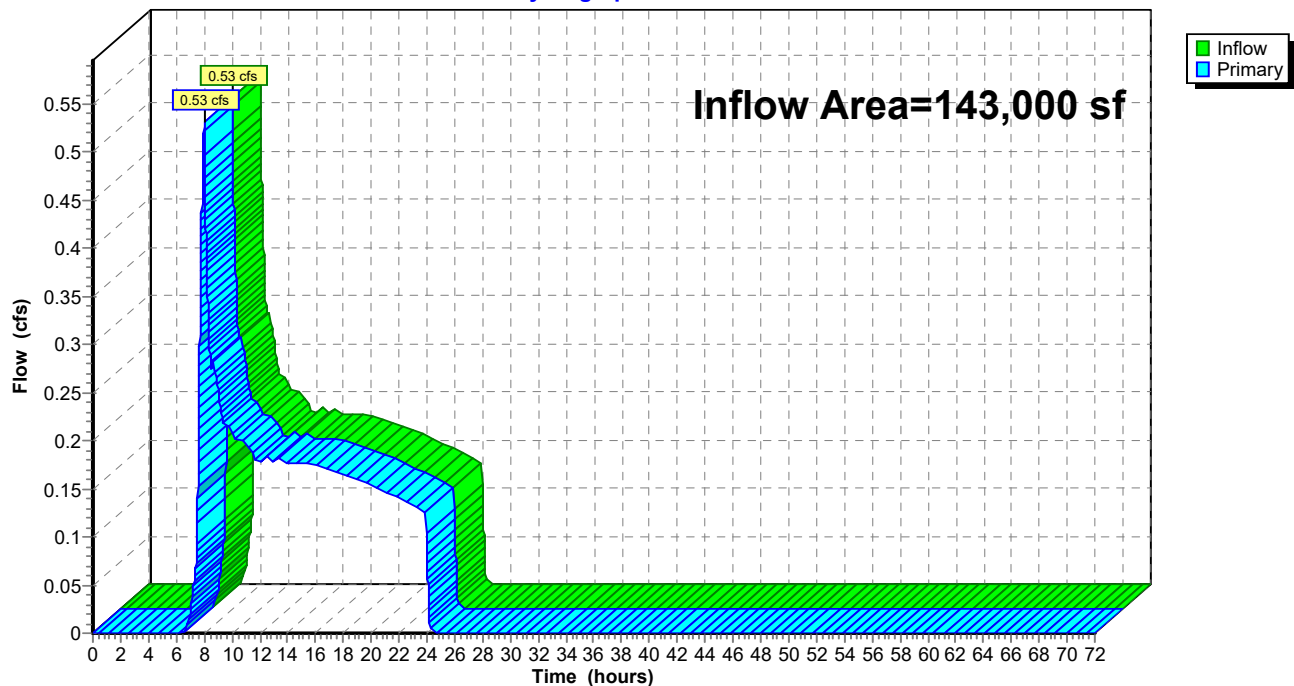
Summary for Link 2-PRE: PREDEVELOPED TO BASIN 2

Inflow Area = 143,000 sf, 0.00% Impervious, Inflow Depth = 0.93" for 10-Year event
Inflow = 0.53 cfs @ 8.00 hrs, Volume= 11,078 cf
Primary = 0.53 cfs @ 8.00 hrs, Volume= 11,078 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 2-PRE: PREDEVELOPED TO BASIN 2

Hydrograph



0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 100-Year Rainfall=4.40"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentW-PRE: WEST -

Runoff Area=143,000 sf 0.00% Impervious Runoff Depth=1.75"

Tc=5.0 min CN=72/0 Runoff=1.22 cfs 20,816 cf

Link 2-PRE: PREDEVELOPED TO BASIN 2

Inflow=1.22 cfs 20,816 cf

Primary=1.22 cfs 20,816 cf

Total Runoff Area = 143,000 sf Runoff Volume = 20,816 cf Average Runoff Depth = 1.75"
100.00% Pervious = 143,000 sf 0.00% Impervious = 0 sf

Summary for Subcatchment W-PRE: WEST - PREDEVELOPED

Runoff = 1.22 cfs @ 8.00 hrs, Volume= 20,816 cf, Depth= 1.75"

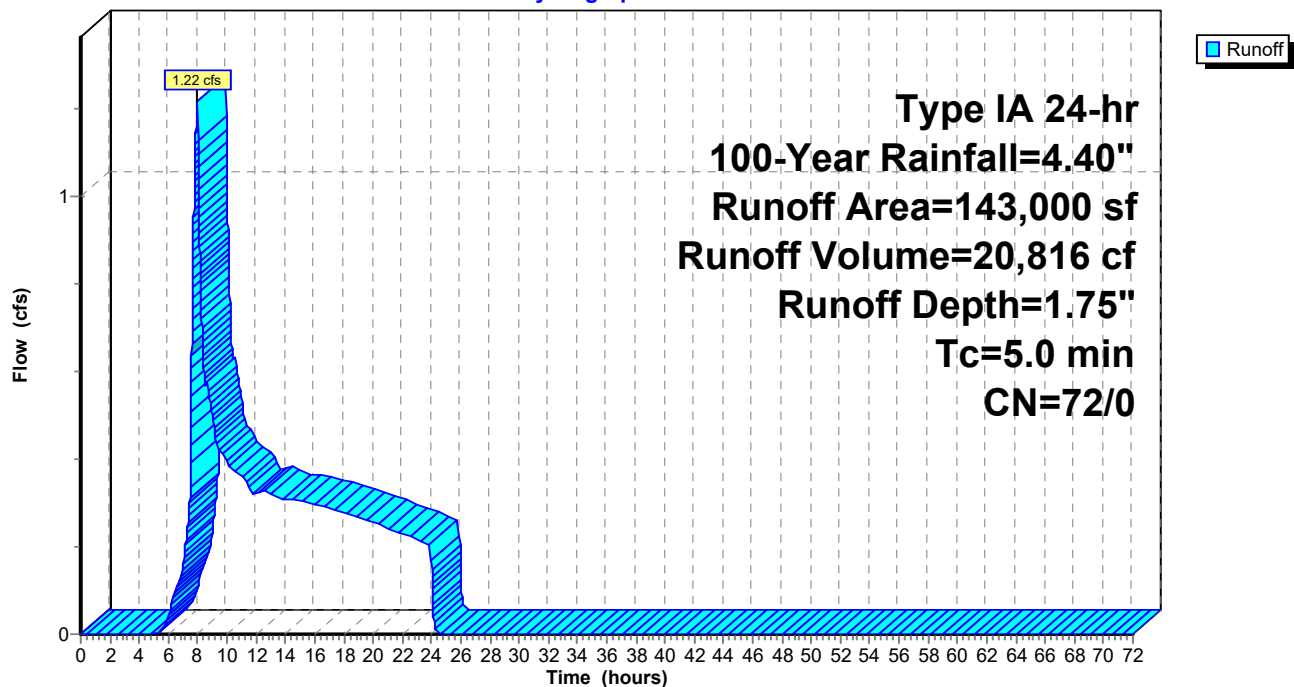
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 100-Year Rainfall=4.40"

Area (sf)	CN	Description
* 143,000	72	
143,000	72	100.00% Pervious Area

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

Subcatchment W-PRE: WEST - PREDEVELOPED

Hydrograph



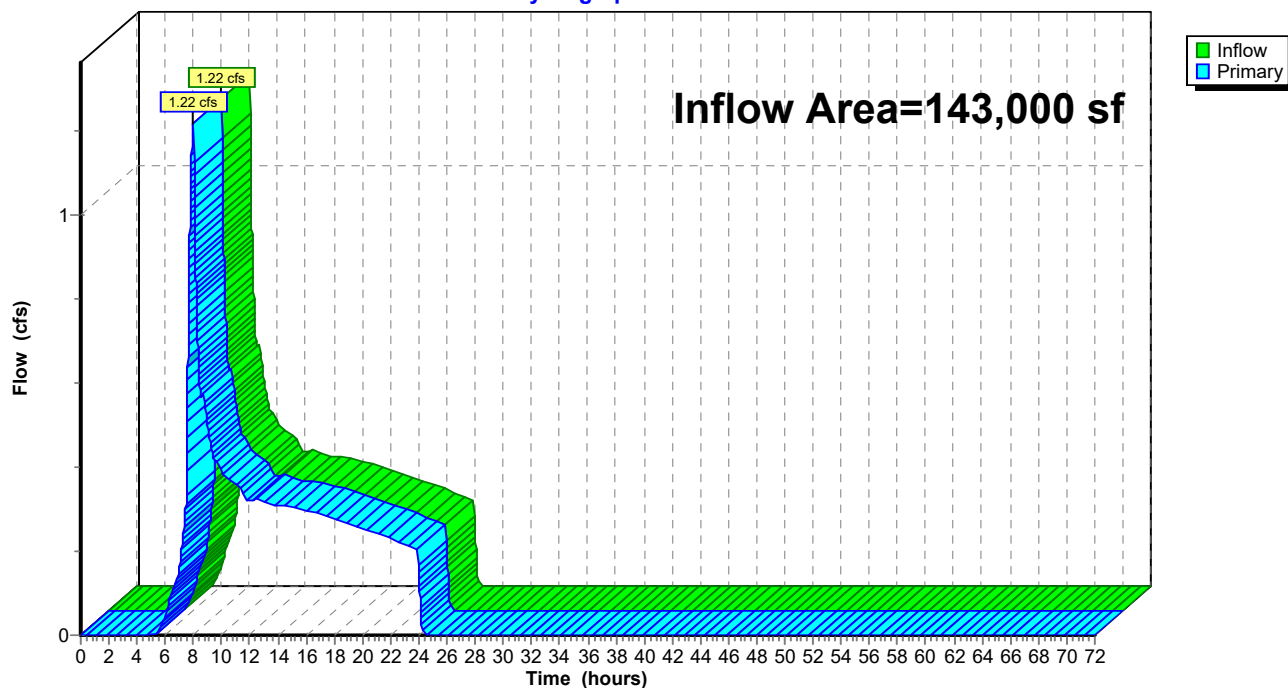
Summary for Link 2-PRE: PREDEVELOPED TO BASIN 2

Inflow Area = 143,000 sf, 0.00% Impervious, Inflow Depth = 1.75" for 100-Year event
Inflow = 1.22 cfs @ 8.00 hrs, Volume= 20,816 cf
Primary = 1.22 cfs @ 8.00 hrs, Volume= 20,816 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 2-PRE: PREDEVELOPED TO BASIN 2

Hydrograph



0742-003 - Meyer Farm - HydroCAD Model

Type IA 24-hr WQ Rainfall=1.36"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentW-PRE: WEST -

Runoff Area=143,000 sf 0.00% Impervious Runoff Depth=0.08"

Tc=5.0 min CN=72/0 Runoff=0.02 cfs 903 cf

Link 2-PRE: PREDEVELOPED TO BASIN 2

Inflow=0.02 cfs 903 cf

Primary=0.02 cfs 903 cf

Total Runoff Area = 143,000 sf Runoff Volume = 903 cf Average Runoff Depth = 0.08"
100.00% Pervious = 143,000 sf 0.00% Impervious = 0 sf

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Type IA 24-hr WQ Rainfall=1.36"

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Summary for Subcatchment W-PRE: WEST - PREDEVELOPED

Runoff = 0.02 cfs @ 20.13 hrs, Volume= 903 cf, Depth= 0.08"

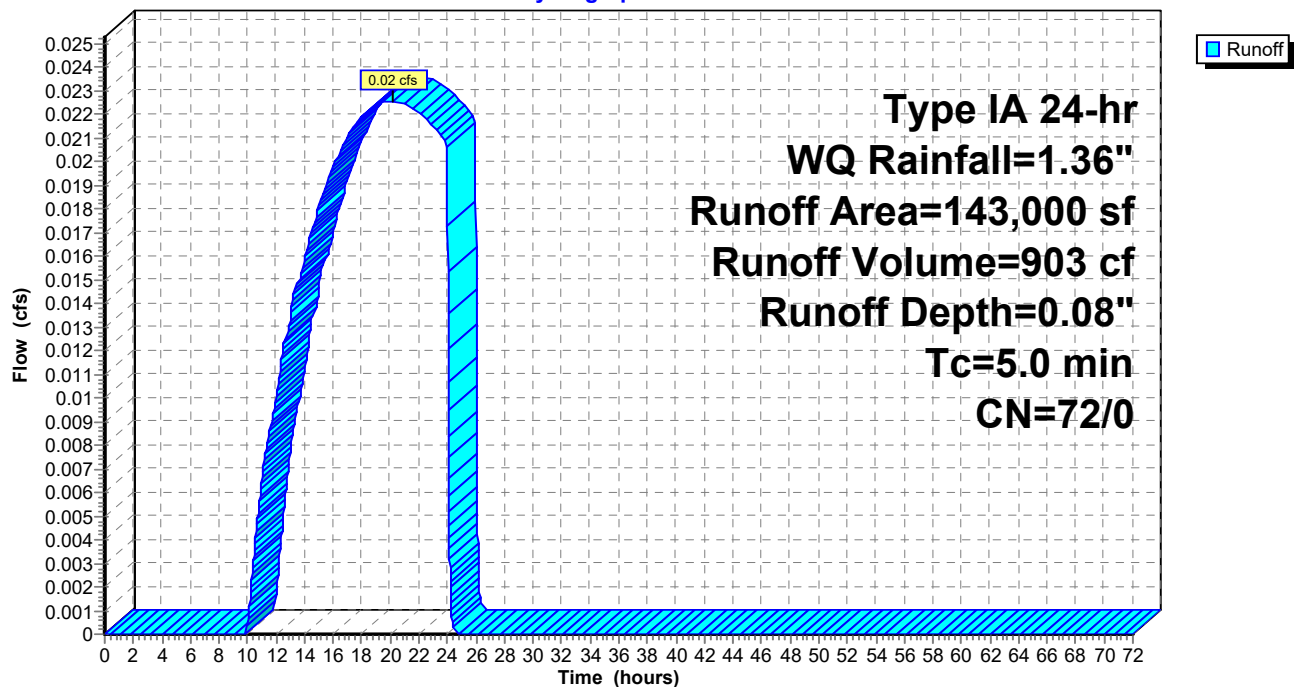
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.36"

	Area (sf)	CN	Description
*	143,000	72	
	143,000	72	100.00% Pervious Area

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

Subcatchment W-PRE: WEST - PREDEVELOPED

Hydrograph

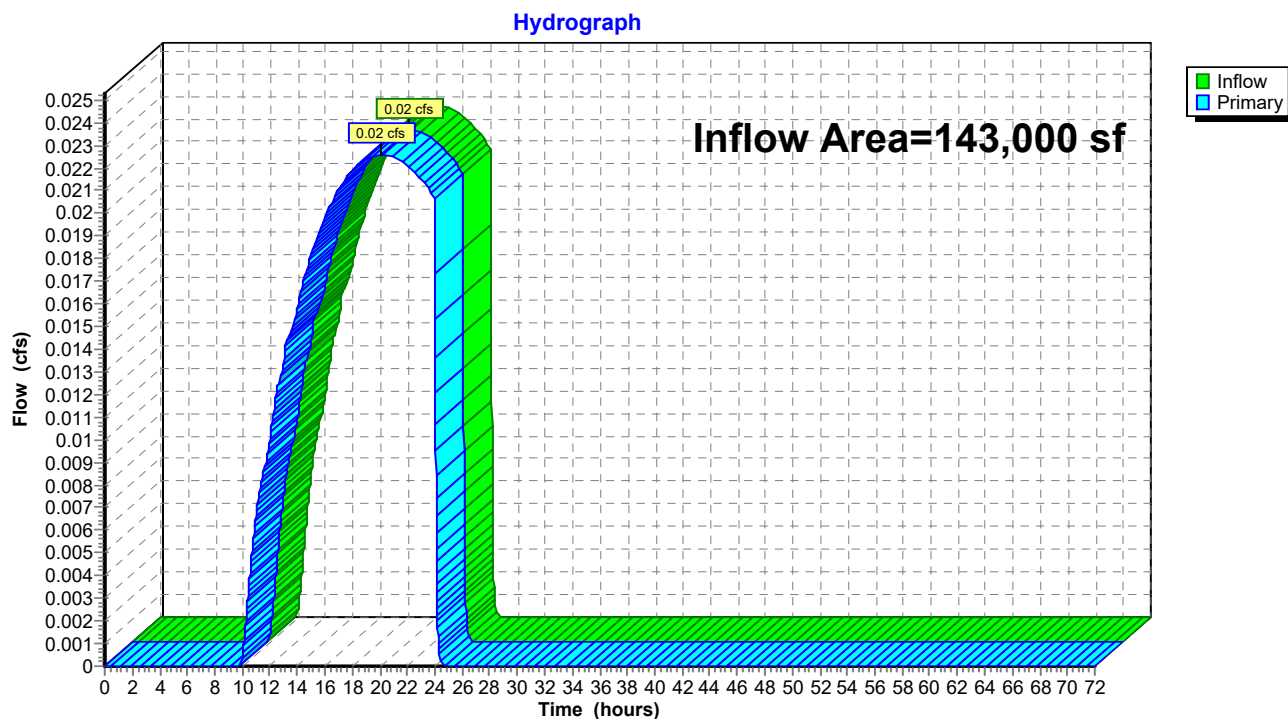


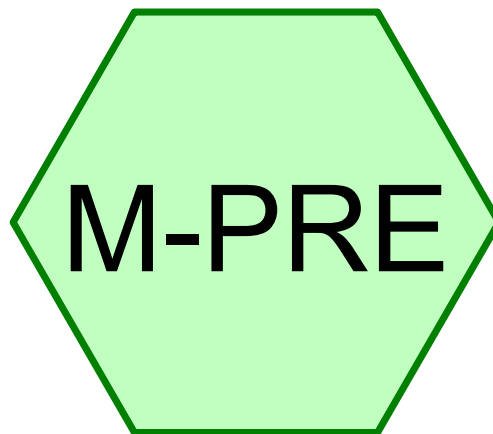
Summary for Link 2-PRE: PREDEVELOPED TO BASIN 2

Inflow Area = 143,000 sf, 0.00% Impervious, Inflow Depth = 0.08" for WQ event
 Inflow = 0.02 cfs @ 20.13 hrs, Volume= 903 cf
 Primary = 0.02 cfs @ 20.13 hrs, Volume= 903 cf, Atten= 0%, Lag= 0.0 min

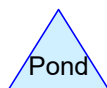
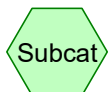
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 2-PRE: PREDEVELOPED TO BASIN 2





MID - PREDEVELOPED



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Page 2

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
517,000	72	(M-PRE)
517,000	72	TOTAL AREA

0742-003 - Meyer Farm - HydroCAD Model

Type IA 24-hr 2-Year Rainfall=2.20"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentM-PRE: MID -

Runoff Area=517,000 sf 0.00% Impervious Runoff Depth=0.38"

Tc=5.0 min CN=72/0 Runoff=0.34 cfs 16,408 cf

Total Runoff Area = 517,000 sf Runoff Volume = 16,408 cf Average Runoff Depth = 0.38"

100.00% Pervious = 517,000 sf 0.00% Impervious = 0 sf

0742-003 - Meyer Farm - HydroCAD Model

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Type IA 24-hr 2-Year Rainfall=2.20"

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Summary for Subcatchment M-PRE: MID - PREDEVELOPED

Runoff = 0.34 cfs @ 8.01 hrs, Volume= 16,408 cf, Depth= 0.38"

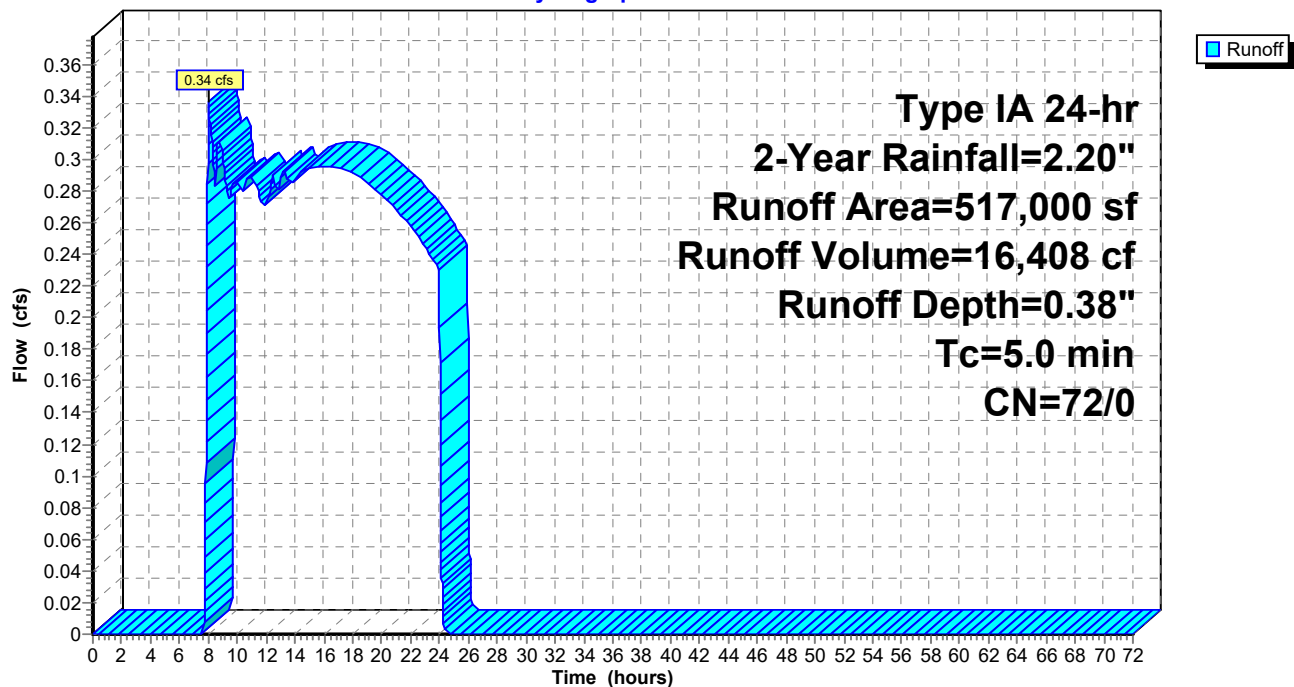
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-Year Rainfall=2.20"

	Area (sf)	CN	Description
*	517,000	72	
	517,000	72	100.00% Pervious Area

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

Subcatchment M-PRE: MID - PREDEVELOPED

Hydrograph



0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 10-Year Rainfall=3.20"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentM-PRE: MID -

Runoff Area=517,000 sf 0.00% Impervious Runoff Depth=0.93"

Tc=5.0 min CN=72/0 Runoff=1.92 cfs 40,053 cf

Total Runoff Area = 517,000 sf Runoff Volume = 40,053 cf Average Runoff Depth = 0.93"**100.00% Pervious = 517,000 sf 0.00% Impervious = 0 sf**

Summary for Subcatchment M-PRE: MID - PREDEVELOPED

Runoff = 1.92 cfs @ 8.00 hrs, Volume= 40,053 cf, Depth= 0.93"

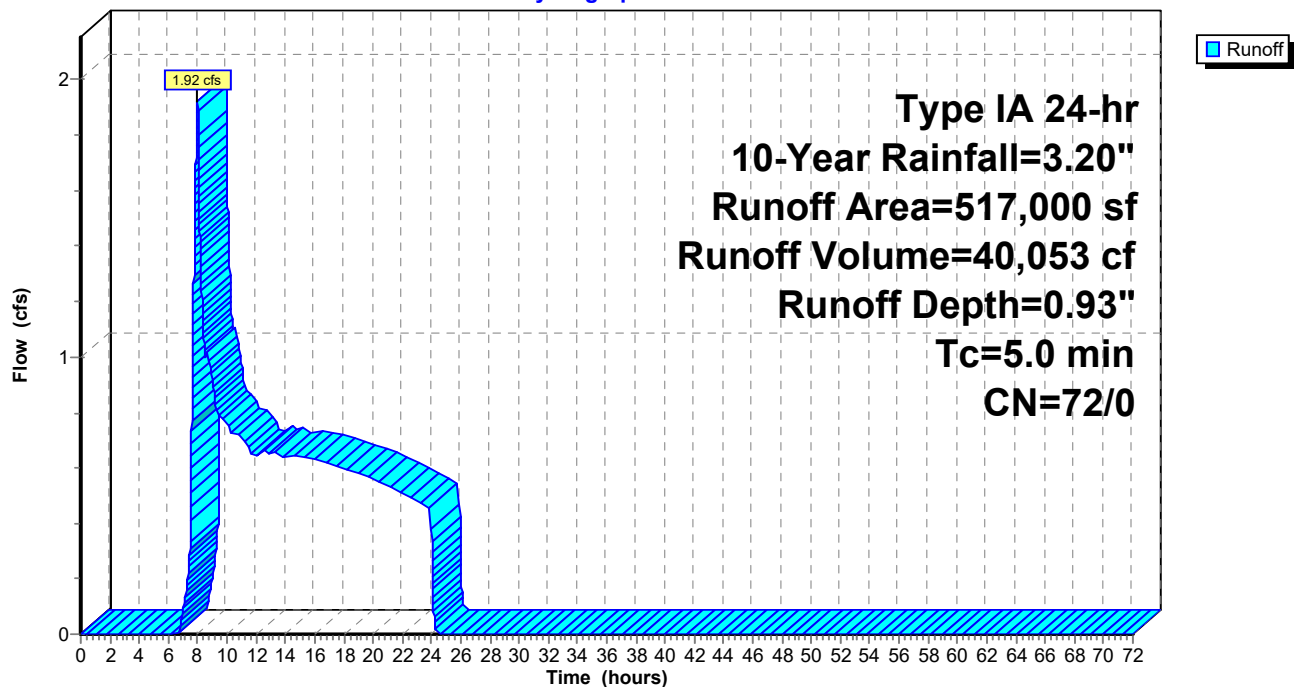
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-Year Rainfall=3.20"

Area (sf)	CN	Description
* 517,000	72	
517,000	72	100.00% Pervious Area

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

Subcatchment M-PRE: MID - PREDEVELOPED

Hydrograph



0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 100-Year Rainfall=4.40"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentM-PRE: MID -

Runoff Area=517,000 sf 0.00% Impervious Runoff Depth=1.75"

Tc=5.0 min CN=72/0 Runoff=4.40 cfs 75,258 cf

Total Runoff Area = 517,000 sf Runoff Volume = 75,258 cf Average Runoff Depth = 1.75"**100.00% Pervious = 517,000 sf 0.00% Impervious = 0 sf**

Summary for Subcatchment M-PRE: MID - PREDEVELOPED

Runoff = 4.40 cfs @ 8.00 hrs, Volume= 75,258 cf, Depth= 1.75"

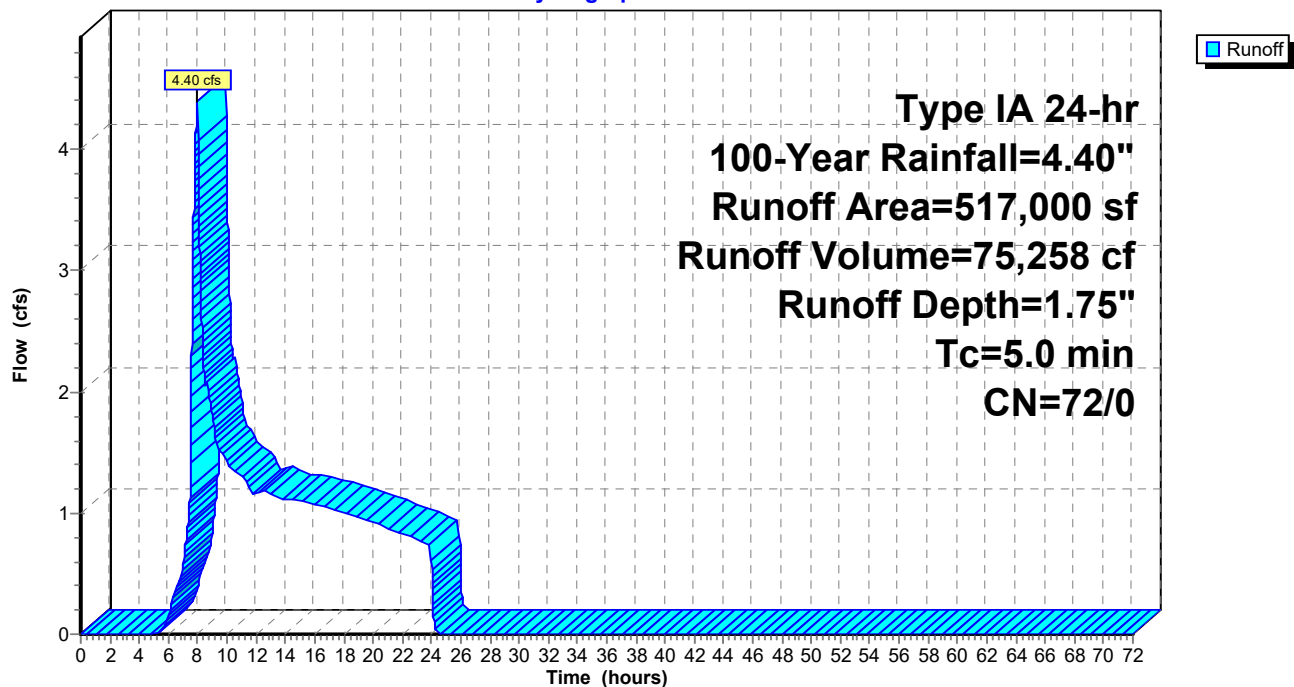
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 100-Year Rainfall=4.40"

Area (sf)	CN	Description
* 517,000	72	
517,000	72	100.00% Pervious Area

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

Subcatchment M-PRE: MID - PREDEVELOPED

Hydrograph



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Type IA 24-hr WQ Rainfall=1.36"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentM-PRE: MID -

Runoff Area=517,000 sf 0.00% Impervious Runoff Depth=0.08"

Tc=5.0 min CN=72/0 Runoff=0.08 cfs 3,266 cf

Total Runoff Area = 517,000 sf Runoff Volume = 3,266 cf Average Runoff Depth = 0.08"

100.00% Pervious = 517,000 sf 0.00% Impervious = 0 sf

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Type IA 24-hr WQ Rainfall=1.36"

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Summary for Subcatchment M-PRE: MID - PREDEVELOPED

Runoff = 0.08 cfs @ 20.13 hrs, Volume= 3,266 cf, Depth= 0.08"

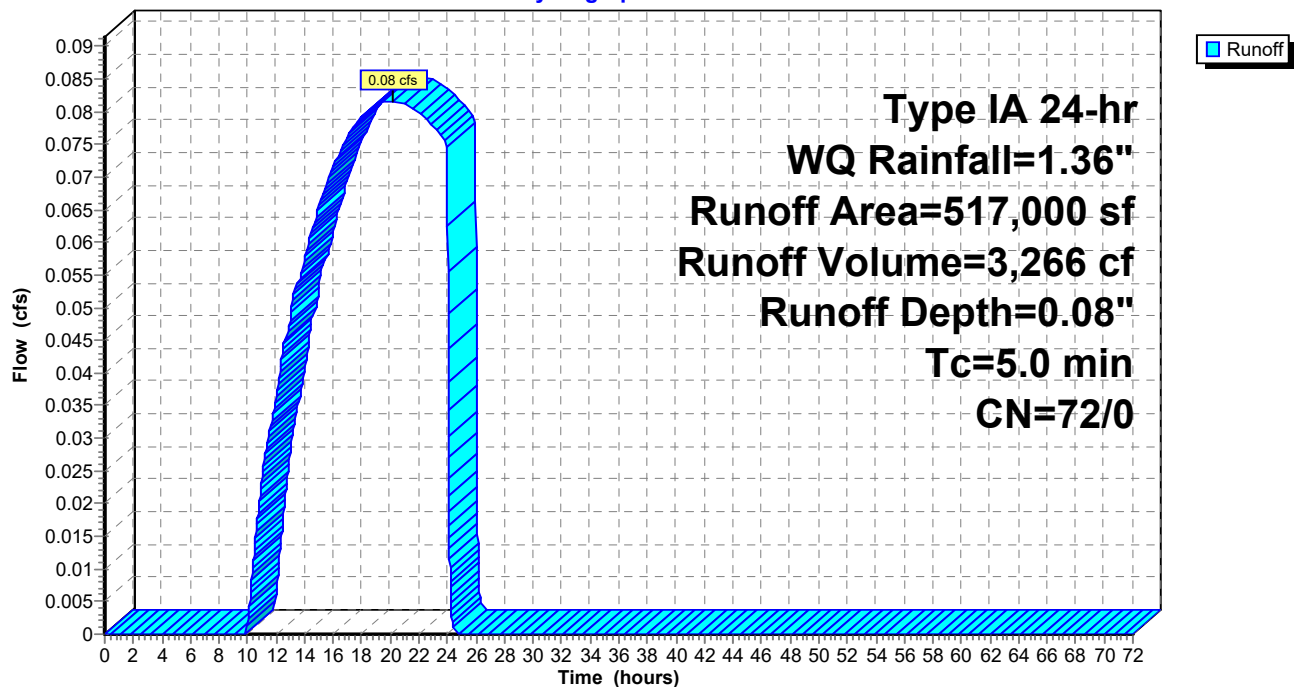
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.36"

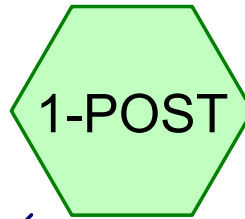
	Area (sf)	CN	Description
*	517,000	72	
	517,000	72	100.00% Pervious Area

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

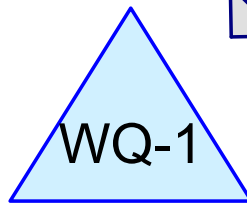
Subcatchment M-PRE: MID - PREDEVELOPED

Hydrograph

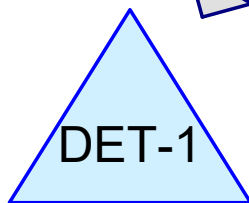




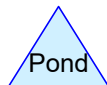
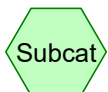
BASIN 1 - POST
DEVELOPED



NE POND - WQ
SECTION



NE POND -
DETENTION SECTION



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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
158,600	72	Area to Remain (1-POST)
268,450	98	Lot Impervious (65% total lot area) (1-POST)
144,550	72	Lot Pervious (1-POST)
90,800	72	Remaining Pervious (1-POST)
32,300	98	Sidewalk (1-POST)
141,300	98	Streets and Curb (1-POST)
836,000	86	TOTAL AREA

0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr WQ Rainfall=1.36"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1-POST: BASIN 1 - POST Runoff Area=836,000 sf 52.88% Impervious Runoff Depth=0.64"
Tc=5.0 min CN=72/98 Runoff=2.99 cfs 44,574 cf

Pond DET-1: NE POND - DETENTION SECTION Peak Elev=100.00' Storage=0 cf Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Pond WQ-1: NE POND - WQ SECTION Peak Elev=105.08' Storage=40,707 cf Inflow=2.99 cfs 44,574 cf
Discarded=0.07 cfs 15,157 cf Primary=0.00 cfs 0 cf Outflow=0.07 cfs 15,157 cf

Total Runoff Area = 836,000 sf Runoff Volume = 44,574 cf Average Runoff Depth = 0.64"
47.12% Pervious = 393,950 sf 52.88% Impervious = 442,050 sf

0742-003 - Meyer Farm - HydroCAD Model

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Type IA 24-hr WQ Rainfall=1.36"

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Summary for Subcatchment 1-POST: BASIN 1 - POST DEVELOPED

Runoff = 2.99 cfs @ 7.89 hrs, Volume= 44,574 cf, Depth= 0.64"

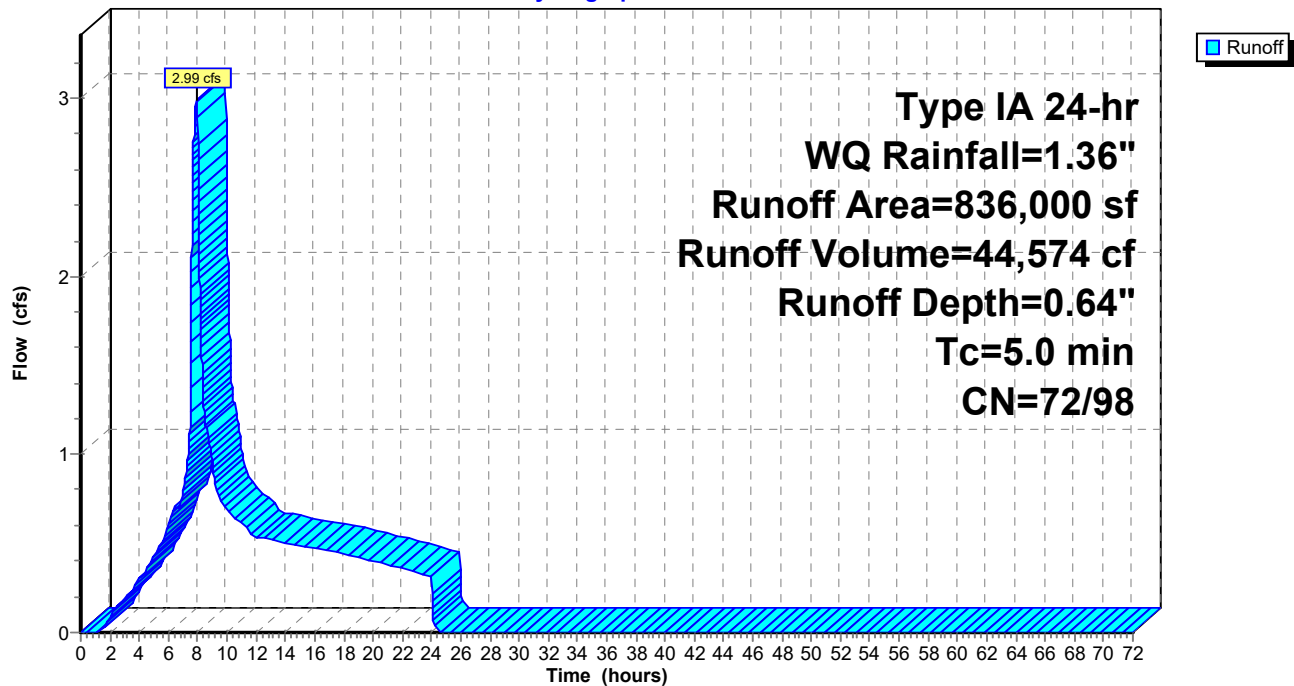
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.36"

	Area (sf)	CN	Description
*	141,300	98	Streets and Curb
*	32,300	98	Sidewalk
*	268,450	98	Lot Impervious (65% total lot area)
*	144,550	72	Lot Pervious
*	158,600	72	Area to Remain
*	90,800	72	Remaining Pervious
<hr/>			
	836,000	86	Weighted Average
	393,950	72	47.12% Pervious Area
	442,050	98	52.88% Impervious Area

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

Subcatchment 1-POST: BASIN 1 - POST DEVELOPED

Hydrograph



Summary for Pond DET-1: NE POND - DETENTION SECTION

Inflow Area = 836,000 sf, 52.88% Impervious, Inflow Depth = 0.00" for WQ event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 100.00' @ 0.00 hrs Surf.Area= 8,614 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

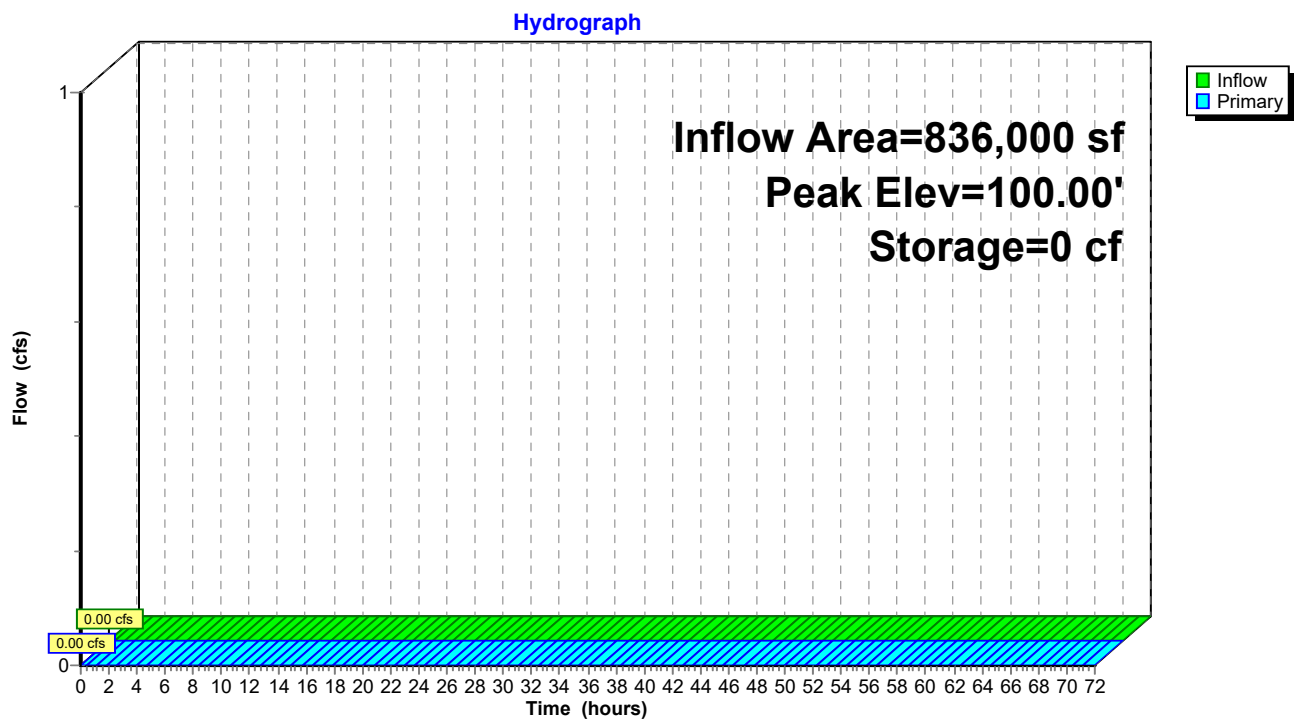
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	34,456 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	8,614	0	0
104.00	8,614	34,456	34,456
Device	Routing	Invert	Outlet Devices
#1	Primary	99.00'	42.0" Round Outflow Pipe L= 80.0' Ke= 0.900 Inlet / Outlet Invert= 99.00' / 98.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 9.62 sf
#2	Device 1	98.50'	2.7" Horiz. Low Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	103.00'	15.0" Horiz. High Orifice C= 0.620 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=100.00' (Free Discharge)

↑ **1=Outflow Pipe** (Passes 0.00 cfs of 5.60 cfs potential flow)
 ↑ **2=Low Orifice** (Passes 0.00 cfs of 0.20 cfs potential flow)
 ↑ **3=High Orifice** (Controls 0.00 cfs)

Pond DET-1: NE POND - DETENTION SECTION



0742-003 - Meyer Farm - HydroCAD Model

Type IA 24-hr WQ Rainfall=1.36"

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Summary for Pond WQ-1: NE POND - WQ SECTION

Inflow Area = 836,000 sf, 52.88% Impervious, Inflow Depth = 0.64" for WQ event
 Inflow = 2.99 cfs @ 7.89 hrs, Volume= 44,574 cf
 Outflow = 0.07 cfs @ 7.86 hrs, Volume= 15,157 cf, Atten= 98%, Lag= 0.0 min
 Discarded = 0.07 cfs @ 7.86 hrs, Volume= 15,157 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 105.08' @ 24.14 hrs Surf.Area= 17,010 sf Storage= 40,707 cf

Plug-Flow detention time= 2,002.5 min calculated for 15,154 cf (34% of inflow)
 Center-of-Mass det. time= 1,676.9 min (2,395.7 - 718.7)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	34,020 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	98.50'	8,505 cf	18" Growing Medium (Prismatic) Listed below (Recalc)
#3	97.00'	3,402 cf	18" Drain Rock (Prismatic) Listed below (Recalc)
		8,505 cf Overall x 40.0% Voids	
		45,927 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	5,670	0	0
106.00	5,670	34,020	34,020

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.50	5,670	0	0
100.00	5,670	8,505	8,505

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	5,670	0	0
98.50	5,670	8,505	8,505

Device	Routing	Invert	Outlet Devices
#1	Discarded	97.00'	0.500 in/hr 0.5 in/hr Infiltration over Surface area from 85.00' - 97.00' Excluded Surface area = 0 sf
#2	Device 1	98.50'	2.000 in/hr 2 in/hr Infiltration Through Growing Medium over Surface area from 85.00' - 97.00' Excluded Surface area = 11,340 sf
#3	Primary	105.50'	100.0' long Outfall Weir to Detention Section 2 End Contraction(s)

Discarded OutFlow Max=0.07 cfs @ 7.86 hrs HW=100.00' (Free Discharge)

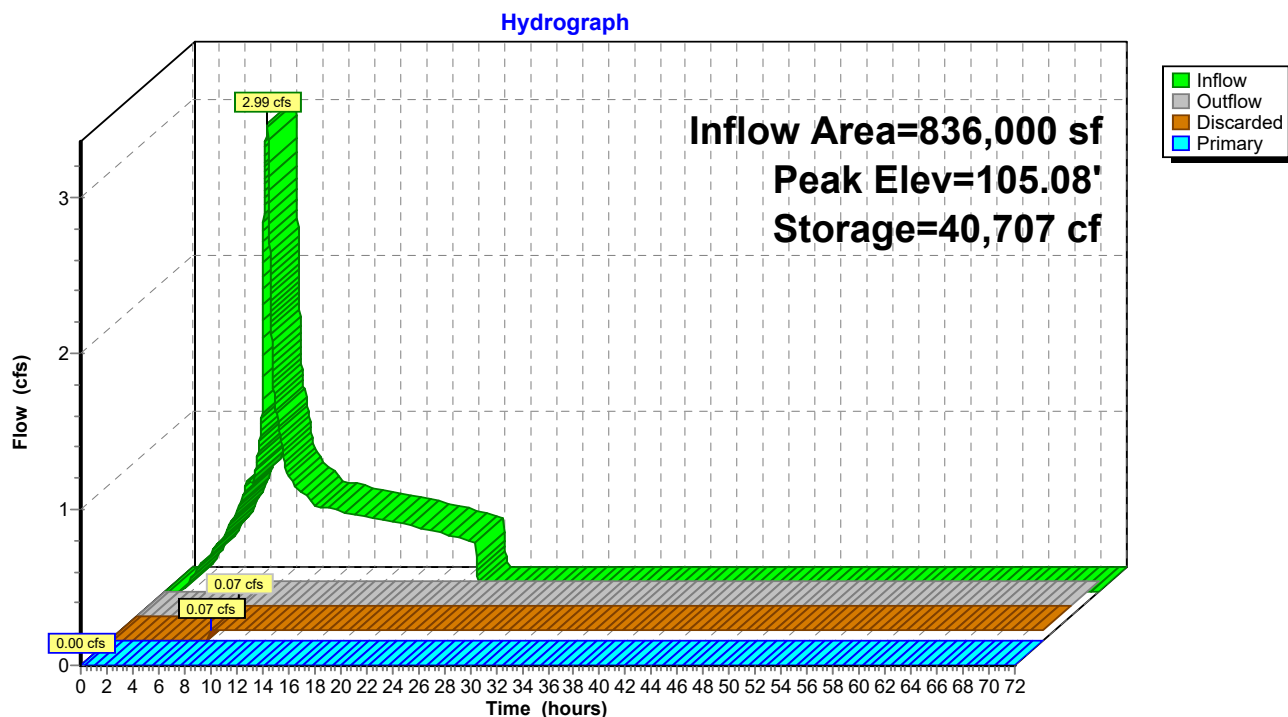
↑ **1=0.5 in/hr Infiltration** (Exfiltration Controls 0.07 cfs)

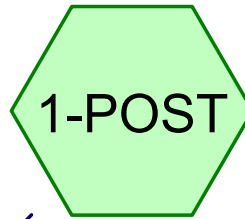
↑ **2=2 in/hr Infiltration Through Growing Medium**(Passes 0.07 cfs of 0.26 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=97.00' (Free Discharge)

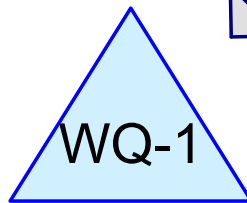
↑ **3=Outfall Weir to Detention Section**(Controls 0.00 cfs)

Pond WQ-1: NE POND - WQ SECTION

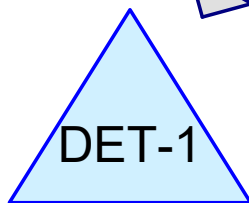




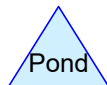
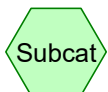
BASIN 1 - POST
DEVELOPED



NE POND - WQ
SECTION



NE POND -
DETENTION SECTION



Routing Diagram for 0742-003 - Meyer Farm - HydroCAD Model
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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
158,600	72	Area to Remain (1-POST)
268,450	98	Lot Impervious (65% total lot area) (1-POST)
144,550	72	Lot Pervious (1-POST)
90,800	72	Remaining Pervious (1-POST)
32,300	98	Sidewalk (1-POST)
141,300	98	Streets and Curb (1-POST)
836,000	86	TOTAL AREA

0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 2-Year Rainfall=2.20"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1-POST: BASIN 1 - POST Runoff Area=836,000 sf 52.88% Impervious Runoff Depth=1.22"
Tc=5.0 min CN=72/98 Runoff=5.26 cfs 85,173 cf

Pond DET-1: NE POND - DETENTION Peak Elev=102.64' Storage=22,774 cf Inflow=1.15 cfs 37,872 cf
Outflow=0.38 cfs 37,872 cf

Pond WQ-1: NE POND - WQ SECTION Peak Elev=105.52' Storage=43,181 cf Inflow=5.26 cfs 85,173 cf
Discarded=0.07 cfs 15,485 cf Primary=1.15 cfs 37,872 cf Outflow=1.21 cfs 53,357 cf

Total Runoff Area = 836,000 sf Runoff Volume = 85,173 cf Average Runoff Depth = 1.22"
47.12% Pervious = 393,950 sf 52.88% Impervious = 442,050 sf

Summary for Subcatchment 1-POST: BASIN 1 - POST DEVELOPED

Runoff = 5.26 cfs @ 7.92 hrs, Volume= 85,173 cf, Depth= 1.22"

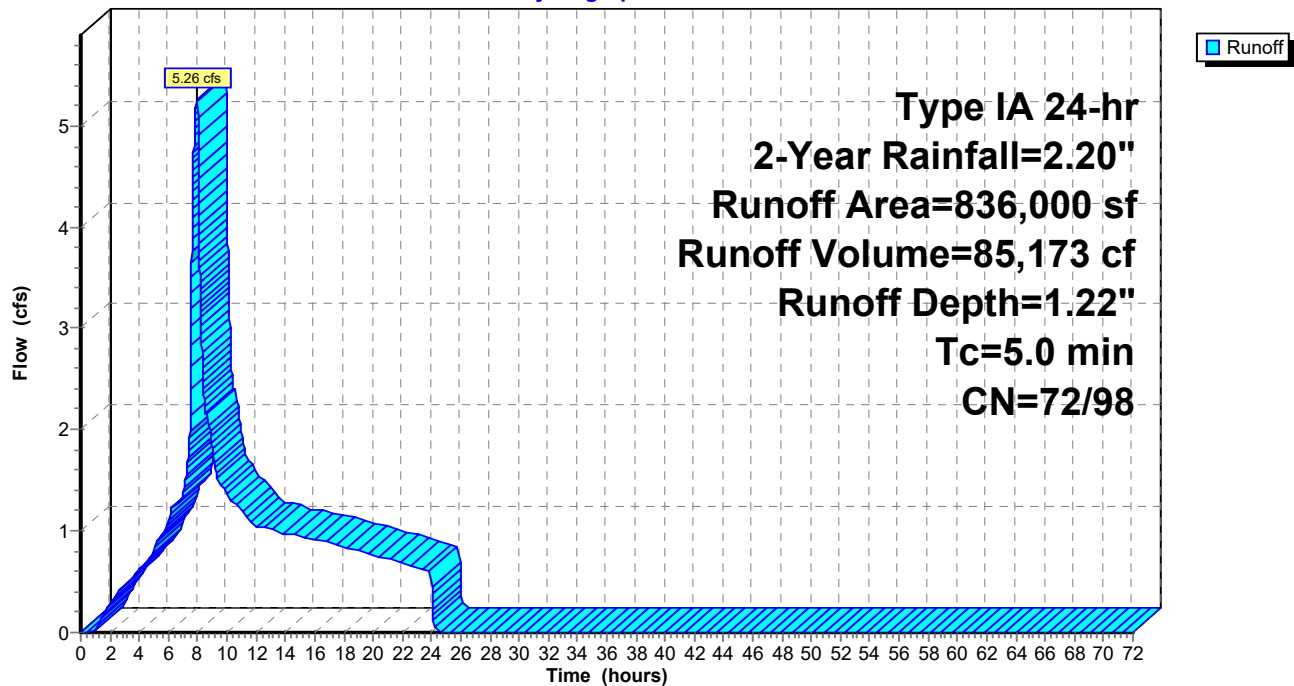
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-Year Rainfall=2.20"

	Area (sf)	CN	Description
*	141,300	98	Streets and Curb
*	32,300	98	Sidewalk
*	268,450	98	Lot Impervious (65% total lot area)
*	144,550	72	Lot Pervious
*	158,600	72	Area to Remain
*	90,800	72	Remaining Pervious
	836,000	86	Weighted Average
	393,950	72	47.12% Pervious Area
	442,050	98	52.88% Impervious Area

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

Subcatchment 1-POST: BASIN 1 - POST DEVELOPED

Hydrograph



Summary for Pond DET-1: NE POND - DETENTION SECTION

Inflow Area = 836,000 sf, 52.88% Impervious, Inflow Depth = 0.54" for 2-Year event
 Inflow = 1.15 cfs @ 10.98 hrs, Volume= 37,872 cf
 Outflow = 0.38 cfs @ 24.05 hrs, Volume= 37,872 cf, Atten= 67%, Lag= 784.2 min
 Primary = 0.38 cfs @ 24.05 hrs, Volume= 37,872 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 102.64' @ 24.05 hrs Surf.Area= 8,614 sf Storage= 22,774 cf

Plug-Flow detention time= 651.5 min calculated for 37,867 cf (100% of inflow)
 Center-of-Mass det. time= 651.6 min (1,658.0 - 1,006.3)

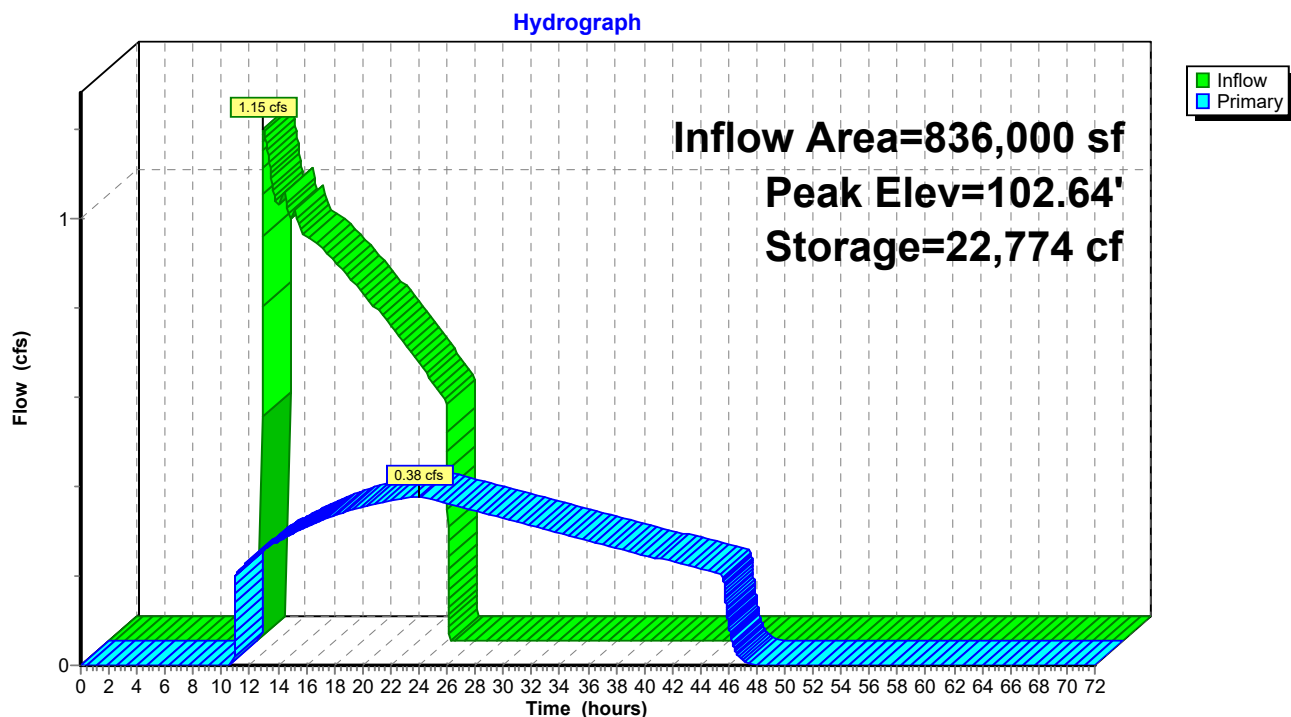
Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	34,456 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	8,614	0	0
104.00	8,614	34,456	34,456

Device	Routing	Invert	Outlet Devices
#1	Primary	99.00'	42.0" Round Outflow Pipe L= 80.0' Ke= 0.900 Inlet / Outlet Invert= 99.00' / 98.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 9.62 sf
#2	Device 1	98.50'	2.7" Horiz. Low Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	103.00'	15.0" Horiz. High Orifice C= 0.620 Limited to weir flow at low heads

Primary OutFlow Max=0.38 cfs @ 24.05 hrs HW=102.64' (Free Discharge)

- 1=Outflow Pipe (Passes 0.38 cfs of 49.21 cfs potential flow)
- 2=Low Orifice (Orifice Controls 0.38 cfs @ 9.50 fps)
- 3=High Orifice (Controls 0.00 cfs)

Pond DET-1: NE POND - DETENTION SECTION



Summary for Pond WQ-1: NE POND - WQ SECTION

Inflow Area = 836,000 sf, 52.88% Impervious, Inflow Depth = 1.22" for 2-Year event
 Inflow = 5.26 cfs @ 7.92 hrs, Volume= 85,173 cf
 Outflow = 1.21 cfs @ 10.98 hrs, Volume= 53,357 cf, Atten= 77%, Lag= 183.4 min
 Discarded = 0.07 cfs @ 6.48 hrs, Volume= 15,485 cf
 Primary = 1.15 cfs @ 10.98 hrs, Volume= 37,872 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 105.52' @ 10.98 hrs Surf.Area= 17,010 sf Storage= 43,181 cf

Plug-Flow detention time= 905.1 min calculated for 53,357 cf (63% of inflow)
 Center-of-Mass det. time= 681.0 min (1,397.4 - 716.4)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	34,020 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	98.50'	8,505 cf	18" Growing Medium (Prismatic) Listed below (Recalc)
#3	97.00'	3,402 cf	18" Drain Rock (Prismatic) Listed below (Recalc)
		8,505 cf Overall x 40.0% Voids	
		45,927 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	5,670	0	0
106.00	5,670	34,020	34,020

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.50	5,670	0	0
100.00	5,670	8,505	8,505

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	5,670	0	0
98.50	5,670	8,505	8,505

Device	Routing	Invert	Outlet Devices
#1	Discarded	97.00'	0.500 in/hr 0.5 in/hr Infiltration over Surface area from 85.00' - 97.00' Excluded Surface area = 0 sf
#2	Device 1	98.50'	2.000 in/hr 2 in/hr Infiltration Through Growing Medium over Surface area from 85.00' - 97.00' Excluded Surface area = 11,340 sf
#3	Primary	105.50'	100.0' long Outfall Weir to Detention Section 2 End Contraction(s)

Discarded OutFlow Max=0.07 cfs @ 6.48 hrs HW=100.00' (Free Discharge)

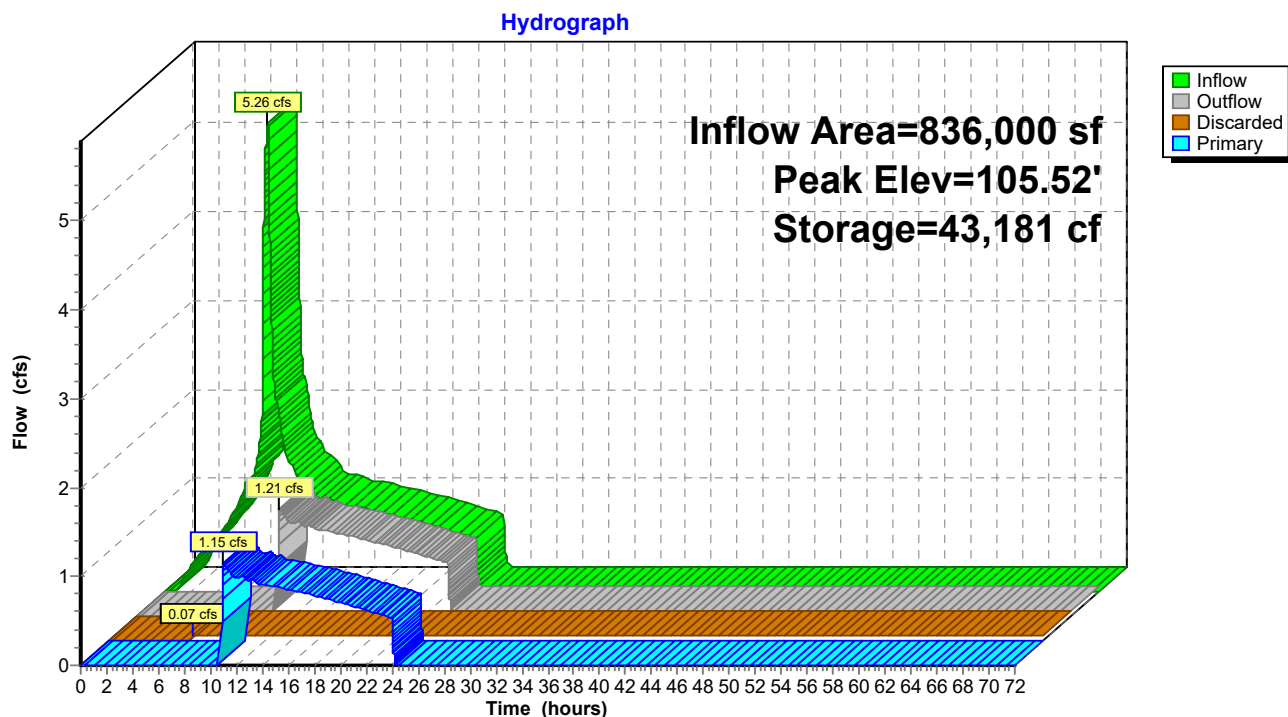
↑ **1=0.5 in/hr Infiltration** (Exfiltration Controls 0.07 cfs)

↑ **2=2 in/hr Infiltration Through Growing Medium**(Passes 0.07 cfs of 0.26 cfs potential flow)

Primary OutFlow Max=0.64 cfs @ 10.98 hrs HW=105.52' (Free Discharge)

↑ **3=Outfall Weir to Detention Section**(Weir Controls 0.64 cfs @ 0.41 fps)

Pond WQ-1: NE POND - WQ SECTION



0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 10-Year Rainfall=3.20"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1-POST: BASIN 1 - POST Runoff Area=836,000 sf 52.88% Impervious Runoff Depth=2.01"
Tc=5.0 min CN=72/98 Runoff=8.92 cfs 139,835 cf

Pond DET-1: NE POND - DETENTION Peak Elev=103.21' Storage=27,676 cf Inflow=6.31 cfs 92,207 cf
Outflow=1.67 cfs 92,207 cf

Pond WQ-1: NE POND - WQ SECTION Peak Elev=105.57' Storage=43,476 cf Inflow=8.92 cfs 139,835 cf
Discarded=0.07 cfs 15,803 cf Primary=6.31 cfs 92,207 cf Outflow=6.38 cfs 108,009 cf

Total Runoff Area = 836,000 sf Runoff Volume = 139,835 cf Average Runoff Depth = 2.01"
47.12% Pervious = 393,950 sf 52.88% Impervious = 442,050 sf

0742-003 - Meyer Farm - HydroCAD Model

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Type IA 24-hr 10-Year Rainfall=3.20"

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Summary for Subcatchment 1-POST: BASIN 1 - POST DEVELOPED

Runoff = 8.92 cfs @ 7.92 hrs, Volume= 139,835 cf, Depth= 2.01"

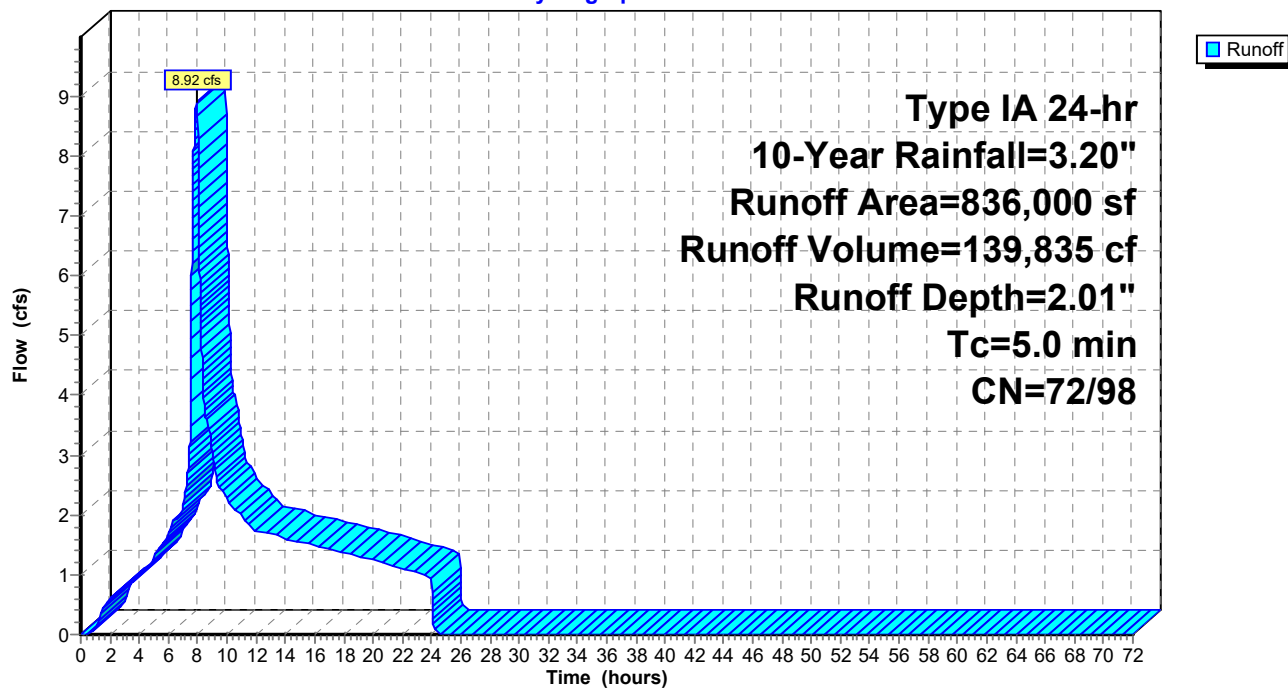
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	141,300	98	Streets and Curb
*	32,300	98	Sidewalk
*	268,450	98	Lot Impervious (65% total lot area)
*	144,550	72	Lot Pervious
*	158,600	72	Area to Remain
*	90,800	72	Remaining Pervious
<hr/>			
	836,000	86	Weighted Average
	393,950	72	47.12% Pervious Area
	442,050	98	52.88% Impervious Area

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

Subcatchment 1-POST: BASIN 1 - POST DEVELOPED

Hydrograph



Summary for Pond DET-1: NE POND - DETENTION SECTION

Inflow Area = 836,000 sf, 52.88% Impervious, Inflow Depth = 1.32" for 10-Year event
 Inflow = 6.31 cfs @ 8.12 hrs, Volume= 92,207 cf
 Outflow = 1.67 cfs @ 12.58 hrs, Volume= 92,207 cf, Atten= 74%, Lag= 267.5 min
 Primary = 1.67 cfs @ 12.58 hrs, Volume= 92,207 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 103.21' @ 12.58 hrs Surf.Area= 8,614 sf Storage= 27,676 cf

Plug-Flow detention time= 451.9 min calculated for 92,207 cf (100% of inflow)
 Center-of-Mass det. time= 451.9 min (1,317.1 - 865.2)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	34,456 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	8,614	0	0
104.00	8,614	34,456	34,456

Device	Routing	Invert	Outlet Devices
#1	Primary	99.00'	42.0" Round Outflow Pipe L= 80.0' Ke= 0.900 Inlet / Outlet Invert= 99.00' / 98.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 9.62 sf
#2	Device 1	98.50'	2.7" Horiz. Low Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	103.00'	15.0" Horiz. High Orifice C= 0.620 Limited to weir flow at low heads

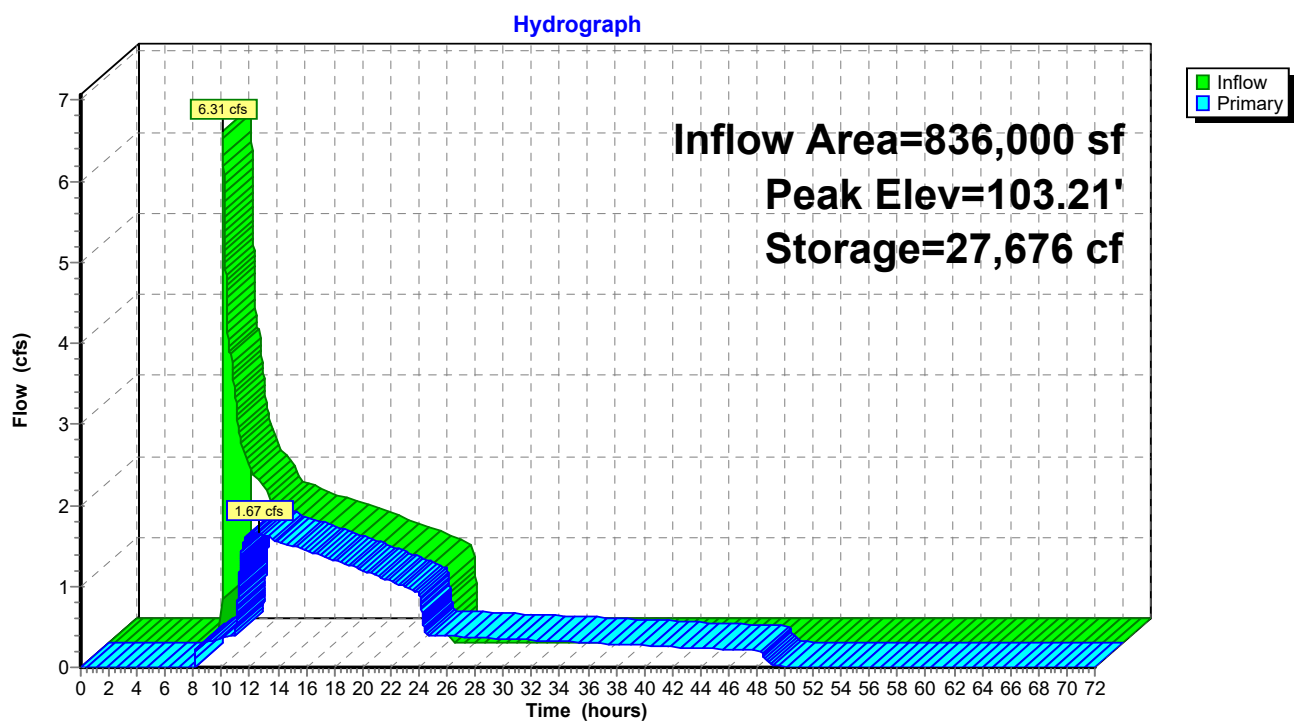
Primary OutFlow Max=1.67 cfs @ 12.58 hrs HW=103.21' (Free Discharge)

1=Outflow Pipe (Passes 1.67 cfs of 57.40 cfs potential flow)

2=Low Orifice (Orifice Controls 0.41 cfs @ 10.21 fps)

3=High Orifice (Weir Controls 1.26 cfs @ 1.51 fps)

Pond DET-1: NE POND - DETENTION SECTION



Summary for Pond WQ-1: NE POND - WQ SECTION

Inflow Area = 836,000 sf, 52.88% Impervious, Inflow Depth = 2.01" for 10-Year event
 Inflow = 8.92 cfs @ 7.92 hrs, Volume= 139,835 cf
 Outflow = 6.38 cfs @ 8.12 hrs, Volume= 108,009 cf, Atten= 28%, Lag= 12.0 min
 Discarded = 0.07 cfs @ 5.14 hrs, Volume= 15,803 cf
 Primary = 6.31 cfs @ 8.12 hrs, Volume= 92,207 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 105.57' @ 8.12 hrs Surf.Area= 17,010 sf Storage= 43,476 cf

Plug-Flow detention time= 512.2 min calculated for 107,994 cf (77% of inflow)
 Center-of-Mass det. time= 365.5 min (1,077.1 - 711.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	34,020 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	98.50'	8,505 cf	18" Growing Medium (Prismatic) Listed below (Recalc)
#3	97.00'	3,402 cf	18" Drain Rock (Prismatic) Listed below (Recalc)
		8,505 cf Overall x 40.0% Voids	
		45,927 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	5,670	0	0
106.00	5,670	34,020	34,020

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.50	5,670	0	0
100.00	5,670	8,505	8,505

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	5,670	0	0
98.50	5,670	8,505	8,505

Device	Routing	Invert	Outlet Devices
#1	Discarded	97.00'	0.500 in/hr 0.5 in/hr Infiltration over Surface area from 85.00' - 97.00' Excluded Surface area = 0 sf
#2	Device 1	98.50'	2.000 in/hr 2 in/hr Infiltration Through Growing Medium over Surface area from 85.00' - 97.00' Excluded Surface area = 11,340 sf
#3	Primary	105.50'	100.0' long Outfall Weir to Detention Section 2 End Contraction(s)

Discarded OutFlow Max=0.07 cfs @ 5.14 hrs HW=100.01' (Free Discharge)

↑ **1=0.5 in/hr Infiltration** (Exfiltration Controls 0.07 cfs)

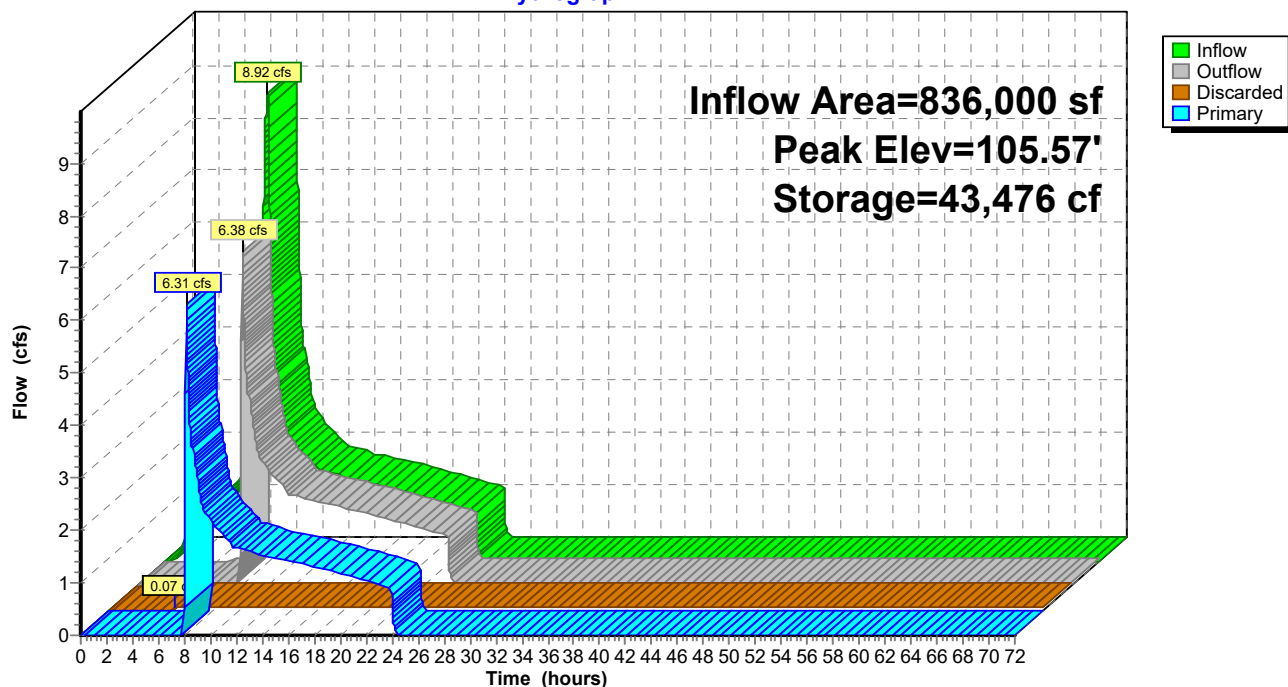
↑ **2=2 in/hr Infiltration Through Growing Medium**(Passes 0.07 cfs of 0.26 cfs potential flow)

Primary OutFlow Max=5.76 cfs @ 8.12 hrs HW=105.57' (Free Discharge)

↑ **3=Outfall Weir to Detention Section**(Weir Controls 5.76 cfs @ 0.85 fps)

Pond WQ-1: NE POND - WQ SECTION

Hydrograph



0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 100-Year Rainfall=4.40"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1-POST: BASIN 1 - POST Runoff Area=836,000 sf 52.88% Impervious Runoff Depth=3.03"
Tc=5.0 min CN=72/98 Runoff=13.75 cfs 210,746 cf

Pond DET-1: NE POND - DETENTION Peak Elev=103.56' Storage=30,686 cf Inflow=13.68 cfs 162,858 cf
Outflow=5.00 cfs 162,858 cf

Pond WQ-1: NE POND - WQ SECTION Peak Elev=105.62' Storage=43,755 cf Inflow=13.75 cfs 210,746 cf
Discarded=0.07 cfs 16,056 cf Primary=13.68 cfs 162,858 cf Outflow=13.74 cfs 178,913 cf

Total Runoff Area = 836,000 sf Runoff Volume = 210,746 cf Average Runoff Depth = 3.03"
47.12% Pervious = 393,950 sf 52.88% Impervious = 442,050 sf

Summary for Subcatchment 1-POST: BASIN 1 - POST DEVELOPED

Runoff = 13.75 cfs @ 7.91 hrs, Volume= 210,746 cf, Depth= 3.03"

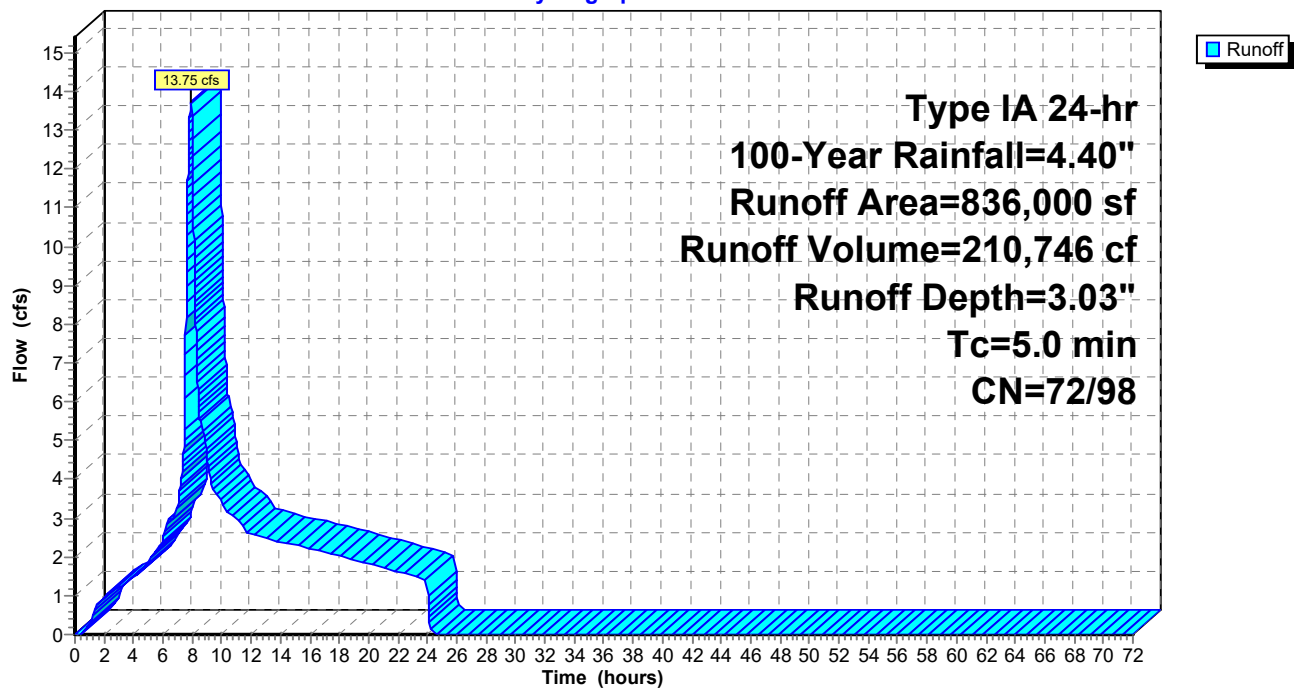
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 100-Year Rainfall=4.40"

	Area (sf)	CN	Description
*	141,300	98	Streets and Curb
*	32,300	98	Sidewalk
*	268,450	98	Lot Impervious (65% total lot area)
*	144,550	72	Lot Pervious
*	158,600	72	Area to Remain
*	90,800	72	Remaining Pervious
	836,000	86	Weighted Average
	393,950	72	47.12% Pervious Area
	442,050	98	52.88% Impervious Area

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

Subcatchment 1-POST: BASIN 1 - POST DEVELOPED

Hydrograph



Summary for Pond DET-1: NE POND - DETENTION SECTION

Inflow Area = 836,000 sf, 52.88% Impervious, Inflow Depth = 2.34" for 100-Year event
 Inflow = 13.68 cfs @ 7.92 hrs, Volume= 162,858 cf
 Outflow = 5.00 cfs @ 8.84 hrs, Volume= 162,858 cf, Atten= 63%, Lag= 54.9 min
 Primary = 5.00 cfs @ 8.84 hrs, Volume= 162,858 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 103.56' @ 8.84 hrs Surf.Area= 8,614 sf Storage= 30,686 cf

Plug-Flow detention time= 277.0 min calculated for 162,835 cf (100% of inflow)
 Center-of-Mass det. time= 277.1 min (1,084.0 - 806.8)

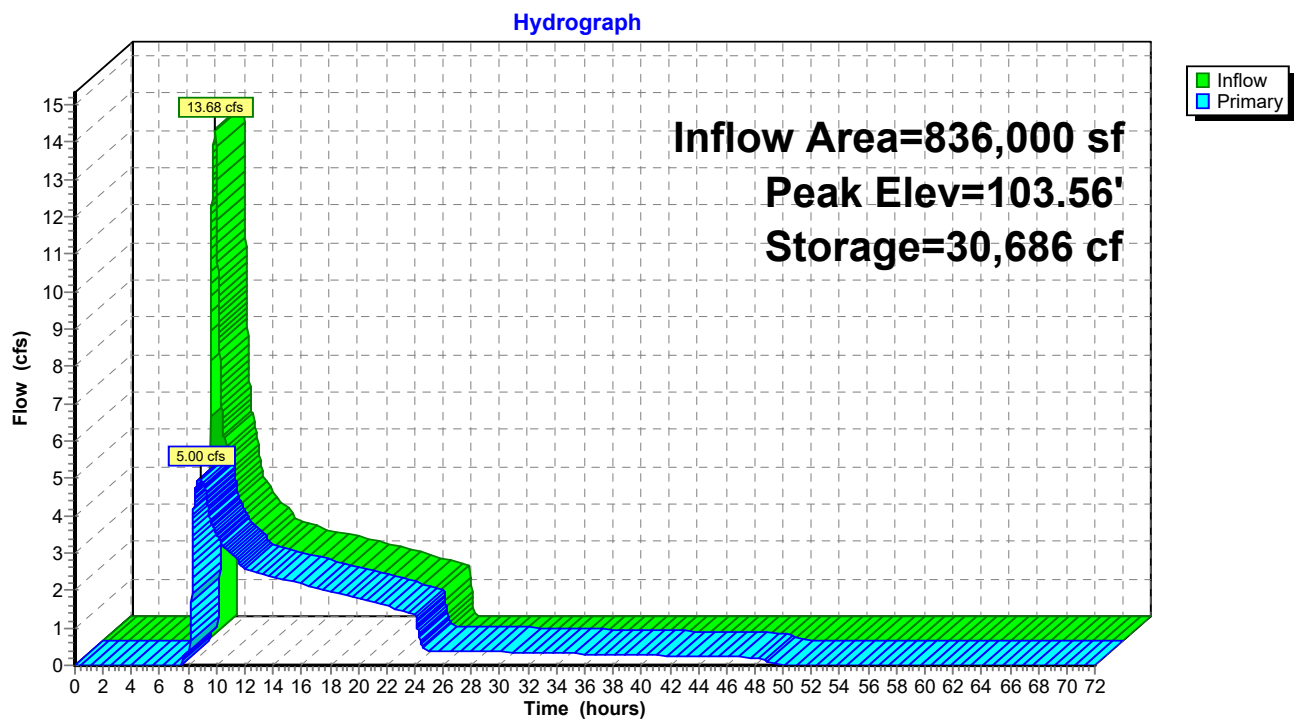
Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	34,456 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	8,614	0	0
104.00	8,614	34,456	34,456

Device	Routing	Invert	Outlet Devices
#1	Primary	99.00'	42.0" Round Outflow Pipe L= 80.0' Ke= 0.900 Inlet / Outlet Invert= 99.00' / 98.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 9.62 sf
#2	Device 1	98.50'	2.7" Horiz. Low Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	103.00'	15.0" Horiz. High Orifice C= 0.620 Limited to weir flow at low heads

Primary OutFlow Max=5.00 cfs @ 8.84 hrs HW=103.56' (Free Discharge)

- ↑ **1=Outflow Pipe** (Passes 5.00 cfs of 61.33 cfs potential flow)
- ↑ **2=Low Orifice** (Orifice Controls 0.42 cfs @ 10.63 fps)
- ↑ **3=High Orifice** (Orifice Controls 4.58 cfs @ 3.73 fps)

Pond DET-1: NE POND - DETENTION SECTION



Summary for Pond WQ-1: NE POND - WQ SECTION

Inflow Area = 836,000 sf, 52.88% Impervious, Inflow Depth = 3.03" for 100-Year event
 Inflow = 13.75 cfs @ 7.91 hrs, Volume= 210,746 cf
 Outflow = 13.74 cfs @ 7.92 hrs, Volume= 178,913 cf, Atten= 0%, Lag= 0.6 min
 Discarded = 0.07 cfs @ 4.07 hrs, Volume= 16,056 cf
 Primary = 13.68 cfs @ 7.92 hrs, Volume= 162,858 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 105.62' @ 7.92 hrs Surf.Area= 17,010 sf Storage= 43,755 cf

Plug-Flow detention time= 334.9 min calculated for 178,889 cf (85% of inflow)
 Center-of-Mass det. time= 233.4 min (939.2 - 705.7)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	34,020 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	98.50'	8,505 cf	18" Growing Medium (Prismatic) Listed below (Recalc)
#3	97.00'	3,402 cf	18" Drain Rock (Prismatic) Listed below (Recalc)
		8,505 cf Overall x 40.0% Voids	
		45,927 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	5,670	0	0
106.00	5,670	34,020	34,020

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.50	5,670	0	0
100.00	5,670	8,505	8,505

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	5,670	0	0
98.50	5,670	8,505	8,505

Device	Routing	Invert	Outlet Devices
#1	Discarded	97.00'	0.500 in/hr 0.5 in/hr Infiltration over Surface area from 85.00' - 97.00' Excluded Surface area = 0 sf
#2	Device 1	98.50'	2.000 in/hr 2 in/hr Infiltration Through Growing Medium over Surface area from 85.00' - 97.00' Excluded Surface area = 11,340 sf
#3	Primary	105.50'	100.0' long Outfall Weir to Detention Section 2 End Contraction(s)

Discarded OutFlow Max=0.07 cfs @ 4.07 hrs HW=100.01' (Free Discharge)

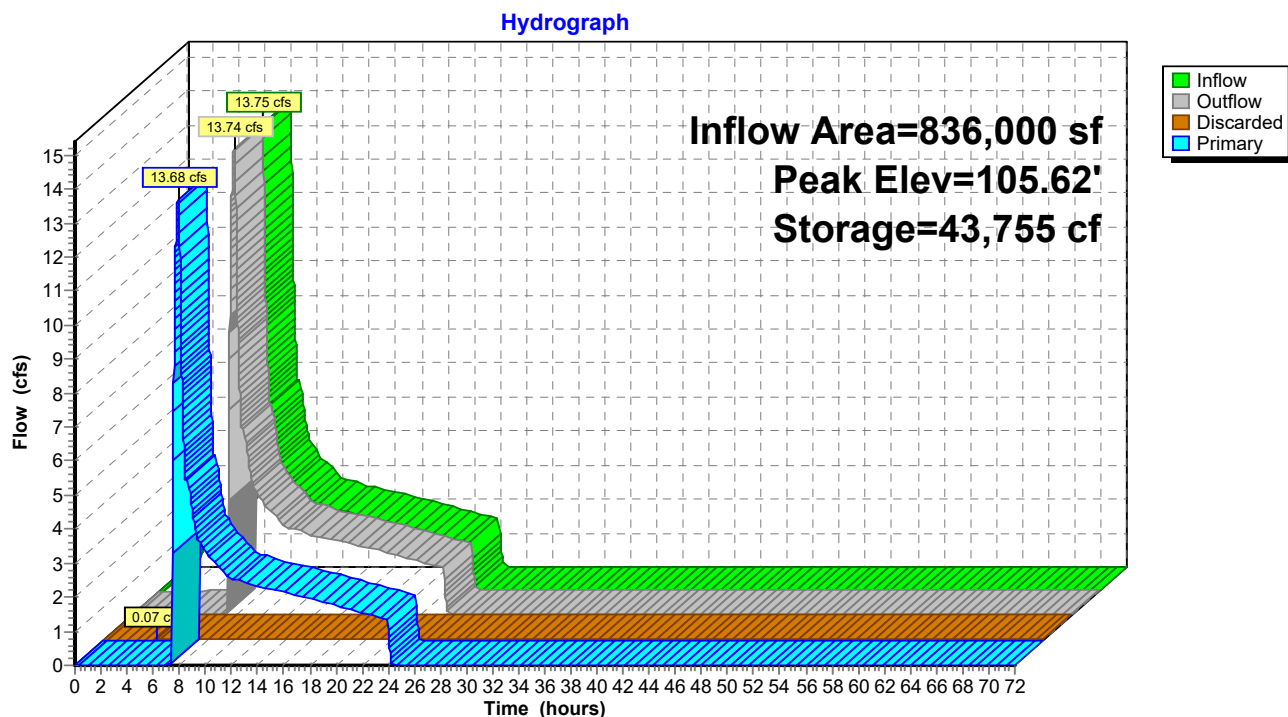
↑ **1=0.5 in/hr Infiltration** (Exfiltration Controls 0.07 cfs)

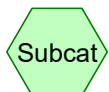
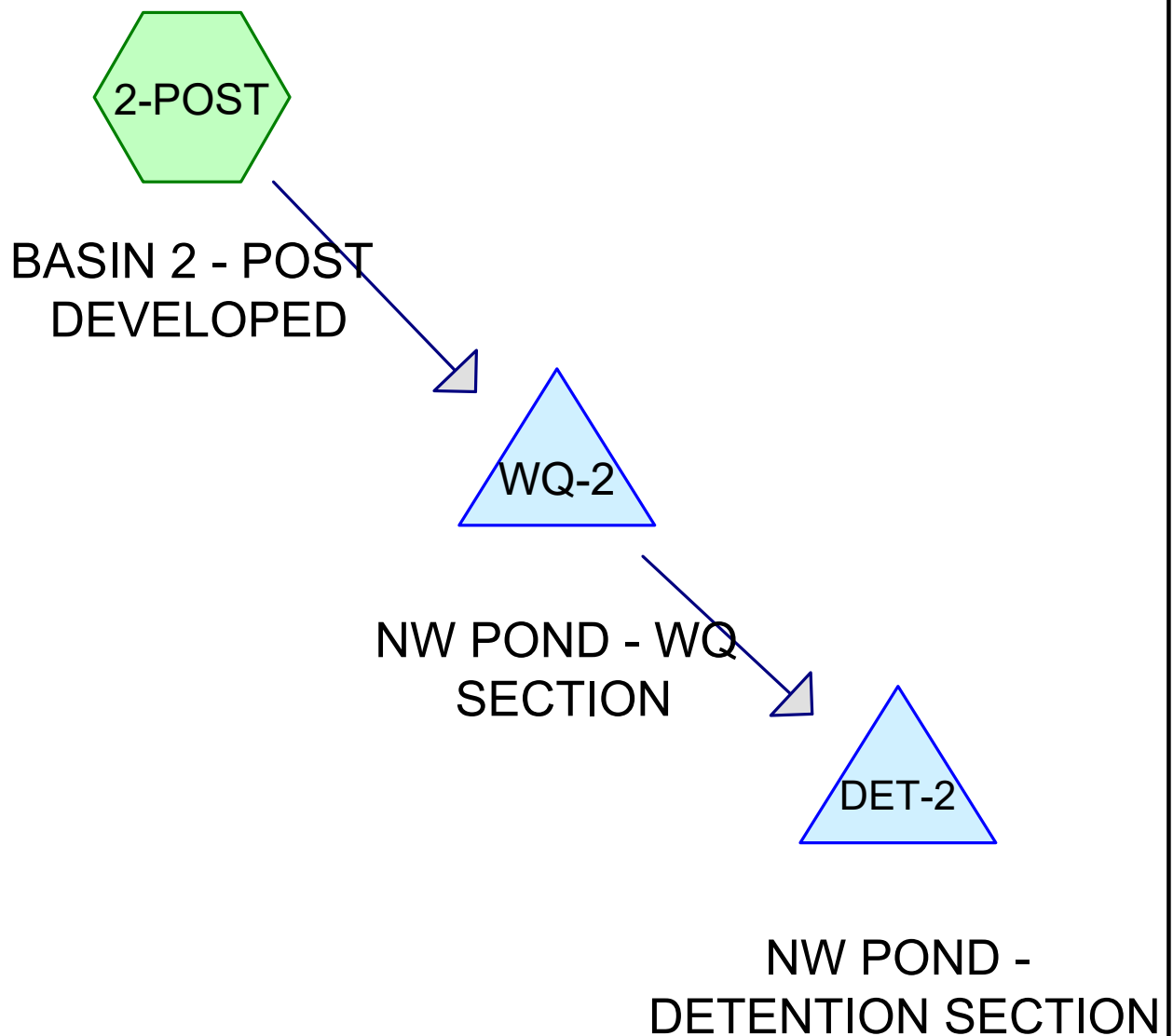
↑ **2=2 in/hr Infiltration Through Growing Medium**(Passes 0.07 cfs of 0.26 cfs potential flow)

Primary OutFlow Max=13.08 cfs @ 7.92 hrs HW=105.62' (Free Discharge)

↑ **3=Outfall Weir to Detention Section**(Weir Controls 13.08 cfs @ 1.12 fps)

Pond WQ-1: NE POND - WQ SECTION

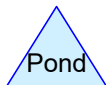




Subcat



Reach



Pond



Link

Routing Diagram for 0742-003 - Meyer Farm - HydroCAD Model

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0742-003 - Meyer Farm - HydroCAD Model

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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
124,800	98	Lot Impervious (65% total lot area) (2-POST)
67,200	72	Lot Pervious (2-POST)
187,200	72	Remaining Pervious (2-POST)
19,600	98	Sidewalk (2-POST)
84,200	98	Streets and Curb (2-POST)
483,000	84	TOTAL AREA

0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr WQ Rainfall=1.36"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment2-POST: BASIN 2 - POST Runoff Area=483,000 sf 47.33% Impervious Runoff Depth=0.58"
Tc=5.0 min CN=72/98 Runoff=1.55 cfs 23,371 cf

Pond DET-2: NW POND - DETENTION SECTION Peak Elev=96.00' Storage=0 cf Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Pond WQ-2: NW POND - WQ SECTION Peak Elev=103.90' Storage=21,015 cf Inflow=1.55 cfs 23,371 cf
Discarded=0.04 cfs 9,326 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 9,326 cf

Total Runoff Area = 483,000 sf Runoff Volume = 23,371 cf Average Runoff Depth = 0.58"
52.67% Pervious = 254,400 sf 47.33% Impervious = 228,600 sf

0742-003 - Meyer Farm - HydroCAD Model

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Type IA 24-hr WQ Rainfall=1.36"

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Summary for Subcatchment 2-POST: BASIN 2 - POST DEVELOPED

Runoff = 1.55 cfs @ 7.89 hrs, Volume= 23,371 cf, Depth= 0.58"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

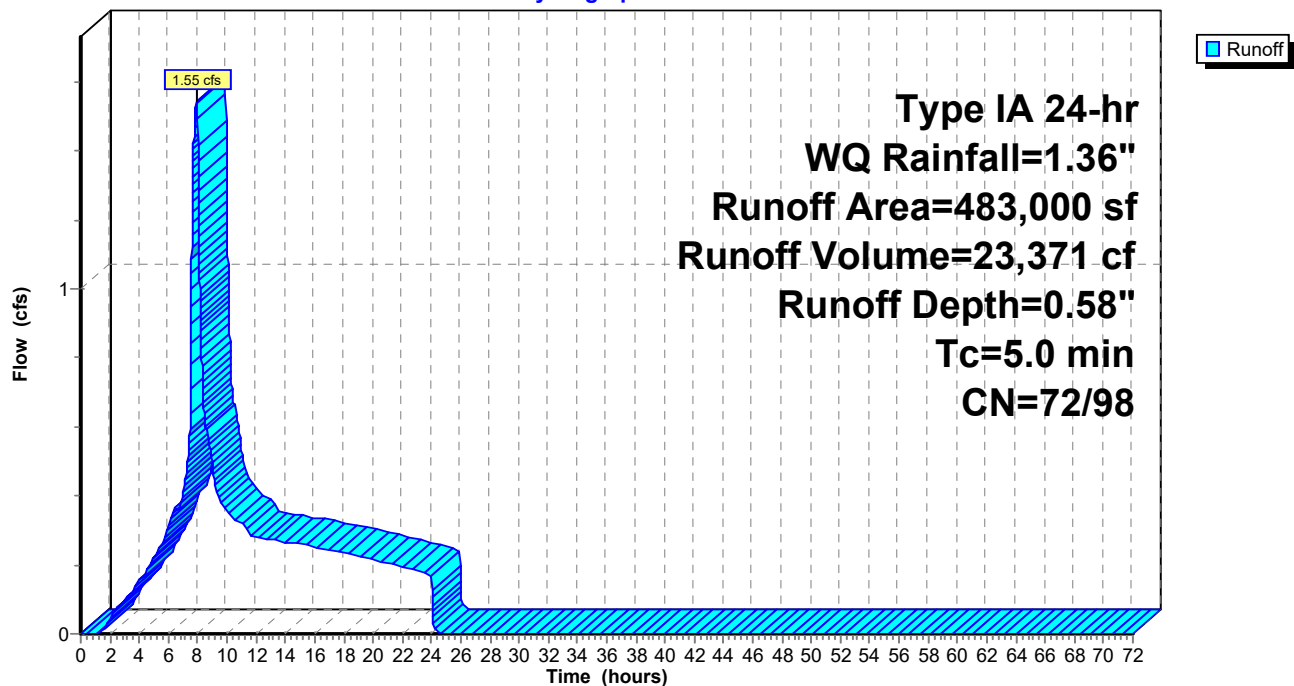
Type IA 24-hr WQ Rainfall=1.36"

	Area (sf)	CN	Description
*	84,200	98	Streets and Curb
*	19,600	98	Sidewalk
*	124,800	98	Lot Impervious (65% total lot area)
*	67,200	72	Lot Pervious
*	187,200	72	Remaining Pervious
<hr/>			
	483,000	84	Weighted Average
	254,400	72	52.67% Pervious Area
	228,600	98	47.33% Impervious Area

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

Subcatchment 2-POST: BASIN 2 - POST DEVELOPED

Hydrograph



Summary for Pond DET-2: NW POND - DETENTION SECTION

Inflow Area = 483,000 sf, 47.33% Impervious, Inflow Depth = 0.00" for WQ event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 96.00' @ 0.00 hrs Surf.Area= 7,000 sf Storage= 0 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	56,000 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

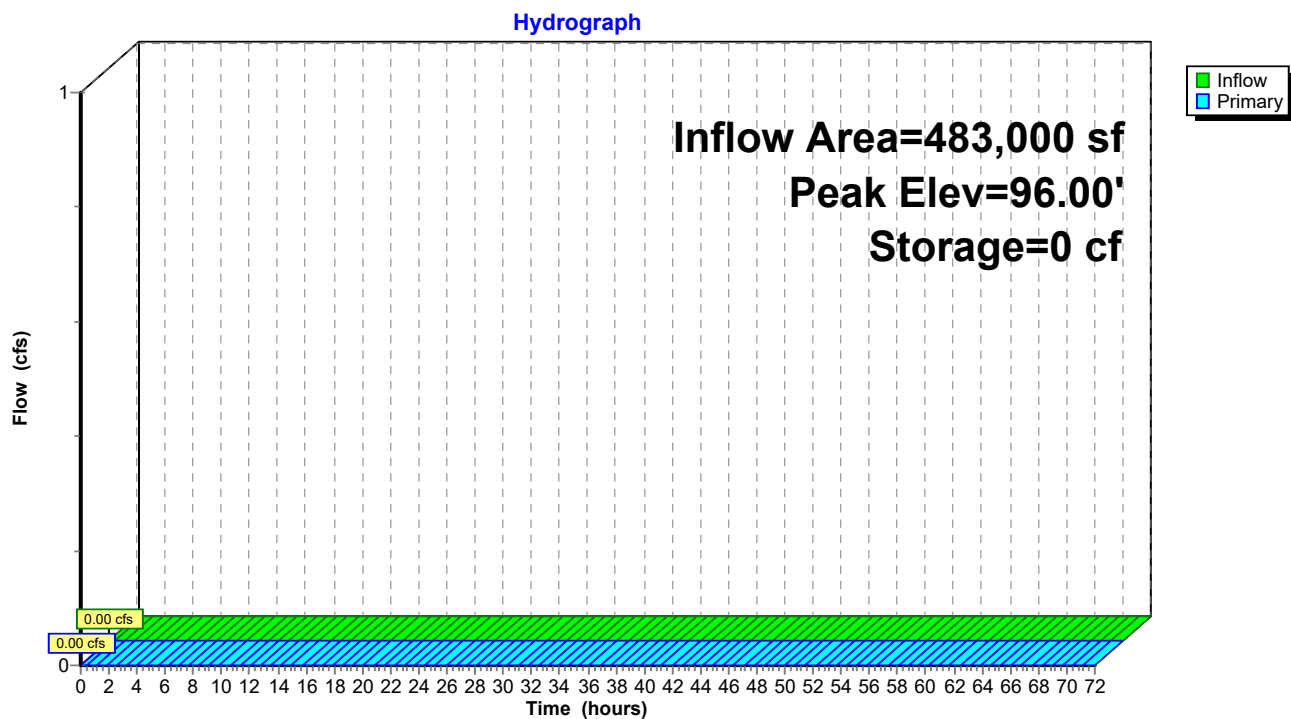
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	7,000	0	0
104.00	7,000	56,000	56,000

Device	Routing	Invert	Outlet Devices
#1	Primary	95.00'	36.0" Round Outflow Pipe L= 80.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 95.00' / 94.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	94.50'	1.3" Horiz. Low Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	98.65'	3.4" Horiz. High Orifice C= 0.620 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=96.00' (Free Discharge)

1=Outflow Pipe (Passes 0.00 cfs of 5.46 cfs potential flow)
 2=Low Orifice (Passes 0.00 cfs of 0.05 cfs potential flow)
 3=High Orifice (Controls 0.00 cfs)

Pond DET-2: NW POND - DETENTION SECTION



0742-003 - Meyer Farm - HydroCAD Model

Type IA 24-hr WQ Rainfall=1.36"

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Summary for Pond WQ-2: NW POND - WQ SECTION

Inflow Area = 483,000 sf, 47.33% Impervious, Inflow Depth = 0.58" for WQ event
 Inflow = 1.55 cfs @ 7.89 hrs, Volume= 23,371 cf
 Outflow = 0.04 cfs @ 8.09 hrs, Volume= 9,326 cf, Atten= 97%, Lag= 11.9 min
 Discarded = 0.04 cfs @ 8.09 hrs, Volume= 9,326 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 103.90' @ 24.12 hrs Surf.Area= 10,500 sf Storage= 21,015 cf

Plug-Flow detention time= 1,989.8 min calculated for 9,324 cf (40% of inflow)
 Center-of-Mass det. time= 1,678.0 min (2,401.9 - 723.8)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	15,750 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	98.50'	5,250 cf	18" Growing Medium (Prismatic) Listed below (Recalc)
#3	97.00'	2,100 cf	18" Drain Rock (Prismatic) Listed below (Recalc)
			5,250 cf Overall x 40.0% Voids
23,100 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	3,500	0	0
104.50	3,500	15,750	15,750

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.50	3,500	0	0
100.00	3,500	5,250	5,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,500	0	0
98.50	3,500	5,250	5,250

Device	Routing	Invert	Outlet Devices
#1	Discarded	97.00'	0.500 in/hr 0.5 in/hr Infiltration over Surface area from 85.00' - 97.00' Excluded Surface area = 0 sf
#2	Device 1	98.50'	2.000 in/hr 2 in/hr Infiltration through Growing Medium over Surface area from Excluded Surface area = 7,000 sf
#3	Primary	104.00'	100.0' long Outfall Weir to Detention Section 2 End Contraction(s)

Discarded OutFlow Max=0.04 cfs @ 8.09 hrs HW=100.00' (Free Discharge)

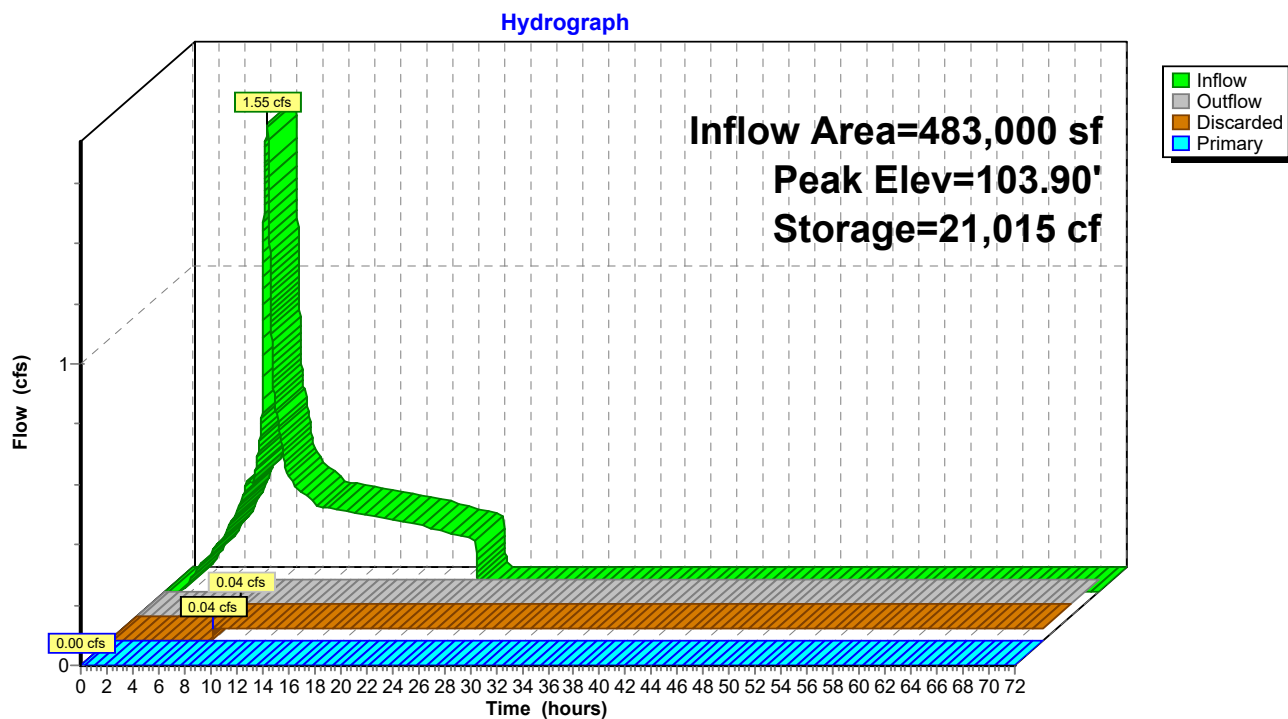
↑ **1=0.5 in/hr Infiltration** (Exfiltration Controls 0.04 cfs)

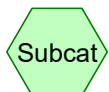
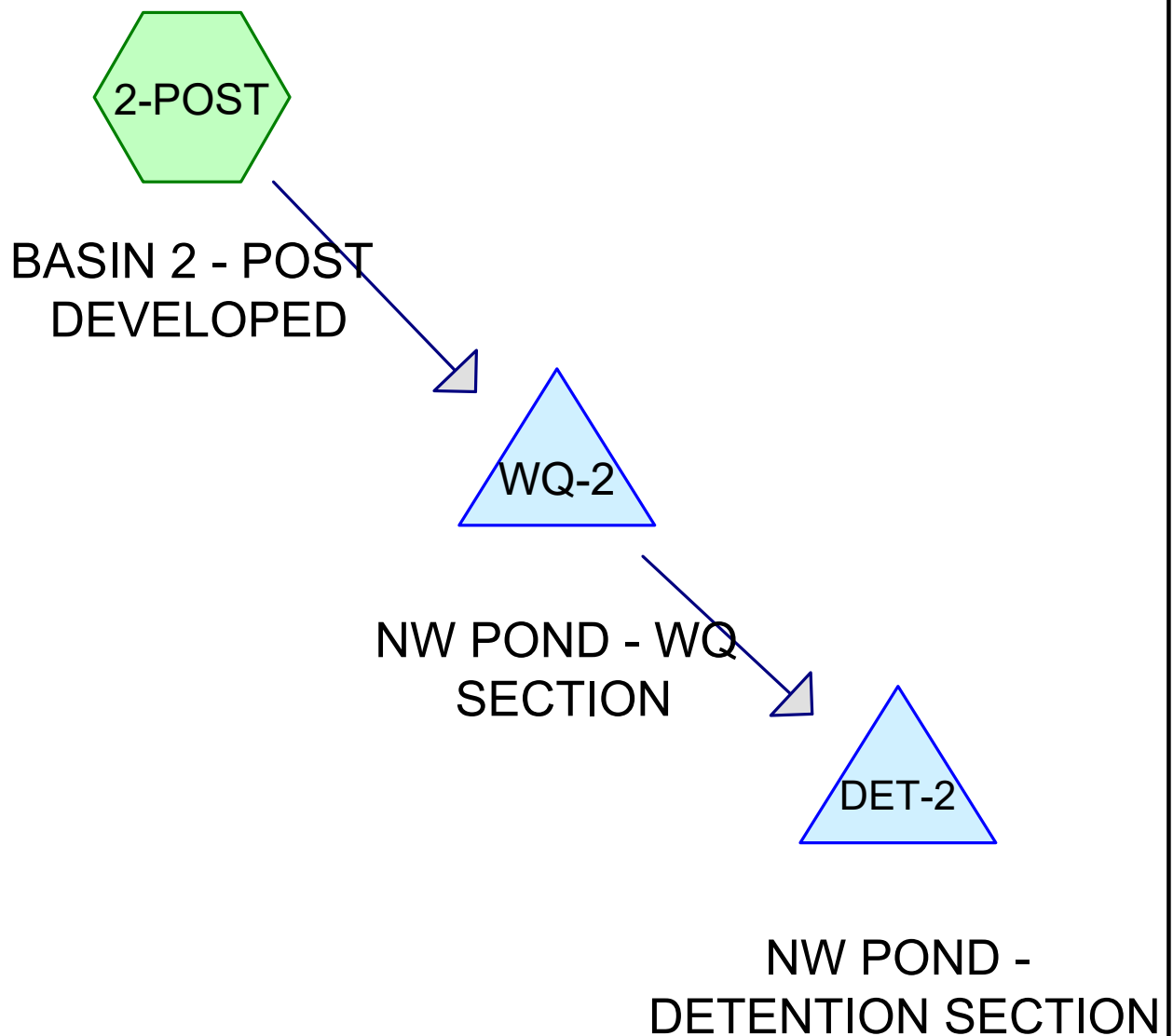
↑ **2=2 in/hr Infiltration through Growing Medium**(Passes 0.04 cfs of 0.16 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=97.00' (Free Discharge)

↑ **3=Outfall Weir to Detention Section**(Controls 0.00 cfs)

Pond WQ-2: NW POND - WQ SECTION

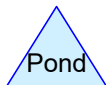




Subcat



Reach



Pond



Link

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Page 2

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
124,800	98	Lot Impervious (65% total lot area) (2-POST)
67,200	72	Lot Pervious (2-POST)
187,200	72	Remaining Pervious (2-POST)
19,600	98	Sidewalk (2-POST)
84,200	98	Streets and Curb (2-POST)
483,000	84	TOTAL AREA

0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 2-Year Rainfall=2.20"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment2-POST: BASIN 2 - POST Runoff Area=483,000 sf 47.33% Impervious Runoff Depth=1.13"
Tc=5.0 min CN=72/98 Runoff=2.74 cfs 45,654 cf

Pond DET-2: NW POND - DETENTION Peak Elev=98.61' Storage=18,236 cf Inflow=0.64 cfs 21,777 cf
Outflow=0.09 cfs 16,315 cf

Pond WQ-2: NW POND - WQ SECTION Peak Elev=104.01' Storage=21,381 cf Inflow=2.74 cfs 45,654 cf
Discarded=0.04 cfs 9,490 cf Primary=0.64 cfs 21,777 cf Outflow=0.68 cfs 31,266 cf

Total Runoff Area = 483,000 sf Runoff Volume = 45,654 cf Average Runoff Depth = 1.13"
52.67% Pervious = 254,400 sf 47.33% Impervious = 228,600 sf

Summary for Subcatchment 2-POST: BASIN 2 - POST DEVELOPED

Runoff = 2.74 cfs @ 7.93 hrs, Volume= 45,654 cf, Depth= 1.13"

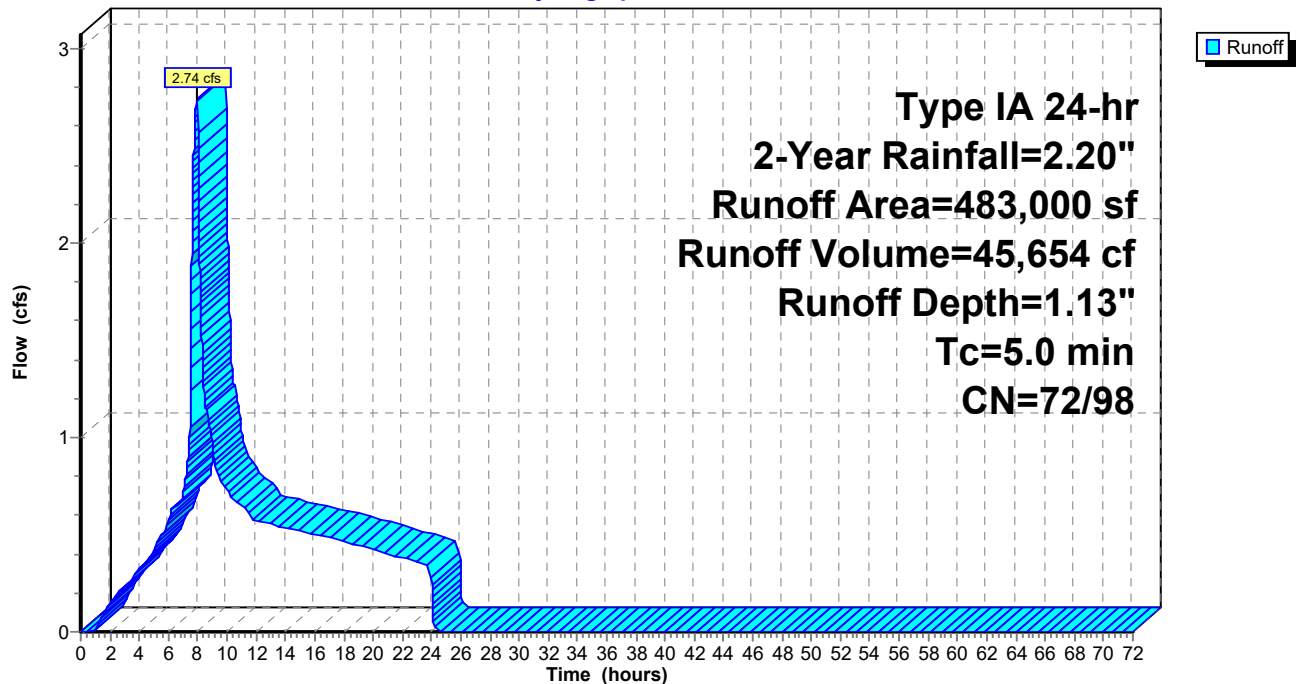
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-Year Rainfall=2.20"

	Area (sf)	CN	Description
*	84,200	98	Streets and Curb
*	19,600	98	Sidewalk
*	124,800	98	Lot Impervious (65% total lot area)
*	67,200	72	Lot Pervious
*	187,200	72	Remaining Pervious
	483,000	84	Weighted Average
	254,400	72	52.67% Pervious Area
	228,600	98	47.33% Impervious Area

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

Subcatchment 2-POST: BASIN 2 - POST DEVELOPED

Hydrograph



Summary for Pond DET-2: NW POND - DETENTION SECTION

Inflow Area = 483,000 sf, 47.33% Impervious, Inflow Depth = 0.54" for 2-Year event
 Inflow = 0.64 cfs @ 10.63 hrs, Volume= 21,777 cf
 Outflow = 0.09 cfs @ 24.10 hrs, Volume= 16,315 cf, Atten= 86%, Lag= 808.4 min
 Primary = 0.09 cfs @ 24.10 hrs, Volume= 16,315 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 98.61' @ 24.10 hrs Surf.Area= 7,000 sf Storage= 18,236 cf

Plug-Flow detention time= 1,546.2 min calculated for 16,315 cf (75% of inflow)
 Center-of-Mass det. time= 1,439.5 min (2,426.2 - 986.6)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	56,000 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	7,000	0	0
104.00	7,000	56,000	56,000

Device	Routing	Invert	Outlet Devices
#1	Primary	95.00'	36.0" Round Outflow Pipe L= 80.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 95.00' / 94.60' S= 0.0050 ' / Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	94.50'	1.3" Horiz. Low Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	98.65'	3.4" Horiz. High Orifice C= 0.620 Limited to weir flow at low heads

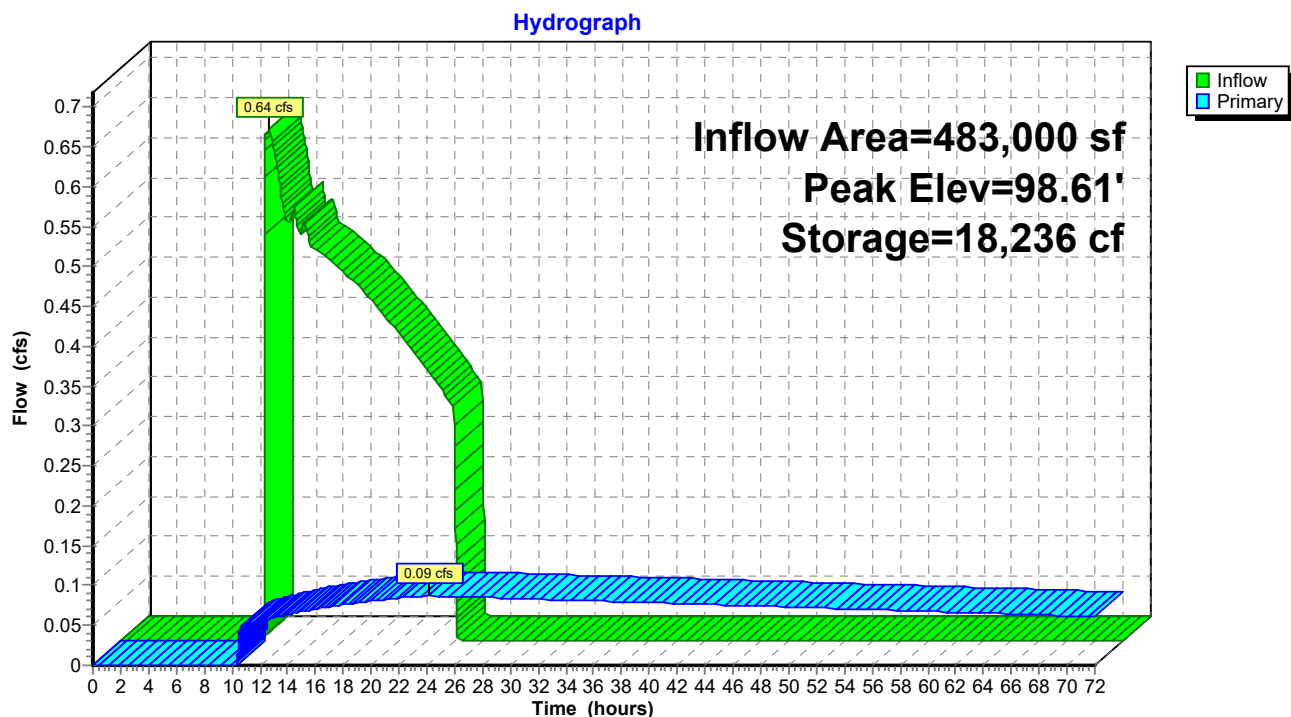
Primary OutFlow Max=0.09 cfs @ 24.10 hrs HW=98.61' (Free Discharge)

1=Outflow Pipe (Passes 0.09 cfs of 43.86 cfs potential flow)

2=Low Orifice (Orifice Controls 0.09 cfs @ 9.45 fps)

3=High Orifice (Controls 0.00 cfs)

Pond DET-2: NW POND - DETENTION SECTION



Summary for Pond WQ-2: NW POND - WQ SECTION

Inflow Area = 483,000 sf, 47.33% Impervious, Inflow Depth = 1.13" for 2-Year event
 Inflow = 2.74 cfs @ 7.93 hrs, Volume= 45,654 cf
 Outflow = 0.68 cfs @ 10.63 hrs, Volume= 31,266 cf, Atten= 75%, Lag= 161.6 min
 Discarded = 0.04 cfs @ 6.99 hrs, Volume= 9,490 cf
 Primary = 0.64 cfs @ 10.63 hrs, Volume= 21,777 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 104.01' @ 10.63 hrs Surf.Area= 10,500 sf Storage= 21,381 cf

Plug-Flow detention time= 876.2 min calculated for 31,266 cf (68% of inflow)
 Center-of-Mass det. time= 681.4 min (1,405.9 - 724.5)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	15,750 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	98.50'	5,250 cf	18" Growing Medium (Prismatic) Listed below (Recalc)
#3	97.00'	2,100 cf	18" Drain Rock (Prismatic) Listed below (Recalc)
			5,250 cf Overall x 40.0% Voids
		23,100 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	3,500	0	0
104.50	3,500	15,750	15,750

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.50	3,500	0	0
100.00	3,500	5,250	5,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,500	0	0
98.50	3,500	5,250	5,250

Device	Routing	Invert	Outlet Devices
#1	Discarded	97.00'	0.500 in/hr 0.5 in/hr Infiltration over Surface area from 85.00' - 97.00' Excluded Surface area = 0 sf
#2	Device 1	98.50'	2.000 in/hr 2 in/hr Infiltration through Growing Medium over Surface area from Excluded Surface area = 7,000 sf
#3	Primary	104.00'	100.0' long Outfall Weir to Detention Section 2 End Contraction(s)

Discarded OutFlow Max=0.04 cfs @ 6.99 hrs HW=100.00' (Free Discharge)

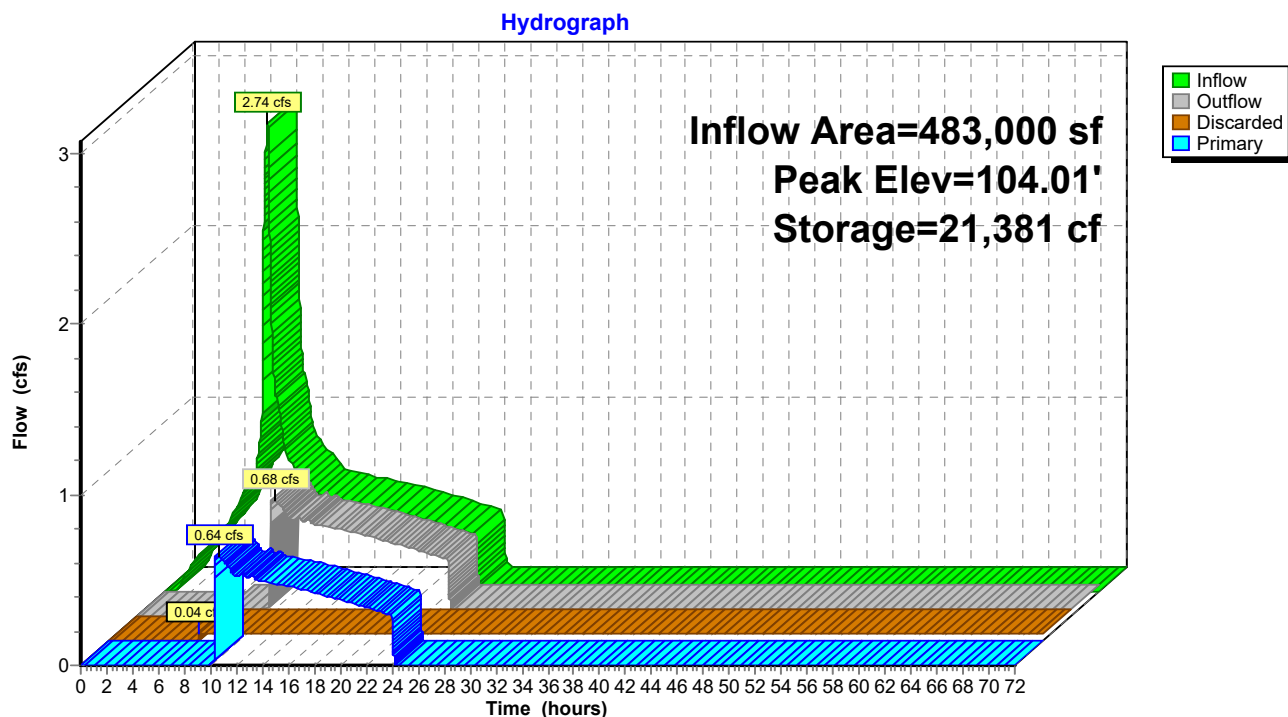
↑ **1=0.5 in/hr Infiltration** (Exfiltration Controls 0.04 cfs)

↑ **2=2 in/hr Infiltration through Growing Medium**(Passes 0.04 cfs of 0.16 cfs potential flow)

Primary OutFlow Max=0.27 cfs @ 10.63 hrs HW=104.01' (Free Discharge)

↑ **3=Outfall Weir to Detention Section**(Weir Controls 0.27 cfs @ 0.31 fps)

Pond WQ-2: NW POND - WQ SECTION



0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 10-Year Rainfall=3.20"*

Prepared by Microsoft

Printed 6/15/2021

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment2-POST: BASIN 2 - POST Runoff Area=483,000 sf 47.33% Impervious Runoff Depth=1.89"
Tc=5.0 min CN=72/98 Runoff=4.79 cfs 76,239 cf

Pond DET-2: NW POND - DETENTION Peak Elev=100.45' Storage=31,185 cf Inflow=4.47 cfs 52,151 cf
Outflow=0.53 cfs 44,007 cf

Pond WQ-2: NW POND - WQ SECTION Peak Elev=104.06' Storage=21,543 cf Inflow=4.79 cfs 76,239 cf
Discarded=0.04 cfs 9,694 cf Primary=4.47 cfs 52,151 cf Outflow=4.51 cfs 61,846 cf

Total Runoff Area = 483,000 sf Runoff Volume = 76,239 cf Average Runoff Depth = 1.89"
52.67% Pervious = 254,400 sf 47.33% Impervious = 228,600 sf

Summary for Subcatchment 2-POST: BASIN 2 - POST DEVELOPED

Runoff = 4.79 cfs @ 7.93 hrs, Volume= 76,239 cf, Depth= 1.89"

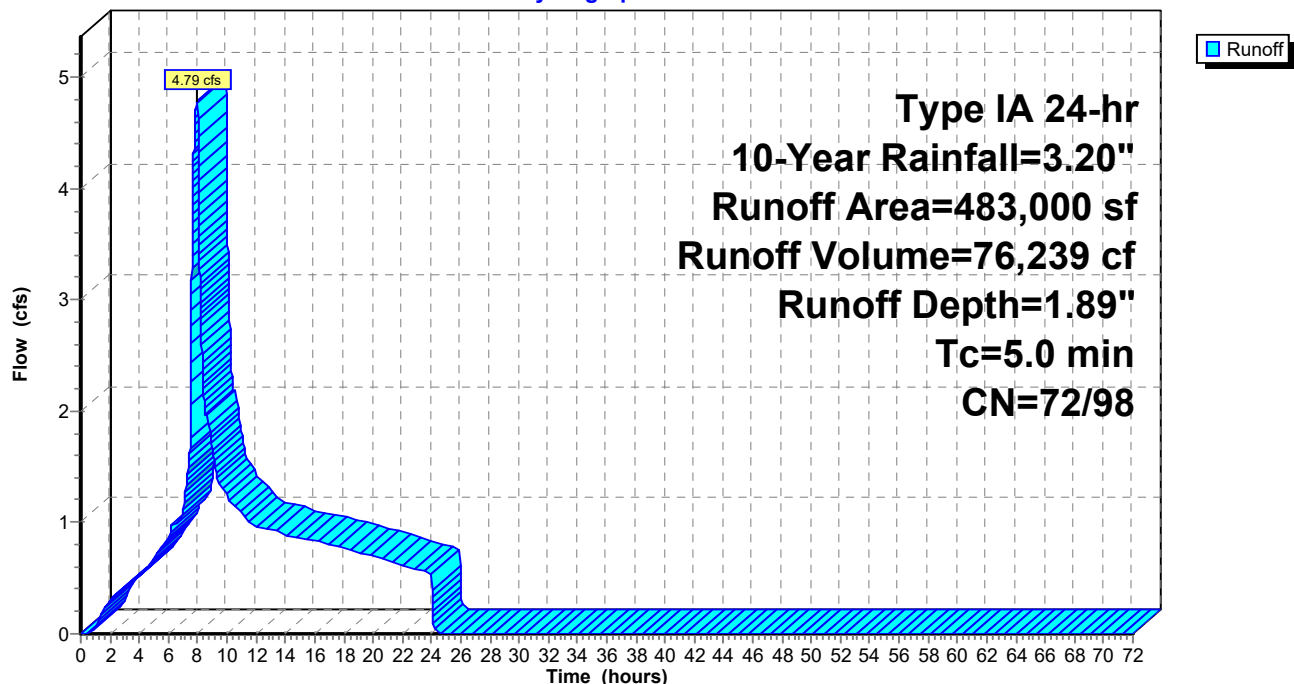
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	84,200	98	Streets and Curb
*	19,600	98	Sidewalk
*	124,800	98	Lot Impervious (65% total lot area)
*	67,200	72	Lot Pervious
*	187,200	72	Remaining Pervious
	483,000	84	Weighted Average
	254,400	72	52.67% Pervious Area
	228,600	98	47.33% Impervious Area

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

Subcatchment 2-POST: BASIN 2 - POST DEVELOPED

Hydrograph



Summary for Pond DET-2: NW POND - DETENTION SECTION

Inflow Area = 483,000 sf, 47.33% Impervious, Inflow Depth = 1.30" for 10-Year event
 Inflow = 4.47 cfs @ 8.02 hrs, Volume= 52,151 cf
 Outflow = 0.53 cfs @ 23.31 hrs, Volume= 44,007 cf, Atten= 88%, Lag= 917.0 min
 Primary = 0.53 cfs @ 23.31 hrs, Volume= 44,007 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 100.45' @ 23.31 hrs Surf.Area= 7,000 sf Storage= 31,185 cf

Plug-Flow detention time= 977.6 min calculated for 44,007 cf (84% of inflow)
 Center-of-Mass det. time= 891.8 min (1,750.1 - 858.3)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	56,000 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	7,000	0	0
104.00	7,000	56,000	56,000

Device	Routing	Invert	Outlet Devices
#1	Primary	95.00'	36.0" Round Outflow Pipe L= 80.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 95.00' / 94.60' S= 0.0050 ' / Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	94.50'	1.3" Horiz. Low Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	98.65'	3.4" Horiz. High Orifice C= 0.620 Limited to weir flow at low heads

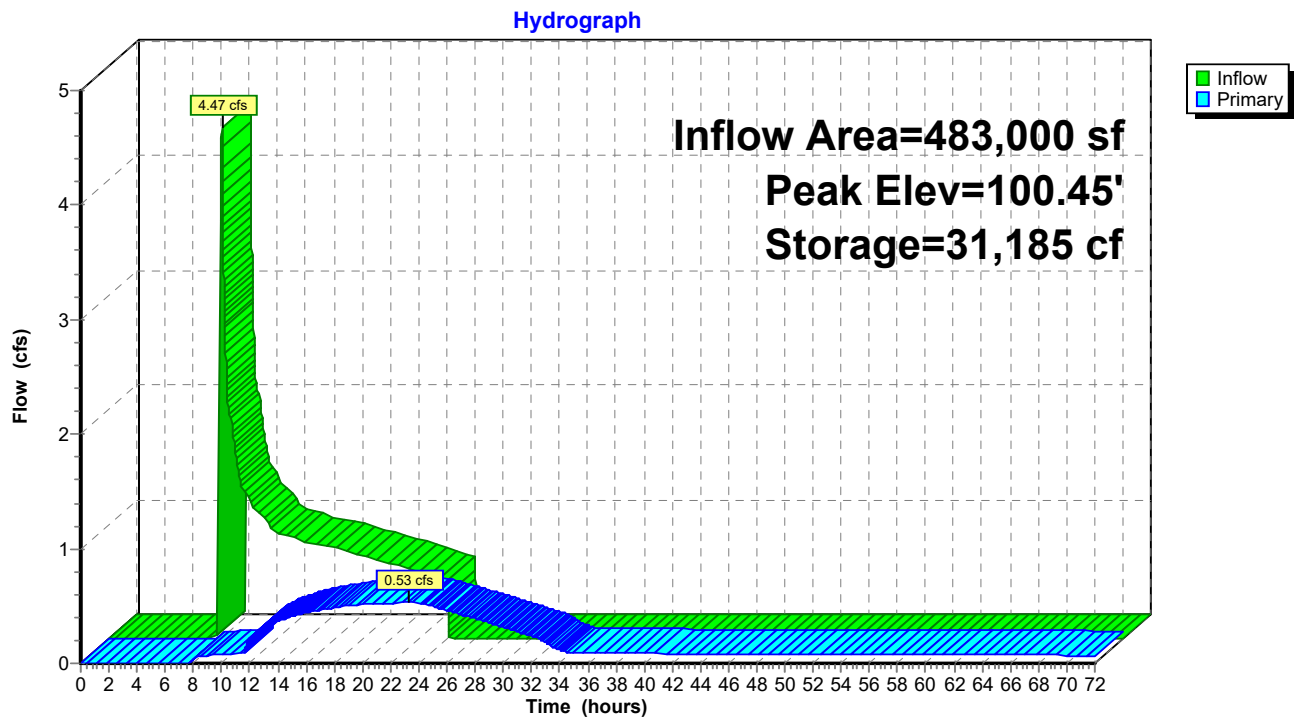
Primary OutFlow Max=0.53 cfs @ 23.31 hrs HW=100.45' (Free Discharge)

1=Outflow Pipe (Passes 0.53 cfs of 66.45 cfs potential flow)

2=Low Orifice (Orifice Controls 0.11 cfs @ 11.62 fps)

3=High Orifice (Orifice Controls 0.42 cfs @ 6.68 fps)

Pond DET-2: NW POND - DETENTION SECTION



Summary for Pond WQ-2: NW POND - WQ SECTION

Inflow Area = 483,000 sf, 47.33% Impervious, Inflow Depth = 1.89" for 10-Year event
 Inflow = 4.79 cfs @ 7.93 hrs, Volume= 76,239 cf
 Outflow = 4.51 cfs @ 8.02 hrs, Volume= 61,846 cf, Atten= 6%, Lag= 5.9 min
 Discarded = 0.04 cfs @ 5.58 hrs, Volume= 9,694 cf
 Primary = 4.47 cfs @ 8.02 hrs, Volume= 52,151 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 104.06' @ 8.02 hrs Surf.Area= 10,500 sf Storage= 21,543 cf

Plug-Flow detention time= 491.5 min calculated for 61,837 cf (81% of inflow)
 Center-of-Mass det. time= 368.2 min (1,088.4 - 720.2)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	15,750 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	98.50'	5,250 cf	18" Growing Medium (Prismatic) Listed below (Recalc)
#3	97.00'	2,100 cf	18" Drain Rock (Prismatic) Listed below (Recalc)
			5,250 cf Overall x 40.0% Voids
23,100 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	3,500	0	0
104.50	3,500	15,750	15,750

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.50	3,500	0	0
100.00	3,500	5,250	5,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,500	0	0
98.50	3,500	5,250	5,250

Device	Routing	Invert	Outlet Devices
#1	Discarded	97.00'	0.500 in/hr 0.5 in/hr Infiltration over Surface area from 85.00' - 97.00' Excluded Surface area = 0 sf
#2	Device 1	98.50'	2.000 in/hr 2 in/hr Infiltration through Growing Medium over Surface area from Excluded Surface area = 7,000 sf
#3	Primary	104.00'	100.0' long Outfall Weir to Detention Section 2 End Contraction(s)

Discarded OutFlow Max=0.04 cfs @ 5.58 hrs HW=100.00' (Free Discharge)

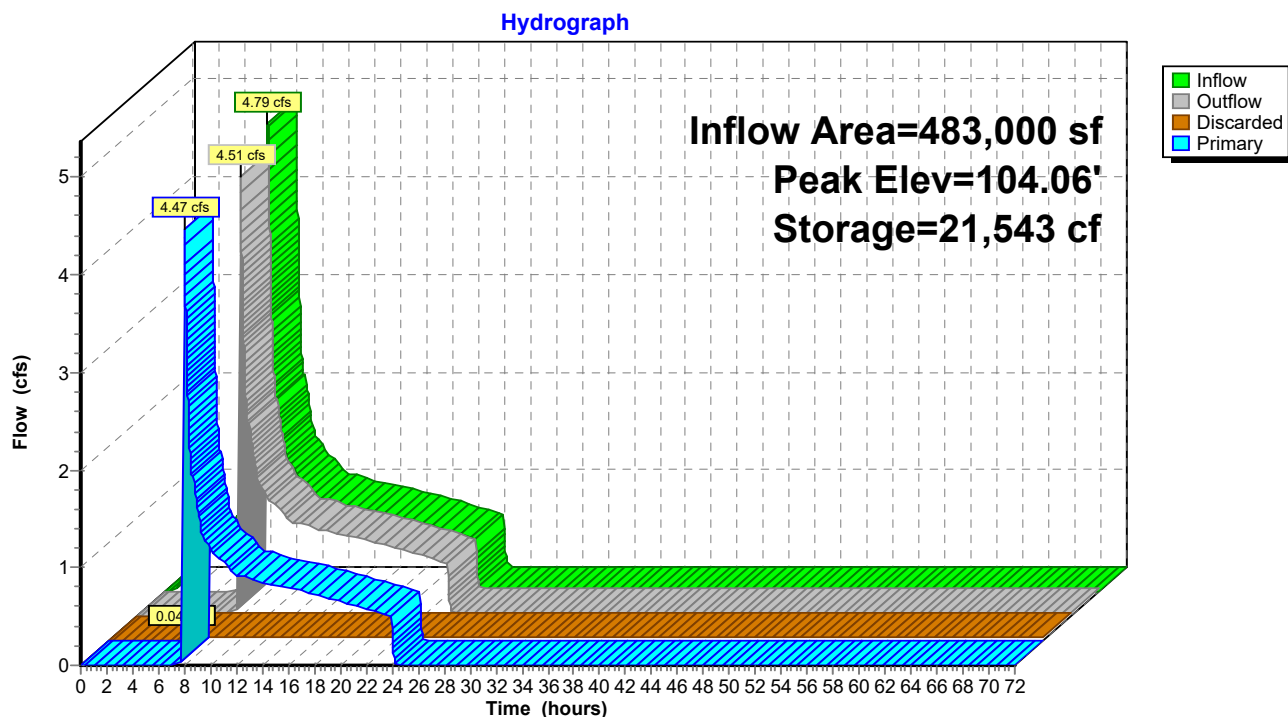
↑ **1=0.5 in/hr Infiltration** (Exfiltration Controls 0.04 cfs)

↑ **2=2 in/hr Infiltration through Growing Medium**(Passes 0.04 cfs of 0.16 cfs potential flow)

Primary OutFlow Max=4.22 cfs @ 8.02 hrs HW=104.05' (Free Discharge)

↑ **3=Outfall Weir to Detention Section**(Weir Controls 4.22 cfs @ 0.77 fps)

Pond WQ-2: NW POND - WQ SECTION



0742-003 - Meyer Farm - HydroCAD Model*Type IA 24-hr 100-Year Rainfall=4.40"*

Prepared by Microsoft

Printed 6/15/2021

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment2-POST: BASIN 2 - POST Runoff Area=483,000 sf 47.33% Impervious Runoff Depth=2.89"
Tc=5.0 min CN=72/98 Runoff=7.53 cfs 116,361 cf

Pond DET-2: NW POND - DETENTION Peak Elev=103.44' Storage=52,105 cf Inflow=7.49 cfs 92,108 cf
Outflow=0.82 cfs 81,804 cf

Pond WQ-2: NW POND - WQ SECTION Peak Elev=104.08' Storage=21,618 cf Inflow=7.53 cfs 116,361 cf
Discarded=0.04 cfs 9,855 cf Primary=7.49 cfs 92,108 cf Outflow=7.53 cfs 101,962 cf

Total Runoff Area = 483,000 sf Runoff Volume = 116,361 cf Average Runoff Depth = 2.89"
52.67% Pervious = 254,400 sf 47.33% Impervious = 228,600 sf

Summary for Subcatchment 2-POST: BASIN 2 - POST DEVELOPED

Runoff = 7.53 cfs @ 7.92 hrs, Volume= 116,361 cf, Depth= 2.89"

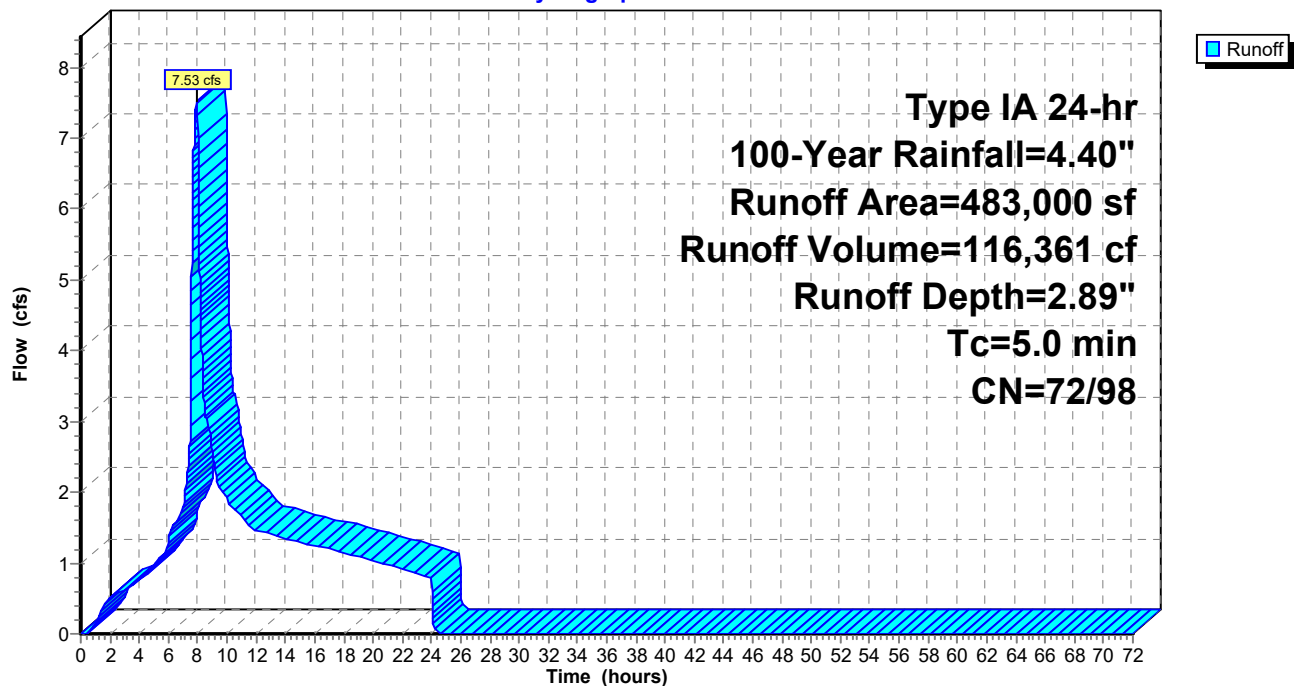
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type IA 24-hr 100-Year Rainfall=4.40"

	Area (sf)	CN	Description
*	84,200	98	Streets and Curb
*	19,600	98	Sidewalk
*	124,800	98	Lot Impervious (65% total lot area)
*	67,200	72	Lot Pervious
*	187,200	72	Remaining Pervious
	483,000	84	Weighted Average
	254,400	72	52.67% Pervious Area
	228,600	98	47.33% Impervious Area

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

Subcatchment 2-POST: BASIN 2 - POST DEVELOPED

Hydrograph



Summary for Pond DET-2: NW POND - DETENTION SECTION

Inflow Area = 483,000 sf, 47.33% Impervious, Inflow Depth = 2.29" for 100-Year event
 Inflow = 7.49 cfs @ 7.93 hrs, Volume= 92,108 cf
 Outflow = 0.82 cfs @ 23.00 hrs, Volume= 81,804 cf, Atten= 89%, Lag= 904.2 min
 Primary = 0.82 cfs @ 23.00 hrs, Volume= 81,804 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 103.44' @ 23.00 hrs Surf.Area= 7,000 sf Storage= 52,105 cf

Plug-Flow detention time= 876.6 min calculated for 81,793 cf (89% of inflow)
 Center-of-Mass det. time= 809.4 min (1,614.1 - 804.7)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	56,000 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	7,000	0	0
104.00	7,000	56,000	56,000

Device	Routing	Invert	Outlet Devices
#1	Primary	95.00'	36.0" Round Outflow Pipe L= 80.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 95.00' / 94.60' S= 0.0050 ' / Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	94.50'	1.3" Horiz. Low Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	98.65'	3.4" Horiz. High Orifice C= 0.620 Limited to weir flow at low heads

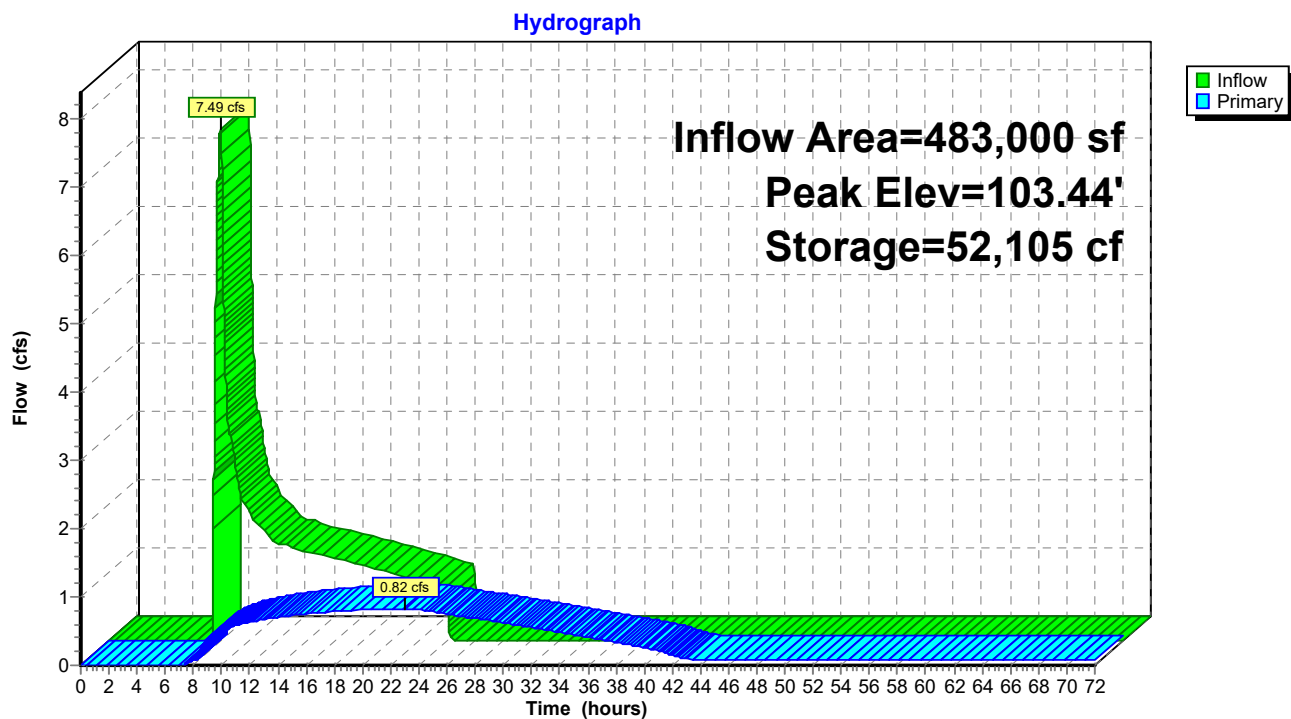
Primary OutFlow Max=0.82 cfs @ 23.00 hrs HW=103.44' (Free Discharge)

1=Outflow Pipe (Passes 0.82 cfs of 89.68 cfs potential flow)

2=Low Orifice (Orifice Controls 0.13 cfs @ 14.46 fps)

3=High Orifice (Orifice Controls 0.69 cfs @ 10.89 fps)

Pond DET-2: NW POND - DETENTION SECTION



Summary for Pond WQ-2: NW POND - WQ SECTION

Inflow Area = 483,000 sf, 47.33% Impervious, Inflow Depth = 2.89" for 100-Year event
 Inflow = 7.53 cfs @ 7.92 hrs, Volume= 116,361 cf
 Outflow = 7.53 cfs @ 7.93 hrs, Volume= 101,962 cf, Atten= 0%, Lag= 0.4 min
 Discarded = 0.04 cfs @ 4.48 hrs, Volume= 9,855 cf
 Primary = 7.49 cfs @ 7.93 hrs, Volume= 92,108 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 104.08' @ 7.93 hrs Surf.Area= 10,500 sf Storage= 21,618 cf

Plug-Flow detention time= 318.7 min calculated for 101,962 cf (88% of inflow)
 Center-of-Mass det. time= 234.6 min (948.6 - 713.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	15,750 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	98.50'	5,250 cf	18" Growing Medium (Prismatic) Listed below (Recalc)
#3	97.00'	2,100 cf	18" Drain Rock (Prismatic) Listed below (Recalc)
			5,250 cf Overall x 40.0% Voids
		23,100 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	3,500	0	0
104.50	3,500	15,750	15,750

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.50	3,500	0	0
100.00	3,500	5,250	5,250

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,500	0	0
98.50	3,500	5,250	5,250

Device	Routing	Invert	Outlet Devices
#1	Discarded	97.00'	0.500 in/hr 0.5 in/hr Infiltration over Surface area from 85.00' - 97.00' Excluded Surface area = 0 sf
#2	Device 1	98.50'	2.000 in/hr 2 in/hr Infiltration through Growing Medium over Surface area from Excluded Surface area = 7,000 sf
#3	Primary	104.00'	100.0' long Outfall Weir to Detention Section 2 End Contraction(s)

Discarded OutFlow Max=0.04 cfs @ 4.48 hrs HW=100.00' (Free Discharge)

↑ **1=0.5 in/hr Infiltration** (Exfiltration Controls 0.04 cfs)

↑ **2=2 in/hr Infiltration through Growing Medium**(Passes 0.04 cfs of 0.16 cfs potential flow)

Primary OutFlow Max=6.94 cfs @ 7.93 hrs HW=104.08' (Free Discharge)

↑ **3=Outfall Weir to Detention Section**(Weir Controls 6.94 cfs @ 0.91 fps)

Pond WQ-2: NW POND - WQ SECTION

