# Merrikin Engineering, LLP

*Consulting Engineers*

730 MAIN STREET
SUITE 2C
**MILLIS, MA 02054**
TELEPHONE (508) 376-8883


May 11, 2017

Westwood Conservation Commission
50 Carby Street
Westwood, MA 02090

Ref: Lot 3A Phillips Way
Land Disturbance Permit Application

Dear Members of the Commission,

In accordance with Section 350 the Westwood General Bylaws and on behalf of the applicant, Keith Fengler, we are pleased to submit the enclosed Land Disturbance Permit Application for Lot 3A Phillips Way. Please find the following enclosed in support of the application:

- A fully executed Application Form;
- A certified list of abutters within 300 feet of the property with a copy of the abutter notification sent certified mail May 11th;
- Three copies of the Site Plan;
- Three copies of the Stormwater Report (the site plan and stormwater report collectively comprise the Stormwater Management Plan, the Erosion and Sediment Control Plan; and the Operation and Maintenance Plan); and
- A check in the amount of $1,000.00 payable to the Town of Westwood for the application fee.

Please do not hesitate to contact me if you have any questions or comments.

Yours Truly,

MERRIKIN ENGINEERING, LLP

Digitally signed by Daniel J. Merrikin, P.E.
Date: 2017.05.11 08:45:27 -04'00'

Daniel J. Merrikin
Partner

cc: Westwood Town Clerk – with a copy of the application and abutters notice and list
Keith Fengler (by email)

## Land Disturbance Permit Application

To Stormwater Authority:

The undersigned wishes to submit a Land Disturbance Permit Application as defined in the Zoning By-Laws of the Town of Westwood Section 350 and requests a review and determination by the Stormwater Authority of said Land Disturbance Plan.

The Land Disturbance Plan involves property where owner's title to the land is derived under deed from **The PJMJ LLC**, dated **10/28/2016**, and recorded in the Norfolk County Registry of Deeds, Book **34614**, Page **81**, or Land Court Certificate of Title No. ___, Registered in _____ District, Book _____, Page

Give a brief summary of the nature of the project.

**The applicant proposes to construct of a single family home with asscociated driveway, utility connections and landscaping on an existing undeveloped lot.**

The property (building) is described as being located at **Lot 3A Phillips Way**; it is currently used as **a vacant wooded lot** and the changes proposed to be made are **to partially clear and regrade**.

The project is located on the parcel shown on Assessors Map **40**, Parcel **189**.

Applicant's Signature _____ Owner's Signature(s) _____

Applicant's Name (print) **Keith Fengler** Owner's Names(s) **Keith & Ariel Fengler**

Applicant's Address **19 High Rock St. Westwood, MA 02090** Owner's Address **19 High Rock St. Westwood, MA 02090**

Date Received by Town Clerk: _____

Signature _____

Please note: 1) An applicant for a Land Disturbance Plan Review must file with the Stormwater Authority a completed Land Disturbance Permit Package (see Land Disturbance Permit Application Checklist) 2) The applicant shall also file a copy of the Land Disturbance Plan and the application with the Town Clerk. The date of receipt by the Town Clerk shall be the official filing date.

# NOTICE TO ABUTTERS
# Under the General Bylaw of the Town of Westwood
# Section 350 Stormwater Management

The Westwood Conservation Commission will hold a public hearing, under Section 350 of the Westwood General Bylaw

Date: June 14, 2017

Time: 7:00 pm

Place: Carby Street Municipal Office Building (Champagne Meeting Room)
50 Carby Street
Westwood, MA

A Stormwater/Land Disturbance permit is requested by Keith Fengler

The property is located at Lot 3A Phillips Way known as assessors map 40, parcel 189.

A complete copy of this filing is available to the public at the Westwood Conservation Commission office. Notice of the Conservation Commission meeting is posted in the Town Hall not less than 48 hours in advance as required by

Open Meeting Law.

# TOWN OF WESTWOOD

**BOARD OF ASSESSORS**

580 High St.
Westwood, Ma. 02090

Maureen Bleday
Michael P. Krone
Mark F. Murphy

phone: 781-326-1904
fax: 781-251-2588

*May 2, 2017*

*Keith G Fengler*
*Ariel D Fengler*
*19 High Rock Street*
*Westwood, Mass 02090*

*Dear Keith & Ariel,*

*Attached please find a list of abutters to abutters within 300' of the locus, Phillips Way, Westwood, Mass known as Assessor's Map 40, 189.*

*This list reflects owners of record as of January 1, 2017 or current owners, according to our records.*

*Sincerely,*

*Michael Krone*
*Assessor*

*djr*

# ABUTTERS FOR PHILLIPS WAY


MAP 40, LOT 189

WESTWOOD BOARD OF ASSESSORS

N
W E
S

# ABUTTERS LIST FOR PHILLIPS WAY
# WESTWOOD, MA

| MAP & LOT | OWNER | CO-OWNER | Mailing Address | City | St Zip | Location |
|---|---|---|---|---|---|---|
| 39001 | FERNANDEZ CARLOS A | JACQUELINE C PULIDO | 169 MARGERY LN | WESTWOOD | MA 02090 | 169 MARGERY LN |
| 39029 | THE PJMJ LLC | C/O PHILLIP ERAMO JR | 54 BUCKMASTER RD | WESTWOOD | MA 02090 | PHILLIPS WAY |
| 39030 | FERNANDEZ CARLOS A | JACQUELINE C PULIDO | 169 MARGERY LN | WESTWOOD | MA 02090 | PHILLIPS WAY |
| 39031 | NASSIF CARLOS G | FADIA CHAHINE | 12 PETTEES POND LN | WESTWOOD | MA 02090 | 12 PETTEES POND LN |
| 39032 | ARGIROS ALEXANDER A TRUST | 4 PETTEES POND LANE NOMIN | 16 PETTEES POND LN | WESTWOOOD | MA 02090 | 16 PETTEES POND LN |
| 39033 | KONNIKOV MICHAEL | ANNA BELIAEVA | 15 PETTEES POND LN | WESTWOOD | MA 02090 | 15 PETTEES POND LN |
| 40016 | JOHN J. CRONIN, JR. | CAROLYNNE M. CRONIN | 185 MARGERY LN | WESTWOOD | MA 02090 | 185 MARGERY LN |
| 40017 | THE PJMJ LLC | C/O PHILLIP ERAMO JR | 54 BUCKMASTER ROAD | WESTWOOD | MA 02090 | PHILLIPS WAY |
| 40187 | CROSSHAVEN PARTNERS V,LLC | | 185 MARGERY LN | WESTWOOD | MA 02090 | 4 PHILLIPS WAY |
| 40188 | THE PJMJ LLC | C/O PHILLIP ERAMO JR | 54 BUCKMASTER ROAD | WESTWOOD | MA 02090 | PHILLIPS WAY |
| 40189 | FENGLER KEITH G | ARIEL D FENGLER | 19 HIGH ROCK STREET | WESTWOOD | MA 02090 | PHILLIPS WAY |

39001
FERNANDEZ CARLOS A
JACQUELINE C PULIDO
169 MARGERY LN
WESTWOOD, MA 02090

39029
THE PJMJ LLC
C/O PHILLIP ERAMO JR
54 BUCKMASTER RD
WESTWOOD, MA 02090

39030
FERNANDEZ CARLOS A
JACQUELINE C PULIDO
169 MARGERY LN
WESTWOOD, MA 02090

39031
NASSIF CARLOS G
FADIA CHAHINE
12 PETTEES POND LN
WESTWOOD, MA 02090

39032
ARGIROS ALEXANDER A TRUSTEE
4 PETTEES POND LANE NOMINEE TR
16 PETTEES POND LN
WESTWOOOD, MA 02090

39033
KONNIKOV MICHAEL
ANNA BELIAEVA
15 PETTEES POND LN
WESTWOOD, MA 02090

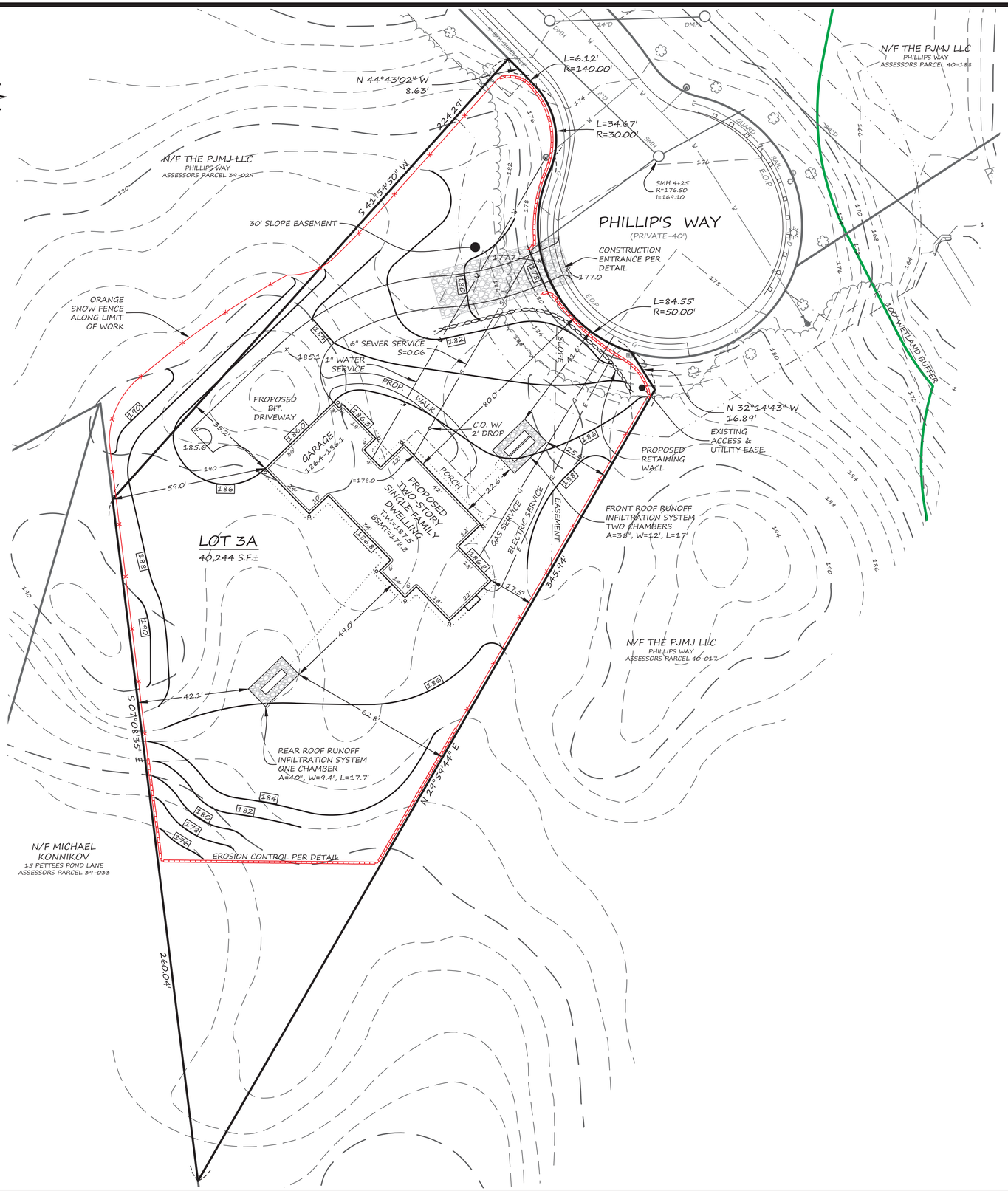
40016
JOHN J. CRONIN, JR.
CAROLYNNE M. CRONIN
185 MARGERY LN
WESTWOOD, MA 02090

40017
THE PJMJ LLC
C/O PHILLIP ERAMO JR
54 BUCKMASTER ROAD
WESTWOOD, MA 02090

40187
CROSSHAVEN PARTNERS V,LLC
185 MARGERY LN
WESTWOOD, MA 02090

40188
THE PJMJ LLC
C/O PHILLIP ERAMO JR
54 BUCKMASTER ROAD
WESTWOOD, MA 02090

40189
FENGLER KEITH G
ARIEL D FENGLER
19 HIGH ROCK STREET
WESTWOOD, MA 02090




## OWNER/APPLICANT:

ARIEL & KEITH FENGLER
19 HIGH ROCK STREET
WESTWOOD, MA 02090

## ASSESSORS REFERENCE:

MAP 40 PARCEL 189

## ZONING DISTRICTS:

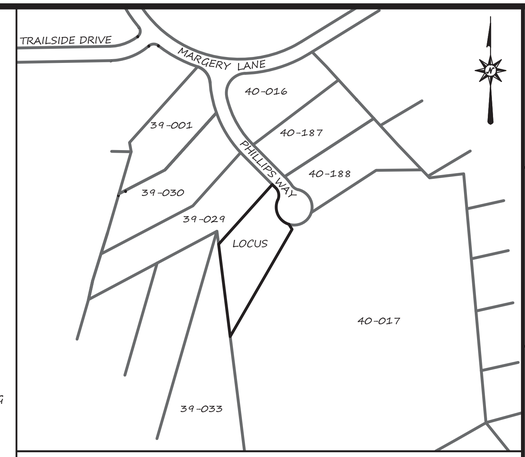
SINGLE RESIDENCE C

## PLAN & DEED REFERENCES:

1. DEED: 34614-81
2. PLAN: 586-5

## ZONING REQUIREMENTS:

MIN. LOT AREA: 40,000 S.F.
PROVIDED: 40,244 S.F.
MIN. LOT FRONTAGE: 125'
PROVIDED: 134.0'
MIN. LOT WIDTH: 125'
PROVIDED: 125'
MIN. NON-WETLAND AREA: 30,000 S.F.
PROVIDED: 40,242 S.F.
MIN. FRONT SETBACK: 40'
PROVIDED: 80.0'
MIN. SIDE SETBACK: 20', OR 15' FOR ANY PORTION OF BUILDING NOT EXCEEDING 15' IN HEIGHT (LATTER APPLIES).
PROVIDED: 17.5'
MIN. REAR SETBACK: 30'
PROVIDED: 59.0'
MAX. BUILDING HEIGHT: 25'+1' PER ADDITIONAL FOOT OF SETBACK.
25'+2.5'=27.5'
PROVIDED: 27.4'
MAX. BUILDING COVERAGE: 25%
PROVIDED: 8.2%
MAX. IMPERVIOUS COVERAGE: 50%
PROVIDED: 15.4%




WESTWOOD ASSESSORS LOCUS
SCALE: 1" = 200'

## EXISTING CONDITION NOTES:

1. THE LOCATION OF EXISTING UTILITIES IS BASED ON AVAILABLE INFORMATION SUCH AS SURFACE FEATURES AND RECORD PLANS. THE SHOWN UTILITY LOCATIONS ARE APPROXIMATE, ARE NOT WARRANTED TO BE CORRECT, AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL CONTACT DIGSAFE PRIOR TO CONDUCTING ANY EXCAVATION ON THE SITE.
3. OFFSITE FEATURES SUCH AS BUILDING, PAVING LIMITS, UTILITIES, ETC., ARE APPROXIMATE ONLY AND BASED ON MASSGIS AERIAL PHOTOGRAPHS.
4. OFFSITE UTILITY INVERTS, SIZES, AND MATERIALS FROM AVAILABLE RECORD PLANS.
5. ELEVATIONS ARE ON THE NAVD 29 DATUM.
6. THERE ARE NO WETLANDS AREAS WITHIN 100 FEET OF THE LOT.
7. THIS LOT DOES NOT LIE WITHIN THE 100-YEAR FEMA FLOOD PLAIN AS DEPICTED ON THE LATEST F.I.R.M. MAP.

## CONSERVATION NOTES:

1. EROSION CONTROLS AND THE CONSTRUCTION ENTRANCE SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR CLEARING AND SHALL BE MAINTAINED IN GOOD CONDITION UNTIL THE SITE IS FULLY STABILIZED.
2. ROADWAY SHALL BE MONITORED BY THE CONTRACTOR FOR SEDIMENTATION AND DAMAGE FROM TRUCK OPERATIONS. PROVIDE CORRECTIVE MEASURES AS NEEDED.

## SITE DEVELOPMENT NOTES:

1. THE USE OF FILL CONTAINING HAZARDOUS MATERIALS OR WASTE IS FORBIDDEN.
2. THE MARKING OF THE LIMITS OF WORK IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OR SITE CLEARING IS REQUIRED.
3. SIGNIFICANT TREES, INCLUDING THEIR BRANCHES AND THEIR ROOT SYSTEMS, SHALL BE PROTECTED WITH SHIELDS, FENCES, OR BARRIERS.
4. THE CLEANING OF CATCH BASIN SUMPS AND STORMWATER BASINS IS REQUIRED FOLLOWING CONSTRUCTION AND ACCORDING TO ANY OPERATIONS AND MAINTENANCE PLAN THEREAFTER.
5. THE USE OF CONSTRUCTION MACHINERY IS RESTRICTED TO THE HOURS BETWEEN 7:00 AM AND 7:00 PM, MONDAY THROUGH SATURDAY, AND TO THE HOURS BETWEEN 12:00 NOON AND 7:00 PM ON SUDAY, AS REQUIRED IN THE TOWN OF WESTWOOD GENERAL BYLAWS, ARTICLE 10, SECTION 24.

## GRADING & UTILITY NOTES:

1. MERRIKIN ENGINEERING RECOMMENDS THE USE OF FOUNDATION DRAINS.
2. ROOF RUNOFF SYSTEM SHALL BE INSPECTED BY THE WESTWOOD DPW AND DESIGN ENGINEER AT ROUGH EXCAVATION AND PRIOR TO BACKFILL. CONTRACTOR TO COORDINATE INSPECTIONS.
3. SEWER SERVICE TO BE SDR35.
4. WATER SERVICE TO BE TYPE K COPPER.
5. IF REQUIRED BY THE PLANNING BOARD PERMIT, PROVIDE CERTIFICATION SHOWING IMPORTED MATERIAL MEETS HAZARDOUS WASTE REQUIREMENTS IN § 7.1.5 OF THE ZONING BYLAW.

## LEGEND & ABBREVIATIONS

- CB: CATCH BASIN
- STC xxx: STORMCEPTOR TREATMENT UNIT
- DMH: DRAIN MANHOLE
- TR. DR.: TRENCH DRAIN
- INFIL. TR.: INFILTRATION TRENCH
- X" D —— DRAIN PIPELINE
- RCP: REINFORCED CONCRETE PIPE
- PVC: POLYVINYL CHLORIDE PIPE
- SMH: SEWER MANHOLE
- X" S —— SEWER PIPELINE
- SC.O.: SEWER SERVICE CLEANOUT
- X" W —— WATER MAIN
- HYD: HYDRANT
- G.V.: WATER GATE VALVE
- C.S.: WATER SERVICE CURB STOP
- G —— GAS PIPELINE
- L.P.: LIGHT POLE
- U.P.: UTILITY POLE
- S.P.: TRAFFIC SIGNAL POLE
- 252 —— EXISTING CONTOUR
- 252 —— PROPOSED CONTOUR

| | |
|---|---|
| E.O.P. | EDGE OF PAVEMENT |
| C.C.B. | CAPE COD BITUMINOUS BERM |
| V.B.B. | VERTICAL BITUMINOUS BERM |
| S.G.C. | SLOPED GRANITE CURB |
| V.G.C. | VERTICAL GRANITE CURB |
| V.C.C. | VERTICAL CONCRETE CURB |
| E.C.S. | EDGE CONCRETE SLAB |
| G.V. | GATE VALVE |
| C.L.F. | CHAIN LINK FENCE |

COMMONWEALTH OF MASSACHUSETTS
DANIEL J. MERRIKIN
CIVIL
No. 43309
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Daniel J. Merrikin, P.E.
Date: 2017.05.09 12:29:55 -04'00'

PLAN SCALE: 1"=20'
0 20 40 80

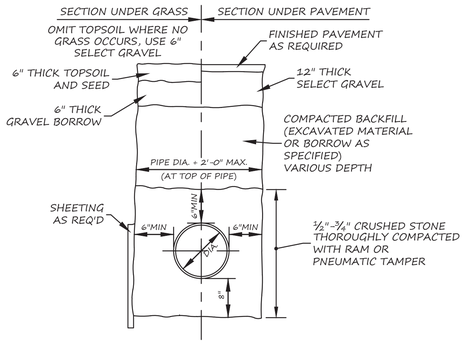
| BY | DATE | REVISION |
|---|---|---|

PLAN DATE: MAY 8, 2017

LOT 3A
PHILLIPS WAY
PLAN OF LAND
IN
WESTWOOD, MA

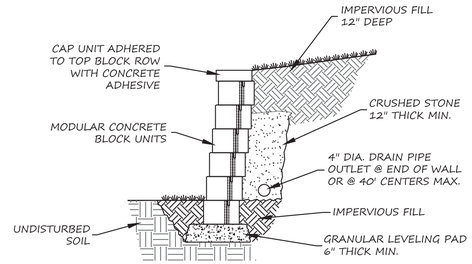
MERRIKIN ENGINEERING, LLP
730 MAIN STREET, SUITE 2C
MILLIS, MA 02054
Phone: 508-376-8883

D126-01 | SHEET 1 OF 2




## TYPICAL SEWER TRENCH

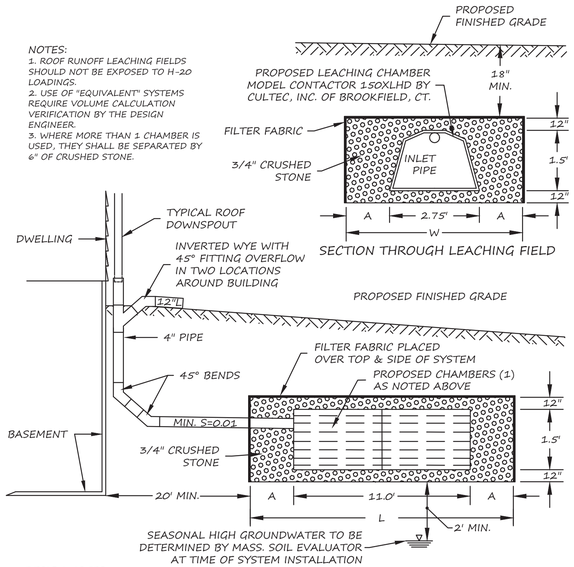
NOT TO SCALE




NOTES:
1. SMALL BLOCK UNITS SHALL BE THE SQUARE FOOT PRODUCT BY VERSA-LOK OR APPROVED EQUAL. WALL HEIGHT WITHOUT REINFORCEMENT SHALL BE LIMITED TO 3.5' EXPOSED FACE.
2. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

## TYPICAL "SMALL BLOCK" RETAINING WALL

NOT TO SCALE

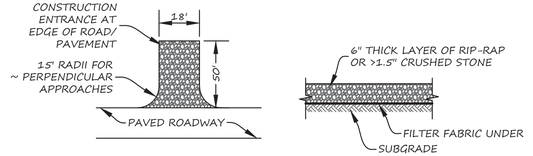



NOTES:
1. ROOF RUNOFF LEACHING FIELDS SHOULD NOT BE EXPOSED TO H-20 LOADINGS.
2. USE OF "EQUIVALENT" SYSTEMS REQUIRE VOLUME CALCULATION VERIFICATION BY THE DESIGN ENGINEER.
3. WHERE MORE THAN 1 CHAMBER IS USED, THEY SHALL BE SEPARATED BY 6" OF CRUSHED STONE.

DESIGN NOTES:
1. EACH ROOF RUNOFF LEACHING SYSTEM WAS DESIGNED TO CAPTURE 2-INCHES OF RUNOFF FROM THE ROOF AREA OF THE PROPOSED HOUSE SHOWN ON THIS PLAN (APPROX. 1,826 S.F. FRONT, 1,475 S.F. BACK).
2. THE COMPLETED ROOF RUNOFF COLLECTION SYSTEM MUST COLLECT RUNOFF FROM THE ENTIRE ROOF AREA OF THE PROPOSED HOUSE.
3. PIPING FOR THE ROOF DOWNSPOUT COLLECTION SYSTEM MAY BE SCHEDULE 40 PVC OR HDPE.

## ROOF RUNOFF LEACHING FIELD

NOT TO SCALE



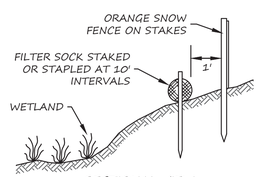

PLAN VIEW

SECTIONAL VIEW

NOTES:
1. ENTRANCE SHALL BE INSTALLED BEFORE ANY EXCAVATION WORK OCCURS ON-SITE.
2. ENTRANCE SHALL BE MAINTAINED IN GOOD CONTITION UNTIL A PAVED DRIVEWAY IS INSTALLED. REPLACE ENTRANCE IF FILLED WITH SOILS OR IF SOILS ARE BEING TRACKED ONTO ADJACENT ROADWAYS.

## CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE




SECTIONAL VIEW

NOTE: NON-BIODEGRADABLE SOCK SHELL FILLED WITH ~~FILTER~~ MEDIA (BIODEGRADABLE OR OTHERWISE). JOINTS SHALL BE OVERLAPPED BY AT LEAST TWO FEET.

## EROSION CONTROL DETAIL (FILTER SOCK)

NOT TO SCALE

OWNER/APPLICANT:
ARIEL & KEITH FENGLER
19 HIGH ROCK STREET
WESTWOOD, MA 02090

ASSESSORS REFERENCE:
MAP 40 PARCEL 189

ZONING DISTRICTS:
SINGLE RESIDENCE C

PLAN & DEED REFERENCES:

1. DEED: 34614-81
2. PLAN: 586-5

COMMONWEALTH OF MASSACHUSETTS
DANIEL J. MERRIKIN
CIVIL
No. 43309
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Daniel J. Merrikin, P.E.
Date: 2017.05.09 12:30:12 -04'00'

| REVISION | DATE | BY |
|---|---|---|

PLAN DATE: MAY 8, 2017

LOT 3A PHILLIPS WAY
DETAILS
SHEET
IN
WESTWOOD, MA

MERRIKIN ENGINEERING, LLP
730 MAIN STREET, SUITE 2C
MILLIS, MA 02054
Phone: 508-376-8883

D126-01 | SHEET 2 OF 2

# Stormwater Report

For

# *Lot 3A*

# *Phillips Way*

Westwood, MA

*Proposed Single-Family Dwelling*

May 8, 2017


PREPARED BY:
MERRIKIN ENGINEERING, LLP
Consulting Engineers
730 Main Street, Suite 2C
Millis, MA 02054


Prepared For:
Ariel & Keith Fengler
67 West Street
Medfield, MA 02052

VOLUME 1 OF 1


Digitally signed by Daniel J. Merrikin, P.E.
Date: 2017.05.09 12:24:26 -04'00'

# TABLE OF CONTENTS

# INTRODUCTION

This report presents a description along with supporting calculations for the stormwater runoff treatment and mitigation systems for the proposed single-family house on a vacant lot on Phillips Way as presented on a plan set entitled "Lot 3A Phillips Way Site Plan of Land in Westwood, MA." prepared by Merrikin Engineering, LLP with an original date of April 28, 2017.

# EXISTING SITE

The existing site consists of approximately 0.92 acres of woods.

## SOILS

According to the NRCS soil report, the entire site is comprised of Charlton-Hollis Soils (Class B). This is confirmed by the recent roadway construction activities.

## GROUNDWATER CONDITIONS

Based on our past experience with the property associated with the roadway construction, groundwater is expected to be at least 10 feet below grade.

## SOIL PERMEABILITY

For the purpose of this report, soils are conservatively assumed to be a sandy loam, with a Rawl's rate of 1.02 inches per hour.

## FLOOD PLAIN

The site does not lie within a flood plain.

## WETLAND PROTECTION ACT

The site does not contain wetland resource areas.

# PROPOSED DEVELOPMENT

The proposed construction consists of one single family residence along with associated driveways, landscaping, utility connections, and stormwater management systems.

# MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS

Although the MassDEP stormwater Management Standards do not apply under the Wetlands Protection Act because this project only consists of one lot, compliance with the standards is required by Section 5 of the Westwood Stormwater Regulations (Note that certain MassDEP requirements are modified by the Westwood regulations). As such, below is a summary discussion for each of the 10 standards.

## STANDARD 1 - New Stormwater Conveyances

*No New Stormwater Conveyances (e.g. outfalls) May Discharge Untreated Stormwater Directly to or Cause Erosion in Wetlands or Waters of the Commonwealth.*

The discharge from the proposed development has already been accounted for in the existing stormwater basin design for the subdivision.

## STANDARD 2 – Peak Discharge Rates

*Stormwater Management Systems shall be designed so that the Post-Development Peak Discharge Rates does not Exceed Pre-Development Peak Discharge Rates.*

The subdivision stormwater management system addresses peak rate of runoff requirements. In addition, roof runoff recharge systems are proposed on the lot.

Although mitigated by the subdivision stormwater management system, peak rate analysis for the lot has been performed using a program called Hydrocad, which employs the TR-20 modeling system. Four storms were analyzed. The DEP Stormwater Management Policy indicates that the 2 and 10 year storms should be considered for peak rates and the 100-year storm for flooding considerations. Westwood further requires that the 25-year storm be considered. The following four theoretical storm events were used to model the site before and after the proposed activities occur[1]:

[1] Westwood requires the use of the so-called Cornell rainfall rates.

| Design Storm | Rainfall |
|---|---|
| 2-Year | 3.2 inches |
| 10-Year | 4.9 inches |
| 25-Year | 6.0 inches |
| 100-Year | 8.5 inches |

## DESIGN POINT: Mill Brook

*Description of Existing Conditions:* In the existing condition, Watershed E-1 discharges overland runoff to the Mill Brook on the East side of the property. The entirety of the watershed consists of woods.

*Description of Proposed Conditions:* The proposed condition introduces a small amount of roof runoff that is collected into underground infiltration fields. A portion of the woods will be converted to grass cover.

*Summary of Peak Flow Rates to Design Point:*

| Design Storm (Year) | Peak Runoff Rate (cfs) | | Volume (Acre-ft) | |
|---|---|---|---|---|
| | Existing | Proposed | Existing | Proposed |
| 2 | 0.03 | 0.04 | 0.006 | 0.006 |
| 10 | 0.21 | 0.21 | 0.02 | 0.02 |
| 25 | 0.39 | 0.36 | 0.04 | 0.03 |
| 100 | 0.87 | 0.73 | 0.07 | 0.06 |

These calculations indicate that the development will have no significant adverse impact on the hydrology of the area or on downstream properties.

## DESIGN POINT: Assessor's Parcel 39-033

*Description of Existing Conditions:* In the existing condition, Watershed E-2 discharges overland runoff to the neighboring property on the West side of the property. The entirety of the watershed consists of woods.

*Description of Proposed Conditions:* The proposed condition introduces a small amount of roof runoff that is collected into underground infiltration fields. A portion of the woods will be converted to grass cover.

*Summary of Peak Flow Rates to Design Point:*

| Design Storm (Year) | Peak Runoff Rate (cfs) | | Volume (Acre-ft) | |
|---|---|---|---|---|
| | Existing | Proposed | Existing | Proposed |
| 2 | 0.04 | 0.10 | 0.01 | 0.01 |
| 10 | 0.34 | 0.44 | 0.03 | 0.03 |
| 25 | 0.62 | 0.72 | 0.06 | 0.05 |
| 100 | 1.40 | 1.46 | 0.11 | 0.10 |

While these calculations indicate minor increases in the peak rate of runoff, there is no volume increase and the calculations are conservative because they do not take into account the proposed roof runoff infiltration systems. It is therefore our opinion that the development will have no significant adverse impact on the hydrology of the area or on downstream properties.

## DESIGN POINT: Stormwater Basin

*Description of Existing Conditions:* In the existing condition, Watershed E-3 discharges overland runoff to the subdivision stormwater basin. The watershed consists of woods and a steep, poorly vegetated slope near the property border along Phillips Way.

*Description of Proposed Conditions:* The proposed condition introduces roof runoff that is collected into underground infiltration fields, as well as impervious runoff from the proposed driveway. Much of the woods will be converted to grass cover.

*Summary of Peak Flow Rates to Design Point:*

| Design Storm (Year) | Peak Runoff Rate (cfs) | | Volume (Acre-ft) | |
|---|---|---|---|---|
| | Existing | Proposed | Existing | Proposed |
| 2 | 0.08 | 0.33 | 0.01 | 0.03 |
| 10 | 0.40 | 1.01 | 0.04 | 0.08 |
| 25 | 0.66 | 1.52 | 0.06 | 0.12 |
| 100 | 1.37 | 2.80 | 0.11 | 0.20 |

While the calculations indicate modest increases in rate and volume of runoff, they are conservative because they do not take into account the proposed roof-runoff infiltration system, which will lower the proposed rate and volume calculations as indicated above. The remaining increases in peak rate are routed to the subdivision stormwater basin where it is mitigated per the subdivision design.

## STANDARD 3 - Loss of Annual Recharge

*Loss of Annual Recharge to Groundwater shall be Eliminated or Minimized through the use of Environmentally Sensitive Site Design, Low Impact Development Techniques, Stormwater Best Management Practices, and Good Operation and Maintenance.*

The proposed house will be furnished with roof runoff infiltration systems to enhance stormwater infiltration.

### RECHARGE CALCULATIONS AND METHODS

The DEP Stormwater Management Standards requires that a minimum volume of runoff (Required Recharge Volume, Rv) be recharged on the site based on soils conditions in accordance with the following table:

| | Class A Soils | Class B Soils | Class C Soils | Class D Soils |
|---|---|---|---|---|
| Runoff Depth (d) to be Recharged | d = 0.60 inches | d = 0.35 inches | d = 0.25 inches | d = 0.10 inches |

The Required Recharge Volume is calculated by multiplying the runoff depth to be recharged (d) for each soils class by the amount of impervious coverage (on the site) under the proposed condition. The following sections demonstrate compliance with the various recharge requirements of Standard 3 for each of the proposed infiltration facilities.

Required Recharge Volume=(Depth to be Recharged)*(Impervious coverage)

Rv=0.35in.*(1ft/12in.)*6,201 S.F.=181 C.F.

Runoff recharge requirements are met by use of two underground roof runoff infiltration fields. These fields are sized to capture 2" of roof runoff and therefore far exceed the minimum Rv requirement.

A secondary check is required to ensure that the Rv will recharge within at least 72 hours. The Water Quality Volume (treatment volume) is used for this calculation. A K value of 1.02 is used for drawdown design purposes since soils testing found fill at this location. Using the following formula, the drawdown time is calculated:

1. Front System:

   $Time_{drawdown}$ = [Rv/(K x Bottom Area)]

   Where:
   *Rv = 304 c.f. (recharged volume)*
   *K = 1.02 inches per hour = 0.085 feet per hour*
   *Bottom Area = 81.6 s.f. (40% of actual bottom area because the BMP is stone-filled)*

   It is concluded that the drawdown time for the 2" recharged volume is 43.8 hours, which satisfies this requirement.

2. Rear System:

   $Time_{drawdown}$ = [Rv/(K x Bottom Area)]

   Where:
   *Rv = 245 c.f. (recharged volume)*
   *K = 1.02 inches per hour = 0.085 feet per hour*
   *Bottom Area = 66.5 s.f. (40% of actual bottom area because the BMP is stone-filled)*

   It is concluded that the drawdown time for the 2" recharged volume is 43.3 hours, which satisfies this requirement.

## STANDARD 4 - TSS Removal

*Stormwater Management Systems shall be Designed to Remove 80% of Average Annual Post-Construction Load of Total Suspended Solids (TSS).* This standard is met when:

a) A long-term pollution prevention plan is provided and implemented as required (Not Required),
b) Structural stormwater BMP's are provided as required, and
c) Pretreatment is provided as required.

The proposed stormwater management system has been designed to provide a series of Best Management Practices in accordance with the Stormwater Management Policy to remove the pollutants found in runoff as described below for each drainage sub-system.

## WATER QUALITY VOLUME (WQV)

The Water Quality Volume represents the volume of water which must receive TSS removal treatment in order to comply with Standard 4. The water quality volume is calculated based on either 0.5 inches of runoff or 1.0 inches of runoff from all non-roof impervious surfaces on the site. 0.5 inches is used except in sensitive locations as described in the Stormwater Handbook. Since this site does not lie within a Zone II for a public drinking water supply or another critical area, the WQV is based on 0.5 inches of runoff.

For this site, the WQV is calculated as follows:

WQV=0.5in*(1ft./12in.)*6,201 S.F.=258 C.F.

Water quality treatment is provided by the proposed roof runoff infiltration systems and the subdivision stormwater management systems.

## PROPOSED BMP DESIGN

*Subdivision Catch Basins:* The existing roadway catch basins have been designed to collect, pretreat, and convey the 100-year storm event to the stormwater basin.

*Subdivision Vortechnics Proprietary Treatment Unit:* The existing roadway treatment unit accommodates runoff from the road and adjacent lot areas, including the front portions of this site.

*Subdivision Stormwater Basin:* The existing stormwater basin treats stormwater runoff in compliance with Standard 4.

*Infiltration Fields:* Each infiltration field has been designed to hold a raw storage volume equal to at least 2-inches of runoff from the tributary impervious surfaces. Note the following for each proposed system:

*Front System:*
Tributary Roof Area: 1,826 S.F.
Min. 2" Volume: 304 C.F.
Infiltration Field Raw Volume: 324 C.F.

*Rear System:*
Tributary Roof Area: 1,475 S.F.
Min. 2" Volume: 245 C.F.
Infiltration Field Raw Volume: 253C.F

## STANDARD 5 - Land Uses with Higher Potential Pollutant Loads

*For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant load cannot be completely protected from exposure to rain, snow, snow melt and stormwater runoff, the proponent shall use the specific structural stormwater BMP's determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.*

This development is not a Land Use with Higher Potential Pollutant Loads.

## STANDARD 6 – Critical Areas

*Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharge near or to any other critical area requires the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such area, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "stormwater discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone 1 or Zone A are prohibited unless essential to the operation of the public water supply.*

This site does not lie within a critical area.

## STANDARD 7 - Redevelopment

*A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structures stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1*

*only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

The site is not a redevelopment.

## STANDARD 8 – Erosion Control

*A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.*

This site does not require a SWPPP because it will disturb less than one-acre of land. Erosion and sediment controls have been provided on the site plan.

## STANDARD 9 – Long-Term Operations and Maintenance Plan

*A Long-Term Operations and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

A Drainage System Operations and Maintenance Plan has been prepared and included as Attachment A.

## STANDARD 10 – Illicit Discharge Compliance

*All illicit discharges to the stormwater management system are prohibited.*
See Attachment C for the Illicit Discharge Compliance Statement.

# ATTACHMENT A: Site Operations and Maintenance Plan

# Site Operations & Maintenance Plan

For

# *Lot 3A*

# *Phillips Way*

Westwood, MA

*Proposed Single Family Residence Development*

May 8, 2017

PREPARED BY:
MERRIKIN ENGINEERING, LLP
Consulting Engineers
730 Main Street, Suite 2C
Millis, MA 02054

PREPARED FOR:
Ariel & Keith Fengler
67 West Street
Medfield, MA 02052

# TABLE OF CONTENTS

# INTRODUCTION

This Operations and Maintenance Plan (hereinafter referred to "O&M Plan") is provided to ensure the long-term monitoring and maintenance of various components of the project infrastructure. This O&M Plan includes the following provisions:

1. Stormwater System Operations and Maintenance
2. Miscellaneous Provisions

The "Development" and the various components which are referenced in this O&M Plan are described on the site plan referenced below.

## Project Name

Lot 3A, Phillips Street

## Project Location

Westwood, MA 02090

## Operator Name and Address

Ariel & Keith Fengler
67 West Street
Medfield, MA 02052

## References

This O&M Plan references other documents as follows:

*Site Plan* - Plans entitled "Lot 3A Phillips Way Site Plan of Land in Westwood, MA" with an original date of May 8, 2017 (as may be amended), and prepared by Merrikin Engineering, LLP, hereinafter referred to as the "Site Plan".

*Stormwater Report* – Report entitled "Stormwater Report for Lot 3A Phillips Way, Westwood, MA" prepared by Merrikin Engineering, LLP with an original date of May 8, 2017 (as may be amended).

## Site Description

The site consists of one single family dwelling located on 0.92 acres of land on Phillips Way in Westwood and includes all appurtenant utility connections, landscape areas, and stormwater management systems. Those land areas are collectively referred to herein as the "Development."

## Site Usage and Activities

One single family dwelling and associated appurtenances.

# PART 1: STORMWATER SYSTEM OPERATIONS AND MAINTENANCE

In order to maximize the continued effectiveness of the Stormwater Management BMP's for the site, the following Operation and Maintenance requirements apply to all stormwater facilities within the extents of the Development. The stormwater facilities are depicted on the Site Plan and are hereinafter referred to as the "Stormwater Facilities."

## Operations and Maintenance Responsibilities

The Operator or its designee shall be responsible for implementing all Operations and Maintenance (O&M) responsibilities.

## Easement Areas

Since the lot owner is responsible for their own systems, easements are not required to maintain the proposed stormwater management systems.

## Commencement of Operations and Maintenance Responsibilities

Operations and Maintenance tasks shall be commenced once each respective Stormwater Facility is fully constructed and is receiving runoff from the Development.

## Operations and Maintenance Tasks

*Stormwater Infiltration Fields:*

1. Perform all pretreatment BMP maintenance, structural and non-structural, as required herein.
2. Inspect gutters during an intense rainfall event or an event with a total rainfall of greater than 2-inches to determine if the system is overflowing. The system is designed to hold a raw volume equal to 2-inches of runoff from the tributary impervious area and should not overflow for smaller storms except in periods of intense rainfall where the collection systems may be overwhelmed.
3. Should the infiltration system fail to operate as described above, it shall be excavated and replaced in accordance with the original design.

## Public Safety Features

The stormwater system has been designed to safely collect surface runoff from developed areas (as described on the Site Plan and Stormwater Report) by providing collections systems at regular intervals to prevent surface flooding and to treat that runoff in accordance with the provisions of the Massachusetts Stormwater Management Standards and Handbook.

# PART 2: MISCELLANEOUS PROVISIONS

## Good Housekeeping Controls

The following good housekeeping measures will be implemented in the day-to-day operation of the Development:

1. The site will be maintained in a neat and orderly manner.
2. All waste materials from the development will be collected in household trash containers and removed from the site by properly licensed disposal companies.

## Management of Deicing Chemicals and Snow

Management of on-site snow will be as follows:

1. The site shall be plowed as needed to maintain safe driving conditions. Snow will be stored in windrows along pavement edges and shall be piled in landscape areas as needed.
2. Snow will not be plowed into piles which block or obstruct stormwater management facilities.
3. Snow will not be plowed into piles at roadway intersections such that it would obstruct visibility for entering or exiting vehicles.
4. Deicing chemicals application will be as little as possible while provide a safe environment for vehicular operation and function.

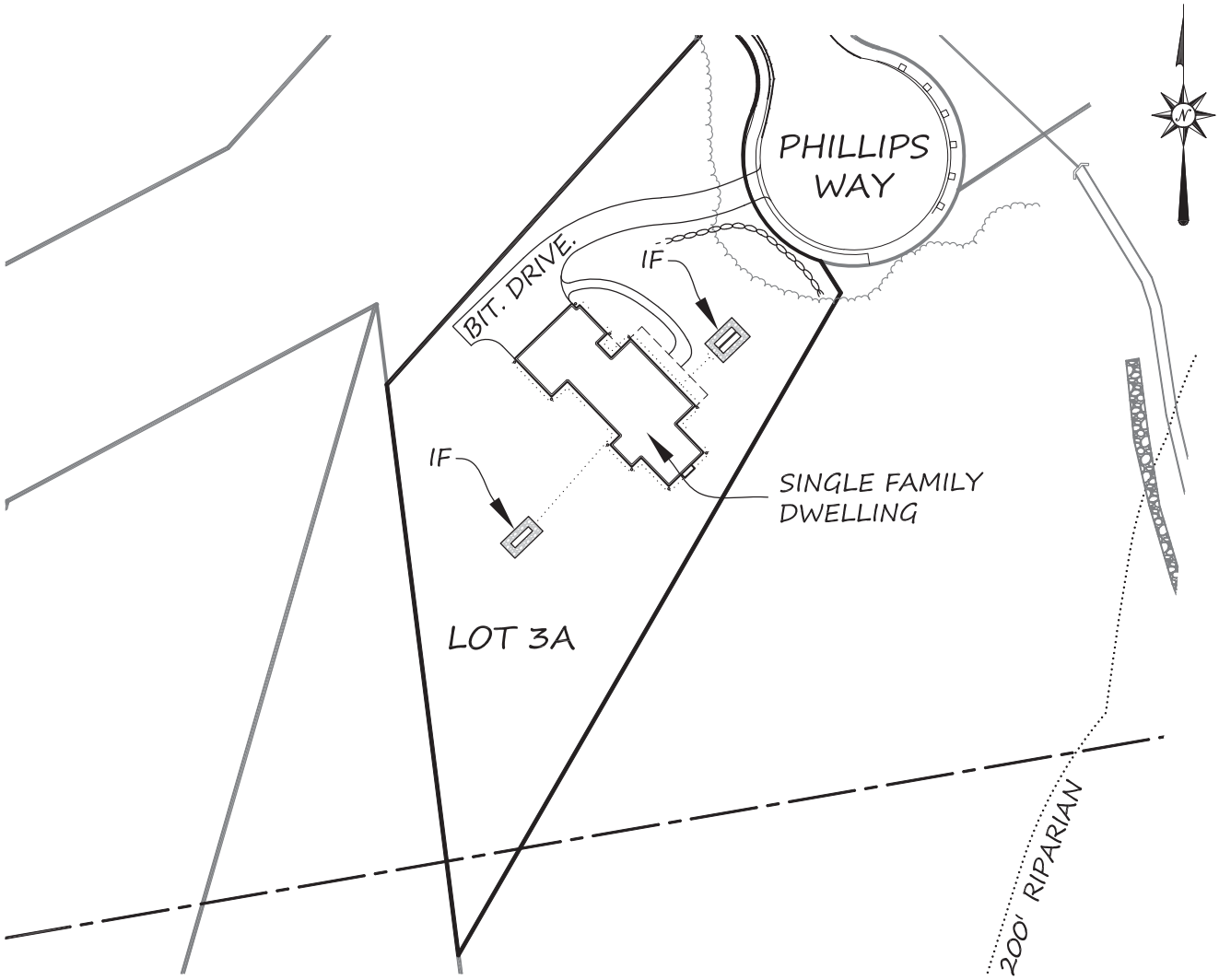
## Illicit Discharges

The Operator shall not allow non-stormwater discharges into the development's stormwater system. Any discovered non-stormwater discharges into the development's stormwater system shall be immediately disconnected.

## Estimated Operations and Maintenance Budget

It is estimated that the regular annual maintenance tasks described herein will cost $100 per year (2017 value).

# **EXHIBIT 1** STORMWATER FACILITIES SITE PLAN




NOTES:

1. REFER TO APPROVED SITE PLAN FOR COMPLETE DETAILS OF EXISTING AND PROPOSED SITE FEATURES.

IF= UNDERGROUND RUNOFF INFILTRATION SYSTEM

MERRIKIN
ENGINEERING, LLP
730 MAIN STREET, SUITE 1C
MILLIS, MA 02054
ph. 508-376-8883

| REVISION | DATE | BY |
|---|---|---|
| | | |
| | | |
| | | |

PLAN SCALE: 1" = 80'

0' 80' 160'

D126-01 | SHEET 1 OF 1

# LOT 3A
# DRAIN OVERVIEW
# PLAN OF LAND
# IN
# WESTWOOD, MA

PLAN DATE: 5/8/2017

# **EXHIBIT 2** STORMWATER SYSTEM OPERATIONS AND MAINTENACE LOG FORM

# Stormwater System Operations and Maintenance Log

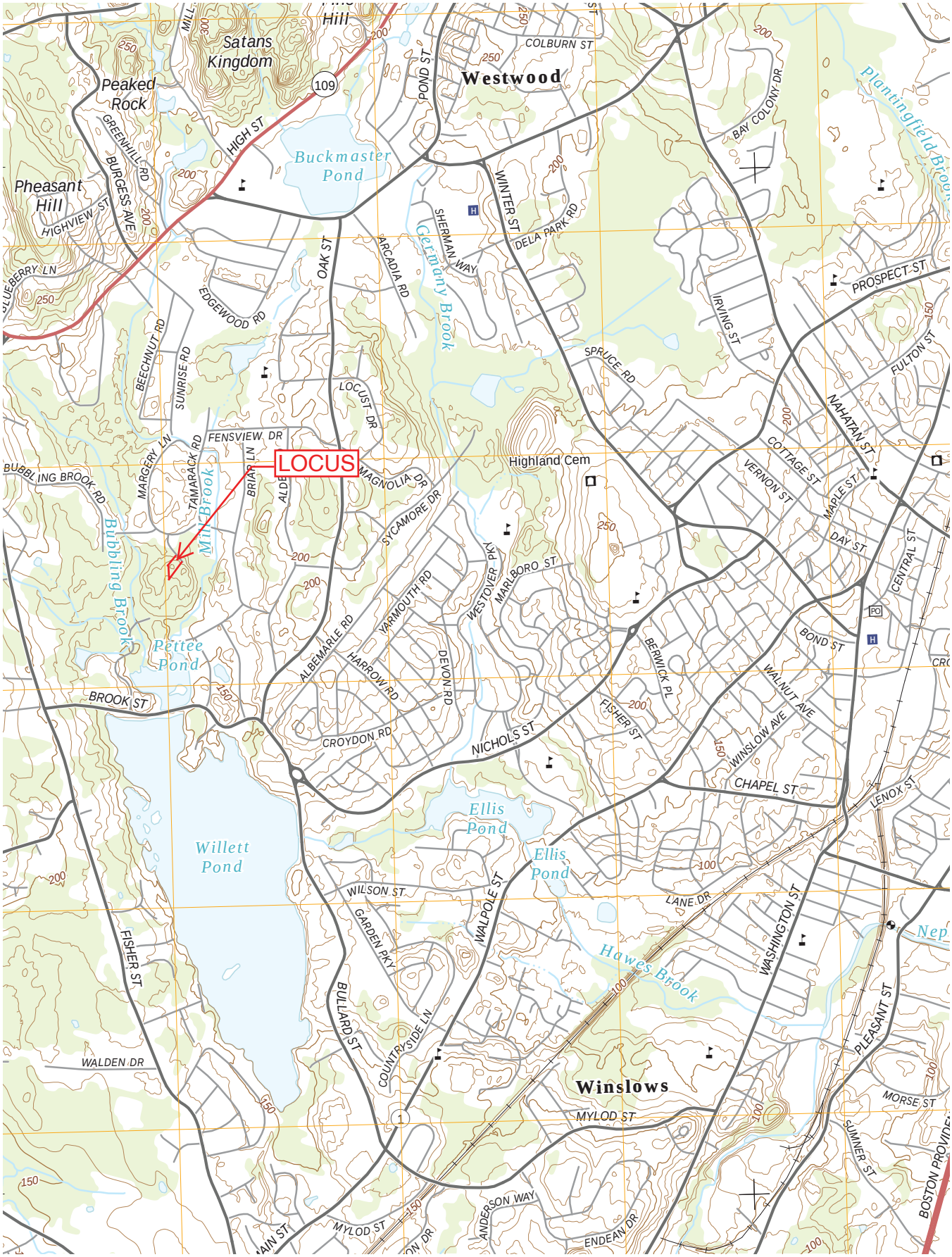
## Year _____

| General Information | |
|---|---|
| Project Name | Lot 3A Phillips Way |
| Site Location | Assessors Parcel 40-189, Phillips Way, Westwood, MA |
| Inspector's Name | |
| Inspector's Title | |
| Inspector's Phone | |
| Signature of Operator at end of Year, Certifying that Work was Completed as Noted. Date: | |

## O&M Task Checklist

| | O&M Activity | Date Completed | Notes/Comments |
|---|---|---|---|
| Stormwater Infiltration Field | | | |
| | 1st Annual Inspection | | |
| | 2nd Annual Inspection | | |
| | System Repl. Req'd? | | |

# ATTACHMENT B: USGS MAP


LOCUS
Satans Kingdom
Peaked Rock
Pheasant Hill
Westwood
Buckmaster Pond
Germany Brook
Mill Brook
Bubbling Brook
Pettee Pond
Willett Pond
Ellis Pond
Hawes Brook
Highland Cem
Winslows
109
1
COLBURN ST
POND ST
HIGH ST
GREENHILL RD
BURGESS AVE
HIGHVIEW ST
BLUEBERRY LN
BEECHNUT RD
SUNRISE RD
EDGEWOOD RD
OAK ST
ARCADIA RD
SHERMAN WAY
WINTER ST
DELA PARK RD
BAY COLONY DR
Plantingfield Brook
PROSPECT ST
IRVING ST
SPRUCE RD
FULTON ST
NAHATAN ST
COTTAGE ST
VERNON ST
MAPLE ST
DAY ST
CENTRAL ST
LOCUST DR
FENSVIEW DR
MARGERY LN
TAMARACK RD
BRIAN LN
MAGNOLIA DR
SYCAMORE DR
BUBBLING BROOK RD
MARLBORO ST
WESTOVER PKY
YARMOUTH RD
ALBEMARLE RD
HARROW RD
DEVON RD
BERWICK PL
BOND ST
WALNUT AVE
FISHER ST
WINSLOW AVE
BROOK ST
CROYDON RD
NICHOLS ST
CHAPEL ST
LENOX ST
WILSON ST
GARDEN PKY
WALPOLE ST
LANE DR
WASHINGTON ST
PLEASANT ST
BULLARD ST
COUNTRYSIDE LN
WALDEN DR
MYLOD ST
MORSE ST
SUMMER ST
ANDERSON WAY
ENDEAN DR
BOSTON PROVIDENCE
PO

# ATTACHMENT C: Illicit Discharge Compliance Statement

# ILLICIT DISCHARGE COMPLIANCE STATEMENT

## Assessors Parcel 40-189
## Phillips way, Westwood, MA

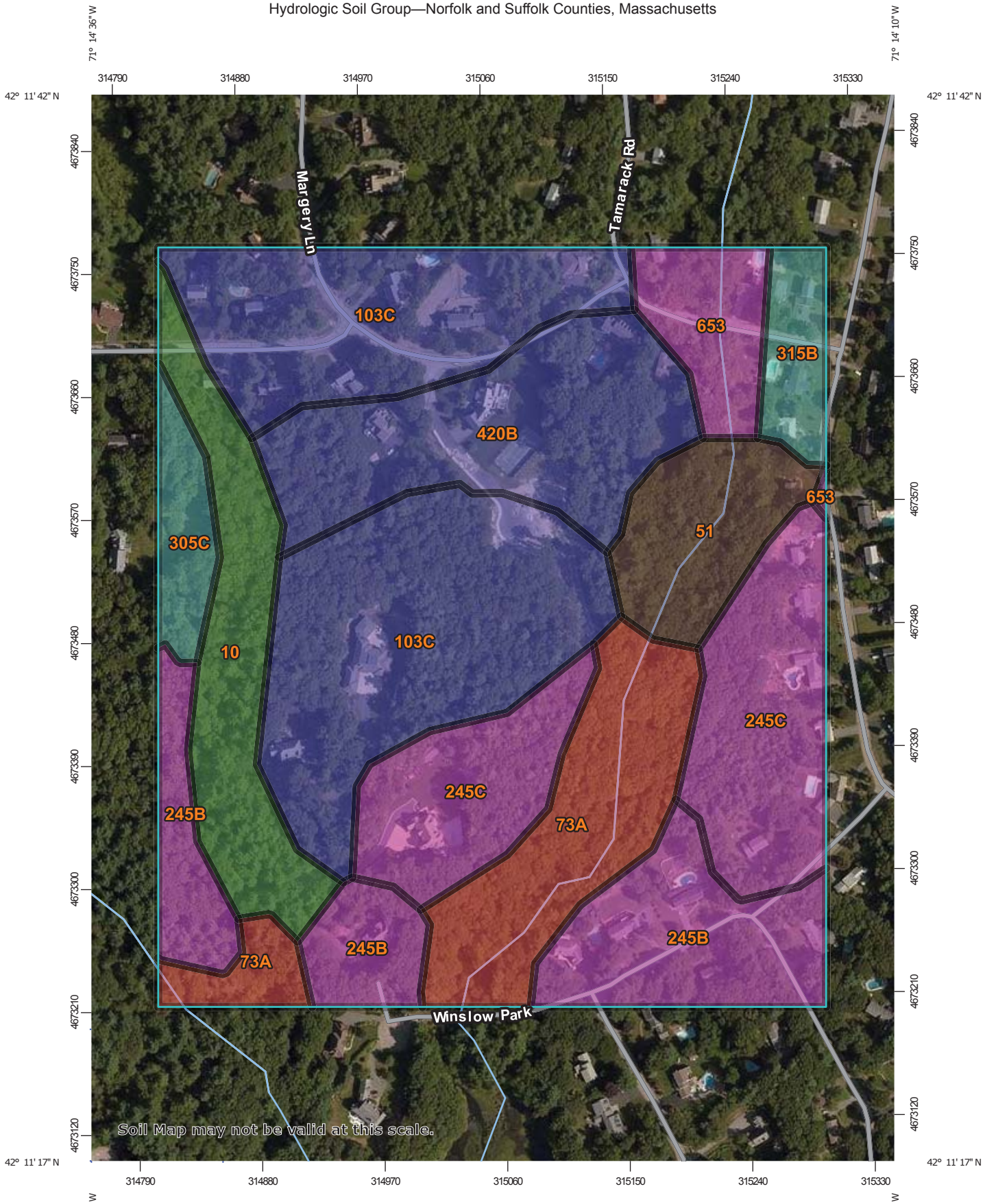
This statement is provided in accordance with the provisions of the Massachusetts Stormwater Management Standard 10 and of the Massachusetts Stormwater Management Handbook.

Note the following:

- All stormwater management systems contain no connection to the site's wastewater sewer system or to any other non-stormwater collection system.
- Groundwater collection systems on the site are not connected to the site's wastewater sewer system or to any other non-stormwater collection system.
- The facility's Operations & Maintenance Plan is designed to prevent any discharge of non-stormwater to the drainage system.
- Any illicit discharges identified during or after construction will be immediately disconnected.

Date: May 8, 2017

# ATTACHMENT D: Soils Data




Map Scale: 1:3,800 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

## MAP LEGEND

**Area of Interest (AOI)**

Area of Interest (AOI)

**Soils**

**Soil Rating Polygons**

A

A/D

B

B/D

C

C/D

D

Not rated or not available

**Soil Rating Lines**

A

A/D

B

B/D

C

C/D

D

Not rated or not available

**Soil Rating Points**

A

A/D

B

B/D

C

C/D

D

Not rated or not available

**Water Features**

Streams and Canals

**Transportation**

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

**Background**

Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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

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

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

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

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

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

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 12, Sep 15, 2016

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

Date(s) aerial images were photographed: Aug 26, 2014—Sep 4, 2014

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

# Hydrologic Soil Group

| Hydrologic Soil Group— Summary by Map Unit — Norfolk and Suffolk Counties, Massachusetts (MA616) | | | | |
|---|---|---|---|---|
| **Map unit symbol** | **Map unit name** | **Rating** | **Acres in AOI** | **Percent of AOI** |
| 10 | Scarboro and Birdsall soils, 0 to 3 percent slopes | A/D | 5.6 | 8.3% |
| 51 | Swansea muck, 0 to 1 percent slopes | B/D | 3.7 | 5.5% |
| 73A | Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony | D | 7.3 | 10.8% |
| 103C | Charlton-Hollis-Rock outcrop complex, 8 to 15 percent slopes | B | 18.3 | 27.1% |
| 245B | Hinckley loamy sand, 3 to 8 percent slopes | A | 8.7 | 12.9% |
| 245C | Hinckley loamy sand, 8 to 15 percent slopes | A | 9.9 | 14.6% |
| 305C | Paxton fine sandy loam, 8 to 15 percent slopes | C | 1.7 | 2.5% |
| 315B | Scituate fine sandy loam, 3 to 8 percent slopes | C | 1.7 | 2.5% |
| 420B | Canton fine sandy loam, 3 to 8 percent slopes | B | 8.0 | 11.9% |
| 653 | Udorthents, sandy | A | 2.6 | 3.8% |
| **Totals for Area of Interest** | | | **67.6** | **100.0%** |

## Description

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

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

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

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

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

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

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

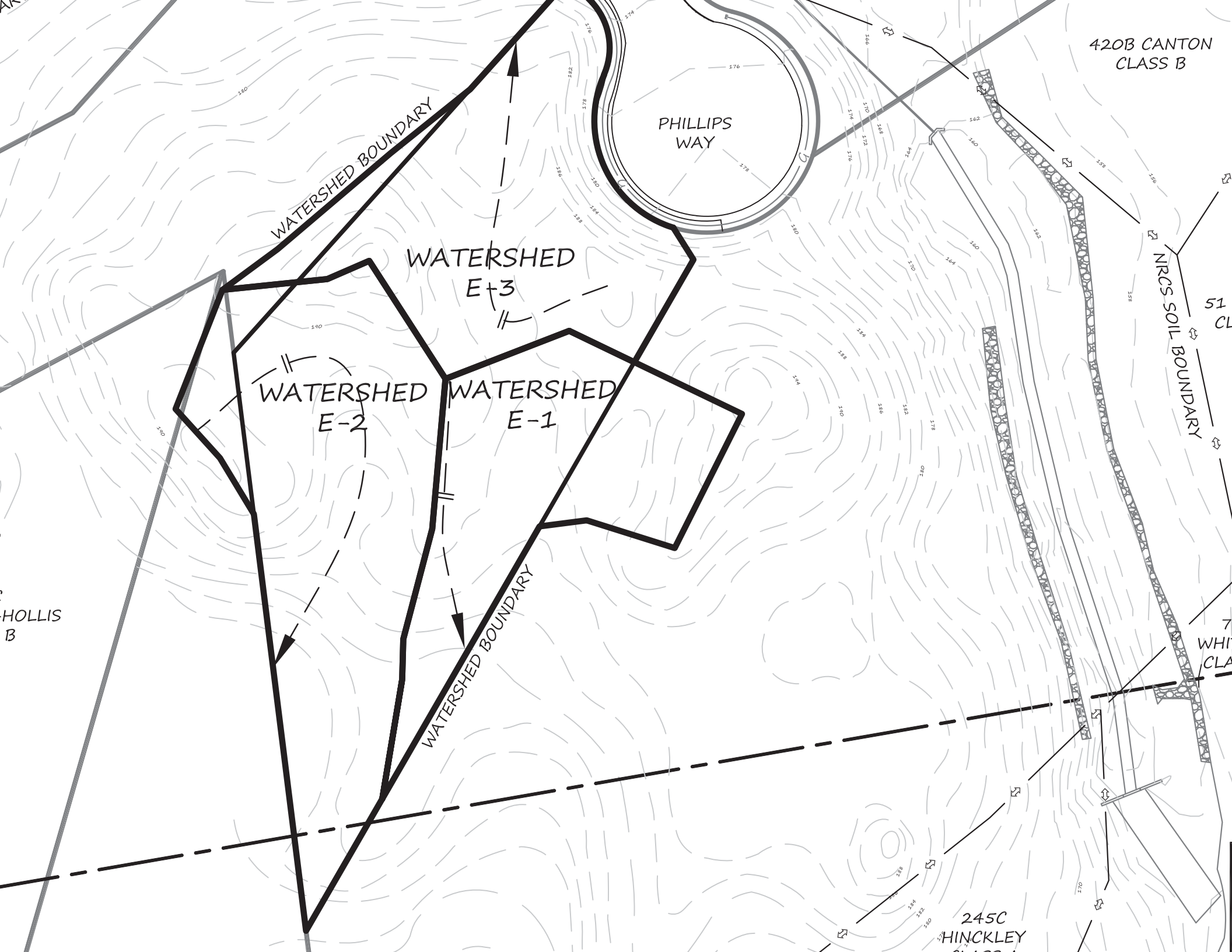
## Rating Options

*Aggregation Method:* Dominant Condition

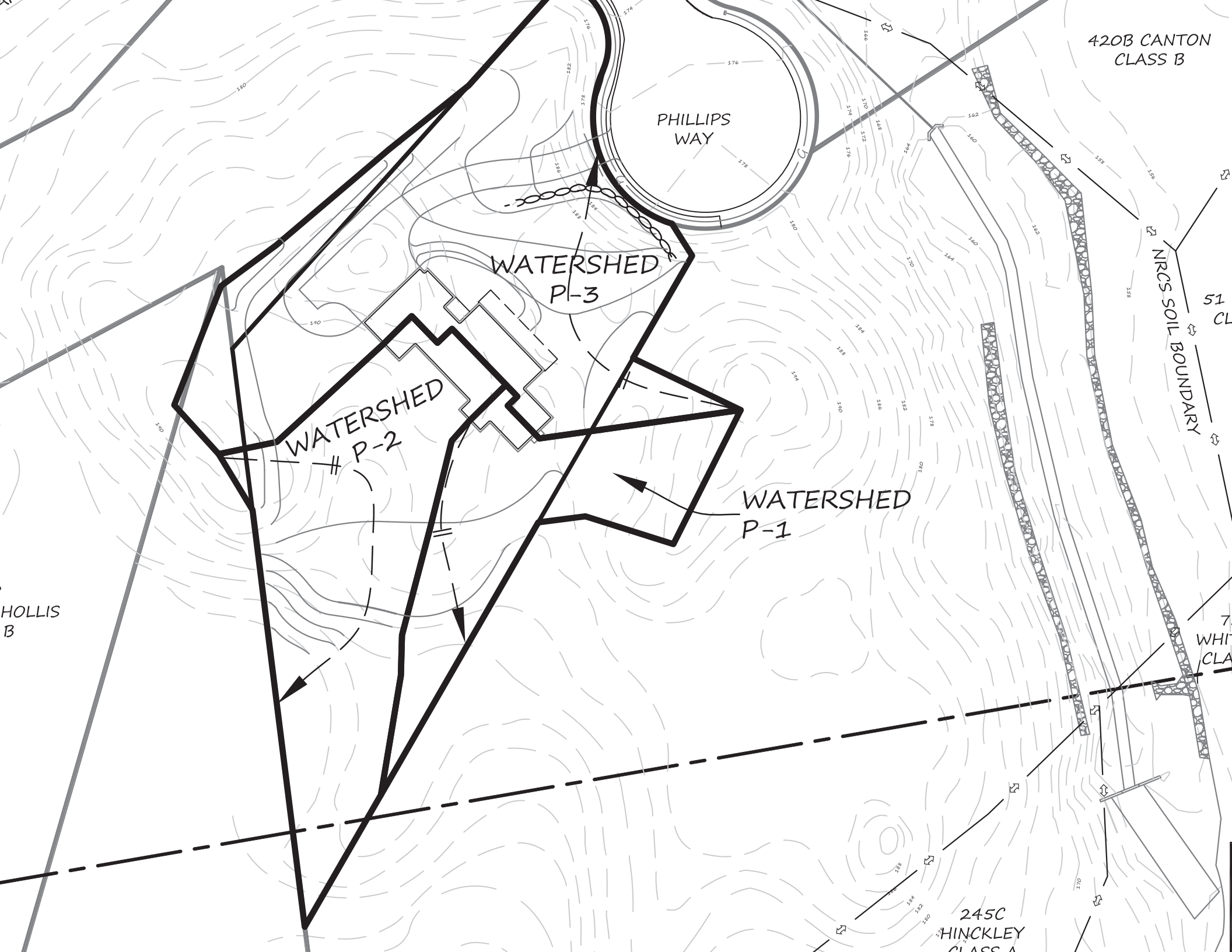
*Component Percent Cutoff: None Specified*

*Tie-break Rule:* Higher

# ATTACHMENT E: Existing Watershed Plan

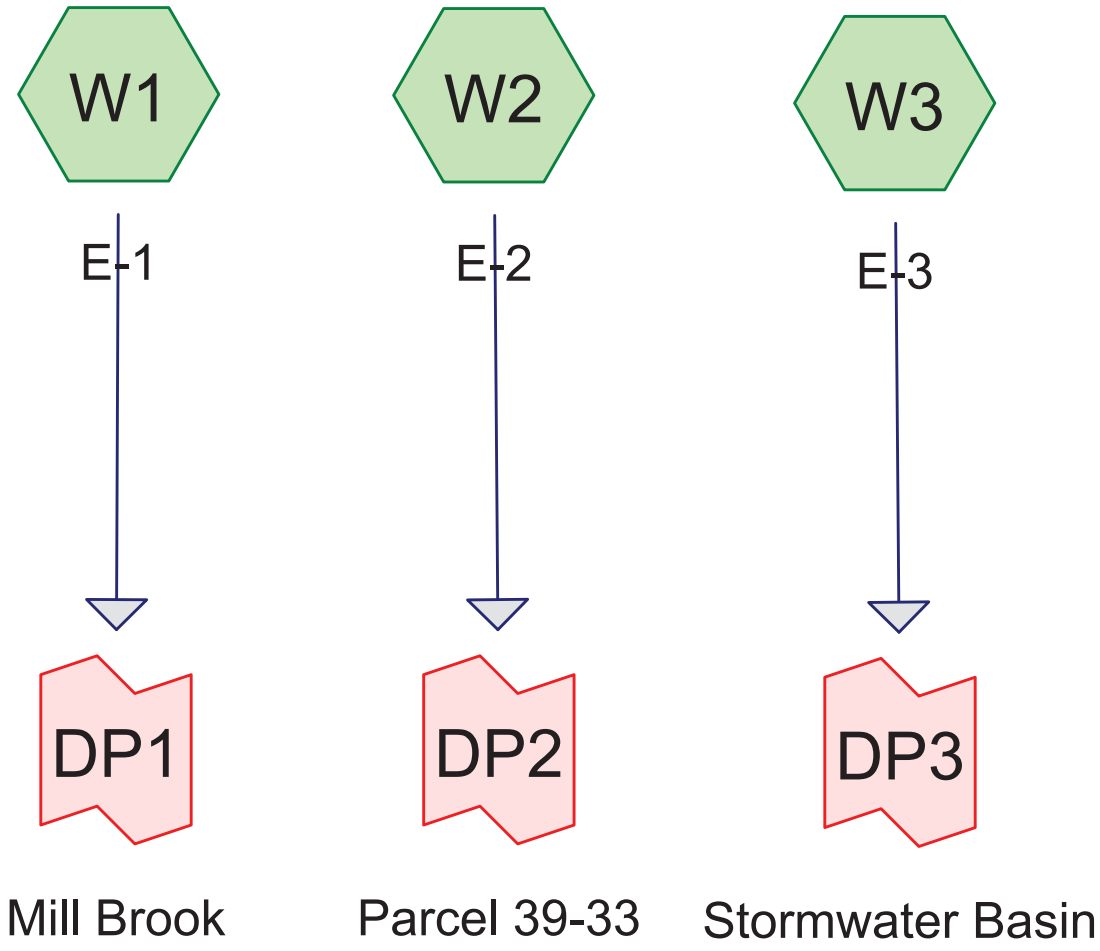

WATERSHED BOUNDARY
PHILLIPS WAY
WATERSHED E-3
WATERSHED E-2
WATERSHED E-1
WATERSHED BOUNDARY
420B CANTON CLASS B
NRCS SOIL BOUNDARY
245C HINCKLEY

# ATTACHMENT F: Proposed Watershed Plan


PHILLIPS
WAY
WATERSHED
P-3
WATERSHED
P-2
WATERSHED
P-1
420B CANTON
CLASS B
NRCS SOIL BOUNDARY
245C
HINCKLEY

# ATTACHMENT G: HYDROCAD HYDROLOGY CALCULATIONS

# HydroCAD – Existing Conditions




Subcat Reach Pond Link

**Routing Diagram for Phillips Way Existing**

Prepared by {enter your company name here}, Printed 5/9/2017

## Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 0.064 | 79 | <50% Grass cover, Poor, HSG B (W3) |
| 1.024 | 55 | Woods, Good, HSG B (W1, W2, W3) |
| **1.088** | **56** | **TOTAL AREA** |

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment W1: E-1** Runoff Area=12,284 sf 0.00% Impervious Runoff Depth>0.25"
Flow Length=120' Tc=9.6 min CN=55 Runoff=0.03 cfs 0.006 af

**Subcatchment W2: E-2** Runoff Area=19,087 sf 0.00% Impervious Runoff Depth>0.25"
Flow Length=222' Tc=8.5 min CN=55 Runoff=0.04 cfs 0.009 af

**Subcatchment W3: E-3** Runoff Area=16,003 sf 0.00% Impervious Runoff Depth>0.37"
Flow Length=176' Tc=8.5 min CN=59 Runoff=0.08 cfs 0.011 af

**Link DP1: Mill Brook** Inflow=0.03 cfs 0.006 af
Primary=0.03 cfs 0.006 af

**Link DP2: Parcel 39-33** Inflow=0.04 cfs 0.009 af
Primary=0.04 cfs 0.009 af

**Link DP3: Stormwater Basin** Inflow=0.08 cfs 0.011 af
Primary=0.08 cfs 0.011 af

**Total Runoff Area = 1.088 ac Runoff Volume = 0.026 af Average Runoff Depth = 0.29"**
**100.00% Pervious = 1.088 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment W1: E-1

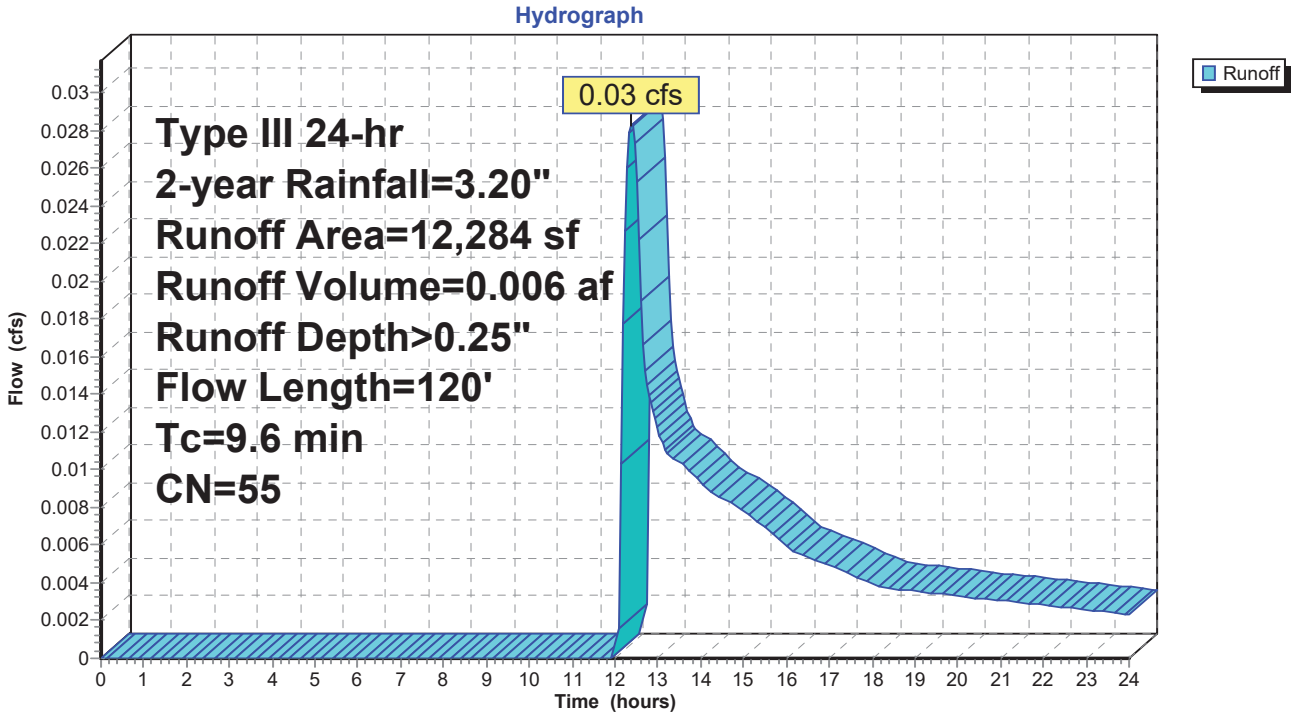
Runoff = 0.03 cfs @ 12.39 hrs, Volume= 0.006 af, Depth> 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

| Area (sf) | CN | Description |
|---|---|---|
| 12,284 | 55 | Woods, Good, HSG B |
| 12,284 | | 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: Light underbrush n= 0.400 P2= 3.20" |
| 0.3 | 70 | 0.0600 | 3.94 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 9.6 | 120 | Total | | | |

### Subcatchment W1: E-1



## Summary for Subcatchment W2: E-2

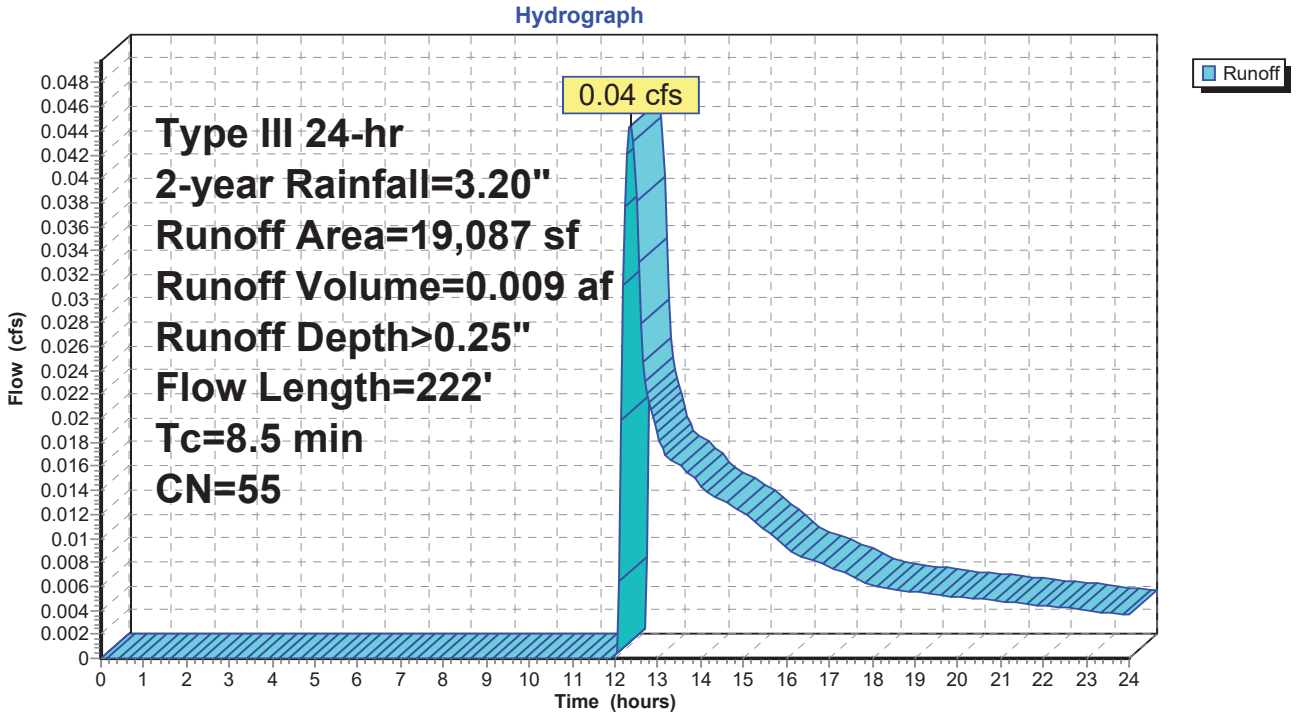
Runoff = 0.04 cfs @ 12.37 hrs, Volume= 0.009 af, Depth> 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

| Area (sf) | CN | Description |
|---|---|---|
| 19,087 | 55 | Woods, Good, HSG B |
| 19,087 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.9 | 50 | 0.0600 | 0.10 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.6 | 172 | 0.0800 | 4.55 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.5 | 222 | Total | | | |

## Subcatchment W2: E-2



## Summary for Subcatchment W3: E-3

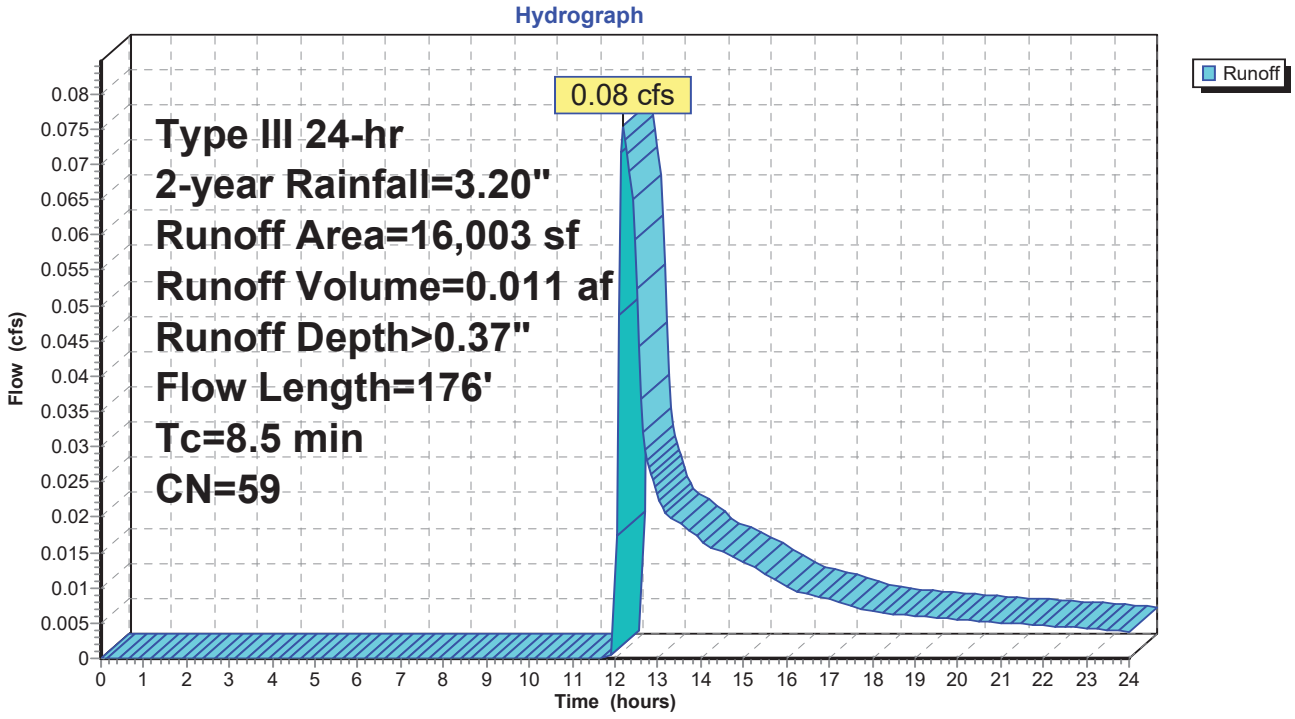
Runoff = 0.08 cfs @ 12.21 hrs, Volume= 0.011 af, Depth> 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

| Area (sf) | CN | Description |
|---|---|---|
| 2,781 | 79 | <50% Grass cover, Poor, HSG B |
| 13,222 | 55 | Woods, Good, HSG B |
| 16,003 | 59 | Weighted Average |
| 16,003 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.9 | 50 | 0.0600 | 0.10 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.6 | 126 | 0.0550 | 3.78 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.5 | 176 | Total | | | |

## Subcatchment W3: E-3

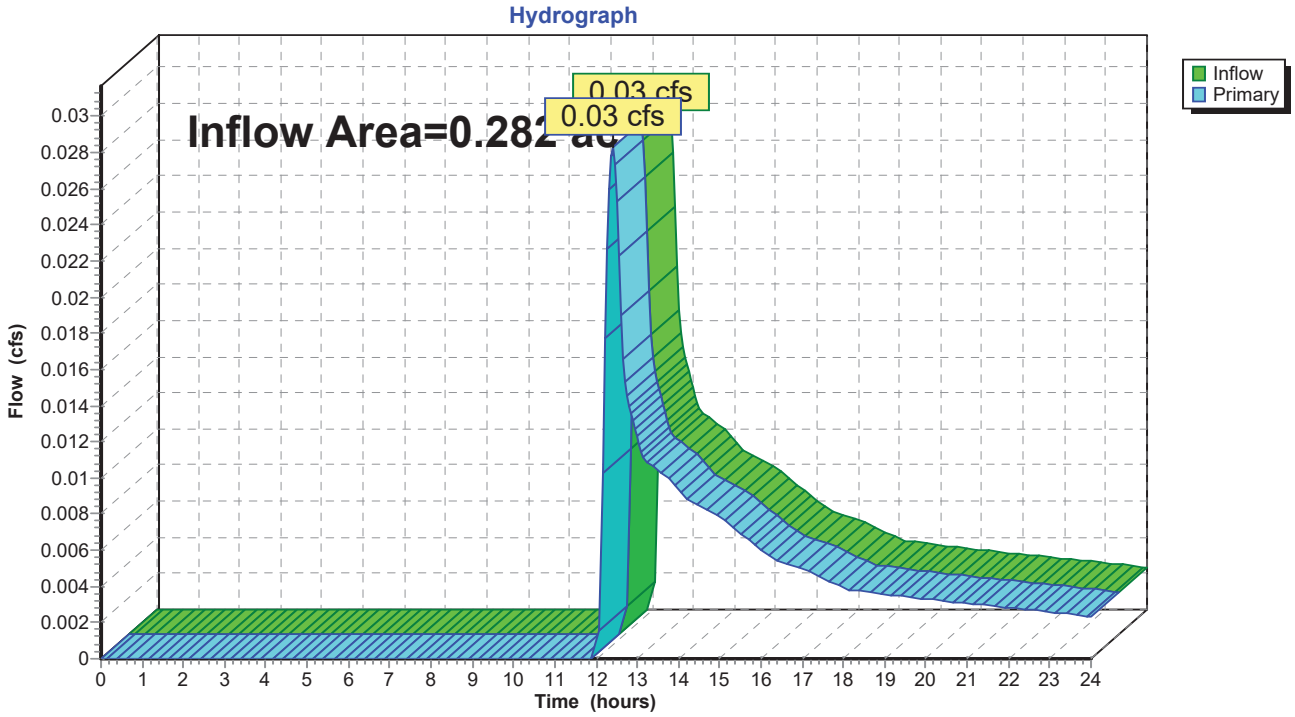


## Summary for Link DP1: Mill Brook

Inflow Area = 0.282 ac, 0.00% Impervious, Inflow Depth > 0.25" for 2-year event
Inflow = 0.03 cfs @ 12.39 hrs, Volume= 0.006 af
Primary = 0.03 cfs @ 12.39 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP1: Mill Brook

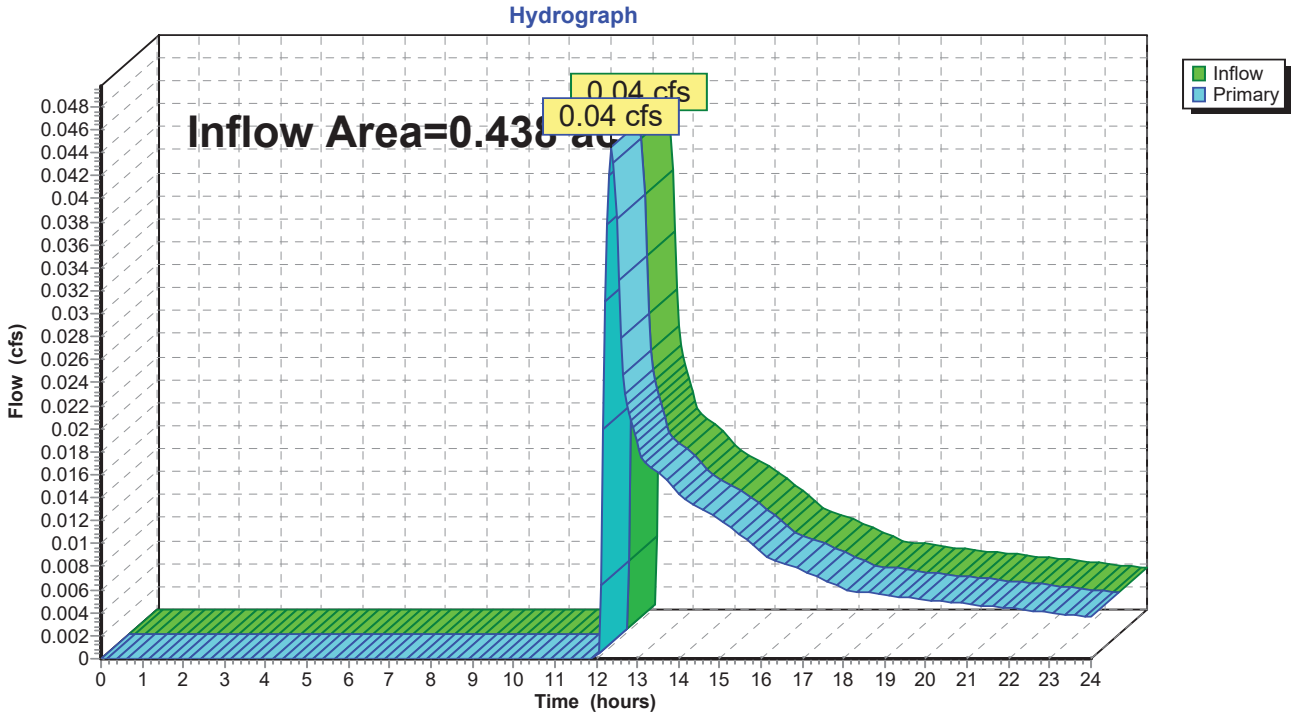


## Summary for Link DP2: Parcel 39-33

Inflow Area = 0.438 ac, 0.00% Impervious, Inflow Depth > 0.25" for 2-year event
Inflow = 0.04 cfs @ 12.37 hrs, Volume= 0.009 af
Primary = 0.04 cfs @ 12.37 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP2: Parcel 39-33

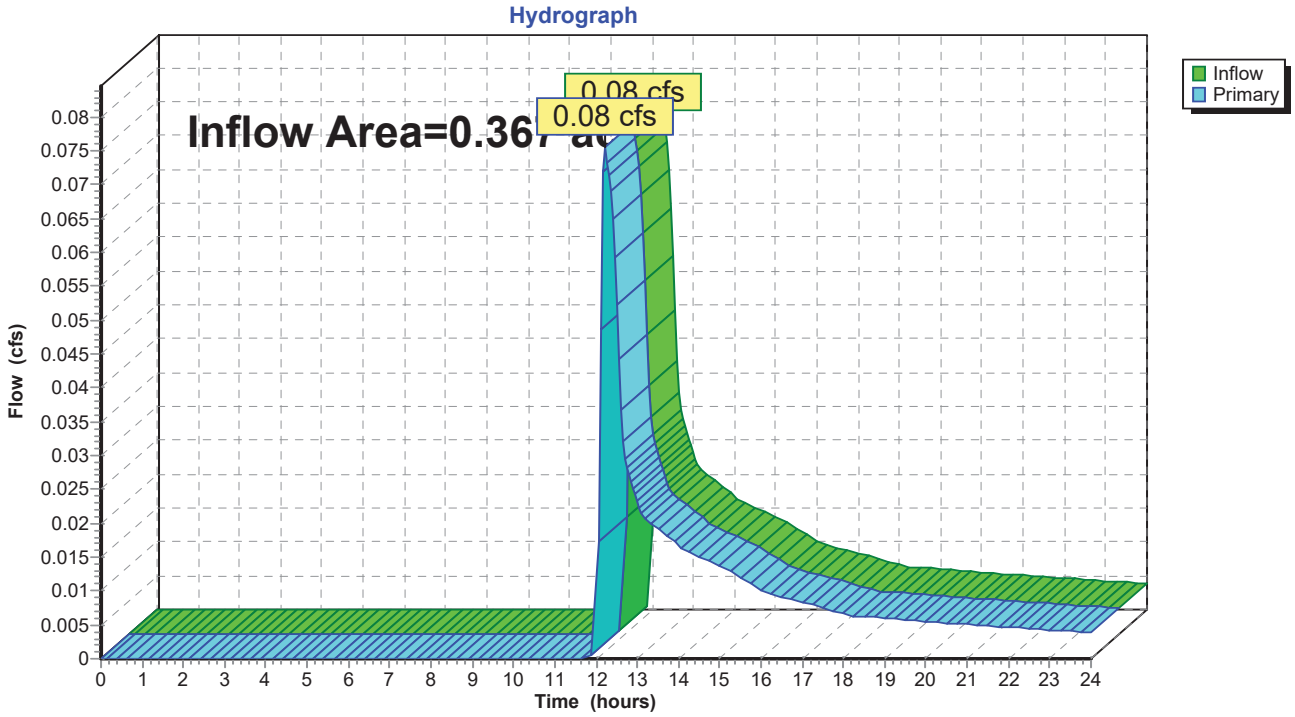


## Summary for Link DP3: Stormwater Basin

Inflow Area = 0.367 ac, 0.00% Impervious, Inflow Depth > 0.37" for 2-year event
Inflow = 0.08 cfs @ 12.21 hrs, Volume= 0.011 af
Primary = 0.08 cfs @ 12.21 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP3: Stormwater Basin



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment W1: E-1** Runoff Area=12,284 sf 0.00% Impervious Runoff Depth>0.93"
Flow Length=120' Tc=9.6 min CN=55 Runoff=0.21 cfs 0.022 af

**Subcatchment W2: E-2** Runoff Area=19,087 sf 0.00% Impervious Runoff Depth>0.93"
Flow Length=222' Tc=8.5 min CN=55 Runoff=0.34 cfs 0.034 af

**Subcatchment W3: E-3** Runoff Area=16,003 sf 0.00% Impervious Runoff Depth>1.18"
Flow Length=176' Tc=8.5 min CN=59 Runoff=0.40 cfs 0.036 af

**Link DP1: Mill Brook** Inflow=0.21 cfs 0.022 af
Primary=0.21 cfs 0.022 af

**Link DP2: Parcel 39-33** Inflow=0.34 cfs 0.034 af
Primary=0.34 cfs 0.034 af

**Link DP3: Stormwater Basin** Inflow=0.40 cfs 0.036 af
Primary=0.40 cfs 0.036 af

**Total Runoff Area = 1.088 ac Runoff Volume = 0.092 af Average Runoff Depth = 1.01"**
**100.00% Pervious = 1.088 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment W1: E-1

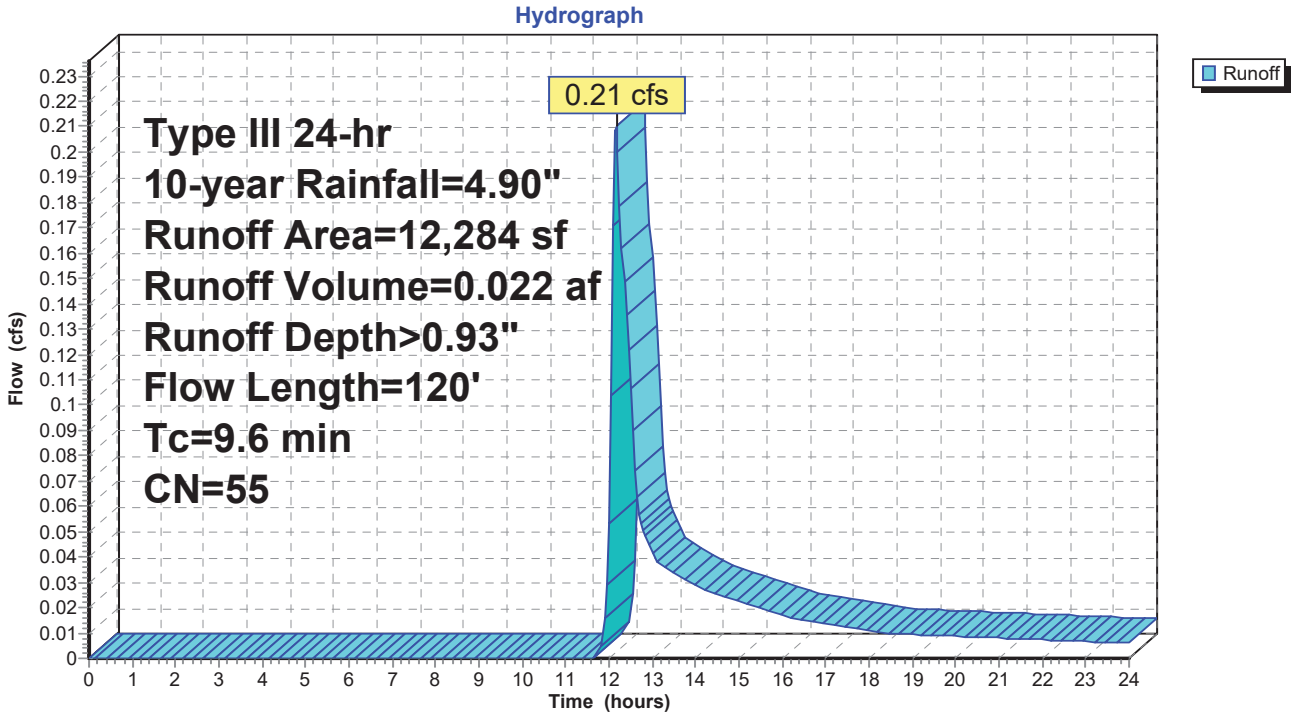
Runoff = 0.21 cfs @ 12.17 hrs, Volume= 0.022 af, Depth> 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.90"

| Area (sf) | CN | Description |
|---|---|---|
| 12,284 | 55 | Woods, Good, HSG B |
| 12,284 | | 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: Light underbrush n= 0.400 P2= 3.20" |
| 0.3 | 70 | 0.0600 | 3.94 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 9.6 | 120 | Total | | | |

## Subcatchment W1: E-1



## Summary for Subcatchment W2: E-2

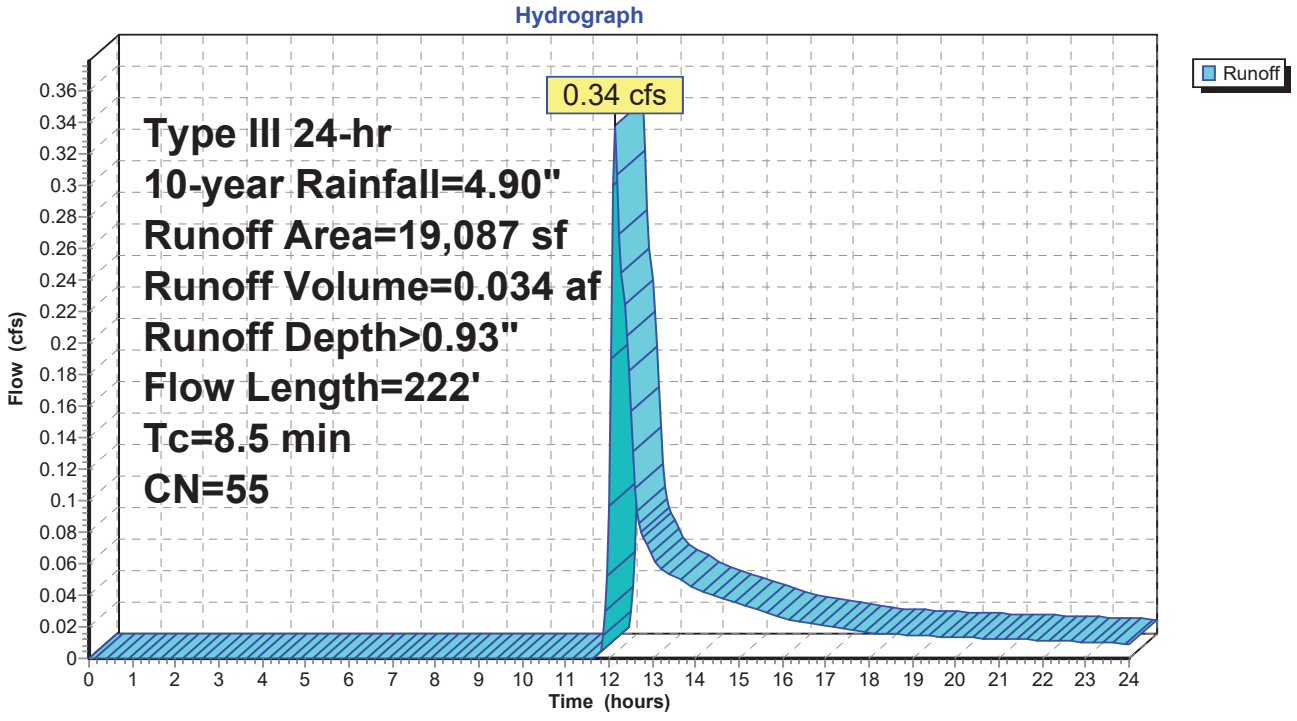
Runoff = 0.34 cfs @ 12.15 hrs, Volume= 0.034 af, Depth> 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.90"

| Area (sf) | CN | Description |
|---|---|---|
| 19,087 | 55 | Woods, Good, HSG B |
| 19,087 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.9 | 50 | 0.0600 | 0.10 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.6 | 172 | 0.0800 | 4.55 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.5 | 222 | Total | | | |

## Subcatchment W2: E-2



## Summary for Subcatchment W3: E-3

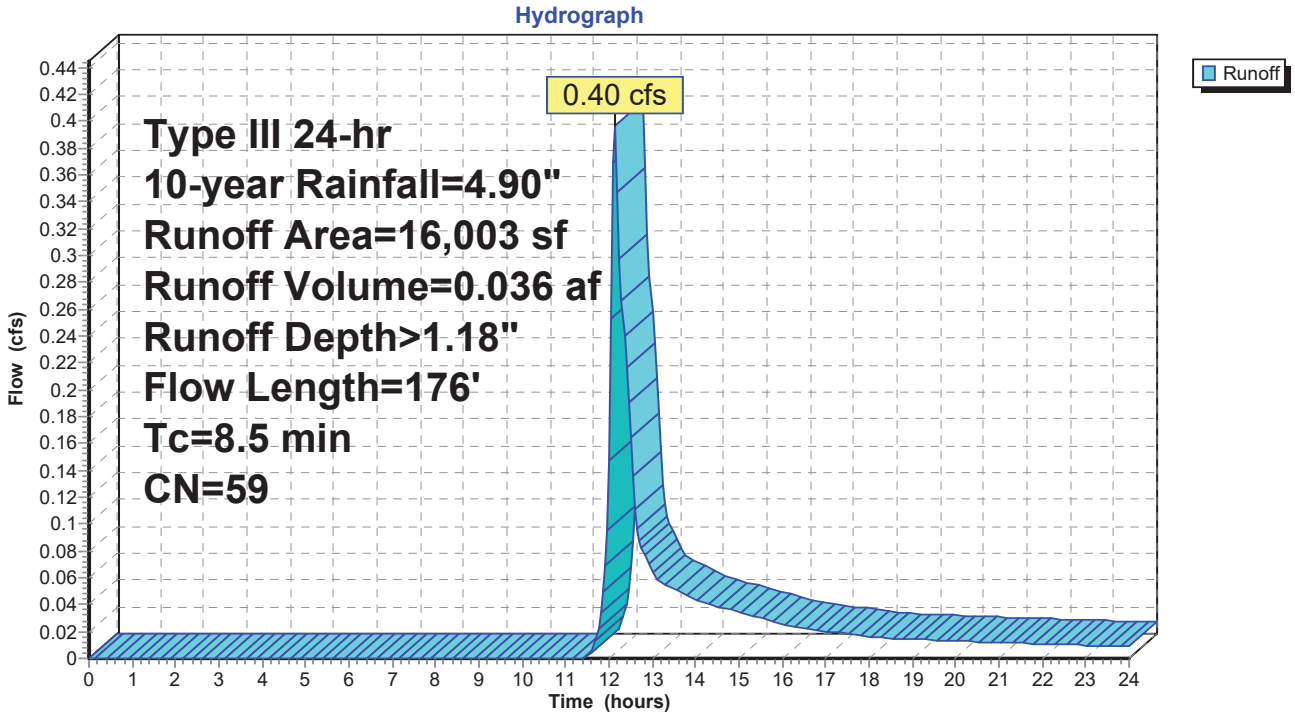
Runoff = 0.40 cfs @ 12.14 hrs, Volume= 0.036 af, Depth> 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.90"

| Area (sf) | CN | Description |
|---|---|---|
| 2,781 | 79 | <50% Grass cover, Poor, HSG B |
| 13,222 | 55 | Woods, Good, HSG B |
| 16,003 | 59 | Weighted Average |
| 16,003 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.9 | 50 | 0.0600 | 0.10 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.6 | 126 | 0.0550 | 3.78 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.5 | 176 | Total | | | |

## Subcatchment W3: E-3

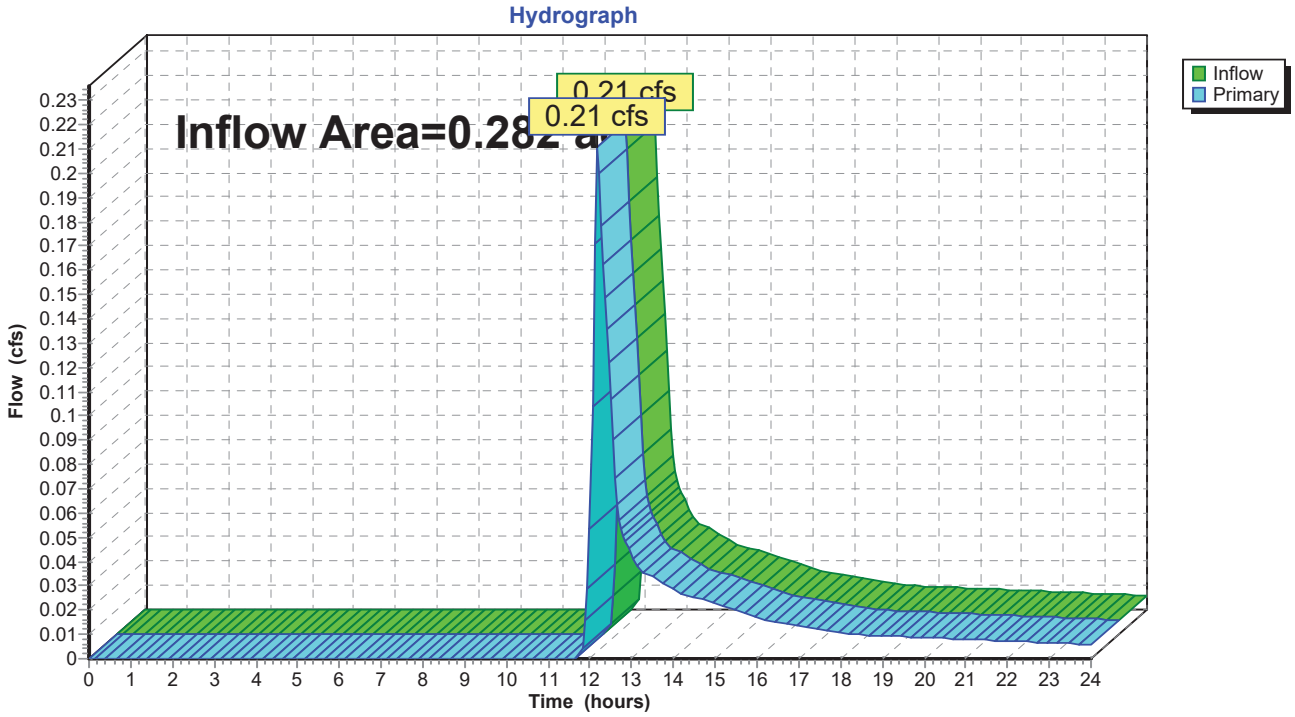


## Summary for Link DP1: Mill Brook

Inflow Area = 0.282 ac, 0.00% Impervious, Inflow Depth > 0.93" for 10-year event
Inflow = 0.21 cfs @ 12.17 hrs, Volume= 0.022 af
Primary = 0.21 cfs @ 12.17 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP1: Mill Brook

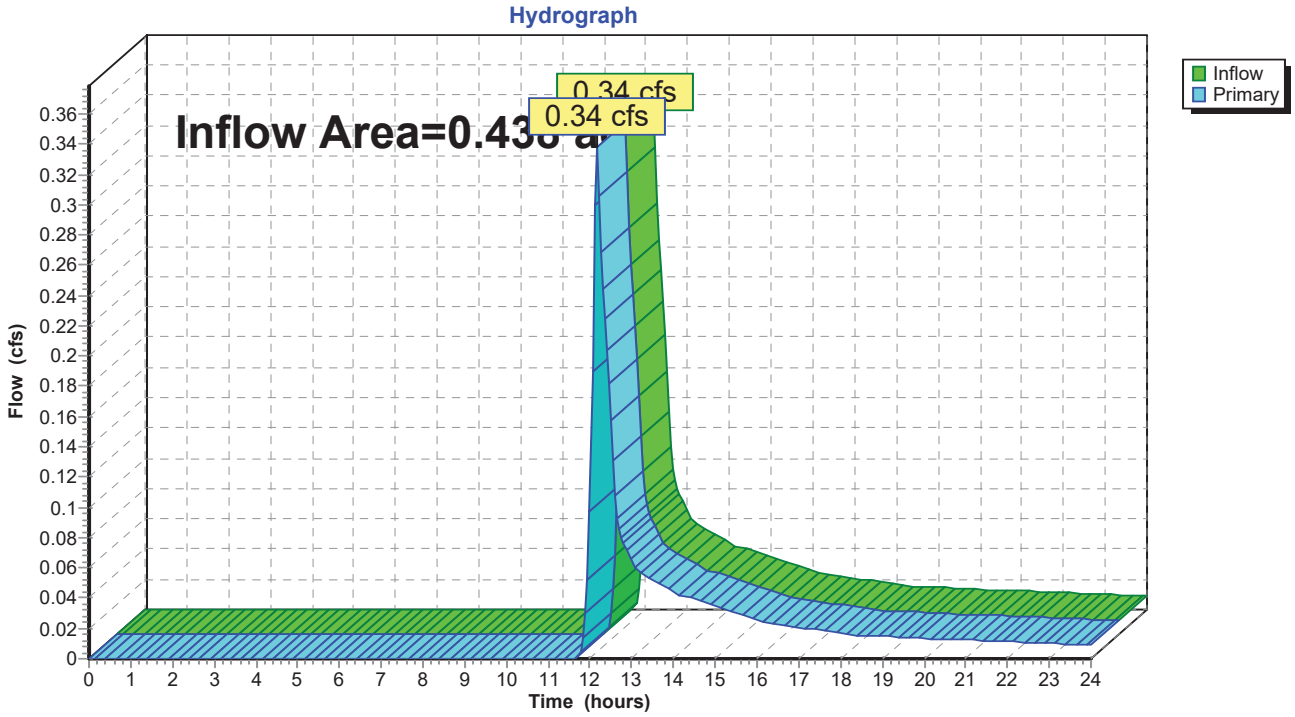


## Summary for Link DP2: Parcel 39-33

Inflow Area = 0.438 ac, 0.00% Impervious, Inflow Depth > 0.93" for 10-year event
Inflow = 0.34 cfs @ 12.15 hrs, Volume= 0.034 af
Primary = 0.34 cfs @ 12.15 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP2: Parcel 39-33

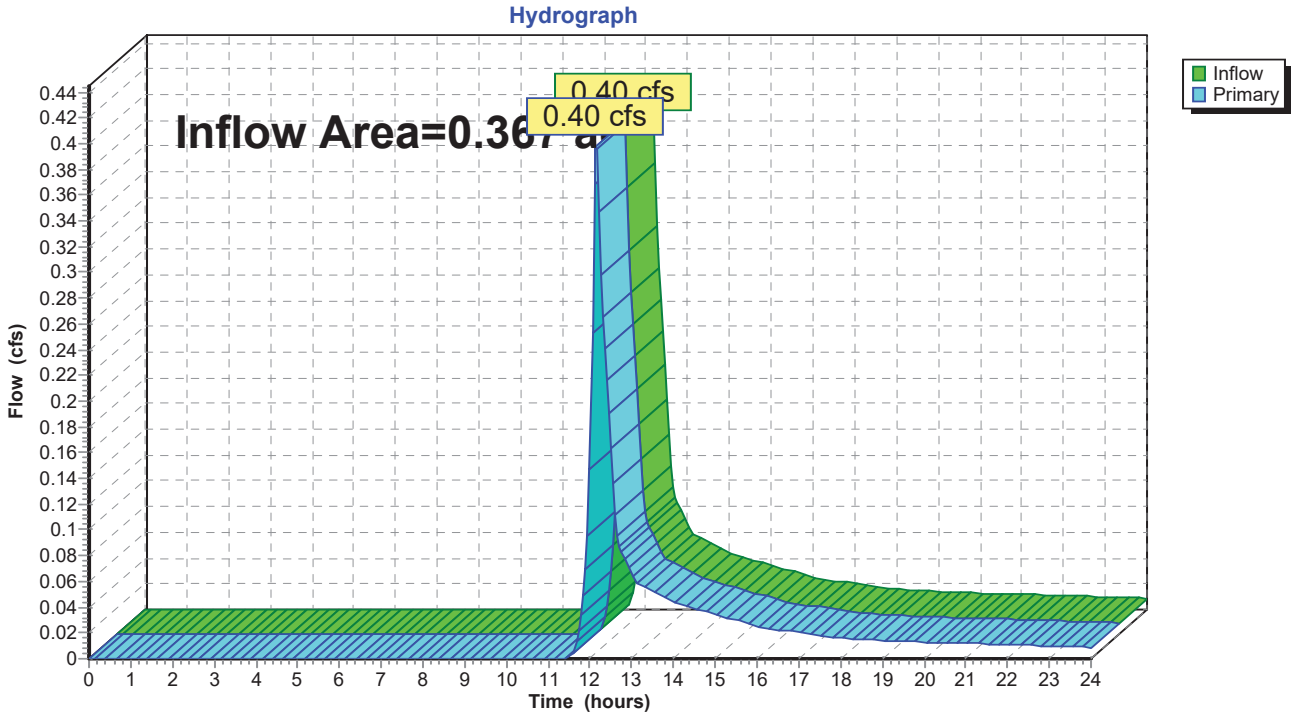


## Summary for Link DP3: Stormwater Basin

Inflow Area = 0.367 ac, 0.00% Impervious, Inflow Depth > 1.18" for 10-year event
Inflow = 0.40 cfs @ 12.14 hrs, Volume= 0.036 af
Primary = 0.40 cfs @ 12.14 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP3: Stormwater Basin



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment W1: E-1** Runoff Area=12,284 sf 0.00% Impervious Runoff Depth>1.51"
Flow Length=120' Tc=9.6 min CN=55 Runoff=0.39 cfs 0.036 af

**Subcatchment W2: E-2** Runoff Area=19,087 sf 0.00% Impervious Runoff Depth>1.51"
Flow Length=222' Tc=8.5 min CN=55 Runoff=0.62 cfs 0.055 af

**Subcatchment W3: E-3** Runoff Area=16,003 sf 0.00% Impervious Runoff Depth>1.84"
Flow Length=176' Tc=8.5 min CN=59 Runoff=0.66 cfs 0.056 af

**Link DP1: Mill Brook** Inflow=0.39 cfs 0.036 af
Primary=0.39 cfs 0.036 af

**Link DP2: Parcel 39-33** Inflow=0.62 cfs 0.055 af
Primary=0.62 cfs 0.055 af

**Link DP3: Stormwater Basin** Inflow=0.66 cfs 0.056 af
Primary=0.66 cfs 0.056 af

**Total Runoff Area = 1.088 ac Runoff Volume = 0.147 af Average Runoff Depth = 1.62"**
**100.00% Pervious = 1.088 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment W1: E-1

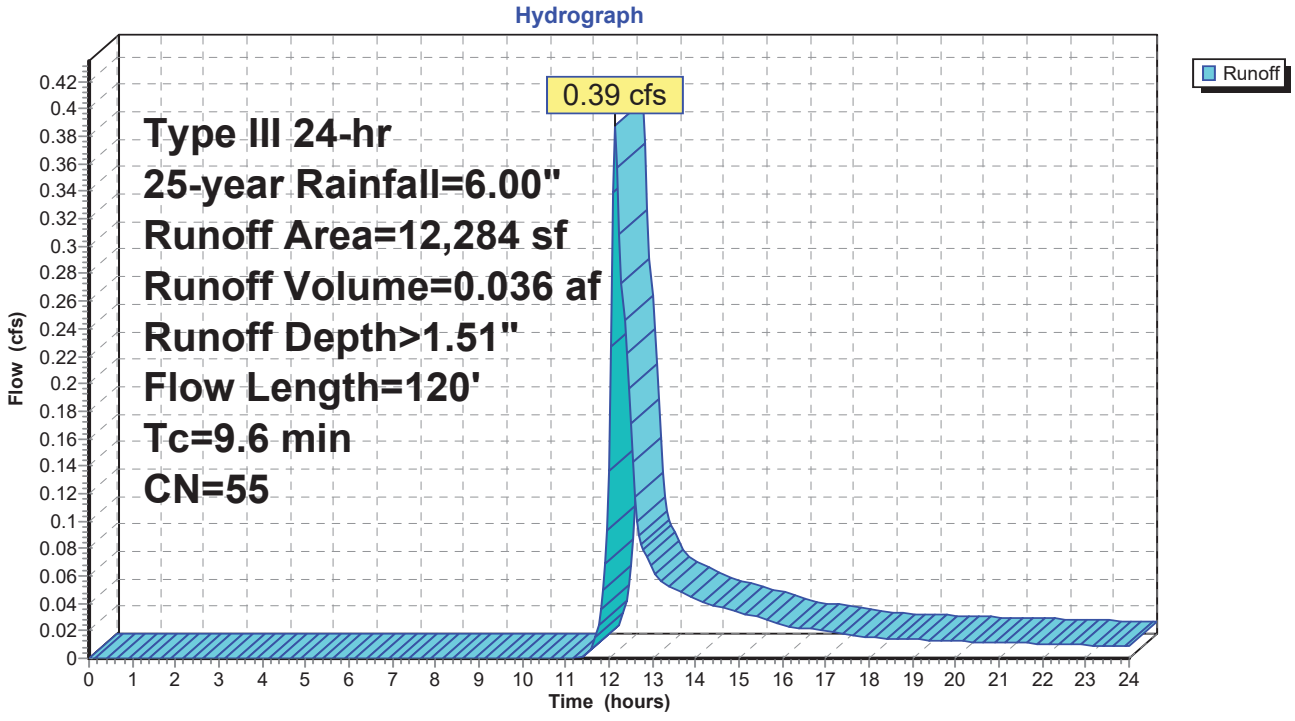
Runoff = 0.39 cfs @ 12.16 hrs, Volume= 0.036 af, Depth> 1.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.00"

| Area (sf) | CN | Description |
|---|---|---|
| 12,284 | 55 | Woods, Good, HSG B |
| 12,284 | | 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: Light underbrush n= 0.400 P2= 3.20" |
| 0.3 | 70 | 0.0600 | 3.94 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 9.6 | 120 | Total | | | |

## Subcatchment W1: E-1



## Summary for Subcatchment W2: E-2

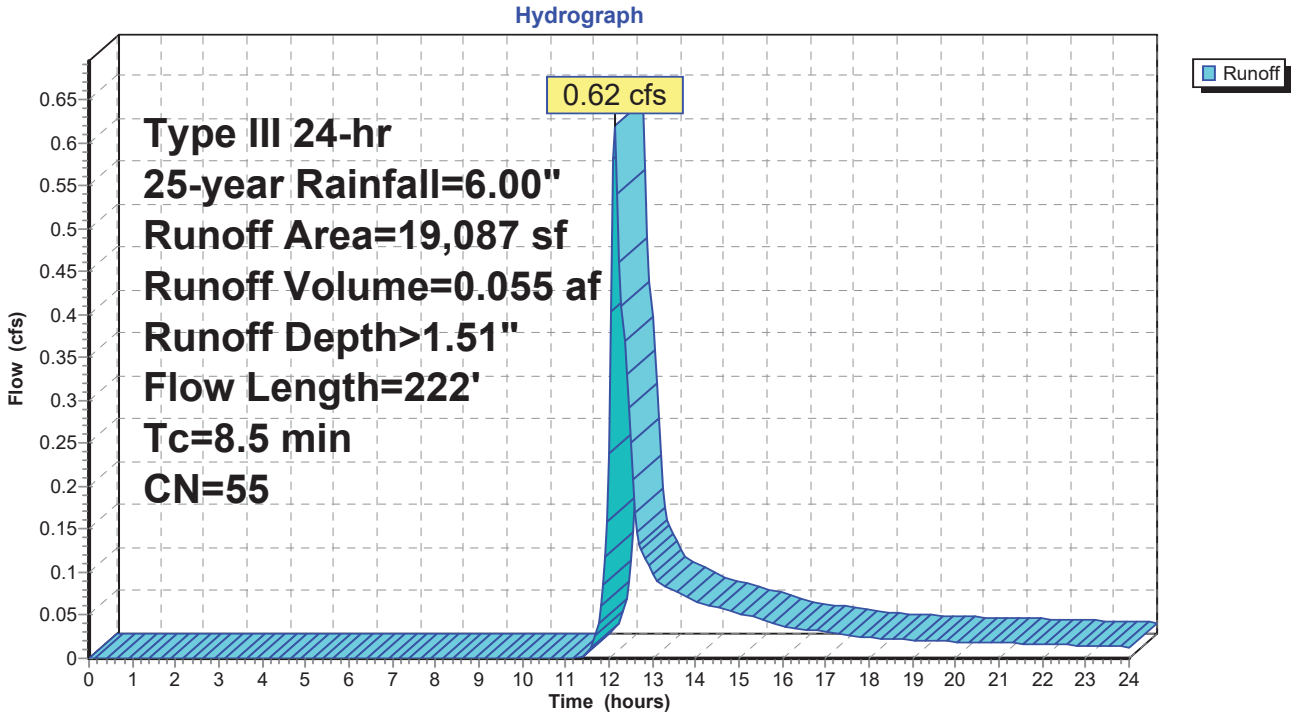
Runoff = 0.62 cfs @ 12.14 hrs, Volume= 0.055 af, Depth> 1.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.00"

| Area (sf) | CN | Description |
|---|---|---|
| 19,087 | 55 | Woods, Good, HSG B |
| 19,087 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.9 | 50 | 0.0600 | 0.10 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.6 | 172 | 0.0800 | 4.55 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.5 | 222 | Total | | | |

## Subcatchment W2: E-2



## Summary for Subcatchment W3: E-3

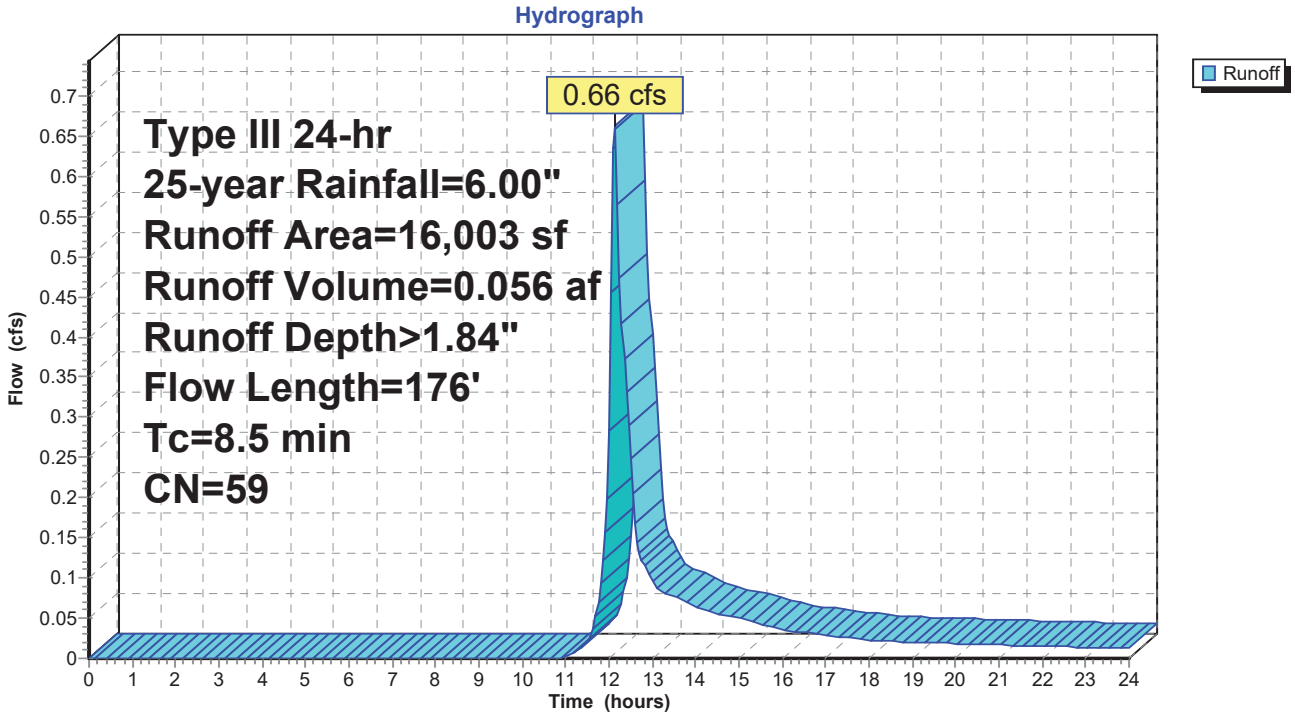
Runoff = 0.66 cfs @ 12.14 hrs, Volume= 0.056 af, Depth> 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.00"

| Area (sf) | CN | Description |
|---|---|---|
| 2,781 | 79 | <50% Grass cover, Poor, HSG B |
| 13,222 | 55 | Woods, Good, HSG B |
| 16,003 | 59 | Weighted Average |
| 16,003 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.9 | 50 | 0.0600 | 0.10 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.6 | 126 | 0.0550 | 3.78 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.5 | 176 | Total | | | |

## Subcatchment W3: E-3

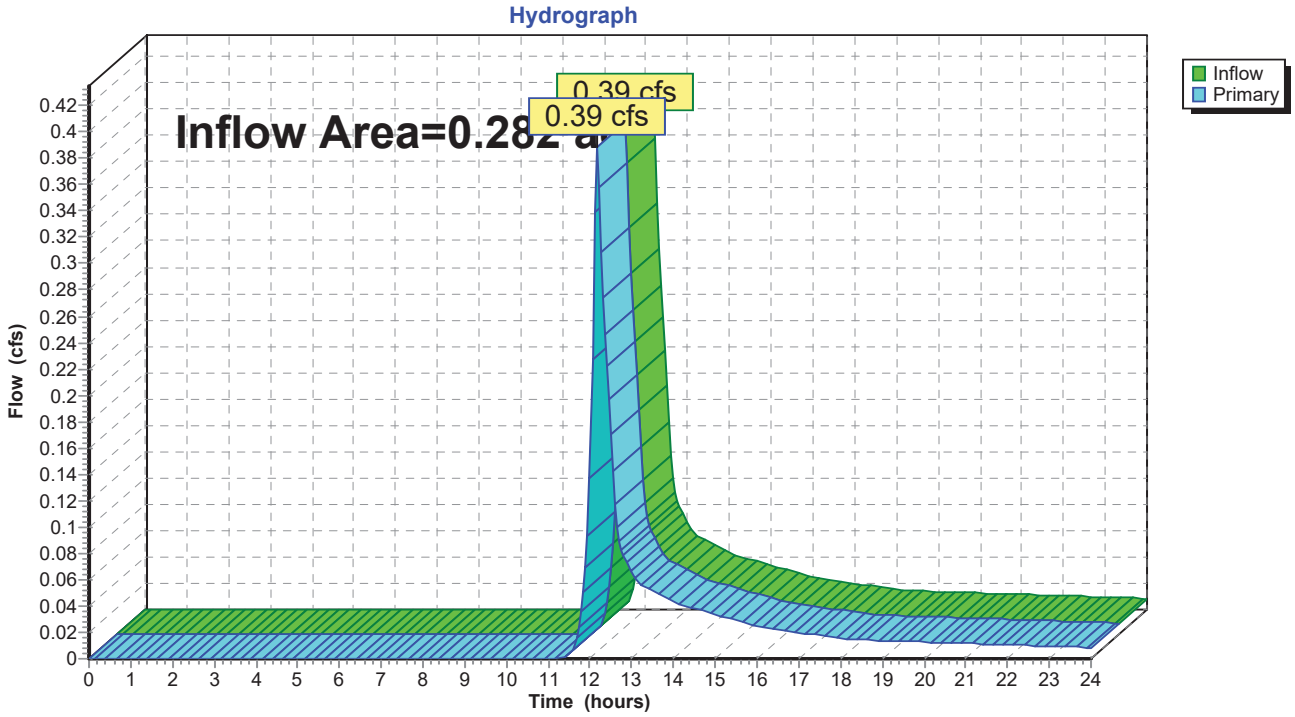


## Summary for Link DP1: Mill Brook

Inflow Area = 0.282 ac, 0.00% Impervious, Inflow Depth > 1.51" for 25-year event
Inflow = 0.39 cfs @ 12.16 hrs, Volume= 0.036 af
Primary = 0.39 cfs @ 12.16 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP1: Mill Brook

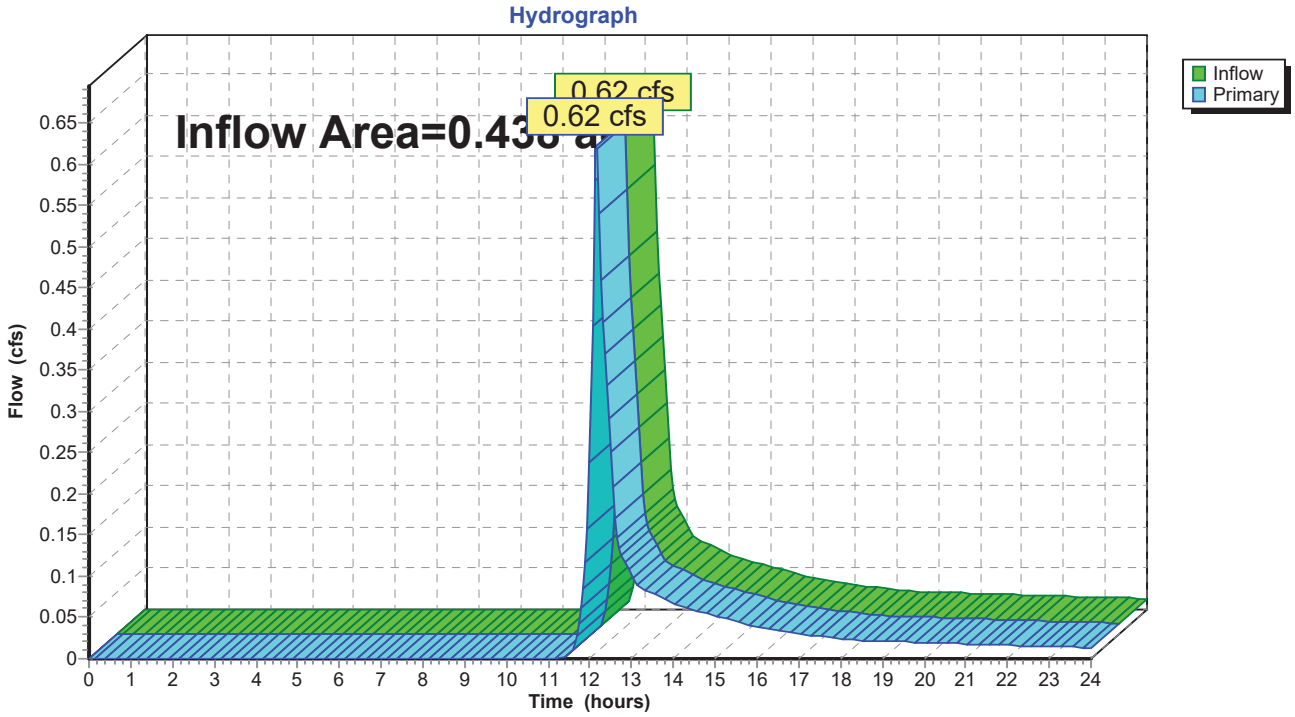


## Summary for Link DP2: Parcel 39-33

Inflow Area = 0.438 ac, 0.00% Impervious, Inflow Depth > 1.51" for 25-year event
Inflow = 0.62 cfs @ 12.14 hrs, Volume= 0.055 af
Primary = 0.62 cfs @ 12.14 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link DP2: Parcel 39-33

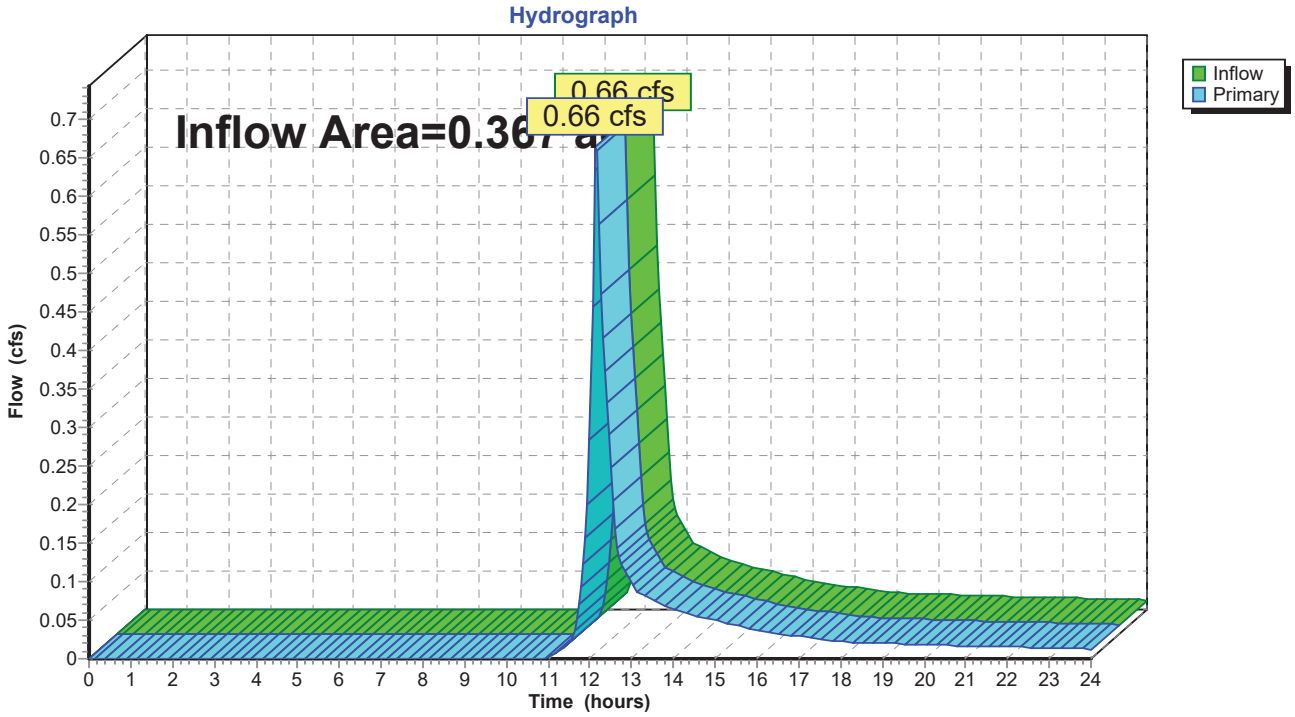


## Summary for Link DP3: Stormwater Basin

Inflow Area = 0.367 ac, 0.00% Impervious, Inflow Depth > 1.84" for 25-year event
Inflow = 0.66 cfs @ 12.14 hrs, Volume= 0.056 af
Primary = 0.66 cfs @ 12.14 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP3: Stormwater Basin



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment W1: E-1** Runoff Area=12,284 sf 0.00% Impervious Runoff Depth>3.12"
Flow Length=120' Tc=9.6 min CN=55 Runoff=0.87 cfs 0.073 af

**Subcatchment W2: E-2** Runoff Area=19,087 sf 0.00% Impervious Runoff Depth>3.13"
Flow Length=222' Tc=8.5 min CN=55 Runoff=1.40 cfs 0.114 af

**Subcatchment W3: E-3** Runoff Area=16,003 sf 0.00% Impervious Runoff Depth>3.59"
Flow Length=176' Tc=8.5 min CN=59 Runoff=1.37 cfs 0.110 af

**Link DP1: Mill Brook** Inflow=0.87 cfs 0.073 af
Primary=0.87 cfs 0.073 af

**Link DP2: Parcel 39-33** Inflow=1.40 cfs 0.114 af
Primary=1.40 cfs 0.114 af

**Link DP3: Stormwater Basin** Inflow=1.37 cfs 0.110 af
Primary=1.37 cfs 0.110 af

**Total Runoff Area = 1.088 ac Runoff Volume = 0.297 af Average Runoff Depth = 3.28"**
**100.00% Pervious = 1.088 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment W1: E-1

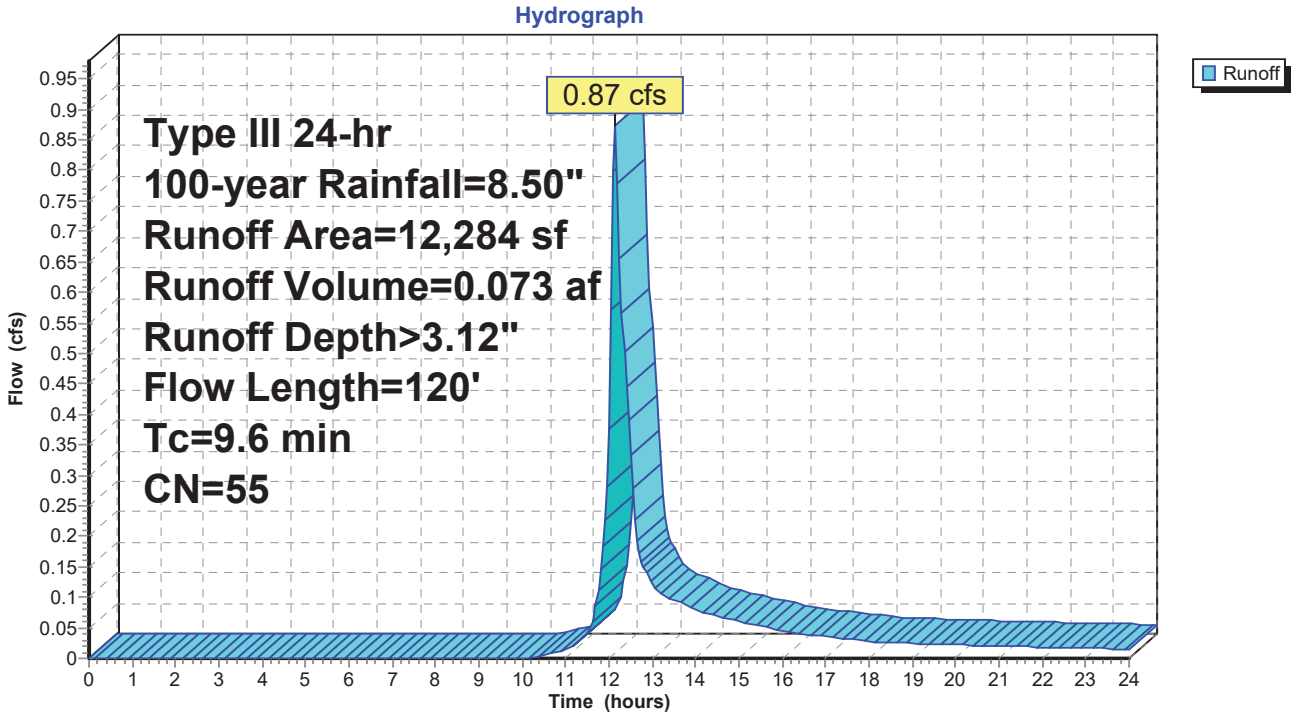
Runoff = 0.87 cfs @ 12.15 hrs, Volume= 0.073 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=8.50"

| Area (sf) | CN | Description |
|---|---|---|
| 12,284 | 55 | Woods, Good, HSG B |
| 12,284 | | 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: Light underbrush n= 0.400 P2= 3.20" |
| 0.3 | 70 | 0.0600 | 3.94 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 9.6 | 120 | Total | | | |

## Subcatchment W1: E-1



## Summary for Subcatchment W2: E-2

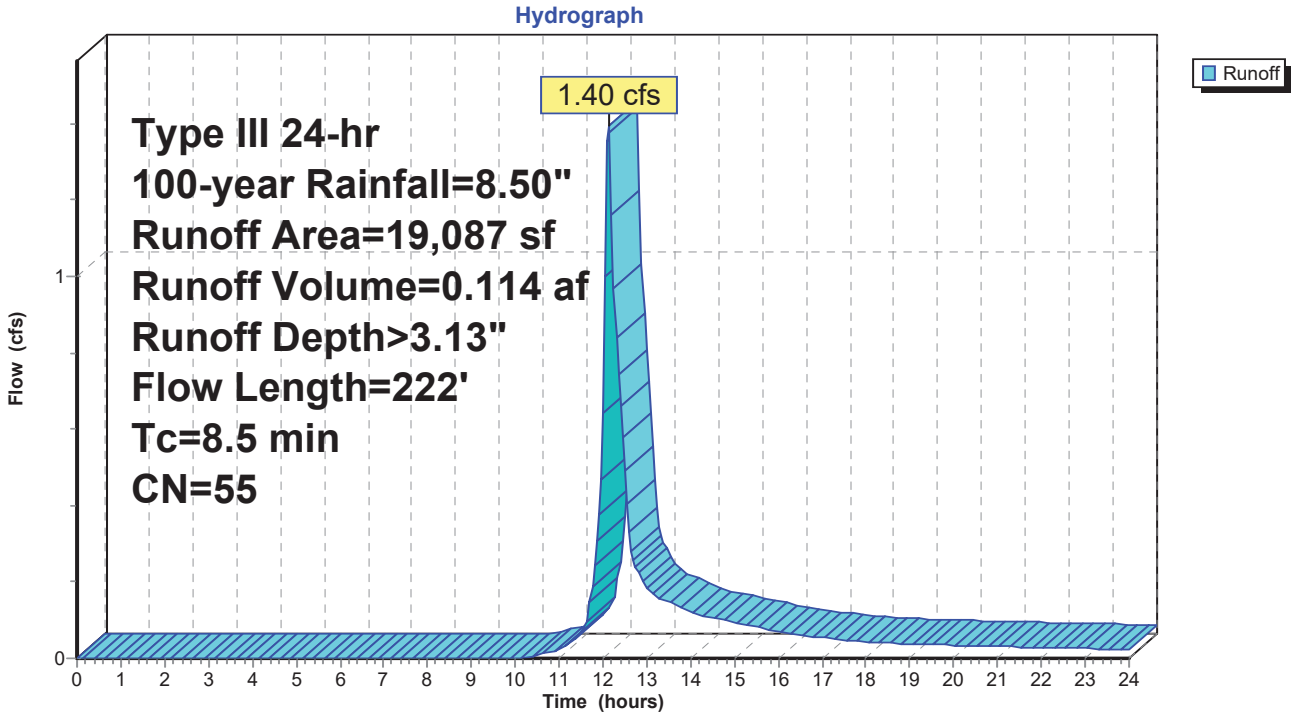
Runoff = 1.40 cfs @ 12.13 hrs, Volume= 0.114 af, Depth> 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=8.50"

| Area (sf) | CN | Description |
|---|---|---|
| 19,087 | 55 | Woods, Good, HSG B |
| 19,087 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.9 | 50 | 0.0600 | 0.10 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.6 | 172 | 0.0800 | 4.55 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.5 | 222 | Total | | | |

## Subcatchment W2: E-2



## Summary for Subcatchment W3: E-3

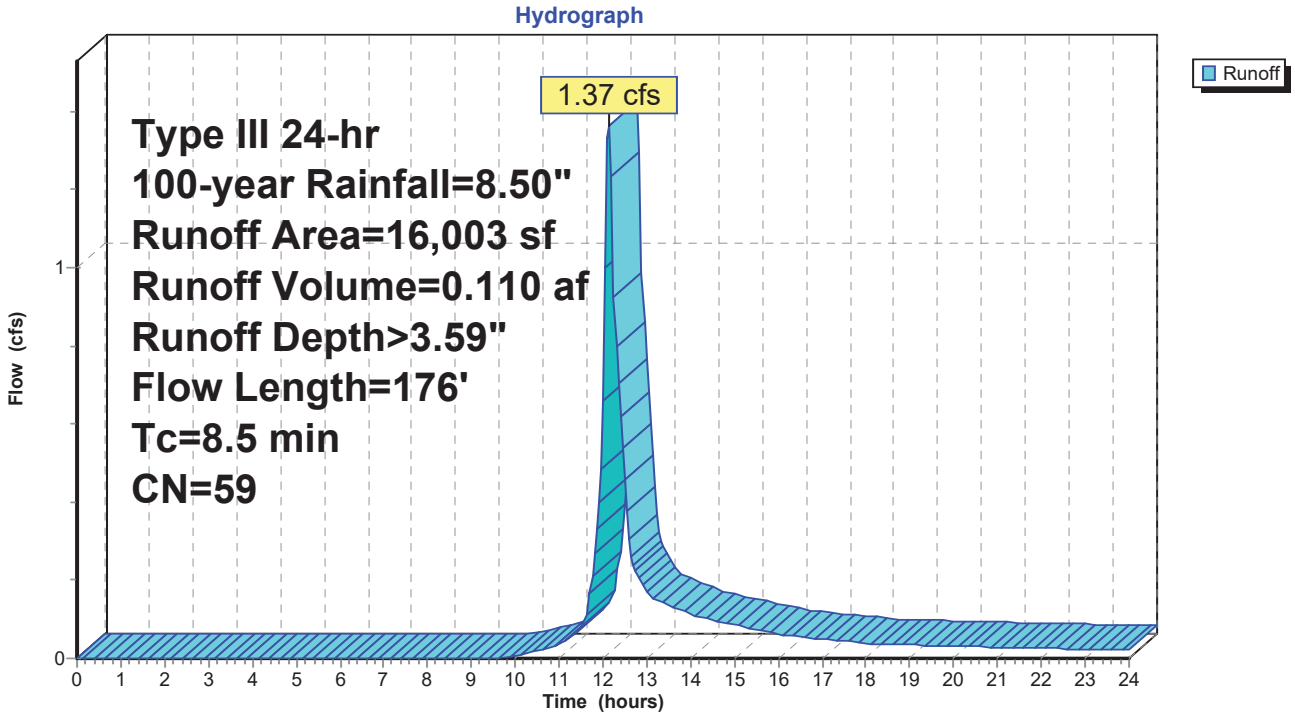
Runoff = 1.37 cfs @ 12.13 hrs, Volume= 0.110 af, Depth> 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=8.50"

| Area (sf) | CN | Description |
|---|---|---|
| 2,781 | 79 | <50% Grass cover, Poor, HSG B |
| 13,222 | 55 | Woods, Good, HSG B |
| 16,003 | 59 | Weighted Average |
| 16,003 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.9 | 50 | 0.0600 | 0.10 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.6 | 126 | 0.0550 | 3.78 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.5 | 176 | Total | | | |

## Subcatchment W3: E-3

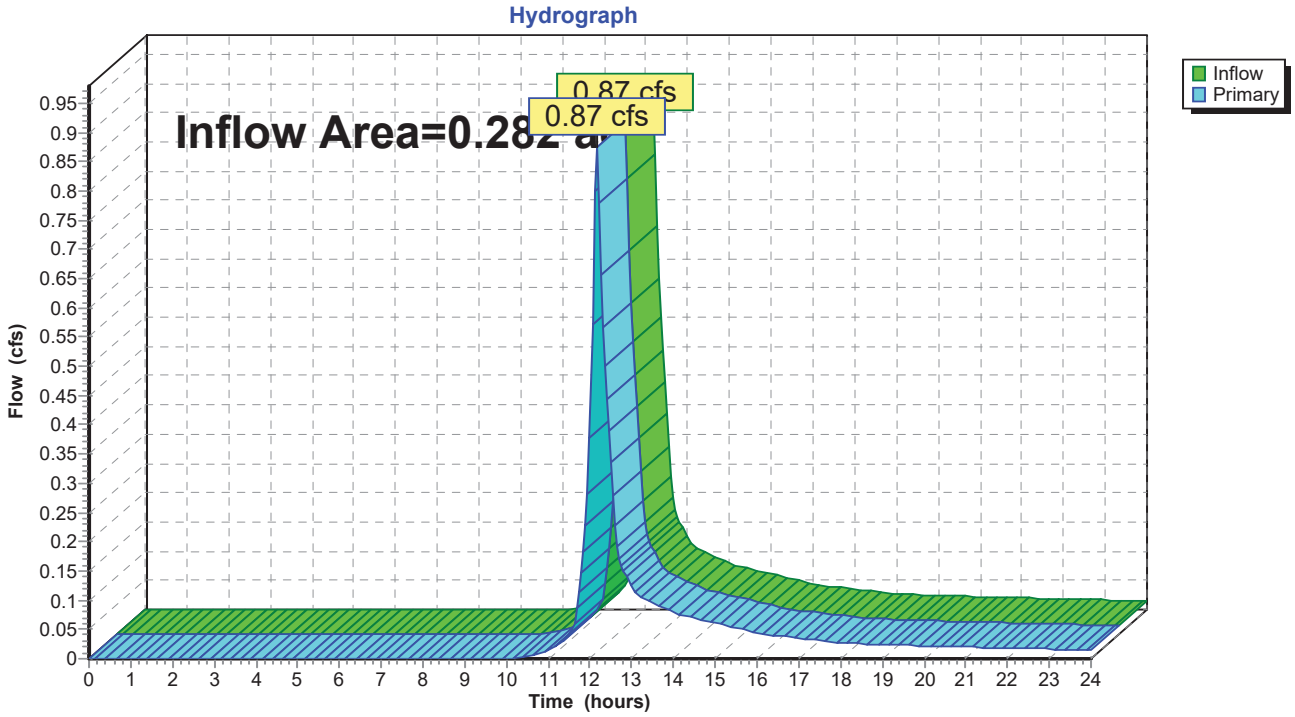


## Summary for Link DP1: Mill Brook

Inflow Area = 0.282 ac, 0.00% Impervious, Inflow Depth > 3.12" for 100-year event
Inflow = 0.87 cfs @ 12.15 hrs, Volume= 0.073 af
Primary = 0.87 cfs @ 12.15 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP1: Mill Brook

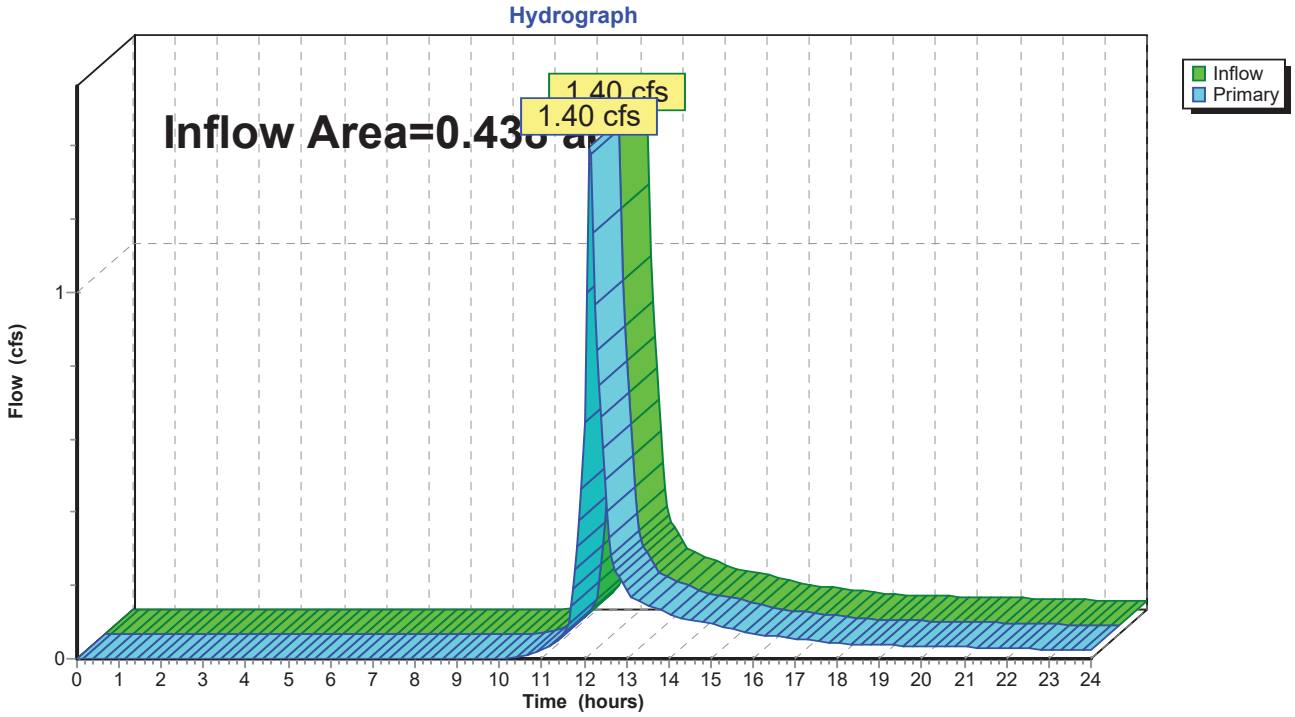


## Summary for Link DP2: Parcel 39-33

Inflow Area = 0.438 ac, 0.00% Impervious, Inflow Depth > 3.13" for 100-year event
Inflow = 1.40 cfs @ 12.13 hrs, Volume= 0.114 af
Primary = 1.40 cfs @ 12.13 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP2: Parcel 39-33

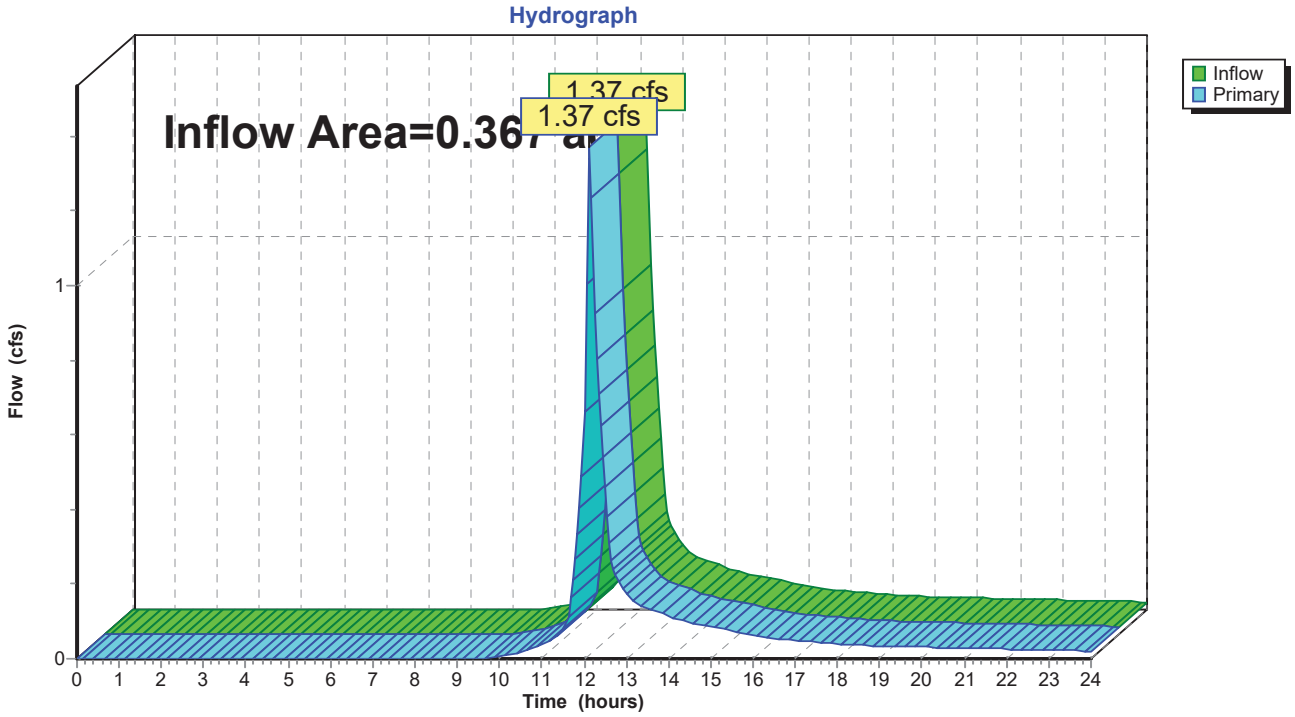


## Summary for Link DP3: Stormwater Basin

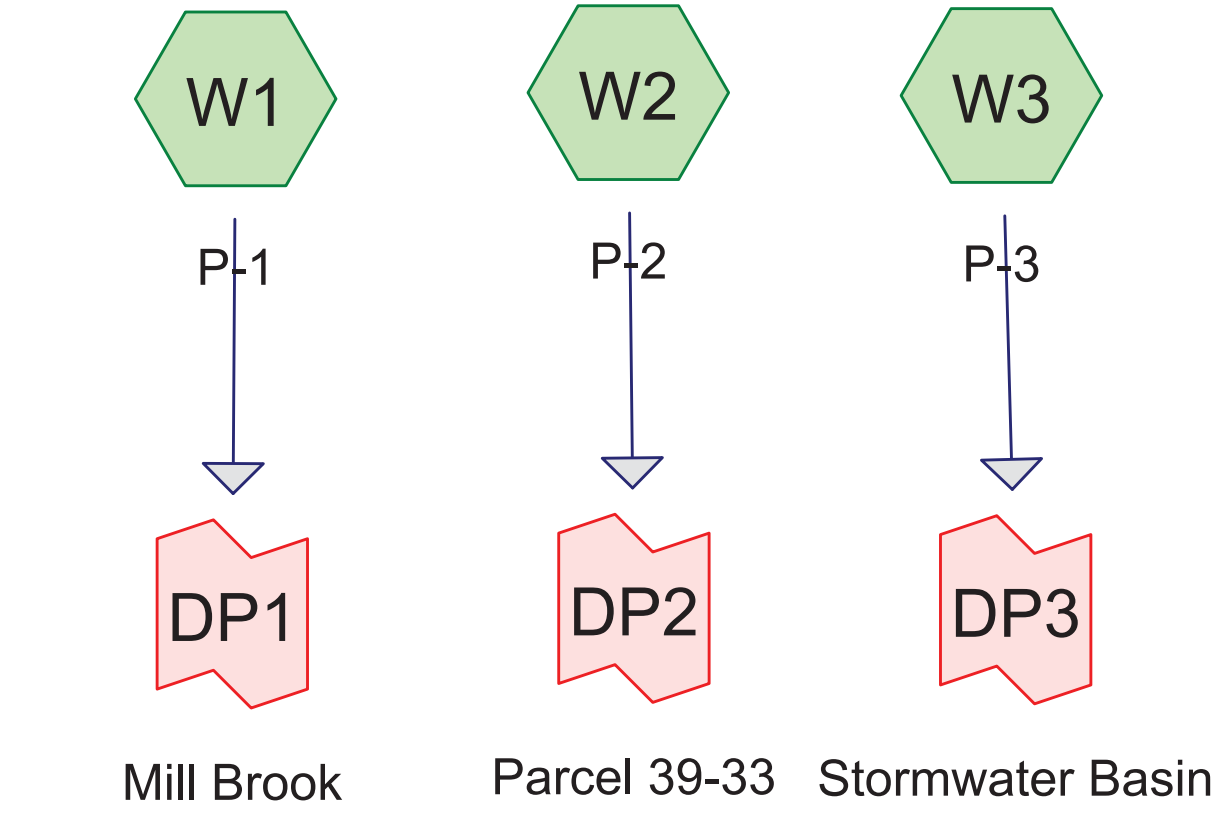
Inflow Area = 0.367 ac, 0.00% Impervious, Inflow Depth > 3.59" for 100-year event
Inflow = 1.37 cfs @ 12.13 hrs, Volume= 0.110 af
Primary = 1.37 cfs @ 12.13 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP3: Stormwater Basin



# HydroCAD – Proposed Conditions




Subcat Reach Pond Link

**Routing Diagram for Phillips Way Proposed**
Prepared by {enter your company name here}, Printed 5/9/2017

## Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 0.704 | 61 | >75% Grass cover, Good, HSG B (W1, W2, W3) |
| 0.066 | 98 | Paved parking, HSG B (W3) |
| 0.075 | 98 | Unconnected roofs, HSG B (W1, W2, W3) |
| 0.242 | 55 | Woods, Good, HSG B (W1, W2, W3) |
| **1.088** | **64** | **TOTAL AREA** |

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment W1: P-1** Runoff Area=8,559 sf 4.31% Impervious Runoff Depth>0.37"
Flow Length=100' Tc=8.4 min UI Adjusted CN=59 Runoff=0.04 cfs 0.006 af

**Subcatchment W2: P-2** Runoff Area=14,766 sf 5.90% Impervious Runoff Depth>0.41"
Flow Length=183' Tc=5.3 min UI Adjusted CN=60 Runoff=0.10 cfs 0.012 af

**Subcatchment W3: P-3** Runoff Area=24,050 sf 20.40% Impervious Runoff Depth>0.64"
Flow Length=164' Tc=6.1 min UI Adjusted CN=66 Runoff=0.33 cfs 0.030 af

**Link DP1: Mill Brook** Inflow=0.04 cfs 0.006 af
Primary=0.04 cfs 0.006 af

**Link DP2: Parcel 39-33** Inflow=0.10 cfs 0.012 af
Primary=0.10 cfs 0.012 af

**Link DP3: Stormwater Basin** Inflow=0.33 cfs 0.030 af
Primary=0.33 cfs 0.030 af

**Total Runoff Area = 1.088 ac Runoff Volume = 0.047 af Average Runoff Depth = 0.52"**
**87.03% Pervious = 0.947 ac 12.97% Impervious = 0.141 ac**

## Summary for Subcatchment W1: P-1

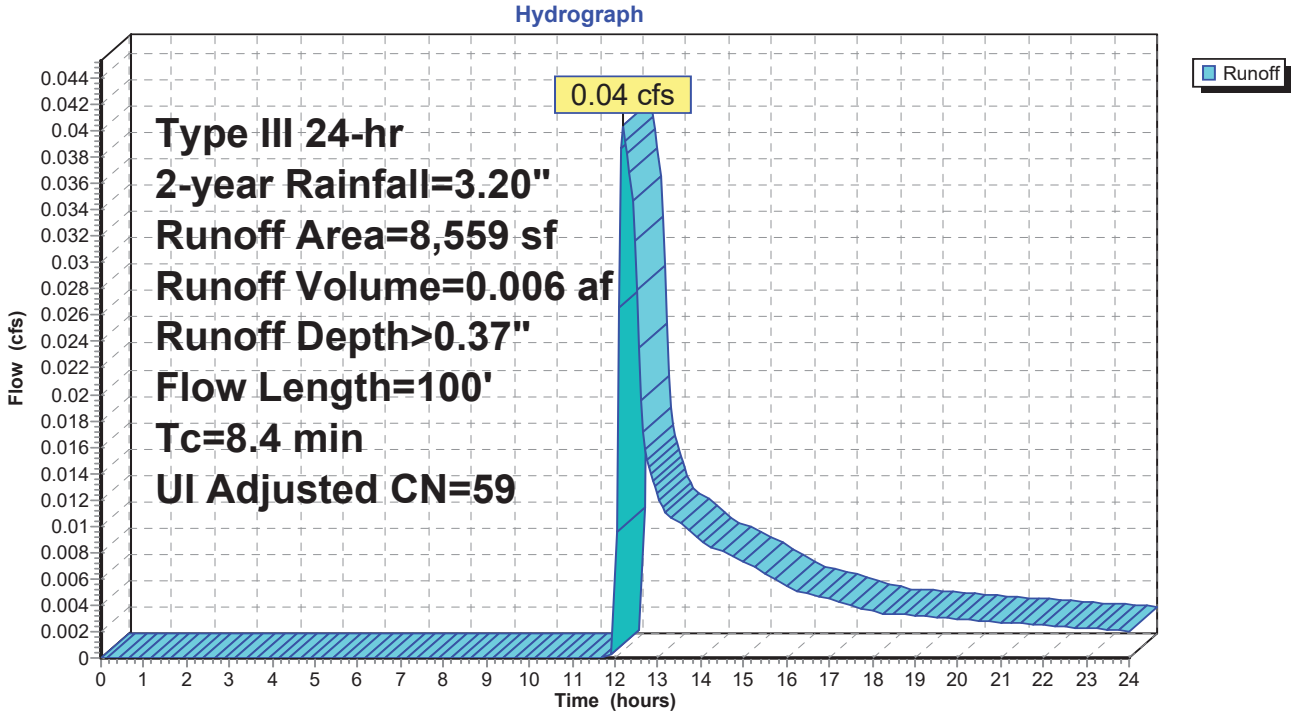
Runoff = 0.04 cfs @ 12.20 hrs, Volume= 0.006 af, Depth> 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 369 | 98 | | Unconnected roofs, HSG B |
| 4,389 | 61 | | >75% Grass cover, Good, HSG B |
| 3,801 | 55 | | Woods, Good, HSG B |
| 8,559 | 60 | 59 | Weighted Average, UI Adjusted |
| 8,190 | | | 95.69% Pervious Area |
| 369 | | | 4.31% Impervious Area |
| 369 | | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 8.2 | 50 | 0.0200 | 0.10 | | **Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20" |
| 0.2 | 50 | 0.0540 | 3.74 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.4 | 100 | Total | | | |

### Subcatchment W1: P-1



## Summary for Subcatchment W2: P-2

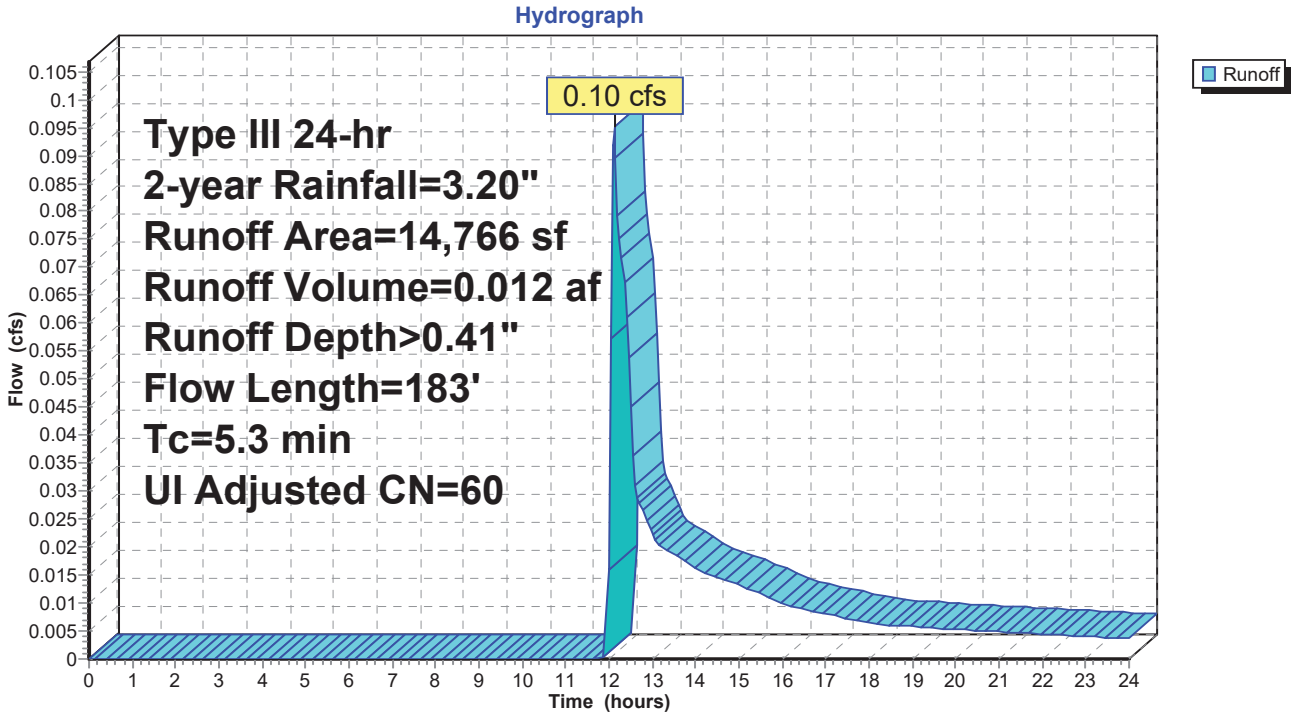
Runoff = 0.10 cfs @ 12.12 hrs, Volume= 0.012 af, Depth> 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 9,391 | 61 | | >75% Grass cover, Good, HSG B |
| 871 | 98 | | Unconnected roofs, HSG B |
| 4,504 | 55 | | Woods, Good, HSG B |
| 14,766 | 61 | 60 | Weighted Average, UI Adjusted |
| 13,895 | | | 94.10% Pervious Area |
| 871 | | | 5.90% Impervious Area |
| 871 | | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.5 | 10 | 0.1600 | 0.11 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 3.3 | 40 | 0.1250 | 0.20 | | **Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20" |
| 0.5 | 133 | 0.0900 | 4.83 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 5.3 | 183 | Total | | | |

## Subcatchment W2: P-2



## Summary for Subcatchment W3: P-3

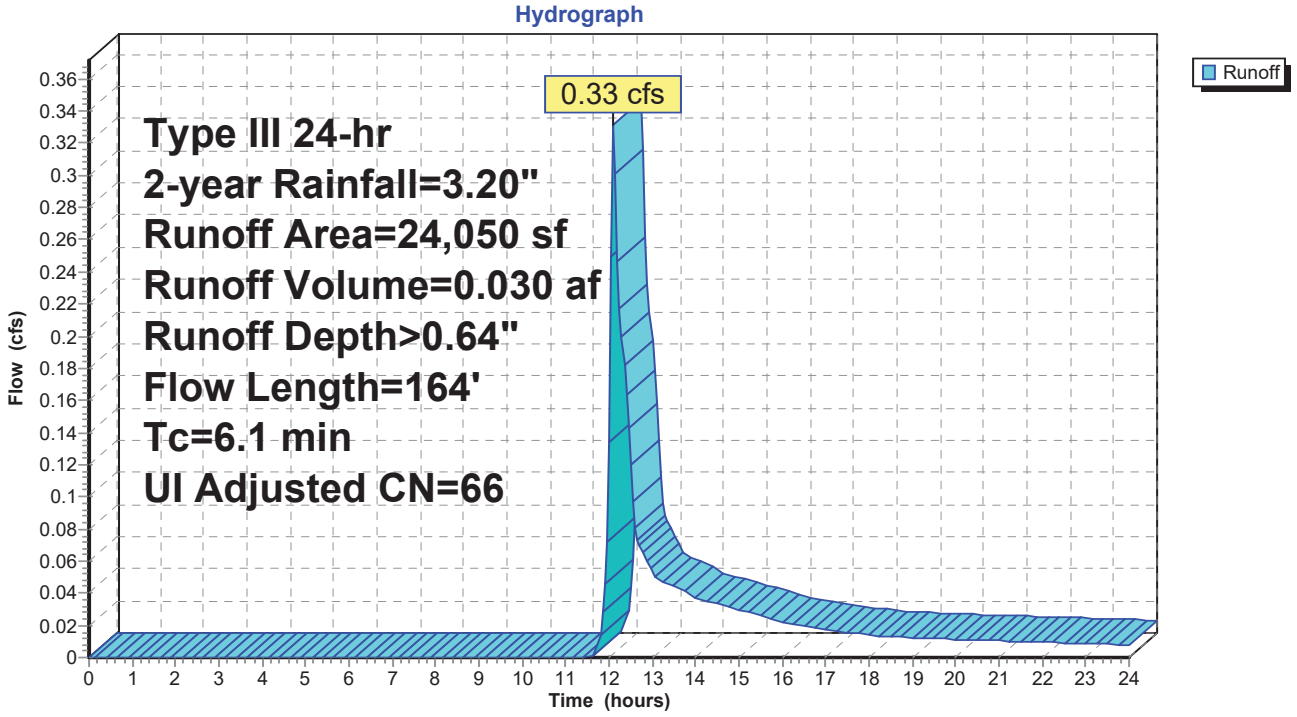
Runoff = 0.33 cfs @ 12.11 hrs, Volume= 0.030 af, Depth> 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 16,898 | 61 | | >75% Grass cover, Good, HSG B |
| 2,020 | 98 | | Unconnected roofs, HSG B |
| 2,885 | 98 | | Paved parking, HSG B |
| 2,247 | 55 | | Woods, Good, HSG B |
| 24,050 | 68 | 66 | Weighted Average, UI Adjusted |
| 19,145 | | | 79.60% Pervious Area |
| 4,905 | | | 20.40% Impervious Area |
| 2,020 | | | 41.18% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.7 | 50 | 0.1400 | 0.15 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.4 | 106 | 0.0940 | 4.94 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 0.0 | 8 | 0.0700 | 5.37 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 6.1 | 164 | Total | | | |

## Subcatchment W3: P-3

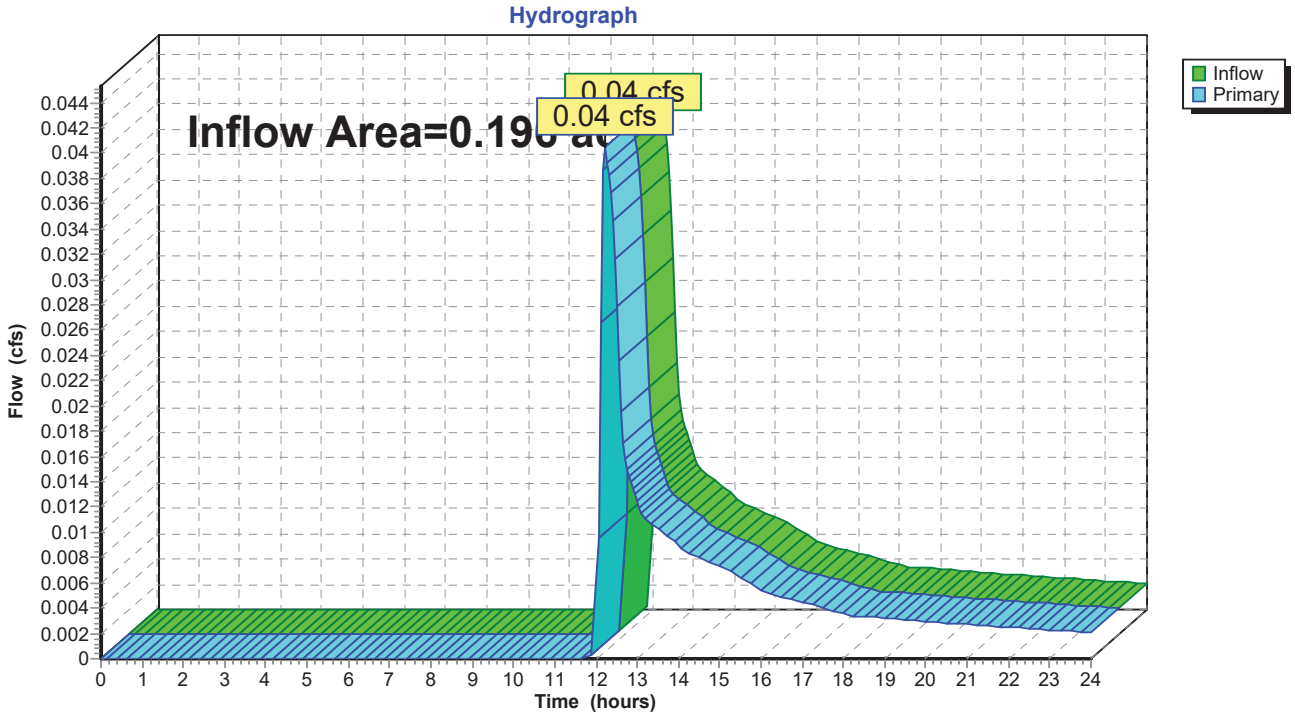


## Summary for Link DP1: Mill Brook

Inflow Area = 0.196 ac, 4.31% Impervious, Inflow Depth > 0.37" for 2-year event
Inflow = 0.04 cfs @ 12.20 hrs, Volume= 0.006 af
Primary = 0.04 cfs @ 12.20 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP1: Mill Brook

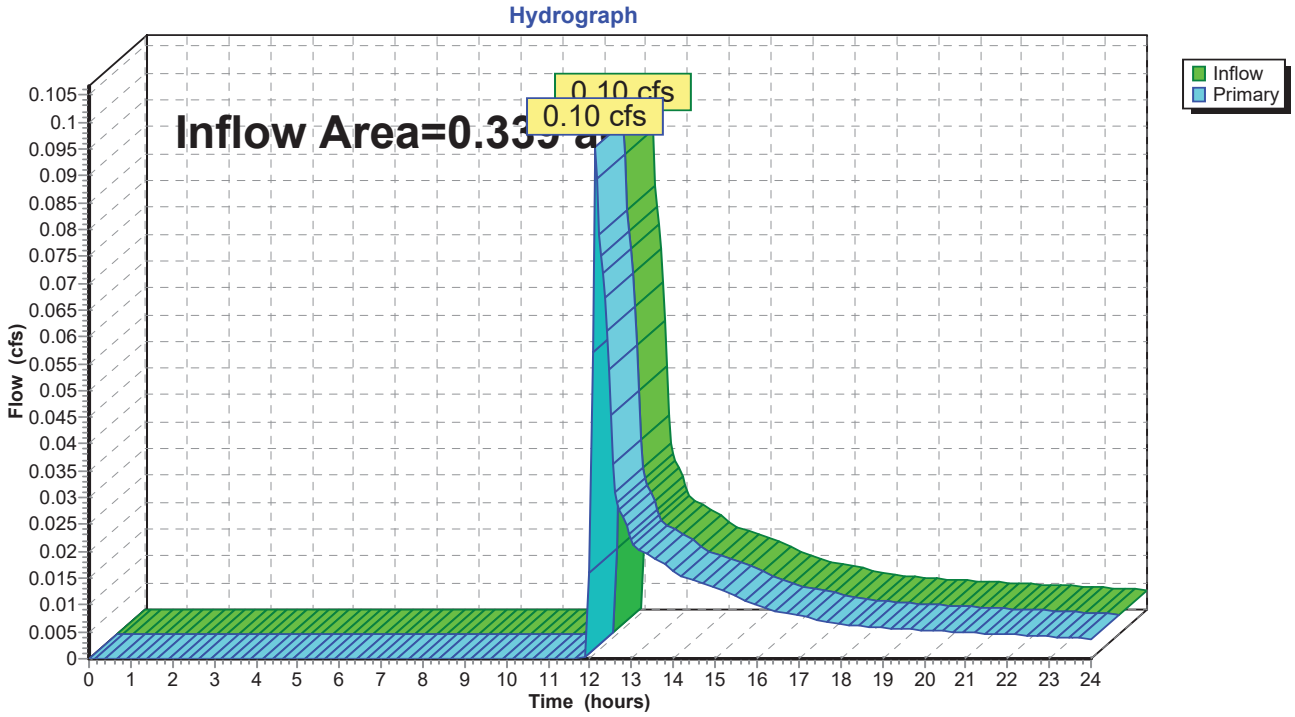


## Summary for Link DP2: Parcel 39-33

Inflow Area = 0.339 ac, 5.90% Impervious, Inflow Depth > 0.41" for 2-year event
Inflow = 0.10 cfs @ 12.12 hrs, Volume= 0.012 af
Primary = 0.10 cfs @ 12.12 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link DP2: Parcel 39-33

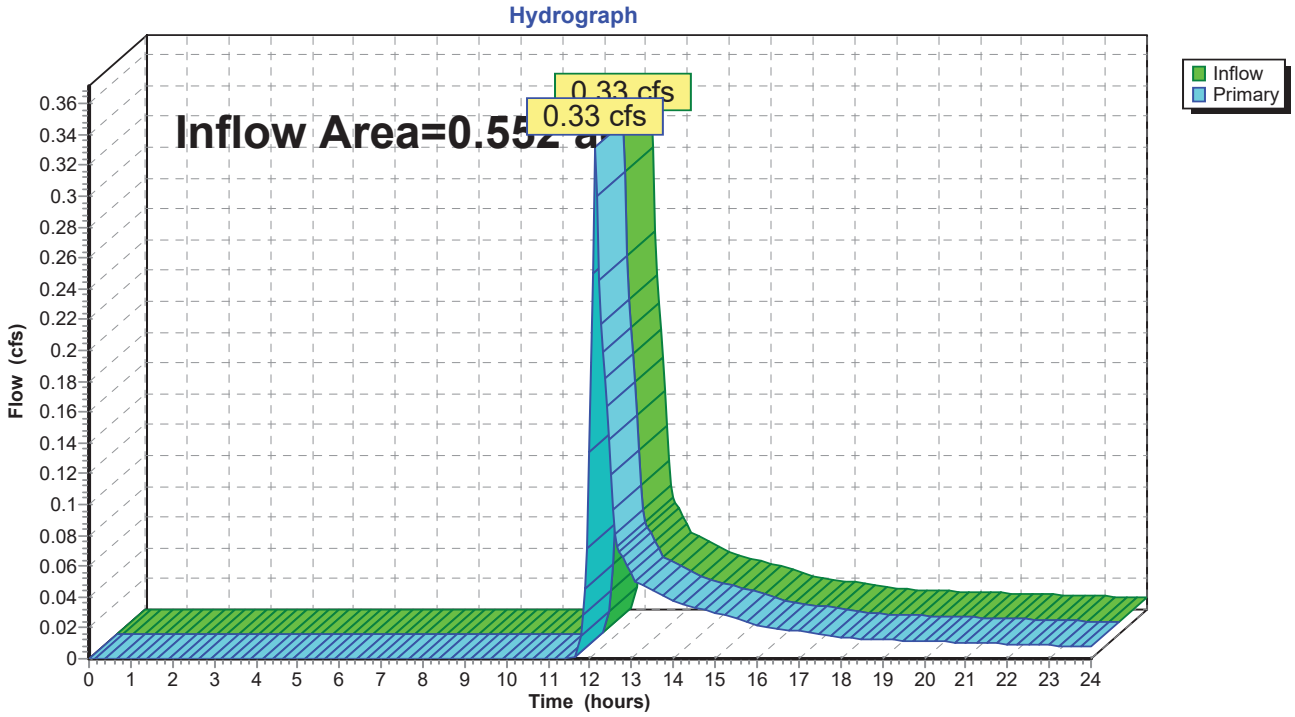


## Summary for Link DP3: Stormwater Basin

Inflow Area = 0.552 ac, 20.40% Impervious, Inflow Depth > 0.64" for 2-year event
Inflow = 0.33 cfs @ 12.11 hrs, Volume= 0.030 af
Primary = 0.33 cfs @ 12.11 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP3: Stormwater Basin



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment W1: P-1** Runoff Area=8,559 sf 4.31% Impervious Runoff Depth>1.18"
Flow Length=100' Tc=8.4 min UI Adjusted CN=59 Runoff=0.21 cfs 0.019 af

**Subcatchment W2: P-2** Runoff Area=14,766 sf 5.90% Impervious Runoff Depth>1.24"
Flow Length=183' Tc=5.3 min UI Adjusted CN=60 Runoff=0.44 cfs 0.035 af

**Subcatchment W3: P-3** Runoff Area=24,050 sf 20.40% Impervious Runoff Depth>1.66"
Flow Length=164' Tc=6.1 min UI Adjusted CN=66 Runoff=1.01 cfs 0.076 af

**Link DP1: Mill Brook** Inflow=0.21 cfs 0.019 af
Primary=0.21 cfs 0.019 af

**Link DP2: Parcel 39-33** Inflow=0.44 cfs 0.035 af
Primary=0.44 cfs 0.035 af

**Link DP3: Stormwater Basin** Inflow=1.01 cfs 0.076 af
Primary=1.01 cfs 0.076 af

**Total Runoff Area = 1.088 ac Runoff Volume = 0.131 af Average Runoff Depth = 1.44"**
**87.03% Pervious = 0.947 ac 12.97% Impervious = 0.141 ac**

## Summary for Subcatchment W1: P-1

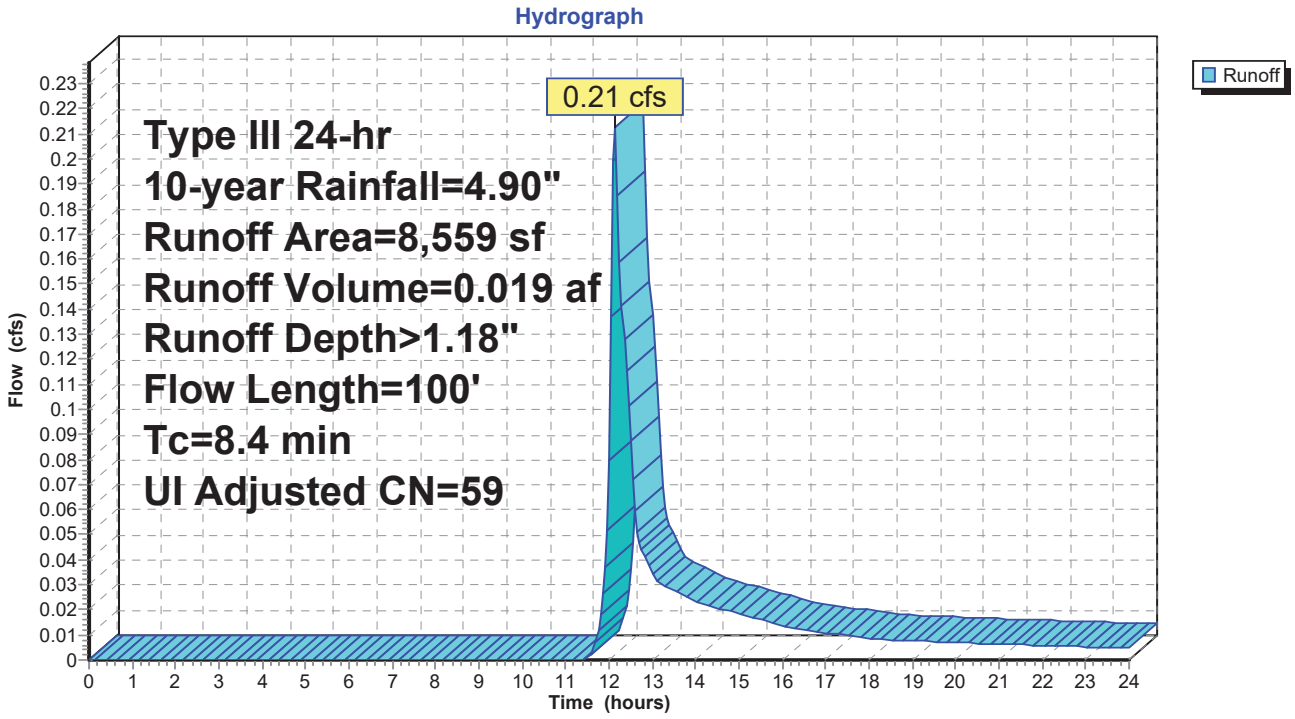
Runoff = 0.21 cfs @ 12.14 hrs, Volume= 0.019 af, Depth> 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.90"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 369 | 98 | | Unconnected roofs, HSG B |
| 4,389 | 61 | | >75% Grass cover, Good, HSG B |
| 3,801 | 55 | | Woods, Good, HSG B |
| 8,559 | 60 | 59 | Weighted Average, UI Adjusted |
| 8,190 | | | 95.69% Pervious Area |
| 369 | | | 4.31% Impervious Area |
| 369 | | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 8.2 | 50 | 0.0200 | 0.10 | | **Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20" |
| 0.2 | 50 | 0.0540 | 3.74 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.4 | 100 | Total | | | |

## Subcatchment W1: P-1



## Summary for Subcatchment W2: P-2

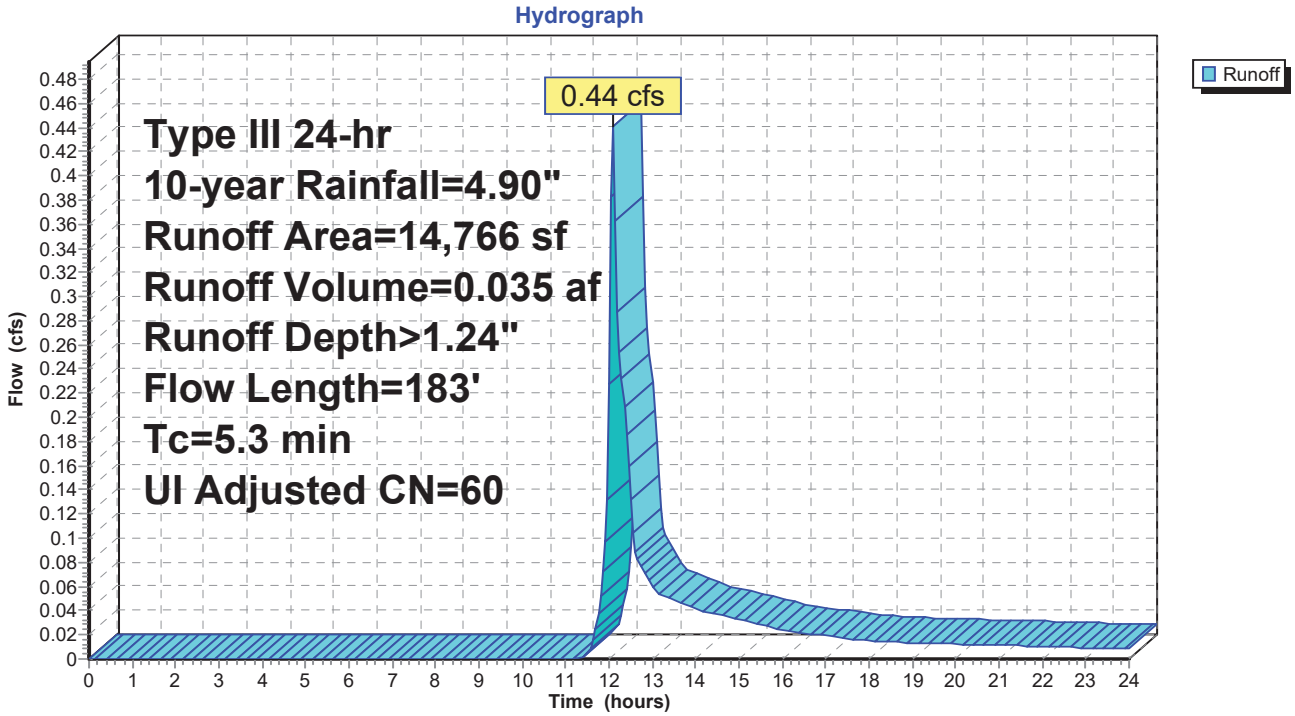
Runoff = 0.44 cfs @ 12.10 hrs, Volume= 0.035 af, Depth> 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.90"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 9,391 | 61 | | >75% Grass cover, Good, HSG B |
| 871 | 98 | | Unconnected roofs, HSG B |
| 4,504 | 55 | | Woods, Good, HSG B |
| 14,766 | 61 | 60 | Weighted Average, UI Adjusted |
| 13,895 | | | 94.10% Pervious Area |
| 871 | | | 5.90% Impervious Area |
| 871 | | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.5 | 10 | 0.1600 | 0.11 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 3.3 | 40 | 0.1250 | 0.20 | | **Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20" |
| 0.5 | 133 | 0.0900 | 4.83 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 5.3 | 183 | Total | | | |

### Subcatchment W2: P-2



## Summary for Subcatchment W3: P-3

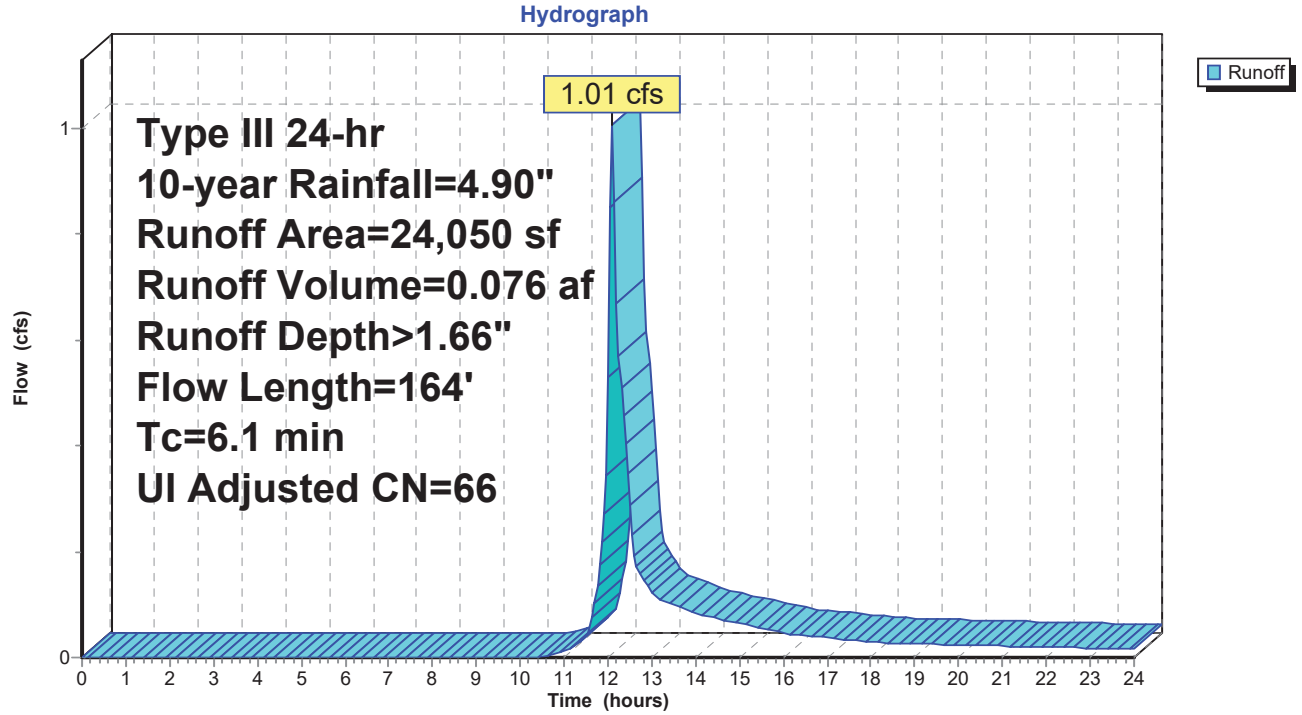
Runoff = 1.01 cfs @ 12.10 hrs, Volume= 0.076 af, Depth> 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.90"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 16,898 | 61 | | >75% Grass cover, Good, HSG B |
| 2,020 | 98 | | Unconnected roofs, HSG B |
| 2,885 | 98 | | Paved parking, HSG B |
| 2,247 | 55 | | Woods, Good, HSG B |
| 24,050 | 68 | 66 | Weighted Average, UI Adjusted |
| 19,145 | | | 79.60% Pervious Area |
| 4,905 | | | 20.40% Impervious Area |
| 2,020 | | | 41.18% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.7 | 50 | 0.1400 | 0.15 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.4 | 106 | 0.0940 | 4.94 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 0.0 | 8 | 0.0700 | 5.37 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 6.1 | 164 | Total | | | |

### Subcatchment W3: P-3

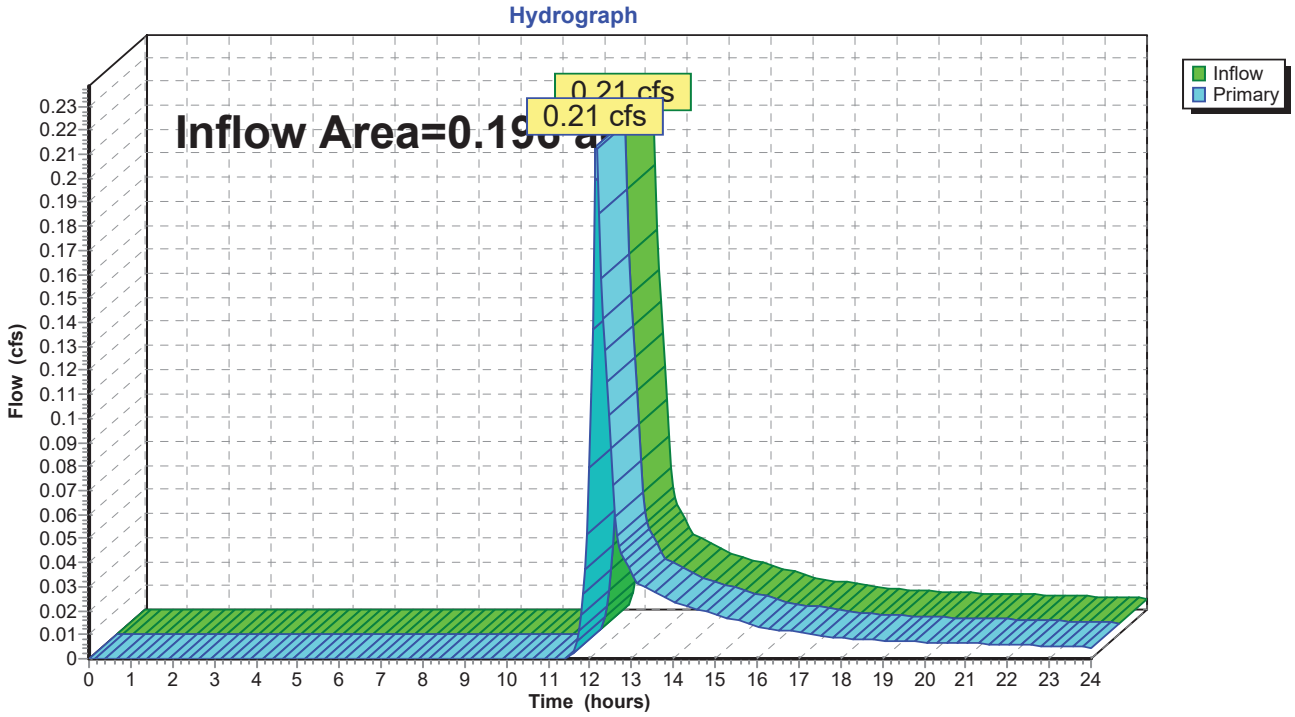


## Summary for Link DP1: Mill Brook

Inflow Area = 0.196 ac, 4.31% Impervious, Inflow Depth > 1.18" for 10-year event
Inflow = 0.21 cfs @ 12.14 hrs, Volume= 0.019 af
Primary = 0.21 cfs @ 12.14 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP1: Mill Brook

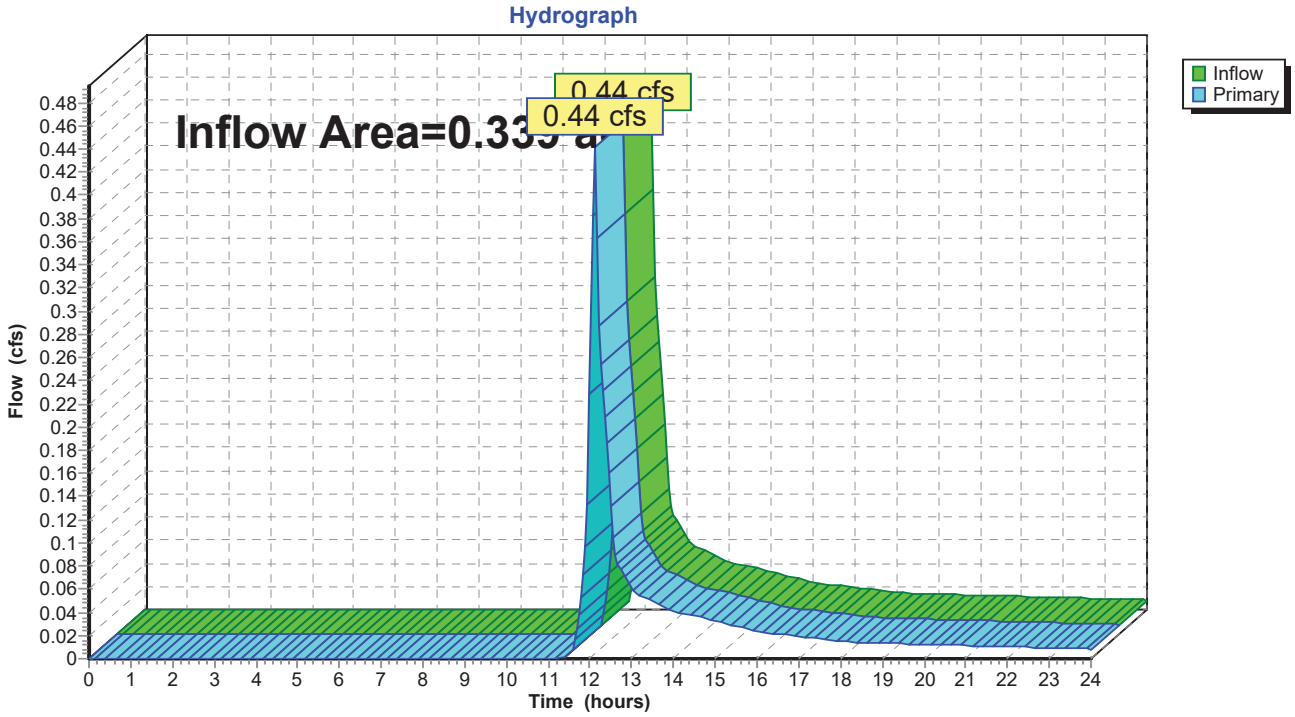


## Summary for Link DP2: Parcel 39-33

Inflow Area = 0.339 ac, 5.90% Impervious, Inflow Depth > 1.24" for 10-year event
Inflow = 0.44 cfs @ 12.10 hrs, Volume= 0.035 af
Primary = 0.44 cfs @ 12.10 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link DP2: Parcel 39-33

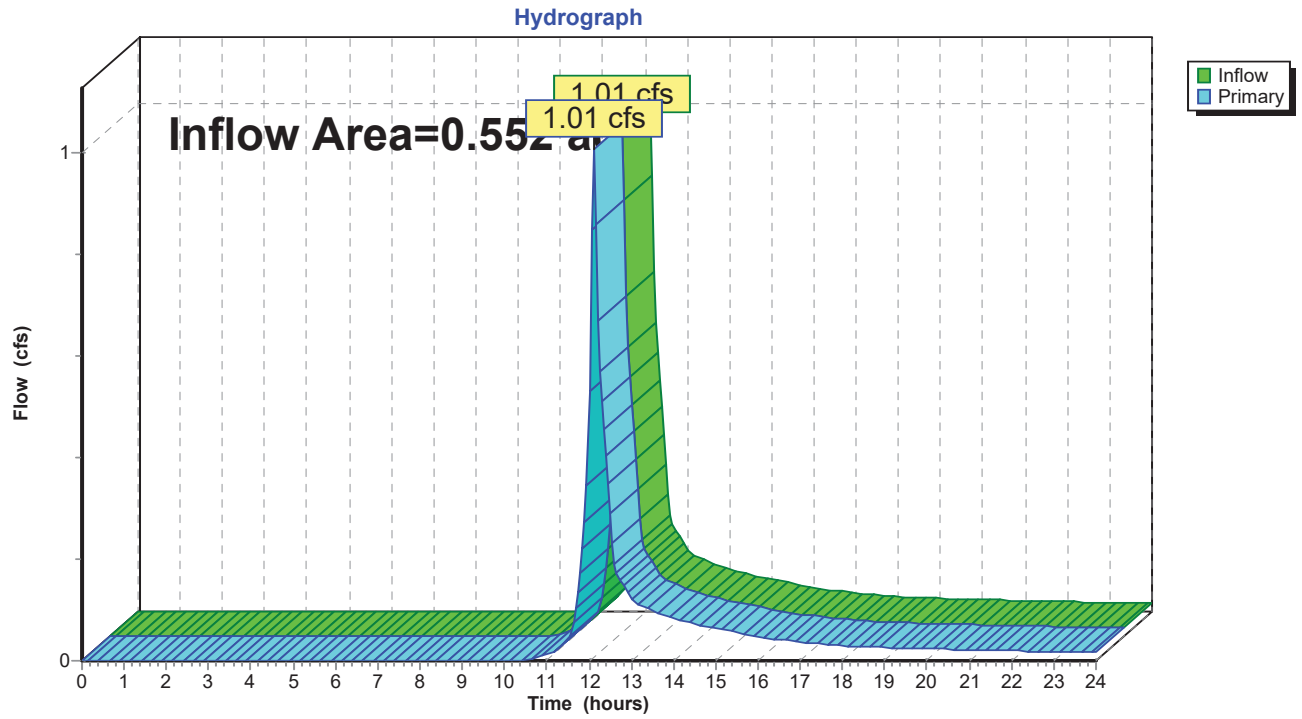


## Summary for Link DP3: Stormwater Basin

Inflow Area = 0.552 ac, 20.40% Impervious, Inflow Depth > 1.66" for 10-year event
Inflow = 1.01 cfs @ 12.10 hrs, Volume= 0.076 af
Primary = 1.01 cfs @ 12.10 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link DP3: Stormwater Basin



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment W1: P-1** Runoff Area=8,559 sf 4.31% Impervious Runoff Depth>1.84"
Flow Length=100' Tc=8.4 min UI Adjusted CN=59 Runoff=0.36 cfs 0.030 af

**Subcatchment W2: P-2** Runoff Area=14,766 sf 5.90% Impervious Runoff Depth>1.92"
Flow Length=183' Tc=5.3 min UI Adjusted CN=60 Runoff=0.72 cfs 0.054 af

**Subcatchment W3: P-3** Runoff Area=24,050 sf 20.40% Impervious Runoff Depth>2.44"
Flow Length=164' Tc=6.1 min UI Adjusted CN=66 Runoff=1.52 cfs 0.112 af

**Link DP1: Mill Brook** Inflow=0.36 cfs 0.030 af
Primary=0.36 cfs 0.030 af

**Link DP2: Parcel 39-33** Inflow=0.72 cfs 0.054 af
Primary=0.72 cfs 0.054 af

**Link DP3: Stormwater Basin** Inflow=1.52 cfs 0.112 af
Primary=1.52 cfs 0.112 af

**Total Runoff Area = 1.088 ac Runoff Volume = 0.196 af Average Runoff Depth = 2.17"**
**87.03% Pervious = 0.947 ac 12.97% Impervious = 0.141 ac**

## Summary for Subcatchment W1: P-1

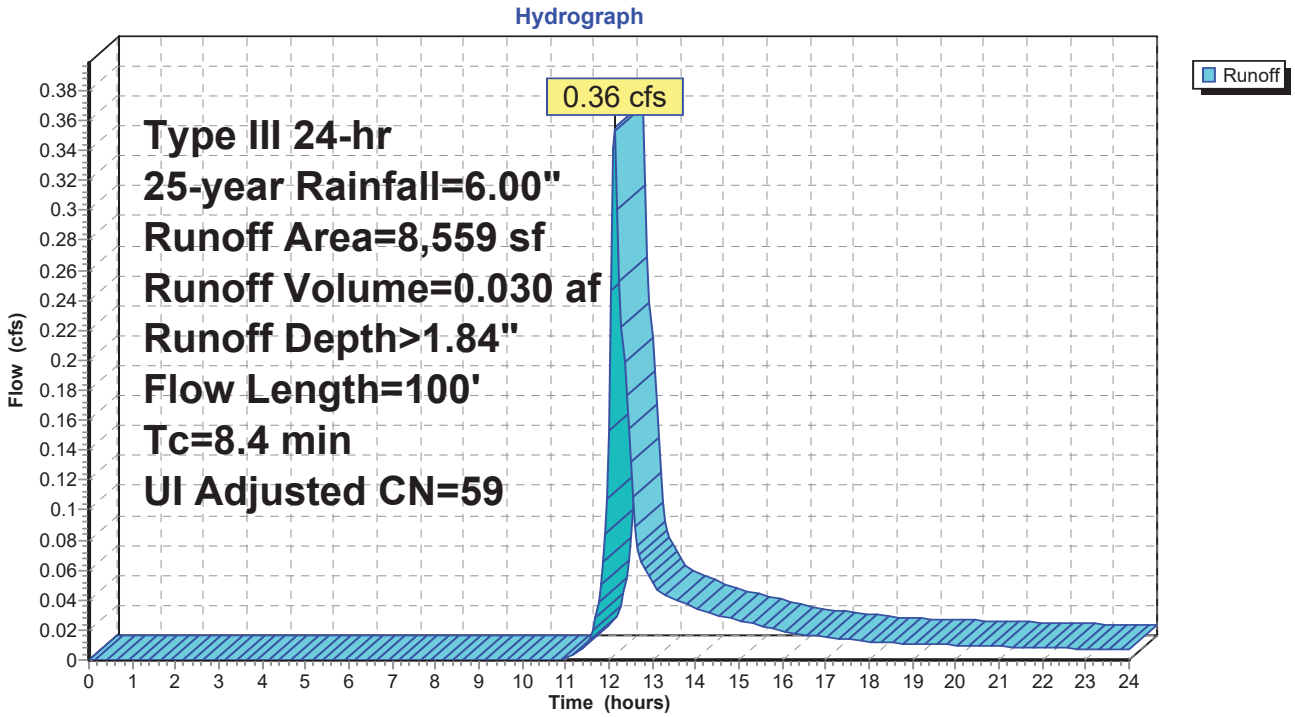
Runoff = 0.36 cfs @ 12.13 hrs, Volume= 0.030 af, Depth> 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.00"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 369 | 98 | | Unconnected roofs, HSG B |
| 4,389 | 61 | | >75% Grass cover, Good, HSG B |
| 3,801 | 55 | | Woods, Good, HSG B |
| 8,559 | 60 | 59 | Weighted Average, UI Adjusted |
| 8,190 | | | 95.69% Pervious Area |
| 369 | | | 4.31% Impervious Area |
| 369 | | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 8.2 | 50 | 0.0200 | 0.10 | | **Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20" |
| 0.2 | 50 | 0.0540 | 3.74 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.4 | 100 | Total | | | |

## Subcatchment W1: P-1



## Summary for Subcatchment W2: P-2

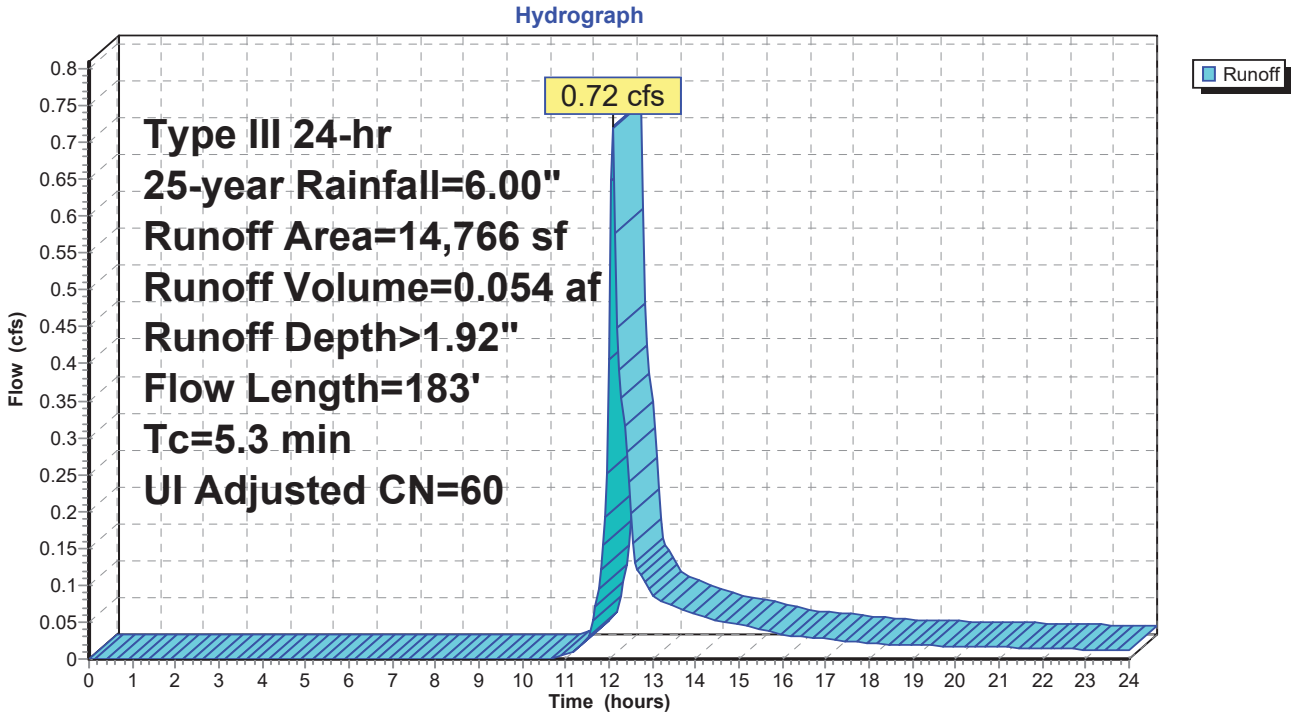
Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.054 af, Depth> 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.00"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 9,391 | 61 | | >75% Grass cover, Good, HSG B |
| 871 | 98 | | Unconnected roofs, HSG B |
| 4,504 | 55 | | Woods, Good, HSG B |
| 14,766 | 61 | 60 | Weighted Average, UI Adjusted |
| 13,895 | | | 94.10% Pervious Area |
| 871 | | | 5.90% Impervious Area |
| 871 | | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.5 | 10 | 0.1600 | 0.11 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 3.3 | 40 | 0.1250 | 0.20 | | **Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20" |
| 0.5 | 133 | 0.0900 | 4.83 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 5.3 | 183 | Total | | | |

## Subcatchment W2: P-2



## Summary for Subcatchment W3: P-3

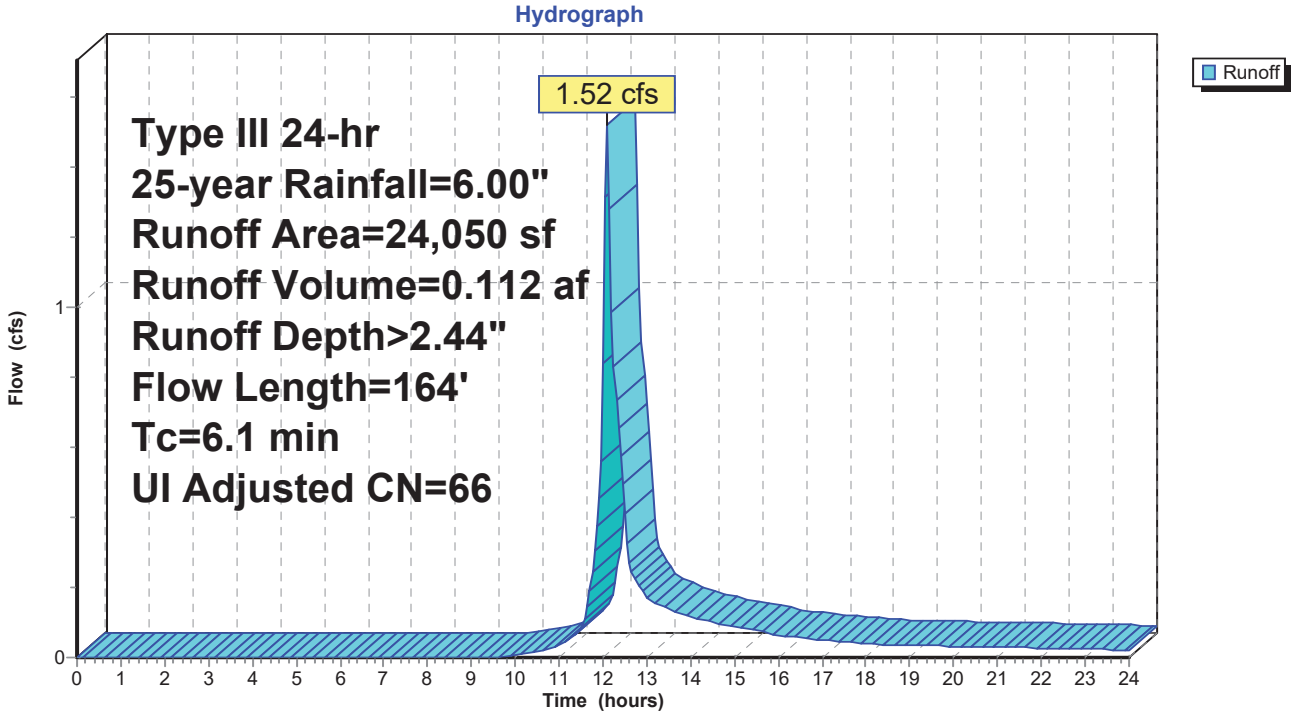
Runoff = 1.52 cfs @ 12.10 hrs, Volume= 0.112 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=6.00"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 16,898 | 61 | | >75% Grass cover, Good, HSG B |
| 2,020 | 98 | | Unconnected roofs, HSG B |
| 2,885 | 98 | | Paved parking, HSG B |
| 2,247 | 55 | | Woods, Good, HSG B |
| 24,050 | 68 | 66 | Weighted Average, UI Adjusted |
| 19,145 | | | 79.60% Pervious Area |
| 4,905 | | | 20.40% Impervious Area |
| 2,020 | | | 41.18% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.7 | 50 | 0.1400 | 0.15 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.4 | 106 | 0.0940 | 4.94 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 0.0 | 8 | 0.0700 | 5.37 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 6.1 | 164 | Total | | | |

### Subcatchment W3: P-3

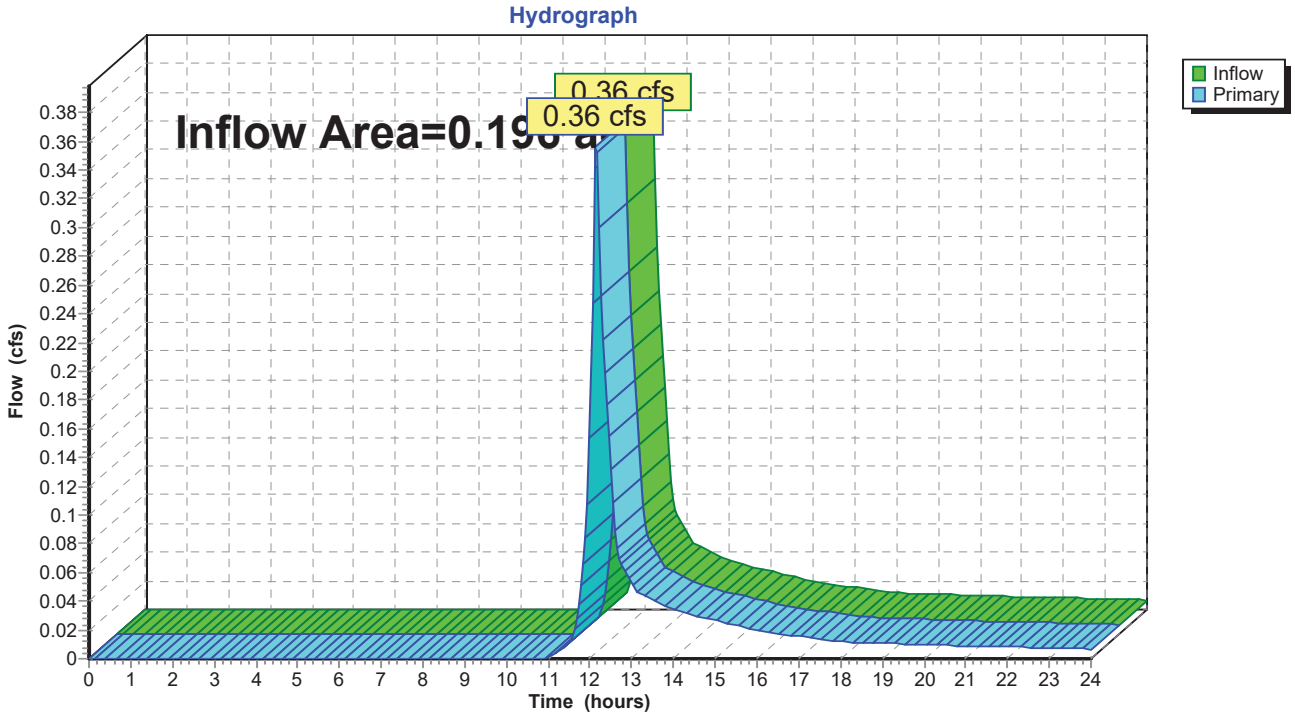


## Summary for Link DP1: Mill Brook

Inflow Area = 0.196 ac, 4.31% Impervious, Inflow Depth > 1.84" for 25-year event
Inflow = 0.36 cfs @ 12.13 hrs, Volume= 0.030 af
Primary = 0.36 cfs @ 12.13 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP1: Mill Brook

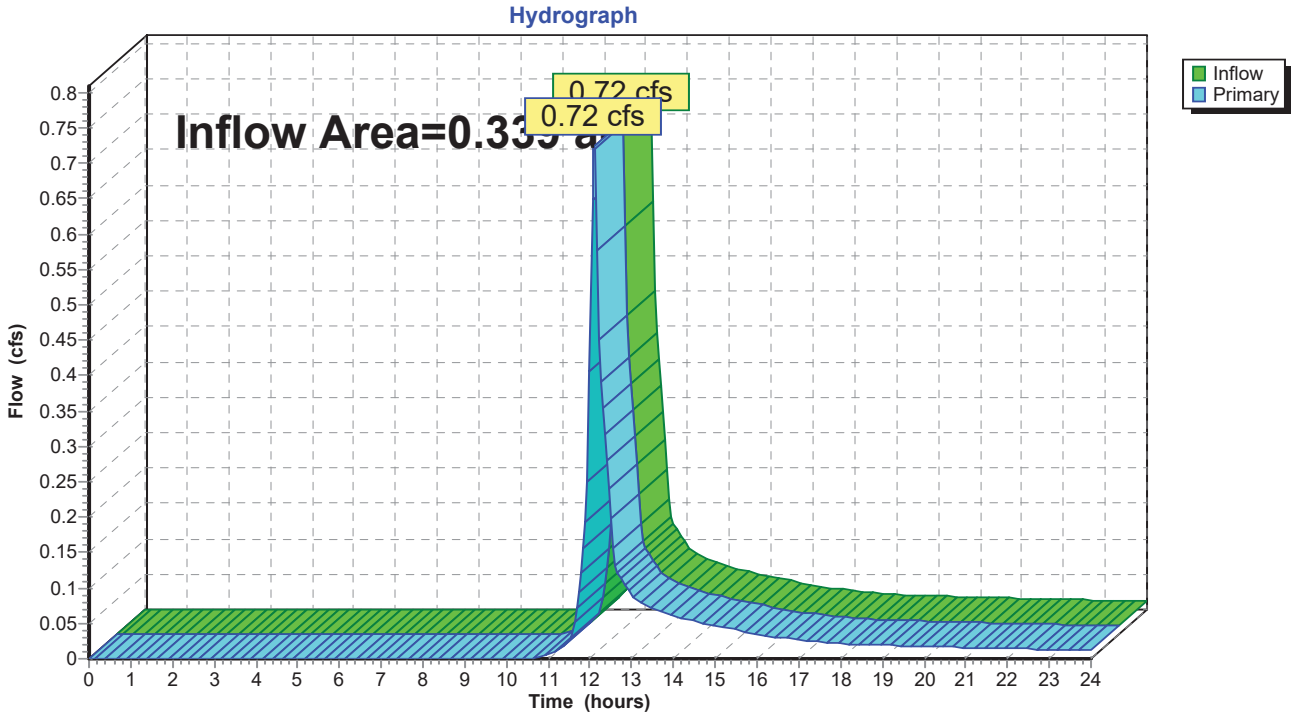


## Summary for Link DP2: Parcel 39-33

Inflow Area = 0.339 ac, 5.90% Impervious, Inflow Depth > 1.92" for 25-year event
Inflow = 0.72 cfs @ 12.09 hrs, Volume= 0.054 af
Primary = 0.72 cfs @ 12.09 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link DP2: Parcel 39-33

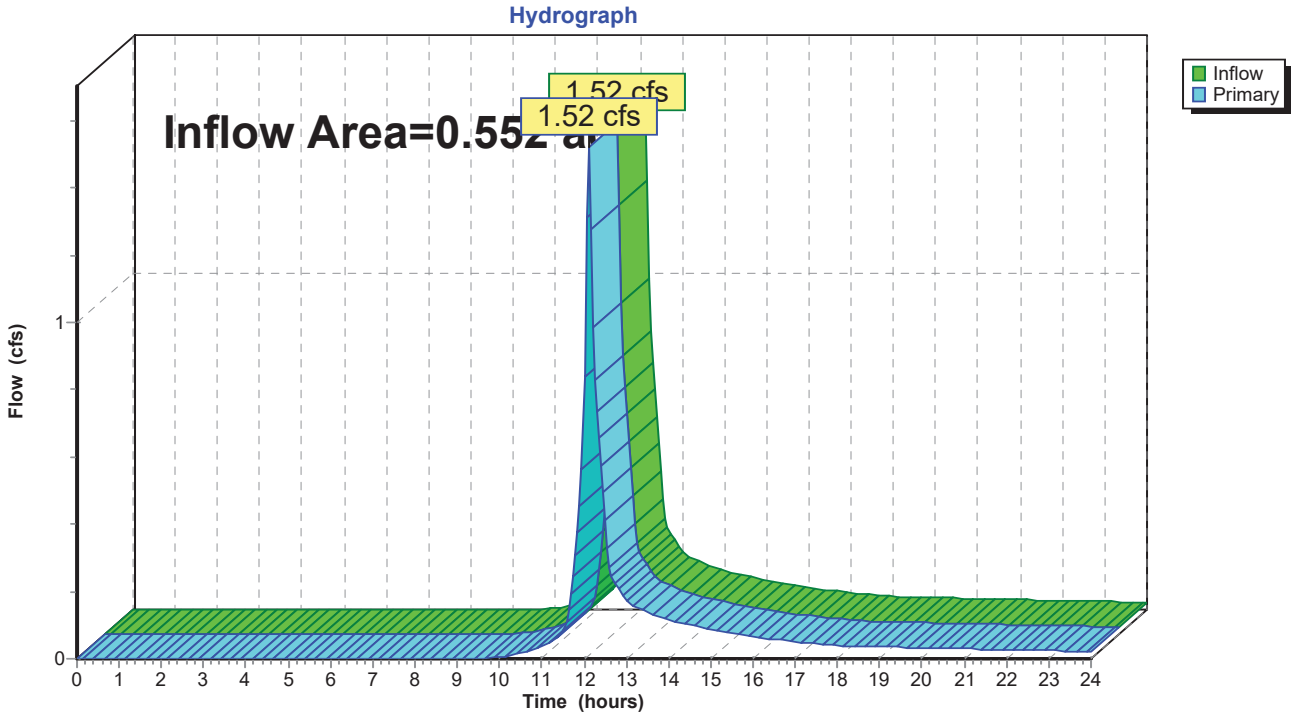


## Summary for Link DP3: Stormwater Basin

Inflow Area = 0.552 ac, 20.40% Impervious, Inflow Depth > 2.44" for 25-year event
Inflow = 1.52 cfs @ 12.10 hrs, Volume= 0.112 af
Primary = 1.52 cfs @ 12.10 hrs, Volume= 0.112 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link DP3: Stormwater Basin



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment W1: P-1** Runoff Area=8,559 sf 4.31% Impervious Runoff Depth>3.59"
Flow Length=100' Tc=8.4 min UI Adjusted CN=59 Runoff=0.73 cfs 0.059 af

**Subcatchment W2: P-2** Runoff Area=14,766 sf 5.90% Impervious Runoff Depth>3.71"
Flow Length=183' Tc=5.3 min UI Adjusted CN=60 Runoff=1.46 cfs 0.105 af

**Subcatchment W3: P-3** Runoff Area=24,050 sf 20.40% Impervious Runoff Depth>4.42"
Flow Length=164' Tc=6.1 min UI Adjusted CN=66 Runoff=2.80 cfs 0.203 af

**Link DP1: Mill Brook** Inflow=0.73 cfs 0.059 af
Primary=0.73 cfs 0.059 af

**Link DP2: Parcel 39-33** Inflow=1.46 cfs 0.105 af
Primary=1.46 cfs 0.105 af

**Link DP3: Stormwater Basin** Inflow=2.80 cfs 0.203 af
Primary=2.80 cfs 0.203 af

**Total Runoff Area = 1.088 ac Runoff Volume = 0.367 af Average Runoff Depth = 4.05"**
**87.03% Pervious = 0.947 ac 12.97% Impervious = 0.141 ac**

## Summary for Subcatchment W1: P-1

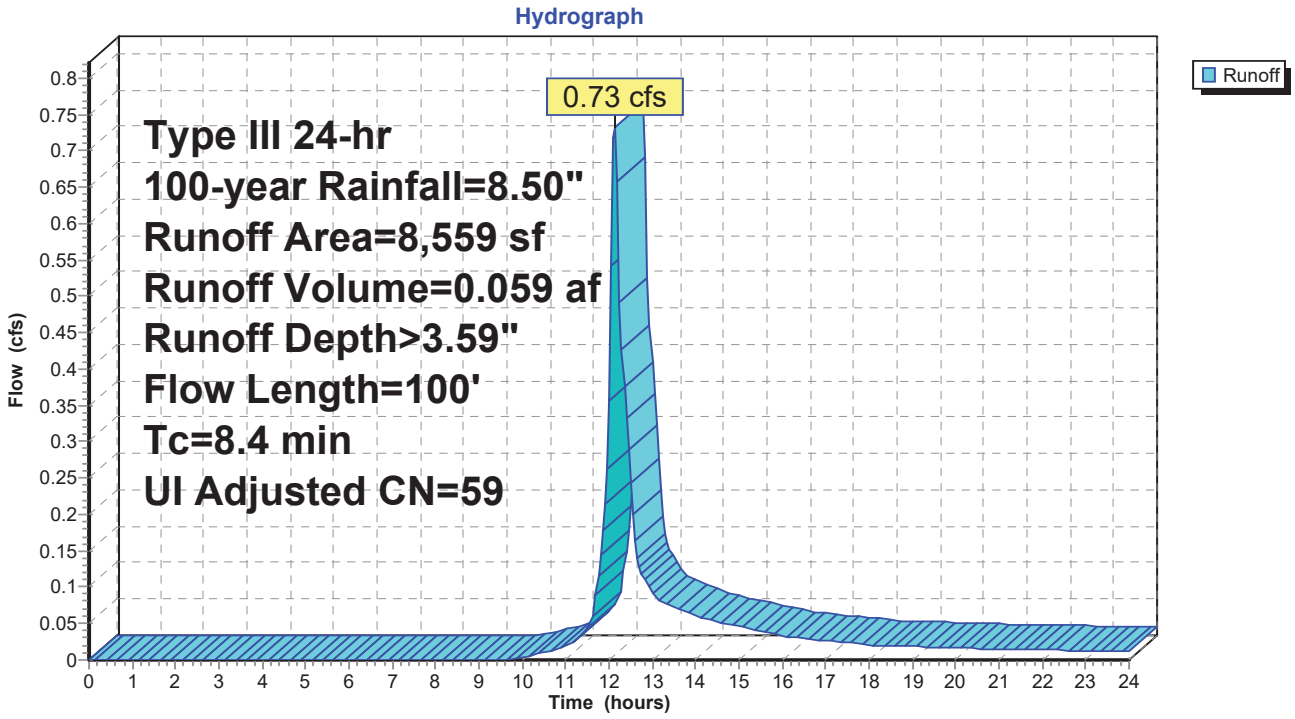
Runoff = 0.73 cfs @ 12.13 hrs, Volume= 0.059 af, Depth> 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=8.50"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 369 | 98 | | Unconnected roofs, HSG B |
| 4,389 | 61 | | >75% Grass cover, Good, HSG B |
| 3,801 | 55 | | Woods, Good, HSG B |
| 8,559 | 60 | 59 | Weighted Average, UI Adjusted |
| 8,190 | | | 95.69% Pervious Area |
| 369 | | | 4.31% Impervious Area |
| 369 | | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 8.2 | 50 | 0.0200 | 0.10 | | **Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20" |
| 0.2 | 50 | 0.0540 | 3.74 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.4 | 100 | Total | | | |

## Subcatchment W1: P-1



## Summary for Subcatchment W2: P-2

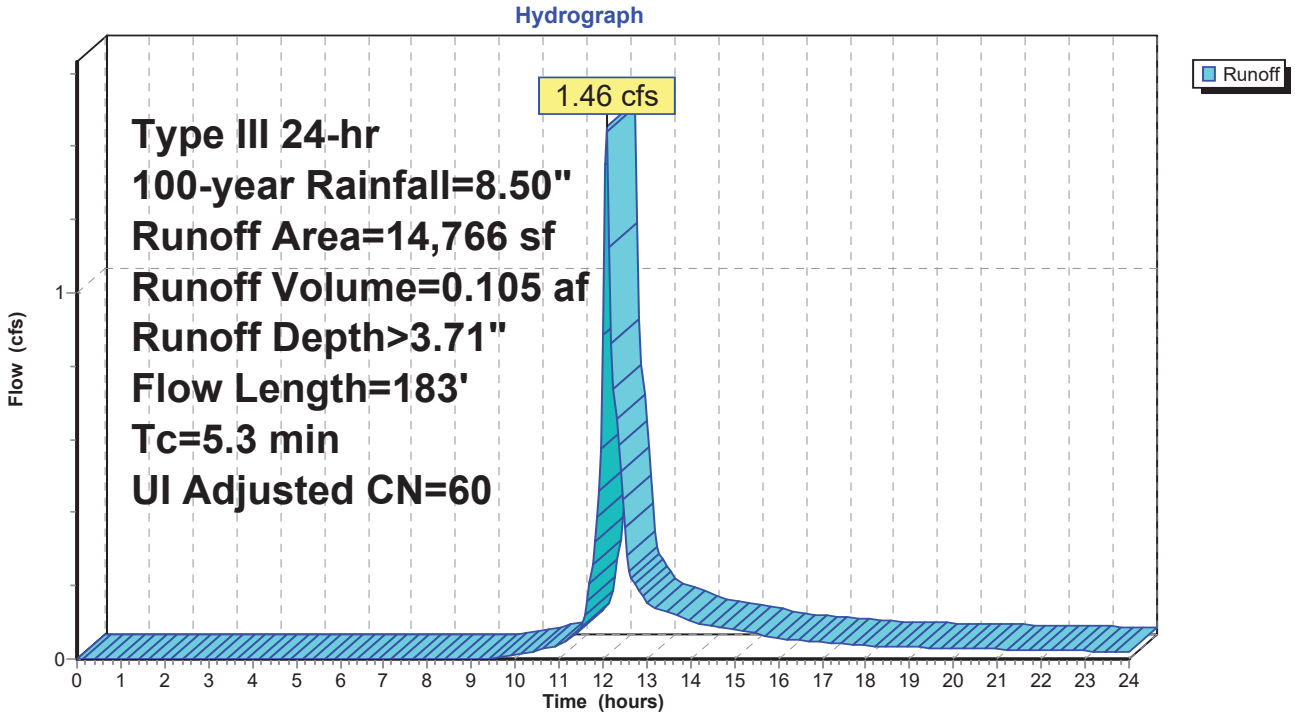
Runoff = 1.46 cfs @ 12.09 hrs, Volume= 0.105 af, Depth> 3.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=8.50"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 9,391 | 61 | | >75% Grass cover, Good, HSG B |
| 871 | 98 | | Unconnected roofs, HSG B |
| 4,504 | 55 | | Woods, Good, HSG B |
| 14,766 | 61 | 60 | Weighted Average, UI Adjusted |
| 13,895 | | | 94.10% Pervious Area |
| 871 | | | 5.90% Impervious Area |
| 871 | | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.5 | 10 | 0.1600 | 0.11 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 3.3 | 40 | 0.1250 | 0.20 | | **Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20" |
| 0.5 | 133 | 0.0900 | 4.83 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 5.3 | 183 | Total | | | |

### Subcatchment W2: P-2



## Summary for Subcatchment W3: P-3

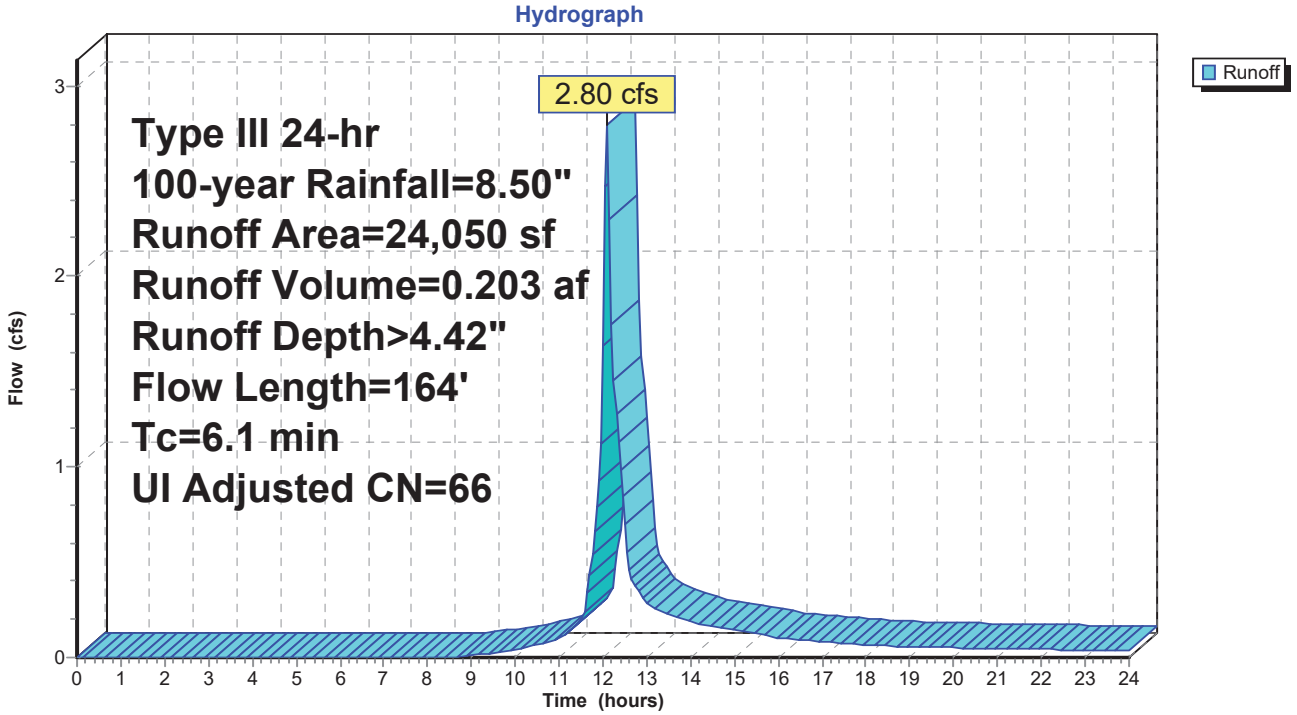
Runoff = 2.80 cfs @ 12.09 hrs, Volume= 0.203 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=8.50"

| Area (sf) | CN | Adj | Description |
|---|---|---|---|
| 16,898 | 61 | | >75% Grass cover, Good, HSG B |
| 2,020 | 98 | | Unconnected roofs, HSG B |
| 2,885 | 98 | | Paved parking, HSG B |
| 2,247 | 55 | | Woods, Good, HSG B |
| 24,050 | 68 | 66 | Weighted Average, UI Adjusted |
| 19,145 | | | 79.60% Pervious Area |
| 4,905 | | | 20.40% Impervious Area |
| 2,020 | | | 41.18% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.7 | 50 | 0.1400 | 0.15 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 0.4 | 106 | 0.0940 | 4.94 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 0.0 | 8 | 0.0700 | 5.37 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 6.1 | 164 | Total | | | |

### Subcatchment W3: P-3

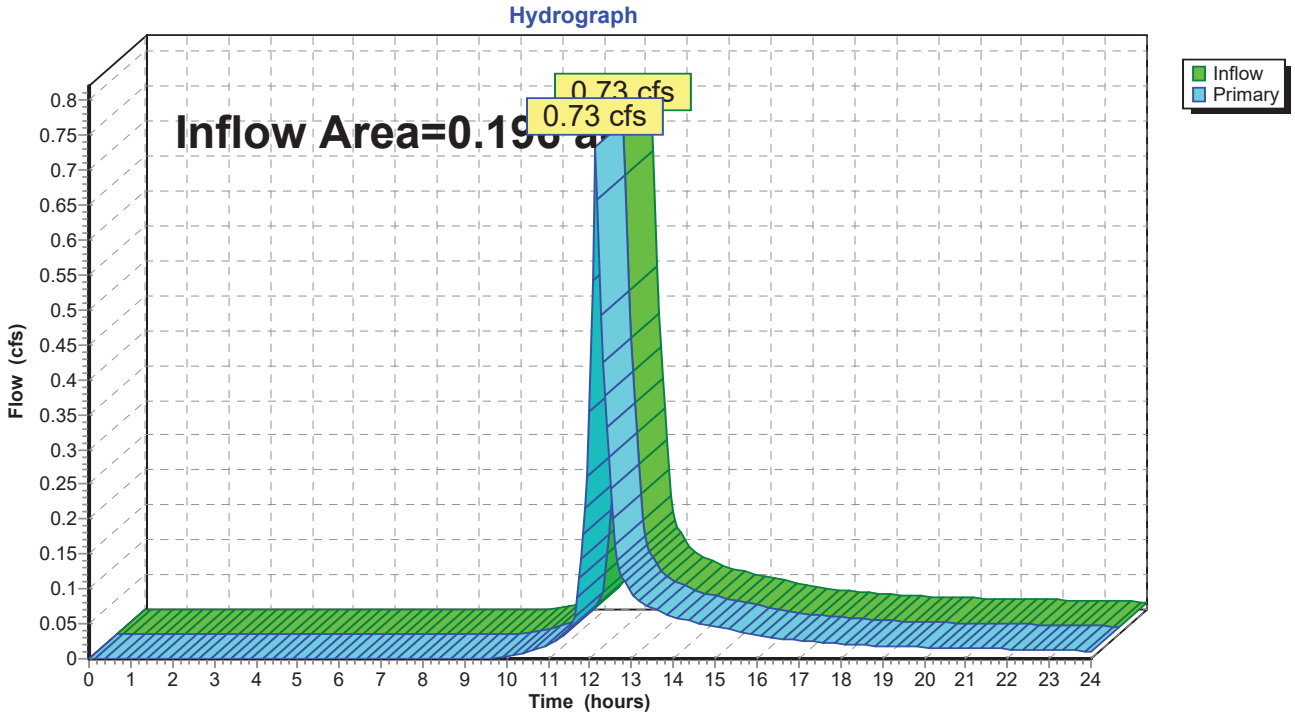


## Summary for Link DP1: Mill Brook

Inflow Area = 0.196 ac, 4.31% Impervious, Inflow Depth > 3.59" for 100-year event
Inflow = 0.73 cfs @ 12.13 hrs, Volume= 0.059 af
Primary = 0.73 cfs @ 12.13 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP1: Mill Brook

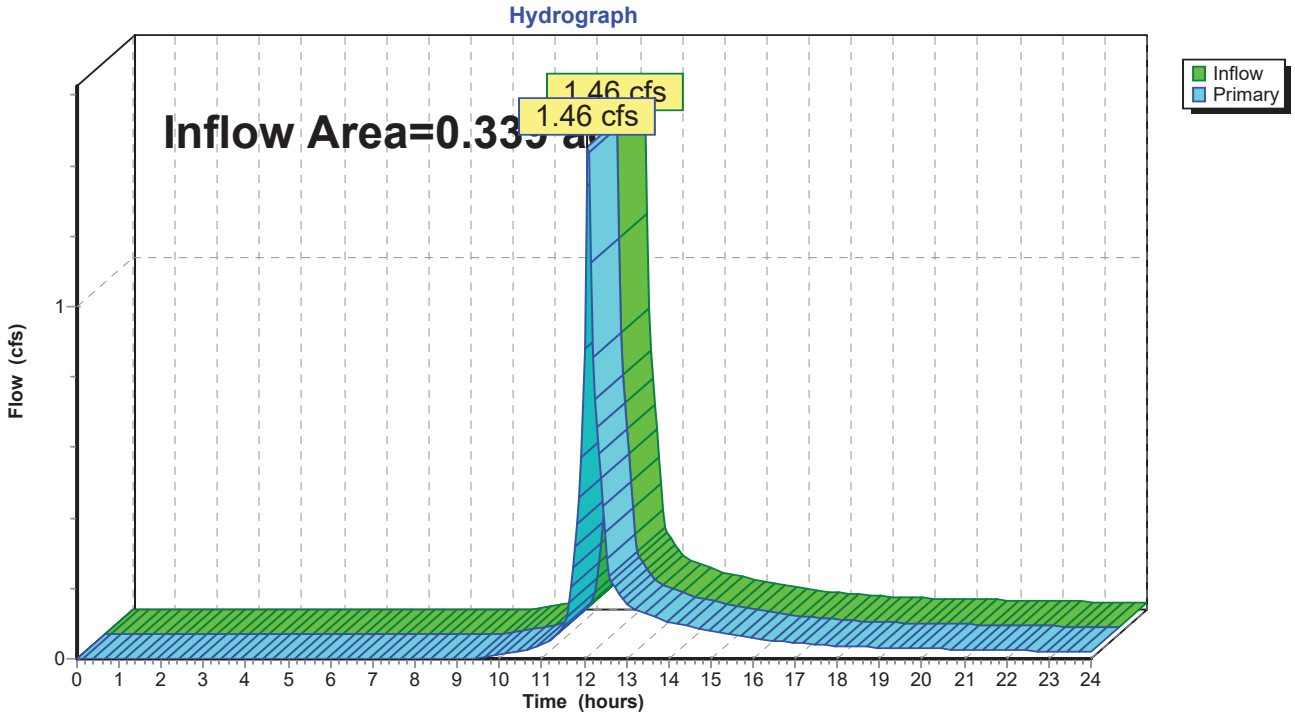


## Summary for Link DP2: Parcel 39-33

Inflow Area = 0.339 ac, 5.90% Impervious, Inflow Depth > 3.71" for 100-year event
Inflow = 1.46 cfs @ 12.09 hrs, Volume= 0.105 af
Primary = 1.46 cfs @ 12.09 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP2: Parcel 39-33



## Summary for Link DP3: Stormwater Basin

Inflow Area = 0.552 ac, 20.40% Impervious, Inflow Depth > 4.42" for 100-year event
Inflow = 2.80 cfs @ 12.09 hrs, Volume= 0.203 af
Primary = 2.80 cfs @ 12.09 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

## Link DP3: Stormwater Basin