

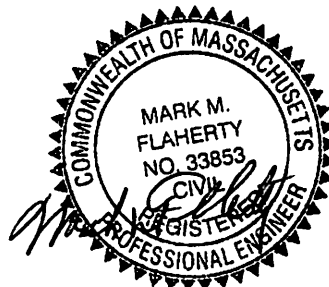
**Site Development Plan
In
Bourne, Massachusetts
371 Old Plymouth Road
Map 3 Parcel 276**

Storm Water Analysis & Drainage Report

Owner/Applicant: Sheridan Home Builders Inc
Matthew Sheridan, President
100 Hedges Pond Road
Plymouth, MA 02360

Prepared by: Flaherty & Stefani, Inc.
67 Samoset Street
Plymouth, Ma 02360

July 8, 2023



Drainage Project Overview:

This existing vacant commercial property is off Old Plymouth Road and is currently undeveloped. Presently the site is a wooded lot that contains a natural existing depression. The site is not located within any environmentally sensitive areas, i.e., not in flood FEMA hazard zones; not in Natural Heritage NHESP areas, and not within any aquifer protection zones. The soils on site are classified as belonging in the Carver series—test pits were conducted in June 2023 and on the adjacent Lot witnessed by the Board of Health in May 2021 the results are shown on the Detail Sheet in the plan set.

The Stormwater collected from the impervious pavement areas will be routed through a drainage system and recharged into a existing natural depression. The drainage system will consist of sediment forebays with overflow weirs. The system has been designed to capture and infiltrate a 100- year storm event.

Table 1 – WATER QUALITY VOLUME TO BE TREATED		
(BMP Required Water Quality Treatment = 1” of Runoff over the total impervious area)		
BMP	Required Treatment Vol.	Proposed Treatment Vol.
2,10, 25-Year Storms Watershed #1	Watersheds to Pond #1 Total Impervious Pavement Area = 4146 s.f. Req'd Treatment Vol.=34 CF	Provided Water Quality #1 Sediment Forebay 2P Sediment Forebay w /106 CF
2,10, 25-Year Storms Watershed #2	Watersheds to Pond #2 Total Impervious Pavement Area = 15923 s.f. Req'd Trtment Vol.=132 CF	Provided Water Quality #2 Sediment Forebay 3P Sediment Forebay w /382 CF

Drainage Methodologies and Peak Flow Results

The infiltration systems were designed for the post-development conditions to handle and control peak discharges and runoff volumes to include the 2, 10, and 25 year storm events—the 100-year storm was evaluated and determined that infiltration basins would overflow to Foster Hoard Road without creating any damaging flood impacts. The peak flow and volume of these storms discharged after development will be less than the pre-development peak flows and volumes. The pre-development watersheds drain to the existing roadway. All post development runoff will be contained on-site for the listed storm events..

(See Tables 2 & 3)

Table 2 – Pre-Development Peak Runoff Rates.

Pre-Construction Watershed Area	2 Year 24 Hour Storm Event	10 Year 24 Hour Storm Event	25 Year 24 Hour Storm Event
Design Point-1	0.00 cfs	0.00 cfs	0.00 cfs
Design Point-2	0.00 cfs	0.00 cfs	0.01 cfs
Design Point-3	0.00 cfs	0.00 cfs	0.01 cfs

Table 3 – Post-Development Peak Runoff Rates .

Post-Construction Watershed Area	2 Year 24 Hour Storm Event	10 Year 24 Hour Storm Event	25 Year 24 Hour Storm Event
Design Point-1	0.00 cfs	0.00 cfs	0.00 cfs
Design Point-2	0.0 cfs	0.0 cfs	0.01 cfs
Design Point-3	0.0 cfs	0.0 cfs	0.01 cfs

Flaherty & Stefani, Inc. performed all drainage calculations using the SCS TR-20 method for a Type III 24-hour storm with the “HydroCAD version 8.0 program” from Applied Microcomputer Systems (See Appendix A). The software uses National Resource Conservation Service (NRCS) methodology and IDF curves. The curve numbers (CN’s) and times of concentration for the existing and proposed catchment areas are based on soil type and cover conditions at the proposed site (a minimum time of concentration of 6 minutes was used to perform all calculations). Applied Microcomputer Systems states that TR 20 program is more precise in determining Tc and runoff than TR 55 method.

Stormwater runoff from the site is collected within each catchment area.

The site drainage system was designed in consideration of the standards and techniques of the Best Management Practices outlined in the Massachusetts Department of Environmental Protection Stormwater Management Guidelines in the Stormwater Policy Handbook.

Groundwater recharge is a factor in the design of all drainage systems. Table – 4 below presents the minimum recharge required and the proposed recharge of stormwater based upon the BMP methods of the MA Department of Environmental Protection Stormwater Management Guidelines. The proposed recharge quantities meet or exceed the required minimum recharges.

Table 4 - Drainage Recharge Calculation		
(BMP Required Recharge = 0.6” Total Site Runoff for Class-A Soils)		
BMP	Required Recharge	Proposed Recharge
2, 10, 25 Storm Events	Pond #1 (25,069 SF Total Impervious Area) x 0.6” == 1248 ft ³	Pond 1 Storage to El. 94.9 = 5038 CF

BMP Guidelines for Total Suspended Solids (TSS) Removal

The stormwater management system will conform to the standards of the Massachusetts DEP Stormwater Management Guidelines for Total Suspended Solids (TSS) discharges. The system includes:

1. Street Sweeping 10% removal
2. Sediment Forebay 25% removal
3. Infiltration System 80%

In total, the applicant's activity will result in a 88% of the TSS in the flow discharge and thus reducing potential for sedimentation effects downstream. These calculations are presented below.

- | | | | |
|-----------------|---|------|--|
| 1. (.10) x 1.00 | = | 0.10 | with (1.00 - 0.10) 0.90 remaining; |
| 2. (.25) x 0.90 | = | 0.22 | with (0.90 - 0.22) 0.58 remaining. |
| 3. (.80) x 0.58 | = | 0.46 | <u>with (0.58 - 0.46) 0.12 remaining</u> |

$$\text{Total} = (1.0 - 0.12) = 0.88 \times 100 = 88\% \text{ TSS removed}$$

BMP of 80% TSS removal is met.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

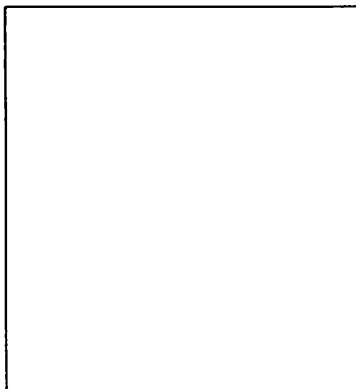
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



Mark M. Flaherty 8-1-2023

Signature and Date

Checklist

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

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

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

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

Standard 1: No New Untreated Discharges

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



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

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



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

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

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the proprietary BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

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

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted *prior* to the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does *not* cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has *not* been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

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

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
 - Redevelopment Project
 - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

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

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

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

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

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has *not* been included in the Stormwater Report but will be submitted *before* land disturbance begins.
- The project is *not* covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - Name of the stormwater management system owners;
 - Party responsible for operation and maintenance;
 - Schedule for implementation of routine and non-routine maintenance tasks;
 - Plan showing the location of all stormwater BMPs maintenance access areas;
 - Description and delineation of public safety features;
 - Estimated operation and maintenance budget; and
 - Operation and Maintenance Log Form.
- The responsible party is *not* the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted *prior to* the discharge of any stormwater to post-construction BMPs.

Construction Period Erosion Control Plan

**COMMERCIAL BUILDING-
WAREHOUSE/STORAGE & OFFICE**

Project Location:

#371 Old Plymouth Road, Bourne MA

Prepared for:

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Matthew Sheridan, President
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Mark M. Flaherty, P.E. mark@fs-eng.com

August 1, 2023

The project shall implement a Construction Period Erosion Control Plan. The following provides descriptions and guidelines to ensure that the areas surrounding the project site will be protected from excessive sedimentation and runoff during construction.

1.1 Construction Period Pollution Prevention And Erosion Control Measures

1.1.1 Preconstruction Notifications and Meetings

Prior to the start of construction, the contractor shall call together a pre-construction meeting including a representative from the Town of Plymouth, the design engineer, contractor, and any pertinent persons that should be in attendance. These requirements shall be the responsibility of the Contractor to arrange, attend, and document. The purpose is to review the subdivision permit and its conditions. The developer/applicant must provide evidence that all the required documents have been recorded with sufficient copies made for the Planning Board along with the Stormwater Pollution Prevention Plan (SWPPP). The developer/applicant is responsible for compliance with the SWPPP and the prevention of all erosion and build-up of sediment within the area disturbed due to the construction of the road and drainage system.

1.1.2 Sediment Barrier and Work Limit

Before installation of the sediment barriers, the location shall be staked in the field for review and approval by the owner or their design engineer. To facilitate sediment barrier installation, woody vegetation may be removed and any required trench may be cut by machine, provided all other ground cover is left intact. No excavation, grading, filling, or removal of vegetative ground cover shall begin until sediment barriers have been installed as shown on the plans and have been inspected by the owner or their representative.

1.1.3 Silt Fence

The bottom of the fence shall be trenched into the ground a minimum of 6" and back-filled with compacted soil. Where trenching is not feasible, silt fence skirt shall be covered with compacted soil or crushed stone. The top of the fabric shall be stretched as tightly as is practical, with intermediate stakes added to correct excessive sags. Stakes shall be driven at least 12" into the ground. Splices between sections shall be made by rolling end stakes together one complete turn and driving into the ground together.

1.1.4 Straw Bales

Straw bales may be used as temporary and moveable control measures, temporary check dams, or as reinforcement for silt fence in areas of concentrated runoff or high fills. Bales shall be tightly butted and staked 12" into the ground. Where used without silt fence in front, the bales shall be trenched 4" into the ground, back-filled with compacted soil, and the spaces between bales shall be chinked with loose hay.

1.1.5 Filter Sock (Filtrexx or Equivalent)

In areas of expected sheet flow, filter sock may be placed directly on the ground without trenching or stakes. In areas of expected concentrated flow, mulch or crushed stone shall be placed along the up-slope face to control and filter underflow. Additional layers of Filter Sock may be required for

adequate freeboard. The filter sock shall be staked at 10 feet on-center or in cases where they cannot be staked, utilize heavy concrete blocks to hold in place.

1.1.6 Temporary Sedimentation Traps

Temporary sediment traps may be excavations or bermed stormwater detention structures (depending on grading) that will retain runoff for a sufficient period of time to allow suspended soil particles to settle out prior to discharge. These temporary traps will be located based on construction needs as determined by the contractor and outlet devices will be designed to control velocity and sediment. Points of discharge from sediment traps will be stabilized to minimize erosion. If the temporary trap is to be located within an area of future infiltration as part of the stormwater management system, the excavation for the temporary sedimentation basin shall be limited to one foot above final grade of the infiltration structure.

1.1.7 Stocking Additional Materials

A stock of additional erosion control materials shall be available on the site for emergency repairs and temporary measures. Stock shall be replenished when decreased to 50% of the numbers below. Stock shall include:

Straw Bales - 10 (kept dry) with 20 oak stakes

Or

Silt Fence - 30 Linear feet.

Or

Filter Sock - 4 - 8 foot sections (kept dry)

Washed Stone - One (1) cubic yard, 3/4" to 2" diameter

1.1.8 Trench Protection

Open trenches shall be protected from accumulation of surface water or groundwater that could result in erosion of the trench and discharge of sediment. Where feasible, spoil shall be stockpiled on the up-slope side of the trench to prevent entrance of surface runoff. Backfill shall be crowned to allow for settlement and to avoid concentration of runoff on top of the trench.

1.1.9 Site Stabilization - Temporary

Where a portion of the site will not be subject to construction activity for over 14 days, measures shall be taken to provide temporary stabilization of that inactive portion of the site, within 14 days of the cessation of construction activity. Stabilization measures may include seeding for temporary cover, mulching, or other measures to protect exposed soil from erosion and prevent sediment movement.

1.1.10 Site Stabilization - Permanent

Within 14 days of completion of loaming and finish grading on any portion of the site, that area shall be seeded or planted for permanent cover (season permitting) in accordance with USDA NRCS guidelines or equivalent.

1.1.11 Roadway Sweeping

The entrance to the site and affected portions of the access drive or paved areas shall be swept as needed to control sediment runoff into storm drains or waterways and to control blowing dust.

1.2 Short-Term Erosion Control Maintenance

The following provides short-term erosion control maintenance guidelines and requirements.

1. The contractor or subcontractor will be responsible for implementing each control shown on the sedimentation and erosion control plan.
2. All erosion and sediment control devices shall be properly maintained during all phases of construction until the completion of all construction activities and all disturbed areas have been stabilized. Additional control measures will be installed during construction in order to control erosion and/or off-site sedimentation if deemed necessary by on-site inspection.
3. Effective erosion control measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operations that will disturb the natural protection.
4. All sediment and erosion control devices shall be inspected at least once every seven (7) calendar days and after any storm event greater than 0.5 inches of precipitation during any 24-hour period, and the inspection shall be documented in writing. Damaged or ineffective devices shall be repaired or replaced, as necessary.
5. The contractor shall take all reasonable precautions to avoid excess erosion of the site due to the construction of this project.
6. Silt shall be removed from behind barriers if greater than 6-inches deep or as needed. Sediment that is collected in structures shall be disposed of properly and covered if stored on-site.
7. Damaged or deteriorated items will be repaired immediately after identification.
8. All ditches shall be stabilized as soon as is practicable to minimize erosion.
9. The contractor shall maintain all erosion control devices in a good, working state of repair. Upon complete stabilization of any tributary areas, the erosion control devices shall be removed and disposed of so as to cause no off-site siltation.
10. Inspect and maintain construction entrance stone such that sediment does not track onto the street. Any sediment tracked onto the street shall be swept daily.
11. After catch basins have been constructed, the contractor shall protect the inlets by constructing inlet protection as shown on the plans.
12. Once the site has been paved, all catch basin inlets shall receive a silt sack type protection.
13. Erosion control measures shall remain in place until all disturbed earth has been substantially stabilized. After removal of structures, disturbed areas shall be regraded and stabilized as necessary.
14. Sediment from sediment traps or sedimentation ponds shall be removed when it reaches a depth of six inches.
15. On and off-site material storage areas, including construction and waste materials, shall be properly protected and managed.

16. Erosion and sediment controls shall be coordinated with the sequence of grading, development and construction operations; control measures shall be in effect prior to commencement of each increment/phase of the process and control measures from prior phases shall continue to be maintained until the site is stabilized.
17. Land disturbance activities exceeding two acres in size shall not be disturbed without a sequencing plan that requires stormwater controls to be installed and the soil stabilized, as disturbance beyond the two acres continues. Mass clearings and grading of the entire site should be avoided. Prior to any construction on the site, applicant shall submit a construction phasing plan to the Planning Department for review and approval.
18. Soil and other materials shall not be stockpiled or redistributed, either temporarily or permanently, in locations or in such a manner as would cause suffocation of tree root systems.
19. Topsoil shall be stripped from disturbed areas, stockpiled in approved areas and stabilized with temporary vegetative cover if it is to be left for more than thirty (30) calendar days; perimeter sediment controls shall be installed around each area of stockpiled topsoil.
20. Soil stockpiles must be stabilized or covered at the end of each workday. Stockpile side slopes shall not be greater than 2:1. All stockpiles shall be surrounded by sediment controls.
21. Projects must comply with applicable Federal, State and local laws and regulations including waste disposal, sanitary sewer or septic system regulations, and air quality requirements, including dust and debris control.
22. A tracking pad shall be constructed at all entrance/exist points of the site to reduce the amount of soil carried onto roadways and off the site.
23. Dust shall be controlled at the site.
24. On the cut side of roads ditches shall be stabilized immediately with rip-rap or non-erodible liner or where appropriate sod.

Long-Term Operation and Maintenance Plan

COMMERCIAL BUILDING- WAREHOUSE/STORAGE & OFFICE

Project Location:

#371 Old Plymouth Road, Bourne MA

Prepared for:

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Mark M. Flaherty, P.E. mark@fs-eng.com

August 1, 2023

I. Long-Term Stormwater Maintenance Program:

This Long-Term Operation and Maintenance Plan (O&M) identifies inspection and maintenance requirements for the proposed stormwater management system. The O&M references guidelines set forth by the Stormwater Management Handbook developed by the Massachusetts Department of Environmental Protection.

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*The party listed shall be responsible for implementation and record keeping of the requirements listed in this operation and maintenance plan. Upon completion of construction, the responsible party shall be reinstated as the homeowner's association or any other group created as part of the residential subdivision governance. Each individual owner shall be responsible to contribute to the operation and maintenance of the stormwater management system or as decided and agreed upon in the homeowner's association/governing group documents.

2. Inspection and Maintenance Program:

Regular inspection and routine maintenance are necessary to ensure that the stormwater management system continues to control and treat runoff. The following lists the inspection schedule and maintenance procedures for the proposed stormwater Best Management Practices:

BMP	Inspection Schedule	Maintenance Schedule	Maintenance Procedures
Bituminous Concrete Roadway	Four times per year	Twice per year	<ul style="list-style-type: none"> Roadway to be swept in March or April following snow melt and again in late November or early December to remove fallen leaves and debris
Deep-Sump Catch Basins	Four times per year	Four times per year	<ul style="list-style-type: none"> Remove sediment once deposits reach one half the depth from the bottom sump to the lowest invert.
Sediment Forebay	As specified by the manufacturer	As specified by the manufacturer	<ul style="list-style-type: none"> Clean the unit using the method specified by the manufacturer. Vector trucks are typically used to clean these units.
Infiltration Basin	After every major storm for the first three months; Twice per year thereafter.	Twice Per year	<ul style="list-style-type: none"> Check for signs of differential settlement, cracking, erosion, leakage in the embankments, sediment accumulation, and health of the turf; Mow side slopes and basin bottom and remove clippings; Remove accumulated trash and debris.

See the attached Long-Term Operation & Maintenance Inspection Checklist for record keeping purposes.

*See attached Device Operation and Maintenance Guide

3. Additional Long-Term Operation and Maintenance Items

The following is a list of additional operation and maintenance items to be implemented by the owner/governing group to maintain the features proposed in this project.

- A. Proper storage, use, and disposal of hazardous chemicals, including automobile fluids pesticides, paints, solvents, etc. shall be required. Information should be provided on chemicals of concern, proper use, and disposal options. Recycling programs for used motor oil, antifreeze, and other products should be developed, promoted and distributed to the homeowners.
- B. Vehicle Washing. This management measure involves educating the owner on the water quality impacts of the outdoor washing of vehicles and how to avoid allowing polluted runoff to enter the storm drain system. Outdoor vehicle washing has the potential to result in high loads of nutrients, metals, and hydrocarbons which is conveyed by the detergent-rich water into storm drains.
- C. Recycling, spill prevention and response plans, and proper material storage and disposal of potentially hazardous materials shall be implemented. It will be the responsibility of each owner to contain and legally remove any materials that are spilled onsite. The use of dry floor cleaners and absorbent materials and limiting the use of water to clean driveways is encouraged. Care should be taken to avoid accidental disposal of hazardous materials.
- D. Provisions for storing trash and waste products shall be implemented. The waste materials shall be collected by the owner and all materials shall be properly disposed of.
- E. Requirements for routine inspections and maintenance of stormwater best management practices. Routine inspections shall be performed to ensure the correct functioning of stormwater best management practices. See the specific maintenance criteria for detail regarding inspections and maintenance frequency.
- F. Requirements for Storage and Use of Fertilizers, Herbicides, and Pesticides. Fertilizers, pesticides, herbicides, lawn care chemicals, or other leachable materials shall be used in accordance with the Lawn Care Regulations of the Massachusetts Pesticide Board, 33 CMR 10.03 (30,31), as amended, with manufacturer's label instructions and all other necessary precautions to minimize adverse impacts on surface and groundwater. The storage of any such materials shall be within structure designed to prevent the escape of contaminated runoff or leachate.
- G. Provisions for prevention of illicit discharges to the stormwater management system shall be implemented. Any illicit discharges to the stormwater management system shall be prohibited. It will be the owner's responsibility to ensure compliance with the legal disposal of all materials and containment/cleanup of any illicit discharges.
- H. Training for staff or personnel involved with implementation of the Long-Term Pollution Prevention Plan shall be required. The owner/governing group will be responsible for the implementation of the measures set forth in the Long-Term Pollution Prevention Plan. Documentation that personnel and owners involved with the implementation of the Long-Term Pollution Prevention Plan have been trained to conduct such tasks shall be documented.

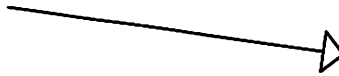
4. Winter and Snow Conditions

The following is a list of additional operation and maintenance items to be implemented by the owner during winter and snow conditions.

- A. Snowfall amounts may be stored on the grassed areas surrounding the paved areas, excluding any areas utilized for stormwater management practices. Based on a typical homeowners association, all snow removal will be contracted to a qualified snow removal contractor who will be provided any other restrictions
- B. Winter road salt and/or sand use and storage restrictions shall be implemented based on the Homeowner Association restrictions issued for the project. Sodium chloride for ice control shall be used at the minimum salt to sand ratio which is consistent with the Massachusetts Department of Environmental Protections guidelines. Sodium chloride, calcium chloride, chemically treated abrasives or other chemicals used for the removal of ice and snow on roads/drives shall not be stored on site.



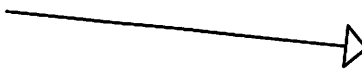
Ex. Watershed #1 Right
Portion of Lot



DP #1



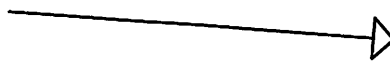
Ex. Watershed #2 Left
Side of Lot



DP #2



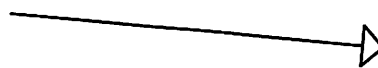
Ex. Watershed #3 Back
Left Side of Lot



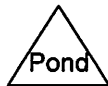
DP #3



Ex Watershed 4 Area
Draining Depression



Existing Depression



Sheridan - Existing Watershed 7-1-23

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 YR STORM	Type III 24-hr		Default	24.00	1	3.39	2
2	10 YR STORM	Type III 24-hr		Default	24.00	1	5.08	2
3	25 YR STORM	Type III 24-hr		Default	24.00	1	6.22	2
4	100 YR STORM	Type III 24-hr		Default	24.00	1	9.04	2

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
7,099	39	>75% Grass cover, Good, HSG A (1S, 2S, 3S, 4S)
99,579	30	Woods, Good, HSG A (1S, 2S, 3S, 4S)
106,678	31	TOTAL AREA

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Type III 24-hr 2 YR STORM Rainfall=3.39"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Ex. Watershed #1 Right Runoff Area=11,061 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=298' Tc=9.5 min CN=30 Runoff=0.00 cfs 0 cf

Subcatchment 2S: Ex. Watershed #2 Left Runoff Area=9,120 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=163' Tc=9.0 min CN=33 Runoff=0.00 cfs 0 cf

Subcatchment 3S: Ex. Watershed #3 Back Runoff Area=10,456 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=180' Tc=10.6 min CN=33 Runoff=0.00 cfs 0 cf

Subcatchment 4S: Ex Watershed 4 Area Runoff Area=76,041 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=300' Tc=10.3 min CN=30 Runoff=0.00 cfs 0 cf

Pond 1P: Existing Depression Peak Elev=90.00' Storage=0 cf Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Link DP1: DP #1 Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Link DP2: DP #2 Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Link DP3: DP #3 Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Total Runoff Area = 106,678 sf Runoff Volume = 0 cf Average Runoff Depth = 0.00"
100.00% Pervious = 106,678 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1S: Ex. Watershed #1 Right Portion of Lot

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

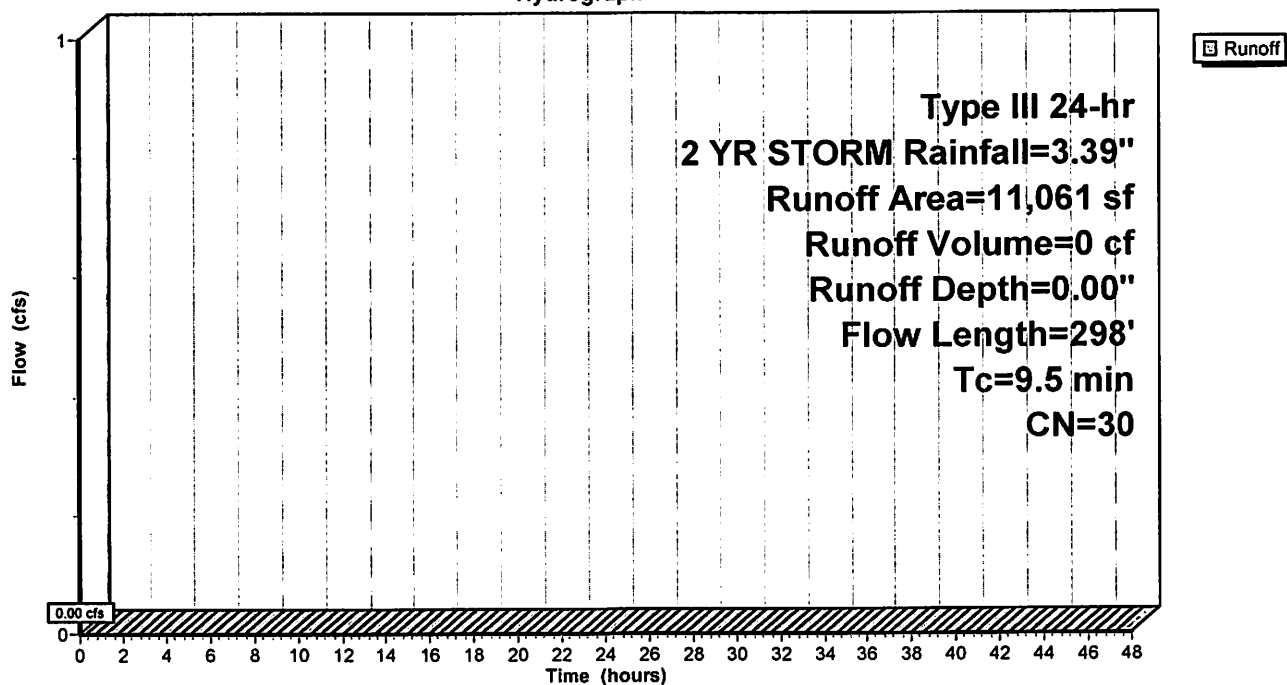
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 YR STORM Rainfall=3.39"

Area (sf)	CN	Description
10,832	30	Woods, Good, HSG A
229	39	>75% Grass cover, Good, HSG A
11,061	30	Weighted Average
11,061		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.1000	0.13		Sheet Flow, Woods
3.1	248	0.0700	1.32		Woods: Light underbrush n= 0.400 P2= 3.25"
					Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
9.5	298	Total			

Subcatchment 1S: Ex. Watershed #1 Right Portion of Lot

Hydrograph



Summary for Subcatchment 2S: Ex. Watershed #2 Left Side of Lot

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

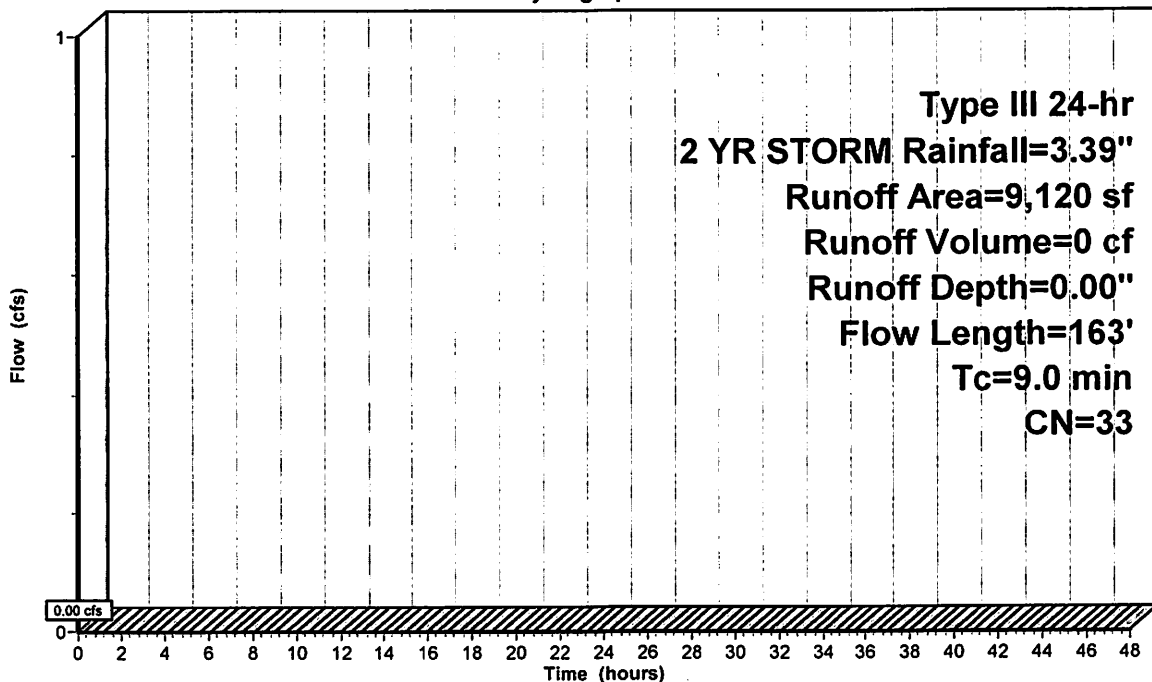
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 YR STORM Rainfall=3.39"

Area (sf)	CN	Description
5,811	30	Woods, Good, HSG A
3,309	39	>75% Grass cover, Good, HSG A
9,120	33	Weighted Average
9,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
1.1	113	0.1100	1.66		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
9.0	163	Total			

Subcatchment 2S: Ex. Watershed #2 Left Side of Lot

Hydrograph



Type III 24-hr
 2 YR STORM Rainfall=3.39"
 Runoff Area=9,120 sf
 Runoff Volume=0 cf
 Runoff Depth=0.00"
 Flow Length=163'
 Tc=9.0 min
 CN=33

Summary for Subcatchment 3S: Ex. Watershed #3 Back Left Side of Lot

[45] Hint: Runoff=Zero

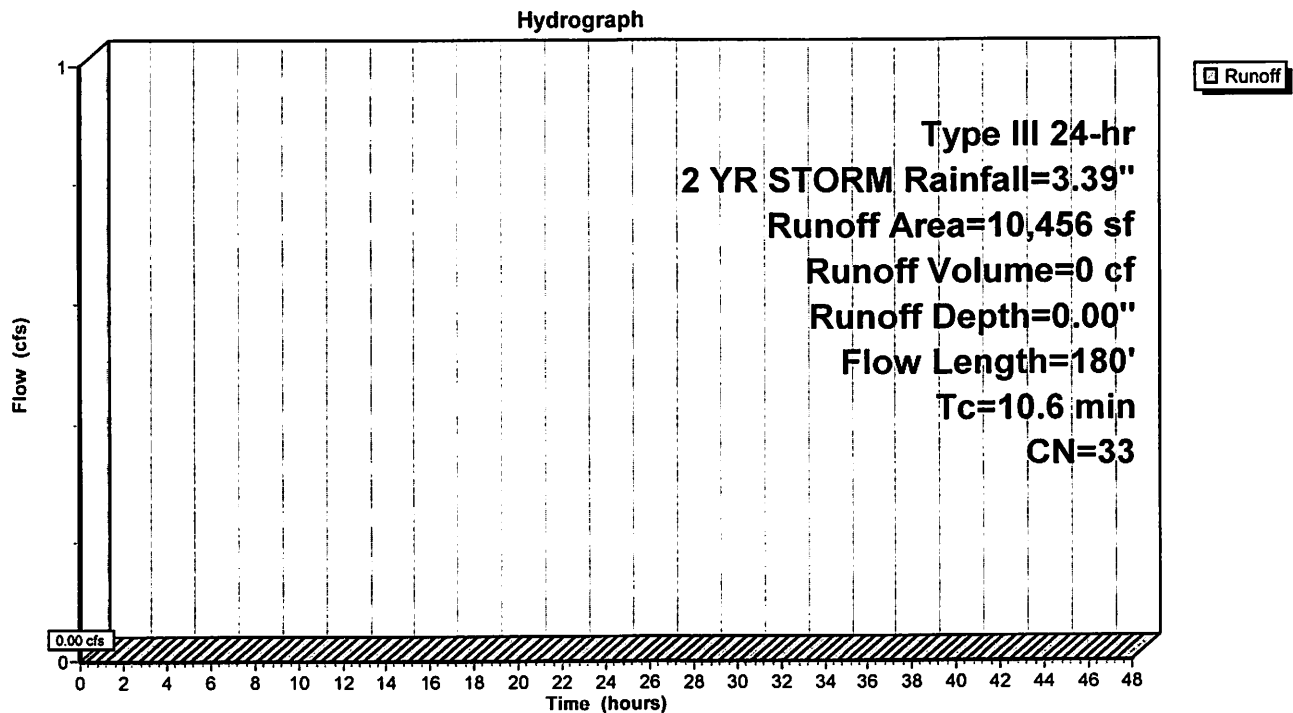
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 YR STORM Rainfall=3.39"

Area (sf)	CN	Description
7,390	30	Woods, Good, HSG A
3,066	39	>75% Grass cover, Good, HSG A
10,456	33	Weighted Average
10,456		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, Woods
					Woods: Light underbrush n= 0.400 P2= 3.25"
1.3	130	0.1200	1.73		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
10.6	180	Total			

Subcatchment 3S: Ex. Watershed #3 Back Left Side of Lot



Summary for Subcatchment 4S: Ex Watershed 4 Area Draining Depression

[45] Hint: Runoff=Zero

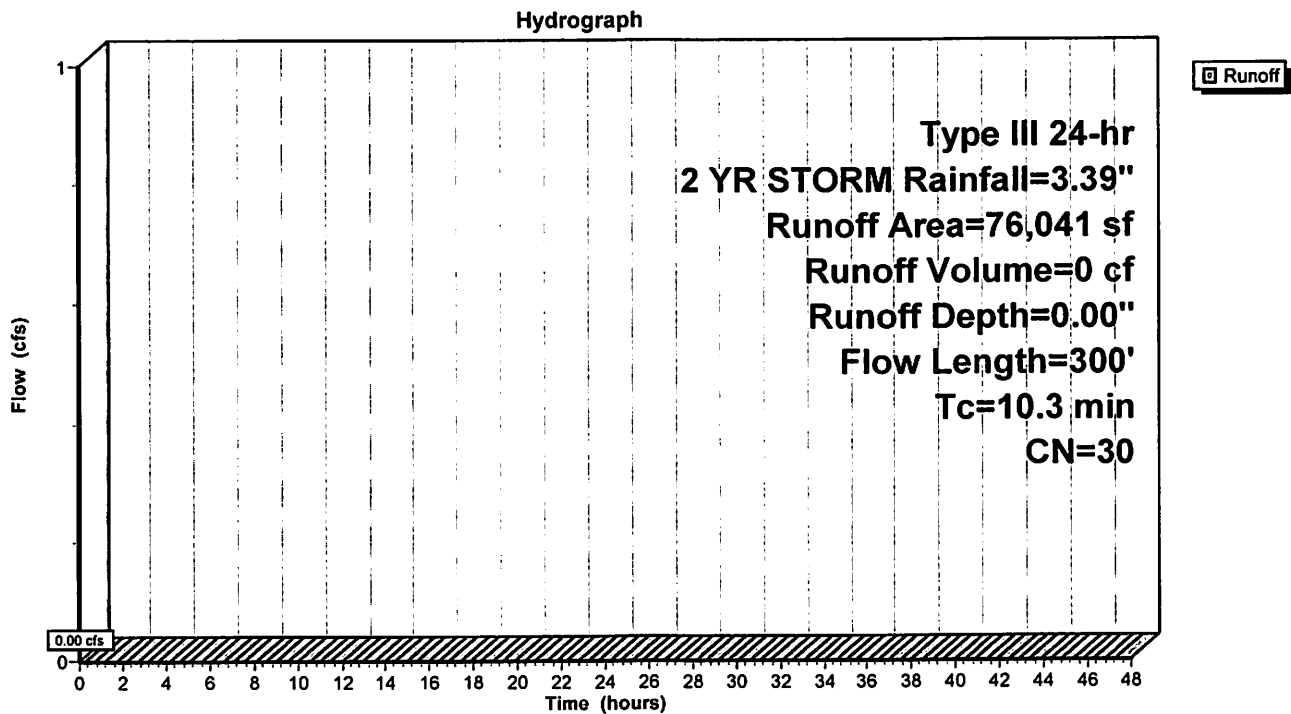
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 YR STORM Rainfall=3.39"

Area (sf)	CN	Description
75,546	30	Woods, Good, HSG A
495	39	>75% Grass cover, Good, HSG A
76,041	30	Weighted Average
76,041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
2.4	250	0.1200	1.73		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
10.3	300	Total			

Subcatchment 4S: Ex Watershed 4 Area Draining Depression



Summary for Pond 1P: Existing Depression

Inflow Area = 76,041 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 YR STORM 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
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 90.00' @ 0.00 hrs Surf.Area= 203 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	90.00'	37,155 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

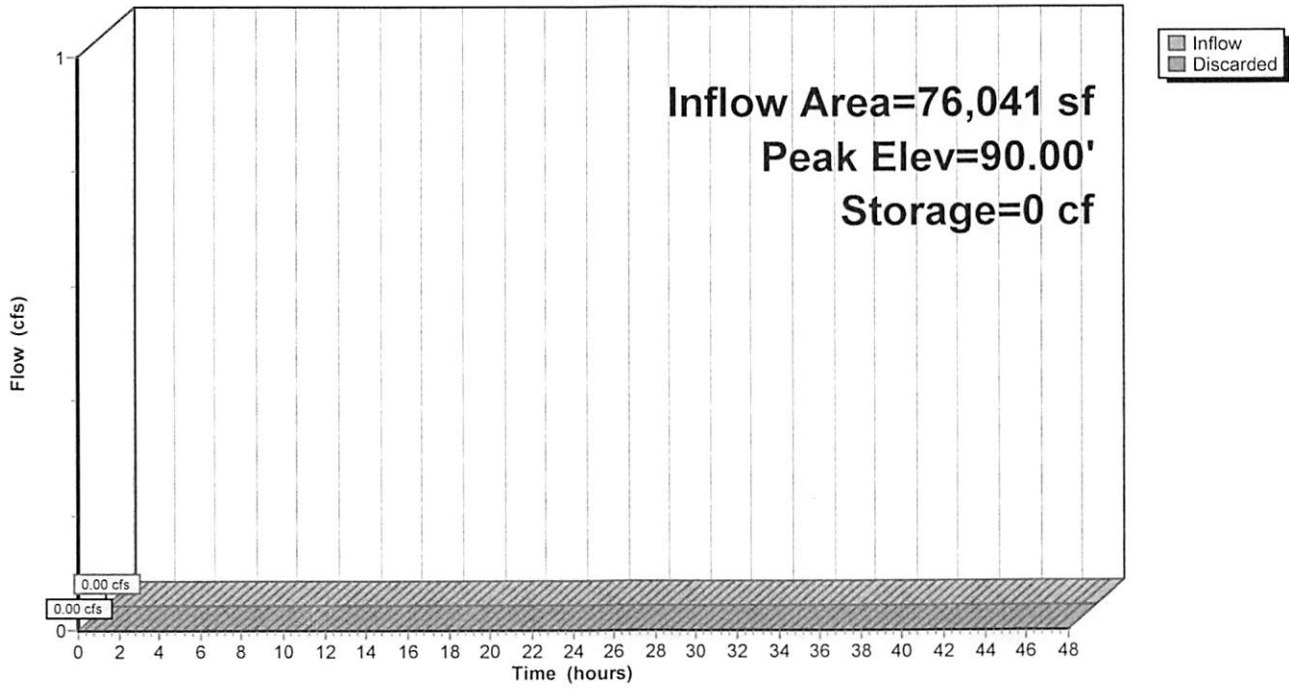
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	203	0	0
92.00	2,228	2,431	2,431
94.00	4,449	6,677	9,108
96.00	6,890	11,339	20,447
98.00	9,818	16,708	37,155

Device	Routing	Invert	Outlet Devices
#1	Discarded	90.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=90.00' (Free Discharge)
 ↳1=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

Pond 1P: Existing Depression

Hydrograph



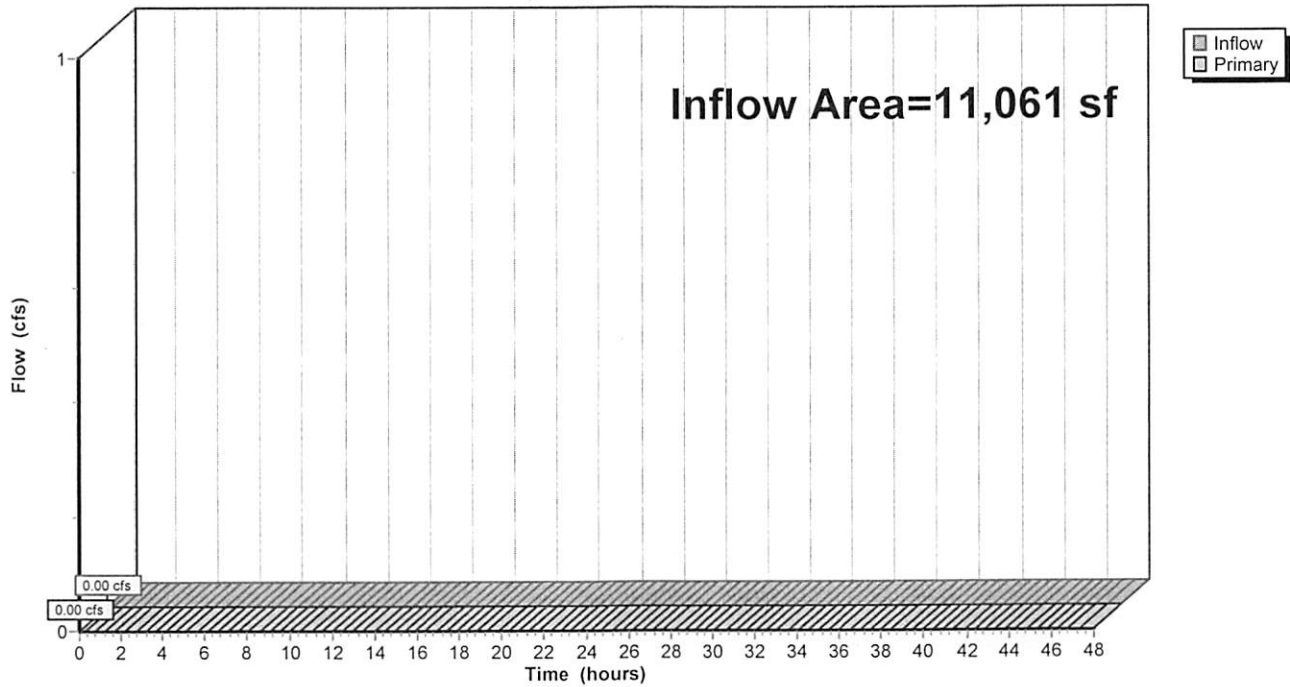
Summary for Link DP1: DP #1

Inflow Area = 11,061 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 YR STORM event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link DP1: DP #1

Hydrograph



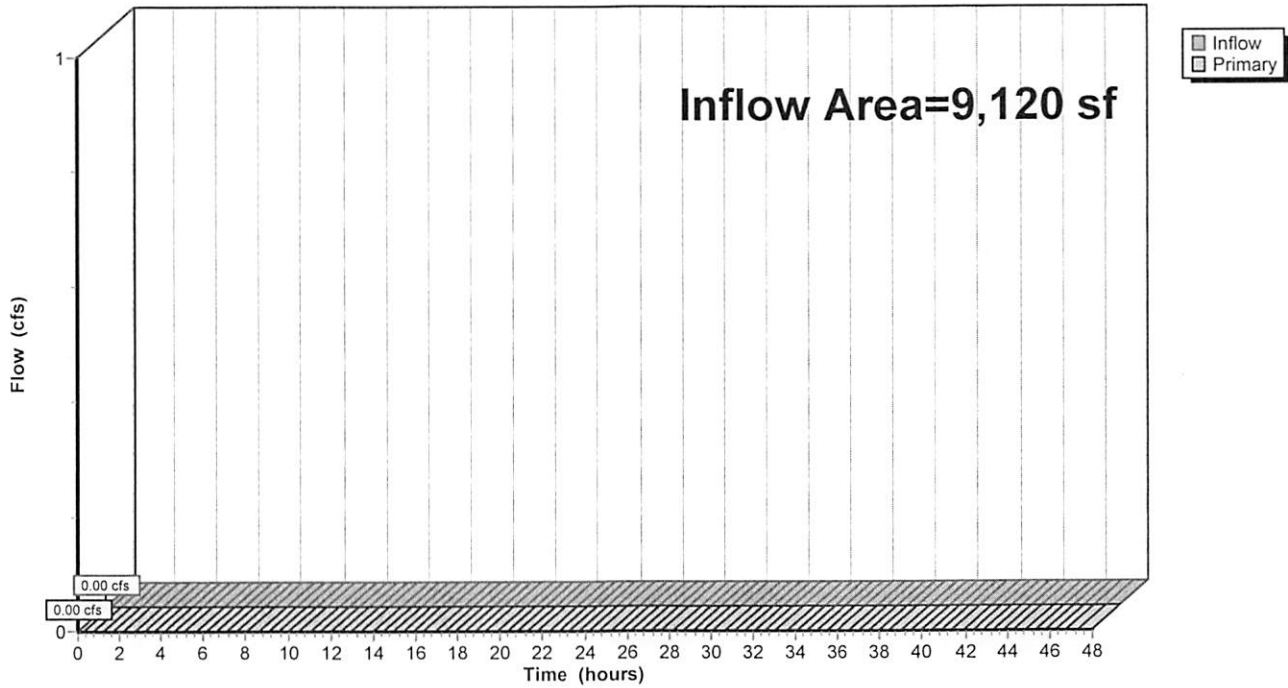
Summary for Link DP2: DP #2

Inflow Area = 9,120 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 YR STORM event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link DP2: DP #2

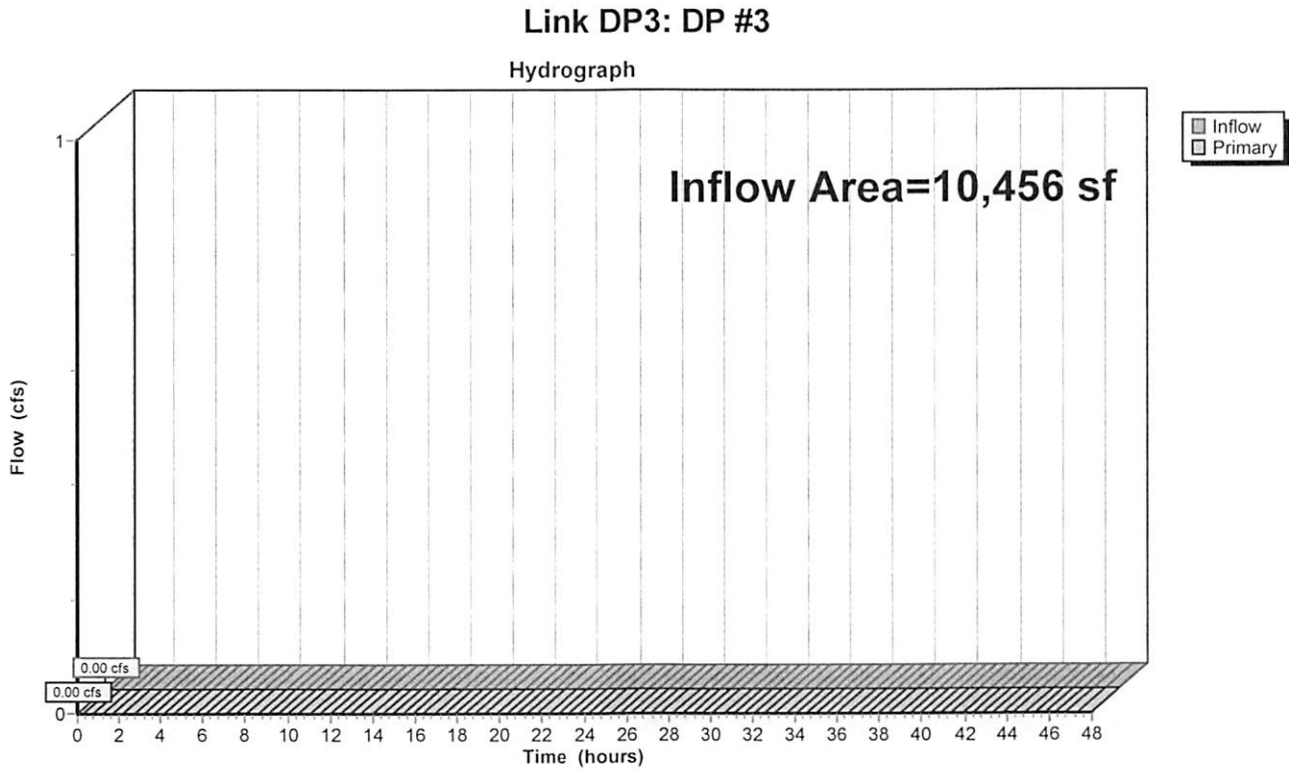
Hydrograph



Summary for Link DP3: DP #3

Inflow Area = 10,456 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 YR STORM event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs



Sheridan - Existing Watershed 7-1-23

Type III 24-hr 10 YR STORM Rainfall=5.08"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Ex. Watershed #1 Right Runoff Area=11,061 sf 0.00% Impervious Runoff Depth=0.01"
Flow Length=298' Tc=9.5 min CN=30 Runoff=0.00 cfs 7 cf

Subcatchment 2S: Ex. Watershed #2 Left Runoff Area=9,120 sf 0.00% Impervious Runoff Depth=0.05"
Flow Length=163' Tc=9.0 min CN=33 Runoff=0.00 cfs 37 cf

Subcatchment 3S: Ex. Watershed #3 Back Runoff Area=10,456 sf 0.00% Impervious Runoff Depth=0.05"
Flow Length=180' Tc=10.6 min CN=33 Runoff=0.00 cfs 42 cf

Subcatchment 4S: Ex Watershed 4 Area Runoff Area=76,041 sf 0.00% Impervious Runoff Depth=0.01"
Flow Length=300' Tc=10.3 min CN=30 Runoff=0.00 cfs 46 cf

Pond 1P: Existing Depression Peak Elev=90.01' Storage=3 cf Inflow=0.00 cfs 46 cf
Outflow=0.00 cfs 46 cf

Link DP1: DP #1 Inflow=0.00 cfs 7 cf
Primary=0.00 cfs 7 cf

Link DP2: DP #2 Inflow=0.00 cfs 37 cf
Primary=0.00 cfs 37 cf

Link DP3: DP #3 Inflow=0.00 cfs 42 cf
Primary=0.00 cfs 42 cf

Total Runoff Area = 106,678 sf Runoff Volume = 132 cf Average Runoff Depth = 0.01"
100.00% Pervious = 106,678 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 2S: Ex. Watershed #2 Left Side of Lot

Runoff = 0.00 cfs @ 16.75 hrs, Volume= 37 cf, Depth= 0.05"

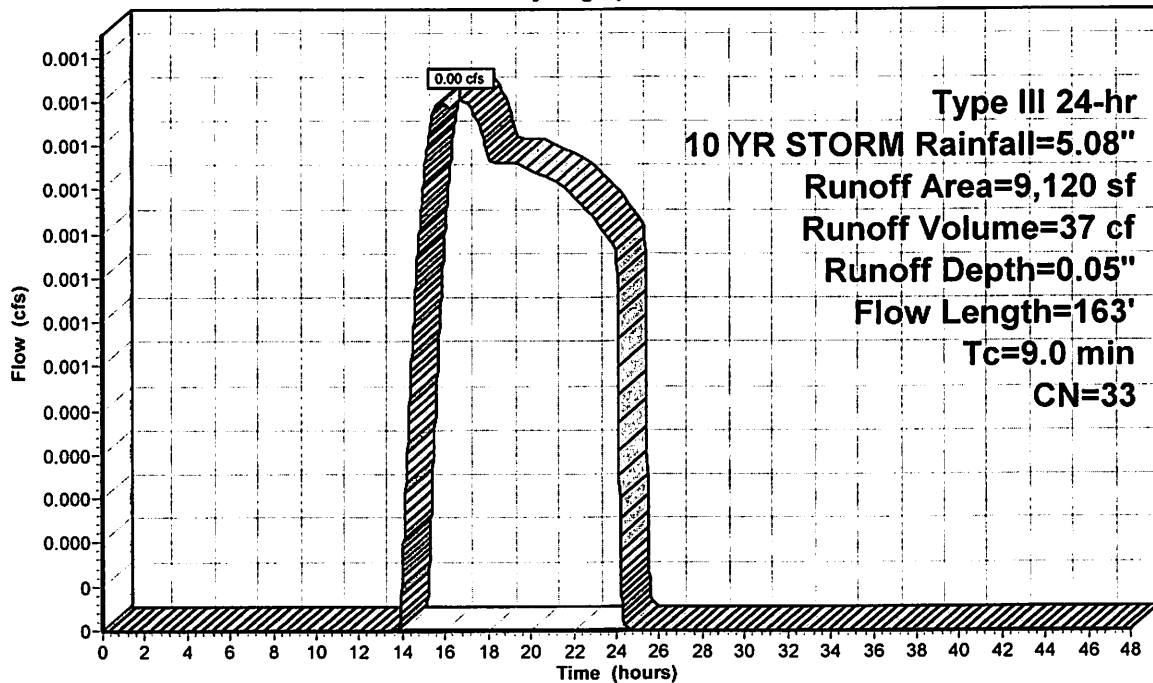
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10 YR STORM Rainfall=5.08"

Area (sf)	CN	Description
5,811	30	Woods, Good, HSG A
3,309	39	>75% Grass cover, Good, HSG A
9,120	33	Weighted Average
9,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
1.1	113	0.1100	1.66		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
9.0	163	Total			

Subcatchment 2S: Ex. Watershed #2 Left Side of Lot

Hydrograph



Runoff

Type III 24-hr
 10 YR STORM Rainfall=5.08"
 Runoff Area=9,120 sf
 Runoff Volume=37 cf
 Runoff Depth=0.05"
 Flow Length=163'
 Tc=9.0 min
 CN=33

Summary for Subcatchment 3S: Ex. Watershed #3 Back Left Side of Lot

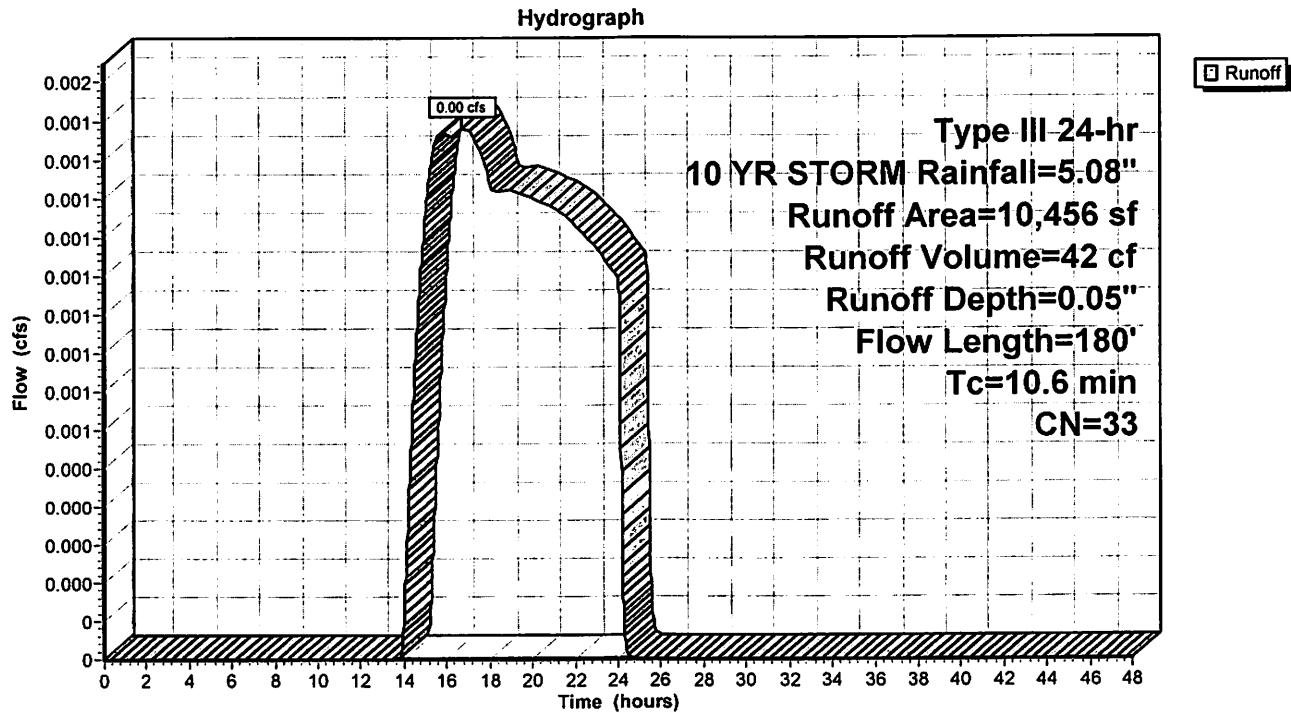
Runoff = 0.00 cfs @ 16.76 hrs, Volume= 42 cf, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10 YR STORM Rainfall=5.08"

Area (sf)	CN	Description
7,390	30	Woods, Good, HSG A
3,066	39	>75% Grass cover, Good, HSG A
10,456	33	Weighted Average
10,456		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
1.3	130	0.1200	1.73		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
10.6	180	Total			

Subcatchment 3S: Ex. Watershed #3 Back Left Side of Lot



Summary for Subcatchment 4S: Ex Watershed 4 Area Draining Depression

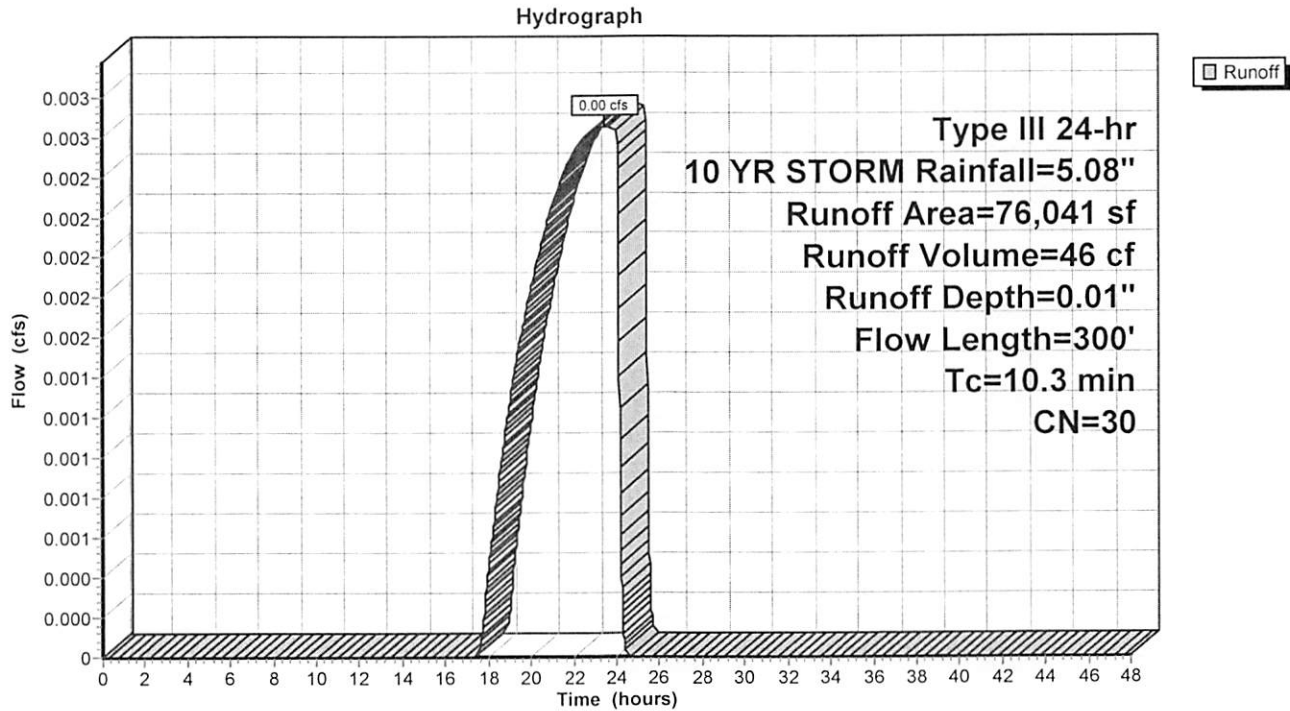
Runoff = 0.00 cfs @ 23.45 hrs, Volume= 46 cf, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10 YR STORM Rainfall=5.08"

Area (sf)	CN	Description
75,546	30	Woods, Good, HSG A
495	39	>75% Grass cover, Good, HSG A
76,041	30	Weighted Average
76,041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
2.4	250	0.1200	1.73		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
10.3	300	Total			

Subcatchment 4S: Ex Watershed 4 Area Draining Depression



Summary for Pond 1P: Existing Depression

Inflow Area = 76,041 sf, 0.00% Impervious, Inflow Depth = 0.01" for 10 YR STORM event
 Inflow = 0.00 cfs @ 23.45 hrs, Volume= 46 cf
 Outflow = 0.00 cfs @ 23.80 hrs, Volume= 46 cf, Atten= 0%, Lag= 20.9 min
 Discarded = 0.00 cfs @ 23.80 hrs, Volume= 46 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 90.01' @ 23.80 hrs Surf.Area= 217 sf Storage= 3 cf

Plug-Flow detention time= 20.5 min calculated for 46 cf (100% of inflow)
 Center-of-Mass det. time= 20.5 min (1,315.1 - 1,294.7)

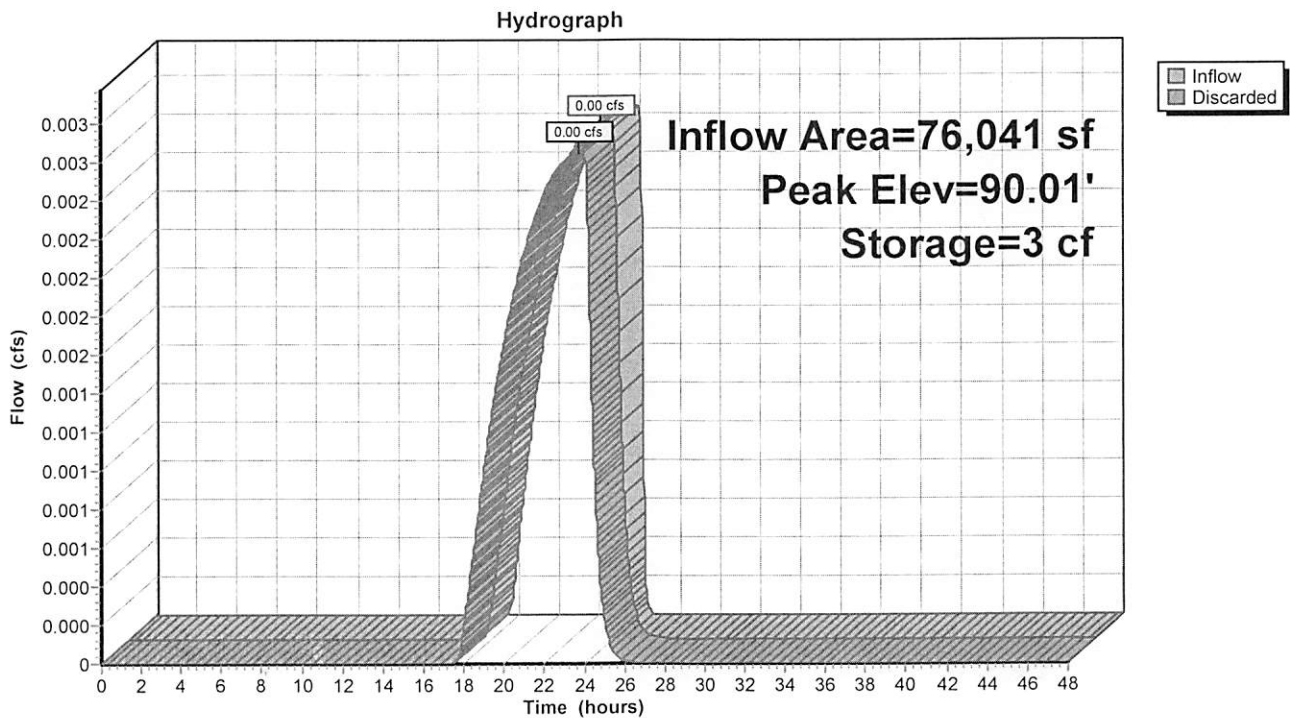
Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	37,155 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	203	0	0
92.00	2,228	2,431	2,431
94.00	4,449	6,677	9,108
96.00	6,890	11,339	20,447
98.00	9,818	16,708	37,155

Device	Routing	Invert	Outlet Devices
#1	Discarded	90.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 23.80 hrs HW=90.01' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.01 cfs)

Pond 1P: Existing Depression



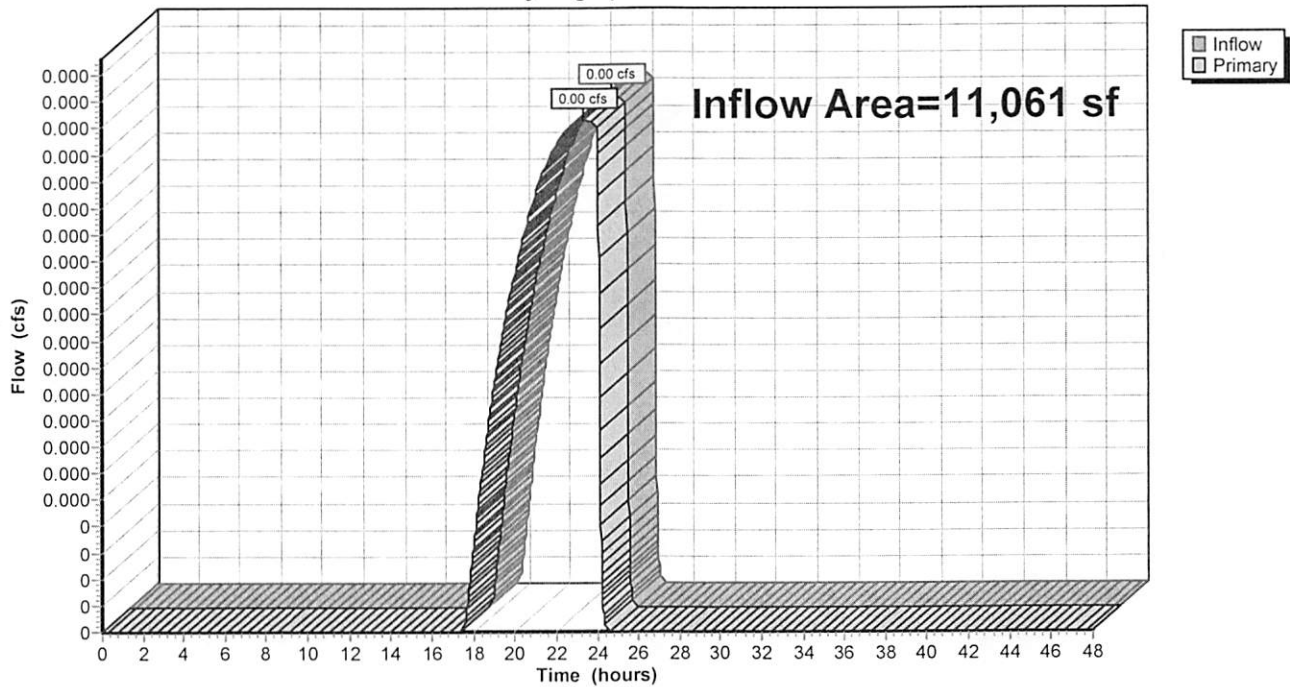
Summary for Link DP1: DP #1

Inflow Area = 11,061 sf, 0.00% Impervious, Inflow Depth = 0.01" for 10 YR STORM event
Inflow = 0.00 cfs @ 23.40 hrs, Volume= 7 cf
Primary = 0.00 cfs @ 23.40 hrs, Volume= 7 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link DP1: DP #1

Hydrograph



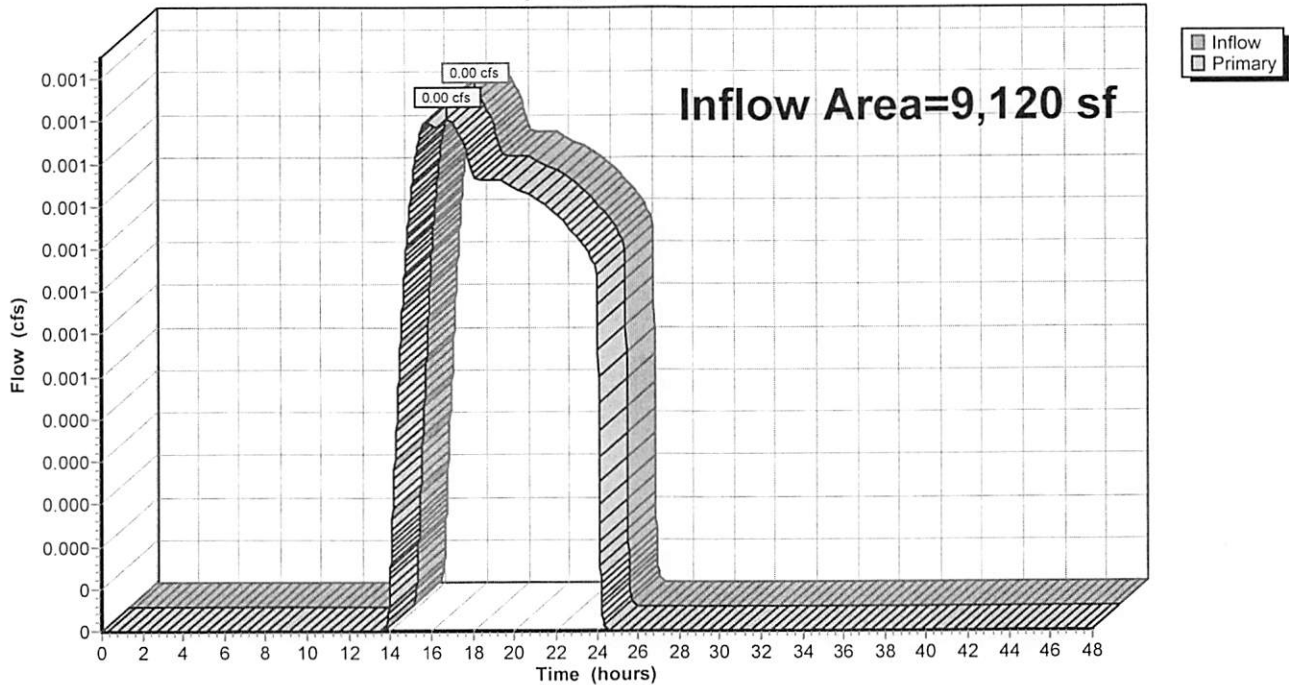
Summary for Link DP2: DP #2

Inflow Area = 9,120 sf, 0.00% Impervious, Inflow Depth = 0.05" for 10 YR STORM event
Inflow = 0.00 cfs @ 16.75 hrs, Volume= 37 cf
Primary = 0.00 cfs @ 16.75 hrs, Volume= 37 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link DP2: DP #2

Hydrograph



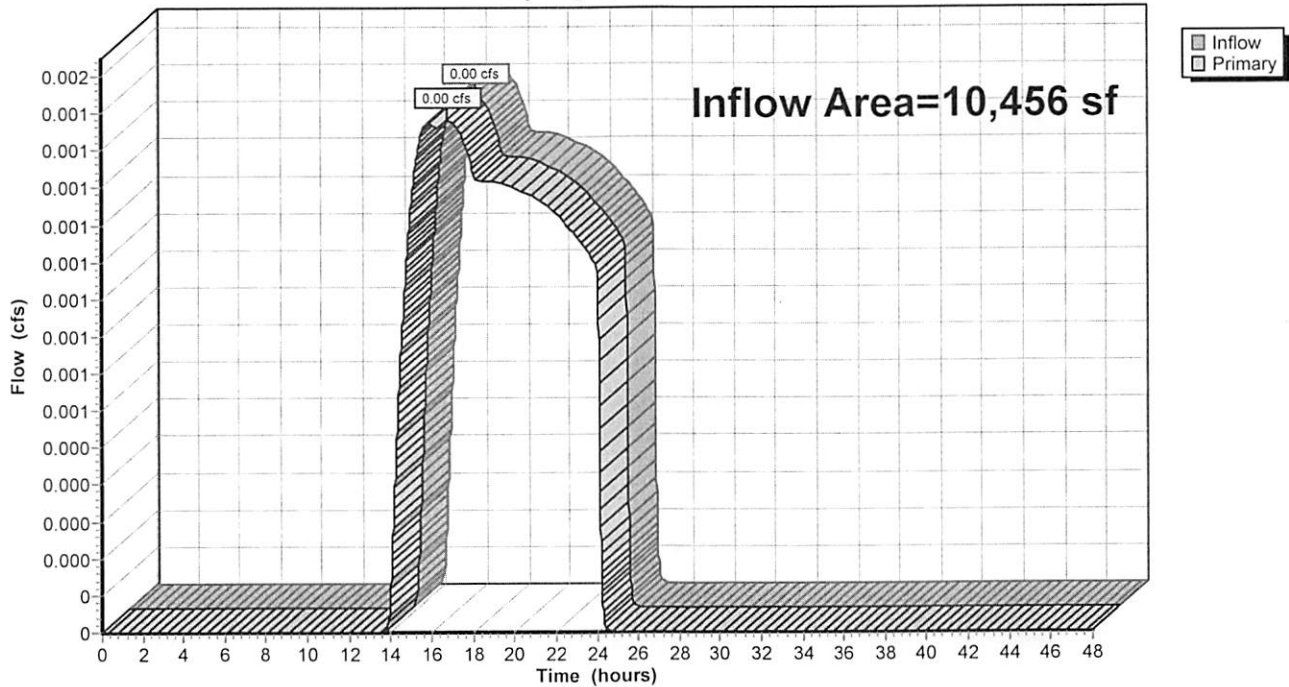
Summary for Link DP3: DP #3

Inflow Area = 10,456 sf, 0.00% Impervious, Inflow Depth = 0.05" for 10 YR STORM event
Inflow = 0.00 cfs @ 16.76 hrs, Volume= 42 cf
Primary = 0.00 cfs @ 16.76 hrs, Volume= 42 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link DP3: DP #3

Hydrograph



Sheridan - Existing Watershed 7-1-23

Type III 24-hr 25 YR STORM Rainfall=6.22"

Prepared by {enter your company name here}

Printed 8/1/2023

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Page 24

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Ex. Watershed #1 Right Runoff Area=11,061 sf 0.00% Impervious Runoff Depth=0.10"
Flow Length=298' Tc=9.5 min CN=30 Runoff=0.00 cfs 89 cf

Subcatchment 2S: Ex. Watershed #2 Left Runoff Area=9,120 sf 0.00% Impervious Runoff Depth=0.21"
Flow Length=163' Tc=9.0 min CN=33 Runoff=0.01 cfs 158 cf

Subcatchment 3S: Ex. Watershed #3 Back Runoff Area=10,456 sf 0.00% Impervious Runoff Depth=0.21"
Flow Length=180' Tc=10.6 min CN=33 Runoff=0.01 cfs 181 cf

Subcatchment 4S: Ex Watershed 4 Area Runoff Area=76,041 sf 0.00% Impervious Runoff Depth=0.10"
Flow Length=300' Tc=10.3 min CN=30 Runoff=0.02 cfs 614 cf

Pond 1P: Existing Depression Peak Elev=90.14' Storage=39 cf Inflow=0.02 cfs 614 cf
Outflow=0.02 cfs 614 cf

Link DP1: DP #1 Inflow=0.00 cfs 89 cf
Primary=0.00 cfs 89 cf

Link DP2: DP #2 Inflow=0.01 cfs 158 cf
Primary=0.01 cfs 158 cf

Link DP3: DP #3 Inflow=0.01 cfs 181 cf
Primary=0.01 cfs 181 cf

Total Runoff Area = 106,678 sf Runoff Volume = 1,042 cf Average Runoff Depth = 0.12"
100.00% Pervious = 106,678 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1S: Ex. Watershed #1 Right Portion of Lot

Runoff = 0.00 cfs @ 15.25 hrs, Volume= 89 cf, Depth= 0.10"

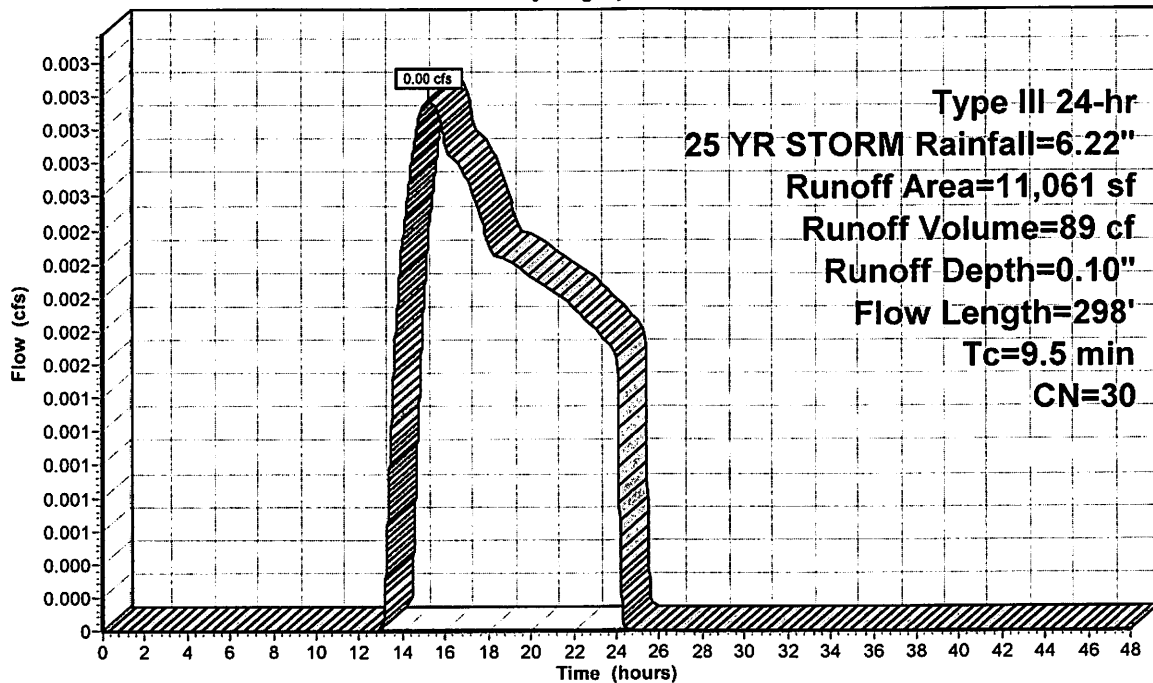
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25 YR STORM Rainfall=6.22"

Area (sf)	CN	Description
10,832	30	Woods, Good, HSG A
229	39	>75% Grass cover, Good, HSG A
11,061	30	Weighted Average
11,061		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.1000	0.13		Sheet Flow, Woods
					Woods: Light underbrush n= 0.400 P2= 3.25"
3.1	248	0.0700	1.32		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
9.5	298	Total			

Subcatchment 1S: Ex. Watershed #1 Right Portion of Lot

Hydrograph



Summary for Subcatchment 2S: Ex. Watershed #2 Left Side of Lot

Runoff = 0.01 cfs @ 13.73 hrs, Volume= 158 cf, Depth= 0.21"

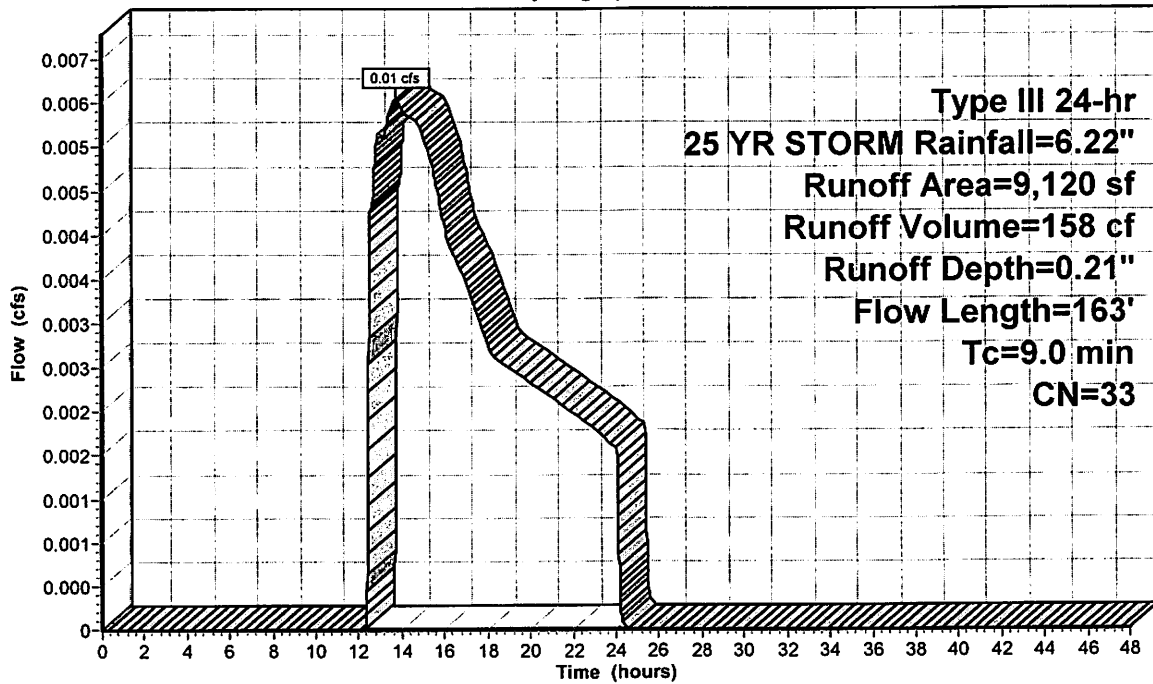
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25 YR STORM Rainfall=6.22"

Area (sf)	CN	Description
5,811	30	Woods, Good, HSG A
3,309	39	>75% Grass cover, Good, HSG A
9,120	33	Weighted Average
9,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods
					Woods: Light underbrush n= 0.400 P2= 3.25"
1.1	113	0.1100	1.66		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
9.0	163	Total			

Subcatchment 2S: Ex. Watershed #2 Left Side of Lot

Hydrograph



Summary for Subcatchment 3S: Ex. Watershed #3 Back Left Side of Lot

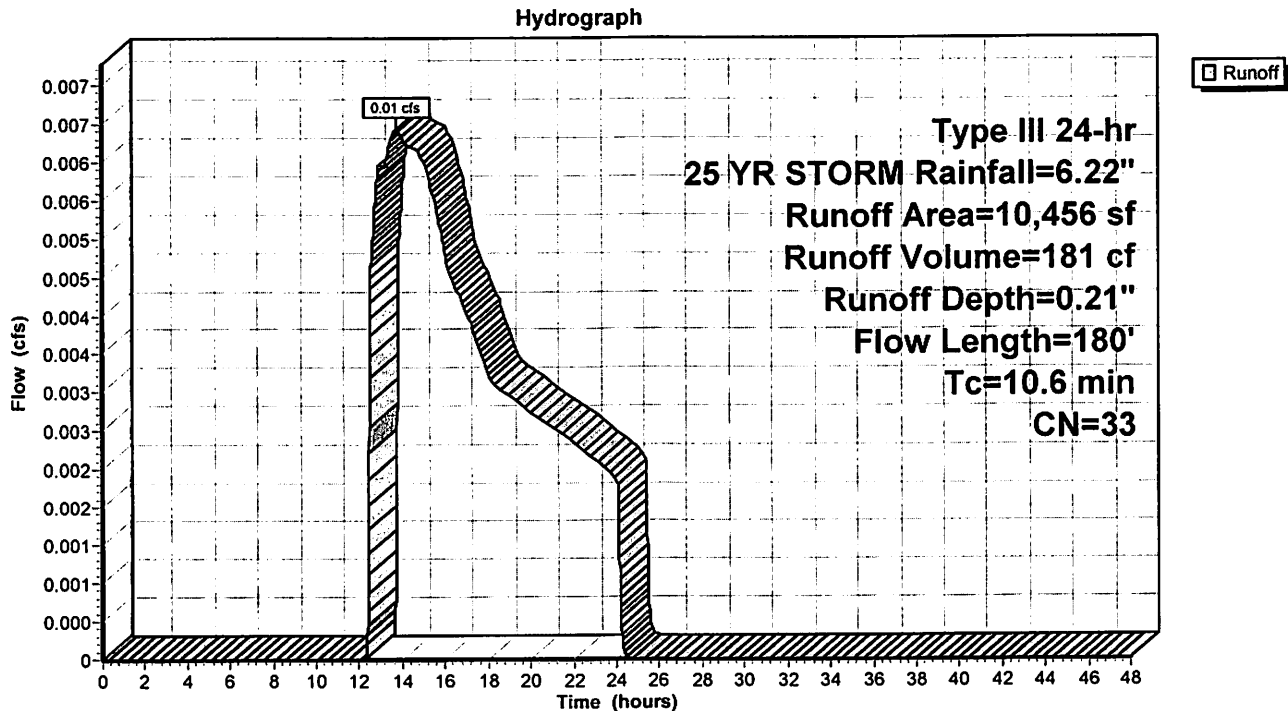
Runoff = 0.01 cfs @ 13.77 hrs, Volume= 181 cf, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR STORM Rainfall=6.22"

Area (sf)	CN	Description
7,390	30	Woods, Good, HSG A
3,066	39	>75% Grass cover, Good, HSG A
10,456	33	Weighted Average
10,456		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
1.3	130	0.1200	1.73		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
10.6	180	Total			

Subcatchment 3S: Ex. Watershed #3 Back Left Side of Lot



Summary for Subcatchment 4S: Ex Watershed 4 Area Draining Depression

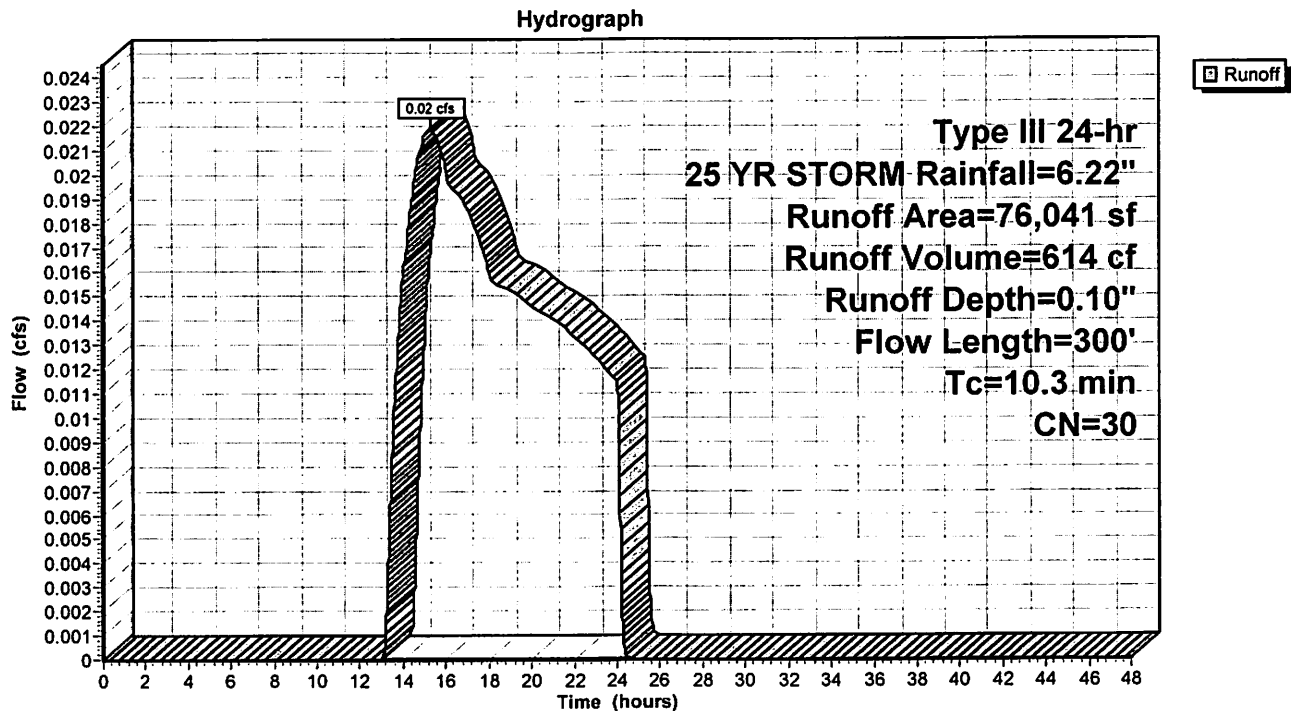
Runoff = 0.02 cfs @ 15.28 hrs, Volume= 614 cf, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR STORM Rainfall=6.22"

Area (sf)	CN	Description
75,546	30	Woods, Good, HSG A
495	39	>75% Grass cover, Good, HSG A
76,041	30	Weighted Average
76,041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
2.4	250	0.1200	1.73		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
10.3	300	Total			

Subcatchment 4S: Ex Watershed 4 Area Draining Depression



Summary for Pond 1P: Existing Depression

Inflow Area = 76,041 sf, 0.00% Impervious, Inflow Depth = 0.10" for 25 YR STORM event
 Inflow = 0.02 cfs @ 15.28 hrs, Volume= 614 cf
 Outflow = 0.02 cfs @ 16.52 hrs, Volume= 614 cf, Atten= 12%, Lag= 74.7 min
 Discarded = 0.02 cfs @ 16.52 hrs, Volume= 614 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 90.14' @ 16.52 hrs Surf.Area= 346 sf Storage= 39 cf

Plug-Flow detention time= 25.7 min calculated for 614 cf (100% of inflow)
 Center-of-Mass det. time= 25.7 min (1,125.3 - 1,099.5)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	37,155 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

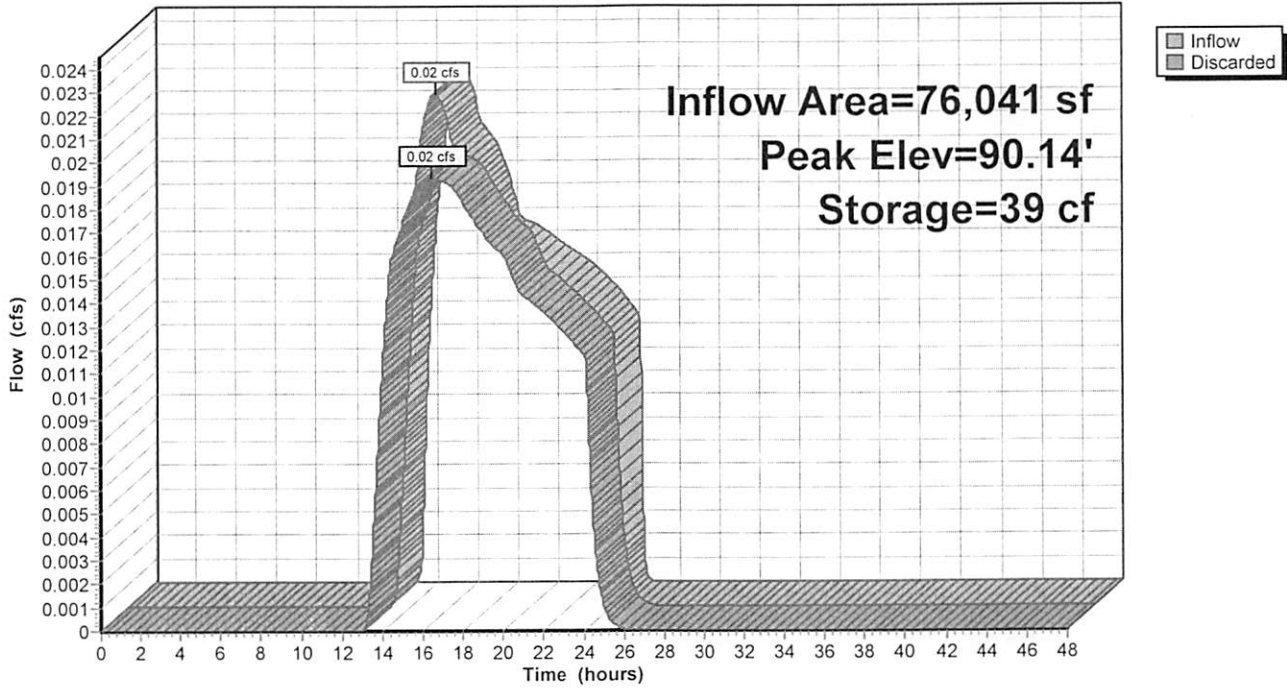
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	203	0	0
92.00	2,228	2,431	2,431
94.00	4,449	6,677	9,108
96.00	6,890	11,339	20,447
98.00	9,818	16,708	37,155

Device	Routing	Invert	Outlet Devices
#1	Discarded	90.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.02 cfs @ 16.52 hrs HW=90.14' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.02 cfs)

Pond 1P: Existing Depression

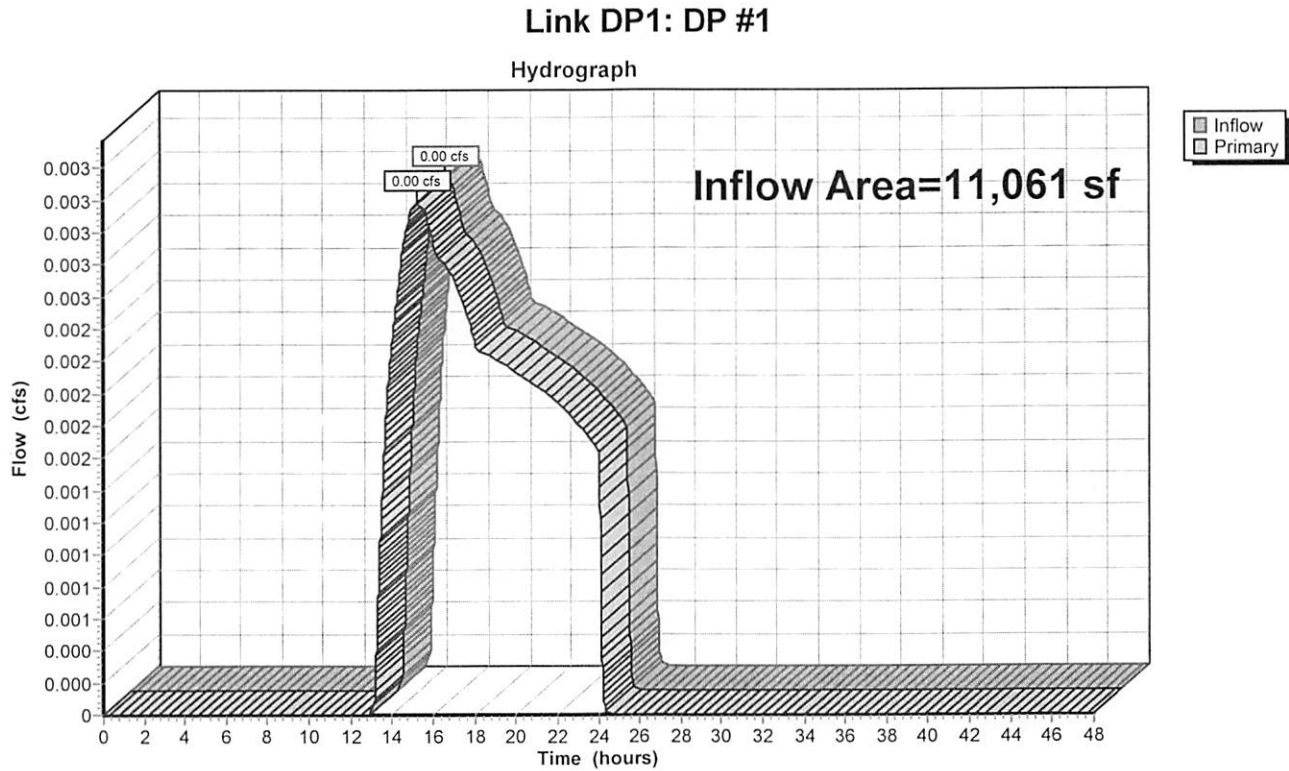
Hydrograph



Summary for Link DP1: DP #1

Inflow Area = 11,061 sf, 0.00% Impervious, Inflow Depth = 0.10" for 25 YR STORM event
Inflow = 0.00 cfs @ 15.25 hrs, Volume= 89 cf
Primary = 0.00 cfs @ 15.25 hrs, Volume= 89 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs



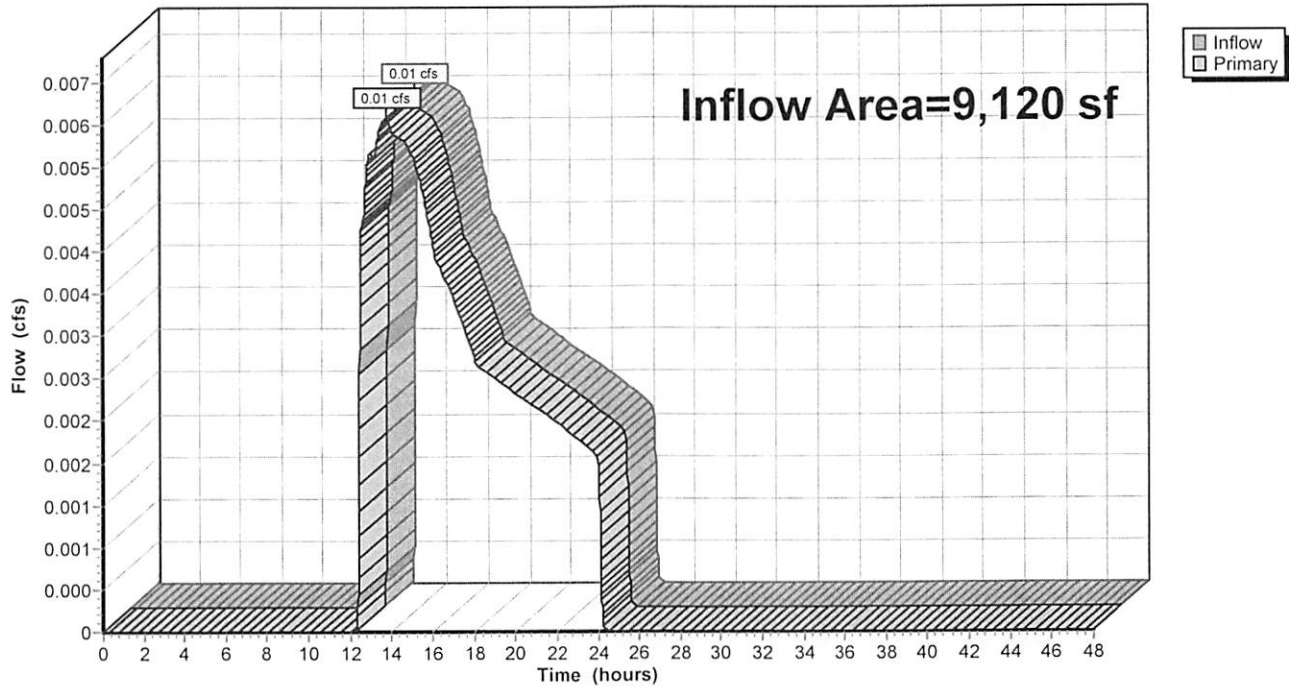
Summary for Link DP2: DP #2

Inflow Area = 9,120 sf, 0.00% Impervious, Inflow Depth = 0.21" for 25 YR STORM event
Inflow = 0.01 cfs @ 13.73 hrs, Volume= 158 cf
Primary = 0.01 cfs @ 13.73 hrs, Volume= 158 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link DP2: DP #2

Hydrograph



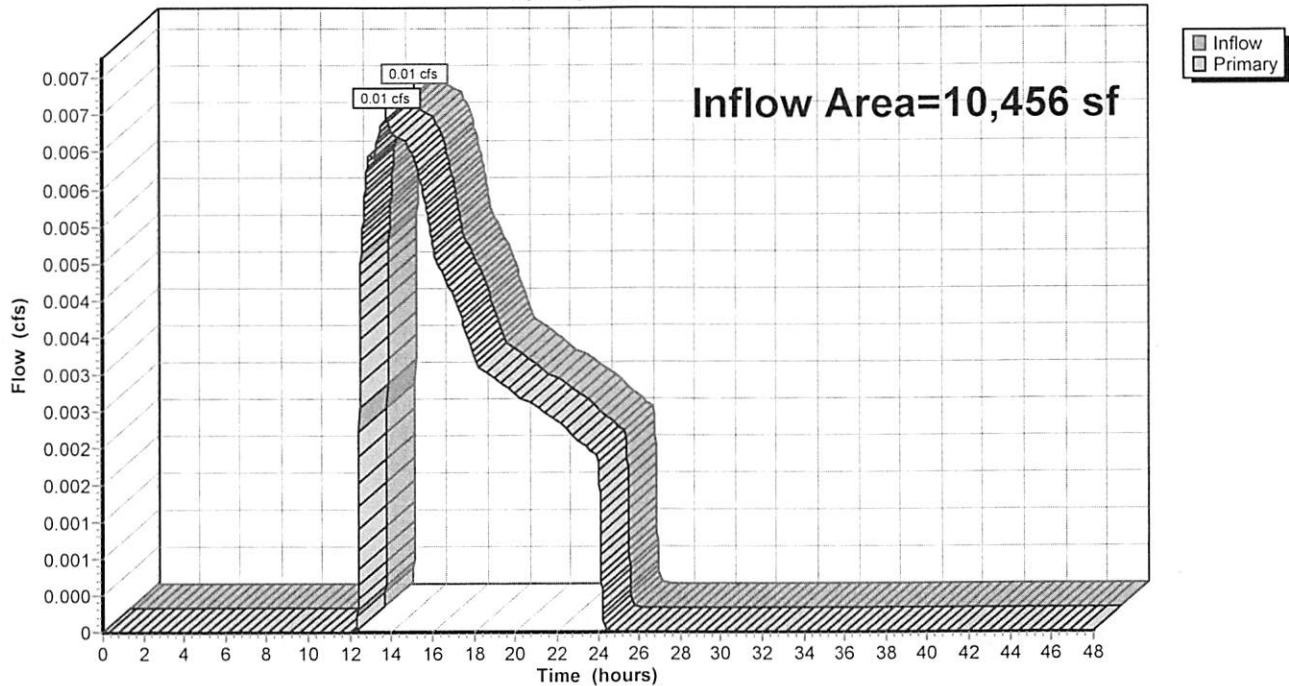
Summary for Link DP3: DP #3

Inflow Area = 10,456 sf, 0.00% Impervious, Inflow Depth = 0.21" for 25 YR STORM event
Inflow = 0.01 cfs @ 13.77 hrs, Volume= 181 cf
Primary = 0.01 cfs @ 13.77 hrs, Volume= 181 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link DP3: DP #3

Hydrograph



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Ex. Watershed #1 Right Runoff Area=11,061 sf 0.00% Impervious Runoff Depth=0.69"
Flow Length=298' Tc=9.5 min CN=30 Runoff=0.07 cfs 636 cf

Subcatchment 2S: Ex. Watershed #2 Left Runoff Area=9,120 sf 0.00% Impervious Runoff Depth=0.98"
Flow Length=163' Tc=9.0 min CN=33 Runoff=0.10 cfs 745 cf

Subcatchment 3S: Ex. Watershed #3 Back Runoff Area=10,456 sf 0.00% Impervious Runoff Depth=0.98"
Flow Length=180' Tc=10.6 min CN=33 Runoff=0.12 cfs 855 cf

Subcatchment 4S: Ex Watershed 4 Area Runoff Area=76,041 sf 0.00% Impervious Runoff Depth=0.69"
Flow Length=300' Tc=10.3 min CN=30 Runoff=0.47 cfs 4,374 cf

Pond 1P: Existing Depression Peak Elev=91.52' Storage=1,470 cf Inflow=0.47 cfs 4,374 cf
Outflow=0.10 cfs 4,374 cf

Link DP1: DP #1 Inflow=0.07 cfs 636 cf
Primary=0.07 cfs 636 cf

Link DP2: DP #2 Inflow=0.10 cfs 745 cf
Primary=0.10 cfs 745 cf

Link DP3: DP #3 Inflow=0.12 cfs 855 cf
Primary=0.12 cfs 855 cf

Total Runoff Area = 106,678 sf Runoff Volume = 6,610 cf Average Runoff Depth = 0.74"
100.00% Pervious = 106,678 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1S: Ex. Watershed #1 Right Portion of Lot

Runoff = 0.07 cfs @ 12.40 hrs, Volume= 636 cf, Depth= 0.69"

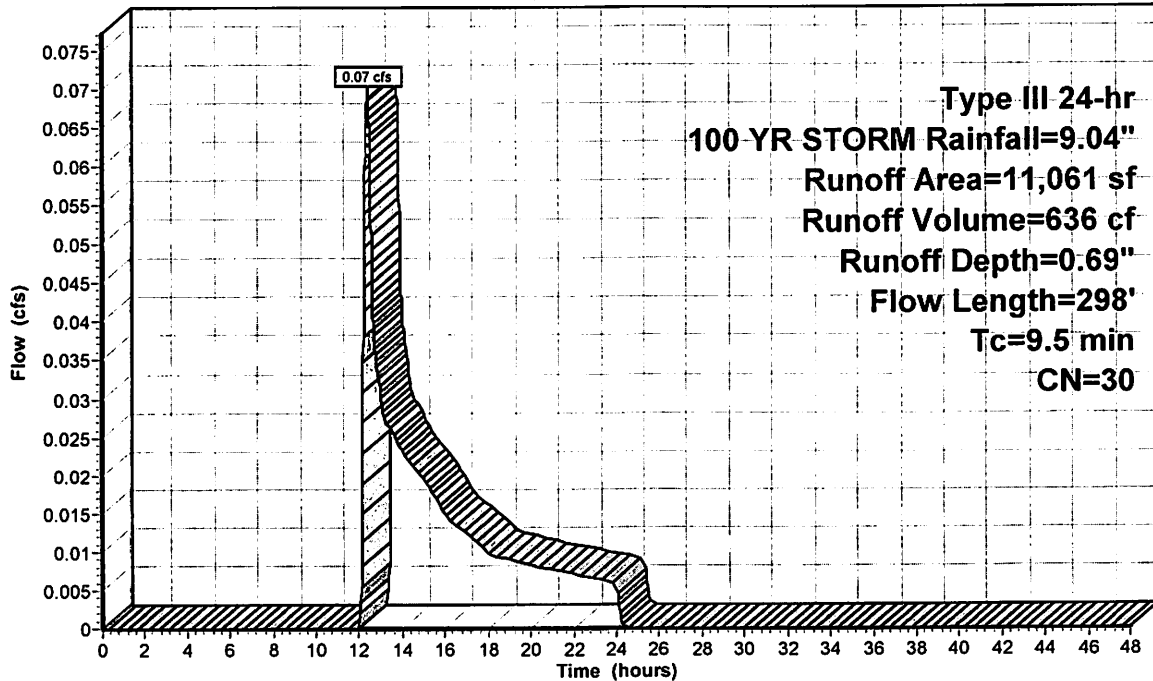
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100 YR STORM Rainfall=9.04"

Area (sf)	CN	Description
10,832	30	Woods, Good, HSG A
229	39	>75% Grass cover, Good, HSG A
11,061	30	Weighted Average
11,061		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.1000	0.13		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
3.1	248	0.0700	1.32		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
9.5	298	Total			

Subcatchment 1S: Ex. Watershed #1 Right Portion of Lot

Hydrograph



Summary for Subcatchment 2S: Ex. Watershed #2 Left Side of Lot

Runoff = 0.10 cfs @ 12.23 hrs, Volume= 745 cf, Depth= 0.98"

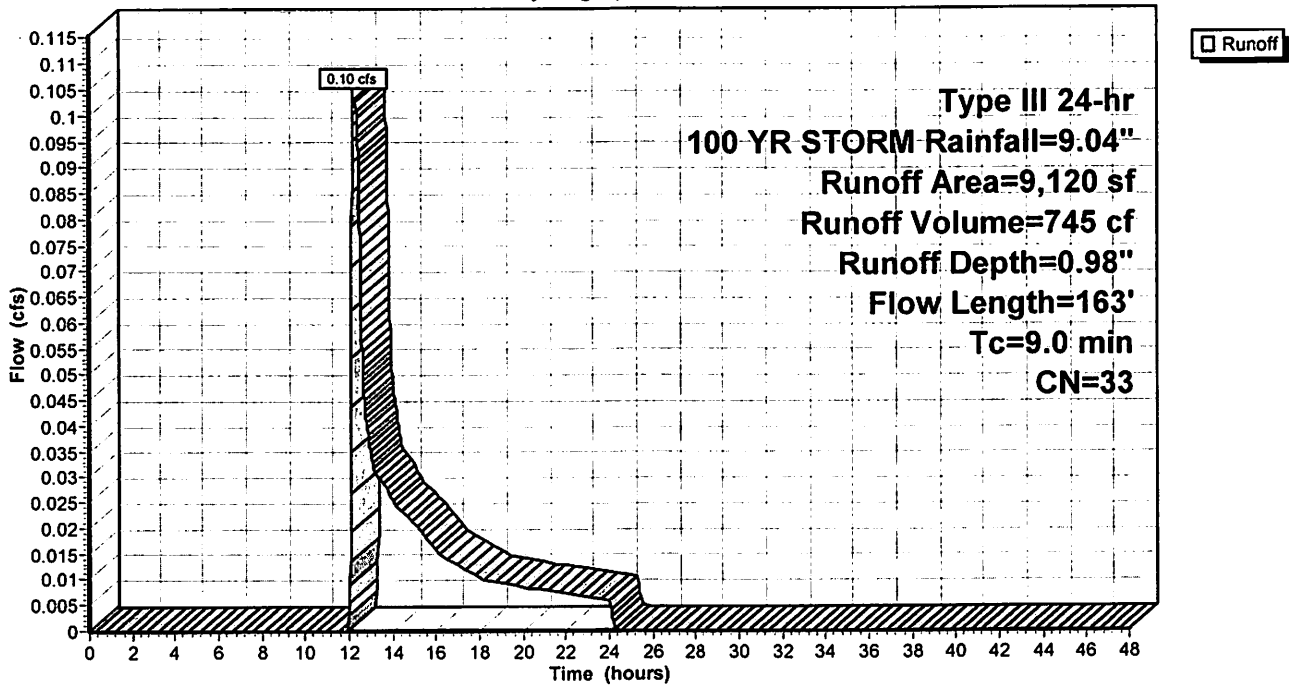
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR STORM Rainfall=9.04"

Area (sf)	CN	Description
5,811	30	Woods, Good, HSG A
3,309	39	>75% Grass cover, Good, HSG A
9,120	33	Weighted Average
9,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
1.1	113	0.1100	1.66		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
9.0	163	Total			

Subcatchment 2S: Ex. Watershed #2 Left Side of Lot

Hydrograph



Summary for Subcatchment 3S: Ex. Watershed #3 Back Left Side of Lot

Runoff = 0.12 cfs @ 12.31 hrs, Volume= 855 cf, Depth= 0.98"

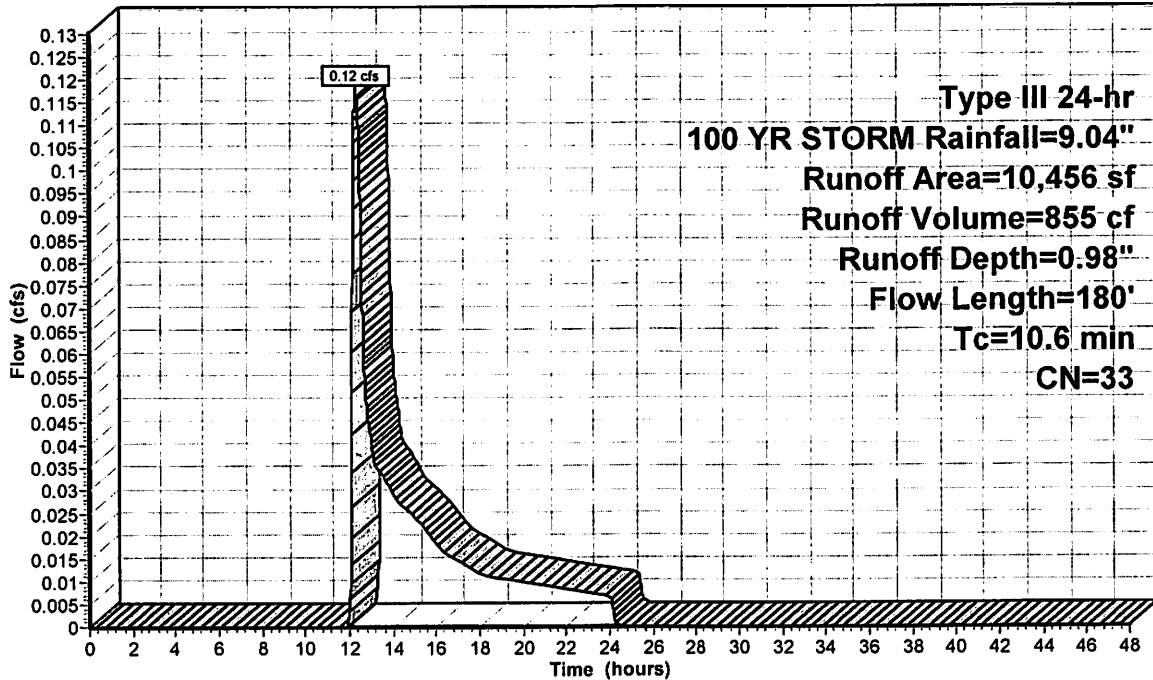
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100 YR STORM Rainfall=9.04"

Area (sf)	CN	Description
7,390	30	Woods, Good, HSG A
3,066	39	>75% Grass cover, Good, HSG A
10,456	33	Weighted Average
10,456		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
1.3	130	0.1200	1.73		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
10.6	180	Total			

Subcatchment 3S: Ex. Watershed #3 Back Left Side of Lot

Hydrograph



Type III 24-hr
 100 YR STORM Rainfall=9.04"
 Runoff Area=10,456 sf
 Runoff Volume=855 cf
 Runoff Depth=0.98"
 Flow Length=180'
 Tc=10.6 min
 CN=33

Summary for Subcatchment 4S: Ex Watershed 4 Area Draining Depression

Runoff = 0.47 cfs @ 12.41 hrs, Volume= 4,374 cf, Depth= 0.69"

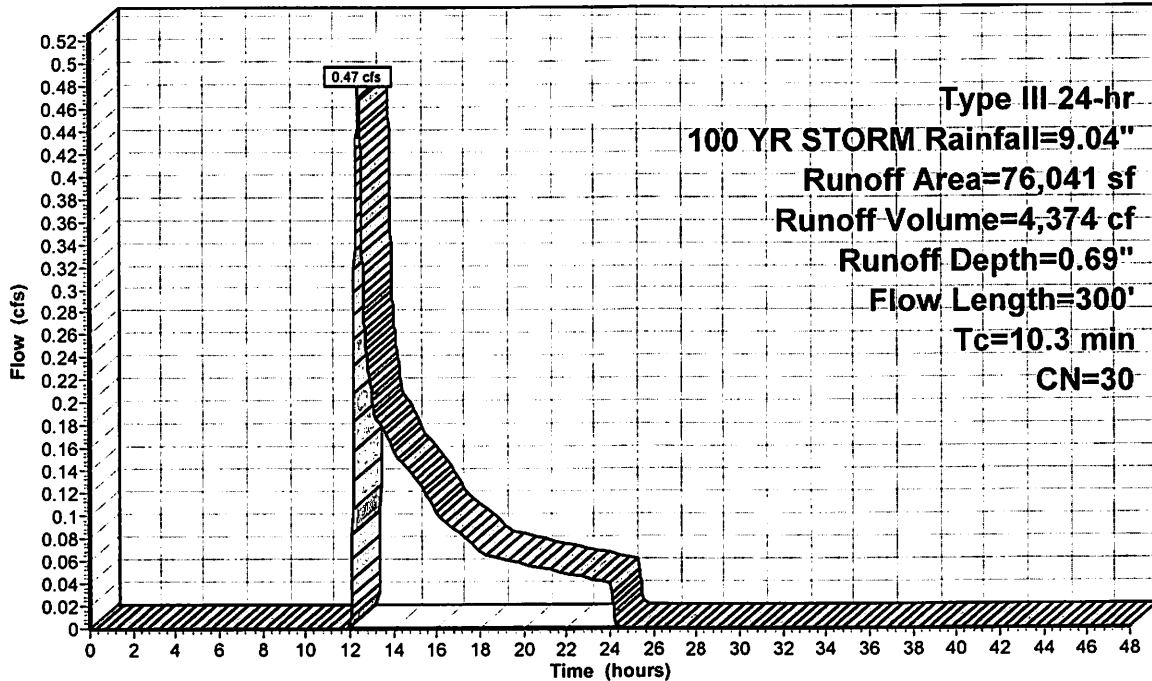
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100 YR STORM Rainfall=9.04"

Area (sf)	CN	Description
75,546	30	Woods, Good, HSG A
495	39	>75% Grass cover, Good, HSG A
76,041	30	Weighted Average
76,041		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods
2.4	250	0.1200	1.73		Woods: Light underbrush n= 0.400 P2= 3.25"
					Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
10.3	300	Total			

Subcatchment 4S: Ex Watershed 4 Area Draining Depression

Hydrograph



Runoff

Type III 24-hr
 100 YR STORM Rainfall=9.04"
 Runoff Area=76,041 sf
 Runoff Volume=4,374 cf
 Runoff Depth=0.69"
 Flow Length=300'
 Tc=10.3 min
 CN=30

Summary for Pond 1P: Existing Depression

Inflow Area = 76,041 sf, 0.00% Impervious, Inflow Depth = 0.69" for 100 YR STORM event
 Inflow = 0.47 cfs @ 12.41 hrs, Volume= 4,374 cf
 Outflow = 0.10 cfs @ 16.21 hrs, Volume= 4,374 cf, Atten= 79%, Lag= 228.0 min
 Discarded = 0.10 cfs @ 16.21 hrs, Volume= 4,374 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 91.52' @ 16.21 hrs Surf.Area= 1,737 sf Storage= 1,470 cf

Plug-Flow detention time= 205.8 min calculated for 4,374 cf (100% of inflow)
 Center-of-Mass det. time= 205.7 min (1,167.1 - 961.4)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	37,155 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

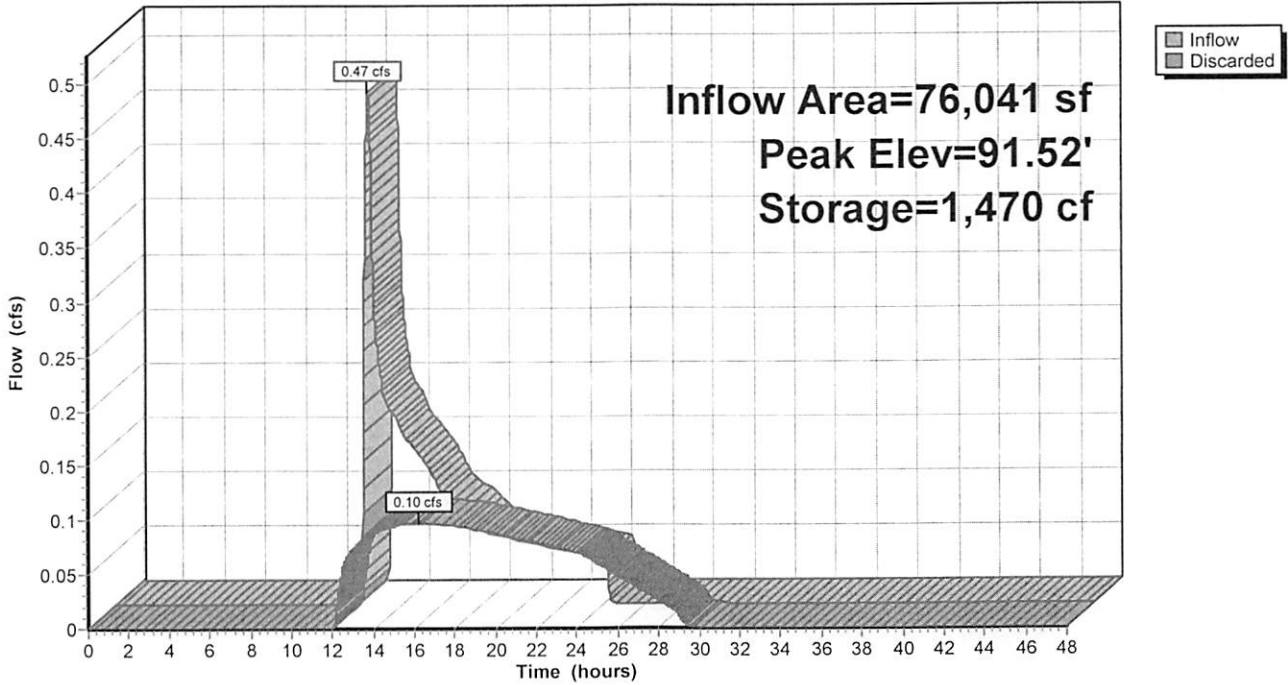
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	203	0	0
92.00	2,228	2,431	2,431
94.00	4,449	6,677	9,108
96.00	6,890	11,339	20,447
98.00	9,818	16,708	37,155

Device	Routing	Invert	Outlet Devices
#1	Discarded	90.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.10 cfs @ 16.21 hrs HW=91.52' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.10 cfs)

Pond 1P: Existing Depression

Hydrograph



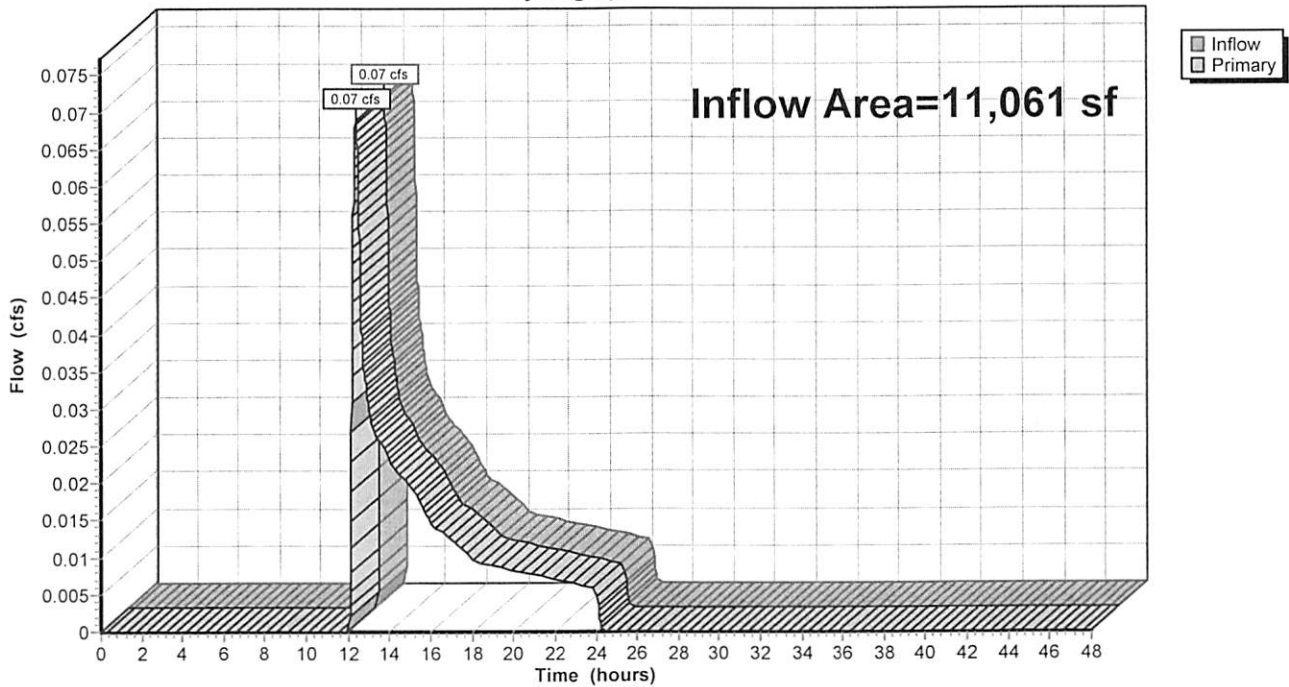
Summary for Link DP1: DP #1

Inflow Area = 11,061 sf, 0.00% Impervious, Inflow Depth = 0.69" for 100 YR STORM event
Inflow = 0.07 cfs @ 12.40 hrs, Volume= 636 cf
Primary = 0.07 cfs @ 12.40 hrs, Volume= 636 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link DP1: DP #1

Hydrograph



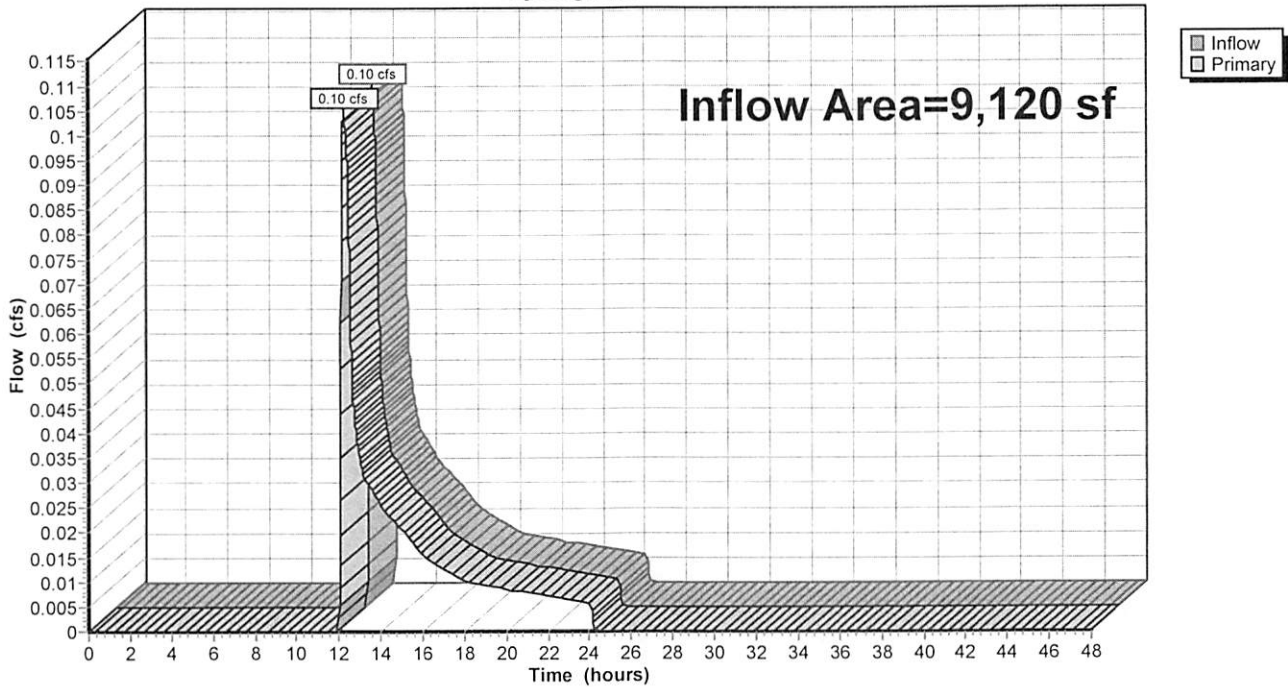
Summary for Link DP2: DP #2

Inflow Area = 9,120 sf, 0.00% Impervious, Inflow Depth = 0.98" for 100 YR STORM event
Inflow = 0.10 cfs @ 12.23 hrs, Volume= 745 cf
Primary = 0.10 cfs @ 12.23 hrs, Volume= 745 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link DP2: DP #2

Hydrograph



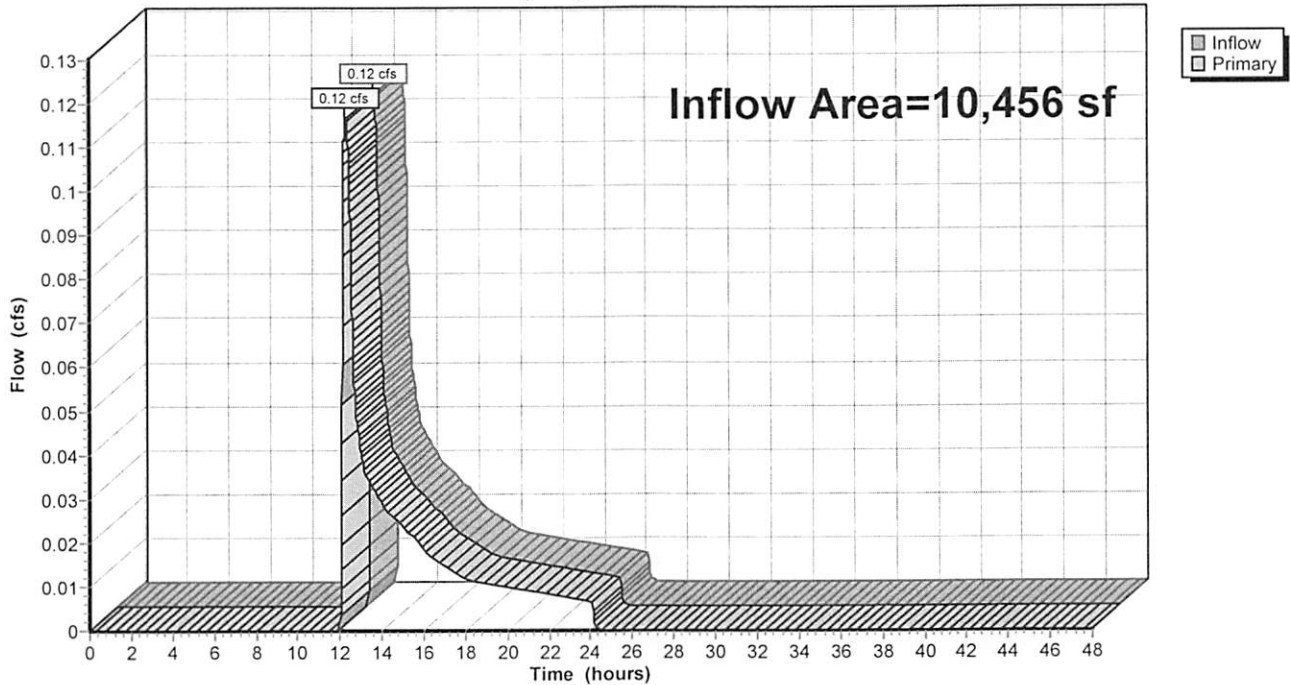
Summary for Link DP3: DP #3

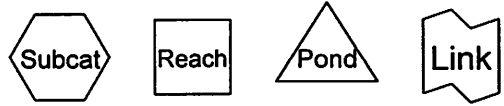
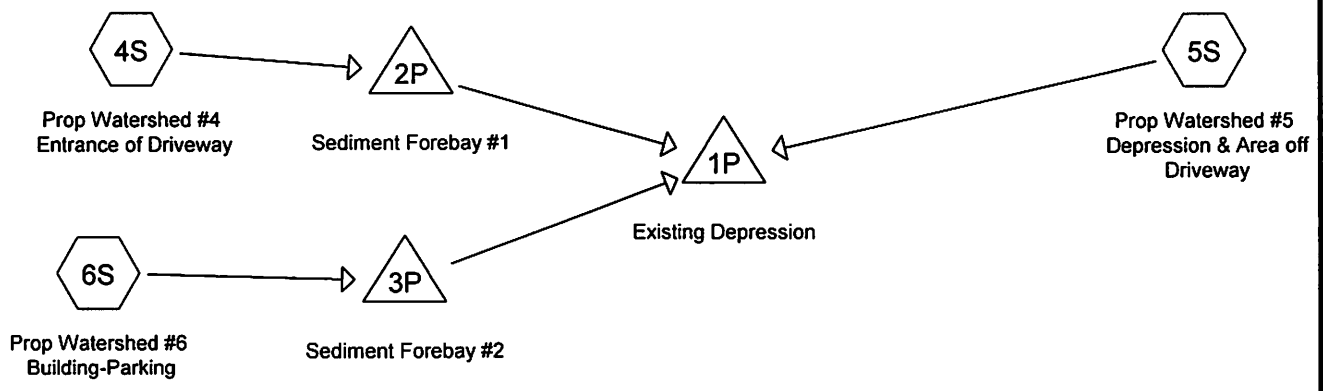
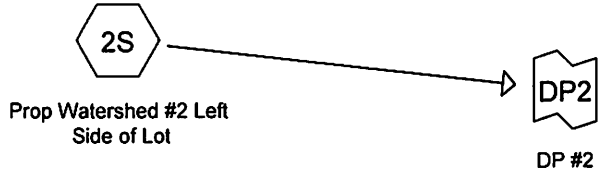
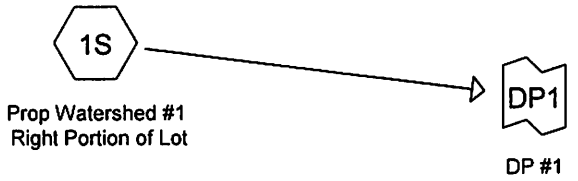
Inflow Area = 10,456 sf, 0.00% Impervious, Inflow Depth = 0.98" for 100 YR STORM event
Inflow = 0.12 cfs @ 12.31 hrs, Volume= 855 cf
Primary = 0.12 cfs @ 12.31 hrs, Volume= 855 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link DP3: DP #3

Hydrograph





Routing Diagram for Sheridan - Proposed Watershed 7-8-23
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Sheridan - Proposed Watershed 7-8-23

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 YR STORM	Type III 24-hr		Default	24.00	1	3.39	2
2	10 YR STORM	Type III 24-hr		Default	24.00	1	5.08	2
3	25 YR STORM	Type III 24-hr		Default	24.00	1	6.22	2
4	100 YR STORM	Type III 24-hr		Default	24.00	1	9.04	2

Sheridan - Proposed Watershed 7-8-23

Prepared by {enter your company name here}

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
21,605	39	>75% Grass cover, Good, HSG A (1S, 2S, 3S, 4S, 5S, 6S)
20,069	98	Paved parking, HSG A (4S, 6S)
1,126	77	Rip-Rap Slope (5S)
5,000	98	Unconnected roofs, HSG A (6S)
58,878	30	Woods, Good, HSG A (1S, 2S, 3S, 4S, 5S, 6S)
106,678	48	TOTAL AREA

Sheridan - Proposed Watershed 7-8-23

Type III 24-hr 2 YR STORM Rainfall=3.39"

Prepared by {enter your company name here}

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Prop Watershed #1 Right Runoff Area=987 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=35 Runoff=0.00 cfs 0 cf

Subcatchment 2S: Prop Watershed #2 Left Runoff Area=9,120 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=163' Tc=9.0 min CN=33 Runoff=0.00 cfs 0 cf

Subcatchment 3S: Prop. Watershed #3 Runoff Area=10,456 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=180' Tc=10.6 min CN=33 Runoff=0.00 cfs 0 cf

Subcatchment 4S: Prop Watershed #4 Runoff Area=10,489 sf 39.53% Impervious Runoff Depth=0.38"
Tc=6.0 min CN=57 Runoff=0.05 cfs 328 cf

Subcatchment 5S: Prop Watershed #5 Runoff Area=14,700 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=35 Runoff=0.00 cfs 0 cf

Subcatchment 6S: Prop Watershed #6 Runoff Area=60,926 sf 34.34% Impervious Runoff Depth=0.31"
Tc=6.0 min CN=55 Runoff=0.20 cfs 1,571 cf

Pond 1P: Existing Depression Peak Elev=92.08' Storage=70 cf Inflow=0.06 cfs 876 cf
Outflow=0.05 cfs 876 cf

Pond 2P: Sediment Forebay #1 Peak Elev=100.01' Storage=106 cf Inflow=0.05 cfs 328 cf
Discarded=0.00 cfs 262 cf Primary=0.01 cfs 66 cf Outflow=0.01 cfs 328 cf

Pond 3P: Sediment Forebay #2 Peak Elev=99.02' Storage=389 cf Inflow=0.20 cfs 1,571 cf
Discarded=0.01 cfs 761 cf Primary=0.06 cfs 810 cf Outflow=0.07 cfs 1,571 cf

Link DP1: DP #1 Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Link DP2: DP #2 Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Link DP3: DP #3 Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Total Runoff Area = 106,678 sf Runoff Volume = 1,900 cf Average Runoff Depth = 0.21"
76.50% Pervious = 81,609 sf 23.50% Impervious = 25,069 sf

Summary for Subcatchment 1S: Prop Watershed #1 Right Portion of Lot

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

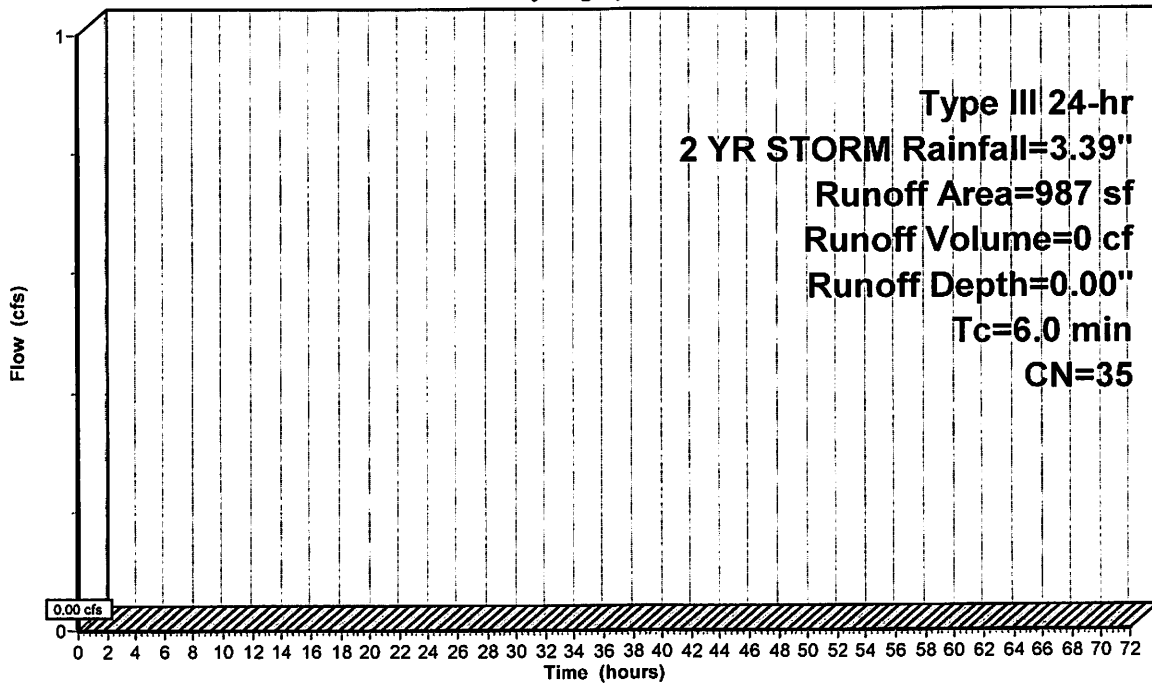
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 YR STORM Rainfall=3.39"

Area (sf)	CN	Description
434	30	Woods, Good, HSG A
553	39	>75% Grass cover, Good, HSG A
987	35	Weighted Average
987		100.00% Pervious Area

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

Subcatchment 1S: Prop Watershed #1 Right Portion of Lot

Hydrograph



Summary for Subcatchment 2S: Prop Watershed #2 Left Side of Lot

[45] Hint: Runoff=Zero

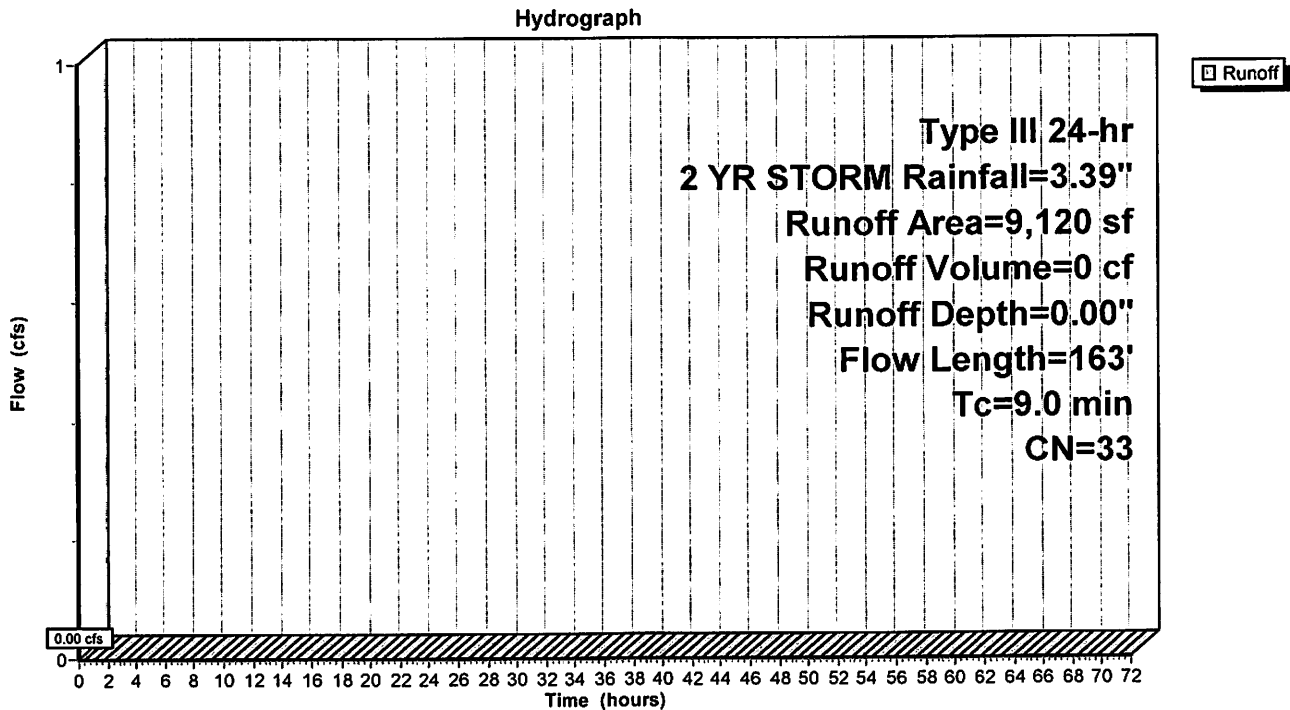
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 YR STORM Rainfall=3.39"

Area (sf)	CN	Description
5,811	30	Woods, Good, HSG A
3,309	39	>75% Grass cover, Good, HSG A
9,120	33	Weighted Average
9,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods
					Woods: Light underbrush n= 0.400 P2= 3.25"
1.1	113	0.1100	1.66		Shallow Concentrated Flow, Woods
					Woodland Kv= 5.0 fps
9.0	163	Total			

Subcatchment 2S: Prop Watershed #2 Left Side of Lot



Summary for Subcatchment 3S: Prop. Watershed #3 Back Left Side of Lot

[45] Hint: Runoff=Zero

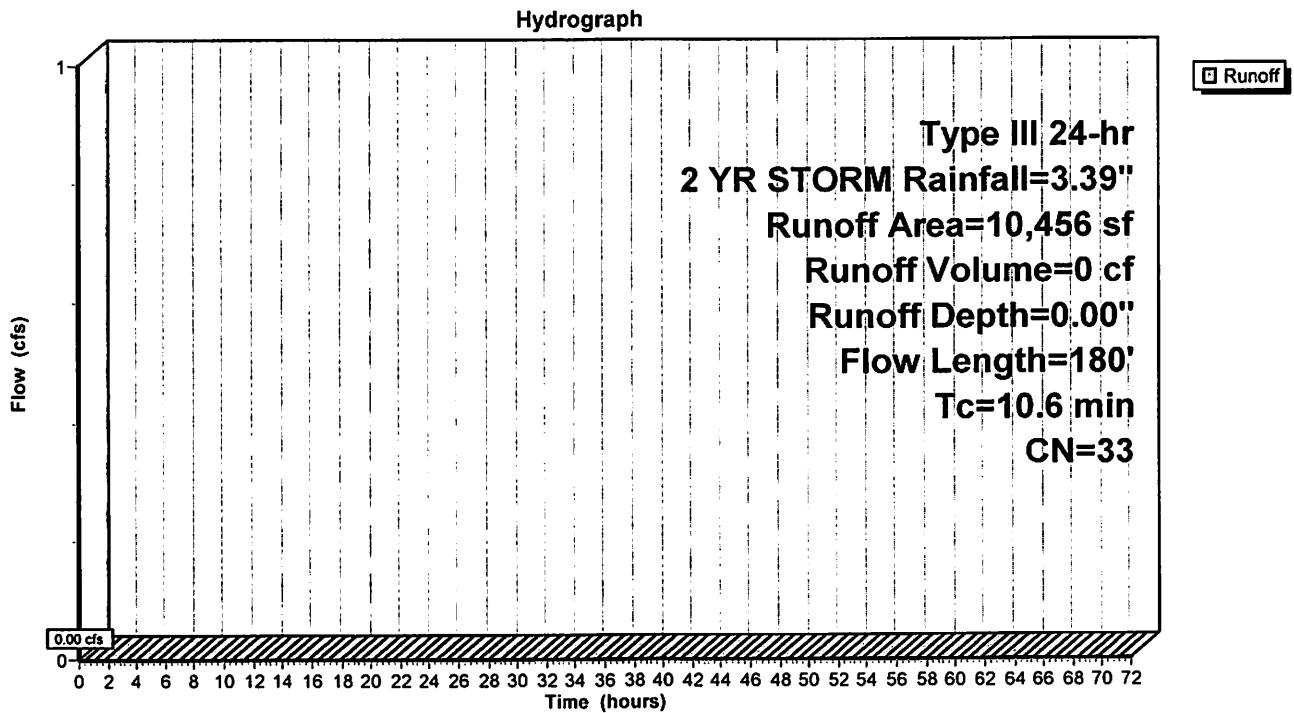
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 YR STORM Rainfall=3.39"

Area (sf)	CN	Description
7,390	30	Woods, Good, HSG A
3,066	39	>75% Grass cover, Good, HSG A
10,456	33	Weighted Average
10,456		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
1.3	130	0.1200	1.73		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
10.6	180	Total			

Subcatchment 3S: Prop. Watershed #3 Back Left Side of Lot



Summary for Subcatchment 4S: Prop Watershed #4 Entrance of Driveway

Runoff = 0.05 cfs @ 12.14 hrs, Volume= 328 cf, Depth= 0.38"

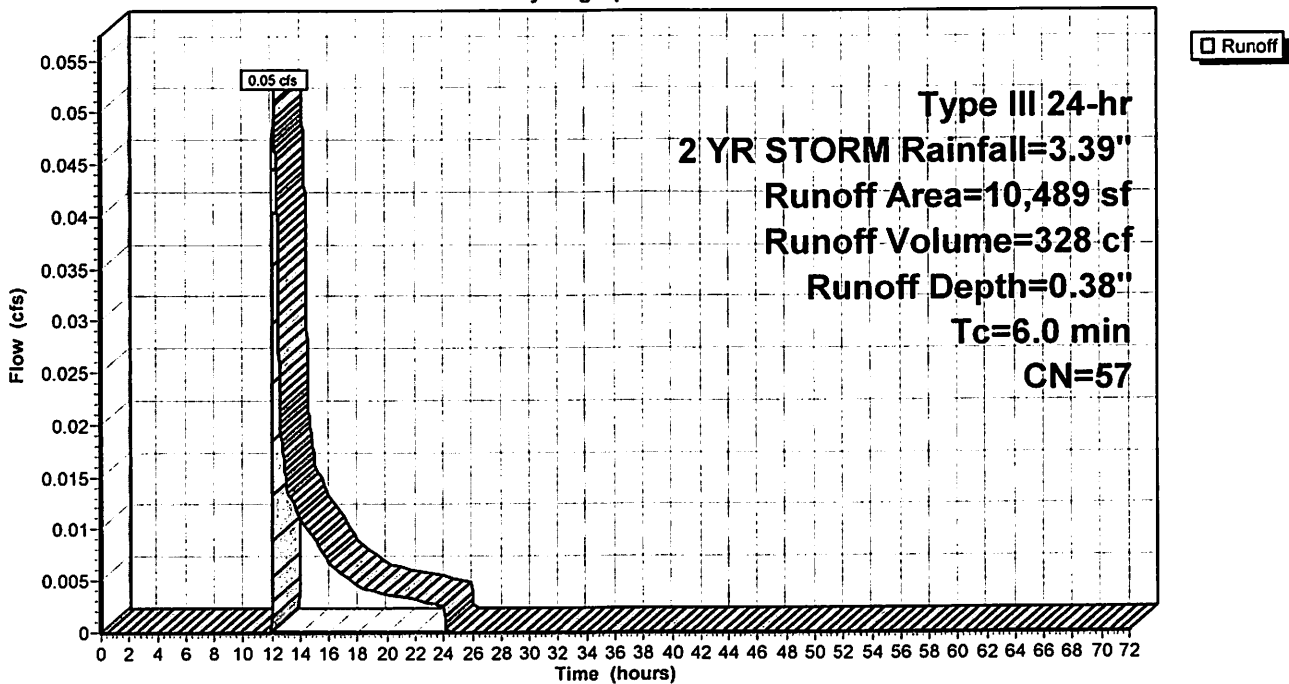
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 YR STORM Rainfall=3.39"

Area (sf)	CN	Description
5,803	30	Woods, Good, HSG A
540	39	>75% Grass cover, Good, HSG A
4,146	98	Paved parking, HSG A
10,489	57	Weighted Average
6,343		60.47% Pervious Area
4,146		39.53% Impervious Area

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

Subcatchment 4S: Prop Watershed #4 Entrance of Driveway

Hydrograph



Summary for Subcatchment 5S: Prop Watershed #5 Depression & Area off Driveway

[45] Hint: Runoff=Zero

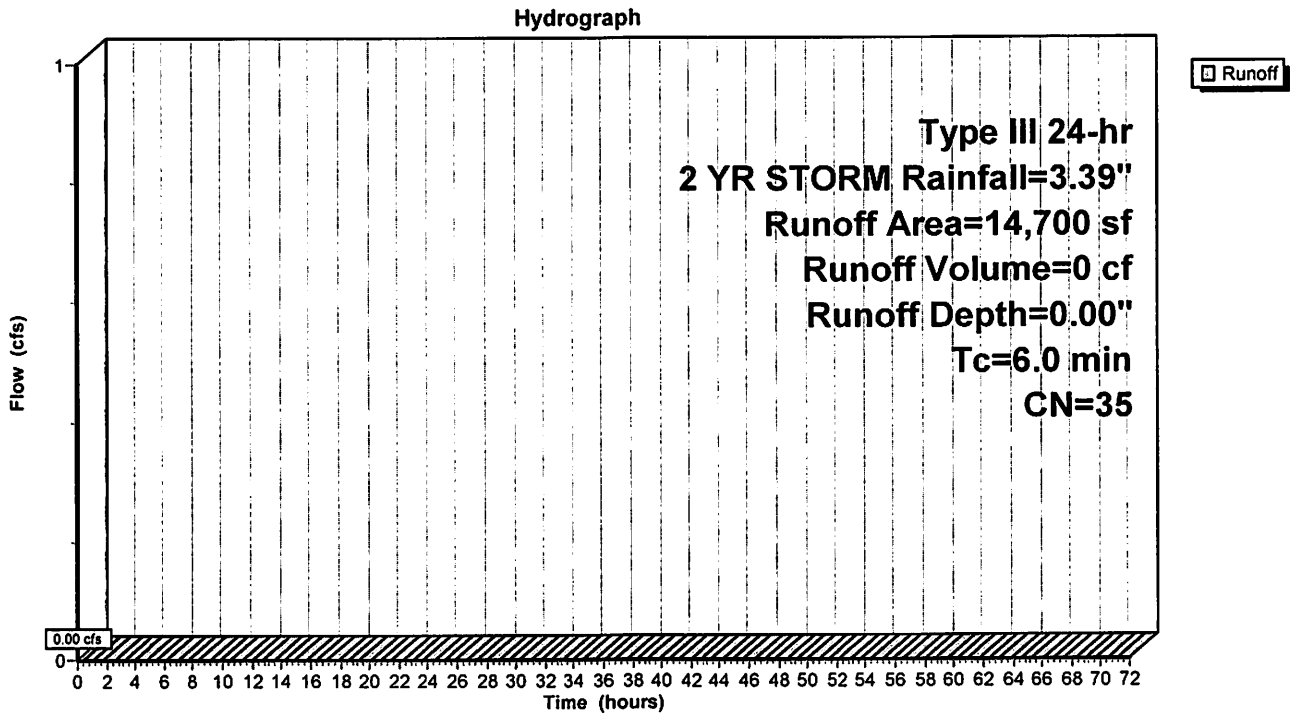
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 YR STORM Rainfall=3.39"

Area (sf)	CN	Description
11,196	30	Woods, Good, HSG A
2,378	39	>75% Grass cover, Good, HSG A
* 1,126	77	Rip-Rap Slope
14,700	35	Weighted Average
14,700		100.00% Pervious Area

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

Subcatchment 5S: Prop Watershed #5 Depression & Area off Driveway



Summary for Subcatchment 6S: Prop Watershed #6 Building-Parking

Runoff = 0.20 cfs @ 12.30 hrs, Volume= 1,571 cf, Depth= 0.31"

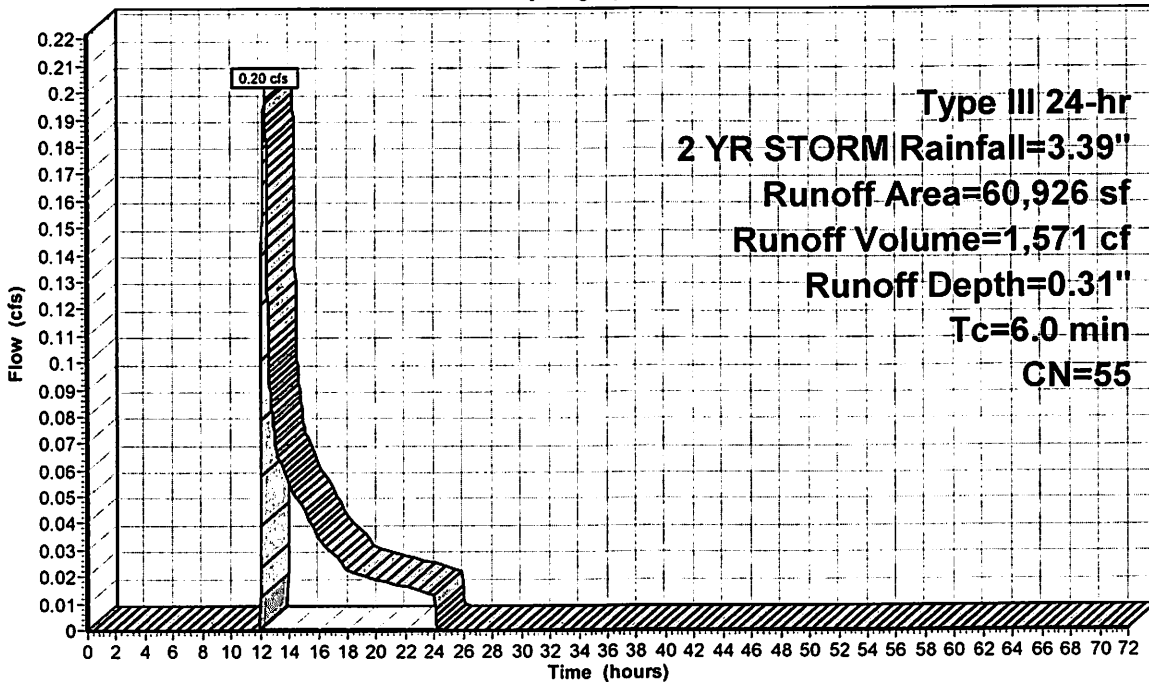
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 YR STORM Rainfall=3.39"

Area (sf)	CN	Description
28,244	30	Woods, Good, HSG A
11,759	39	>75% Grass cover, Good, HSG A
5,000	98	Unconnected roofs, HSG A
15,923	98	Paved parking, HSG A
60,926	55	Weighted Average
40,003		65.66% Pervious Area
20,923		34.34% Impervious Area
5,000		23.90% Unconnected

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

Subcatchment 6S: Prop Watershed #6 Building-Parking

Hydrograph



Sheridan - Proposed Watershed 7-8-23

Type III 24-hr 2 YR STORM Rainfall=3.39"

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Summary for Pond 1P: Existing Depression

Inflow Area = 86,115 sf, 29.11% Impervious, Inflow Depth = 0.12" for 2 YR STORM event
 Inflow = 0.06 cfs @ 12.99 hrs, Volume= 876 cf
 Outflow = 0.05 cfs @ 14.00 hrs, Volume= 876 cf, Atten= 17%, Lag= 60.6 min
 Discarded = 0.05 cfs @ 14.00 hrs, Volume= 876 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 92.08' @ 14.00 hrs Surf.Area= 952 sf Storage= 70 cf

Plug-Flow detention time= 20.7 min calculated for 876 cf (100% of inflow)
 Center-of-Mass det. time= 20.7 min (986.5 - 965.8)

Volume	Invert	Avail.Storage	Storage Description
#1	92.00'	21,883 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

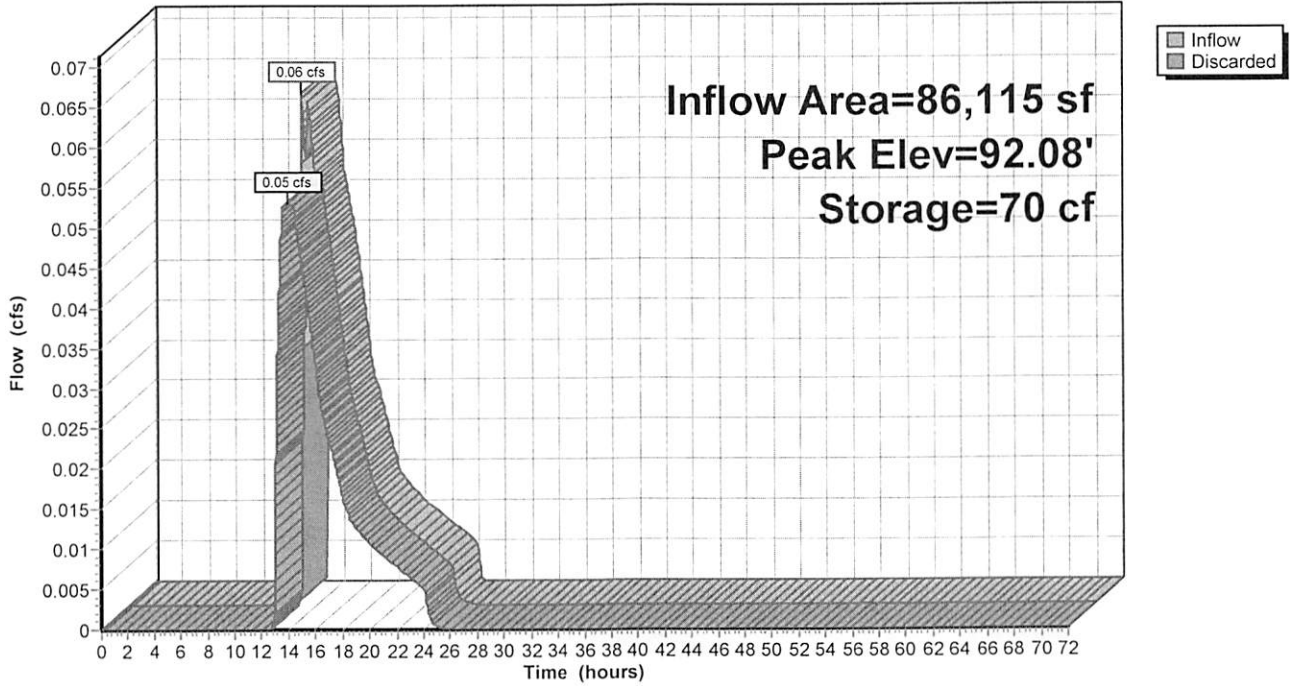
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
92.00	908	0	0
94.00	2,065	2,973	2,973
96.00	3,331	5,396	8,369
98.00	4,829	8,160	16,529
99.00	5,879	5,354	21,883

Device	Routing	Invert	Outlet Devices
#1	Discarded	92.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.05 cfs @ 14.00 hrs HW=92.08' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.05 cfs)

Pond 1P: Existing Depression

Hydrograph



Summary for Pond 2P: Sediment Forebay #1

Inflow Area = 10,489 sf, 39.53% Impervious, Inflow Depth = 0.38" for 2 YR STORM event
 Inflow = 0.05 cfs @ 12.14 hrs, Volume= 328 cf
 Outflow = 0.01 cfs @ 13.45 hrs, Volume= 328 cf, Atten= 75%, Lag= 78.5 min
 Discarded = 0.00 cfs @ 13.45 hrs, Volume= 262 cf
 Primary = 0.01 cfs @ 13.45 hrs, Volume= 66 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 100.01' @ 13.45 hrs Surf.Area= 163 sf Storage= 106 cf

Plug-Flow detention time= 292.7 min calculated for 328 cf (100% of inflow)
 Center-of-Mass det. time= 292.6 min (1,222.8 - 930.1)

Volume	Invert	Avail.Storage	Storage Description
#1	99.00'	206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.00	49	0	0
100.00	162	106	106
100.50	240	101	206

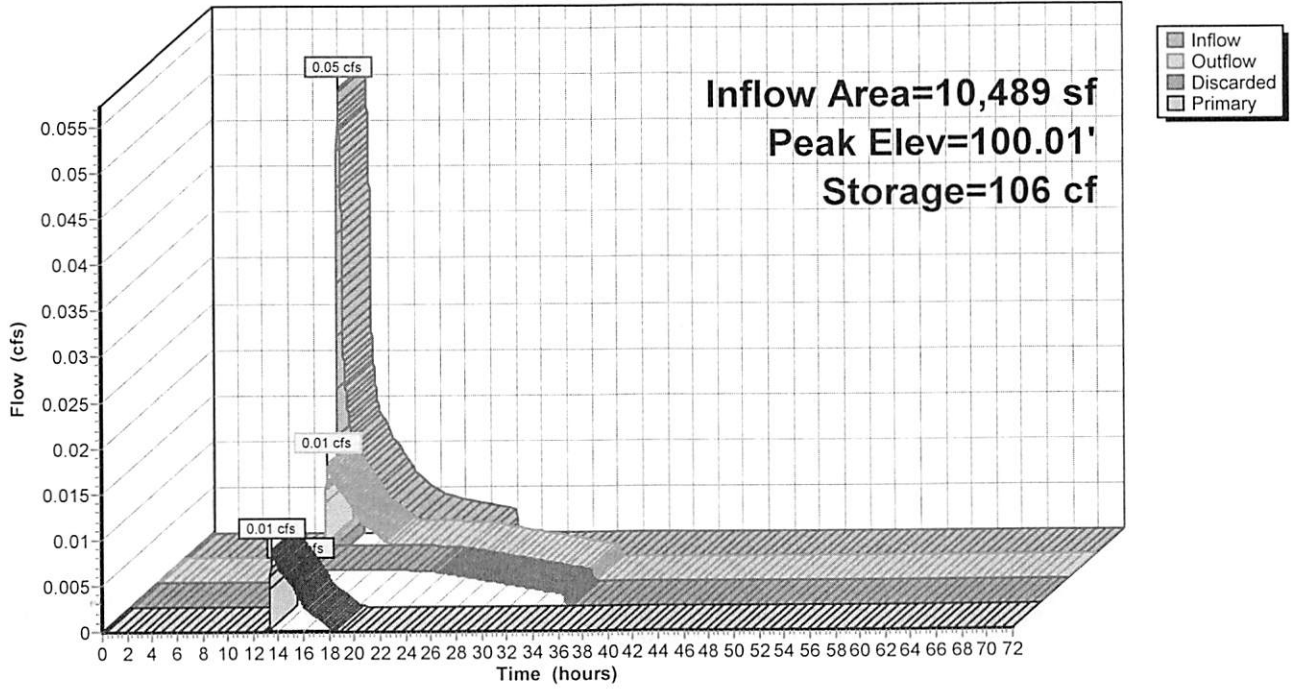
Device	Routing	Invert	Outlet Devices
#1	Discarded	99.00'	1.070 in/hr Exfiltration over Surface area
#2	Primary	100.00'	10.0' long x 4.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66			
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32			

Discarded OutFlow Max=0.00 cfs @ 13.45 hrs HW=100.01' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.01 cfs @ 13.45 hrs HW=100.01' (Free Discharge)
 ↳2=Broad-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.17 fps)

Pond 2P: Sediment Forebay #1

Hydrograph



Summary for Pond 3P: Sediment Forebay #2

Inflow Area = 60,926 sf, 34.34% Impervious, Inflow Depth = 0.31" for 2 YR STORM event
 Inflow = 0.20 cfs @ 12.30 hrs, Volume= 1,571 cf
 Outflow = 0.07 cfs @ 12.99 hrs, Volume= 1,571 cf, Atten= 63%, Lag= 41.6 min
 Discarded = 0.01 cfs @ 12.99 hrs, Volume= 761 cf
 Primary = 0.06 cfs @ 12.99 hrs, Volume= 810 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 99.02' @ 12.99 hrs Surf.Area= 361 sf Storage= 389 cf

Plug-Flow detention time= 273.8 min calculated for 1,571 cf (100% of inflow)
 Center-of-Mass det. time= 273.9 min (1,217.9 - 944.0)

Volume	Invert	Avail.Storage	Storage Description
#1	97.50'	591 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.50	75	0	0
98.00	247	81	81
99.00	356	302	382
99.50	479	209	591

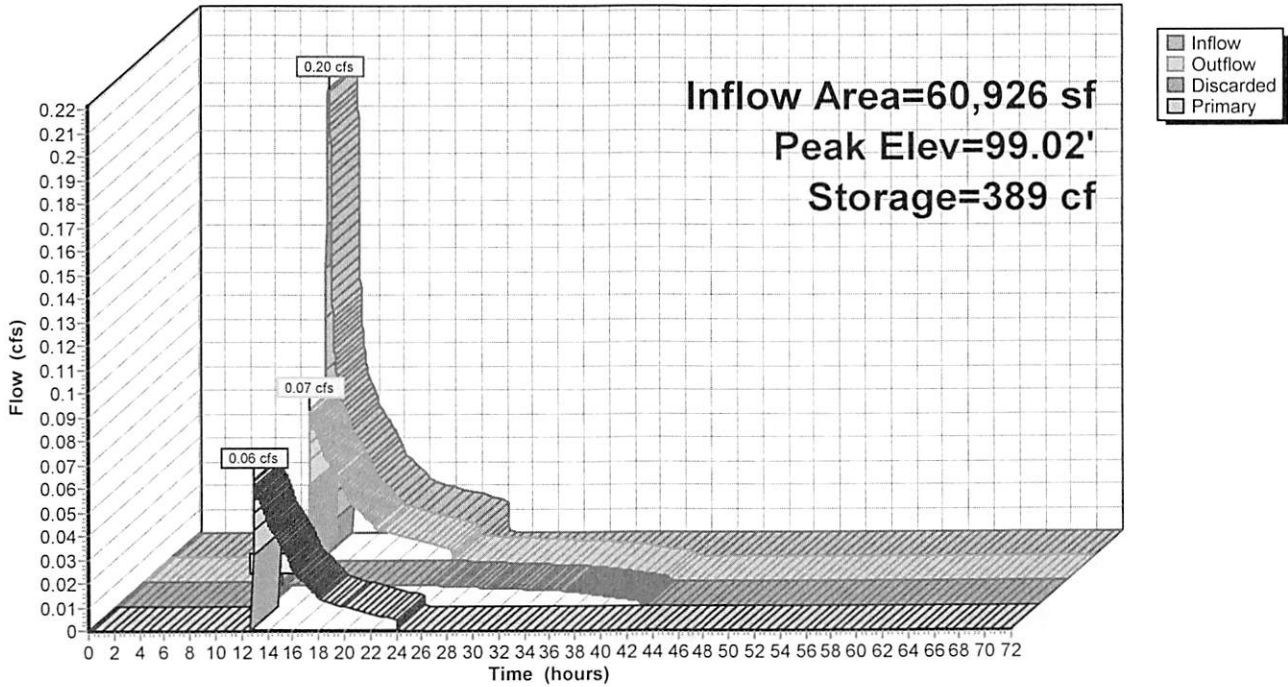
Device	Routing	Invert	Outlet Devices
#1	Discarded	97.50'	1.070 in/hr Exfiltration over Surface area
#2	Primary	99.00'	10.0' long x 4.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
			2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 12.99 hrs HW=99.02' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.06 cfs @ 12.99 hrs HW=99.02' (Free Discharge)
 ↳2=Broad-Crested Rectangular Weir (Weir Controls 0.06 cfs @ 0.33 fps)

Pond 3P: Sediment Forebay #2

Hydrograph



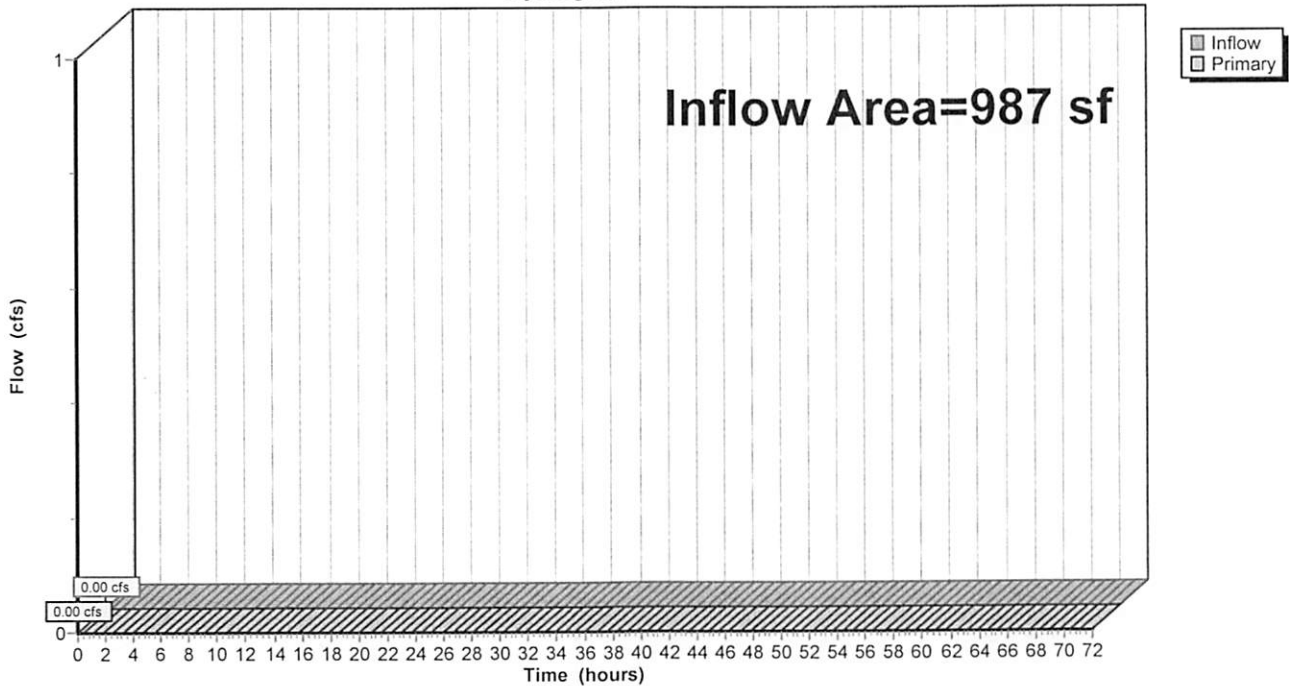
Summary for Link DP1: DP #1

Inflow Area = 987 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 YR STORM event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

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

Link DP1: DP #1

Hydrograph



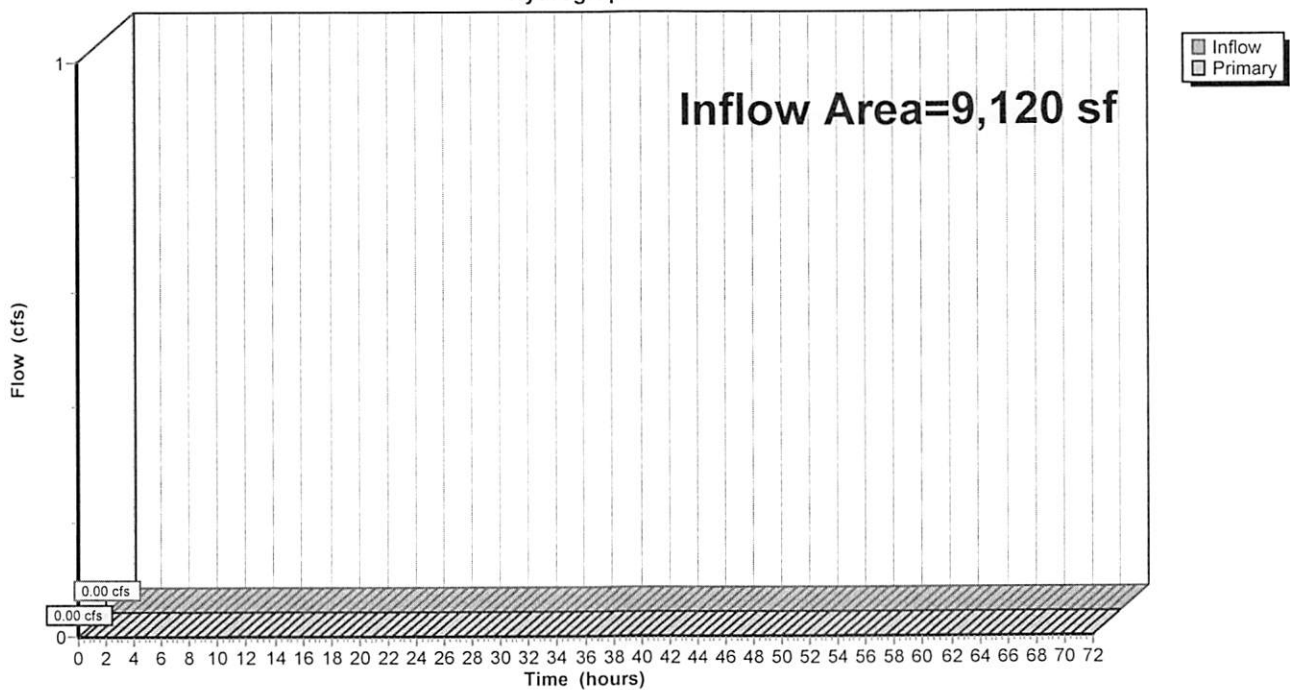
Summary for Link DP2: DP #2

Inflow Area = 9,120 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 YR STORM event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

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

Link DP2: DP #2

Hydrograph



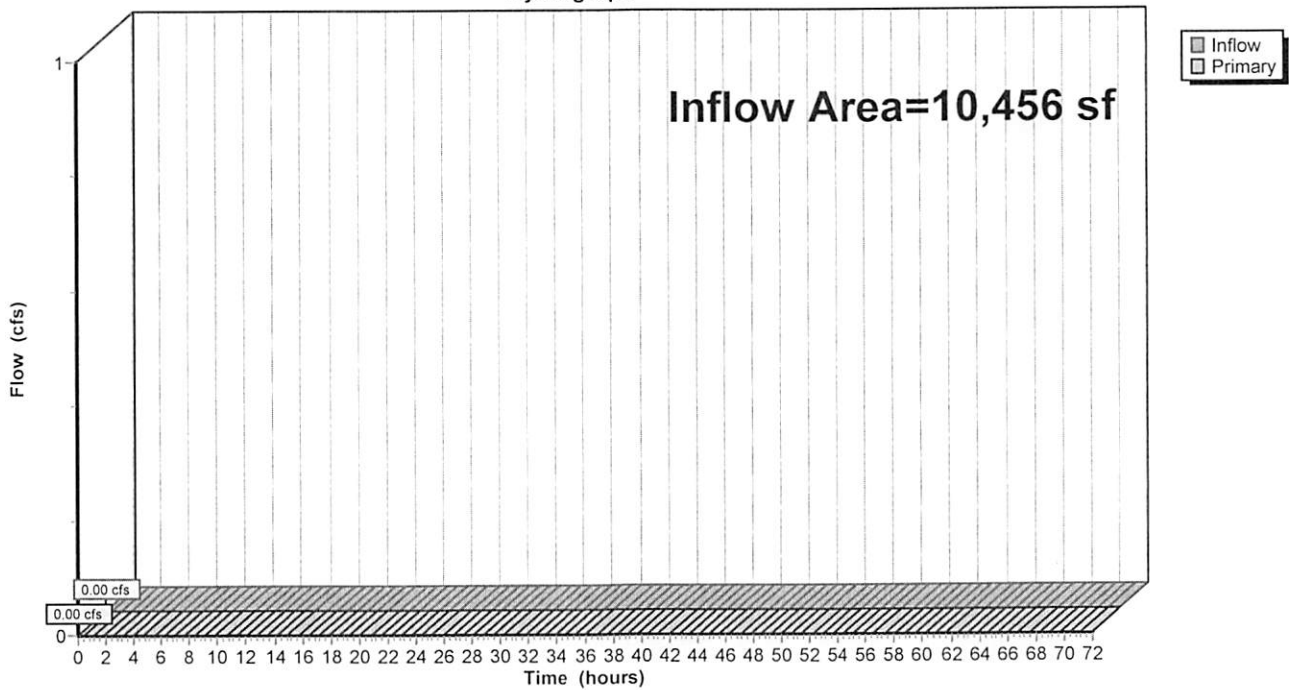
Summary for Link DP3: DP #3

Inflow Area = 10,456 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 YR STORM event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

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

Link DP3: DP #3

Hydrograph



Sheridan - Proposed Watershed 7-8-23

Type III 24-hr 10 YR STORM Rainfall=5.08"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Prop Watershed #1 Right Runoff Area=987 sf 0.00% Impervious Runoff Depth=0.09"
Tc=6.0 min CN=35 Runoff=0.00 cfs 8 cf

Subcatchment 2S: Prop Watershed #2 Left Runoff Area=9,120 sf 0.00% Impervious Runoff Depth=0.05"
Flow Length=163' Tc=9.0 min CN=33 Runoff=0.00 cfs 37 cf

Subcatchment 3S: Prop. Watershed #3 Runoff Area=10,456 sf 0.00% Impervious Runoff Depth=0.05"
Flow Length=180' Tc=10.6 min CN=33 Runoff=0.00 cfs 42 cf

Subcatchment 4S: Prop Watershed #4 Runoff Area=10,489 sf 39.53% Impervious Runoff Depth=1.15"
Tc=6.0 min CN=57 Runoff=0.28 cfs 1,003 cf

Subcatchment 5S: Prop Watershed #5 Runoff Area=14,700 sf 0.00% Impervious Runoff Depth=0.09"
Tc=6.0 min CN=35 Runoff=0.00 cfs 115 cf

Subcatchment 6S: Prop Watershed #6 Runoff Area=60,926 sf 34.34% Impervious Runoff Depth=1.02"
Tc=6.0 min CN=55 Runoff=1.35 cfs 5,179 cf

Pond 1P: Existing Depression Peak Elev=93.73' Storage=2,435 cf Inflow=1.60 cfs 5,236 cf
Outflow=0.11 cfs 5,236 cf

Pond 2P: Sediment Forebay #1 Peak Elev=100.05' Storage=114 cf Inflow=0.28 cfs 1,003 cf
Discarded=0.00 cfs 283 cf Primary=0.27 cfs 719 cf Outflow=0.27 cfs 1,003 cf

Pond 3P: Sediment Forebay #2 Peak Elev=99.15' Storage=437 cf Inflow=1.35 cfs 5,179 cf
Discarded=0.01 cfs 777 cf Primary=1.33 cfs 4,402 cf Outflow=1.34 cfs 5,179 cf

Link DP1: DP #1 Inflow=0.00 cfs 8 cf
Primary=0.00 cfs 8 cf

Link DP2: DP #2 Inflow=0.00 cfs 37 cf
Primary=0.00 cfs 37 cf

Link DP3: DP #3 Inflow=0.00 cfs 42 cf
Primary=0.00 cfs 42 cf

Total Runoff Area = 106,678 sf Runoff Volume = 6,384 cf Average Runoff Depth = 0.72"
76.50% Pervious = 81,609 sf 23.50% Impervious = 25,069 sf

Sheridan - Proposed Watershed 7-8-23

Type III 24-hr 10 YR STORM Rainfall=5.08"

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Summary for Subcatchment 4S: Prop Watershed #4 Entrance of Driveway

Runoff = 0.28 cfs @ 12.10 hrs, Volume= 1,003 cf, Depth= 1.15"

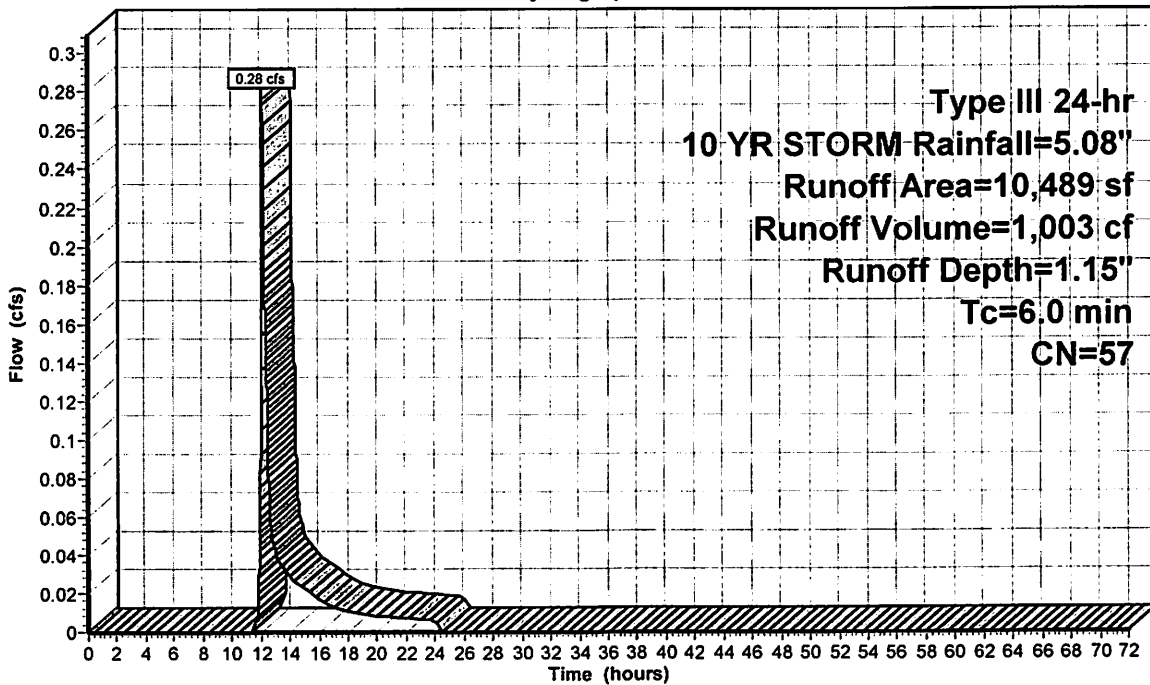
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 YR STORM Rainfall=5.08"

Area (sf)	CN	Description
5,803	30	Woods, Good, HSG A
540	39	>75% Grass cover, Good, HSG A
4,146	98	Paved parking, HSG A
10,489	57	Weighted Average
6,343		60.47% Pervious Area
4,146		39.53% Impervious Area

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

Subcatchment 4S: Prop Watershed #4 Entrance of Driveway

Hydrograph



Summary for Subcatchment 5S: Prop Watershed #5 Depression & Area off Driveway

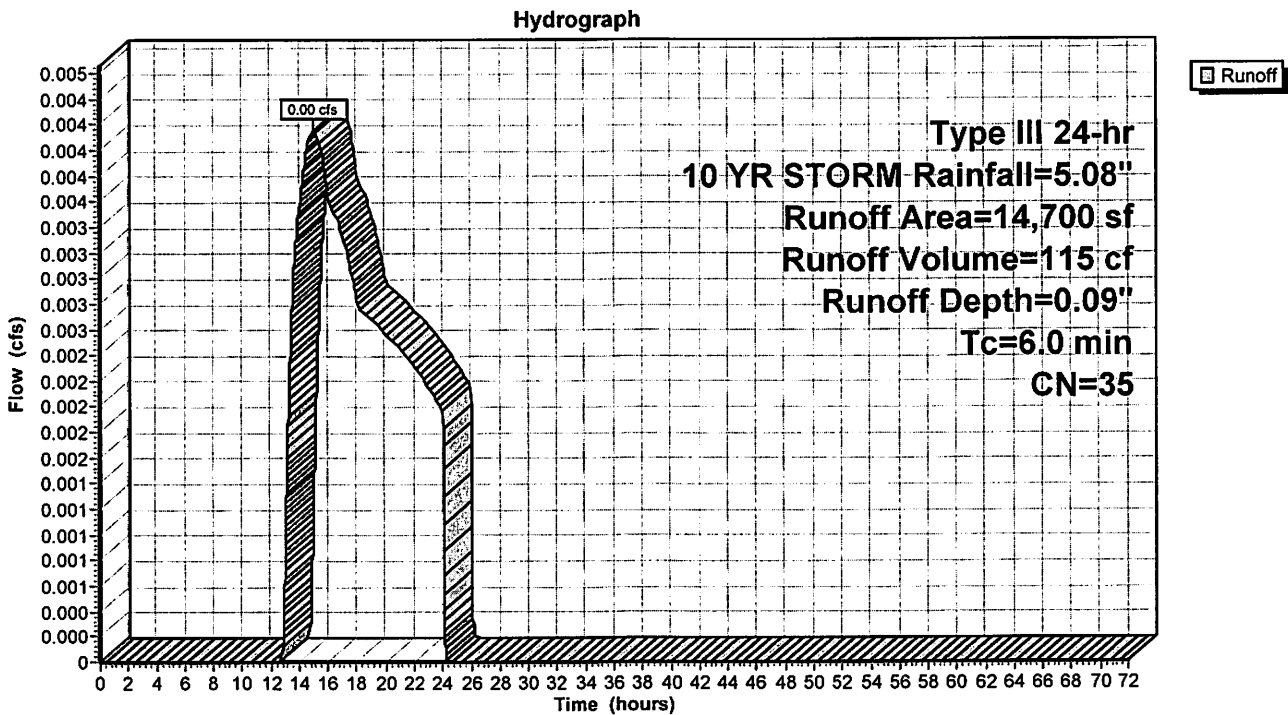
Runoff = 0.00 cfs @ 15.02 hrs, Volume= 115 cf, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10 YR STORM Rainfall=5.08"

Area (sf)	CN	Description
11,196	30	Woods, Good, HSG A
2,378	39	>75% Grass cover, Good, HSG A
* 1,126	77	Rip-Rap Slope
14,700	35	Weighted Average
14,700		100.00% Pervious Area

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

Subcatchment 5S: Prop Watershed #5 Depression & Area off Driveway



Summary for Subcatchment 6S: Prop Watershed #6 Building-Parking

Runoff = 1.35 cfs @ 12.11 hrs, Volume= 5,179 cf, Depth= 1.02"

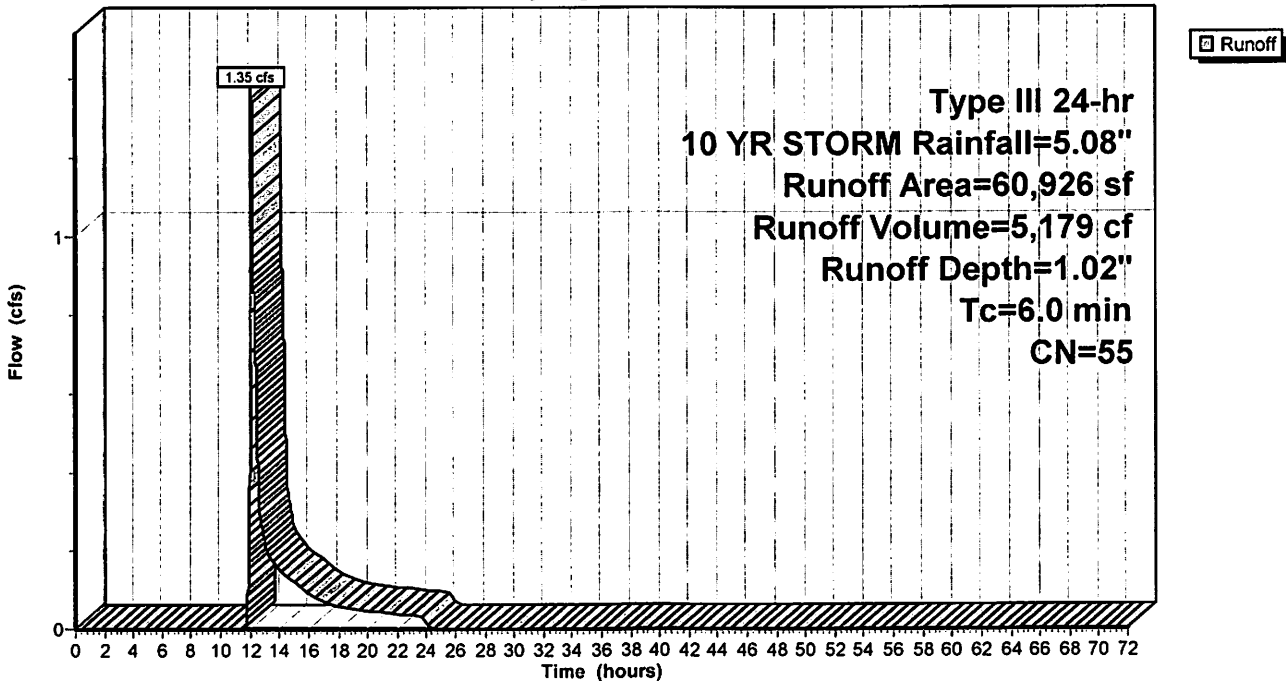
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10 YR STORM Rainfall=5.08"

Area (sf)	CN	Description
28,244	30	Woods, Good, HSG A
11,759	39	>75% Grass cover, Good, HSG A
5,000	98	Unconnected roofs, HSG A
15,923	98	Paved parking, HSG A
60,926	55	Weighted Average
40,003		65.66% Pervious Area
20,923		34.34% Impervious Area
5,000		23.90% Unconnected

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

Subcatchment 6S: Prop Watershed #6 Building-Parking

Hydrograph



Summary for Pond 1P: Existing Depression

Inflow Area = 86,115 sf, 29.11% Impervious, Inflow Depth = 0.73" for 10 YR STORM event
 Inflow = 1.60 cfs @ 12.12 hrs, Volume= 5,236 cf
 Outflow = 0.11 cfs @ 15.72 hrs, Volume= 5,236 cf, Atten= 93%, Lag= 215.9 min
 Discarded = 0.11 cfs @ 15.72 hrs, Volume= 5,236 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 93.73' @ 15.72 hrs Surf.Area= 1,908 sf Storage= 2,435 cf

Plug-Flow detention time= 286.5 min calculated for 5,236 cf (100% of inflow)
 Center-of-Mass det. time= 286.5 min (1,177.1 - 890.5)

Volume	Invert	Avail.Storage	Storage Description
#1	92.00'	21,883 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

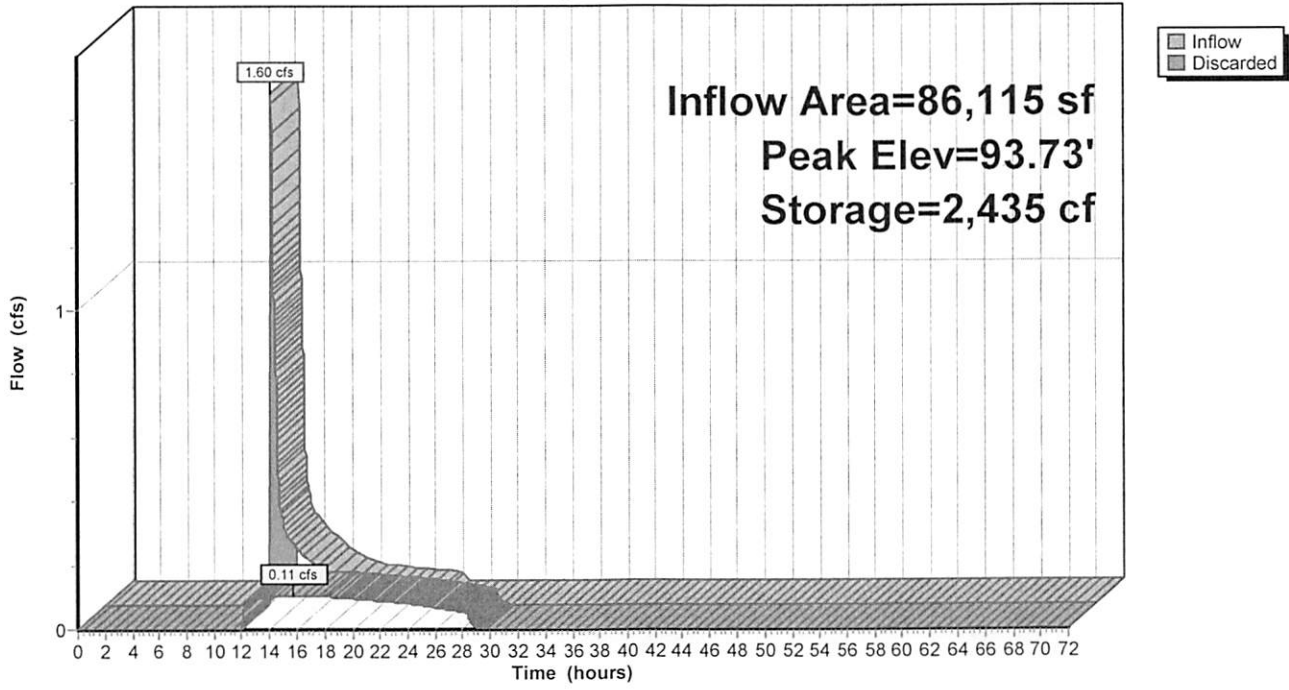
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
92.00	908	0	0
94.00	2,065	2,973	2,973
96.00	3,331	5,396	8,369
98.00	4,829	8,160	16,529
99.00	5,879	5,354	21,883

Device	Routing	Invert	Outlet Devices
#1	Discarded	92.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.11 cfs @ 15.72 hrs HW=93.73' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.11 cfs)

Pond 1P: Existing Depression

Hydrograph



Summary for Pond 2P: Sediment Forebay #1

Inflow Area = 10,489 sf, 39.53% Impervious, Inflow Depth = 1.15" for 10 YR STORM event
 Inflow = 0.28 cfs @ 12.10 hrs, Volume= 1,003 cf
 Outflow = 0.27 cfs @ 12.12 hrs, Volume= 1,003 cf, Atten= 1%, Lag= 1.0 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 283 cf
 Primary = 0.27 cfs @ 12.12 hrs, Volume= 719 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 100.05' @ 12.12 hrs Surf.Area= 170 sf Storage= 114 cf

Plug-Flow detention time= 106.2 min calculated for 1,003 cf (100% of inflow)
 Center-of-Mass det. time= 106.3 min (990.3 - 884.0)

Volume	Invert	Avail.Storage	Storage Description
#1	99.00'	206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.00	49	0	0
100.00	162	106	106
100.50	240	101	206

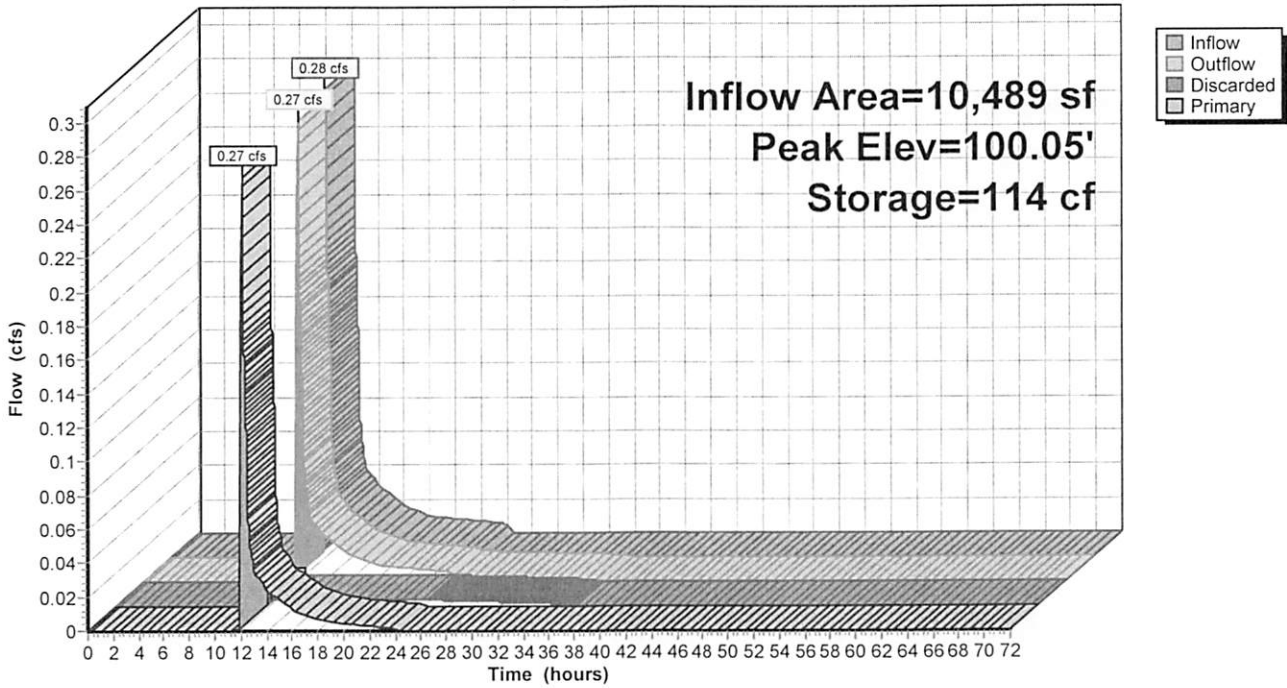
Device	Routing	Invert	Outlet Devices
#1	Discarded	99.00'	1.070 in/hr Exfiltration over Surface area
#2	Primary	100.00'	10.0' long x 4.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66			
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32			

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=100.05' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.27 cfs @ 12.12 hrs HW=100.05' (Free Discharge)
 ↳2=Broad-Crested Rectangular Weir (Weir Controls 0.27 cfs @ 0.53 fps)

Pond 2P: Sediment Forebay #1

Hydrograph



Summary for Pond 3P: Sediment Forebay #2

Inflow Area = 60,926 sf, 34.34% Impervious, Inflow Depth = 1.02" for 10 YR STORM event
 Inflow = 1.35 cfs @ 12.11 hrs, Volume= 5,179 cf
 Outflow = 1.34 cfs @ 12.12 hrs, Volume= 5,179 cf, Atten= 1%, Lag= 0.7 min
 Discarded = 0.01 cfs @ 12.12 hrs, Volume= 777 cf
 Primary = 1.33 cfs @ 12.12 hrs, Volume= 4,402 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 99.15' @ 12.12 hrs Surf.Area= 392 sf Storage= 437 cf

Plug-Flow detention time= 86.0 min calculated for 5,179 cf (100% of inflow)
 Center-of-Mass det. time= 86.0 min (977.1 - 891.2)

Volume	Invert	Avail.Storage	Storage Description
#1	97.50'	591 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.50	75	0	0
98.00	247	81	81
99.00	356	302	382
99.50	479	209	591

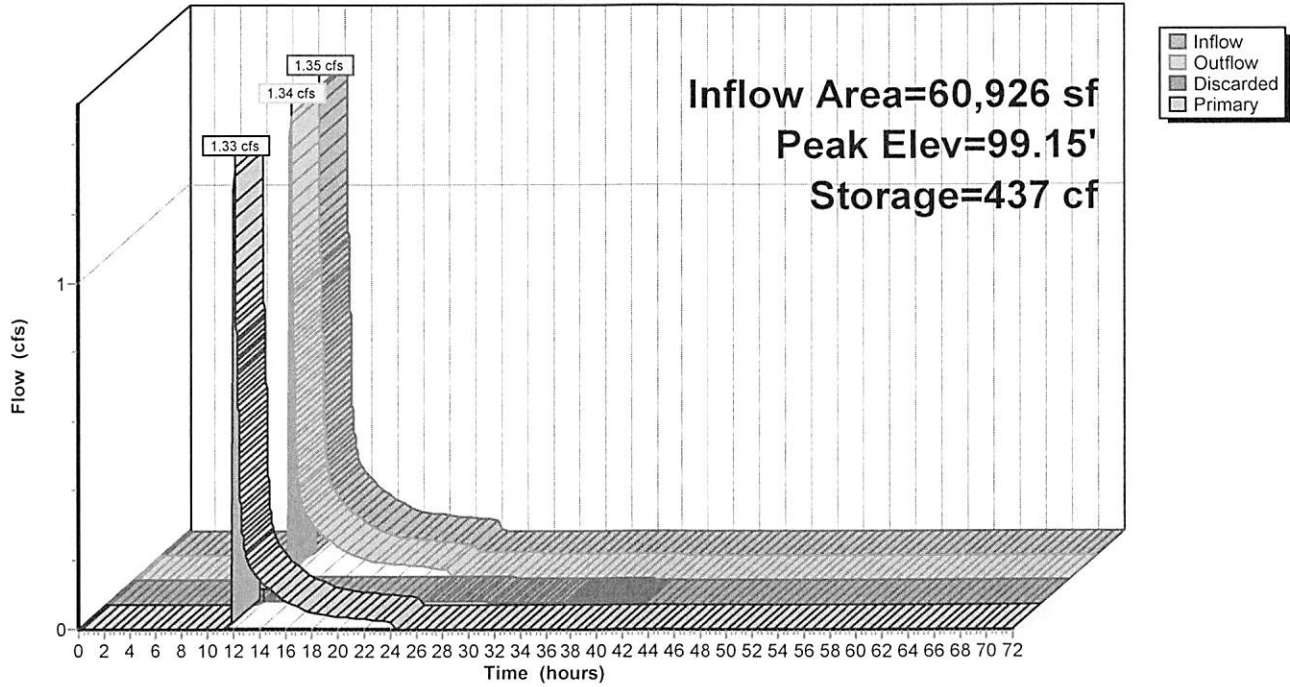
Device	Routing	Invert	Outlet Devices
#1	Discarded	97.50'	1.070 in/hr Exfiltration over Surface area
#2	Primary	99.00'	10.0' long x 4.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66			
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32			

Discarded OutFlow Max=0.01 cfs @ 12.12 hrs HW=99.15' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=1.33 cfs @ 12.12 hrs HW=99.15' (Free Discharge)
 ↳2=Broad-Crested Rectangular Weir (Weir Controls 1.33 cfs @ 0.91 fps)

Pond 3P: Sediment Forebay #2

Hydrograph



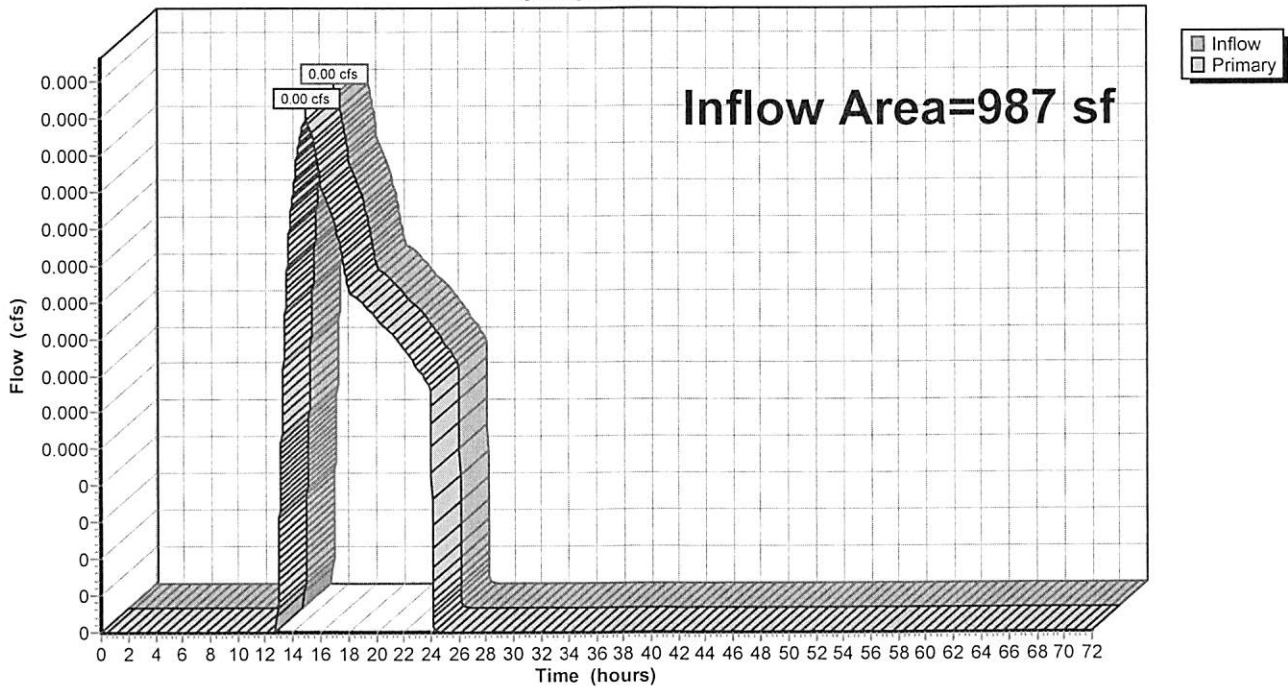
Summary for Link DP1: DP #1

Inflow Area = 987 sf, 0.00% Impervious, Inflow Depth = 0.09" for 10 YR STORM event
Inflow = 0.00 cfs @ 15.02 hrs, Volume= 8 cf
Primary = 0.00 cfs @ 15.02 hrs, Volume= 8 cf, Atten= 0%, Lag= 0.0 min

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

Link DP1: DP #1

Hydrograph



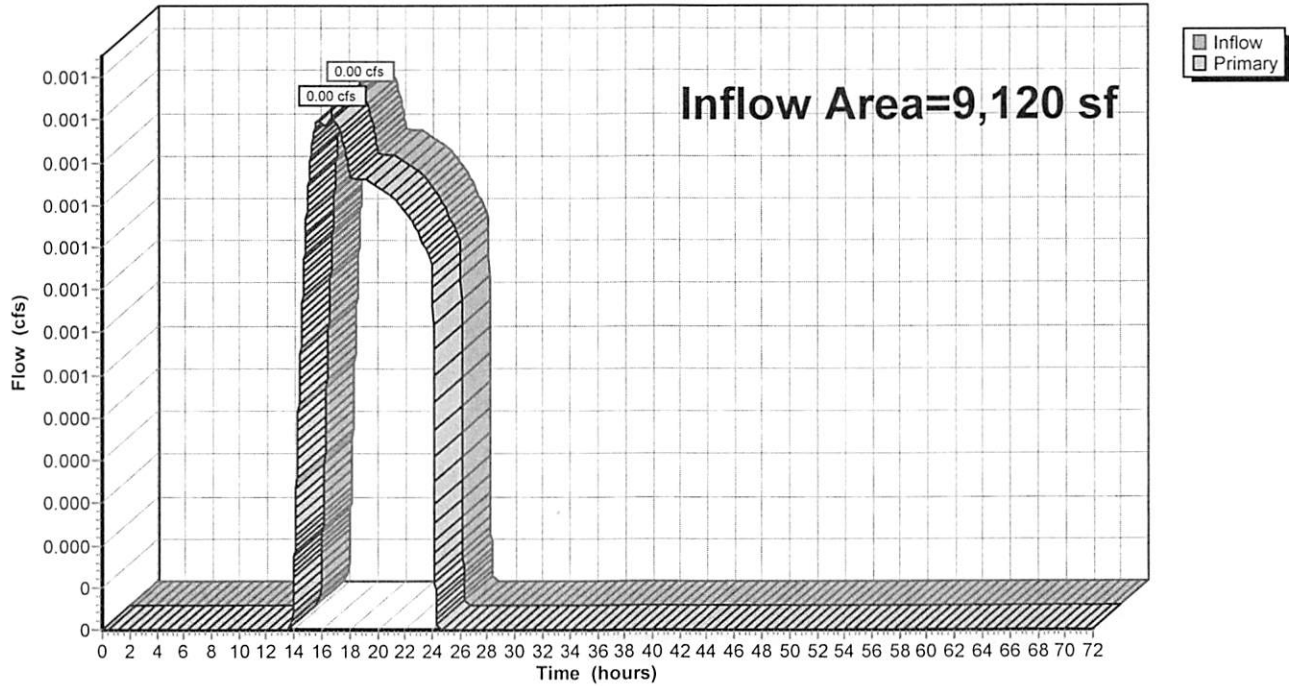
Summary for Link DP2: DP #2

Inflow Area = 9,120 sf, 0.00% Impervious, Inflow Depth = 0.05" for 10 YR STORM event
Inflow = 0.00 cfs @ 16.75 hrs, Volume= 37 cf
Primary = 0.00 cfs @ 16.75 hrs, Volume= 37 cf, Atten= 0%, Lag= 0.0 min

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

Link DP2: DP #2

Hydrograph



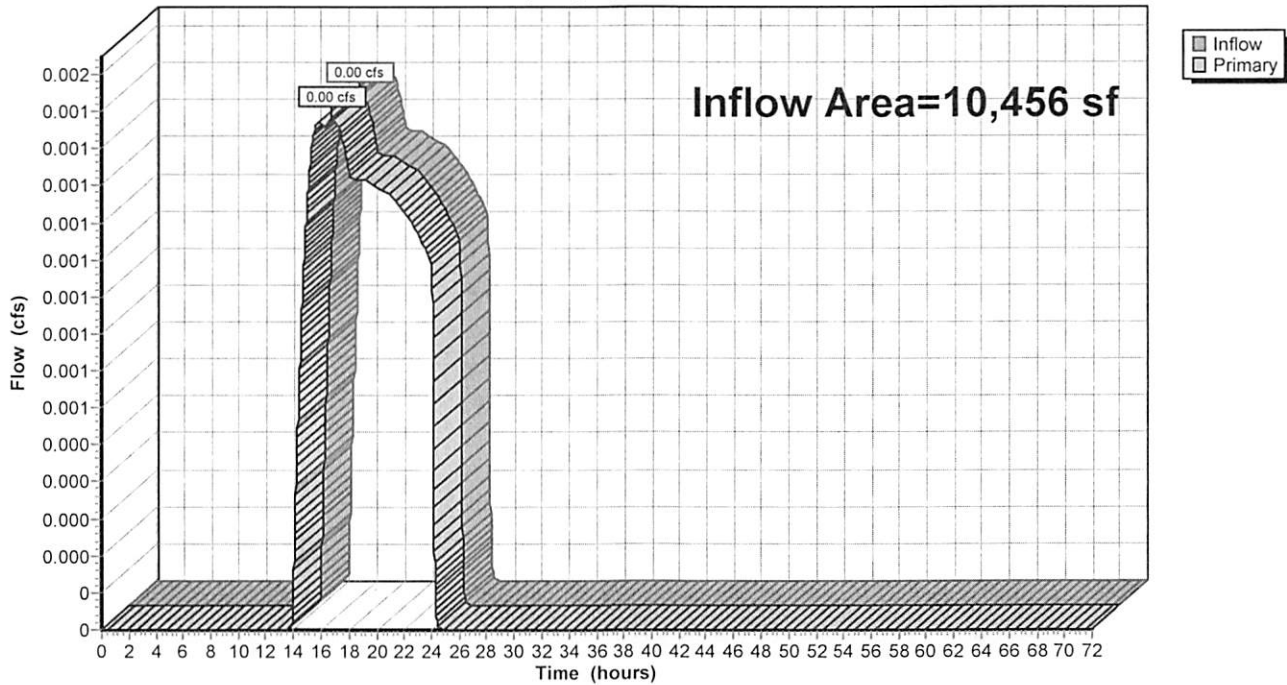
Summary for Link DP3: DP #3

Inflow Area = 10,456 sf, 0.00% Impervious, Inflow Depth = 0.05" for 10 YR STORM event
Inflow = 0.00 cfs @ 16.76 hrs, Volume= 42 cf
Primary = 0.00 cfs @ 16.76 hrs, Volume= 42 cf, Atten= 0%, Lag= 0.0 min

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

Link DP3: DP #3

Hydrograph



Sheridan - Proposed Watershed 7-8-23

Type III 24-hr 25 YR STORM Rainfall=6.22"

Prepared by {enter your company name here}

Printed 8/1/2023

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Prop Watershed #1 Right Runoff Area=987 sf 0.00% Impervious Runoff Depth=0.30"
 Tc=6.0 min CN=35 Runoff=0.00 cfs 25 cf

Subcatchment 2S: Prop Watershed #2 Left Runoff Area=9,120 sf 0.00% Impervious Runoff Depth=0.21"
 Flow Length=163' Tc=9.0 min CN=33 Runoff=0.01 cfs 158 cf

Subcatchment 3S: Prop. Watershed #3 Runoff Area=10,456 sf 0.00% Impervious Runoff Depth=0.21"
 Flow Length=180' Tc=10.6 min CN=33 Runoff=0.01 cfs 181 cf

Subcatchment 4S: Prop Watershed #4 Runoff Area=10,489 sf 39.53% Impervious Runoff Depth=1.81"
 Tc=6.0 min CN=57 Runoff=0.47 cfs 1,583 cf

Subcatchment 5S: Prop Watershed #5 Runoff Area=14,700 sf 0.00% Impervious Runoff Depth=0.30"
 Tc=6.0 min CN=35 Runoff=0.03 cfs 365 cf

Subcatchment 6S: Prop Watershed #6 Runoff Area=60,926 sf 34.34% Impervious Runoff Depth=1.65"
 Tc=6.0 min CN=55 Runoff=2.43 cfs 8,356 cf

Pond 1P: Existing Depression Peak Elev=94.88' Storage=5,038 cf Inflow=2.88 cfs 9,226 cf
 Outflow=0.15 cfs 9,226 cf

Pond 2P: Sediment Forebay #1 Peak Elev=100.07' Storage=118 cf Inflow=0.47 cfs 1,583 cf
 Discarded=0.00 cfs 289 cf Primary=0.47 cfs 1,294 cf Outflow=0.47 cfs 1,583 cf

Pond 3P: Sediment Forebay #2 Peak Elev=99.22' Storage=465 cf Inflow=2.43 cfs 8,356 cf
 Discarded=0.01 cfs 789 cf Primary=2.41 cfs 7,567 cf Outflow=2.42 cfs 8,356 cf

Link DP1: DP #1 Inflow=0.00 cfs 25 cf
 Primary=0.00 cfs 25 cf

Link DP2: DP #2 Inflow=0.01 cfs 158 cf
 Primary=0.01 cfs 158 cf

Link DP3: DP #3 Inflow=0.01 cfs 181 cf
 Primary=0.01 cfs 181 cf

Total Runoff Area = 106,678 sf Runoff Volume = 10,667 cf Average Runoff Depth = 1.20"
76.50% Pervious = 81,609 sf 23.50% Impervious = 25,069 sf

Summary for Subcatchment 1S: Prop Watershed #1 Right Portion of Lot

Runoff = 0.00 cfs @ 12.43 hrs, Volume= 25 cf, Depth= 0.30"

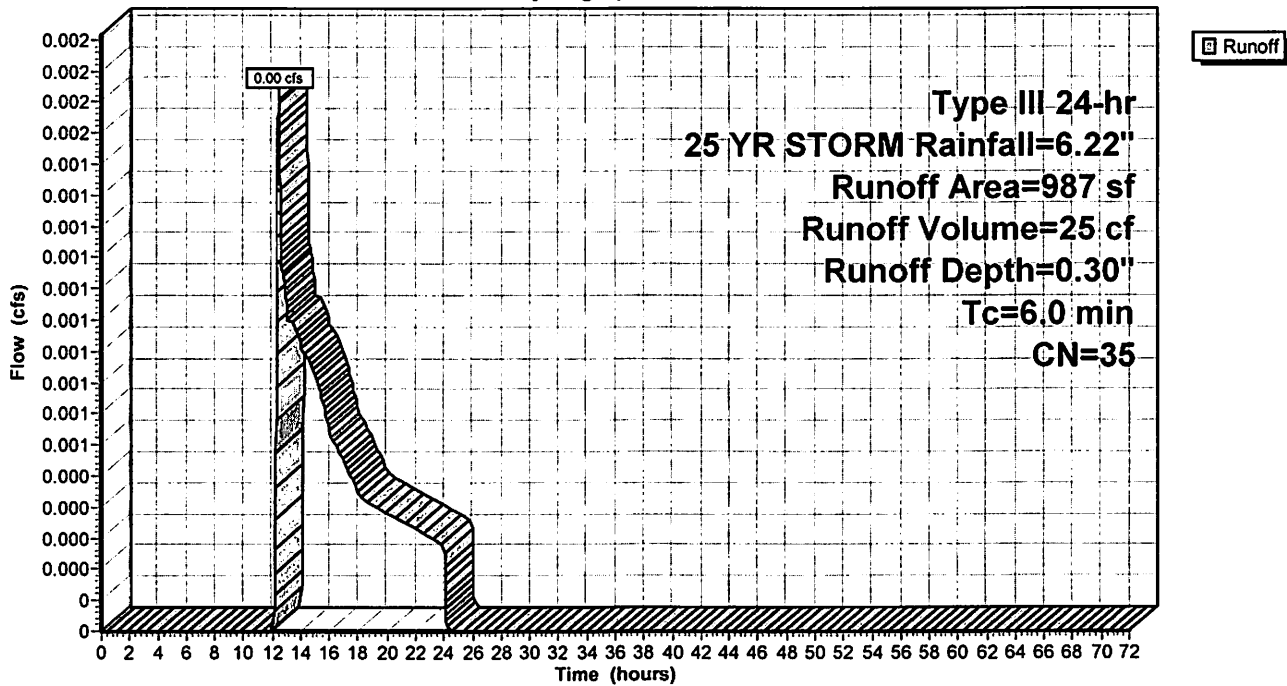
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR STORM Rainfall=6.22"

Area (sf)	CN	Description
434	30	Woods, Good, HSG A
553	39	>75% Grass cover, Good, HSG A
987	35	Weighted Average
987		100.00% Pervious Area

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

Subcatchment 1S: Prop Watershed #1 Right Portion of Lot

Hydrograph



Summary for Subcatchment 2S: Prop Watershed #2 Left Side of Lot

Runoff = 0.01 cfs @ 13.73 hrs, Volume= 158 cf, Depth= 0.21"

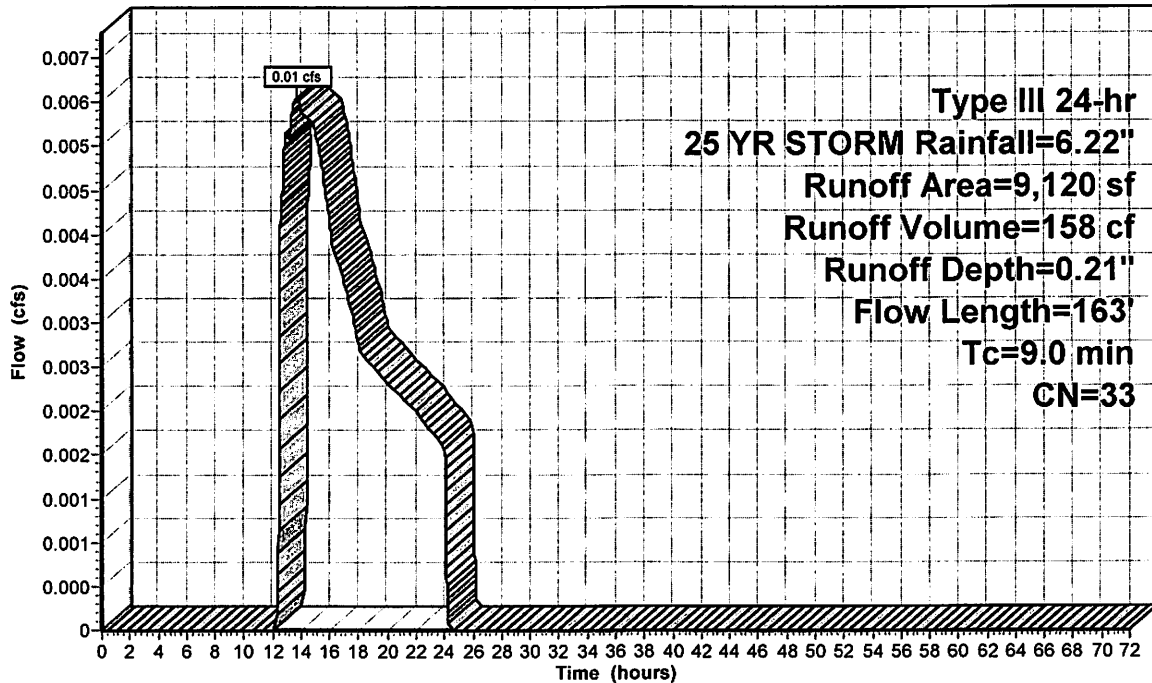
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR STORM Rainfall=6.22"

Area (sf)	CN	Description
5,811	30	Woods, Good, HSG A
3,309	39	>75% Grass cover, Good, HSG A
9,120	33	Weighted Average
9,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
1.1	113	0.1100	1.66		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
9.0	163	Total			

Subcatchment 2S: Prop Watershed #2 Left Side of Lot

Hydrograph



Runoff

Summary for Subcatchment 3S: Prop. Watershed #3 Back Left Side of Lot

Runoff = 0.01 cfs @ 13.77 hrs, Volume= 181 cf, Depth= 0.21"

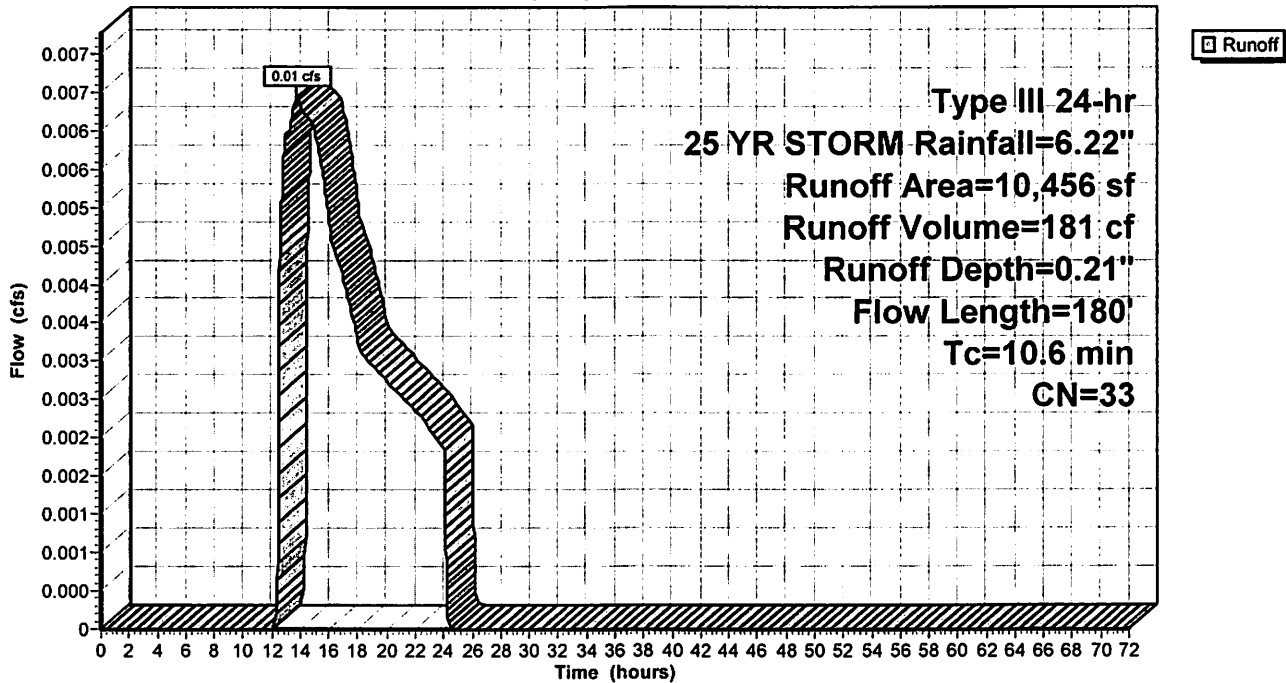
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR STORM Rainfall=6.22"

Area (sf)	CN	Description
7,390	30	Woods, Good, HSG A
3,066	39	>75% Grass cover, Good, HSG A
10,456	33	Weighted Average
10,456		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
1.3	130	0.1200	1.73		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
10.6	180	Total			

Subcatchment 3S: Prop. Watershed #3 Back Left Side of Lot

Hydrograph



Summary for Subcatchment 4S: Prop Watershed #4 Entrance of Driveway

Runoff = 0.47 cfs @ 12.10 hrs, Volume= 1,583 cf, Depth= 1.81"

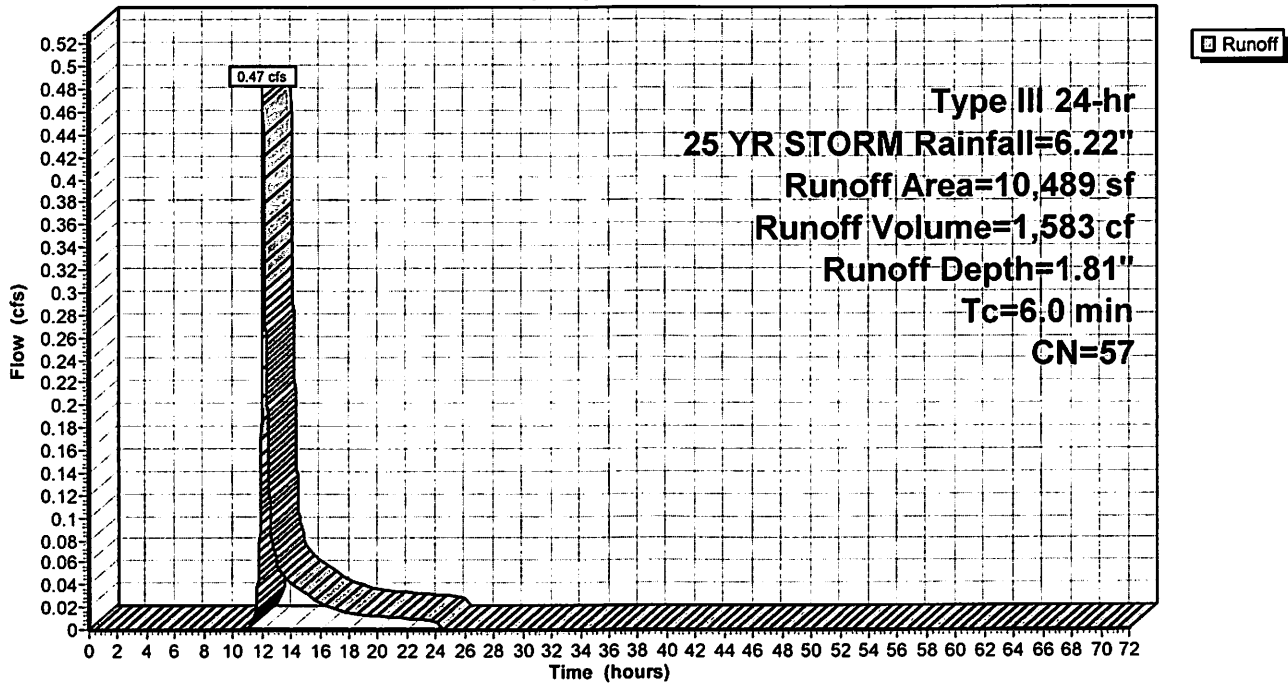
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25 YR STORM Rainfall=6.22"

Area (sf)	CN	Description
5,803	30	Woods, Good, HSG A
540	39	>75% Grass cover, Good, HSG A
4,146	98	Paved parking, HSG A
10,489	57	Weighted Average
6,343		60.47% Pervious Area
4,146		39.53% Impervious Area

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

Subcatchment 4S: Prop Watershed #4 Entrance of Driveway

Hydrograph



Summary for Subcatchment 5S: Prop Watershed #5 Depression & Area off Driveway

Runoff = 0.03 cfs @ 12.43 hrs, Volume= 365 cf, Depth= 0.30"

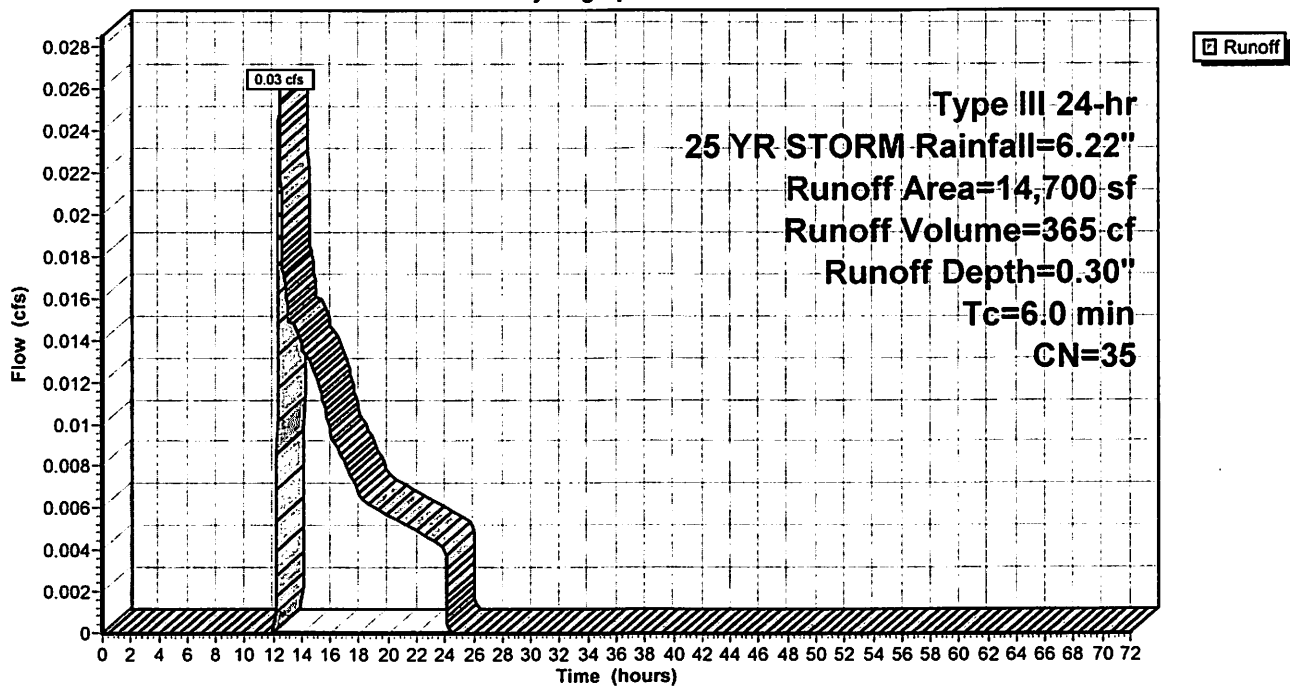
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25 YR STORM Rainfall=6.22"

Area (sf)	CN	Description
11,196	30	Woods, Good, HSG A
2,378	39	>75% Grass cover, Good, HSG A
* 1,126	77	Rip-Rap Slope
14,700	35	Weighted Average
14,700		100.00% Pervious Area

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

Subcatchment 5S: Prop Watershed #5 Depression & Area off Driveway

Hydrograph



Summary for Subcatchment 6S: Prop Watershed #6 Building-Parking

Runoff = 2.43 cfs @ 12.10 hrs, Volume= 8,356 cf, Depth= 1.65"

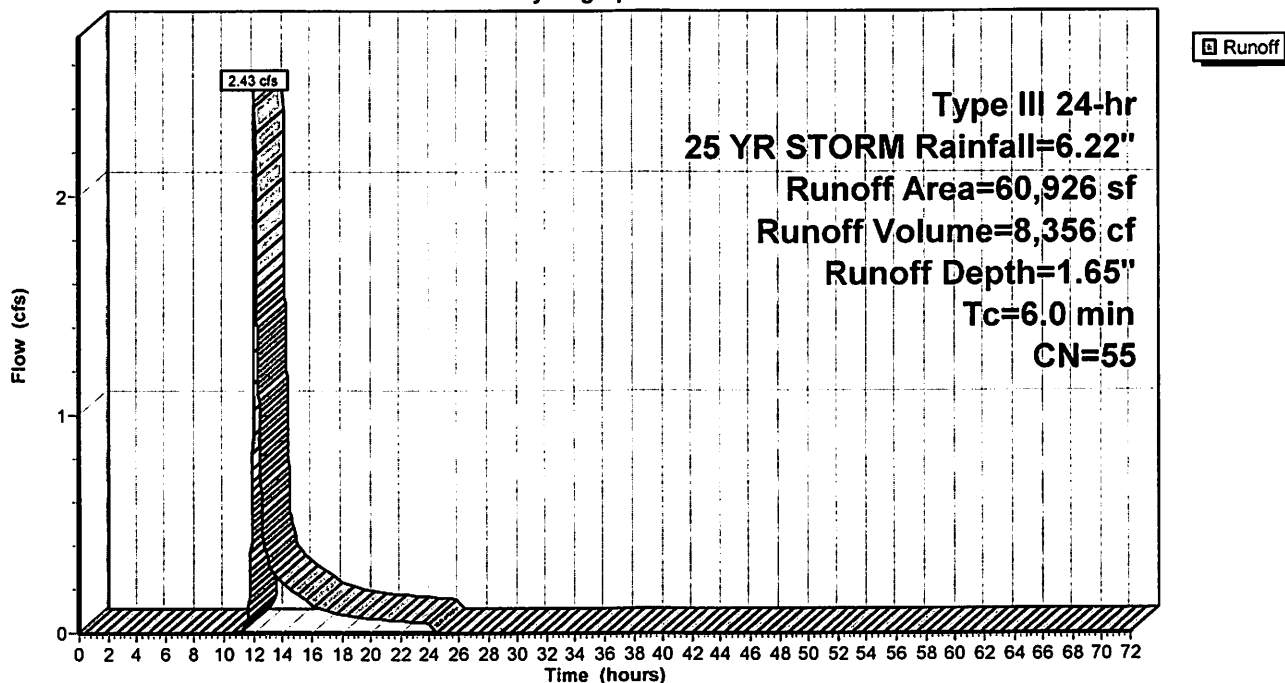
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25 YR STORM Rainfall=6.22"

Area (sf)	CN	Description
28,244	30	Woods, Good, HSG A
11,759	39	>75% Grass cover, Good, HSG A
5,000	98	Unconnected roofs, HSG A
15,923	98	Paved parking, HSG A
60,926	55	Weighted Average
40,003		65.66% Pervious Area
20,923		34.34% Impervious Area
5,000		23.90% Unconnected

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

Subcatchment 6S: Prop Watershed #6 Building-Parking

Hydrograph



Summary for Pond 1P: Existing Depression

Inflow Area = 86,115 sf, 29.11% Impervious, Inflow Depth = 1.29" for 25 YR STORM event
 Inflow = 2.88 cfs @ 12.11 hrs, Volume= 9,226 cf
 Outflow = 0.15 cfs @ 16.04 hrs, Volume= 9,226 cf, Atten= 95%, Lag= 235.9 min
 Discarded = 0.15 cfs @ 16.04 hrs, Volume= 9,226 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 94.88' @ 16.04 hrs Surf.Area= 2,623 sf Storage= 5,038 cf

Plug-Flow detention time= 438.0 min calculated for 9,225 cf (100% of inflow)
 Center-of-Mass det. time= 438.1 min (1,313.5 - 875.4)

Volume	Invert	Avail.Storage	Storage Description
#1	92.00'	21,883 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

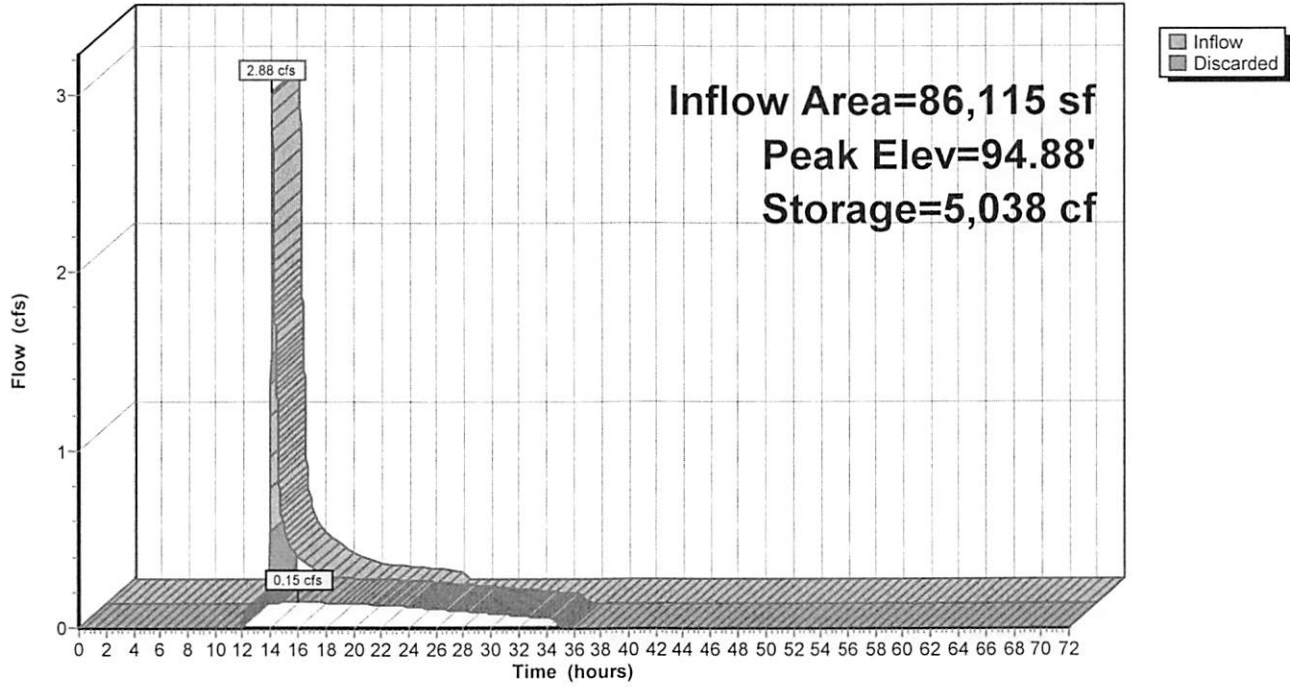
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
92.00	908	0	0
94.00	2,065	2,973	2,973
96.00	3,331	5,396	8,369
98.00	4,829	8,160	16,529
99.00	5,879	5,354	21,883

Device	Routing	Invert	Outlet Devices
#1	Discarded	92.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.15 cfs @ 16.04 hrs HW=94.88' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.15 cfs)

Pond 1P: Existing Depression

Hydrograph



Summary for Pond 2P: Sediment Forebay #1

Inflow Area = 10,489 sf, 39.53% Impervious, Inflow Depth = 1.81" for 25 YR STORM event
 Inflow = 0.47 cfs @ 12.10 hrs, Volume= 1,583 cf
 Outflow = 0.47 cfs @ 12.10 hrs, Volume= 1,583 cf, Atten= 0%, Lag= 0.3 min
 Discarded = 0.00 cfs @ 12.10 hrs, Volume= 289 cf
 Primary = 0.47 cfs @ 12.10 hrs, Volume= 1,294 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 100.07' @ 12.10 hrs Surf.Area= 173 sf Storage= 118 cf

Plug-Flow detention time= 68.3 min calculated for 1,583 cf (100% of inflow)
 Center-of-Mass det. time= 68.4 min (937.0 - 868.6)

Volume	Invert	Avail.Storage	Storage Description
#1	99.00'	206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.00	49	0	0
100.00	162	106	106
100.50	240	101	206

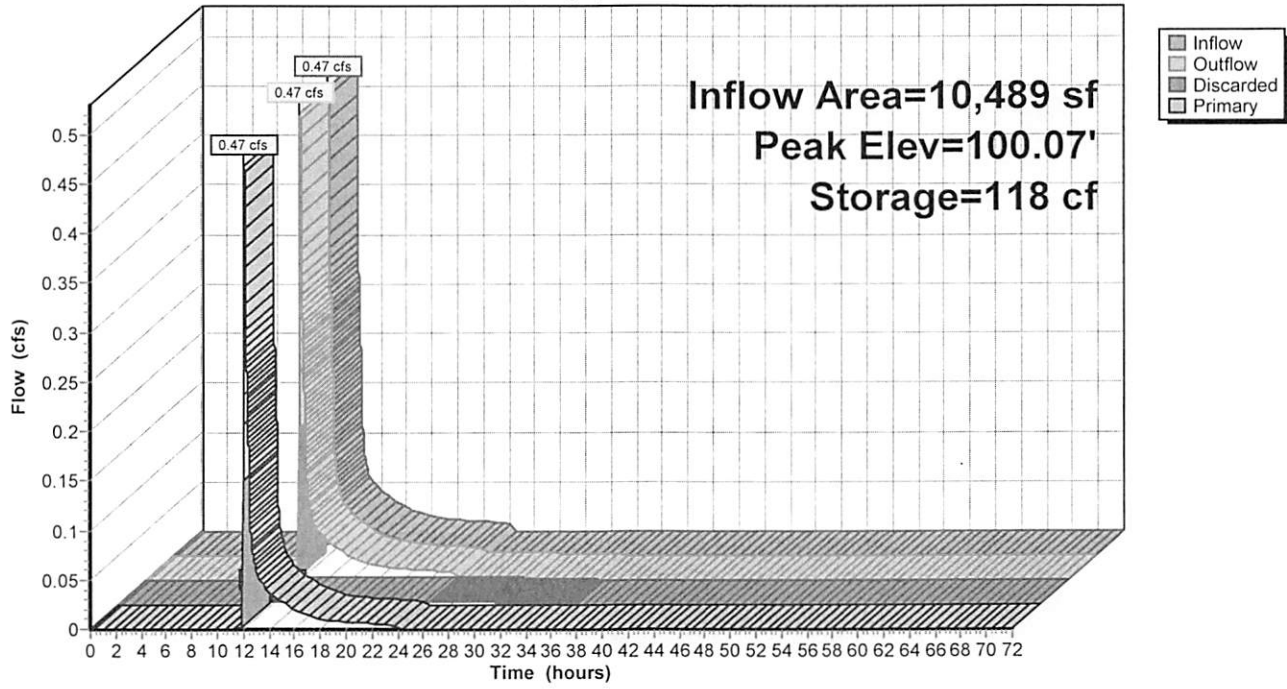
Device	Routing	Invert	Outlet Devices
#1	Discarded	99.00'	1.070 in/hr Exfiltration over Surface area
#2	Primary	100.00'	10.0' long x 4.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66			
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32			

Discarded OutFlow Max=0.00 cfs @ 12.10 hrs HW=100.07' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.47 cfs @ 12.10 hrs HW=100.07' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 0.47 cfs @ 0.64 fps)

Pond 2P: Sediment Forebay #1

Hydrograph



Summary for Pond 3P: Sediment Forebay #2

Inflow Area = 60,926 sf, 34.34% Impervious, Inflow Depth = 1.65" for 25 YR STORM event
 Inflow = 2.43 cfs @ 12.10 hrs, Volume= 8,356 cf
 Outflow = 2.42 cfs @ 12.11 hrs, Volume= 8,356 cf, Atten= 0%, Lag= 0.4 min
 Discarded = 0.01 cfs @ 12.11 hrs, Volume= 789 cf
 Primary = 2.41 cfs @ 12.11 hrs, Volume= 7,567 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 99.22' @ 12.11 hrs Surf.Area= 409 sf Storage= 465 cf

Plug-Flow detention time= 54.0 min calculated for 8,355 cf (100% of inflow)
 Center-of-Mass det. time= 54.1 min (928.5 - 874.4)

Volume	Invert	Avail.Storage	Storage Description
#1	97.50'	591 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.50	75	0	0
98.00	247	81	81
99.00	356	302	382
99.50	479	209	591

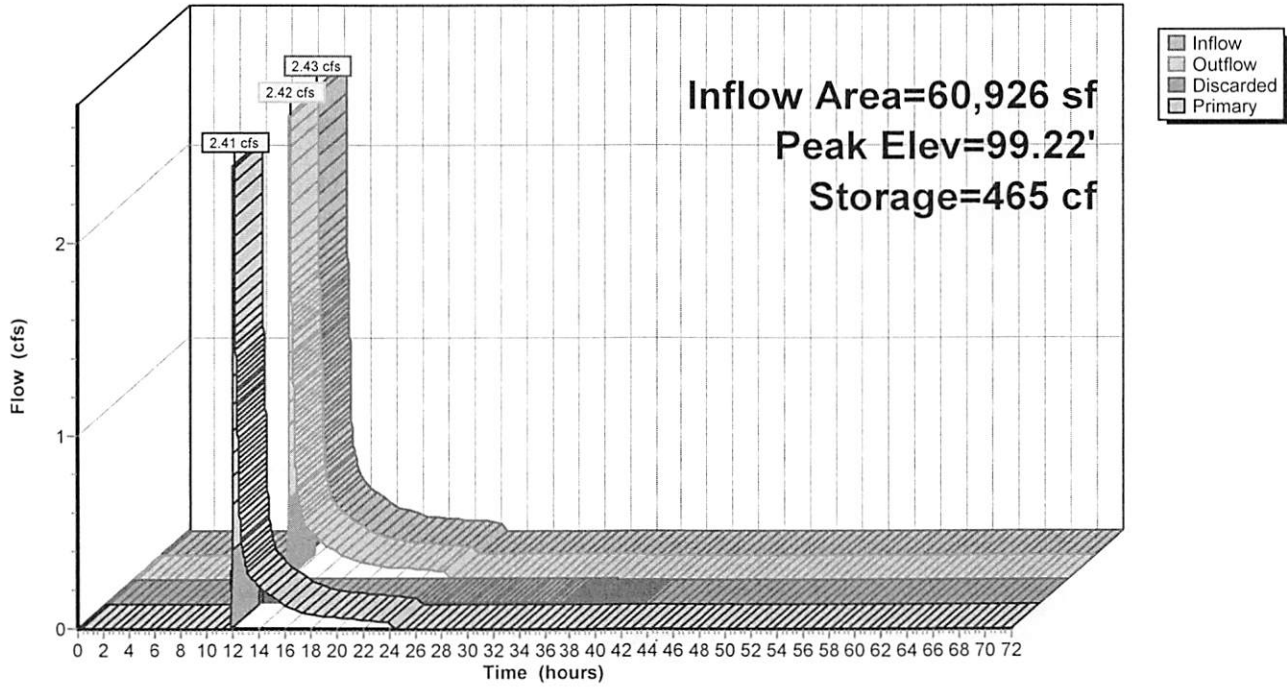
Device	Routing	Invert	Outlet Devices
#1	Discarded	97.50'	1.070 in/hr Exfiltration over Surface area
#2	Primary	99.00'	10.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 12.11 hrs HW=99.22' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=2.41 cfs @ 12.11 hrs HW=99.22' (Free Discharge)
 ↳2=Broad-Crested Rectangular Weir (Weir Controls 2.41 cfs @ 1.11 fps)

Pond 3P: Sediment Forebay #2

Hydrograph



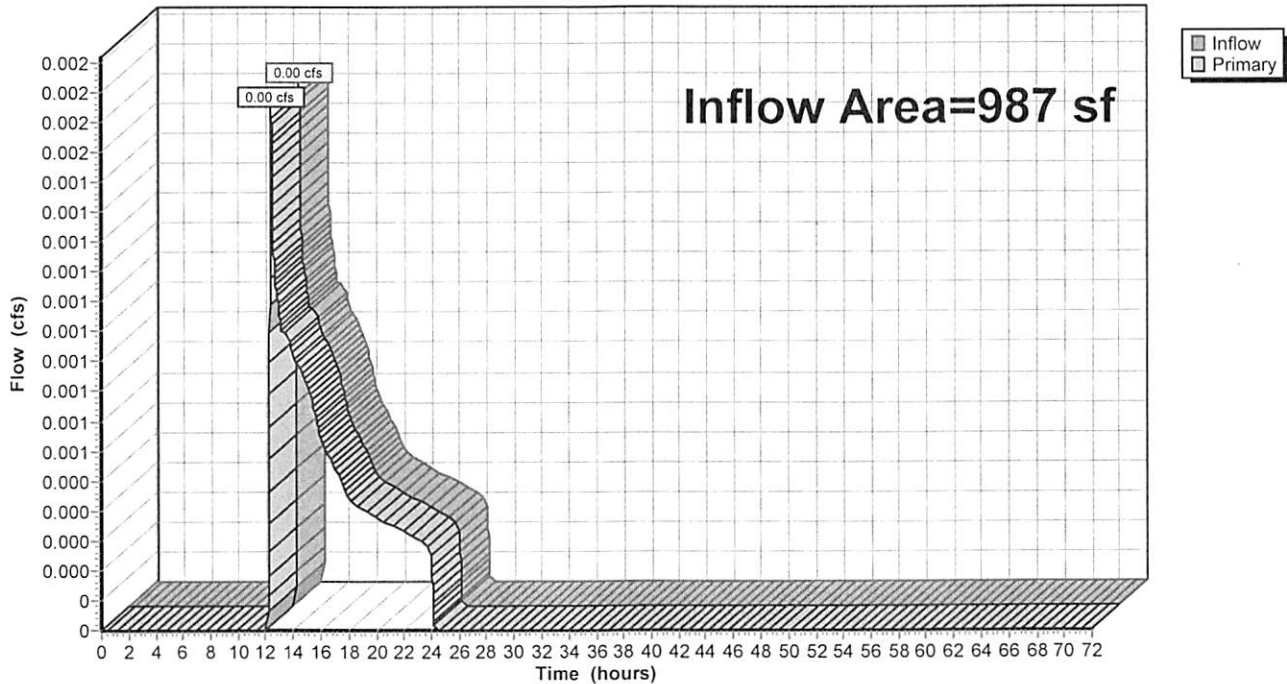
Summary for Link DP1: DP #1

Inflow Area = 987 sf, 0.00% Impervious, Inflow Depth = 0.30" for 25 YR STORM event
Inflow = 0.00 cfs @ 12.43 hrs, Volume= 25 cf
Primary = 0.00 cfs @ 12.43 hrs, Volume= 25 cf, Atten= 0%, Lag= 0.0 min

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

Link DP1: DP #1

Hydrograph



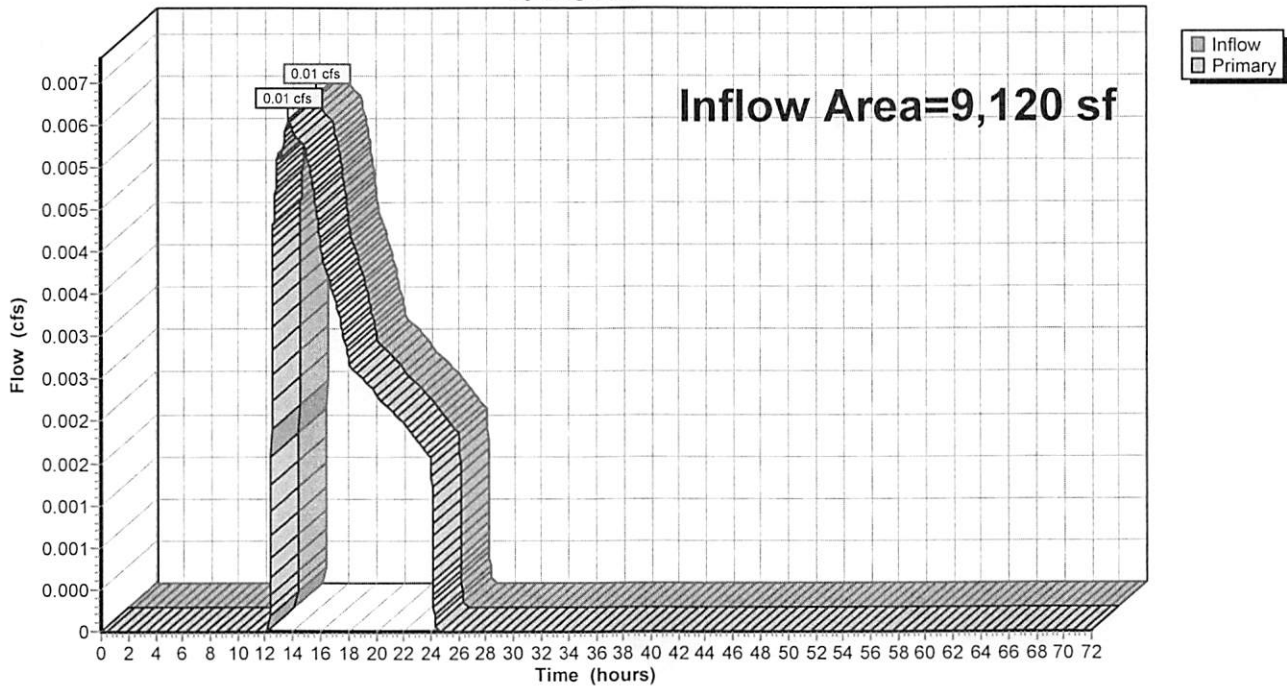
Summary for Link DP2: DP #2

Inflow Area = 9,120 sf, 0.00% Impervious, Inflow Depth = 0.21" for 25 YR STORM event
Inflow = 0.01 cfs @ 13.73 hrs, Volume= 158 cf
Primary = 0.01 cfs @ 13.73 hrs, Volume= 158 cf, Atten= 0%, Lag= 0.0 min

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

Link DP2: DP #2

Hydrograph



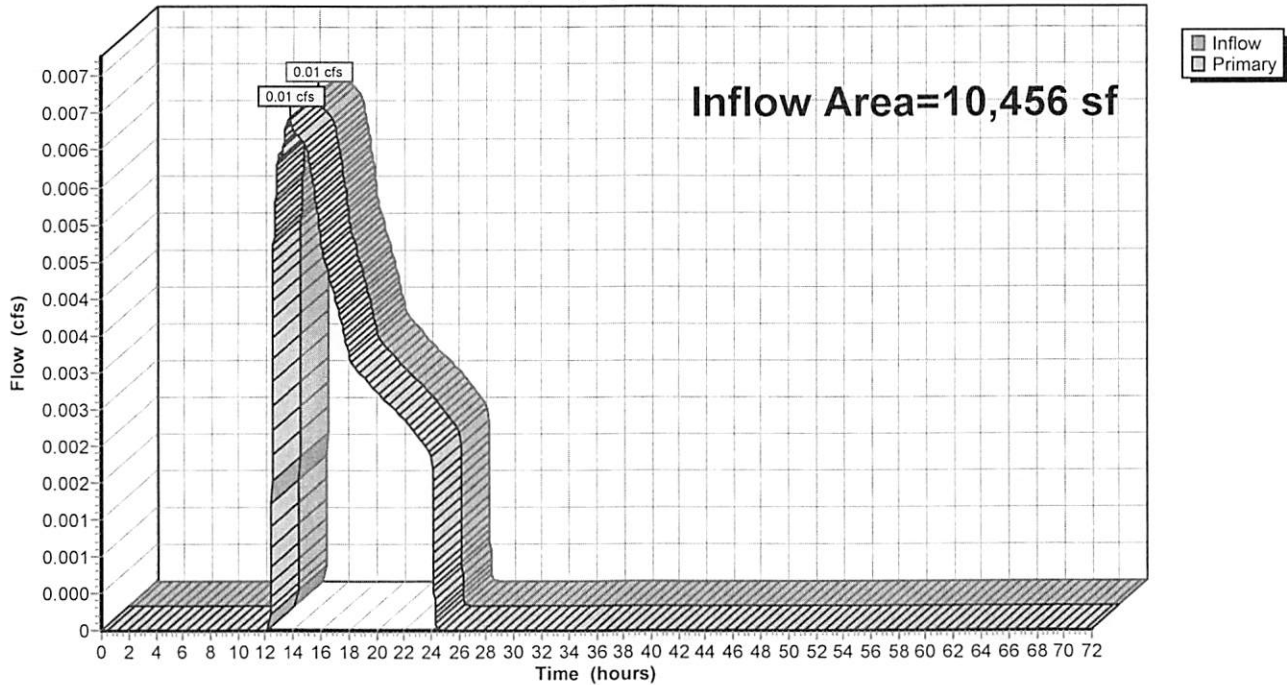
Summary for Link DP3: DP #3

Inflow Area = 10,456 sf, 0.00% Impervious, Inflow Depth = 0.21" for 25 YR STORM event
Inflow = 0.01 cfs @ 13.77 hrs, Volume= 181 cf
Primary = 0.01 cfs @ 13.77 hrs, Volume= 181 cf, Atten= 0%, Lag= 0.0 min

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

Link DP3: DP #3

Hydrograph



Sheridan - Proposed Watershed 7-8-23

Type III 24-hr 100 YR STORM Rainfall=9.04"

Prepared by {enter your company name here}

Printed 8/1/2023

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Prop Watershed #1 Right Runoff Area=987 sf 0.00% Impervious Runoff Depth=1.19"
 Tc=6.0 min CN=35 Runoff=0.02 cfs 98 cf

Subcatchment 2S: Prop Watershed #2 Left Runoff Area=9,120 sf 0.00% Impervious Runoff Depth=0.98"
 Flow Length=163' Tc=9.0 min CN=33 Runoff=0.10 cfs 745 cf

Subcatchment 3S: Prop. Watershed #3 Runoff Area=10,456 sf 0.00% Impervious Runoff Depth=0.98"
 Flow Length=180' Tc=10.6 min CN=33 Runoff=0.12 cfs 855 cf

Subcatchment 4S: Prop Watershed #4 Runoff Area=10,489 sf 39.53% Impervious Runoff Depth=3.76"
 Tc=6.0 min CN=57 Runoff=1.05 cfs 3,289 cf

Subcatchment 5S: Prop Watershed #5 Runoff Area=14,700 sf 0.00% Impervious Runoff Depth=1.19"
 Tc=6.0 min CN=35 Runoff=0.28 cfs 1,454 cf

Subcatchment 6S: Prop Watershed #6 Runoff Area=60,926 sf 34.34% Impervious Runoff Depth=3.52"
 Tc=6.0 min CN=55 Runoff=5.64 cfs 17,856 cf

Pond 1P: Existing Depression Peak Elev=97.38' Storage=13,670 cf Inflow=6.91 cfs 21,464 cf
 Outflow=0.24 cfs 21,464 cf

Pond 2P: Sediment Forebay #1 Peak Elev=100.12' Storage=127 cf Inflow=1.05 cfs 3,289 cf
 Discarded=0.00 cfs 305 cf Primary=1.04 cfs 2,984 cf Outflow=1.04 cfs 3,289 cf

Pond 3P: Sediment Forebay #2 Peak Elev=99.37' Storage=530 cf Inflow=5.64 cfs 17,856 cf
 Discarded=0.01 cfs 830 cf Primary=5.61 cfs 17,026 cf Outflow=5.62 cfs 17,856 cf

Link DP1: DP #1 Inflow=0.02 cfs 98 cf
 Primary=0.02 cfs 98 cf

Link DP2: DP #2 Inflow=0.10 cfs 745 cf
 Primary=0.10 cfs 745 cf

Link DP3: DP #3 Inflow=0.12 cfs 855 cf
 Primary=0.12 cfs 855 cf

Total Runoff Area = 106,678 sf Runoff Volume = 24,296 cf Average Runoff Depth = 2.73"
76.50% Pervious = 81,609 sf 23.50% Impervious = 25,069 sf

Summary for Subcatchment 1S: Prop Watershed #1 Right Portion of Lot

Runoff = 0.02 cfs @ 12.13 hrs, Volume= 98 cf, Depth= 1.19"

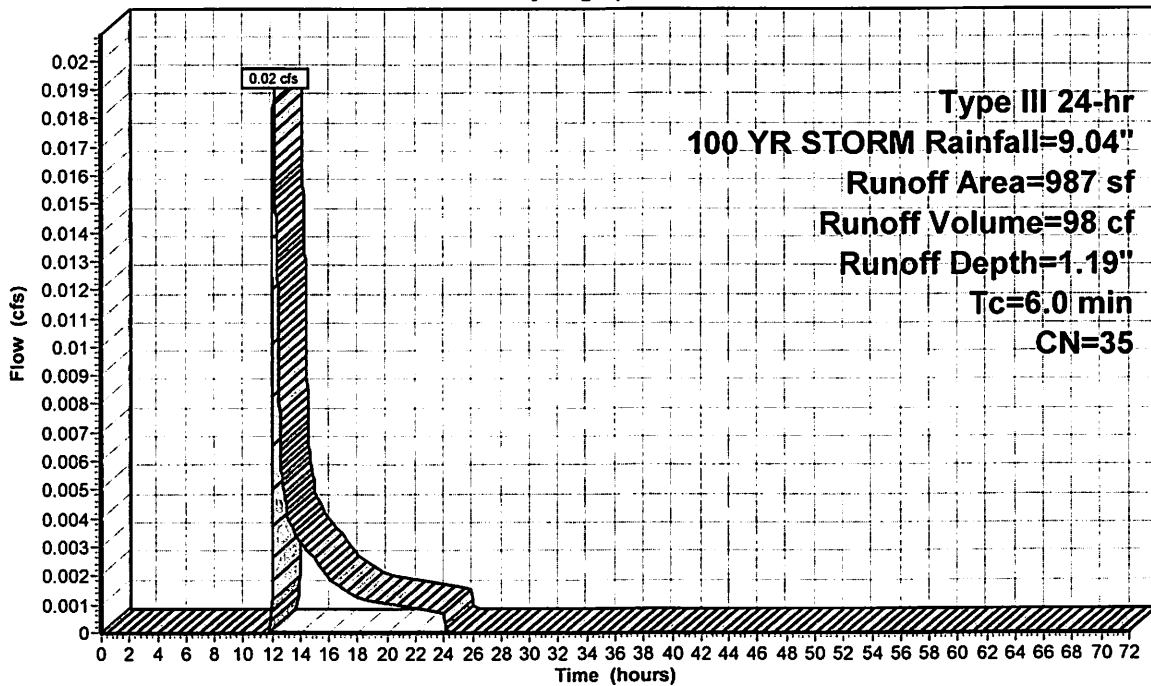
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100 YR STORM Rainfall=9.04"

Area (sf)	CN	Description
434	30	Woods, Good, HSG A
553	39	>75% Grass cover, Good, HSG A
987	35	Weighted Average
987		100.00% Pervious Area

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

Subcatchment 1S: Prop Watershed #1 Right Portion of Lot

Hydrograph



Summary for Subcatchment 2S: Prop Watershed #2 Left Side of Lot

Runoff = 0.10 cfs @ 12.23 hrs, Volume= 745 cf, Depth= 0.98"

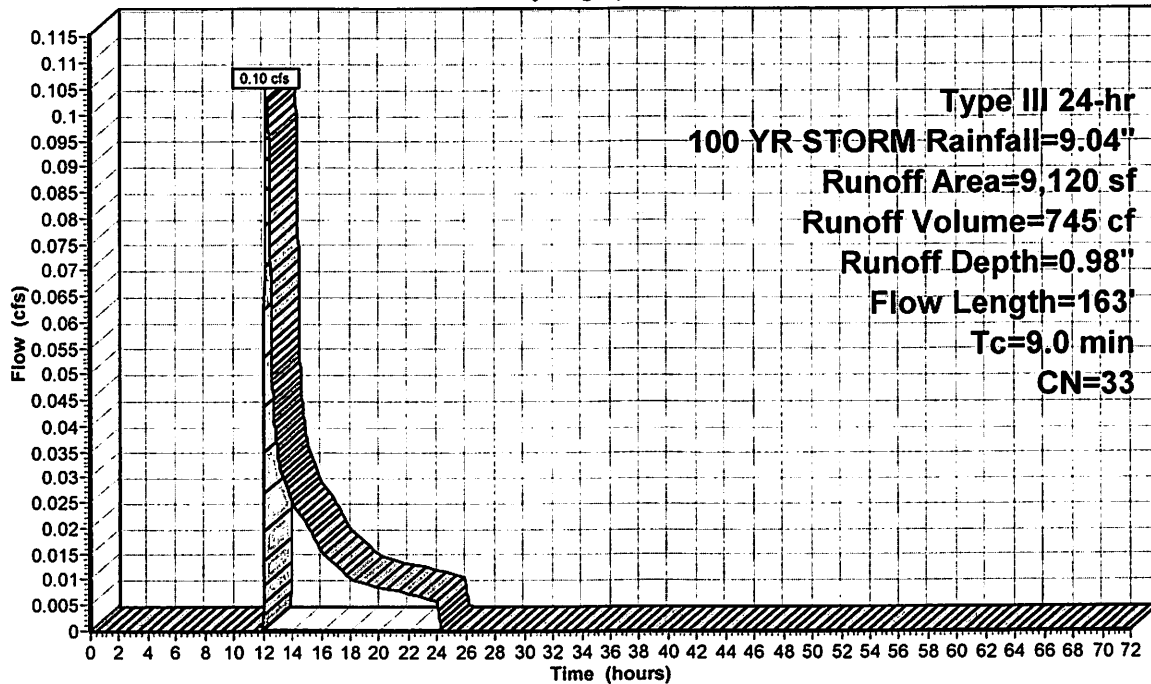
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR STORM Rainfall=9.04"

Area (sf)	CN	Description
5,811	30	Woods, Good, HSG A
3,309	39	>75% Grass cover, Good, HSG A
9,120	33	Weighted Average
9,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.11		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
1.1	113	0.1100	1.66		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
9.0	163	Total			

Subcatchment 2S: Prop Watershed #2 Left Side of Lot

Hydrograph



Runoff

Type III 24-hr
100 YR STORM Rainfall=9.04"
Runoff Area=9,120 sf
Runoff Volume=745 cf
Runoff Depth=0.98"
Flow Length=163'
Tc=9.0 min
CN=33

Summary for Subcatchment 3S: Prop. Watershed #3 Back Left Side of Lot

Runoff = 0.12 cfs @ 12.31 hrs, Volume= 855 cf, Depth= 0.98"

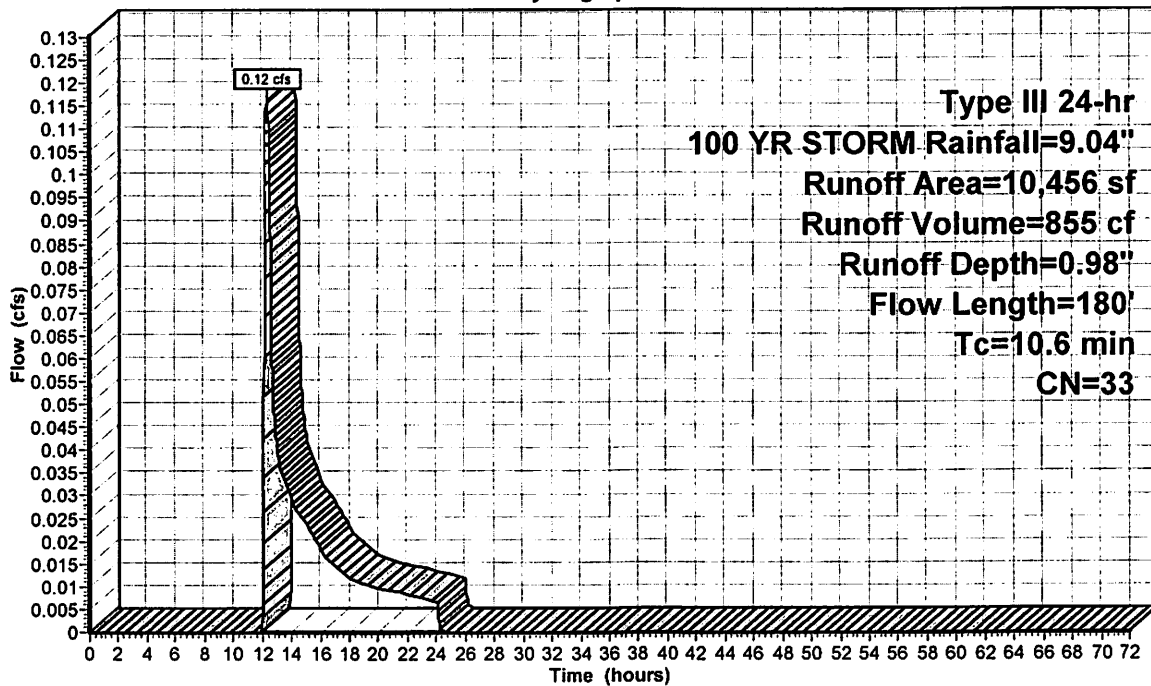
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100 YR STORM Rainfall=9.04"

Area (sf)	CN	Description
7,390	30	Woods, Good, HSG A
3,066	39	>75% Grass cover, Good, HSG A
10,456	33	Weighted Average
10,456		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.25"
1.3	130	0.1200	1.73		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
10.6	180	Total			

Subcatchment 3S: Prop. Watershed #3 Back Left Side of Lot

Hydrograph



Summary for Subcatchment 4S: Prop Watershed #4 Entrance of Driveway

Runoff = 1.05 cfs @ 12.09 hrs, Volume= 3,289 cf, Depth= 3.76"

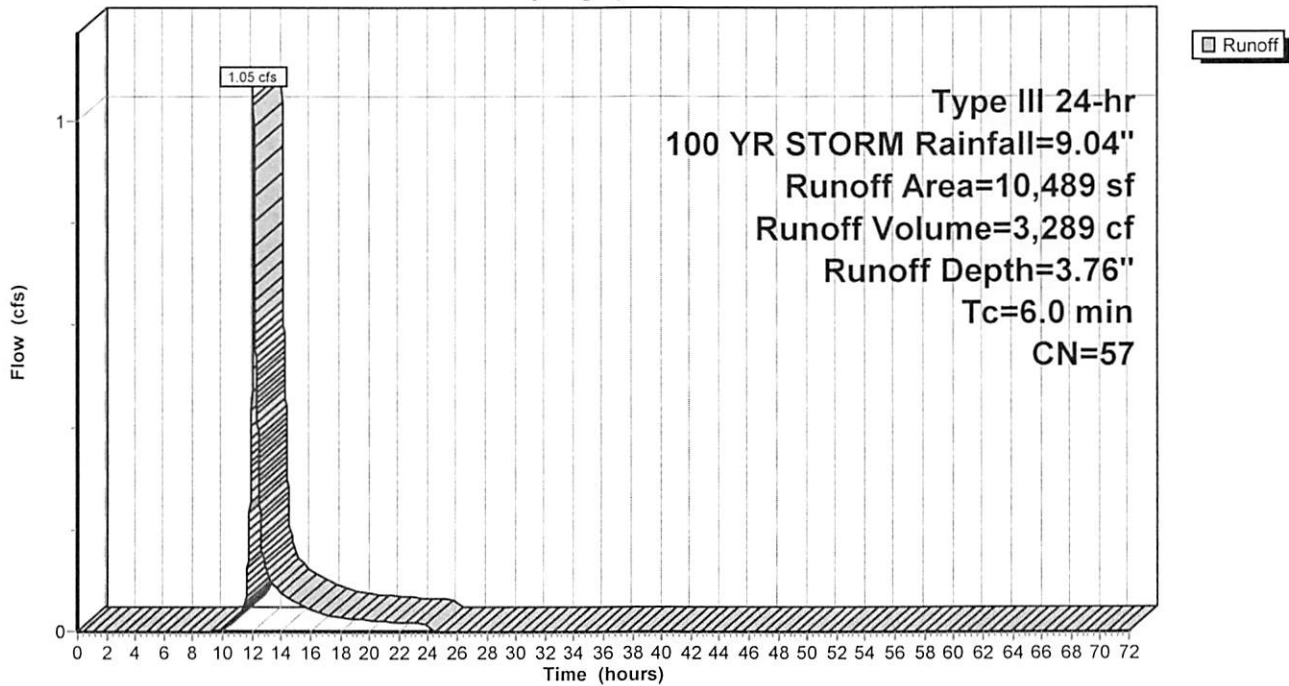
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100 YR STORM Rainfall=9.04"

Area (sf)	CN	Description
5,803	30	Woods, Good, HSG A
540	39	>75% Grass cover, Good, HSG A
4,146	98	Paved parking, HSG A
10,489	57	Weighted Average
6,343		60.47% Pervious Area
4,146		39.53% Impervious Area

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

Subcatchment 4S: Prop Watershed #4 Entrance of Driveway

Hydrograph



Summary for Subcatchment 5S: Prop Watershed #5 Depression & Area off Driveway

Runoff = 0.28 cfs @ 12.13 hrs, Volume= 1,454 cf, Depth= 1.19"

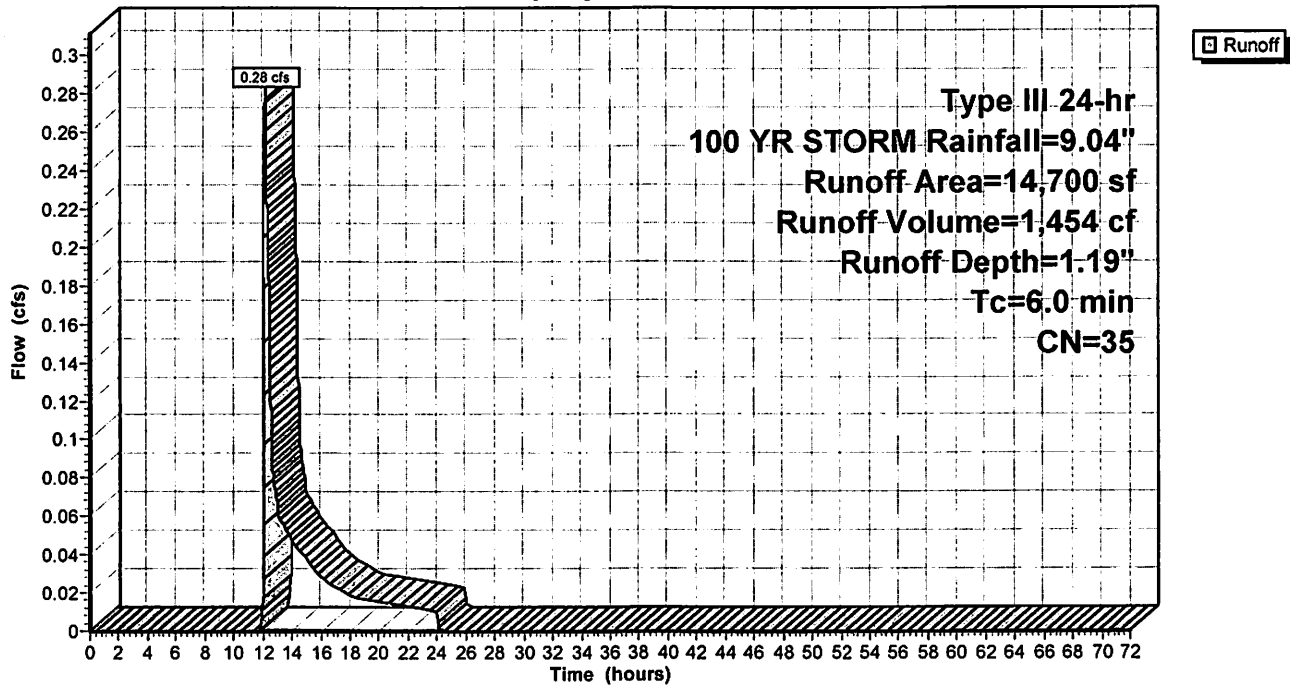
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR STORM Rainfall=9.04"

Area (sf)	CN	Description
11,196	30	Woods, Good, HSG A
2,378	39	>75% Grass cover, Good, HSG A
* 1,126	77	Rip-Rap Slope
14,700	35	Weighted Average
14,700		100.00% Pervious Area

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

Subcatchment 5S: Prop Watershed #5 Depression & Area off Driveway

Hydrograph



Summary for Subcatchment 6S: Prop Watershed #6 Building-Parking

Runoff = 5.64 cfs @ 12.09 hrs, Volume= 17,856 cf, Depth= 3.52"

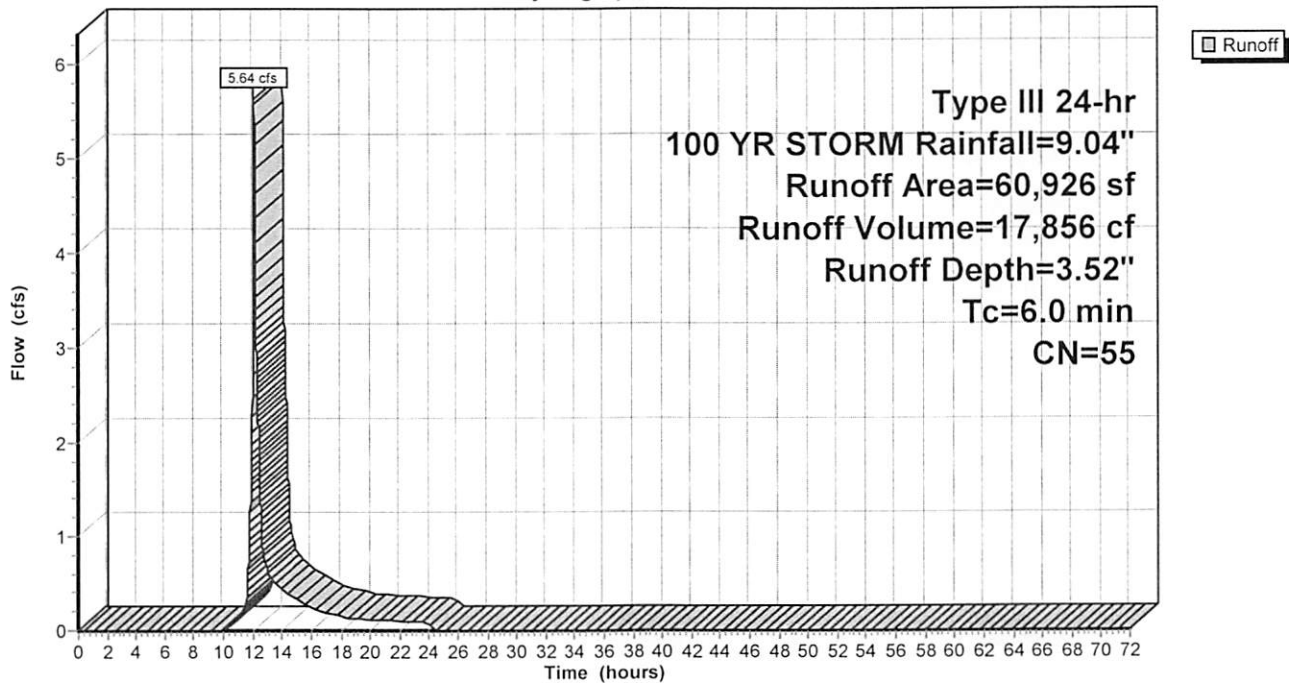
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100 YR STORM Rainfall=9.04"

Area (sf)	CN	Description
28,244	30	Woods, Good, HSG A
11,759	39	>75% Grass cover, Good, HSG A
5,000	98	Unconnected roofs, HSG A
15,923	98	Paved parking, HSG A
60,926	55	Weighted Average
40,003		65.66% Pervious Area
20,923		34.34% Impervious Area
5,000		23.90% Unconnected

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

Subcatchment 6S: Prop Watershed #6 Building-Parking

Hydrograph



Summary for Pond 1P: Existing Depression

Inflow Area = 86,115 sf, 29.11% Impervious, Inflow Depth = 2.99" for 100 YR STORM event
 Inflow = 6.91 cfs @ 12.10 hrs, Volume= 21,464 cf
 Outflow = 0.24 cfs @ 16.83 hrs, Volume= 21,464 cf, Atten= 96%, Lag= 283.8 min
 Discarded = 0.24 cfs @ 16.83 hrs, Volume= 21,464 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 97.38' @ 16.83 hrs Surf.Area= 4,363 sf Storage= 13,670 cf

Plug-Flow detention time= 717.7 min calculated for 21,461 cf (100% of inflow)
 Center-of-Mass det. time= 717.8 min (1,571.9 - 854.0)

Volume	Invert	Avail.Storage	Storage Description
#1	92.00'	21,883 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

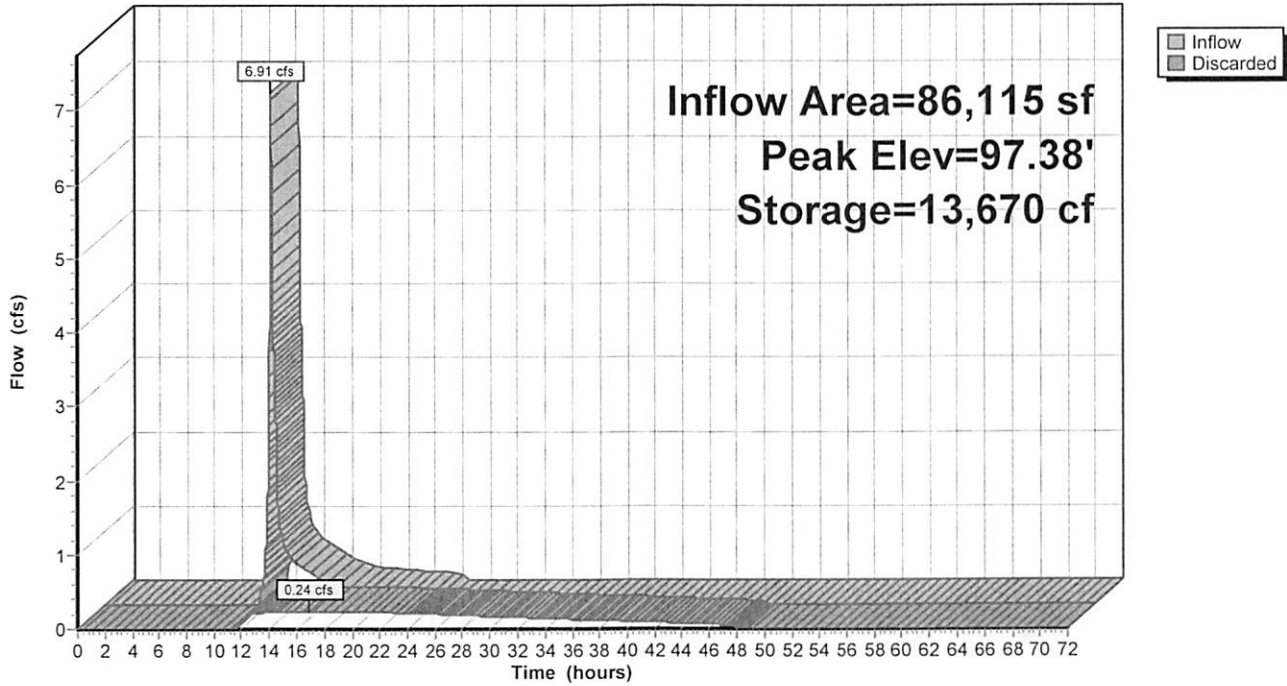
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
92.00	908	0	0
94.00	2,065	2,973	2,973
96.00	3,331	5,396	8,369
98.00	4,829	8,160	16,529
99.00	5,879	5,354	21,883

Device	Routing	Invert	Outlet Devices
#1	Discarded	92.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.24 cfs @ 16.83 hrs HW=97.38' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.24 cfs)

Pond 1P: Existing Depression

Hydrograph



Summary for Pond 2P: Sediment Forebay #1

Inflow Area = 10,489 sf, 39.53% Impervious, Inflow Depth = 3.76" for 100 YR STORM event
 Inflow = 1.05 cfs @ 12.09 hrs, Volume= 3,289 cf
 Outflow = 1.04 cfs @ 12.10 hrs, Volume= 3,289 cf, Atten= 0%, Lag= 0.3 min
 Discarded = 0.00 cfs @ 12.10 hrs, Volume= 305 cf
 Primary = 1.04 cfs @ 12.10 hrs, Volume= 2,984 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 100.12' @ 12.10 hrs Surf.Area= 181 sf Storage= 127 cf

Plug-Flow detention time= 34.7 min calculated for 3,288 cf (100% of inflow)
 Center-of-Mass det. time= 34.8 min (881.0 - 846.2)

Volume	Invert	Avail.Storage	Storage Description
#1	99.00'	206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.00	49	0	0
100.00	162	106	106
100.50	240	101	206

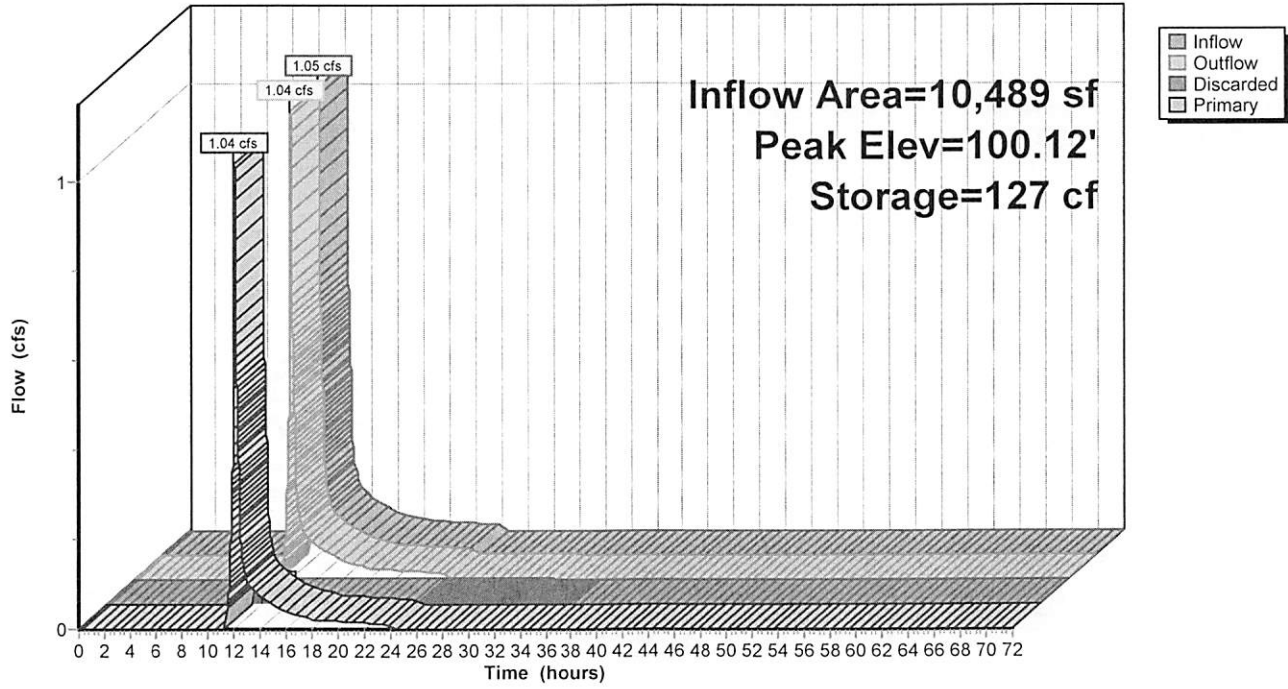
Device	Routing	Invert	Outlet Devices
#1	Discarded	99.00'	1.070 in/hr Exfiltration over Surface area
#2	Primary	100.00'	10.0' long x 4.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66			
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32			

Discarded OutFlow Max=0.00 cfs @ 12.10 hrs HW=100.12' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=1.04 cfs @ 12.10 hrs HW=100.12' (Free Discharge)
 ↳2=Broad-Crested Rectangular Weir (Weir Controls 1.04 cfs @ 0.84 fps)

Pond 2P: Sediment Forebay #1

Hydrograph



Summary for Pond 3P: Sediment Forebay #2

Inflow Area = 60,926 sf, 34.34% Impervious, Inflow Depth = 3.52" for 100 YR STORM event
 Inflow = 5.64 cfs @ 12.09 hrs, Volume= 17,856 cf
 Outflow = 5.62 cfs @ 12.10 hrs, Volume= 17,856 cf, Atten= 0%, Lag= 0.3 min
 Discarded = 0.01 cfs @ 12.10 hrs, Volume= 830 cf
 Primary = 5.61 cfs @ 12.10 hrs, Volume= 17,026 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 99.37' @ 12.10 hrs Surf.Area= 447 sf Storage= 530 cf

Plug-Flow detention time= 26.7 min calculated for 17,854 cf (100% of inflow)
 Center-of-Mass det. time= 26.8 min (877.4 - 850.6)

Volume	Invert	Avail.Storage	Storage Description
#1	97.50'	591 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.50	75	0	0
98.00	247	81	81
99.00	356	302	382
99.50	479	209	591

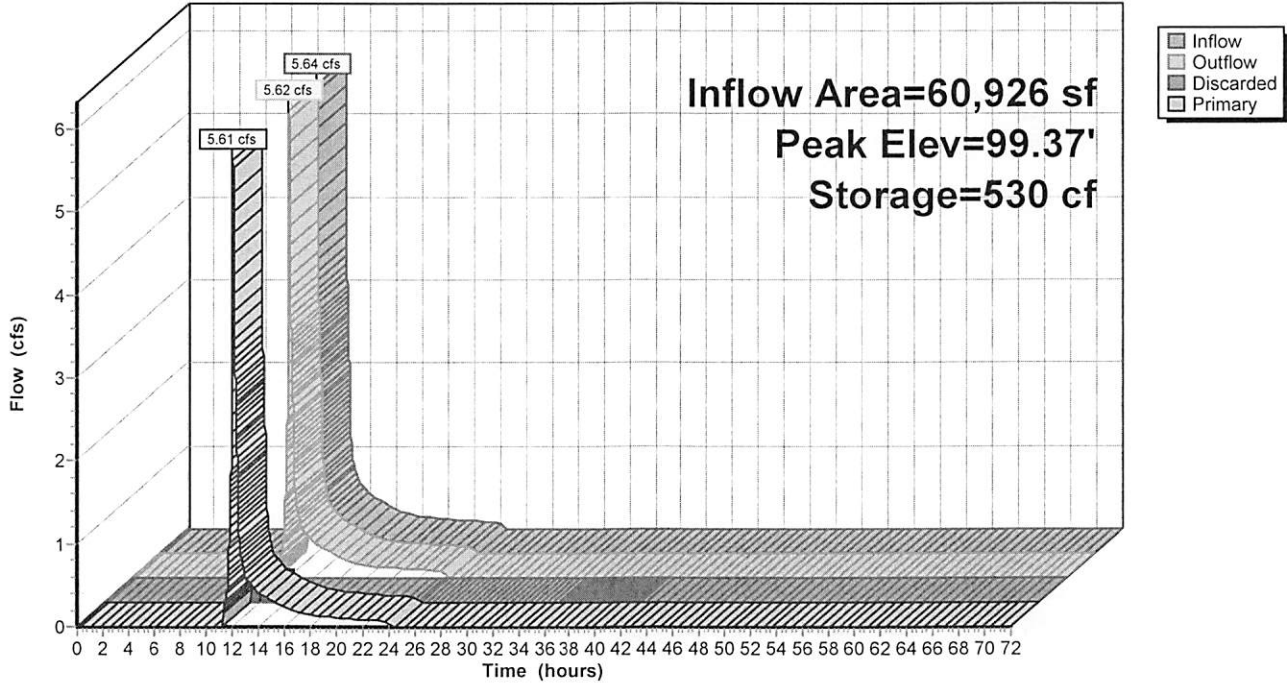
Device	Routing	Invert	Outlet Devices
#1	Discarded	97.50'	1.070 in/hr Exfiltration over Surface area
#2	Primary	99.00'	10.0' long x 4.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66			
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32			

Discarded OutFlow Max=0.01 cfs @ 12.10 hrs HW=99.37' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=5.60 cfs @ 12.10 hrs HW=99.37' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 5.60 cfs @ 1.52 fps)

Pond 3P: Sediment Forebay #2

Hydrograph



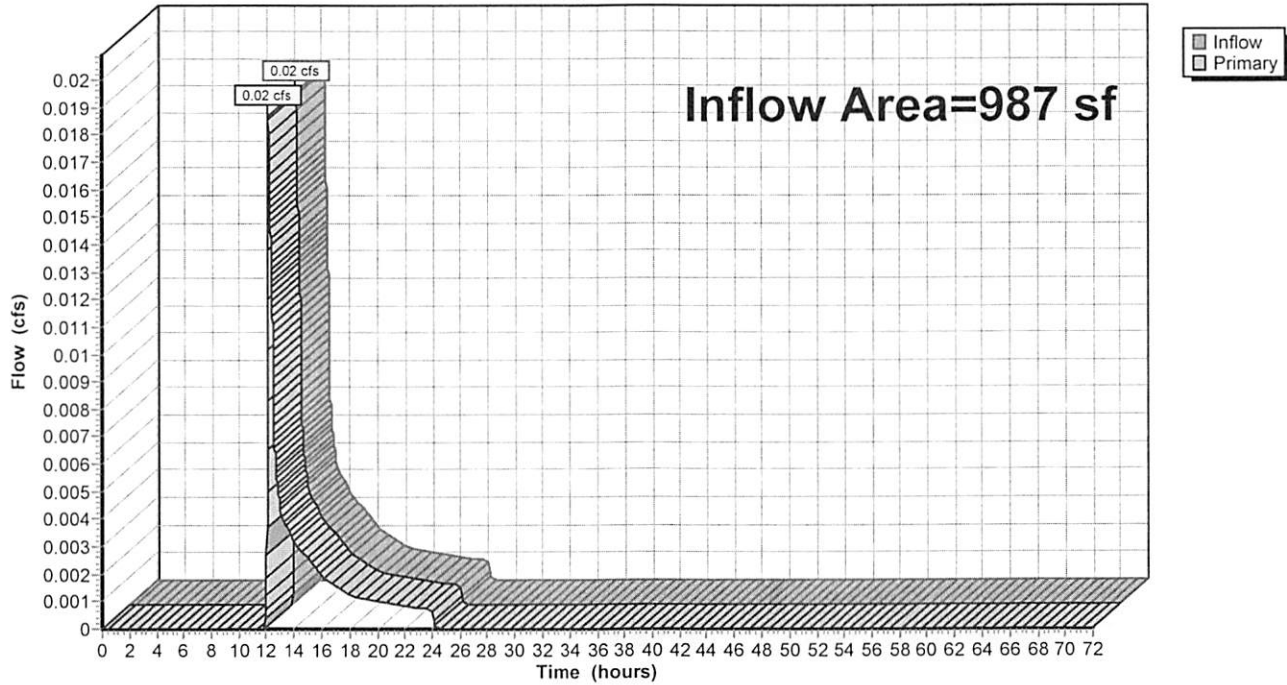
Summary for Link DP1: DP #1

Inflow Area = 987 sf, 0.00% Impervious, Inflow Depth = 1.19" for 100 YR STORM event
Inflow = 0.02 cfs @ 12.13 hrs, Volume= 98 cf
Primary = 0.02 cfs @ 12.13 hrs, Volume= 98 cf, Atten= 0%, Lag= 0.0 min

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

Link DP1: DP #1

Hydrograph



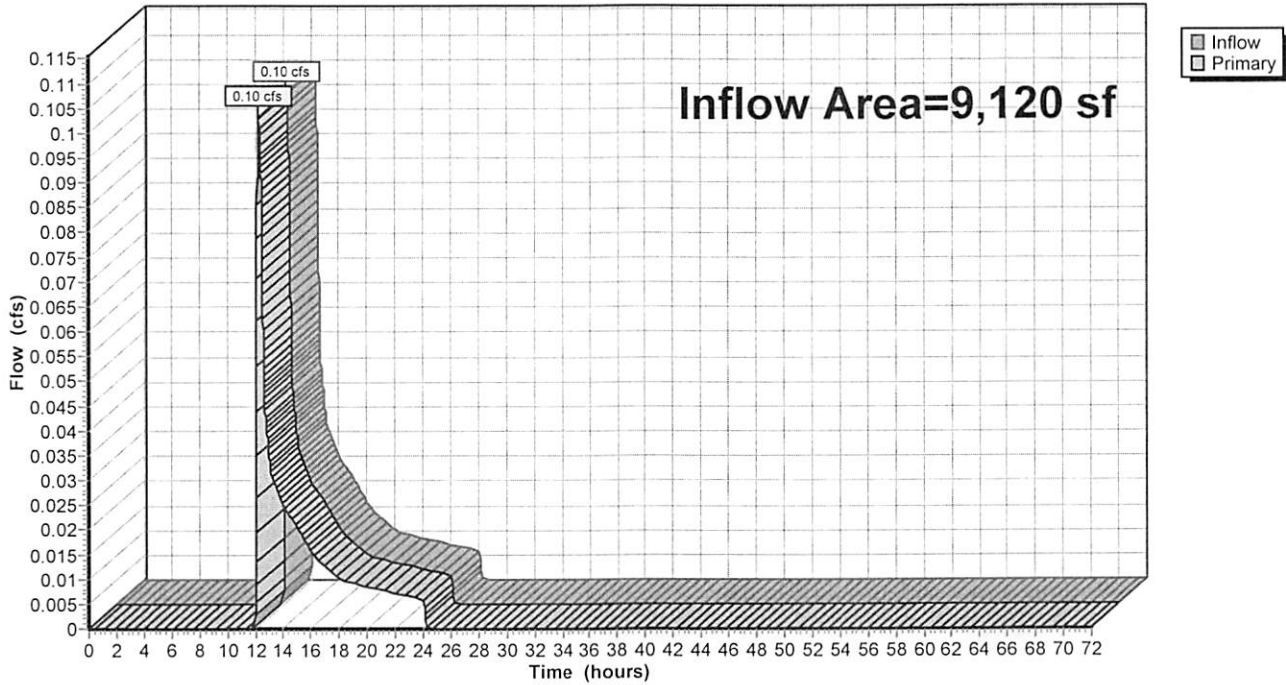
Summary for Link DP2: DP #2

Inflow Area = 9,120 sf, 0.00% Impervious, Inflow Depth = 0.98" for 100 YR STORM event
Inflow = 0.10 cfs @ 12.23 hrs, Volume= 745 cf
Primary = 0.10 cfs @ 12.23 hrs, Volume= 745 cf, Atten= 0%, Lag= 0.0 min

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

Link DP2: DP #2

Hydrograph



Summary for Link DP3: DP #3

Inflow Area = 10,456 sf, 0.00% Impervious, Inflow Depth = 0.98" for 100 YR STORM event
Inflow = 0.12 cfs @ 12.31 hrs, Volume= 855 cf
Primary = 0.12 cfs @ 12.31 hrs, Volume= 855 cf, Atten= 0%, Lag= 0.0 min

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

Link DP3: DP #3

Hydrograph

