TAYBRE DRIVE SUBDIVISION PLAN

SB# 03-25

STAFF REPORT

May 28, 2025

SITE: 9 Alvirne Drive & 190 R Derry Road - Map 138 / Lots 088 & 082

ZONING: Residential - Two (R-2)

PURPOSE OF PLAN: to consolidate Map 138/Lots 082 & 088 into one lot, known at map 138/Lot 088, and to depict the subdivision of Map 138/Lot 088 into nine (9) single-family residential lots, with all associated improvements.

PLANS UNDER REVIEW:

Subdivision Plan SB# 03-25, Map 138/Lots 088 & 082, 9 Alvirne Drive, Hudson, New Hampshire; prepared by: Hess Engineering and Construction, 63 West Street, Ashland, NH 03217; prepared for: M.R. Lacasse Homes, LLC, 9 Scenic Lane, Hudson, NH 03051; consisting of 16 sheets and general notes 1-9 on Sheet 04; dated April 24, 2025.

ATTACHMENTS:

1) Subdivision Application, date received April 22, 2025 – Attachment "**A**".
2) Project Narrative – Attachment "**B**."
3) Stormwater Management Report, prepared by Hess Engineering, dated April 24, 2025 – Attachment "**C**". (Digital Only)
4) Department Comments – Attachment "**D**."
5) NHDES Subdivision Approval, dated November 4, 2021 – Attachment "**E**".
6) CAP fee worksheet – Attachment "**F**."
7) Subdivision Plan dated April 24, 2025.

APPLICATION TRACKING:

- May 14, 2025 – Subdivision Application received.
- May 28, 2025 – Public hearing scheduled.

COMMENTS & RECOMMENDATIONS:

BACKGROUND

Map 138 / Lots 088 & 082 is a combined 14.92-acre lot within the R-2 zone. The lot is mostly flat, with slopes on the eastern portion of the site. The site is proposed for the development of nine (9) single-family residential homes, to be serviced by town water via easement from Mansfield drive, and by septic systems on site. Currently, both parcels are undeveloped, and have remained so due to a relatively high-water table. Wetlands on site are primarily tucked in to the western corner of

the site, over which a utility easement crosses. No portion of the site falls within flood plane boundaries, and no proposed work falls within delineated wetlands. The applicant is requesting no waivers at this time.

STORMWATER MANAGEMENT REPORT

The applicant has provided a stormwater management report, prepared by Hess engineering. In this report, the firm outlines a final conclusion of no adverse effects, with an alleviation of some drainage issues which have been longstanding for some abutters to the site. Fuss & O'Neill has not completed their review of the report at this time.

DEPARTMENT COMMENTS

Engineering has provided the following comments:

1. Applicant shall provide a current status on the approved state subdivision. Is a revised approval required based on the 2024 soil testing?
   *Note: A copy of the current subdivision approval may be found in Attachment "**E**"*
2. Applicant shall evaluate the proposed swale location behind proposed Lot 88-1 and 88-2. Applicant should consider moving it further away from the setback to provide more existing tree buffer.
3. Applicant will require a water main extension for this project, subject to Board of Selectmen approval.
4. The sidewalk requirement should be discussed, taking in consideration it will not be plowed by the Town or connected to another sidewalk. Applicant should consider providing a donation towards other sidewalks in Town.
5. Applicant shall update the road grade to 2% minimum, as required.
6. Applicant shall include the water main and drainage features on the road profile plan.

DPW has provided the following comment:

1. Street grade needs to be a minimum of 2% for drainage flow.

Fire has provided the following comments:

1. The site plan needs to show the roadway width and the cul-de-sac roadway width.
2. The site plan needs to show a fire apparatus roadway grade diagram.
3. The site plan shall show a fire apparatus turning radius diagram.

Full comments may be found in Attachment "**D**."

STAFF COMMENTS

The plot of land is challenging to develop with the high-water table. The applicant is proposing a considerable amount of grading and elevation change to make septic systems possible, and for the site to have proper drainage. With Fuss & O'Neill still working on their review, it is difficult to evaluate the drainage measures. The applicant will be establishing water access via a pipe extending from Mansfield Drive through 194 Derry Road, Map 138 Lot 089, which is owned by the Town.

RECOMMENDATIONS

Staff recommend acceptance of the application and holding a public hearing. Staff have not identified any studies required to render a decision on this application. Following discussion of the materials provided, staff recommend consideration of what additional information will be needed to render a decision if any, discuss the department comments with the applicant, and to continue the project to a suitable date for the applicant to adequately address Board, staff, and peer review comments.

DRAFT MOTIONS:

TO ACCEPT:

I move to accept the subdivision application for Taybre Drive Subdivision Plan SB# 03-25, Map 138/Lots 088 & 082, 9 Alvirne Drive & 190 R Derry Road, Hudson, New Hampshire, 03051.

Motion by: _____Second: _____Carried/Failed: _____

TO DEFER ACCEPTANCE:

I move to defer further consideration of the subdivision application for Taybre Drive Subdivision Plan SB# 03-25, Map 138/Lots 088 & 082, 9 Alvirne Drive & 190 R Derry Road, Hudson, New Hampshire, 03051, to date specific, _____, 2025.

Motion by: _____Second: _____Carried/Failed: _____

MOTION TO CONTINUE:

I move to continue the site plan application for Taybre Drive Subdivision Plan SB# 03-25, Map 138/Lots 088 & 082, 9 Alvirne Drive & 190 R Derry Road, Hudson, New Hampshire, 03051, to date specific, _____, 2025.

Motion by: _____Second: _____Carried/Failed: _____

Town of Hudson
12 School Street
Hudson, NH 03501

SUBDIVISION APPLICATION

Revised August 2024

The following information must be filed with the Planning Department ***at the time of filing a site plan application***:

1. One (1) original completed application with original signatures.

2. One (1) full plan set *folded* (sheet size: 22" x 34").

3. One (1) original copy of the project narrative.

4. A list of direct abutters and a list of indirect abutters, and two (2) sets of mailing labels for abutter notifications.

5. Subdivision Plan Review Checklist.

6. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.

7. ***All plans shall be folded*** and all pertinent data shall be attached to the plans with an elastic band or other enclosure.

Revised plans and other application material must be filed with the Planning Department ***no later than 10:00 A.M., Tuesday ONE WEEK prior to the scheduled Planning meeting***. ***The purpose of these materials is hardcopy distribution to Planning Board members, not review.***
Any plan revisions that require staff review must be submitted no later than 10:00A.M., Tuesday TWO WEEKS prior to the scheduled Planning meeting. Depending on the complexity of changes, more time may be required for review. Please contact the Town Planner if you have any questions on this matter.

1. Submission of fifteen (15) 11" X 17" plan sets *folded*, revised if applicable.

2. Submission of one (1) full plan set *folded* (sheet size: 22" x 34"), if revised.

3. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.

Note: Prior to filing an application, it is recommended to schedule an appointment with the Town Planner.

SUBDIVISION APPLICATION

Date of Application: April 22, 2025 Tax Map #: 138 Lot #: 82&88

Site Address: 9 Alvirne Drive, Hudson

Name of Project: Taybre Drive, Hudson

Zoning District: R1&R2 General SB#: _____
(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:	DEVELOPER:
Name: M.R. Lacasse Homes LLC	M.R. Lacasse Homes LLC
Address: 9 Scenic Lane	9 Scenic Lane
Address: Hudson,NH 03051	Hudson,NH 03051
Telephone # 603-321-8374	603-321-8374
Email: michelrlacasse@gmail.com	michelrlacasse@gmail.com
PROJECT ENGINEER:	**SURVEYOR:**
Name: Hess Engineering and Construction Consultants	Maynard & Paquette Engineering Associates LLC C/O John Yule
Address: 63 West Street, Ashland NH 03217	31 Quincy Street
Address: P.O Box 991, Ashland NH 03217	Nashua NH 03060
Telephone # 603-968-5664	603-883-7227
Email: whess@hessengineeringllc.com; idesmarais@hessengineeringllc.com	

PURPOSE OF PLAN:
This application is for a 9 lot subdivision on Alvirne Drive.

(For Town Use Only)

Routing Date: _____ Deadline Date: _____ Meeting Date: _____

_____ I have no comments _____ I have comments (attach to form)

_____ Title: _____ Date: _____
(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___Fire: ___ DPW: ___ Consultant: ___

SUBDIVISION PLAN DATA SHEET

PLAN NAME: Taybre Drive Subdivision

PLAN TYPE: Conventional Subdivision Plan or Open Space Development (Circle One)

LEGAL DESCRIPTION: MAP 138 LOT 82/88

DATE: April 22nd, 2025

Address: 9 Alvirne Drive

Total Area: S.F. Lot82- 30,014 S.F / Lot 88- 619,783 S.F Acres: Lot 82-0.69 A.C / Lot 88- 14.23 A.C

Zoning: R1& R2

Required Lot Area: 43,560SF

Required Lot Frontage: 120FT

Number of Lots Proposed: 9

Water and Waste System Proposed: Septic

Area in Wetlands: 40,305 sf - no wetland impact

Existing Buildings To Be Removed: 0

Flood Zone Reference: N.F.I.P F.I.R.M Community Panel 330092 0005B

Proposed Linear Feet Of New Roadway: 1155.64LF

SUBDIVISION PLAN DATA SHEET

Dates/Case #/Description/
Stipulations of ZBA,
Conservation Commission,
NH Wetlands Board Action:

(Attach Stipulations on
Separate Sheet)

List Permits Required: NHDES Alteration of Terrain

NHDES State Subdivision Approval - See eSA2021110407

SWPPP per AoT regulations

**Waivers Requested*:	Hudson Town Code Reference	Regulation Description
	1.	
	2.	
	3.	
	4.	
	5.	
	6.	
	7.	

**(Left Column for Town Use)*

(For Town Use Only)

Data Sheets Checked By: _____ Date: _____

SUBDIVISION PLAN APPLICATION AUTHORIZATION

I hereby apply for *Subdivision Plan* Review and acknowledge I will comply with all of the Ordinances of the Town of Hudson, New Hampshire State Laws, as well as any stipulations of the Planning Board, in development and construction of this project. I understand that if any of the items listed under the *Subdivision Plan* specifications or application form are incomplete, the application will be considered rejected.

Pursuant to RSA 674:1-IV, the owner(s) by the filing of this application as indicated above, hereby given permission for any member of the Hudson Planning Board, the Town Planner, the Town Engineer, and such agents or employees of the Town or other persons as the Planning Board may authorize, to enter upon the property which is the subject of this application at all reasonable times for the purpose of such examinations, surveys, tests and inspections as may be appropriate. The owner(s) release(s) any claim to or right he/she (they) may now or hereafter possess against any of the above individuals as a result of any examinations, surveys, tests and/or inspections conducted on his/her (their) property in connection with this applications.

Signature of Owner: _____ Date:_____

Print Name of Owner: M.R. LACASSE

- If other than an individual, indicate name of organization and its principal owner, partners, or corporate officers.

Signature of Developer: _____ Date:_____

Print Name of Developer: M.R. LACASSE

- The developer/individual in charge must have control over all project work and be available to the Code Enforcement Officer/Building Inspector during the construction phase of the project. The individual in charge of the project must notify the Code Enforcement Officer/Building Inspector within two (2) working days of any change.

WAIVER REQUEST FORM

Name of Subdivision/Site Plan: _____

Street Address: _____

I _____ hereby request that the Planning Board waive the requirements of item _____ of the Hudson Land Use Regulations in reference to a plan presented by _____

_____ (name of surveyor and engineer) dated _____ for property tax map(s) _____ and lot(s) _____ in the Town of Hudson, NH.

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n), i.e., without the Planning Board granting said waiver, it would pose an unnecessary hardship upon me (the applicant), and the granting of this waiver would not be contrary to the spirit and intent of the Land Use Regulations.

Hardship reason(s) for granting this waiver (if additional space is needed please attach the appropriate documentation hereto):

_____

_____

_____

_____

_____

Reason(s) for granting this waiver, relative to not being contrary to the spirit and intent of the Land Use Regulations: (if additional space is needed please attach the appropriate documentation hereto):

_____

_____

_____

_____

_____

Signed:

_____

Applicant or Authorized Agent

SCHEDULE OF FEES

A. REVIEW FEES:

1. $170.00 per proposed lot $ 1,530

CONSULTANT REVIEW FEE: (Separate Check)

Total 14.917 acres @ $600.00 per acre, or $1,250.00, whichever is greater. $ 8,950.20

This is an estimate for cost of consultant review. The fee is expected to cover the amount. A complex project may require additional funds. A simple project may result in a refund.

LEGAL FEE:

The applicant shall be charged attorney costs billed to the Town for the Town's attorney review of any application plan set documents.

B. POSTAGE:

17 Direct Abutters Applicant, Professionals, etc. as required by RSA 676:4.1.d @$5.58 **(or Current Certified Mail Rate)** $ 94.86

6 Indirect Abutters (property owners within 200 feet) @$0.73 **(or Current First Class Rate)** $ 4.38

C. TAX MAP UPDATE FEE

2 to 7 lots (# of lots x $30.00) + $25.00 (min. $85.00) $ -
8 lots or more (min. $325.00) $ 325

TOTAL $ 10,904.44

(For Town Use Only)

AMOUNT RECEIVED: $_____ DATE RECEIVED: _____

RECEIPT NO.: _____ RECEIVED BY: _____

NOTE: fees below apply only upon plan approval, NOT collected at time of application.

D. RECORDING:

*****The applicant shall be responsible for the recording of the approved plan, and all documents as required by an approval, at the Hillsborough County Registry of Deeds (HCRD), located at 19 Temple Street, Nashua, NH 03061. Additional fees associated with recording can be found at HCRD.*****

E. COST ALLOCATION PROCEDURE AMOUNT CONTRIBUTION AND OTHER IMPACT FEE PAYMENTS:

To be determined by the Planning Board at time of plan approval and shall be paid by the applicant at the time of submittal of the Certificate of Occupancy Permit requests.

*****The applicant shall be responsible for all fees incurred by the town for processing and review of the applicant's application, plan and related materials.*****

TOWN OF HUDSON
SUBDIVISION PLAN REVIEW CHECKLIST

This checklist is intended to help the applicant and staff to ensure application completeness. Please refer to the regulations on the exact language of each requirement.

Key: Y=Yes P =Pending W=Waiver Request NA=Not Applicable

§ 276-11.1 General Plan Requirements

	Y	P	W	NA		Notes
1.	☒	☐	☐	☐	- A list of the names and addresses of the owner(s) of the property, the applicant(s), and all abutters as indicated in the office of the Town Assessor records not more than five (5) days prior to the day of filing [**§ 276-11.1.A.**]	
2	☒	☐	☐	☐	- One (1) set of Plans on size 22" x 34" sheet [**§ 276-11.1.B.(1)**]	
3.	☒	☐	☐	☐	- Scale no smaller than 50 feet to the inch (1" = 50') [**§ 276-11.1.B.(2)**]	
4.	☒	☐	☐	☐	- Title block in the lower right-hand corner of the plan, containing: [**§ 276-11.1.B.(3)**]	
5.	☒	☐	☐	☐	-Title, including the term "site plan" or "subdivision plan"	
6.	☒	☐	☐	☐	- The name for whom the plan was prepared	
7.	☒	☐	☐	☐	- Preparer of the plan	
8.	☒	☐	☐	☐	- The scale(s) of the plan	
9.	☒	☐	☐	☐	- Date of the plan	
10.	☒	☐	☐	☐	- Appropriate revision block	
11.	☒	☐	☐	☐	- Approval block located on the lower left corner of each sheet, with the require language and signature lines [**§ 276-11.1.B.(4)**]	
12.	☒	☐	☐	☐	- Owner's printed name and address and signature [**§ 276-11.1.B.(6)**]	
13.	☒	☐	☐	☐	- Name and address of all abutting property owners [**§ 276-11.1.B.(7)**]	
14.	☒	☐	☐	☐	- A locus plan at one inch equals 1,000 feet (1" = 1,000') [**§ 276-11.1.B.(8)**]	
15.	☒	☐	☐	☐	-Boundary of the entire parcel held in single ownership with boundary dimensions and bearings [**§ 276-11.1.B.(9)**]	
16.	☒	☐	☐	☐	- Error of closure shown and certified by a licensed land surveyor	
17.	☒	☐	☐	☐	- North point arrow	

18. ☒ ☐ ☐ ☐ - Zoning classification note of the tract and location of the zoning district boundaries if the property is located in two or more zoning district [**§ 276-11.1.B.(10)**]	
19. ☒ ☐ ☐ ☐ - The location of all building setback lines as required by Chapter 334, Zoning, or as listed under **§ 276-11.1.B.(12)**, whichever is more stringent [**§ 276-11.1.B.(12)**].	
20. ☒ ☐ ☐ ☐ - The location size and character of all signs or a note* stating "All signs are subject to approval by the Hudson Zoning Administrator prior to installation thereof." [**§ 276-11.1.B.(13)**] *The discrepancy on the note language is correct – reference to the Planning Board in the regulations is outdated.	See sheet P-1
21. ☒ ☐ ☐ ☐ - The location, detail and character of all exterior lighting or a note stating: "There will be no exterior lighting." [**§ 276-11.1.B.(14)**]	See sheet P-1
22. ☒ ☐ ☐ ☐ - The location of all buildings within 50 feet of the tract [**§ 276-11.1.B.(15)**]	
23. ☒ ☐ ☐ ☐ - The location of roadways, driveways, travel areas or parking areas within 200 feet of the tract, with the use of an additional sheet, aerial photography, or Town topographic mapping as necessary [**§ 276-11.1.B.(16)**]	
24. ☒ ☐ ☐ ☐ - Existing topography at two-foot contour intervals of that portion of the tract being proposed for development from a topographic survey and contours on the remainder of the tract from a reliable plan source [**§ 276-11.1.B.(17)**]	
25. ☒ ☐ ☐ ☐ - Proposed topography at two-foot contour intervals [**§ 276-11.1.B.(18)**]	See sheets P-1, P-2
26. ☒ ☐ ☐ ☐ - A note identifying the Tax Map and Lot Number of the tract [**§ 276-11.1.B.(19)**]	
27. ☒ ☐ ☐ ☐ - The location of all existing buildings (including size and height), driveways, sidewalks, parking spaces, loading area, open spaces, large trees, open drainage courses, signs, exterior lighting, service areas, easements landscaping and other pertinent items. [**§ 276-11.1.B.(20)**]	

	Y	P	W	NA		Notes
28.	☒	☐	☐	☐	- The location of all proposed construction, buildings, structures, pavement, etc. [**§ 276-11.1.B.(21)**]	See sheets P-1, P-2
29.	☒	☐	☐	☐	- A green area shown between the right-of-way line and any pavement, gravel or structure meeting the required minimum width [**§ 276-11.1.B.(22)**]	
30.	☒	☐	☐	☐	- Highway protects listed on the transportation improvement program adopted by the Nashua Regional Planning Commission, shown in the Hudson Master Plan, or listed in the Corridor Study adopted by the Hudson Planning Board [**§ 276-11.1.B.(23)**]	
31.	☐	☐	☐	☒	- Required open space, including the calculation showing the requirement is met [**§ 276-11.1.B.(24)**]	

§§ 275-8 – 275-9 Site Plan Requirements
(If this checklist is for a subdivision plan application, skip to the next section on page 5)

	Y	P	W	NA		Notes
33.	☐	☐	☐	☐	- Parking space calculation showing and a statement stating the required parking spaces are provided [**§ 275-8.C.(2) & (3)**]	
34.	☐	☐	☐	☐	- Required dimensions for parking space [**§ 275-8.C.(4)]**	
35.	☐	☐	☐	☐	- Required dimensions for aisle/access drive [**§ 275-8.C.(5)]**	
36.	☐	☐	☐	☐	- Required off-street loading spaces, including calculation showing the required loading spaces are provided [**§ 275-8.C.(6)]**	
37.	☐	☐	☐	☐	- Required landscaping for the parking lot, including calculation shown the planting requirement is met [**§ 275-8.C.(7)]**	
38.	☐	☐	☐	☐	- Required screening for visual separation of incompatible uses [**§ 275-8.C.(8)]**	

	Y	*P*	*W*	*NA*		*Notes*
39.	☐	☐	☐	☐	- Handicap accessibility provided in accordance with the latest ADA Regulations **[§ 275-8.C.(11)]**	
40.	☐	☐	☐	☐	- Stormwater Management Plan **[§ 275-9.A]**	
41.	☐	☐	☐	☐	- Traffic Study, if required **[§ 275-9.B]**	
42.	☐	☐	☐	☐	- Noise Study, if required **[§ 275-9.C]**	
43.	☐	☐	☐	☐	- Fiscal Impact Study, if required **[§ 275-9.D]**	
44.	☐	☐	☐	☐	- Utility Study **[§ 275-9.E]**	
45.	☐	☐	☐	☐	- Copies of any proposed or existing easements, covenants, deed restrictions or any other similar document pertinent to the Site Plan **[§ 275-9.F]**	
45.	☐	☐	☐	☐	- A copy of all applicable Town, state, county or federal approvals or permits **[§ 275-9.G]**	
46.	☐	☐	☐	☐	- Chapter 270, Sewers	
47.	☐	☐	☐	☐	- Floodplain permit	
48.	☐	☐	☐	☐	- Special exception to the Wetland Ordinance	
49.	☐	☐	☐	☐	- Septic system construction approval from the New Hampshire Water Supply and Pollution Control Commission	
50.	☐	☐	☐	☐	- Approval of the New Hampshire Wetland Bureau for relocation, filling, dredging or rechanneling	
51.	☐	☐	☐	☐	- Approval of the New Hampshire Department of Public Works and Highways for any required driveway permits or curb cuts	
52.	☐	☐	☐	☐	- NH RSA 149:9-a Permit	
53.	☐	☐	☐	☐	- Environmental Impact Study, if required **[§ 275-9.I]**	

(End here if this checklist is for a site plan application).

TOWN OF HUDSON
SUBDIVISION PLAN REVIEW CHECKLIST

This checklist is intended to help the applicant and staff to ensure application completeness. Please refer to the regulations on the exact language of each requirement.

Key: Y=Yes P =Pending W=Waiver Request NA=Not Applicable

§§ 289-26 – 289-27 Subdivision Plan Requirements
(Not applicable if this checklist is for a site plan application)

	Y	*P*	*W*	*NA*		*Notes*
54.	☒	☐	☐	☐	- Proposed subdivision name [**§ 289-26.B.(1)]**	
55.	☒	☐	☐	☐	- Abutting subdivision names, streets, easements, setbacks, alleys, parks and public open spaces and similar facts regarding abutting property [**§ 289-26.B.(2)]**	

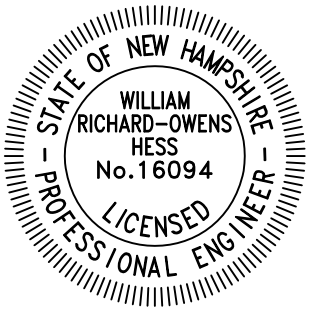
Attachment "B"

P.O. Box 991 Ashland, NH 03217
Phone (603) 968-5664
www.hessengineeringllc.com

Taybre Drive Subdivision
Project Narrative

Prepared For:
M.R. Lacasse Homes, LLC
9 Scenic Lane
Hudson, NH 03051

Project:
Subdivision of 138/82+88
9 Alvirne Drive
Hudson, NH 03051



Date:
4/18/2025

Prepared By:
Hess Engineering & Construction Consultants
P.O. Box 991
Ashland, NH 03217

Attachment "B"

P.O. Box 991 Ashland, NH 03217
Phone (603) 968-5664
www.hessengineeringllc.com

This project proposes a 9 lot subdivision off Alvirne Drive in Hudson, New Hampshire. A roughly 1,100' road, Taybre Drive, will service the new subdivision. Each lot will be serviced by town water via Mansfield Drive and use septic systems. The houses are to be serviced by on-site propane tanks unless a utility easement can be agreed to with the Town of Hudson. The underground electric lines will stem from the existing utility pole on lot 82. Each lot has been graded to show feasibility per the Town of Hudson regulations. Taybre Drive has been designed to meet town specifications to allow for town control of the right of way. The drainage system has been designed to meet specifications discussed with the town engineer, Elvis Dhima. Those include the reduction of minimum cover from 4' to 2' and the minimum slope from 2% to 1.5%. Both reductions meet all ASTM standards and maintain self-cleansing velocity. The drainage system is comprised of 8 catch basins, 4 basins (2 sediment forebays, 1 infiltration basin, 1 wet pond), and a manhole. The soils and wetlands have been mapped by CSS, CWS Luke Powell of Powell Asset Mapping, LLC [see associated soils report entitled "Site Specific Soils Mapping Report for the Proposed Taybre Drive Subdivision" dated Oct. 2, 2024.].

The subdivision has been approved by NHDES [see NHDES State Subdivision eSA2021110407] and meets all town requirements on lot sizing, frontage, and building setbacks. This project will be submitted for an Alteration of Terrain Permit with NHDES concurrently with the Town of Hudson review. No further permits under the NHDES are required, as there are no proposed impacts to wetlands. The project is well outside the 50' protection buffer to safeguard wetland resources. To protect the region's biodiversity, additional measures will be taken to protect local species. These measures include but are not limited to wildlife ramps to allow any trapped wildlife means to exit the site; NHFG approved gates and perimeter boundaries to prevent wildlife from entering the site; and site inspections to make sure wildlife Remains off-site for the duration of the project.

To preserve abutters' privacy, a large, forested buffer will remain between the proposed development and abutters' homes. The proposed grading and drainage design maintains or reduces the runoff that all abutters currently receive from these properties. The flagged wetlands will receive treated runoff at a reduced peak rate.

Attachment "B"

P.O. Box 991 Ashland, NH 03217
Phone (603) 968-5664
www.hessengineeringllc.com

If you have any further questions, do not hesitate to contact Will Hess or the Hess Engineering & Construction Consultants office. We can be reached at (603) 968-5664 or by email at whess@hessengineeringllc.com.

Best,

Will Hess, P.E.
Principal
Hess Engineering & Construction Consultants, LLC
63 West Street
P.O. Box 991
Ashland, NH 03217

Attachment "C"

63 West Street – P.O. Box 991, Ashland, NH, 03217

Phone: (603) 968-5664

www.hessengineeringllc.com

STORMWATER MANAGEMENT REPORT

TAYBRE DRIVE

Tax Map 138 Lot 82+88

9 Alvirne Drive, Hudson, New Hampshire, 03051

Date: April 24th, 2025

Prepared For:
M. R. Lacasse Homes, LLC
9 Scenic Lane
Hudson, New Hampshire 03051

Attachment "C"

STORMWATER MANAGEMENT REPORT

Job 24009 – Taybre Subdivision – Alvirne Drive, Hudson, NH - Map: 138 Lot: 82 + 88

Overview of the Project:

This project proposes a 9 lot subdivision off Alvirne Drive in Hudson, New Hampshire. A roughly 1,100' road, Taybre Drive, will service the new subdivision with a drainage system comprised of 4 basins, 8 catch basins, and a manhole. The existing conditions are two vacant forested lots. There is a large slope of HSG A soil that will be cut to create the proposed subdivision, with the majority of the site to be raised.

Methodology

In order to take various characteristics and physical properties into account when preparing a model of actual conditions, and to better manage the numerous values and specific information for each watershed, computer aided design software was used. HydroCAD (v10.20-3e) software was used to model specific watershed areas and provide a complete set of calculations to demonstrate the performance of these areas under a variety of conditions. The software is based on the widely accepted and practiced SCS TR-20 model and is used to develop peak rates of runoff, perform stage-storage-discharge calculations, and other hydraulic analysis for various rainfall events. All calculations are carried to the control points, which are intended to simulate a positive outfall in order to accurately compare and account for project impacts.

The analysis was performed using the 2-, 10-, 25-, and 50-year storm frequencies over a NRCC 24-hr Type D curve specific to eastern Hillsborough county NH. The event lookup file was NRCS-Rain.txt provided by HydroCAD and the ID No. of the event was 6514. The hydraulic conditions that result from rainfall associated with these events were analyzed for a comparison of the existing peak rate of runoff to post-development conditions.

Typically, the storm rainfall amounts would be derived using the Northeast Regional Climate Center, Extreme Precipitation Tables (attached herewith) provided by Cornell University. Please note that the new NRCS rainfall distributions include NOAA, NRCC, and MSE. The new classifications are replacing the more antiquated Type I, IA, II, and III (this information is derived from https://www.hydrocad.net/rainfall/nrcs-rain.htm, which also states that the NRCS2-Rain table supersedes NRCS-Rain table currently in HydroCAD-10 build 21). Upon cursory analysis of the NRCS-Rain table, the rainfall data is comparable to the NRCC table.

Evaluation of Existing Conditions

An on-ground survey was conducted by LLS John Yule of Maynard and Paquette Engineering Associates, LLC in 2024. The contours are based on these surveys and supplemental LiDAR from NHGRANIT with some spot elevations from said survey. The Site-Specific Soil Survey was based on the delineations by Luke Powell, CSS, CWS, with portions using the web soil survey when outside of the limits of delineation. The wetlands were mapped by Luke Powell as well. The main slope is HSG A with several test pits not finding any evidence of ESHWT. As the slope eased, the water table changed from 24" to about 15" below the surface. In some locations, test pits indicated that the water table was about 9" below the surface in the somewhat poorly drained soils approaching the wetlands.

The site consists of 2 parcels on Alvirne Drive in Hudson, NH. The site was classified as mainly Pipestone loamy sand and Hinckley loamy sand per Web Soil Survey, however, Luke Powell classified the Hinckley area as Windsor and the Pipestone as a combination of Sudbury and two Deerfield variants. Web soil lists the wetlands as Scarboro mucky fine sandy loam and Wareham but Luke Powell delineated them as all Wareham. The current flood plain map does not show that the proposed project will be in the 100-year flood plain. The Town of Hudson requires a 50' buffer around all wetlands, which are shown on the attached plans. Luke Powell delineated both wetlands as PSS1E

Evaluation of Proposed Conditions

The proposed work will raise the site in all areas outside the main slope and basins. All drainage lines will have 2' of cover and slope at 1.5%. Catch basins will receive most of the stormwater from the impermeable surfaces created, with some running directly into the sediment forebays. They will then go into the best management practices. A wet pond is used due to the extremely restrictive water table on the site. This will allow for adequate treatment of all runoff leaving the disturbed areas.

The infiltration basin is in Deerfield soil which is HSG B. The Ksat is listed as 6 in/hr. Therefore, per NHDES regulation, a factor of safety halved the listed infiltration rate, so an infiltration rate of 3 in/hr is used. Please see the associated plans for more information regarding the soil composition and construction of the pond. The infiltration pond will only treat a small portion of runoff on the first crest and some from Alvirne Drive. It has an overflow that leads to the main wetland area on the western side of the property. The wetland buffer zone required by the Town of Hudson will be maintained for both wetlands.

Tables 1-2: Summary of Flow Rates

POI – POINT OF INTEREST

Table 1: 2R

Storm Frequency	Pre-development Peak Flow (c.f.s)	Post-development Peak Flow (c.f.s)
2-Year	0.01	0.01
10-Year	0.20	0.15
25-Year	0.64	0.47
50-Year	1.19	0.88

POI – POINT OF INTEREST

Table 2: 4R

Storm Frequency	Pre-development Peak Flow (c.f.s)	Post-development Peak Flow (c.f.s)
2-Year	0.0	0.0
10-Year	0.0	0.0
25-Year	0.0	0.0
50-Year	0.0	0.0

POI – POINT OF INTEREST

Table 3: 6R

Storm Frequency	Pre-development Peak Flow (c.f.s)	Post-development Peak Flow (c.f.s)
2-Year	0.0	0.0
10-Year	0.0	0.0
25-Year	0.0	0.0
50-Year	0.02	0.02

POI – POINT OF INTEREST

Table 4: 8R

Storm Frequency	Pre-development Peak Flow (c.f.s)	Post-development Peak Flow (c.f.s)
2-Year	0.17	0.11
10-Year	1.29	1.08
25-Year	3.23	2.95
50-Year	5.74	5.68

Summary

Basins:

The drainage system will treat stormwater runoff in accordance with ENV-WQ 1508. Infiltration was achieved through the Basin 3 and has been modeled to perk at a rate of half the lowest K_{sat} value for the soil (3 in/hr). Please see the associated plans for more information regarding the design of the ponds. The BMP worksheet and SSSS by Luke Powell detail the test pit depths to ensure the required separation from the water table and that both basins have the required WQV.

The pretreatment required is fulfilled by a series of sediment forebays that feed into the main wet pond (Basin 1). The pretreatment for the infiltration basin is achieved from the offline, deep sump catch basin.

CONCLUSION:

The Taybre Drive development that is proposed will not create any adverse effects downstream in storm water quantity or quality. It will not adversely effect the quality or quantity of groundwater in the region. The proposed conditions reduce peak runoff to all abutters and wetlands, which should help allievate current drainage issues experienced in the the vicinity of the proposed development.

Do not hesitate to contact me or the Hess Engineering & Construction Consultants office at my email, whess@hessengineeringllc.com, or via phone: (603) 968-5664.

Best,

Will Hess, P.E.
Principal
Hess Engineering & Construction Consultants

Attachment "C"

Powell
Asset Mapping, LLC

Site Specific Soils Mapping Report for the Proposed Taybre Drive Subdivision
9 Alvirne Drive, Hudson, NH
Tax parcels 138-82 and 138-88
October 2, 2024

The purpose of this Site Specific Soils Map and report is to support engineering and permitting for a proposed residential 9 lot subdivision off 9 Alvirne Drive in Hudson, NH (tax parcels 138-82, and 138-88). Field work was conducted September 16-17 according to the standards published in *Site-Specific Soil Mapping Standards for New Hampshire and Vermont*, Society of Soil Scientists of Northern New England Special Publication No.3, version 7.0.

Site Description: The site is a 20-acre parcel comprised mostly of woodlands. A power transmission line crosses the property at the westerly end. Hills Garrison Elementary School with associated recreational fields flank the easterly and southeasterly sidelines. There is no development on the site. Google Earth historic photos indicate the site was heavily logged sometime between 2010 and 2011. The Merrimack River is approximately 2,500' to the west.

Statewide Aerial Imagery from 2021 – 2022 Granit*View*

Preliminary Measures: A Natural Resource Conservation Service (NRCS) Web Soil Survey report was generated for the site (see map below).

NRCS Web Soil Survey Mapping

Pi – Pipestone loamy sand (somewhat poorly drained)

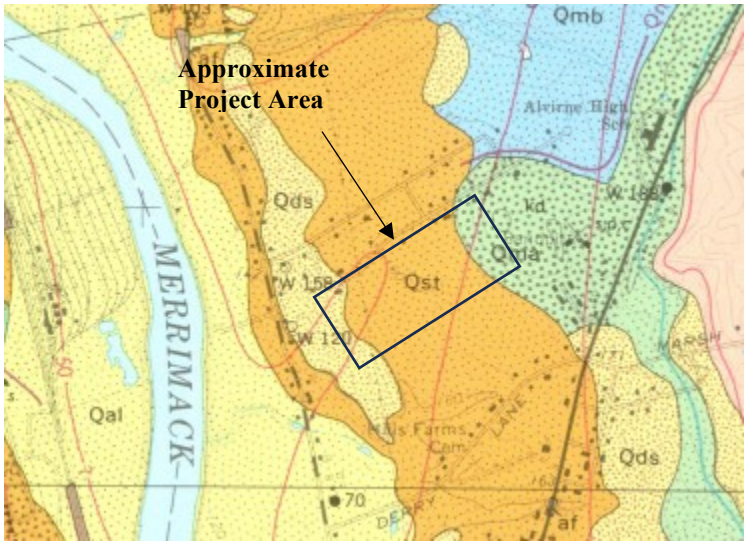
Hs – Hinckley loamy sand (excessively drained)

So – Scarboro mucky fine sandy loam (very poorly drained)

Wd – Windsor loamy sand (excessively drained)

Though mapped at a smaller scale, Web Soil Survey maps provide valuable information on parent materials, landform, and potential soil map units. The Web Soil Survey Map shows the project area dominated by the Pipestone map unit (PiA) on A slopes with Hinckley soils at the eastern uplands, Scarboro soils in low areas near the power line and Windsor soils at the extreme westerly boundary where the elevations rise again. Departures from the Web Soil survey observed during site specific mapping are noted in the map unit descriptions which follow.

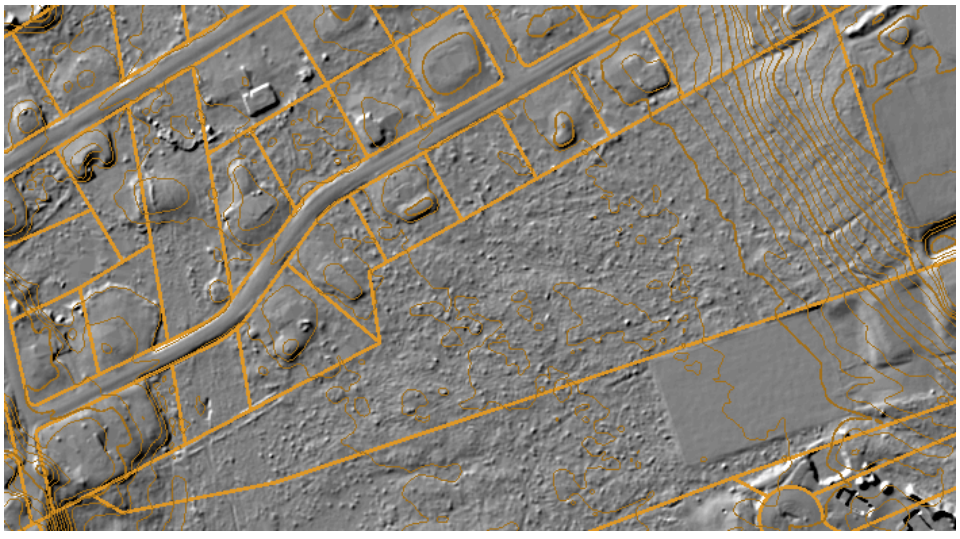
The Surficial Geologic Map of the Nashua North 7.5 minute Quadrangle prepared by the NH Geologic survey (NHGS) was reviewed (see map below).



Screen capture of Surficial Geologic Map of the Nashua North Quadrangle

Much of the site is dominated by the Qst geologic map unit which consists of stream terrace deposits (sand and gravel) from 0.5' to 15' thick. The easterly highlands are in the Qma map unit which consists of Alvirne delta deposits of Glacial Lake Merrimack that average 50 feet deep. The westerly side is mapped as Qds which consists of dune sand which occurs on lake deposits, high stream terraces, till, and on bedrock. This helps pinpoint our parent material as influenced by glacial meltwater in the form of stream-terrace deposits.

Bare earth LiDAR imagery was reviewed on the Granite*View* Website. The surface textures were studied.



The easterly highlands stand out. The majority of the lot is relatively flat. Some slight mounds are visible in the central area which turned out to be moderately well drained soils.

Field Procedures: The site was mapped in September 2024. Seven test pits were dug on September 16 with a tracked excavator. Wetlands were flagged September 17 and the mapping area was traversed with many soil auger samples observed and noted. Test pits were described using the *Field Book for Describing and Sampling Soils* Version 3.0 published by the National Soil Survey Center of the Natural Resource Conservation Service (NRCS). The test pit logs are attached to this report.

Soil Map Unit Purity: Soil map units were assigned using the NH State-Wide Numerical Soil Legend (Issue #10 January 2011). It is important to note that although soil series are used to name soil map units, soil series and map units are not the same thing. A soil map unit is a collection of areas on the landscape having similar soil properties to the soil series used to name the map unit. There is usually more than one soil series within the particular map unit name labeled. The term 'pedon' is sporadically used in this report. Think of a pedon as a plug of soil at least 3 feet square at the surface by 40" - 60" deep. Map units will contain at least 75% of the pedons that fit the range of characteristics of the series named or are in a similar taxa. Of the remaining percentage of pedons, no one similar minor component is greater in area than the named series. There can be a few to several dissimilar minor components (soils that do not share limits of some important diagnostic of the named soil unit) but combined they cannot exceed 25% of the area of the map unit. No single dissimilar minor component can make up more than 10% of the map unit area. Limiting dissimilar minor components (soils that differ appreciably in soil properties such that they limit or restrict use and management) cannot exceed 15% of the map unit area.

Hydrologic Soil Groups
Hydrologic Soil Groups (HSG) were assigned using *Ksat Values for New Hampshire Soils*, Society of Soil Scientists of Northern New England Special Publication No. 5, September 2009. A summary of the soil map units found and corresponding HSGs is listed in the following table.

Soil Map Unit Summary

Soil Map Unit	Map Unit Name	Pub. #5 HSG
26	Windsor	A
34	Wareham	C
118	Sudbury	B
313	Deerfield	B
915	Deerfield variant	B

Slope Phases: Slope phases are designated in the following table.

Alpha Slope Symbol	Range
A	0 – 3%
B	3 – 8%
C	8 – 15%
D	15 – 25%
E	25 – 50%
F	50% +

Attachment "C"

Map Unit Descriptions: Map Unit Descriptions by order of State Numerical Soil Legend Number follow. The term 'solum' is used in different descriptions. A solum (plural, sola) is the portion of the soil profile that is still forming. It includes the A, B, and E horizons. Generally, it is the upper and most weathered part of the soil profile that reflects active pedogenic processes. The C horizon is not part of the solum.

Windsor (26): The Windsor map unit is located on A, B, and C slopes at the higher elevations on the easterly side of the property. This is an excessively drained soil that developed in stream terrace deposits in sandy glaciofluvial parent material. The excessively drained Hinckley soil (test pit 1) is a similar minor component occupying approximately 15 % of the map unit. The percentage of coarse fragments (gravel) is less in the Windsor soil, generally occupying 0 to 10% in the solum and up to 15% in the substratum. The Web Soil Survey showed this area as a Hinckley map unit. Because there were inconsistent pedons reflecting the stratified gravelly sand deposits typical of the Hinckley soil, the Windsor soil was chosen for the map unit. Test pits 2 and 4 document typical soil pedons in the map unit. The hydrologic soil group is A.

Wareham (34): The Wareham map unit consists of poorly drained hydric soils on A slopes. A small pocket is located near the center west portion of the lot and was delineated as a wetland with glo-blue flags labeled WF 1 through WF 3. The remainder of the map unit occupies the flat area on the westerly third of the property. This area was delineated as a wetland with glo-blue flags labeled WF 4 through WF 15. The Web soil Survey shows this area occupied by the Pipestone and Scarboro map units. The soils are not very poorly drained as is typical of the Scarboro. The poorly drained hydric soils are sandy and lack the spodic subsoil diagnostic horizon typical of the somewhat poorly drained Pipestone series. The hydrologic soil group of the Wareham series is C.

Sudbury (118): The Sudbury map unit consists of moderately well drained soils on A and B slopes located at the easterly third of the property. The moderately well drained Deerfield soil map unit is adjacent. Distinctive of the Sudbury soil is the presence of a cambic subsoil diagnostic horizon. Test pits 3 and 5 are reflective of the pedons in the map unit. Though in the same drainage class, the Deerfield soil does not have a cambic horizon. The Deerfield is a similar minor component occupying approximately 5% of the map unit. The hydrologic soil group of the Sudbury series is B. The Web Soil Survey shows this area as part of a Pipestone soil map unit. The pedons present are moderately well drained and do not display the diagnostic subsoil horizons typical of the somewhat poorly drained Pipestone soil (namely albic and spodic horizons).

Deerfield (313): The moderately well drained Deerfield map unit occupies the center portion of the lot on A and B slopes. It is a sandy soil that lacks diagnostic subsoil horizons (albic, spodic, and cambic horizons are lacking). Test pits 6 and 8 are reflective of the pedons in this map unit. Fine gravel generally averages less than 15% in the solum and less than 20% in the substratum. Medium sand with little gravel is dominant in the C horizon. The Web Soil Survey shows this area as a Pipestone map unit. As noted earlier, the Pipestone is a somewhat poorly drained spodosol. There were neither albic nor spodic diagnostic subsurface horizons found in the pedons. The cambic diagnostic subsoil horizon is also lacking due to the sandy textures. The hydrologic soil group of the Deerfield soil series is B.

Deerfield variant - somewhat poorly drained (915): The Deerfield variant is a somewhat poorly drained version of the moderately well drained Deerfield soil. This map unit is located on A slopes on the westerly half of the property, sandwiched between the poorly drained Wareham and moderately well drained Deerfield map units. Test pit 7 is a typical pedon of this map unit. This differs from the moderately well drained version of Deerfield by having common distinct or prominent redoximorphic features at a depth less than 15 inches below the soil surface. This map unit differs from poorly drained soils in that the soils are not hydric. The NRCS Web Soil Survey shows this area within the Pipestone

map unit. The Pipestone is also somewhat poorly drained, but it is a spodosol. The pedons present in this map unit do not display albic, spodic, or cambic diagnostic subsurface horizons. The pedons also lack stratified fine gravels over 15% by volume. The hydrologic soil group of the Deerfield variant is B.

Test pit logs and photos are attached. Please do not hesitate to contact me at (603) 409-1398 (cell) or lpowell@powellmapping.com (email) if you have any questions.

Sincerely,

Luke Powell

Luke Powell
NH Certified Soil Scientist No. 81
Nh Certified Wetland Scientist No. 50

Attachment "C"

Test Pit Logs

The soil was very dry at each pit. Hand samples were sprayed with a water bottle to get moist color samples at each test pit for each horizon.

Test Pit 1 Soil Series: Hinckley (12) Drainage Class: excessively drained HSG: A

Horizon	Depth (in)	Description
Oi	0 – 1	Fibric
Ap	1 – 2	10YR 3/1 fine sandy loam; weak fine granular structure; friable; many medium roots; clear smooth boundary
Bw1	2 – 5	2.5Y 4/2 loamy sand; massive; friable; 2% fine gravel; many medium roots; clear smooth boundary
Bw2	5 – 19	10YR 4/4 loamy coarse sand; massive; friable; many medium roots; 3% cobbles; 2% medium gravel; clear smooth boundary
C	19 -	2.5Y 5/4 very gravelly coarse sand; single grain; loose; few fine roots; 5% cobbles

Depth of hole: 57" - no ledge; ESHWT not observed

This is a similar minor component within the Windsor soil map unit.

9-16-2024: Test Pit 1 (stratified coarse sand with gravel)

9-16-2024: Test Pit 1 spoils

Attachment "C"

Test Pit 2 Soil Series: Windsor (26) Drainage Class: excessively drained HSG: A

Horizon	Depth (in)	Description
Oi	0 – 1	Fibric
A	1 – 4	10YR 3/2 loamy sand; weak fine granular structure; friable; many fine roots; clear smooth boundary
Bw1	4 – 23	10YR 4/4 loamy sand; massive; friable; many medium roots; 5% fine gravel; clear smooth boundary
Bw2	23 – 45	2.5Y5/4 coarse gravelly sand; single grain; loose; few medium roots; 15% fine gravel; clear smooth boundary
C	45 -	2.5Y 6/4 fine sand; single grain; loose; few medium roots; no coarse fragments

Depth of hole: 55" - no ledge, ESHWT not observed

9-16-2024: Test Pit 2

9-16-2024: Test Pit 2 spoil pile, note loamy sand with few coarse fragments found at bottom of pit in C horizon (top of pile).

Attachment "C"

Test Pit 3 Soil Series: Sudbury (118) Drainage Class: moderately well drained HSG: B

Horizon	Depth (in)	Description
Oe	0 – 1	Hemic
A	1 – 6	10YR 2/1 fine sandy loam; weak fine granular structure; friable; many medium roots; clear smooth boundary
E	6 – 8	10YR 5/1 and 10YR 3/1 fine sandy loam; moderate medium subangular blocky structure; friable; many fine roots; clear smooth boundary
Bs	8 – 12	7.5YR 3/2 fine sandy loam; moderate medium subangular blocky structure; friable; many fine roots; clear smooth boundary
Bw1	12 – 17	10YR 3/3 loamy sand; moderate medium subangular blocky structure; friable; many fine roots; clear smooth boundary
Bw2	17 – 24	2.5Y 5/6 medium sand; massive; friable; few fine roots; few medium distinct 10YR 6/8 redox concentrations at 23"; clear smooth boundary
C1	24 – 30	2.5Y 5/4 loamy sand; moderate medium subangular blocky structure; friable; few fine roots; few fine prominent 10YR 6/8 redox concentrations; clear smooth boundary
C2	30 – 48	2.5Y 6/3 fine sand; massive; friable; many fine roots; few fine prominent 10YR 6/8 redox concentrations; clear smooth boundary
2C	48 -	10YR 5/6 gravelly coarse sand; single grain; loose; no roots

Depth of hole: 50" – no ledge, ESHWT observed at 23"

9-16-2024: Test Pit 3

9-16-2024: Test Pit 3 spoil pile

Attachment "C"

Test Pit 4 Soil Series: Windsor (26) Drainage Class: excessively drained HSG: A

Horizon	Depth (in)	Description
Oe	0 – 1	hemic
A	1 – 6	10YR 3/2 fine sandy loam; weak fine granular structure; friable; many medium roots; clear wavy boundary
Bw1	6 – 25	10YR 4/6 medium sand; single grain; loose; common fine roots; clear smooth boundary
C1	25 – 44	2.5Y 5/6 gravelly medium sand; single grain; loose; 15% fine gravel; clear smooth boundary
C2	44 -	2.5Y 5/4 medium sand; single grain; loose; no roots; no gravel; few medium prominent 10YR 6/8 redox concentrations at 48”

Depth of hole: 57” – no ledge, ESHWT observed at 48”

9-16-2024: Test Pit 4

9-16-2024: Test Pit 4 spoil pile, note nice medium sand

Attachment "C"

Test Pit 5 Soil Series: Sudbury (118) Drainage Class: moderately well drained HSG: B

Horizon	Depth (in)	Description
Oe	0 – 2	10YR 3/2 hemic material
A	2 – 8	10YR 2/1 fine sandy loam; moderate granular structure; friable; many fine roots; clear smooth boundary
Bw1	8 – 12	10YR 4/4 loamy sand; moderate medium subangular blocky structure; friable; few fine roots; clear smooth boundary
Bw2	12 – 17	7.5YR 3/2 loamy sand; moderate medium subangular blocky structure; friable; few fine roots; clear smooth boundary
C	17 – 33	2.5Y 4/4 fine sand; single grain; loose; few medium distinct 10YR 5/6 redox concentrations at 18”; clear smooth boundary
	33 -	2.5Y 6/3 medium sand; single grain; loose; few fine roots (standing water at 50”)

Depth of hole: 55” – no ledge, ESHWT observed at 18”

9-16-2024: Test Pit 5

9-16-2024: Test Pit 5 spoils

Attachment "C"

Test Pit 6 Soil Series: Deerfield (313) Drainage Class: moderately well drained HSG: B

Horizon	Depth (in)	Description
Oe	0 – 2	10YR 3/2 hemic materials
Ap1	2 – 5	10YR 3/2 (salt & pepper appearance) fine sandy loam; weak fine granular structure; friable; many medium roots; clear smooth boundary
Ap2	5 – 9	10YR 3/2 loamy sand; weak fine granular structure; friable; many fine roots; clear smooth boundary
Bw	9 – 33	10YR 3/6 loamy sand; massive; friable; many fine roots; common medium distinct 7.5YR 5/8 redox concentrations at 17"; clear smooth boundary
C	33 -	2.5Y 5/6 medium sand; single grain; loose; few fine roots

Depth of hole: 51" – no ledge, ESHWT observed at 17"
lacks cambic subsoil diagnostic horizon

9-16-2024: Test Pit 6


9-16-2024: Test Pit 6 spoil pile

Attachment "C"

Test Pit 7 Soil Series: Deerfield SWPD variant (915) Drainage Class: somewhat poorly drained
HSG:

Horizon	Depth (in)	Description
Oe	0 – 2	10YR 3/2 hemic materials
A	2 – 4	10YR 3/2 fine sandy loam; weak fine granular structure; friable; many fine roots; clear smooth boundary
Bw	4 – 16	10YR 4/6 loamy sand; moderate medium subangular blocky structure; friable; common medium roots; common medium distinct 7.5YR 8/8 redox concentrations at 9”; clear smooth boundary
BC	16 – 35	10YR 4/6 medium sand; moderate medium platy structure; friable; no roots; many coarse distinct 7.5YR 4/8 redox concentrations; clear smooth boundary
C2	35 -	2.5Y 6/4 medium sand; single grain; loose; no roots

Depth of hole: 57” - no ledge, ESHWT observed at 9”
lacks cambic subsoil diagnostic horizon

9-16-2024: Test Pit 7

9-16-2024: Test Pit 7 spoil pile

Attachment "C"

Test Pit 8 (hand dug) Soil Series: Deerfield (313) Drainage Class: moderately well drained HSG: B

Horizon	Depth (in)	Description
Oi	0 - .5	Fibric materials
A	.5 – 5	10YR 2/2 loam; weak fine granular structure; friable; many fine roots; clear smooth boundary
	5 – 7	10YR 3/2 loamy sand; moderate medium platy structure; friable; few fine roots; thin discontinuous albic horizon was present; clear smooth boundary
	7 – 20	10YR 4/4 medium sand; moderate medium platy structure; friable; few fine roots; common (10%) medium prominent 7.5YR5/8 redox concentrations at 15”; clear smooth boundary
	20 – 34	2.5Y 6/4 medium sand; moderate medium subangular blocky structure; friable; clear smooth boundary
	34 -	2.5Y 6/4 medium sand; moderate thick platy structure; friable

Depth of hole: 40” – no ledge, ESHWT observed at 15”
lacks cambic diagnostic subsoil horizon

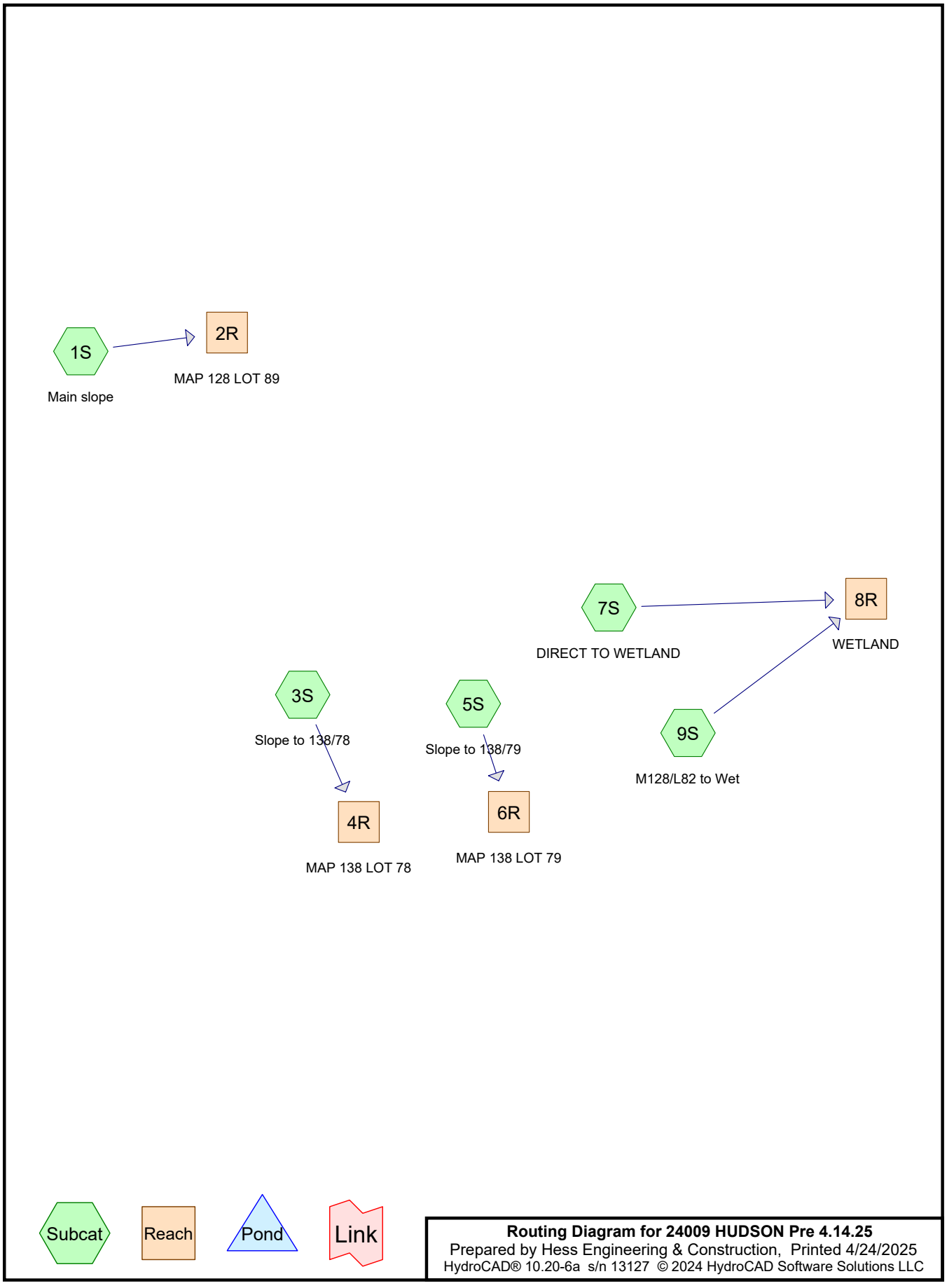
9-16-2024: Test Pit 8

Attachment "C"

Test Pit 9 (hand dug) Soil Series: Wareham (34) Drainage Class: poorly drained HSG: C

Horizon	Depth (in)	Description
A	0 – 16	10YR 2/1 loamy sand with common medium prominent 2.5Y4/6 redox concentrations
Bw	16 -	10YR 4/4 loamy sand; moderate medium subangular blocky structure; friable; common coarse prominent 5YR 4/6 redox concentrations
		Hydric by S7 – New England Hydric Soil Indicators

Depth of hole: 20”



Routing Diagram for 24009 HUDSON Pre 4.14.25
Prepared by Hess Engineering & Construction, Printed 4/24/2025

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6514 NH Hillsborough East
Rainfall events imported from "NRCS-Rain.txt" for 6514 NH Hillsborough East

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NRCC 24-hr	D	Default	24.00	1	2.86	2
2	10-Year	NRCC 24-hr	D	Default	24.00	1	4.28	2
3	25-Year	NRCC 24-hr	D	Default	24.00	1	5.39	2
4	50-Year	NRCC 24-hr	D	Default	24.00	1	6.42	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.197	39	>75% Grass cover, Good, HSG A (3S, 5S)
0.669	61	>75% Grass cover, Good, HSG B (9S)
0.076	98	Houses (9S)
0.146	98	Roadway (9S)
3.878	30	Woods, Good, HSG A (1S, 3S, 5S, 7S)
11.358	55	Woods, Good, HSG B (1S, 7S, 9S)
0.002	70	Woods, Good, HSG C (7S)
16.326	**50**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
4.075	HSG A	1S, 3S, 5S, 7S
12.027	HSG B	1S, 7S, 9S
0.002	HSG C	7S
0.000	HSG D	
0.222	Other	9S
16.326		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.197	0.669	0.000	0.000	0.000	0.866	>75% Grass cover, Good	3S, 5S, 9S
0.000	0.000	0.000	0.000	0.076	0.076	Houses	9S
0.000	0.000	0.000	0.000	0.146	0.146	Roadway	9S
3.878	11.358	0.002	0.000	0.000	15.238	Woods, Good	1S, 3S, 5S, 7S, 9S
4.075	**12.027**	**0.002**	**0.000**	**0.222**	**16.326**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Main slope Runoff Area=86,925 sf 0.00% Impervious Runoff Depth>0.04"
Flow Length=805' Tc=33.6 min CN=50 Runoff=0.01 cfs 0.007 af

Subcatchment 3S: Slope to 138/78 Runoff Area=1,354 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=38 Runoff=0.00 cfs 0.000 af

Subcatchment 5S: Slope to 138/79 Runoff Area=18,895 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=34 Runoff=0.00 cfs 0.000 af

Subcatchment 7S: DIRECT TO WETLAND Runoff Area=412,302 sf 0.00% Impervious Runoff Depth>0.01"
Flow Length=1,442' Tc=65.9 min CN=46 Runoff=0.02 cfs 0.005 af

Subcatchment 9S: M128/L82 to Wet Runoff Area=191,703 sf 5.04% Impervious Runoff Depth>0.17"
Flow Length=1,046' Tc=51.8 min CN=58 Runoff=0.17 cfs 0.061 af

Reach 2R: MAP 128 LOT 89 Inflow=0.01 cfs 0.007 af
Outflow=0.01 cfs 0.007 af

Reach 4R: MAP 138 LOT 78 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 6R: MAP 138 LOT 79 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 8R: WETLAND Inflow=0.17 cfs 0.066 af
Outflow=0.17 cfs 0.066 af

Total Runoff Area = 16.326 ac Runoff Volume = 0.073 af Average Runoff Depth = 0.05"
98.64% Pervious = 16.104 ac 1.36% Impervious = 0.222 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Main slope Runoff Area=86,925 sf 0.00% Impervious Runoff Depth>0.32"
Flow Length=805' Tc=33.6 min CN=50 Runoff=0.20 cfs 0.054 af

Subcatchment 3S: Slope to 138/78 Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>0.03"
Tc=6.0 min CN=38 Runoff=0.00 cfs 0.000 af

Subcatchment 5S: Slope to 138/79 Runoff Area=18,895 sf 0.00% Impervious Runoff Depth>0.00"
Tc=6.0 min CN=34 Runoff=0.00 cfs 0.000 af

Subcatchment 7S: DIRECT TO WETLAND Runoff Area=412,302 sf 0.00% Impervious Runoff Depth>0.19"
Flow Length=1,442' Tc=65.9 min CN=46 Runoff=0.35 cfs 0.147 af

Subcatchment 9S: M128/L82 to Wet Runoff Area=191,703 sf 5.04% Impervious Runoff Depth>0.64"
Flow Length=1,046' Tc=51.8 min CN=58 Runoff=1.13 cfs 0.234 af

Reach 2R: MAP 128 LOT 89 Inflow=0.20 cfs 0.054 af
Outflow=0.20 cfs 0.054 af

Reach 4R: MAP 138 LOT 78 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 6R: MAP 138 LOT 79 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 8R: WETLAND Inflow=1.29 cfs 0.382 af
Outflow=1.29 cfs 0.382 af

Total Runoff Area = 16.326 ac Runoff Volume = 0.435 af Average Runoff Depth = 0.32"
98.64% Pervious = 16.104 ac 1.36% Impervious = 0.222 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Main slope Runoff Area=86,925 sf 0.00% Impervious Runoff Depth>0.69"
Flow Length=805' Tc=33.6 min CN=50 Runoff=0.64 cfs 0.115 af

Subcatchment 3S: Slope to 138/78 Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>0.17"
Tc=6.0 min CN=38 Runoff=0.00 cfs 0.000 af

Subcatchment 5S: Slope to 138/79 Runoff Area=18,895 sf 0.00% Impervious Runoff Depth>0.06"
Tc=6.0 min CN=34 Runoff=0.00 cfs 0.002 af

Subcatchment 7S: DIRECT TO WETLAND Runoff Area=412,302 sf 0.00% Impervious Runoff Depth>0.47"
Flow Length=1,442' Tc=65.9 min CN=46 Runoff=1.25 cfs 0.370 af

Subcatchment 9S: M128/L82 to Wet Runoff Area=191,703 sf 5.04% Impervious Runoff Depth>1.15"
Flow Length=1,046' Tc=51.8 min CN=58 Runoff=2.27 cfs 0.421 af

Reach 2R: MAP 128 LOT 89 Inflow=0.64 cfs 0.115 af
Outflow=0.64 cfs 0.115 af

Reach 4R: MAP 138 LOT 78 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 6R: MAP 138 LOT 79 Inflow=0.00 cfs 0.002 af
Outflow=0.00 cfs 0.002 af

Reach 8R: WETLAND Inflow=3.23 cfs 0.792 af
Outflow=3.23 cfs 0.792 af

Total Runoff Area = 16.326 ac Runoff Volume = 0.909 af Average Runoff Depth = 0.67"
98.64% Pervious = 16.104 ac 1.36% Impervious = 0.222 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Main slope Runoff Area=86,925 sf 0.00% Impervious Runoff Depth>1.12"
Flow Length=805' Tc=33.6 min CN=50 Runoff=1.19 cfs 0.186 af

Subcatchment 3S: Slope to 138/78 Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>0.39"
Tc=6.0 min CN=38 Runoff=0.00 cfs 0.001 af

Subcatchment 5S: Slope to 138/79 Runoff Area=18,895 sf 0.00% Impervious Runoff Depth>0.21"
Tc=6.0 min CN=34 Runoff=0.02 cfs 0.008 af

Subcatchment 7S: DIRECT TO WETLAND Runoff Area=412,302 sf 0.00% Impervious Runoff Depth>0.82"
Flow Length=1,442' Tc=65.9 min CN=46 Runoff=2.61 cfs 0.646 af

Subcatchment 9S: M128/L82 to Wet Runoff Area=191,703 sf 5.04% Impervious Runoff Depth>1.70"
Flow Length=1,046' Tc=51.8 min CN=58 Runoff=3.50 cfs 0.625 af

Reach 2R: MAP 128 LOT 89 Inflow=1.19 cfs 0.186 af
Outflow=1.19 cfs 0.186 af

Reach 4R: MAP 138 LOT 78 Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Reach 6R: MAP 138 LOT 79 Inflow=0.02 cfs 0.008 af
Outflow=0.02 cfs 0.008 af

Reach 8R: WETLAND Inflow=5.74 cfs 1.271 af
Outflow=5.74 cfs 1.271 af

Total Runoff Area = 16.326 ac Runoff Volume = 1.465 af Average Runoff Depth = 1.08"
98.64% Pervious = 16.104 ac 1.36% Impervious = 0.222 ac

Events for Subcatchment 1S: Main slope

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.01	0.007	0.04
10-Year	4.28	0.20	0.054	0.32
25-Year	5.39	0.64	0.115	0.69
50-Year	**6.42**	**1.19**	**0.186**	**1.12**

Events for Subcatchment 3S: Slope to 138/78

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.00	0.000	0.00
10-Year	4.28	0.00	0.000	0.03
25-Year	5.39	0.00	0.000	0.17
50-Year	**6.42**	**0.00**	**0.001**	**0.39**

Events for Subcatchment 5S: Slope to 138/79

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.00	0.000	0.00
10-Year	4.28	0.00	0.000	0.00
25-Year	5.39	0.00	0.002	0.06
50-Year	**6.42**	**0.02**	**0.008**	**0.21**

Events for Subcatchment 7S: DIRECT TO WETLAND

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.02	0.005	0.01
10-Year	4.28	0.35	0.147	0.19
25-Year	5.39	1.25	0.370	0.47
50-Year	**6.42**	**2.61**	**0.646**	**0.82**

Events for Subcatchment 9S: M128/L82 to Wet

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.17	0.061	0.17
10-Year	4.28	1.13	0.234	0.64
25-Year	5.39	2.27	0.421	1.15
50-Year	**6.42**	**3.50**	**0.625**	**1.70**

Events for Reach 2R: MAP 128 LOT 89

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.01	0.01	**0.00**	**0**
10-Year	0.20	0.20	0.00	0
25-Year	0.64	0.64	0.00	0
50-Year	**1.19**	**1.19**	0.00	0

Events for Reach 4R: MAP 138 LOT 78

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.00	0.00	**0.00**	**0**
10-Year	0.00	0.00	0.00	0
25-Year	0.00	0.00	0.00	0
50-Year	**0.00**	**0.00**	0.00	0

Events for Reach 6R: MAP 138 LOT 79

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.00	0.00	**0.00**	**0**
10-Year	0.00	0.00	0.00	0
25-Year	0.00	0.00	0.00	0
50-Year	**0.02**	**0.02**	0.00	0

Events for Reach 8R: WETLAND

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.17	0.17	**0.00**	**0**
10-Year	1.29	1.29	0.00	0
25-Year	3.23	3.23	0.00	0
50-Year	**5.74**	**5.74**	0.00	0

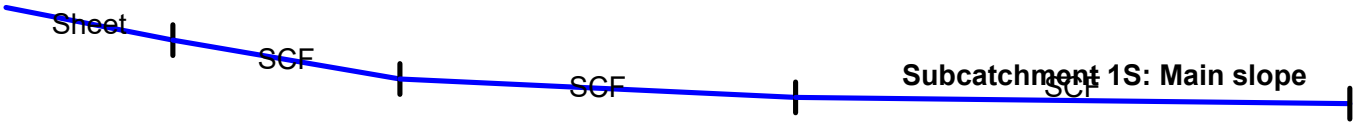
Summary for Subcatchment 1S: Main slope

Runoff = 0.20 cfs @ 12.66 hrs, Volume= 0.054 af, Depth> 0.32"
Routed to Reach 2R : MAP 128 LOT 89

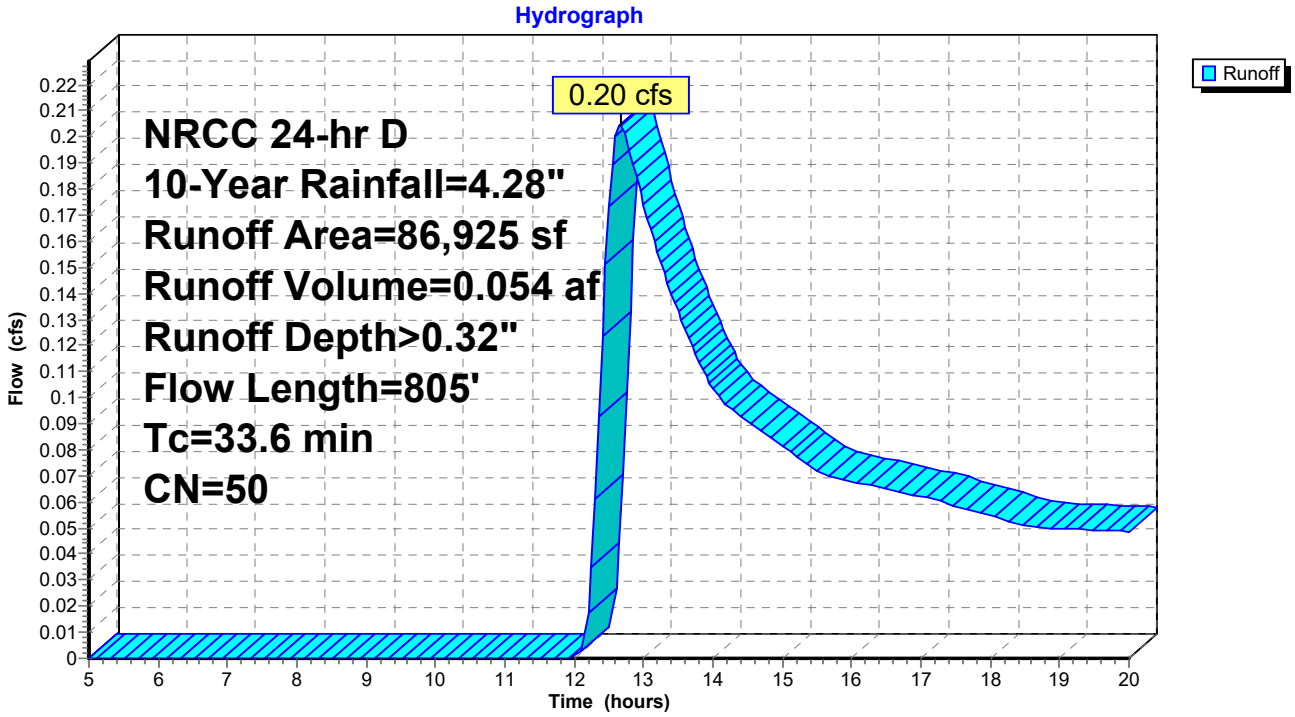
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

Area (sf)	CN	Description
15,835	30	Woods, Good, HSG A
71,090	55	Woods, Good, HSG B
86,925	50	Weighted Average
86,925		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.1050	0.13		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 2.40"
1.5	136	0.0920	1.52		**Shallow Concentrated Flow, SCF** Woodland Kv= 5.0 fps
5.0	237	0.0250	0.79		**Shallow Concentrated Flow, SCF** Woodland Kv= 5.0 fps
14.3	332	0.0060	0.39		**Shallow Concentrated Flow, SCF** Woodland Kv= 5.0 fps
33.6	805	Total			



Subcatchment 1S: Main slope



Summary for Subcatchment 3S: Slope to 138/78

[73] Warning: Peak may fall outside time span

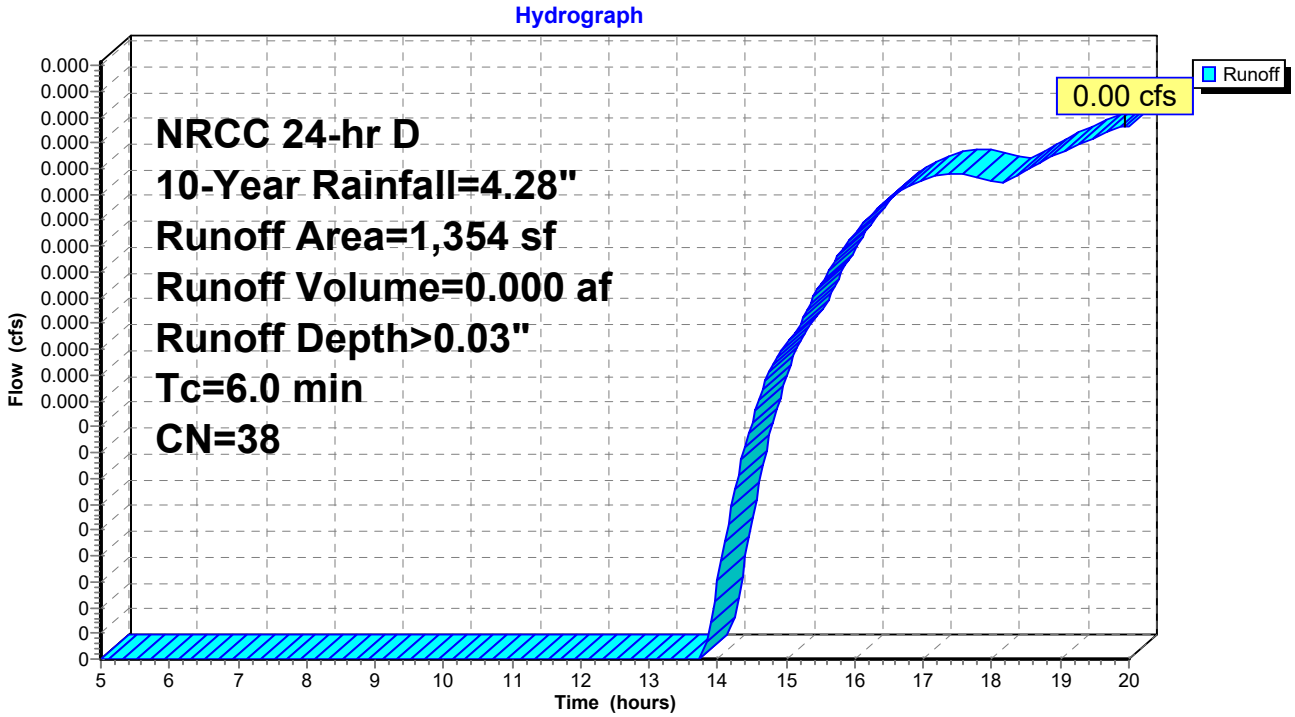
Runoff = 0.00 cfs @ 19.95 hrs, Volume= 0.000 af, Depth> 0.03"
Routed to Reach 4R : MAP 138 LOT 78

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

Area (sf)	CN	Description
1,158	39	>75% Grass cover, Good, HSG A
196	30	Woods, Good, HSG A
1,354	38	Weighted Average
1,354		100.00% Pervious Area

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

Subcatchment 3S: Slope to 138/78



Summary for Subcatchment 5S: Slope to 138/79

[73] Warning: Peak may fall outside time span

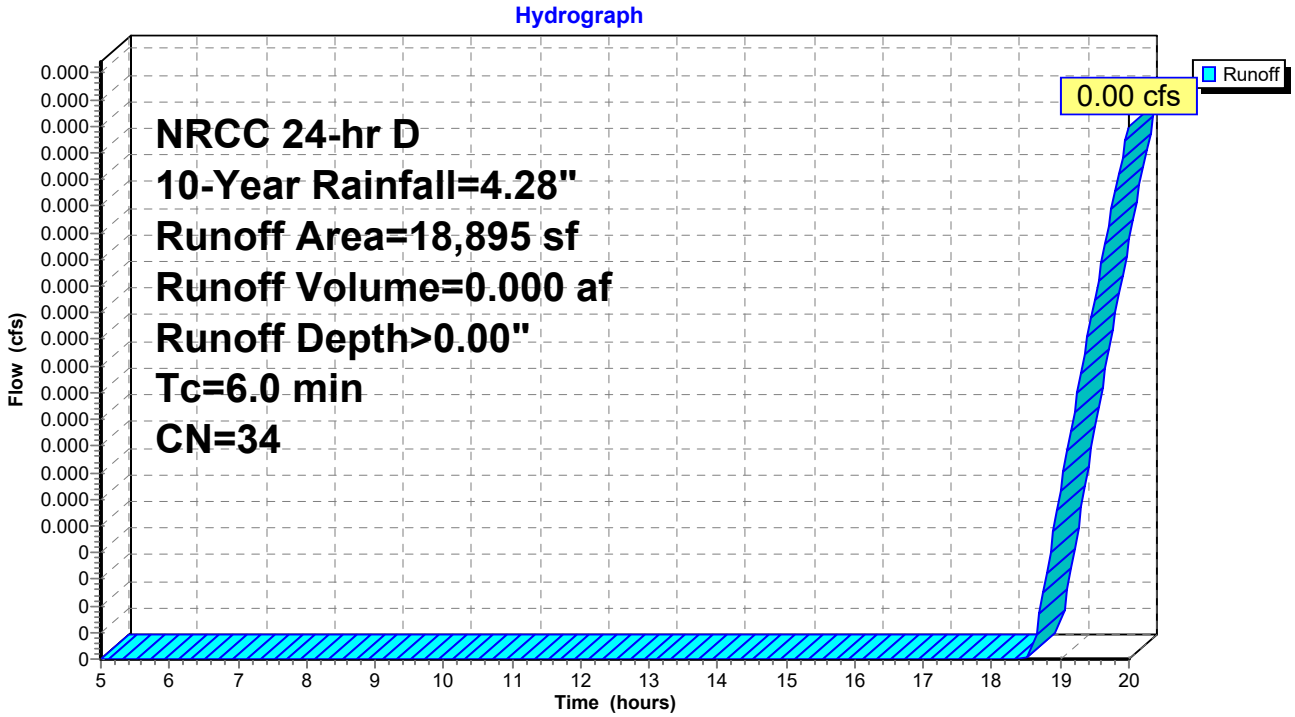
Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.00"
Routed to Reach 6R : MAP 138 LOT 79

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

Area (sf)	CN	Description
7,432	39	>75% Grass cover, Good, HSG A
11,463	30	Woods, Good, HSG A
18,895	34	Weighted Average
18,895		100.00% Pervious Area

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

Subcatchment 5S: Slope to 138/79



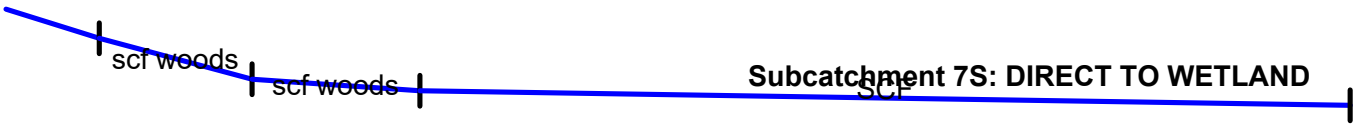
Summary for Subcatchment 7S: DIRECT TO WETLAND

Runoff = 0.35 cfs @ 13.72 hrs, Volume= 0.147 af, Depth> 0.19"
Routed to Reach 8R : WETLAND

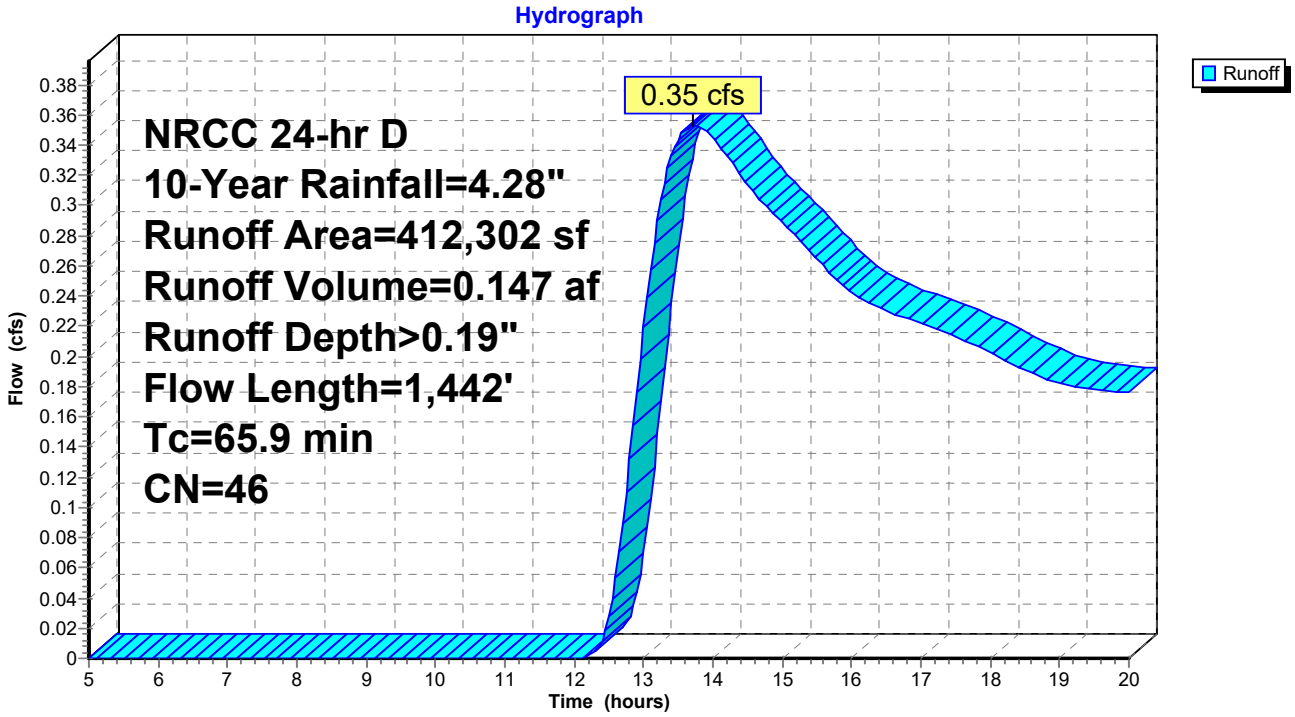
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

Area (sf)	CN	Description
141,437	30	Woods, Good, HSG A
270,770	55	Woods, Good, HSG B
95	70	Woods, Good, HSG C
412,302	46	Weighted Average
412,302		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.1000	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.40"
1.9	164	0.0860	1.47		**Shallow Concentrated Flow, scf woods** Woodland Kv= 5.0 fps
4.0	180	0.0220	0.74		**Shallow Concentrated Flow, scf woods** Woodland Kv= 5.0 fps
47.0	998	0.0050	0.35		**Shallow Concentrated Flow, SCF** Woodland Kv= 5.0 fps
65.9	1,442	Total			



Subcatchment 7S: DIRECT TO WETLAND



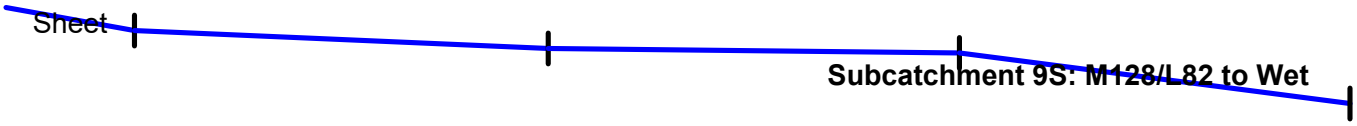
Summary for Subcatchment 9S: M128/L82 to Wet

Runoff = 1.13 cfs @ 12.82 hrs, Volume= 0.234 af, Depth> 0.64"
Routed to Reach 8R : WETLAND

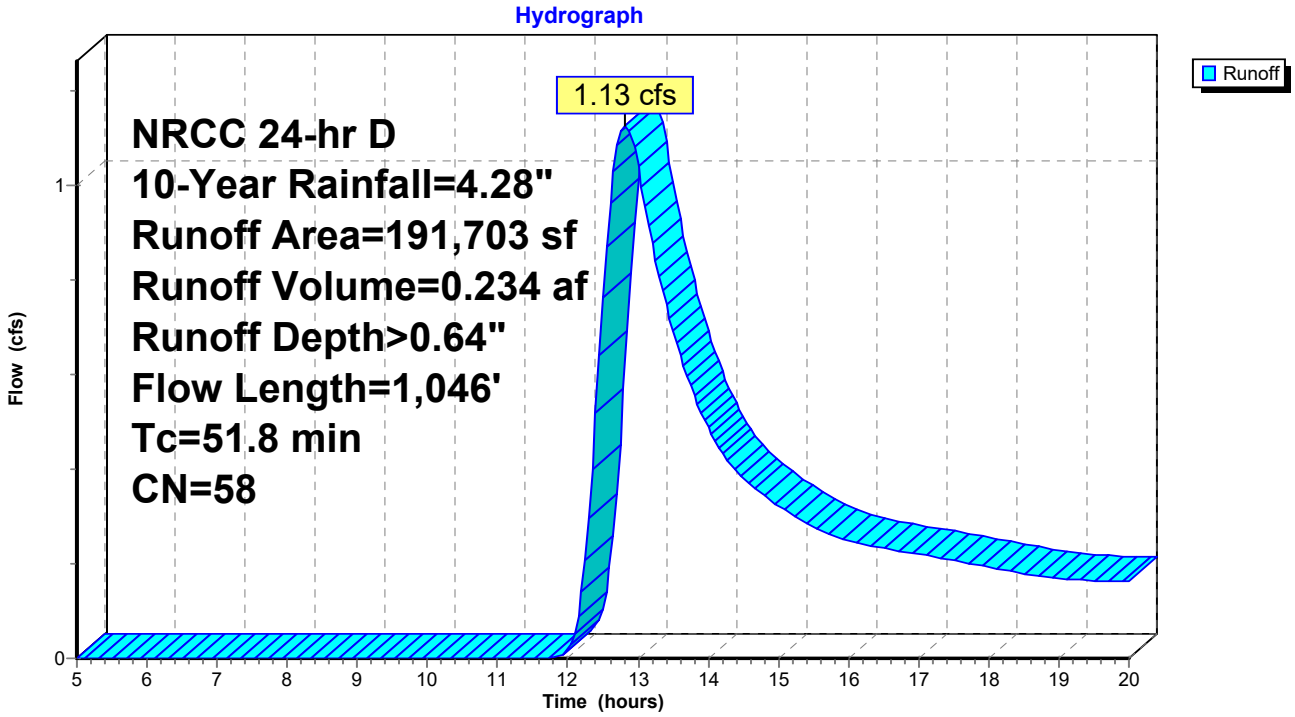
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
*	3,322	98	Houses
*	6,347	98	Roadway
	29,133	61	>75% Grass cover, Good, HSG B
	152,901	55	Woods, Good, HSG B
	191,703	58	Weighted Average
	182,034		94.96% Pervious Area
	9,669		5.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	100	0.0500	0.10		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 2.40"
9.8	322	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.5	320	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.3	304	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
51.8	1,046	Total			



Subcatchment 9S: M128/L82 to Wet



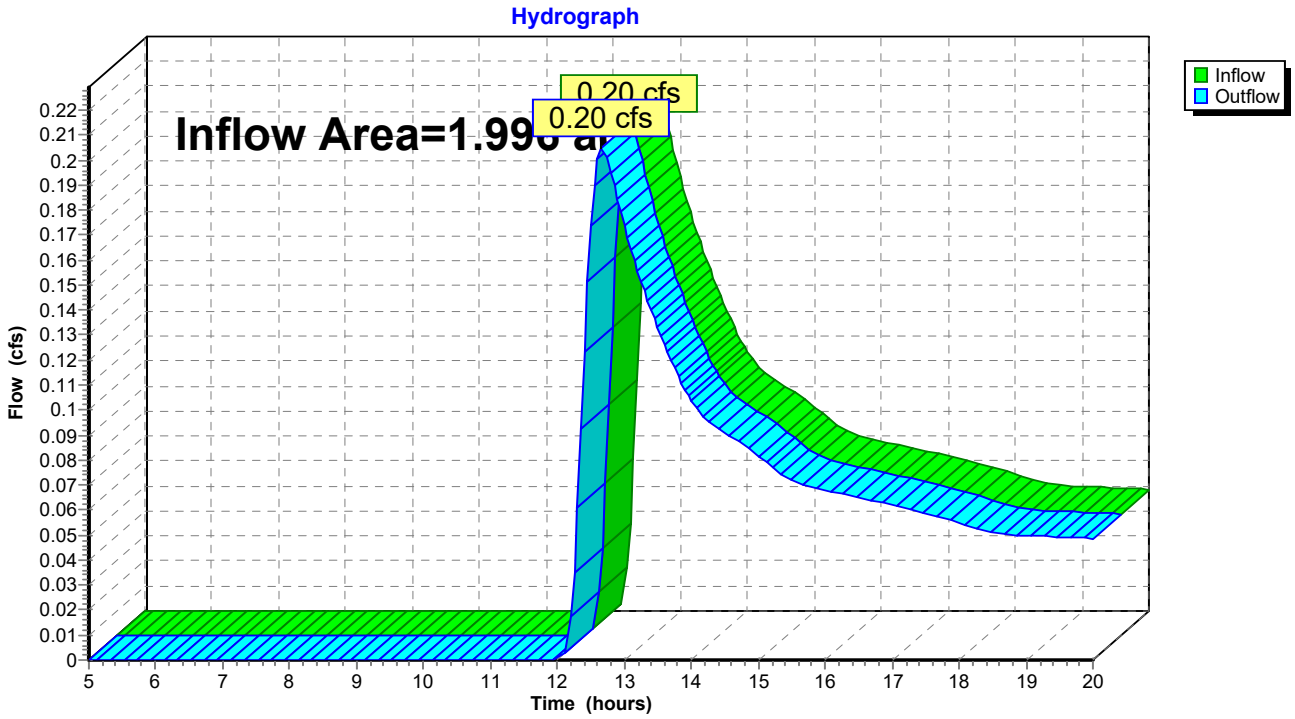
Summary for Reach 2R: MAP 128 LOT 89

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

Inflow Area = 1.996 ac, 0.00% Impervious, Inflow Depth > 0.32" for 10-Year event
Inflow = 0.20 cfs @ 12.66 hrs, Volume= 0.054 af
Outflow = 0.20 cfs @ 12.66 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: MAP 128 LOT 89



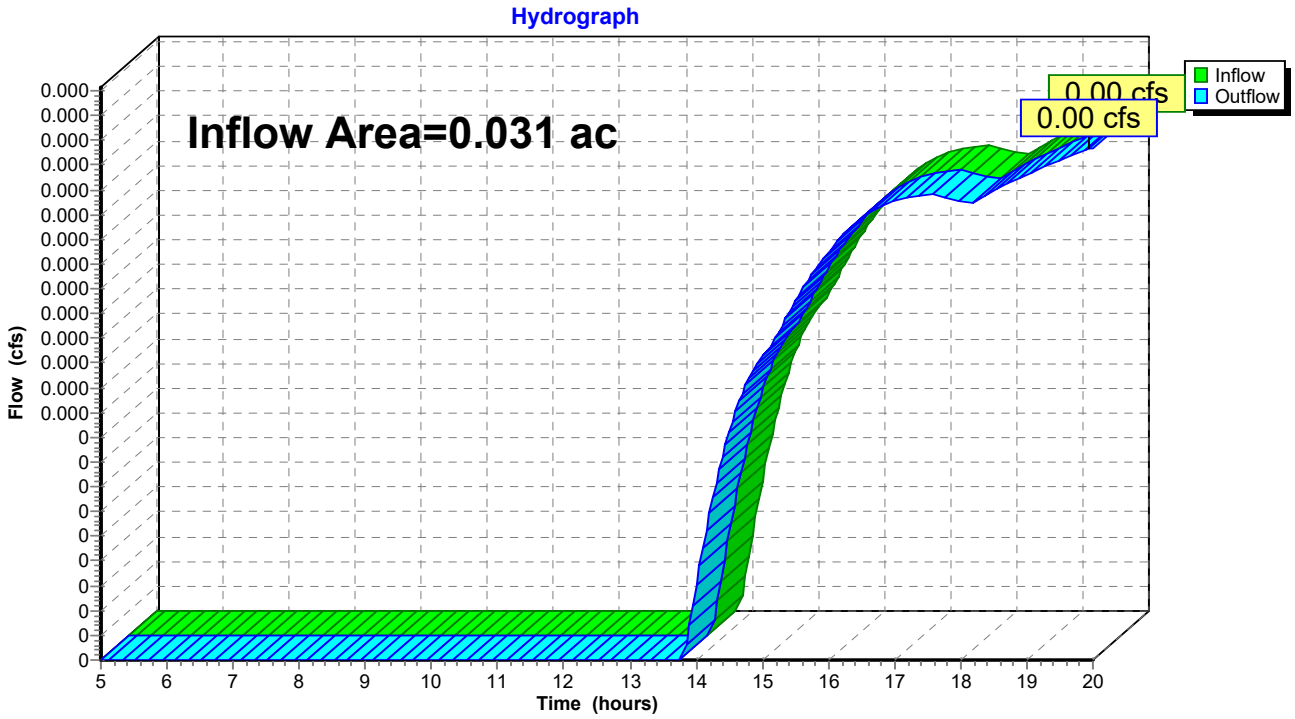
Summary for Reach 4R: MAP 138 LOT 78

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

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth > 0.03" for 10-Year event
Inflow = 0.00 cfs @ 19.95 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 19.95 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 4R: MAP 138 LOT 78



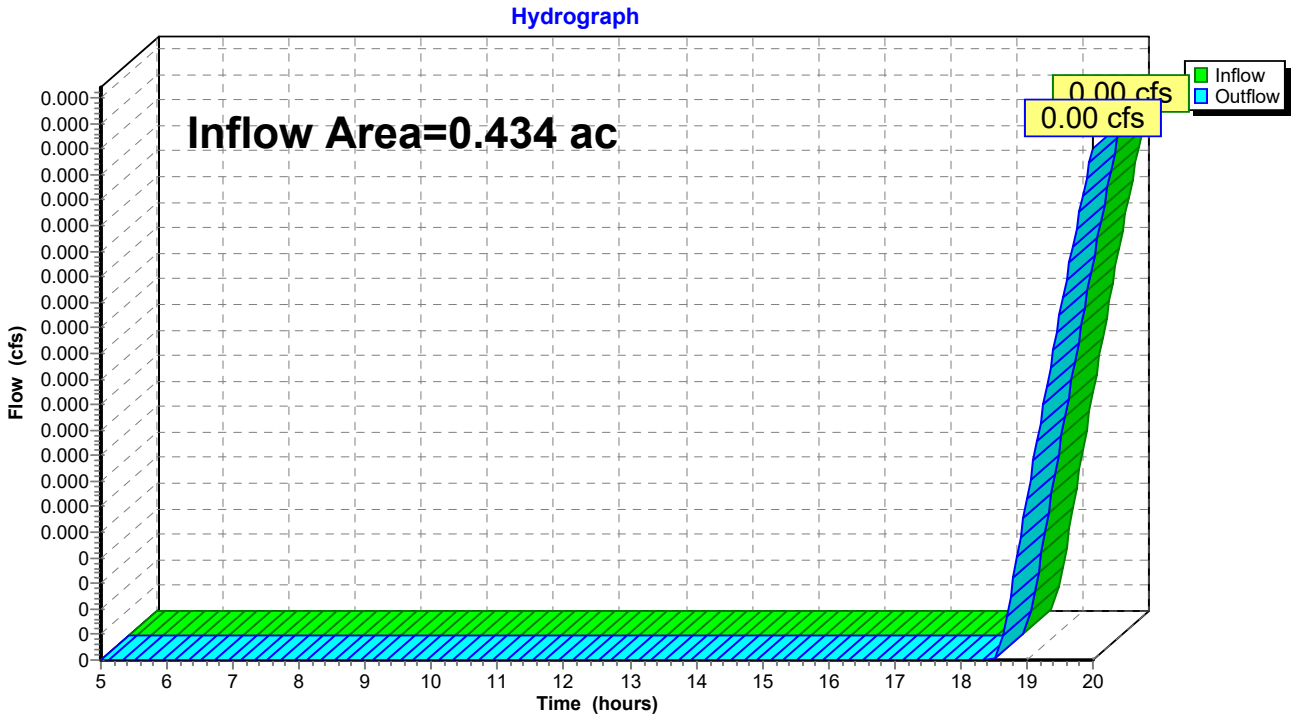
Summary for Reach 6R: MAP 138 LOT 79

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

Inflow Area = 0.434 ac, 0.00% Impervious, Inflow Depth > 0.00" for 10-Year event
Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 6R: MAP 138 LOT 79



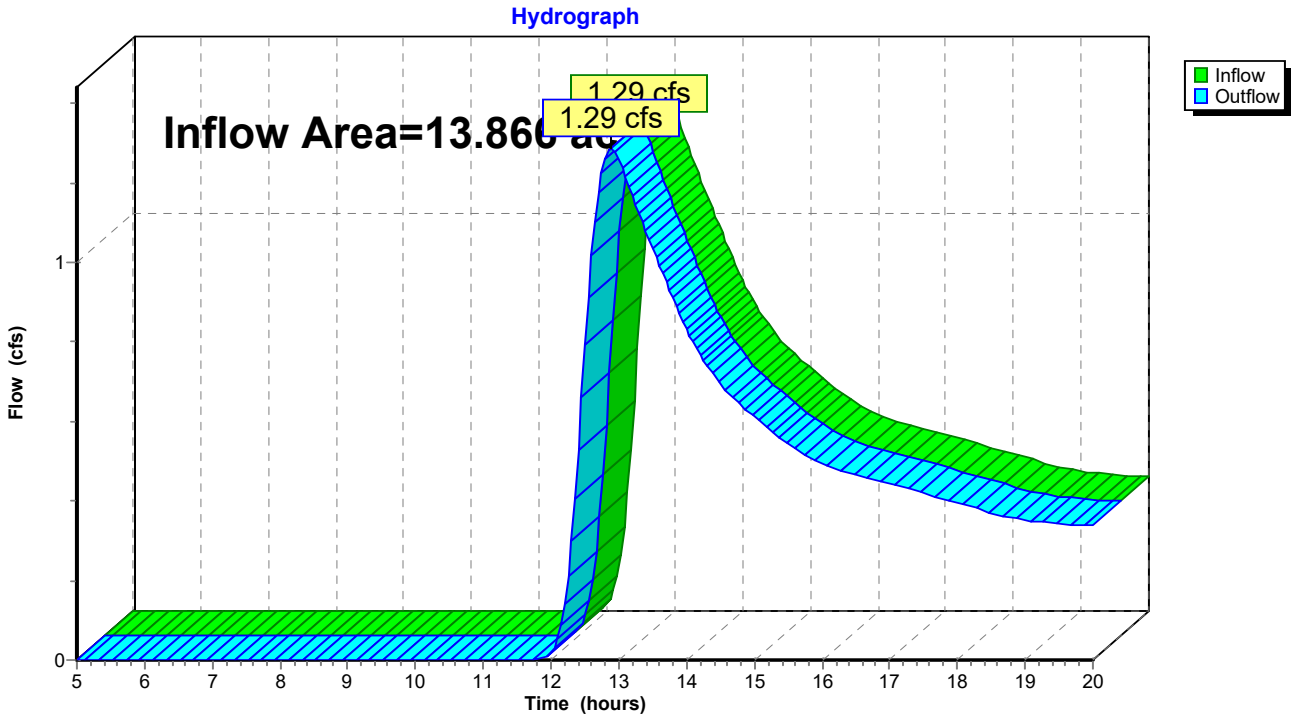
Summary for Reach 8R: WETLAND

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

Inflow Area = 13.866 ac, 1.60% Impervious, Inflow Depth > 0.33" for 10-Year event
Inflow = 1.29 cfs @ 12.90 hrs, Volume= 0.382 af
Outflow = 1.29 cfs @ 12.90 hrs, Volume= 0.382 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 8R: WETLAND



Events for Subcatchment 1S: Main slope

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.20**	**0.054**	**0.32**

Events for Subcatchment 3S: Slope to 138/78

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.00**	**0.000**	**0.03**

Events for Subcatchment 5S: Slope to 138/79

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.00**	**0.000**	**0.00**

Events for Subcatchment 7S: DIRECT TO WETLAND

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.35**	**0.147**	**0.19**

Events for Subcatchment 9S: M128/L82 to Wet

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**1.13**	**0.234**	**0.64**

Events for Reach 2R: MAP 128 LOT 89

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**0.20**	**0.20**	**0.00**	**0**

Events for Reach 4R: MAP 138 LOT 78

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**0.00**	**0.00**	**0.00**	**0**

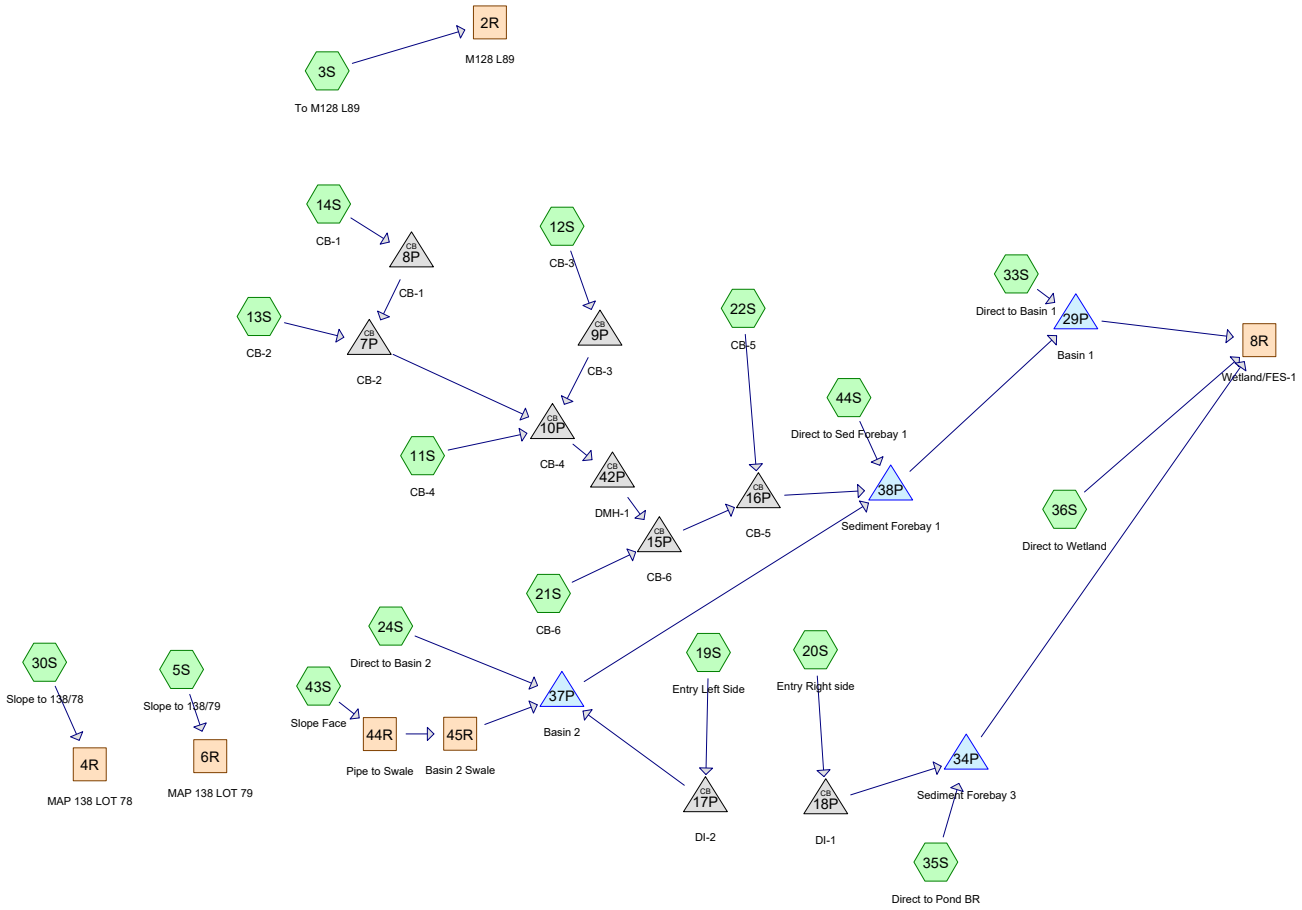
Events for Reach 6R: MAP 138 LOT 79

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**0.00**	**0.00**	**0.00**	**0**

Events for Reach 8R: WETLAND

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**1.29**	**1.29**	**0.00**	**0**

Attachment "C"



Subcat Reach Pond Link

Routing Diagram for 24009 Hudson Post 4.22.25
Prepared by Hess Engineering & Construction, Printed 4/24/2025
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Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6514 NH Hillsborough East

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NRCC 24-hr	D	Default	24.00	1	2.86	2
2	10-Year	NRCC 24-hr	D	Default	24.00	1	4.28	2
3	25-Year	NRCC 24-hr	D	Default	24.00	1	5.39	2
4	50-Year	NRCC 24-hr	D	Default	24.00	1	6.42	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.498	39	>75% Grass cover, Good, HSG A (5S, 11S, 12S, 13S, 14S, 24S, 30S, 33S, 43S)
4.596	61	>75% Grass cover, Good, HSG B (3S, 11S, 12S, 14S, 19S, 20S, 21S, 22S, 24S, 33S, 35S, 36S, 44S)
0.022	98	Abutter Roof (36S)
0.273	98	Asphalt (13S, 21S)
0.074	98	BLDG (12S)
0.041	98	Building (13S)
0.111	98	Imp Entry (19S)
0.446	98	Pave (11S, 12S, 22S, 35S)
0.107	98	Paved Imp Entry (20S)
0.166	98	Road (14S)
0.227	98	Roof (11S, 14S, 22S)
0.072	98	Roof Imp Entry (24S)
2.185	30	Woods, Good, HSG A (3S, 5S, 14S, 24S, 30S, 33S, 43S)
6.495	55	Woods, Good, HSG B (3S, 24S, 33S, 35S, 36S, 44S)
0.002	70	Woods, Good, HSG C (36S)
16.316	**56**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
3.683	HSG A	3S, 5S, 11S, 12S, 13S, 14S, 24S, 30S, 33S, 43S
11.091	HSG B	3S, 11S, 12S, 14S, 19S, 20S, 21S, 22S, 24S, 33S, 35S, 36S, 44S
0.002	HSG C	36S
0.000	HSG D	
1.539	Other	11S, 12S, 13S, 14S, 19S, 20S, 21S, 22S, 24S, 35S, 36S
16.316		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.498	4.596	0.000	0.000	0.000	6.094	>75% Grass cover, Good	3S, 5S, 11S, 12S, 13S, 14S, 19S, 20S, 21S, 22S, 24S, 30S, 33S, 35S, 36S, 43S, 44S
0.000	0.000	0.000	0.000	0.022	0.022	Abutter Roof	36S
0.000	0.000	0.000	0.000	0.273	0.273	Asphalt	13S, 21S
0.000	0.000	0.000	0.000	0.074	0.074	BLDG	12S
0.000	0.000	0.000	0.000	0.041	0.041	Building	13S
0.000	0.000	0.000	0.000	0.111	0.111	Imp Entry	19S
0.000	0.000	0.000	0.000	0.446	0.446	Pave	11S, 12S, 22S, 35S
0.000	0.000	0.000	0.000	0.107	0.107	Paved Imp Entry	20S
0.000	0.000	0.000	0.000	0.166	0.166	Road	14S
0.000	0.000	0.000	0.000	0.227	0.227	Roof	11S, 14S, 22S
0.000	0.000	0.000	0.000	0.072	0.072	Roof Imp Entry	24S
2.185	6.495	0.002	0.000	0.000	8.682	Woods, Good	3S, 5S, 14S, 24S, 30S, 33S, 35S, 36S, 43S, 44S
3.683	**11.091**	**0.002**	**0.000**	**1.539**	**16.316**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	44R	170.50	162.00	134.0	0.0634	0.013	0.0	6.0	0.0	
2	7P	165.90	158.77	246.0	0.0290	0.012	0.0	18.0	0.0	
3	8P	166.30	166.03	18.0	0.0150	0.012	0.0	18.0	0.0	
4	9P	159.00	158.73	18.0	0.0150	0.012	0.0	12.0	0.0	
5	10P	158.60	157.49	74.0	0.0150	0.012	0.0	18.0	0.0	
6	15P	156.00	155.73	18.3	0.0148	0.012	0.0	24.0	0.0	
7	16P	155.60	155.20	26.5	0.0151	0.012	0.0	24.0	0.0	
8	17P	157.37	157.04	22.0	0.0150	0.013	0.0	10.0	0.0	
9	18P	157.38	157.13	17.0	0.0147	0.013	0.0	10.0	0.0	
10	37P	156.50	155.44	71.0	0.0149	0.012	0.0	12.0	0.0	
11	42P	157.40	156.09	87.5	0.0150	0.012	0.0	18.0	0.0	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 3S: To M128 L89 Runoff Area=64,181 sf 0.00% Impervious Runoff Depth>0.04"
Flow Length=805' Tc=33.6 min CN=50 Runoff=0.01 cfs 0.005 af

Subcatchment 5S: Slope to 138/79 Runoff Area=18,895 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=34 Runoff=0.00 cfs 0.000 af

Subcatchment 11S: CB-4 Runoff Area=12,781 sf 68.25% Impervious Runoff Depth>1.39"
Tc=6.0 min CN=86 Runoff=0.49 cfs 0.034 af

Subcatchment 12S: CB-3 Runoff Area=15,640 sf 49.80% Impervious Runoff Depth>0.95"
Tc=6.0 min CN=79 Runoff=0.42 cfs 0.029 af

Subcatchment 13S: CB-2 Runoff Area=20,794 sf 41.40% Impervious Runoff Depth>0.30"
Flow Length=293' Tc=12.9 min CN=63 Runoff=0.09 cfs 0.012 af

Subcatchment 14S: CB-1 Runoff Area=30,954 sf 34.85% Impervious Runoff Depth>0.20"
Flow Length=376' Tc=16.5 min CN=59 Runoff=0.05 cfs 0.012 af

Subcatchment 19S: Entry Left Side Runoff Area=6,123 sf 78.64% Impervious Runoff Depth>1.69"
Tc=6.0 min CN=90 Runoff=0.28 cfs 0.020 af

Subcatchment 20S: Entry Right side Runoff Area=6,857 sf 67.99% Impervious Runoff Depth>1.39"
Tc=6.0 min CN=86 Runoff=0.26 cfs 0.018 af

Subcatchment 21S: CB-6 Runoff Area=7,293 sf 69.52% Impervious Runoff Depth>1.46"
Tc=6.0 min CN=87 Runoff=0.29 cfs 0.020 af

Subcatchment 22S: CB-5 Runoff Area=18,270 sf 61.79% Impervious Runoff Depth>1.25"
Tc=6.0 min CN=84 Runoff=0.63 cfs 0.044 af

Subcatchment 24S: Direct to Basin 2 Runoff Area=135,672 sf 2.32% Impervious Runoff Depth>0.04"
Flow Length=671' Tc=26.5 min CN=50 Runoff=0.02 cfs 0.010 af

Subcatchment 30S: Slope to 138/78 Runoff Area=1,354 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=38 Runoff=0.00 cfs 0.000 af

Subcatchment 33S: Direct to Basin 1 Runoff Area=127,760 sf 0.00% Impervious Runoff Depth>0.11"
Flow Length=867' Tc=35.2 min CN=55 Runoff=0.06 cfs 0.027 af

Subcatchment 35S: Direct to Pond BR Runoff Area=4,690 sf 25.12% Impervious Runoff Depth>0.54"
Tc=6.0 min CN=70 Runoff=0.07 cfs 0.005 af

Subcatchment 36S: Direct to Wetland Runoff Area=190,299 sf 0.50% Impervious Runoff Depth>0.13"
Flow Length=597' Tc=54.0 min CN=56 Runoff=0.11 cfs 0.046 af

Subcatchment 43S: Slope Face Runoff Area=30,117 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=36 Runoff=0.00 cfs 0.000 af

Subcatchment 44S: Direct to Sed Forebay 1 Runoff Area=19,028 sf 0.00% Impervious Runoff Depth>0.22"
Tc=6.0 min CN=60 Runoff=0.06 cfs 0.008 af

Reach 2R: M128 L89 Inflow=0.01 cfs 0.005 af
Outflow=0.01 cfs 0.005 af

Reach 4R: MAP 138 LOT 78 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 6R: MAP 138 LOT 79 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 8R: Wetland/FES-1 Inflow=0.11 cfs 0.059 af
Outflow=0.11 cfs 0.059 af

Reach 44R: Pipe to Swale Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
6.0" Round Pipe n=0.013 L=134.0' S=0.0634 '/' Capacity=1.41 cfs Outflow=0.00 cfs 0.000 af

Reach 45R: Basin 2 Swale Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=251.0' S=0.0120 '/' Capacity=26.28 cfs Outflow=0.00 cfs 0.000 af

Pond 7P: CB-2 Peak Elev=166.06' Inflow=0.13 cfs 0.024 af
18.0" Round Culvert n=0.012 L=246.0' S=0.0290 '/' Outflow=0.13 cfs 0.024 af

Pond 8P: CB-1 Peak Elev=166.40' Inflow=0.05 cfs 0.012 af
18.0" Round Culvert n=0.012 L=18.0' S=0.0150 '/' Outflow=0.05 cfs 0.012 af

Pond 9P: CB-3 Peak Elev=159.32' Inflow=0.42 cfs 0.029 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0150 '/' Outflow=0.42 cfs 0.029 af

Pond 10P: CB-4 Peak Elev=159.04' Inflow=0.96 cfs 0.086 af
18.0" Round Culvert n=0.012 L=74.0' S=0.0150 '/' Outflow=0.96 cfs 0.086 af

Pond 15P: CB-6 Peak Elev=156.46' Inflow=1.25 cfs 0.106 af
24.0" Round Culvert n=0.012 L=18.3' S=0.0148 '/' Outflow=1.25 cfs 0.106 af

Pond 16P: CB-5 Peak Elev=156.17' Inflow=1.88 cfs 0.150 af
24.0" Round Culvert n=0.012 L=26.5' S=0.0151 '/' Outflow=1.88 cfs 0.150 af

Pond 17P: DI-2 Peak Elev=157.64' Inflow=0.28 cfs 0.020 af
10.0" Round Culvert n=0.013 L=22.0' S=0.0150 '/' Outflow=0.28 cfs 0.020 af

Pond 18P: DI-1 Peak Elev=157.65' Inflow=0.26 cfs 0.018 af
10.0" Round Culvert n=0.013 L=17.0' S=0.0147 '/' Outflow=0.26 cfs 0.018 af

Pond 29P: Basin 1 Peak Elev=155.26' Storage=3,597 cf Inflow=0.26 cfs 0.096 af
Outflow=0.06 cfs 0.013 af

Pond 34P: Sediment Forebay 3 Peak Elev=157.39' Storage=262 cf Inflow=0.33 cfs 0.023 af
Discarded=0.05 cfs 0.023 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.023 af

Pond 37P: Basin 2 Peak Elev=156.57' Storage=1,132 cf Inflow=0.28 cfs 0.030 af
12.0" Round Culvert n=0.012 L=71.0' S=0.0149 '/' Outflow=0.02 cfs 0.004 af

Pond 38P: Sediment Forebay 1 Peak Elev=155.33' Storage=4,126 cf Inflow=1.94 cfs 0.163 af
Outflow=0.20 cfs 0.069 af

Pond 42P: DMH-1 Peak Elev=157.84' Inflow=0.96 cfs 0.086 af
18.0" Round Culvert n=0.012 L=87.5' S=0.0150 '/' Outflow=0.96 cfs 0.086 af

Total Runoff Area = 16.316 ac Runoff Volume = 0.290 af Average Runoff Depth = 0.21"
90.57% Pervious = 14.777 ac 9.43% Impervious = 1.539 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 3S: To M128 L89 Runoff Area=64,181 sf 0.00% Impervious Runoff Depth>0.32"
Flow Length=805' Tc=33.6 min CN=50 Runoff=0.15 cfs 0.040 af

Subcatchment 5S: Slope to 138/79 Runoff Area=18,895 sf 0.00% Impervious Runoff Depth>0.00"
Tc=6.0 min CN=34 Runoff=0.00 cfs 0.000 af

Subcatchment 11S: CB-4 Runoff Area=12,781 sf 68.25% Impervious Runoff Depth>2.55"
Tc=6.0 min CN=86 Runoff=0.87 cfs 0.062 af

Subcatchment 12S: CB-3 Runoff Area=15,640 sf 49.80% Impervious Runoff Depth>1.96"
Tc=6.0 min CN=79 Runoff=0.85 cfs 0.059 af

Subcatchment 13S: CB-2 Runoff Area=20,794 sf 41.40% Impervious Runoff Depth>0.91"
Flow Length=293' Tc=12.9 min CN=63 Runoff=0.39 cfs 0.036 af

Subcatchment 14S: CB-1 Runoff Area=30,954 sf 34.85% Impervious Runoff Depth>0.71"
Flow Length=376' Tc=16.5 min CN=59 Runoff=0.38 cfs 0.042 af

Subcatchment 19S: Entry Left Side Runoff Area=6,123 sf 78.64% Impervious Runoff Depth>2.91"
Tc=6.0 min CN=90 Runoff=0.46 cfs 0.034 af

Subcatchment 20S: Entry Right side Runoff Area=6,857 sf 67.99% Impervious Runoff Depth>2.55"
Tc=6.0 min CN=86 Runoff=0.47 cfs 0.033 af

Subcatchment 21S: CB-6 Runoff Area=7,293 sf 69.52% Impervious Runoff Depth>2.63"
Tc=6.0 min CN=87 Runoff=0.51 cfs 0.037 af

Subcatchment 22S: CB-5 Runoff Area=18,270 sf 61.79% Impervious Runoff Depth>2.37"
Tc=6.0 min CN=84 Runoff=1.17 cfs 0.083 af

Subcatchment 24S: Direct to Basin 2 Runoff Area=135,672 sf 2.32% Impervious Runoff Depth>0.33"
Flow Length=671' Tc=26.5 min CN=50 Runoff=0.35 cfs 0.084 af

Subcatchment 30S: Slope to 138/78 Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>0.03"
Tc=6.0 min CN=38 Runoff=0.00 cfs 0.000 af

Subcatchment 33S: Direct to Basin 1 Runoff Area=127,760 sf 0.00% Impervious Runoff Depth>0.52"
Flow Length=867' Tc=35.2 min CN=55 Runoff=0.66 cfs 0.126 af

Subcatchment 35S: Direct to Pond BR Runoff Area=4,690 sf 25.12% Impervious Runoff Depth>1.33"
Tc=6.0 min CN=70 Runoff=0.17 cfs 0.012 af

Subcatchment 36S: Direct to Wetland Runoff Area=190,299 sf 0.50% Impervious Runoff Depth>0.55"
Flow Length=597' Tc=54.0 min CN=56 Runoff=0.89 cfs 0.200 af

Subcatchment 43S: Slope Face Runoff Area=30,117 sf 0.00% Impervious Runoff Depth>0.01"
Tc=6.0 min CN=36 Runoff=0.00 cfs 0.001 af

Subcatchment 44S: Direct to Sed Forebay 1 Runoff Area=19,028 sf 0.00% Impervious Runoff Depth>0.76"
Tc=6.0 min CN=60 Runoff=0.37 cfs 0.028 af

Reach 2R: M128 L89 Inflow=0.15 cfs 0.040 af
Outflow=0.15 cfs 0.040 af

Reach 4R: MAP 138 LOT 78 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 6R: MAP 138 LOT 79 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 8R: Wetland/FES-1 Inflow=1.08 cfs 0.481 af
Outflow=1.08 cfs 0.481 af

Reach 44R: Pipe to Swale Avg. Flow Depth=0.02' Max Vel=1.39 fps Inflow=0.00 cfs 0.001 af
6.0" Round Pipe n=0.013 L=134.0' S=0.0634 '/' Capacity=1.41 cfs Outflow=0.00 cfs 0.001 af

Reach 45R: Basin 2 Swale Avg. Flow Depth=0.00' Max Vel=0.34 fps Inflow=0.00 cfs 0.001 af
n=0.022 L=251.0' S=0.0120 '/' Capacity=26.28 cfs Outflow=0.00 cfs 0.001 af

Pond 7P: CB-2 Peak Elev=166.28' Inflow=0.75 cfs 0.078 af
18.0" Round Culvert n=0.012 L=246.0' S=0.0290 '/' Outflow=0.75 cfs 0.078 af

Pond 8P: CB-1 Peak Elev=166.57' Inflow=0.38 cfs 0.042 af
18.0" Round Culvert n=0.012 L=18.0' S=0.0150 '/' Outflow=0.38 cfs 0.042 af

Pond 9P: CB-3 Peak Elev=159.47' Inflow=0.85 cfs 0.059 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0150 '/' Outflow=0.85 cfs 0.059 af

Pond 10P: CB-4 Peak Elev=159.29' Inflow=2.22 cfs 0.199 af
18.0" Round Culvert n=0.012 L=74.0' S=0.0150 '/' Outflow=2.22 cfs 0.199 af

Pond 15P: CB-6 Peak Elev=156.72' Inflow=2.73 cfs 0.236 af
24.0" Round Culvert n=0.012 L=18.3' S=0.0148 '/' Outflow=2.73 cfs 0.236 af

Pond 16P: CB-5 Peak Elev=156.45' Inflow=3.89 cfs 0.319 af
24.0" Round Culvert n=0.012 L=26.5' S=0.0151 '/' Outflow=3.89 cfs 0.319 af

Pond 17P: DI-2 Peak Elev=157.73' Inflow=0.46 cfs 0.034 af
10.0" Round Culvert n=0.013 L=22.0' S=0.0150 '/' Outflow=0.46 cfs 0.034 af

Pond 18P: DI-1 Peak Elev=157.75' Inflow=0.47 cfs 0.033 af
10.0" Round Culvert n=0.013 L=17.0' S=0.0147 '/' Outflow=0.47 cfs 0.033 af

Pond 29P: Basin 1 Peak Elev=155.64' Storage=9,213 cf Inflow=3.07 cfs 0.464 af
Outflow=0.55 cfs 0.279 af

Pond 34P: Sediment Forebay 3 Peak Elev=157.83' Storage=624 cf Inflow=0.64 cfs 0.045 af
Discarded=0.06 cfs 0.043 af Primary=0.06 cfs 0.003 af Outflow=0.13 cfs 0.045 af

Pond 37P: Basin 2 Peak Elev=156.73' Storage=1,731 cf Inflow=0.47 cfs 0.119 af
12.0" Round Culvert n=0.012 L=71.0' S=0.0149 '/' Outflow=0.22 cfs 0.087 af

Pond 38P: Sediment Forebay 1 Peak Elev=155.52' Storage=4,844 cf Inflow=4.26 cfs 0.433 af
Outflow=3.02 cfs 0.338 af

Pond 42P: DMH-1 Peak Elev=158.09' Inflow=2.22 cfs 0.199 af
18.0" Round Culvert n=0.012 L=87.5' S=0.0150 '/' Outflow=2.22 cfs 0.199 af

Total Runoff Area = 16.316 ac Runoff Volume = 0.876 af Average Runoff Depth = 0.64"
90.57% Pervious = 14.777 ac 9.43% Impervious = 1.539 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 3S: To M128 L89 Runoff Area=64,181 sf 0.00% Impervious Runoff Depth>0.69"
Flow Length=805' Tc=33.6 min CN=50 Runoff=0.47 cfs 0.085 af

Subcatchment 5S: Slope to 138/79 Runoff Area=18,895 sf 0.00% Impervious Runoff Depth>0.06"
Tc=6.0 min CN=34 Runoff=0.00 cfs 0.002 af

Subcatchment 11S: CB-4 Runoff Area=12,781 sf 68.25% Impervious Runoff Depth>3.49"
Tc=6.0 min CN=86 Runoff=1.17 cfs 0.085 af

Subcatchment 12S: CB-3 Runoff Area=15,640 sf 49.80% Impervious Runoff Depth>2.83"
Tc=6.0 min CN=79 Runoff=1.21 cfs 0.085 af

Subcatchment 13S: CB-2 Runoff Area=20,794 sf 41.40% Impervious Runoff Depth>1.52"
Flow Length=293' Tc=12.9 min CN=63 Runoff=0.69 cfs 0.061 af

Subcatchment 14S: CB-1 Runoff Area=30,954 sf 34.85% Impervious Runoff Depth>1.25"
Flow Length=376' Tc=16.5 min CN=59 Runoff=0.73 cfs 0.074 af

Subcatchment 19S: Entry Left Side Runoff Area=6,123 sf 78.64% Impervious Runoff Depth>3.88"
Tc=6.0 min CN=90 Runoff=0.61 cfs 0.045 af

Subcatchment 20S: Entry Right side Runoff Area=6,857 sf 67.99% Impervious Runoff Depth>3.49"
Tc=6.0 min CN=86 Runoff=0.63 cfs 0.046 af

Subcatchment 21S: CB-6 Runoff Area=7,293 sf 69.52% Impervious Runoff Depth>3.59"
Tc=6.0 min CN=87 Runoff=0.68 cfs 0.050 af

Subcatchment 22S: CB-5 Runoff Area=18,270 sf 61.79% Impervious Runoff Depth>3.30"
Tc=6.0 min CN=84 Runoff=1.60 cfs 0.115 af

Subcatchment 24S: Direct to Basin 2 Runoff Area=135,672 sf 2.32% Impervious Runoff Depth>0.69"
Flow Length=671' Tc=26.5 min CN=50 Runoff=1.14 cfs 0.180 af

Subcatchment 30S: Slope to 138/78 Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>0.17"
Tc=6.0 min CN=38 Runoff=0.00 cfs 0.000 af

Subcatchment 33S: Direct to Basin 1 Runoff Area=127,760 sf 0.00% Impervious Runoff Depth>0.98"
Flow Length=867' Tc=35.2 min CN=55 Runoff=1.52 cfs 0.238 af

Subcatchment 35S: Direct to Pond BR Runoff Area=4,690 sf 25.12% Impervious Runoff Depth>2.06"
Tc=6.0 min CN=70 Runoff=0.27 cfs 0.019 af

Subcatchment 36S: Direct to Wetland Runoff Area=190,299 sf 0.50% Impervious Runoff Depth>1.02"
Flow Length=597' Tc=54.0 min CN=56 Runoff=1.91 cfs 0.372 af

Subcatchment 43S: Slope Face Runoff Area=30,117 sf 0.00% Impervious Runoff Depth>0.11"
Tc=6.0 min CN=36 Runoff=0.01 cfs 0.007 af

Subcatchment 44S: Direct to Sed Forebay 1 Runoff Area=19,028 sf 0.00% Impervious Runoff Depth>1.32"
Tc=6.0 min CN=60 Runoff=0.69 cfs 0.048 af

Reach 2R: M128 L89 Inflow=0.47 cfs 0.085 af
Outflow=0.47 cfs 0.085 af

Reach 4R: MAP 138 LOT 78 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 6R: MAP 138 LOT 79 Inflow=0.00 cfs 0.002 af
Outflow=0.00 cfs 0.002 af

Reach 8R: Wetland/FES-1 Inflow=2.95 cfs 1.020 af
Outflow=2.95 cfs 1.020 af

Reach 44R: Pipe to Swale Avg. Flow Depth=0.03' Max Vel=2.21 fps Inflow=0.01 cfs 0.007 af
6.0" Round Pipe n=0.013 L=134.0' S=0.0634 '/' Capacity=1.41 cfs Outflow=0.01 cfs 0.007 af

Reach 45R: Basin 2 Swale Avg. Flow Depth=0.01' Max Vel=0.44 fps Inflow=0.01 cfs 0.007 af
n=0.022 L=251.0' S=0.0120 '/' Capacity=26.28 cfs Outflow=0.01 cfs 0.006 af

Pond 7P: CB-2 Peak Elev=166.43' Inflow=1.39 cfs 0.134 af
18.0" Round Culvert n=0.012 L=246.0' S=0.0290 '/' Outflow=1.39 cfs 0.134 af

Pond 8P: CB-1 Peak Elev=166.68' Inflow=0.73 cfs 0.074 af
18.0" Round Culvert n=0.012 L=18.0' S=0.0150 '/' Outflow=0.73 cfs 0.074 af

Pond 9P: CB-3 Peak Elev=159.59' Inflow=1.21 cfs 0.085 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0150 '/' Outflow=1.21 cfs 0.085 af

Pond 10P: CB-4 Peak Elev=159.47' Inflow=3.39 cfs 0.305 af
18.0" Round Culvert n=0.012 L=74.0' S=0.0150 '/' Outflow=3.39 cfs 0.305 af

Pond 15P: CB-6 Peak Elev=156.92' Inflow=4.06 cfs 0.355 af
24.0" Round Culvert n=0.012 L=18.3' S=0.0148 '/' Outflow=4.06 cfs 0.355 af

Pond 16P: CB-5 Peak Elev=156.67' Inflow=5.64 cfs 0.470 af
24.0" Round Culvert n=0.012 L=26.5' S=0.0151 '/' Outflow=5.64 cfs 0.470 af

Pond 17P: DI-2 Peak Elev=157.79' Inflow=0.61 cfs 0.045 af
10.0" Round Culvert n=0.013 L=22.0' S=0.0150 '/' Outflow=0.61 cfs 0.045 af

Pond 18P: DI-1 Peak Elev=157.82' Inflow=0.63 cfs 0.046 af
10.0" Round Culvert n=0.013 L=17.0' S=0.0147 '/' Outflow=0.63 cfs 0.046 af

Pond 29P: Basin 1 Peak Elev=155.95' Storage=14,113 cf Inflow=6.10 cfs 0.856 af
Outflow=1.51 cfs 0.634 af

Pond 34P: Sediment Forebay 3 Peak Elev=157.93' Storage=712 cf Inflow=0.90 cfs 0.064 af
Discarded=0.06 cfs 0.048 af Primary=0.53 cfs 0.014 af Outflow=0.59 cfs 0.062 af

Pond 37P: Basin 2 Peak Elev=156.92' Storage=2,610 cf Inflow=1.26 cfs 0.232 af
12.0" Round Culvert n=0.012 L=71.0' S=0.0149 '/' Outflow=0.69 cfs 0.196 af

Pond 38P: Sediment Forebay 1 Peak Elev=155.63' Storage=5,290 cf Inflow=6.33 cfs 0.714 af
Outflow=5.65 cfs 0.617 af

Pond 42P: DMH-1 Peak Elev=158.27' Inflow=3.39 cfs 0.305 af
18.0" Round Culvert n=0.012 L=87.5' S=0.0150 '/' Outflow=3.39 cfs 0.305 af

Total Runoff Area = 16.316 ac Runoff Volume = 1.512 af Average Runoff Depth = 1.11"
90.57% Pervious = 14.777 ac 9.43% Impervious = 1.539 ac

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 3S: To M128 L89 Runoff Area=64,181 sf 0.00% Impervious Runoff Depth>1.12"
Flow Length=805' Tc=33.6 min CN=50 Runoff=0.88 cfs 0.137 af

Subcatchment 5S: Slope to 138/79 Runoff Area=18,895 sf 0.00% Impervious Runoff Depth>0.21"
Tc=6.0 min CN=34 Runoff=0.02 cfs 0.008 af

Subcatchment 11S: CB-4 Runoff Area=12,781 sf 68.25% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=86 Runoff=1.45 cfs 0.107 af

Subcatchment 12S: CB-3 Runoff Area=15,640 sf 49.80% Impervious Runoff Depth>3.68"
Tc=6.0 min CN=79 Runoff=1.55 cfs 0.110 af

Subcatchment 13S: CB-2 Runoff Area=20,794 sf 41.40% Impervious Runoff Depth>2.17"
Flow Length=293' Tc=12.9 min CN=63 Runoff=0.99 cfs 0.086 af

Subcatchment 14S: CB-1 Runoff Area=30,954 sf 34.85% Impervious Runoff Depth>1.83"
Flow Length=376' Tc=16.5 min CN=59 Runoff=1.10 cfs 0.108 af

Subcatchment 19S: Entry Left Side Runoff Area=6,123 sf 78.64% Impervious Runoff Depth>4.78"
Tc=6.0 min CN=90 Runoff=0.74 cfs 0.056 af

Subcatchment 20S: Entry Right side Runoff Area=6,857 sf 67.99% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=86 Runoff=0.78 cfs 0.058 af

Subcatchment 21S: CB-6 Runoff Area=7,293 sf 69.52% Impervious Runoff Depth>4.49"
Tc=6.0 min CN=87 Runoff=0.84 cfs 0.063 af

Subcatchment 22S: CB-5 Runoff Area=18,270 sf 61.79% Impervious Runoff Depth>4.19"
Tc=6.0 min CN=84 Runoff=2.00 cfs 0.146 af

Subcatchment 24S: Direct to Basin 2 Runoff Area=135,672 sf 2.32% Impervious Runoff Depth>1.12"
Flow Length=671' Tc=26.5 min CN=50 Runoff=2.12 cfs 0.292 af

Subcatchment 30S: Slope to 138/78 Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>0.39"
Tc=6.0 min CN=38 Runoff=0.00 cfs 0.001 af

Subcatchment 33S: Direct to Basin 1 Runoff Area=127,760 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=867' Tc=35.2 min CN=55 Runoff=2.46 cfs 0.363 af

Subcatchment 35S: Direct to Pond BR Runoff Area=4,690 sf 25.12% Impervious Runoff Depth>2.80"
Tc=6.0 min CN=70 Runoff=0.36 cfs 0.025 af

Subcatchment 36S: Direct to Wetland Runoff Area=190,299 sf 0.50% Impervious Runoff Depth>1.54"
Flow Length=597' Tc=54.0 min CN=56 Runoff=3.04 cfs 0.562 af

Subcatchment 43S: Slope Face Runoff Area=30,117 sf 0.00% Impervious Runoff Depth>0.30"
Tc=6.0 min CN=36 Runoff=0.05 cfs 0.017 af

Subcatchment 44S: Direct to Sed Forebay 1 Runoff Area=19,028 sf 0.00% Impervious Runoff Depth>1.92"
Tc=6.0 min CN=60 Runoff=1.01 cfs 0.070 af

Reach 2R: M128 L89 Inflow=0.88 cfs 0.137 af
Outflow=0.88 cfs 0.137 af

Reach 4R: MAP 138 LOT 78 Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Reach 6R: MAP 138 LOT 79 Inflow=0.02 cfs 0.008 af
Outflow=0.02 cfs 0.008 af

Reach 8R: Wetland/FES-1 Inflow=5.68 cfs 1.620 af
Outflow=5.68 cfs 1.620 af

Reach 44R: Pipe to Swale Avg. Flow Depth=0.06' Max Vel=3.33 fps Inflow=0.05 cfs 0.017 af
6.0" Round Pipe n=0.013 L=134.0' S=0.0634 '/' Capacity=1.41 cfs Outflow=0.05 cfs 0.017 af

Reach 45R: Basin 2 Swale Avg. Flow Depth=0.03' Max Vel=0.71 fps Inflow=0.05 cfs 0.017 af
n=0.022 L=251.0' S=0.0120 '/' Capacity=26.28 cfs Outflow=0.05 cfs 0.017 af

Pond 7P: CB-2 Peak Elev=166.56' Inflow=2.05 cfs 0.194 af
18.0" Round Culvert n=0.012 L=246.0' S=0.0290 '/' Outflow=2.05 cfs 0.194 af

Pond 8P: CB-1 Peak Elev=166.77' Inflow=1.10 cfs 0.108 af
18.0" Round Culvert n=0.012 L=18.0' S=0.0150 '/' Outflow=1.10 cfs 0.108 af

Pond 9P: CB-3 Peak Elev=159.69' Inflow=1.55 cfs 0.110 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0150 '/' Outflow=1.55 cfs 0.110 af

Pond 10P: CB-4 Peak Elev=159.64' Inflow=4.54 cfs 0.412 af
18.0" Round Culvert n=0.012 L=74.0' S=0.0150 '/' Outflow=4.54 cfs 0.412 af

Pond 15P: CB-6 Peak Elev=157.08' Inflow=5.36 cfs 0.474 af
24.0" Round Culvert n=0.012 L=18.3' S=0.0148 '/' Outflow=5.36 cfs 0.474 af

Pond 16P: CB-5 Peak Elev=156.85' Inflow=7.34 cfs 0.620 af
24.0" Round Culvert n=0.012 L=26.5' S=0.0151 '/' Outflow=7.34 cfs 0.620 af

Pond 17P: DI-2 Peak Elev=157.84' Inflow=0.74 cfs 0.056 af
10.0" Round Culvert n=0.013 L=22.0' S=0.0150 '/' Outflow=0.74 cfs 0.056 af

Pond 18P: DI-1 Peak Elev=157.88' Inflow=0.78 cfs 0.058 af
10.0" Round Culvert n=0.013 L=17.0' S=0.0147 '/' Outflow=0.78 cfs 0.058 af

Pond 29P: Basin 1 Peak Elev=156.26' Storage=19,031 cf Inflow=8.59 cfs 1.281 af
Outflow=3.02 cfs 1.033 af

Pond 34P: Sediment Forebay 3 Peak Elev=157.99' Storage=768 cf Inflow=1.14 cfs 0.083 af
Discarded=0.07 cfs 0.052 af Primary=0.95 cfs 0.025 af Outflow=1.02 cfs 0.078 af

Pond 37P: Basin 2 Peak Elev=157.12' Storage=3,730 cf Inflow=2.31 cfs 0.364 af
12.0" Round Culvert n=0.012 L=71.0' S=0.0149 '/' Outflow=1.37 cfs 0.324 af

Pond 38P: Sediment Forebay 1 Peak Elev=155.70' Storage=5,595 cf Inflow=8.47 cfs 1.015 af
Outflow=7.69 cfs 0.917 af

Pond 42P: DMH-1 Peak Elev=158.44' Inflow=4.54 cfs 0.412 af
18.0" Round Culvert n=0.012 L=87.5' S=0.0150 '/' Outflow=4.54 cfs 0.412 af

Total Runoff Area = 16.316 ac Runoff Volume = 2.208 af Average Runoff Depth = 1.62"
90.57% Pervious = 14.777 ac 9.43% Impervious = 1.539 ac

Events for Subcatchment 3S: To M128 L89

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.01	0.005	0.04
10-Year	4.28	0.15	0.040	0.32
25-Year	5.39	0.47	0.085	0.69
50-Year	**6.42**	**0.88**	**0.137**	**1.12**

Events for Subcatchment 5S: Slope to 138/79

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.00	0.000	0.00
10-Year	4.28	0.00	0.000	0.00
25-Year	5.39	0.00	0.002	0.06
50-Year	**6.42**	**0.02**	**0.008**	**0.21**

Events for Subcatchment 11S: CB-4

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.49	0.034	1.39
10-Year	4.28	0.87	0.062	2.55
25-Year	5.39	1.17	0.085	3.49
50-Year	**6.42**	**1.45**	**0.107**	**4.39**

Events for Subcatchment 12S: CB-3

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.42	0.029	0.95
10-Year	4.28	0.85	0.059	1.96
25-Year	5.39	1.21	0.085	2.83
50-Year	**6.42**	**1.55**	**0.110**	**3.68**

Events for Subcatchment 13S: CB-2

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.09	0.012	0.30
10-Year	4.28	0.39	0.036	0.91
25-Year	5.39	0.69	0.061	1.52
50-Year	**6.42**	**0.99**	**0.086**	**2.17**

Events for Subcatchment 14S: CB-1

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.05	0.012	0.20
10-Year	4.28	0.38	0.042	0.71
25-Year	5.39	0.73	0.074	1.25
50-Year	**6.42**	**1.10**	**0.108**	**1.83**

Events for Subcatchment 19S: Entry Left Side

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.28	0.020	1.69
10-Year	4.28	0.46	0.034	2.91
25-Year	5.39	0.61	0.045	3.88
50-Year	**6.42**	**0.74**	**0.056**	**4.78**

Events for Subcatchment 20S: Entry Right side

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.26	0.018	1.39
10-Year	4.28	0.47	0.033	2.55
25-Year	5.39	0.63	0.046	3.49
50-Year	**6.42**	**0.78**	**0.058**	**4.39**

Events for Subcatchment 21S: CB-6

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.29	0.020	1.46
10-Year	4.28	0.51	0.037	2.63
25-Year	5.39	0.68	0.050	3.59
50-Year	**6.42**	**0.84**	**0.063**	**4.49**

Events for Subcatchment 22S: CB-5

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.63	0.044	1.25
10-Year	4.28	1.17	0.083	2.37
25-Year	5.39	1.60	0.115	3.30
50-Year	**6.42**	**2.00**	**0.146**	**4.19**

Events for Subcatchment 24S: Direct to Basin 2

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.02	0.010	0.04
10-Year	4.28	0.35	0.084	0.33
25-Year	5.39	1.14	0.180	0.69
50-Year	**6.42**	**2.12**	**0.292**	**1.12**

Events for Subcatchment 30S: Slope to 138/78

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.00	0.000	0.00
10-Year	4.28	0.00	0.000	0.03
25-Year	5.39	0.00	0.000	0.17
50-Year	**6.42**	**0.00**	**0.001**	**0.39**

Events for Subcatchment 33S: Direct to Basin 1

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.06	0.027	0.11
10-Year	4.28	0.66	0.126	0.52
25-Year	5.39	1.52	0.238	0.98
50-Year	**6.42**	**2.46**	**0.363**	**1.49**

Events for Subcatchment 35S: Direct to Pond BR

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.07	0.005	0.54
10-Year	4.28	0.17	0.012	1.33
25-Year	5.39	0.27	0.019	2.06
50-Year	**6.42**	**0.36**	**0.025**	**2.80**

Events for Subcatchment 36S: Direct to Wetland

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.11	0.046	0.13
10-Year	4.28	0.89	0.200	0.55
25-Year	5.39	1.91	0.372	1.02
50-Year	**6.42**	**3.04**	**0.562**	**1.54**

Events for Subcatchment 43S: Slope Face

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.00	0.000	0.00
10-Year	4.28	0.00	0.001	0.01
25-Year	5.39	0.01	0.007	0.11
50-Year	**6.42**	**0.05**	**0.017**	**0.30**

Events for Subcatchment 44S: Direct to Sed Forebay 1

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	2.86	0.06	0.008	0.22
10-Year	4.28	0.37	0.028	0.76
25-Year	5.39	0.69	0.048	1.32
50-Year	**6.42**	**1.01**	**0.070**	**1.92**

Events for Reach 2R: M128 L89

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.01	0.01	**0.00**	**0**
10-Year	0.15	0.15	0.00	0
25-Year	0.47	0.47	0.00	0
50-Year	**0.88**	**0.88**	0.00	0

Events for Reach 4R: MAP 138 LOT 78

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.00	0.00	**0.00**	**0**
10-Year	0.00	0.00	0.00	0
25-Year	0.00	0.00	0.00	0
50-Year	**0.00**	**0.00**	0.00	0

Events for Reach 6R: MAP 138 LOT 79

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.00	0.00	**0.00**	**0**
10-Year	0.00	0.00	0.00	0
25-Year	0.00	0.00	0.00	0
50-Year	**0.02**	**0.02**	0.00	0

Events for Reach 8R: Wetland/FES-1

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.11	0.11	**0.00**	**0**
10-Year	1.08	1.08	0.00	0
25-Year	2.95	2.95	0.00	0
50-Year	**5.68**	**5.68**	0.00	0

Events for Reach 44R: Pipe to Swale

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.00	0.00	170.50	0
10-Year	0.00	0.00	170.52	0
25-Year	0.01	0.01	170.53	1
50-Year	**0.05**	**0.05**	**170.56**	**2**

Events for Reach 45R: Basin 2 Swale

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.00	0.00	160.00	0
10-Year	0.00	0.00	160.00	2
25-Year	0.01	0.01	160.01	7
50-Year	**0.05**	**0.05**	**160.03**	**16**

Events for Pond 7P: CB-2

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	0.13	0.13	166.06	**0.000**
10-Year	0.75	0.75	166.28	0.000
25-Year	1.39	1.39	166.43	0.000
50-Year	**2.05**	**2.05**	**166.56**	0.000

Events for Pond 8P: CB-1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	0.05	0.05	166.40	**0.000**
10-Year	0.38	0.38	166.57	0.000
25-Year	0.73	0.73	166.68	0.000
50-Year	**1.10**	**1.10**	**166.77**	0.000

Events for Pond 9P: CB-3

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	0.42	0.42	159.32	**0.000**
10-Year	0.85	0.85	159.47	0.000
25-Year	1.21	1.21	159.59	0.000
50-Year	**1.55**	**1.55**	**159.69**	0.000

Events for Pond 10P: CB-4

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	0.96	0.96	159.04	**0.000**
10-Year	2.22	2.22	159.29	0.000
25-Year	3.39	3.39	159.47	0.000
50-Year	**4.54**	**4.54**	**159.64**	0.000

Events for Pond 15P: CB-6

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	1.25	1.25	156.46	**0.000**
10-Year	2.73	2.73	156.72	0.000
25-Year	4.06	4.06	156.92	0.000
50-Year	**5.36**	**5.36**	**157.08**	0.000

Events for Pond 16P: CB-5

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	1.88	1.88	156.17	**0.000**
10-Year	3.89	3.89	156.45	0.000
25-Year	5.64	5.64	156.67	0.000
50-Year	**7.34**	**7.34**	**156.85**	0.000

Events for Pond 17P: DI-2

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	0.28	0.28	157.64	**0.000**
10-Year	0.46	0.46	157.73	0.000
25-Year	0.61	0.61	157.79	0.000
50-Year	**0.74**	**0.74**	**157.84**	0.000

Events for Pond 18P: DI-1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	0.26	0.26	157.65	**0.000**
10-Year	0.47	0.47	157.75	0.000
25-Year	0.63	0.63	157.82	0.000
50-Year	**0.78**	**0.78**	**157.88**	0.000

Events for Pond 29P: Basin 1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.26	0.06	155.26	3,597
10-Year	3.07	0.55	155.64	9,213
25-Year	6.10	1.51	155.95	14,113
50-Year	**8.59**	**3.02**	**156.26**	**19,031**

Events for Pond 34P: Sediment Forebay 3

Event	Inflow (cfs)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.33	0.05	0.05	0.00	157.39	262
10-Year	0.64	0.13	0.06	0.06	157.83	624
25-Year	0.90	0.59	0.06	0.53	157.93	712
50-Year	**1.14**	**1.02**	**0.07**	**0.95**	**157.99**	**768**

Events for Pond 37P: Basin 2

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.28	0.02	156.57	1,132
10-Year	0.47	0.22	156.73	1,731
25-Year	1.26	0.69	156.92	2,610
50-Year	**2.31**	**1.37**	**157.12**	**3,730**

Events for Pond 38P: Sediment Forebay 1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	1.94	0.20	155.33	4,126
10-Year	4.26	3.02	155.52	4,844
25-Year	6.33	5.65	155.63	5,290
50-Year	**8.47**	**7.69**	**155.70**	**5,595**

Events for Pond 42P: DMH-1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	0.96	0.96	157.84	**0.000**
10-Year	2.22	2.22	158.09	0.000
25-Year	3.39	3.39	158.27	0.000
50-Year	**4.54**	**4.54**	**158.44**	0.000

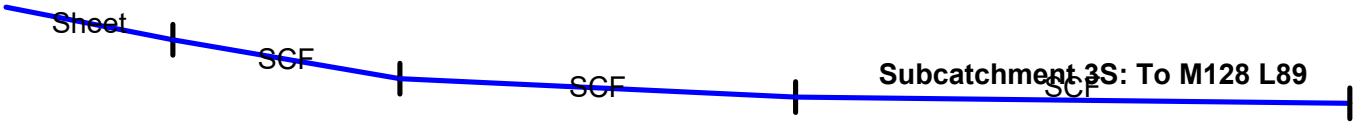
Summary for Subcatchment 3S: To M128 L89

Runoff = 0.15 cfs @ 12.66 hrs, Volume= 0.040 af, Depth> 0.32"
Routed to Reach 2R : M128 L89

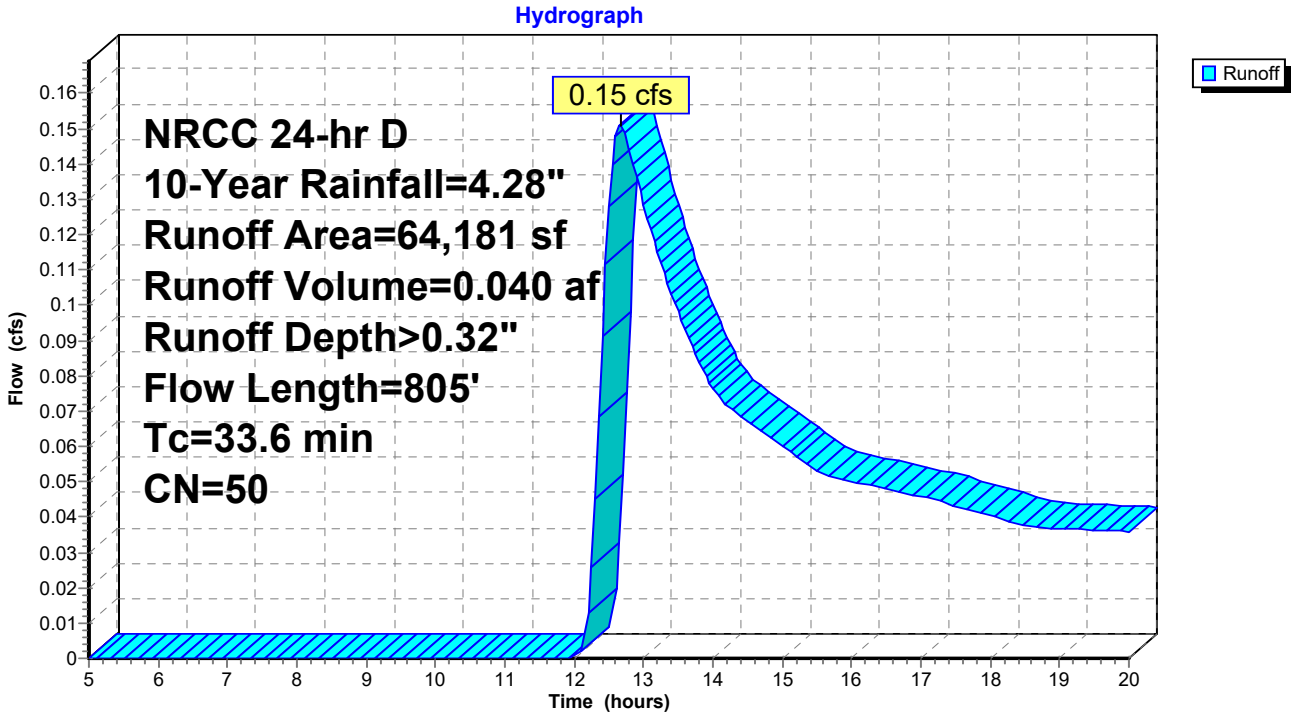
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

Area (sf)	CN	Description
15,835	30	Woods, Good, HSG A
7,625	61	>75% Grass cover, Good, HSG B
40,721	55	Woods, Good, HSG B
64,181	50	Weighted Average
64,181		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.1050	0.13		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 2.40"
1.5	136	0.0920	1.52		**Shallow Concentrated Flow, SCF** Woodland Kv= 5.0 fps
5.0	237	0.0250	0.79		**Shallow Concentrated Flow, SCF** Woodland Kv= 5.0 fps
14.3	332	0.0060	0.39		**Shallow Concentrated Flow, SCF** Woodland Kv= 5.0 fps
33.6	805	Total			



Subcatchment 3S: To M128 L89



Summary for Subcatchment 5S: Slope to 138/79

[73] Warning: Peak may fall outside time span

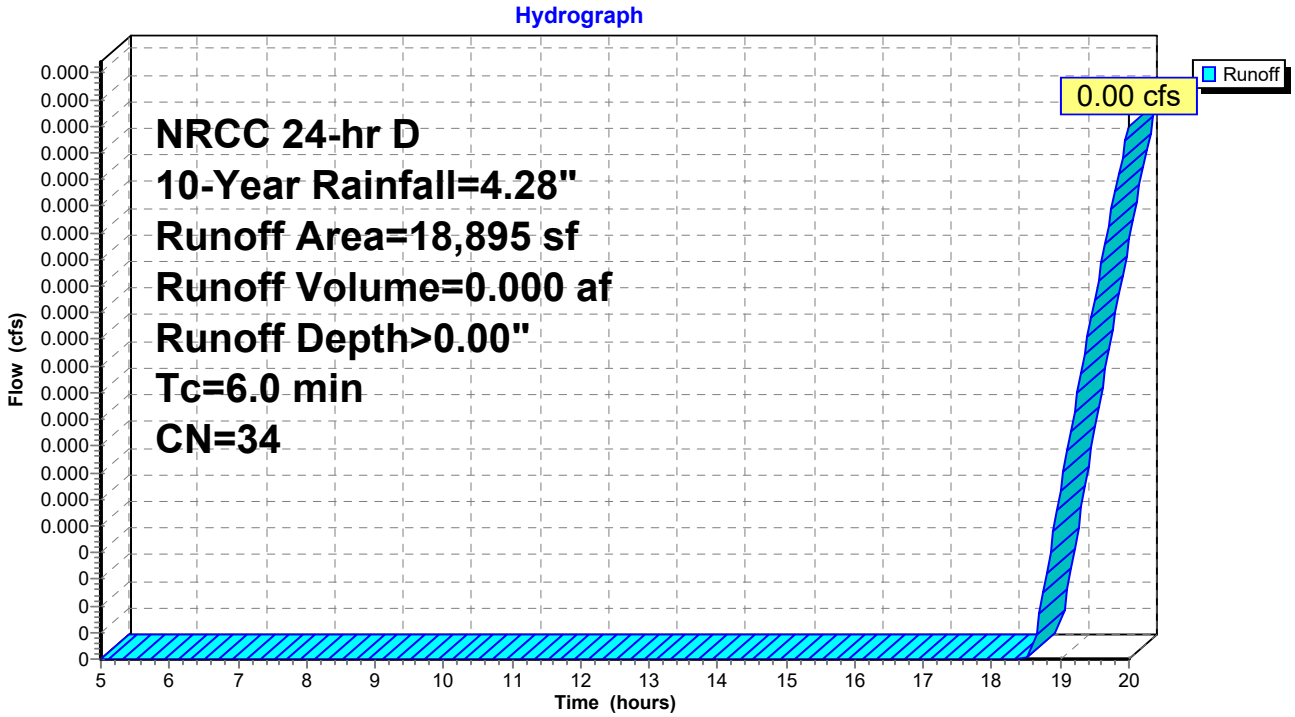
Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.00"
Routed to Reach 6R : MAP 138 LOT 79

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

Area (sf)	CN	Description
7,432	39	>75% Grass cover, Good, HSG A
11,463	30	Woods, Good, HSG A
18,895	34	Weighted Average
18,895		100.00% Pervious Area

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

Subcatchment 5S: Slope to 138/79



Summary for Subcatchment 11S: CB-4

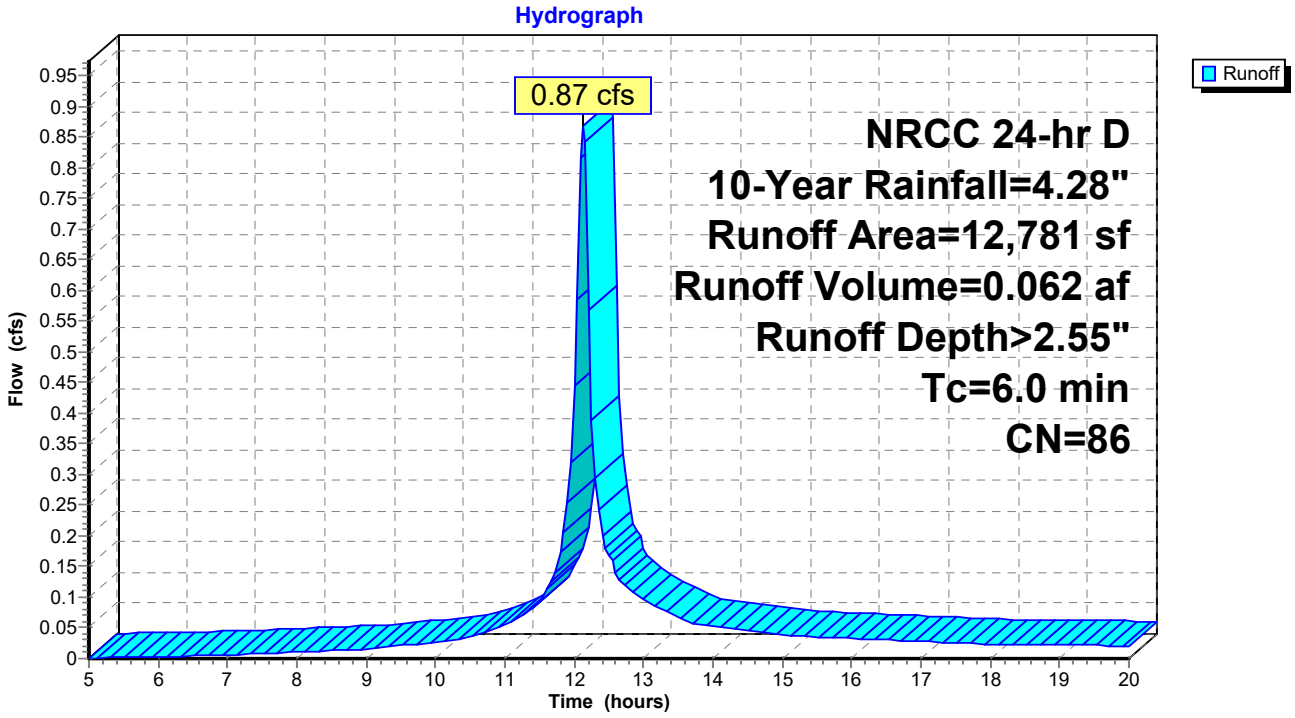
Runoff = 0.87 cfs @ 12.13 hrs, Volume= 0.062 af, Depth> 2.55"
Routed to Pond 10P : CB-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
	342	39	>75% Grass cover, Good, HSG A
*	2,368	98	Roof
*	6,355	98	Pave
	3,716	61	>75% Grass cover, Good, HSG B
	12,781	86	Weighted Average
	4,058		31.75% Pervious Area
	8,723		68.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 Minute Min**

Subcatchment 11S: CB-4



Summary for Subcatchment 12S: CB-3

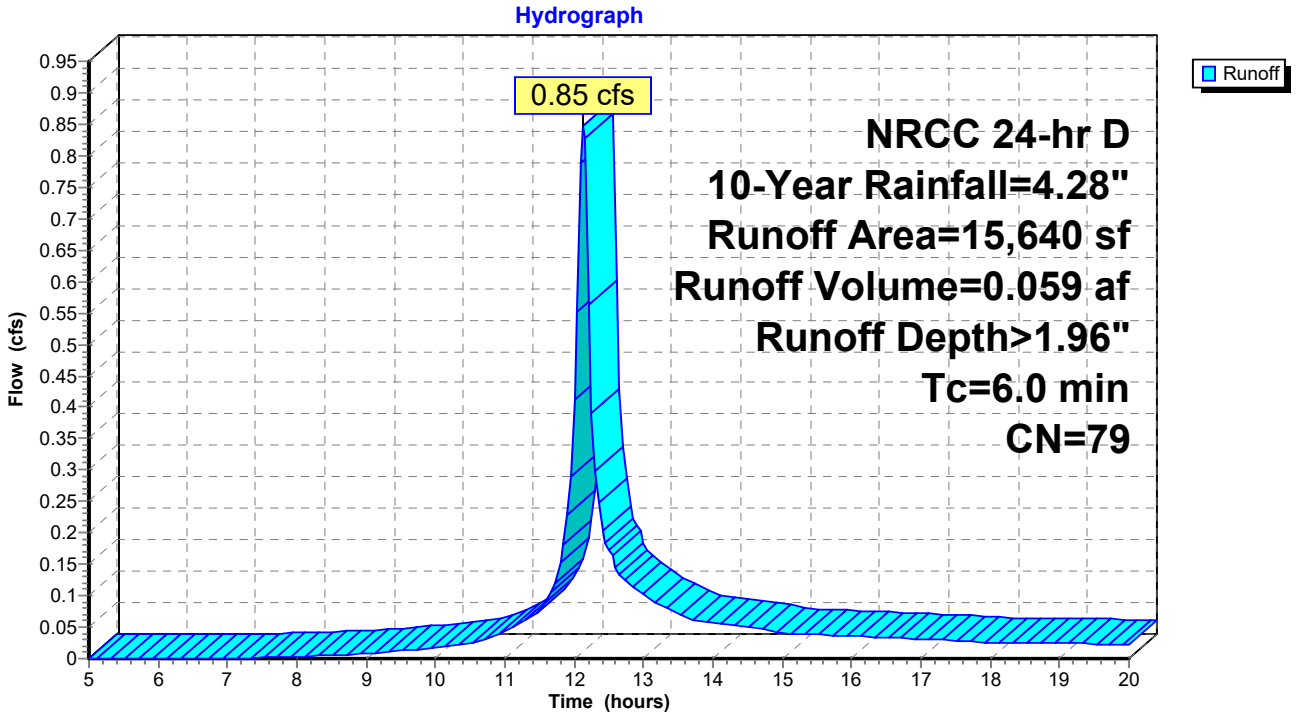
Runoff = 0.85 cfs @ 12.13 hrs, Volume= 0.059 af, Depth> 1.96"
Routed to Pond 9P : CB-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
	336	39	>75% Grass cover, Good, HSG A
*	4,583	98	Pave
*	3,206	98	BLDG
	7,515	61	>75% Grass cover, Good, HSG B
	15,640	79	Weighted Average
	7,851		50.20% Pervious Area
	7,789		49.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 minute min**

Subcatchment 12S: CB-3



Summary for Subcatchment 13S: CB-2

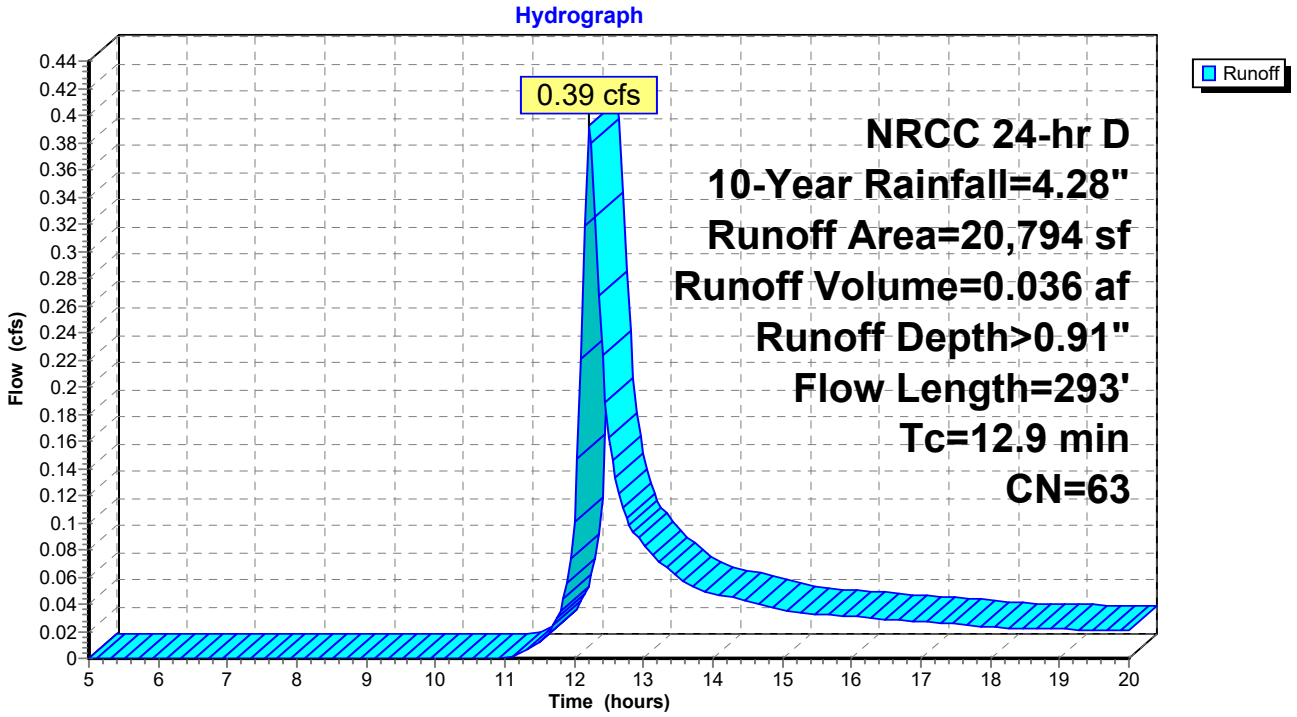
Runoff = 0.39 cfs @ 12.22 hrs, Volume= 0.036 af, Depth> 0.91"
Routed to Pond 7P : CB-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
	0	30	Woods, Good, HSG A
	12,185	39	>75% Grass cover, Good, HSG A
*	1,790	98	Building
*	6,819	98	Asphalt
	20,794	63	Weighted Average
	12,185		58.60% Pervious Area
	8,609		41.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	73	0.0150	0.12		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.40"
0.1	5	0.0200	0.65		**Sheet Flow, SHEET** Smooth surfaces n= 0.011 P2= 2.40"
1.2	6	0.0200	0.08		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 2.40"
1.7	209	0.0100	2.03		**Shallow Concentrated Flow, SCF** Paved Kv= 20.3 fps
12.9	293	Total			

Subcatchment 13S: CB-2



Summary for Subcatchment 14S: CB-1

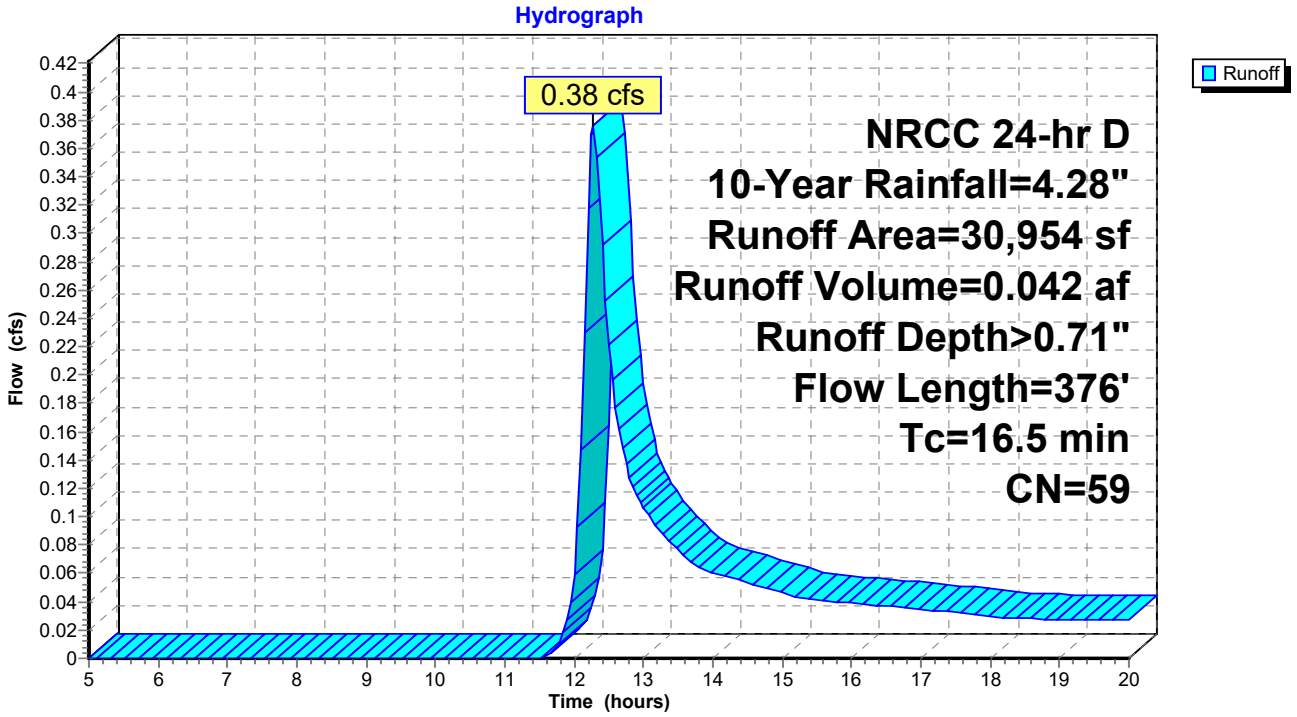
Runoff = 0.38 cfs @ 12.27 hrs, Volume= 0.042 af, Depth> 0.71"
Routed to Pond 8P : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
	2,372	30	Woods, Good, HSG A
	17,405	39	>75% Grass cover, Good, HSG A
	388	61	>75% Grass cover, Good, HSG B
*	3,579	98	Roof
*	7,210	98	Road
	30,954	59	Weighted Average
	20,165		65.15% Pervious Area
	10,789		34.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0850	0.12		**Sheet Flow, SHEET** Woods: Light underbrush n= 0.400 P2= 2.40"
0.7	65	0.1080	1.64		**Shallow Concentrated Flow, SCF** Woodland Kv= 5.0 fps
0.6	55	0.0550	1.64		**Shallow Concentrated Flow, SCF** Short Grass Pasture Kv= 7.0 fps
1.3	156	0.0100	2.03		**Shallow Concentrated Flow, SCF** Paved Kv= 20.3 fps
16.5	376	Total			

Subcatchment 14S: CB-1



Summary for Subcatchment 19S: Entry Left Side

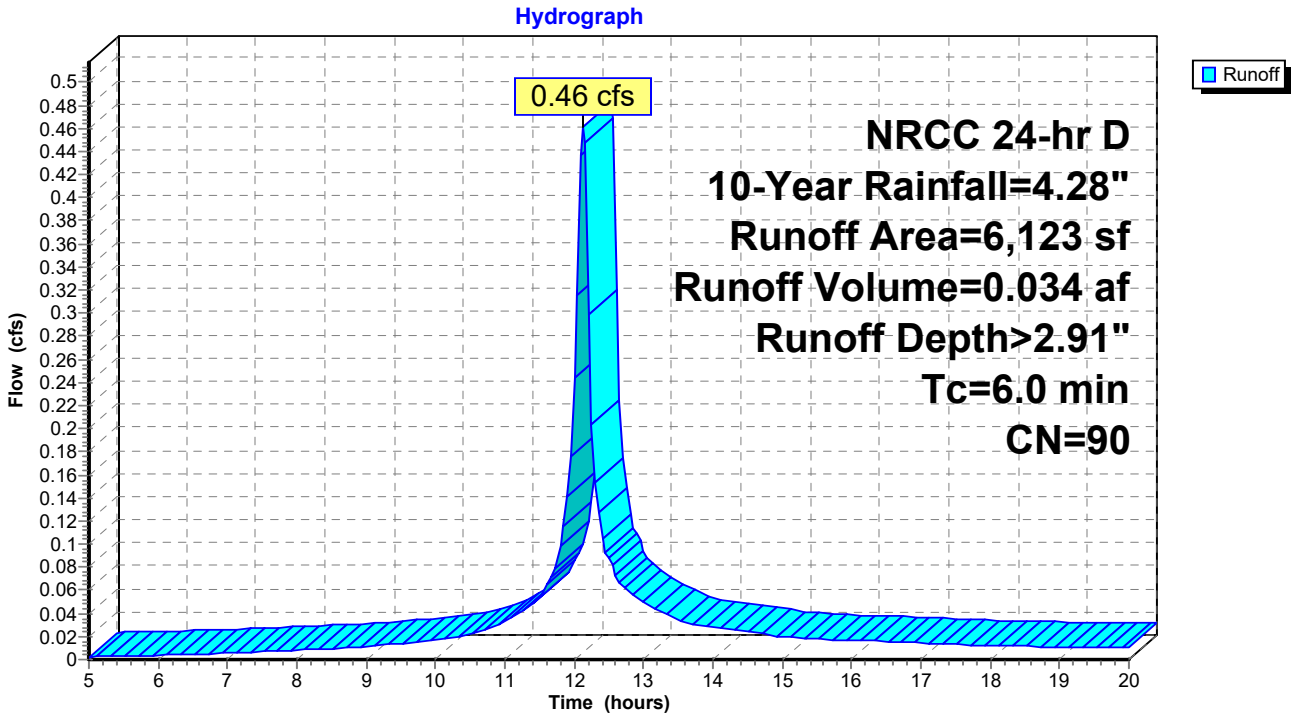
Runoff = 0.46 cfs @ 12.13 hrs, Volume= 0.034 af, Depth> 2.91"
Routed to Pond 17P : DI-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
*	4,815	98	Imp Entry
	1,308	61	>75% Grass cover, Good, HSG B
	6,123	90	Weighted Average
	1,308		21.36% Pervious Area
	4,815		78.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 MINUTE MINIMUM**

Subcatchment 19S: Entry Left Side



Summary for Subcatchment 20S: Entry Right side

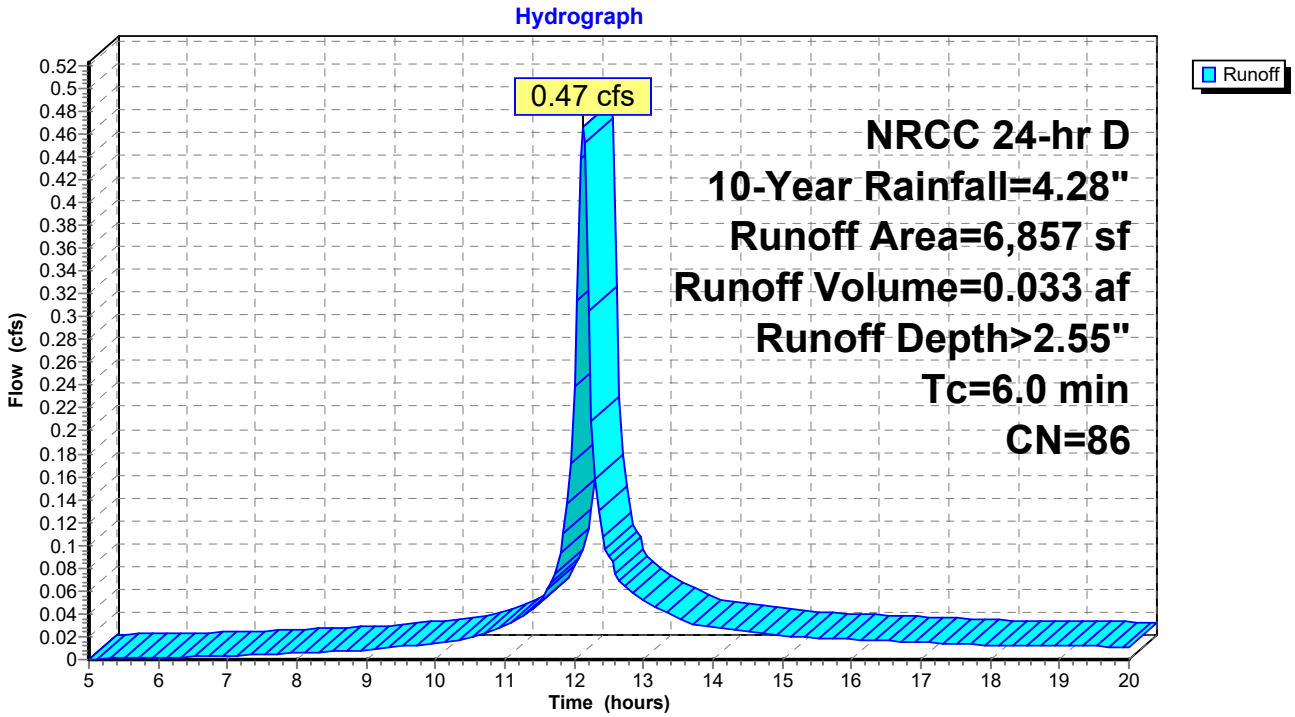
Runoff = 0.47 cfs @ 12.13 hrs, Volume= 0.033 af, Depth> 2.55"
Routed to Pond 18P : DI-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
	2,195	61	>75% Grass cover, Good, HSG B
*	4,662	98	Paved Imp Entry
	6,857	86	Weighted Average
	2,195		32.01% Pervious Area
	4,662		67.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 MIN MINIMUM**

Subcatchment 20S: Entry Right side



Summary for Subcatchment 21S: CB-6

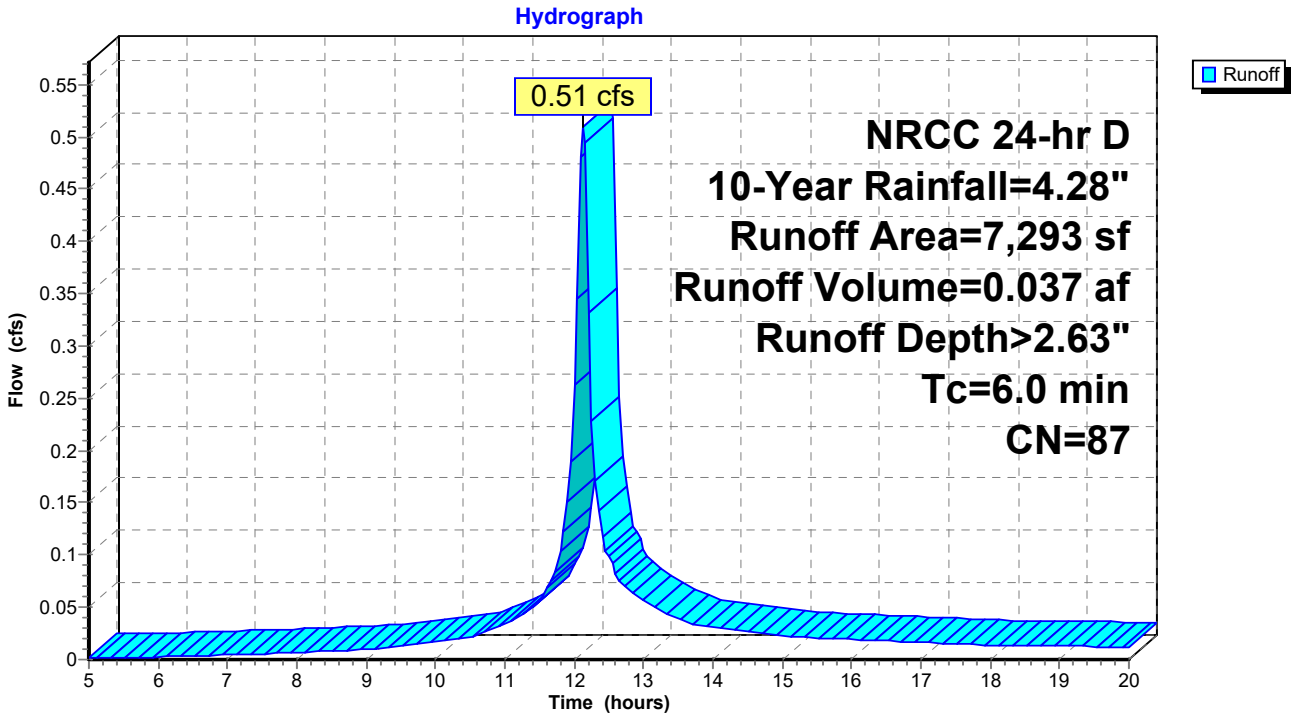
Runoff = 0.51 cfs @ 12.13 hrs, Volume= 0.037 af, Depth> 2.63"
Routed to Pond 15P : CB-6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
*	5,070	98	Asphalt
	2,223	61	>75% Grass cover, Good, HSG B
	7,293	87	Weighted Average
	2,223		30.48% Pervious Area
	5,070		69.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 Min min**

Subcatchment 21S: CB-6



Summary for Subcatchment 22S: CB-5

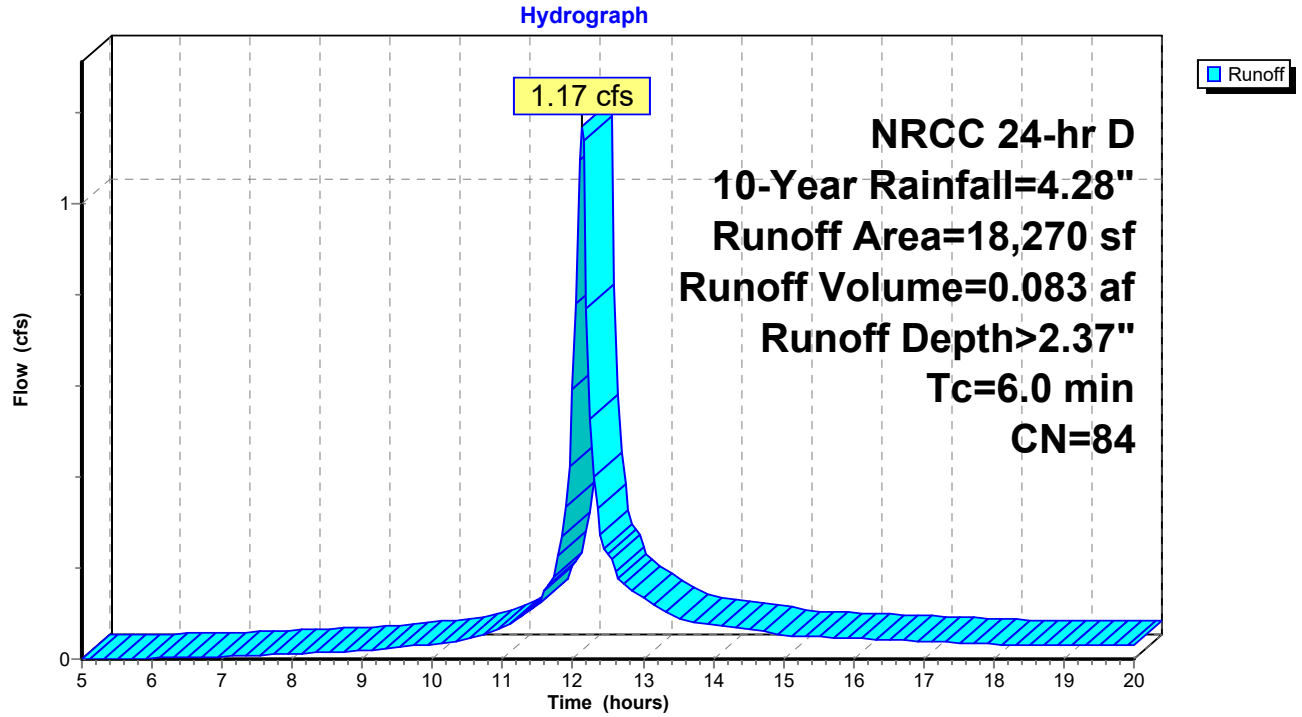
Runoff = 1.17 cfs @ 12.13 hrs, Volume= 0.083 af, Depth> 2.37"
Routed to Pond 16P : CB-5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
*	3,961	98	Roof
*	7,328	98	Pave
	6,981	61	>75% Grass cover, Good, HSG B
	18,270	84	Weighted Average
	6,981		38.21% Pervious Area
	11,289		61.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 Minute Min**

Subcatchment 22S: CB-5



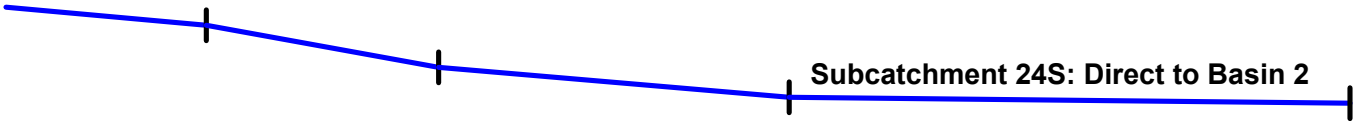
Summary for Subcatchment 24S: Direct to Basin 2

Runoff = 0.35 cfs @ 12.53 hrs, Volume= 0.084 af, Depth> 0.33"
Routed to Pond 37P : Basin 2

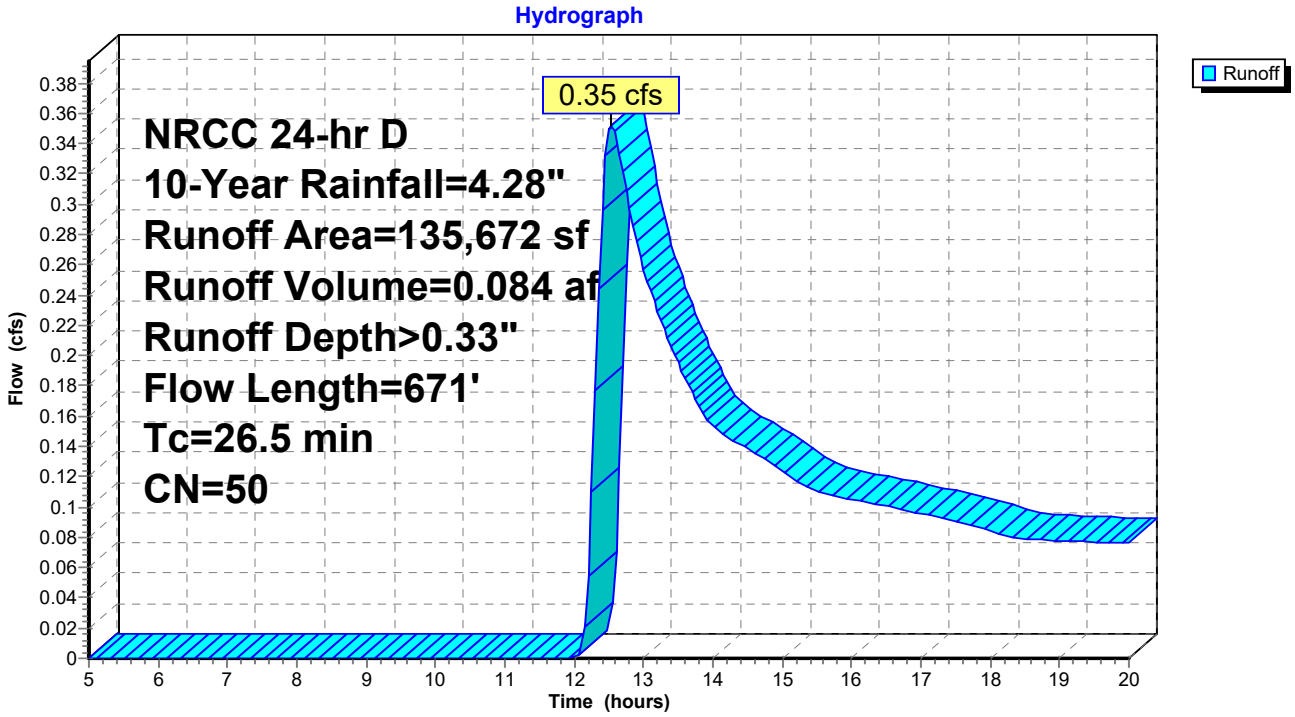
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
	37,924	30	Woods, Good, HSG A
	1,994	39	>75% Grass cover, Good, HSG A
*	3,150	98	Roof Imp Entry
	24,444	61	>75% Grass cover, Good, HSG B
	68,160	55	Woods, Good, HSG B
	135,672	50	Weighted Average
	132,522		97.68% Pervious Area
	3,150		2.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	100	0.0600	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.40"
0.8	116	0.1210	2.43		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.7	175	0.0570	1.67		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.0	280	0.0070	0.59		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
26.5	671	Total			



Subcatchment 24S: Direct to Basin 2



Summary for Subcatchment 30S: Slope to 138/78

[73] Warning: Peak may fall outside time span

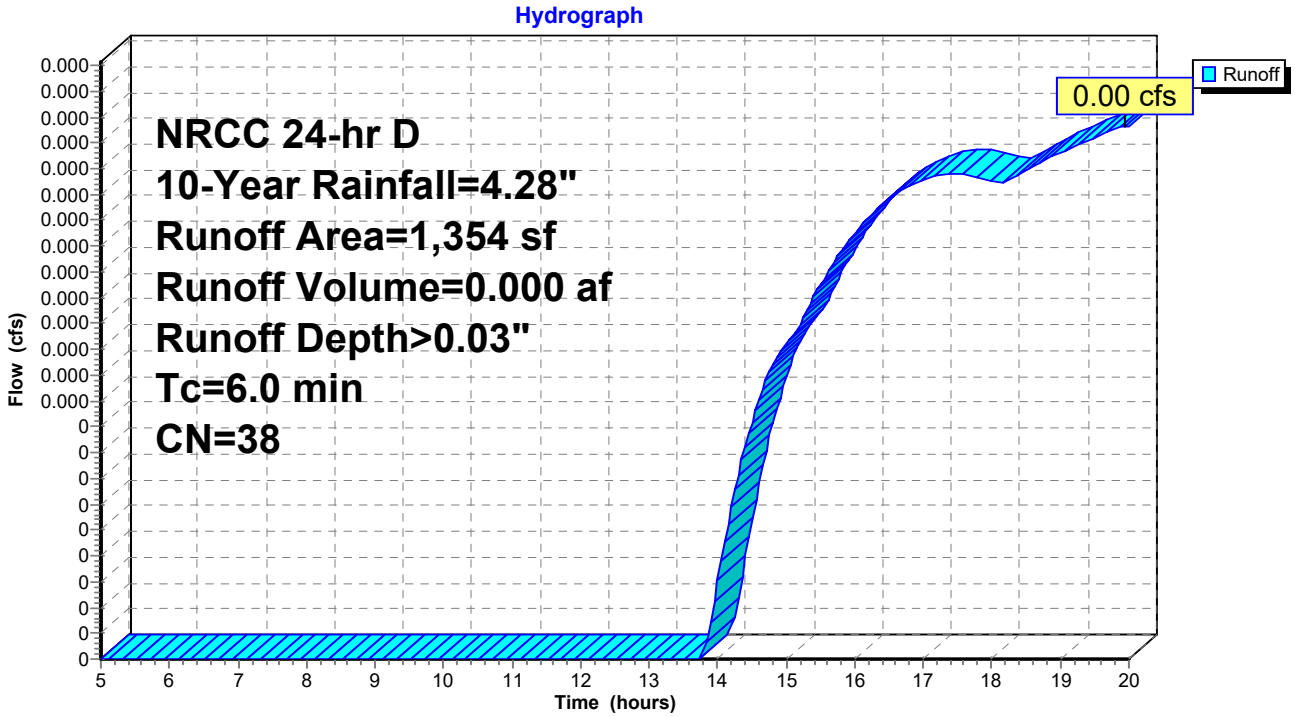
Runoff = 0.00 cfs @ 19.95 hrs, Volume= 0.000 af, Depth> 0.03"
Routed to Reach 4R : MAP 138 LOT 78

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

Area (sf)	CN	Description
1,158	39	>75% Grass cover, Good, HSG A
196	30	Woods, Good, HSG A
1,354	38	Weighted Average
1,354		100.00% Pervious Area

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

Subcatchment 30S: Slope to 138/78



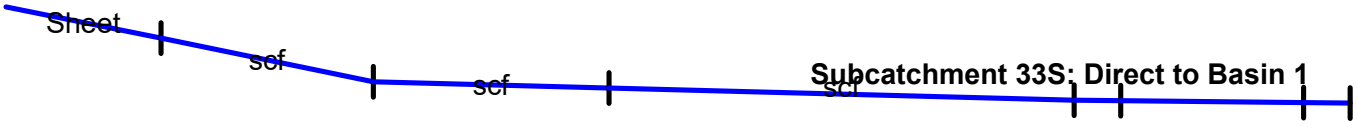
Summary for Subcatchment 33S: Direct to Basin 1

Runoff = 0.66 cfs @ 12.59 hrs, Volume= 0.126 af, Depth> 0.52"
Routed to Pond 29P : Basin 1

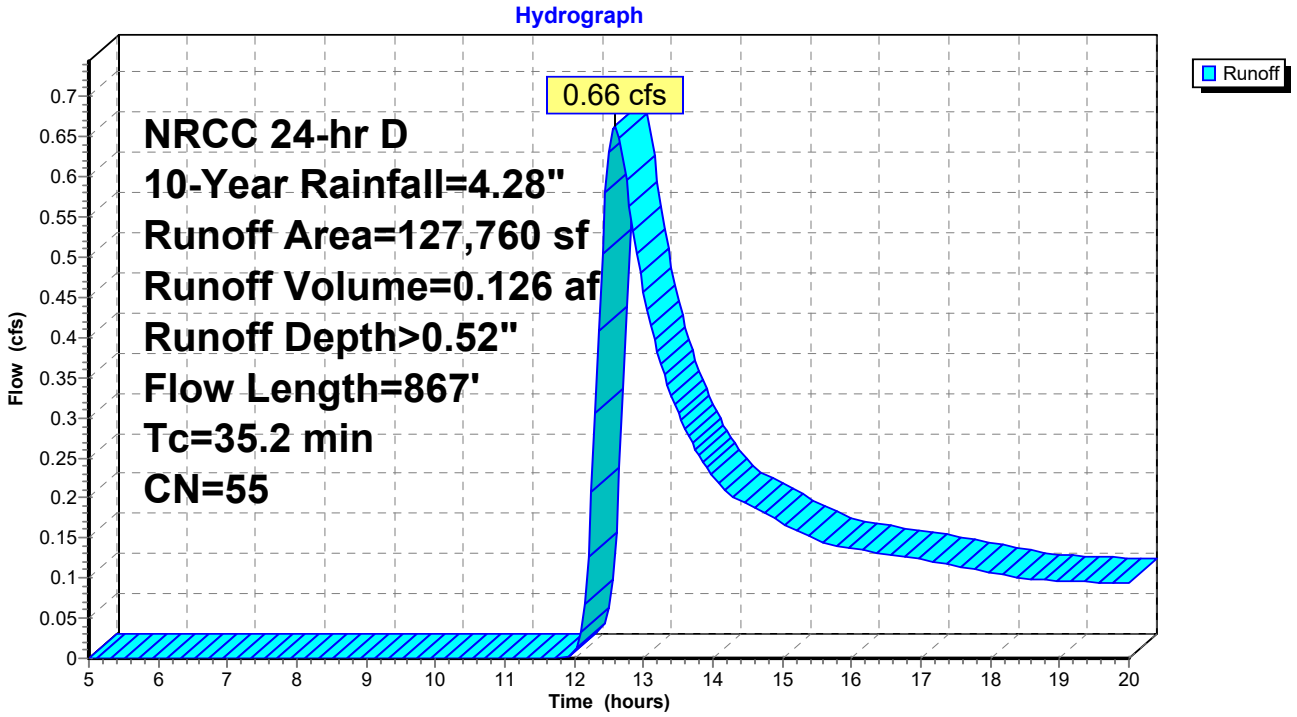
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

Area (sf)	CN	Description
17,343	30	Woods, Good, HSG A
4,342	39	>75% Grass cover, Good, HSG A
84,859	61	>75% Grass cover, Good, HSG B
21,216	55	Woods, Good, HSG B
127,760	55	Weighted Average
127,760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.1000	0.13		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 2.40"
1.4	137	0.1020	1.60		**Shallow Concentrated Flow, scf** Woodland Kv= 5.0 fps
4.4	152	0.0130	0.57		**Shallow Concentrated Flow, scf** Woodland Kv= 5.0 fps
8.8	300	0.0130	0.57		**Shallow Concentrated Flow, scf** Woodland Kv= 5.0 fps
1.0	30	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.6	118	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	30	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
35.2	867	Total			



Subcatchment 33S: Direct to Basin 1



Summary for Subcatchment 35S: Direct to Pond BR

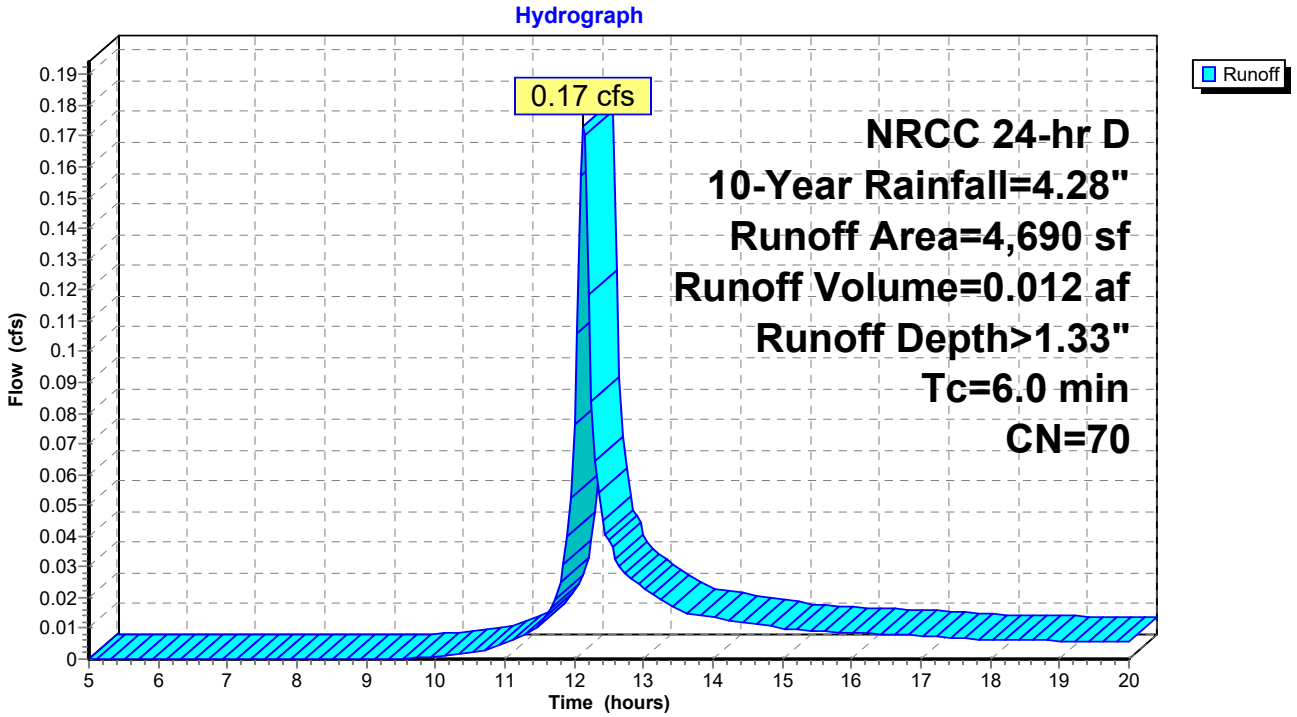
Runoff = 0.17 cfs @ 12.14 hrs, Volume= 0.012 af, Depth> 1.33"
Routed to Pond 34P : Sediment Forebay 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
	3,267	61	>75% Grass cover, Good, HSG B
*	1,178	98	Pave
	245	55	Woods, Good, HSG B
	4,690	70	Weighted Average
	3,512		74.88% Pervious Area
	1,178		25.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 MIN MINIMUM**

Subcatchment 35S: Direct to Pond BR



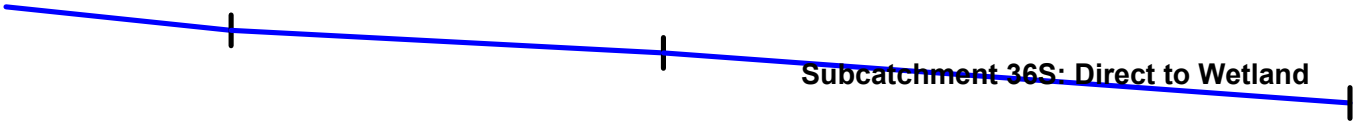
Summary for Subcatchment 36S: Direct to Wetland

Runoff = 0.89 cfs @ 12.89 hrs, Volume= 0.200 af, Depth> 0.55"
Routed to Reach 8R : Wetland/FES-1

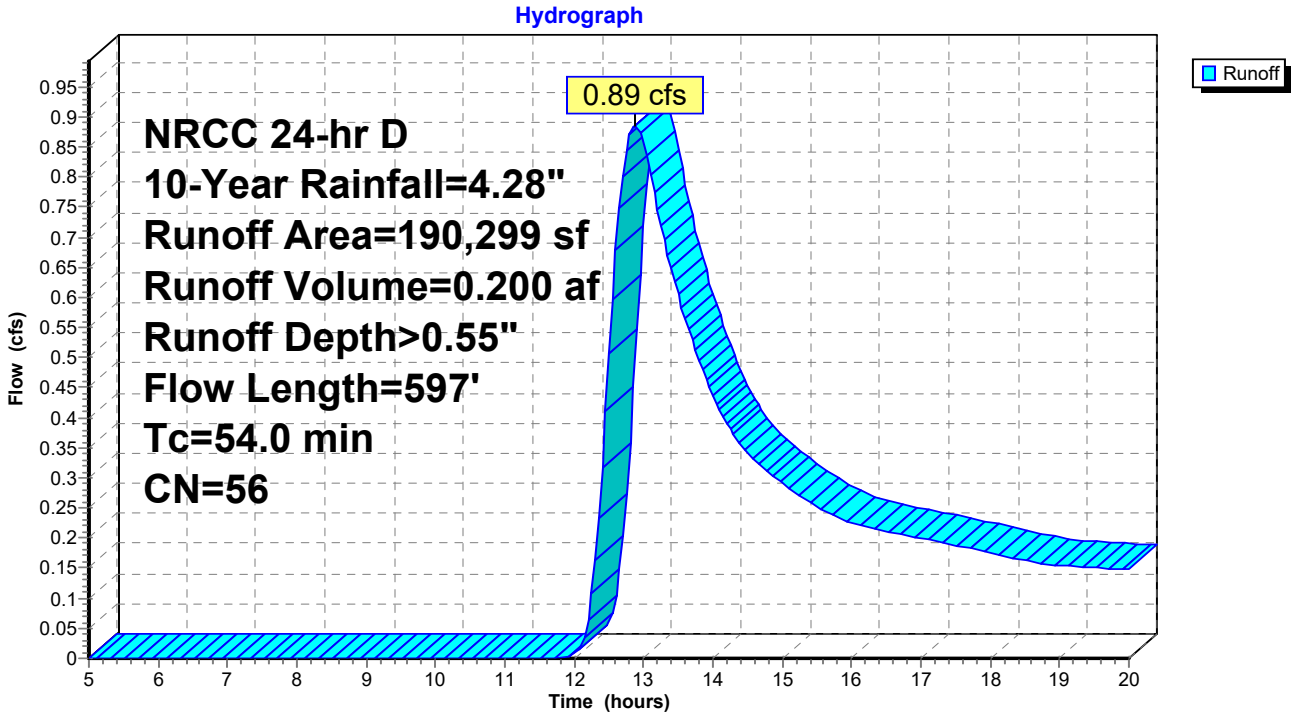
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

	Area (sf)	CN	Description
*	957	98	Abutter Roof
	38,785	61	>75% Grass cover, Good, HSG B
	150,462	55	Woods, Good, HSG B
	95	70	Woods, Good, HSG C
*	0	98	Existing Asphalt
	190,299	56	Weighted Average
	189,342		99.50% Pervious Area
	957		0.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.7	100	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.40"
9.1	192	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.2	305	0.0070	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
54.0	597	Total			



Subcatchment 36S: Direct to Wetland



Summary for Subcatchment 43S: Slope Face

[73] Warning: Peak may fall outside time span

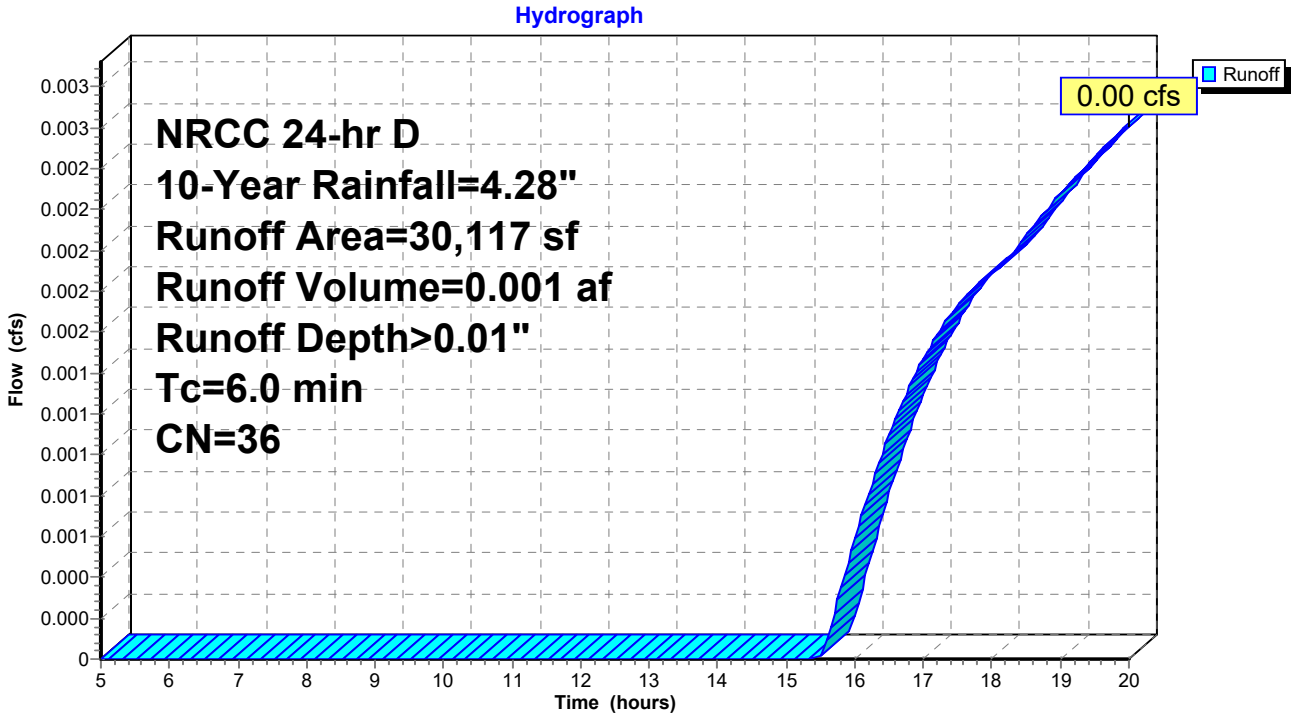
Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af, Depth> 0.01"
Routed to Reach 44R : Pipe to Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

Area (sf)	CN	Description
20,058	39	>75% Grass cover, Good, HSG A
10,059	30	Woods, Good, HSG A
30,117	36	Weighted Average
30,117		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 MINUTE MIN**

Subcatchment 43S: Slope Face



Summary for Subcatchment 44S: Direct to Sed Forebay 1

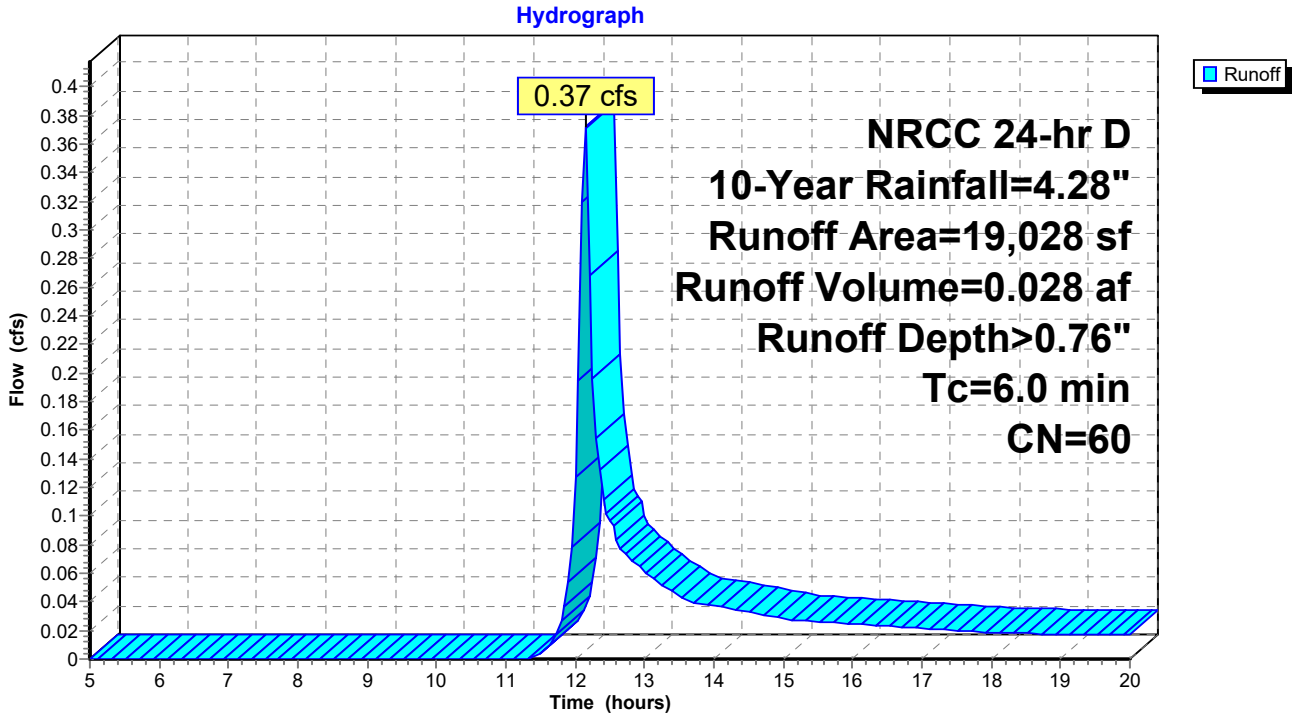
Runoff = 0.37 cfs @ 12.14 hrs, Volume= 0.028 af, Depth> 0.76"
Routed to Pond 38P : Sediment Forebay 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.28"

Area (sf)	CN	Description
16,911	61	>75% Grass cover, Good, HSG B
2,117	55	Woods, Good, HSG B
19,028	60	Weighted Average
19,028		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 MIN DIRECT**

Subcatchment 44S: Direct to Sed Forebay 1



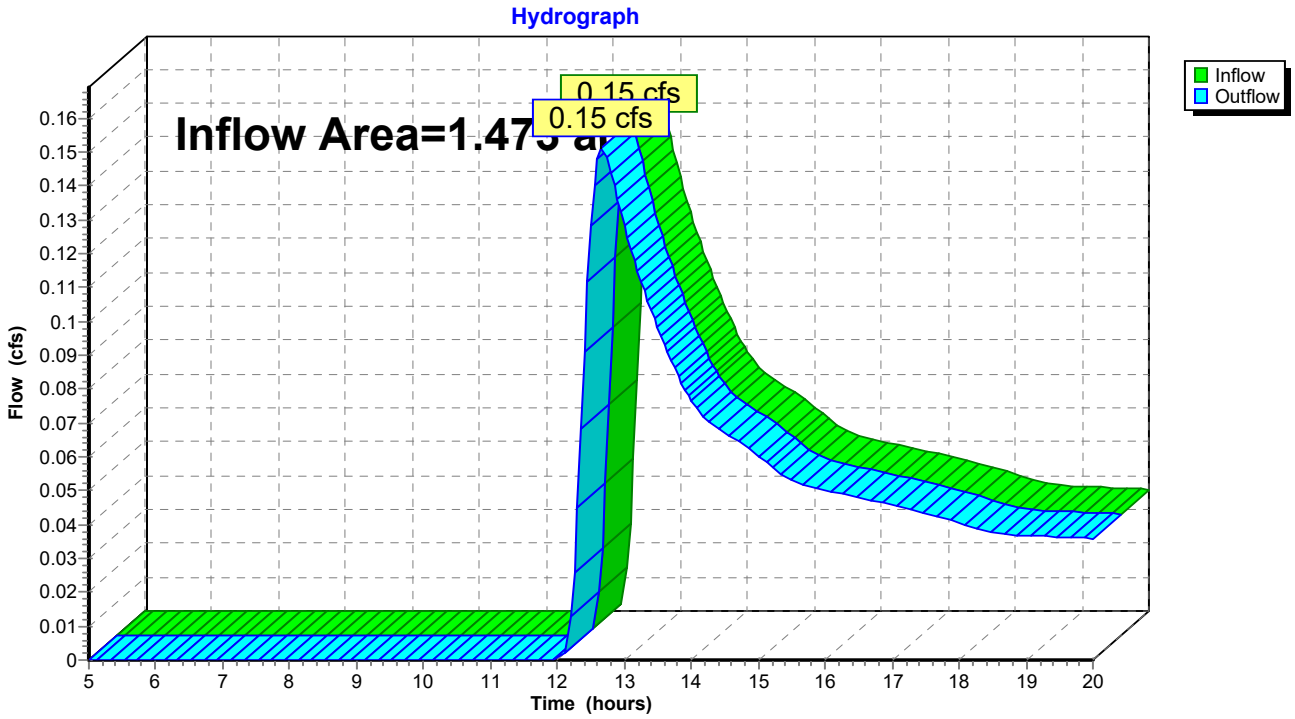
Summary for Reach 2R: M128 L89

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

Inflow Area = 1.473 ac, 0.00% Impervious, Inflow Depth > 0.32" for 10-Year event
Inflow = 0.15 cfs @ 12.66 hrs, Volume= 0.040 af
Outflow = 0.15 cfs @ 12.66 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: M128 L89



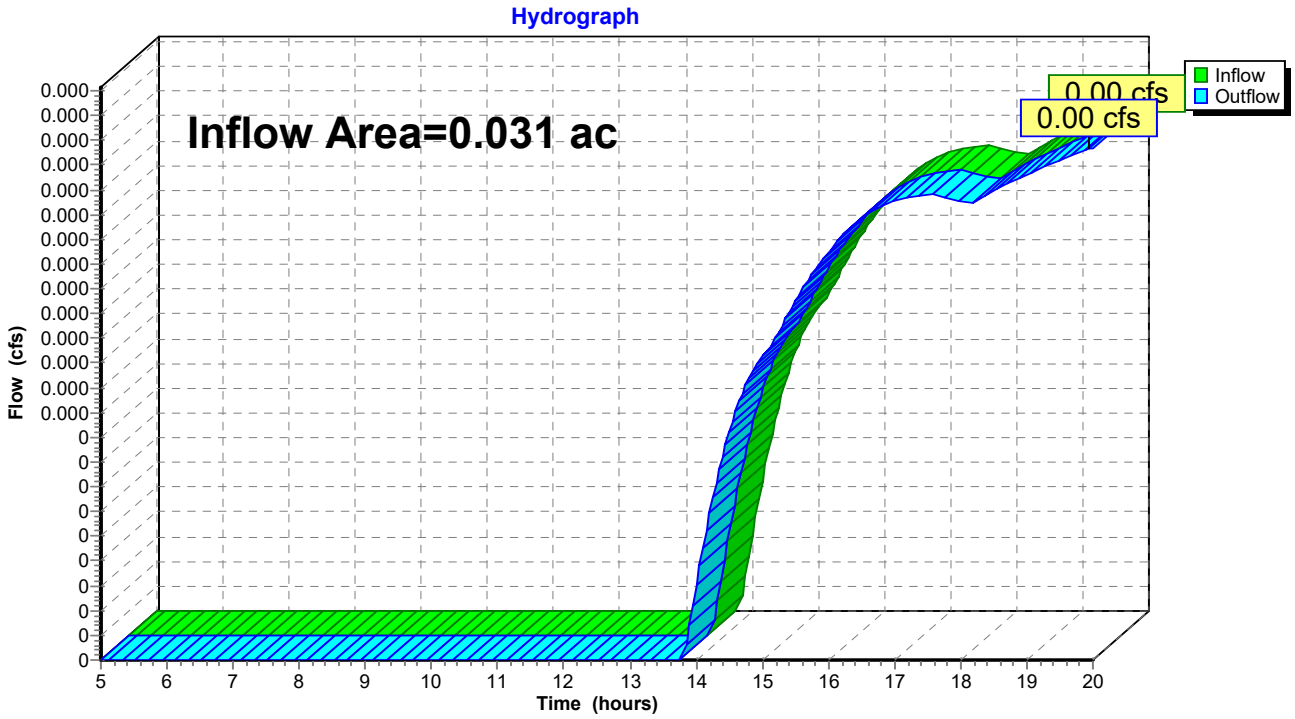
Summary for Reach 4R: MAP 138 LOT 78

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

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth > 0.03" for 10-Year event
Inflow = 0.00 cfs @ 19.95 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 19.95 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 4R: MAP 138 LOT 78



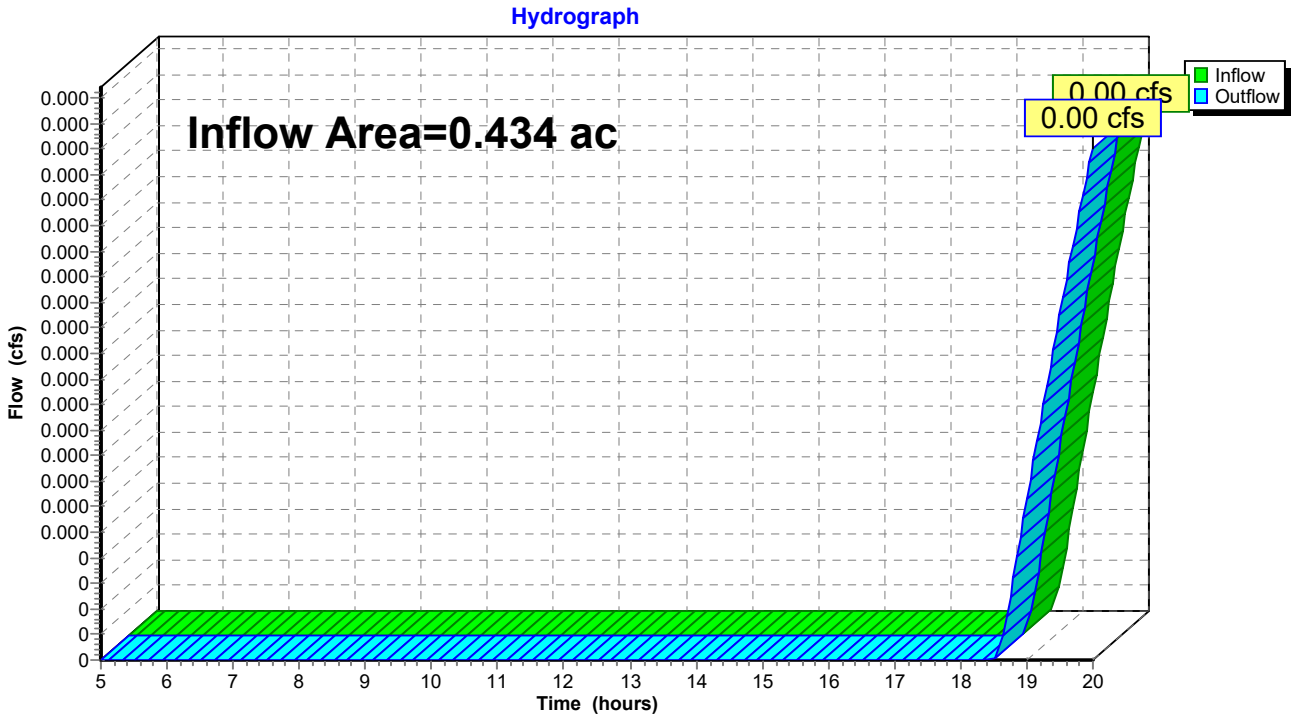
Summary for Reach 6R: MAP 138 LOT 79

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

Inflow Area = 0.434 ac, 0.00% Impervious, Inflow Depth > 0.00" for 10-Year event
Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 6R: MAP 138 LOT 79



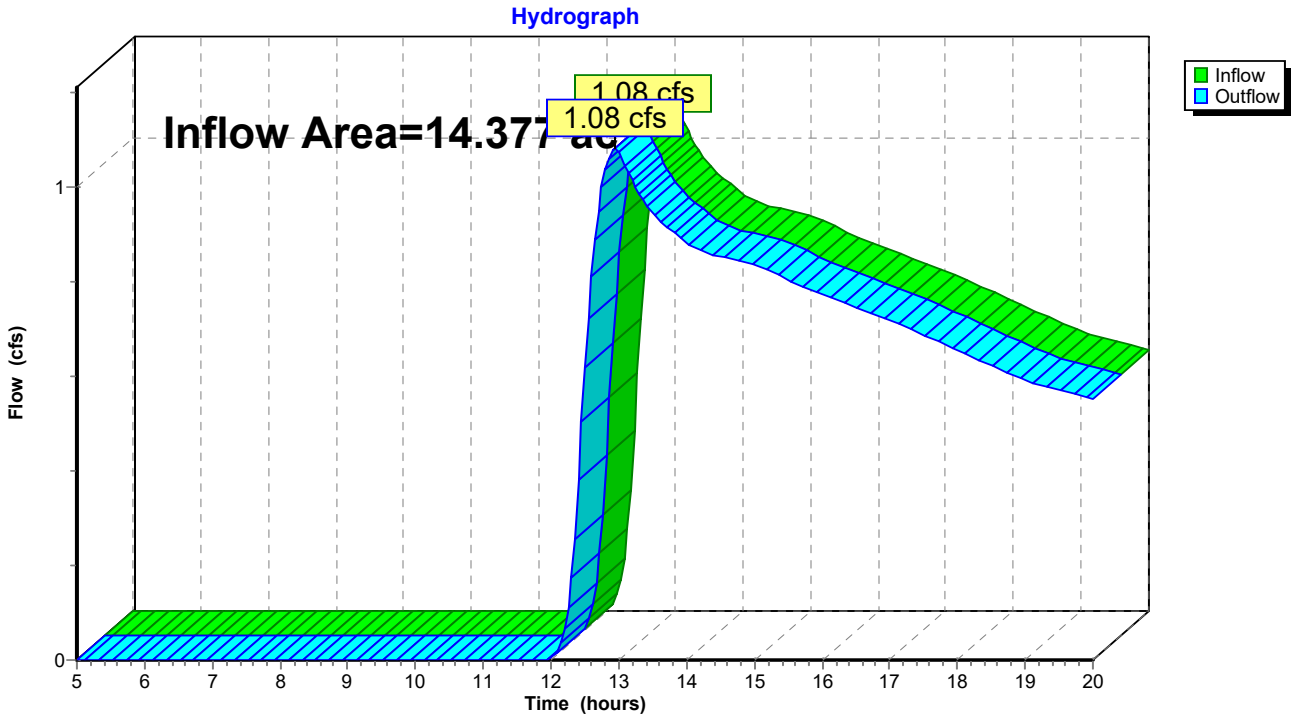
Summary for Reach 8R: Wetland/FES-1

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

Inflow Area = 14.377 ac, 10.70% Impervious, Inflow Depth > 0.40" for 10-Year event
Inflow = 1.08 cfs @ 12.95 hrs, Volume= 0.481 af
Outflow = 1.08 cfs @ 12.95 hrs, Volume= 0.481 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 8R: Wetland/FES-1



Summary for Reach 44R: Pipe to Swale

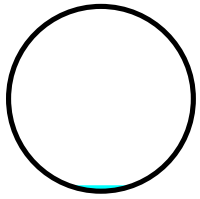
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.691 ac, 0.00% Impervious, Inflow Depth > 0.01" for 10-Year event
Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 45R : Basin 2 Swale

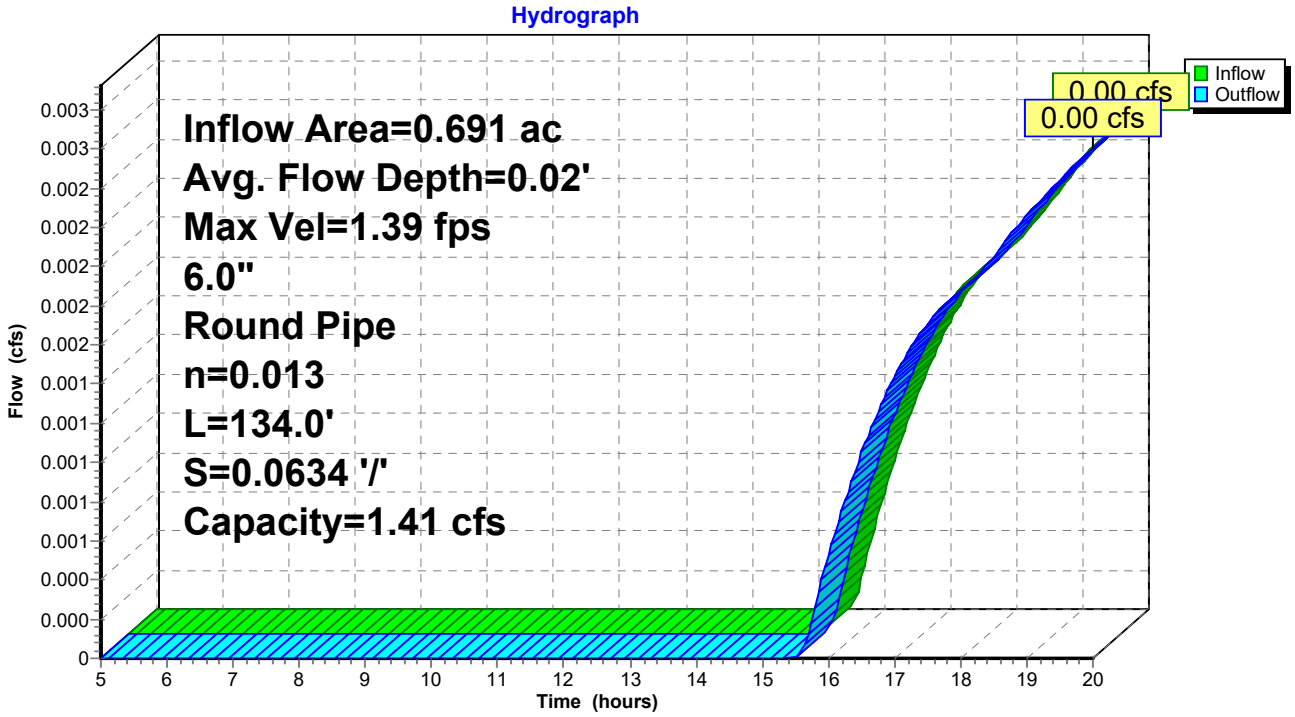
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.39 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.20 fps, Avg. Travel Time= 1.9 min

Peak Storage= 0 cf @ 20.00 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 0.18'
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 1.41 cfs

6.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 134.0' Slope= 0.0634 '/'
Inlet Invert= 170.50', Outlet Invert= 162.00'



Reach 44R: Pipe to Swale



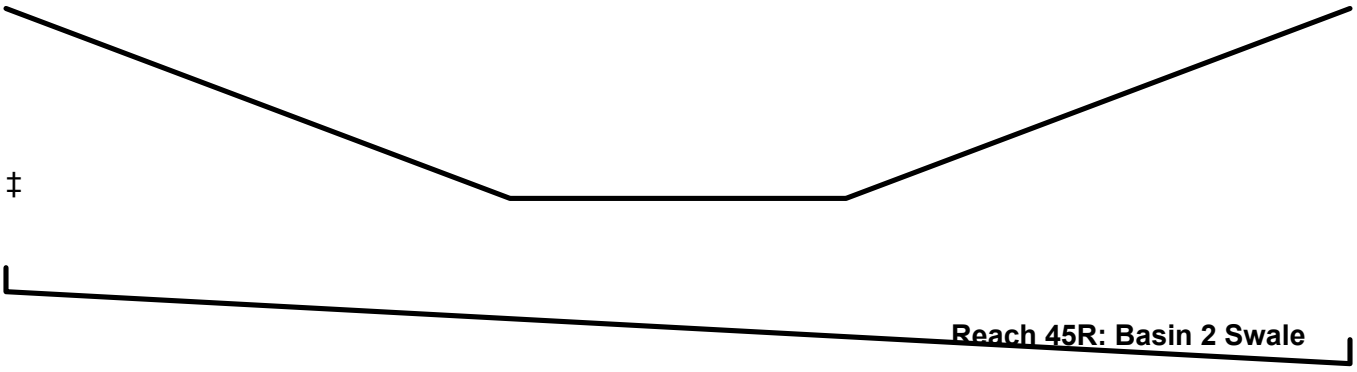
Summary for Reach 45R: Basin 2 Swale

Inflow Area = 0.691 ac, 0.00% Impervious, Inflow Depth > 0.01" for 10-Year event
Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af, Atten= 5%, Lag= 0.0 min
Routed to Pond 37P : Basin 2

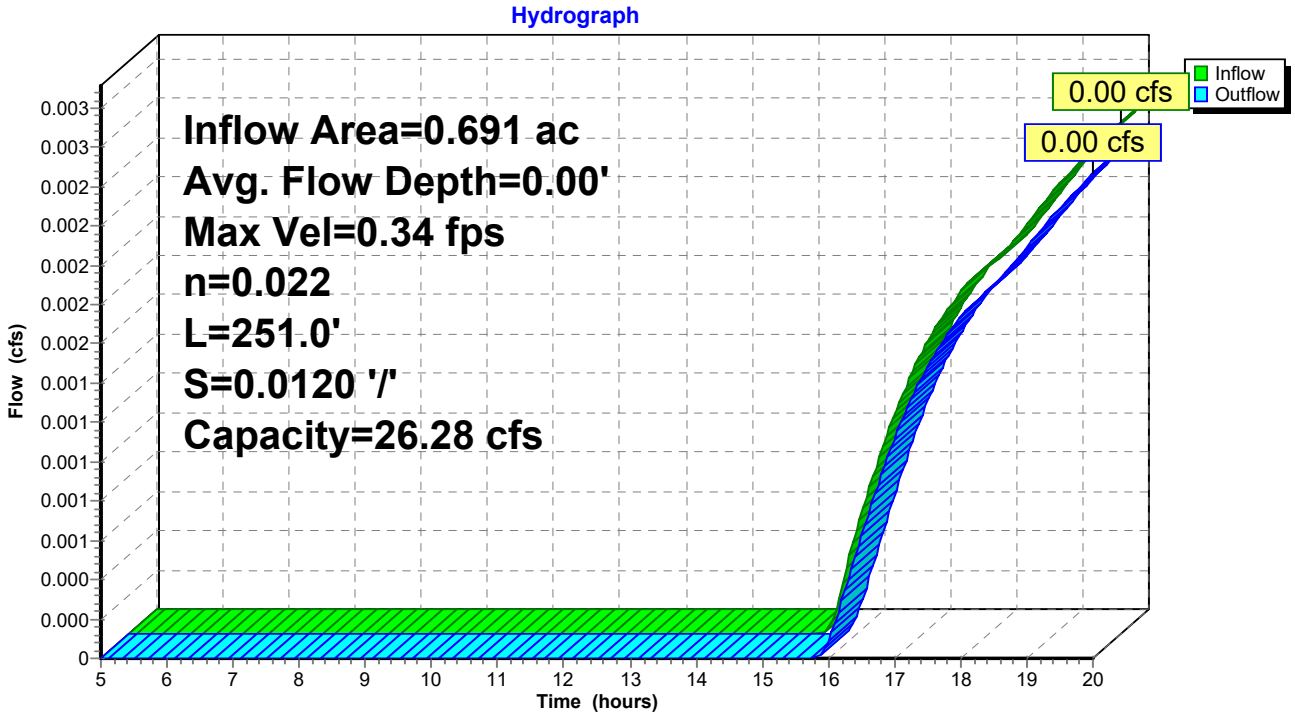
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.34 fps, Min. Travel Time= 12.3 min
Avg. Velocity = 0.34 fps, Avg. Travel Time= 12.3 min

Peak Storage= 2 cf @ 20.00 hrs
Average Depth at Peak Storage= 0.00' , Surface Width= 2.02'
Bank-Full Depth= 1.00' Flow Area= 5.0 sf, Capacity= 26.28 cfs

2.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 8.00'
Length= 251.0' Slope= 0.0120 '/'
Inlet Invert= 160.00', Outlet Invert= 157.00'



Reach 45R: Basin 2 Swale



Summary for Pond 7P: CB-2

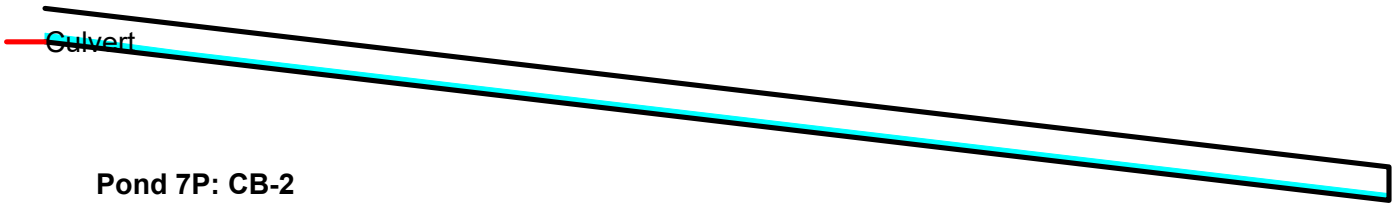
[57] Hint: Peaked at 166.28' (Flood elevation advised)
[79] Warning: Submerged Pond 8P Primary device # 1 OUTLET by 0.25'

Inflow Area = 1.188 ac, 37.49% Impervious, Inflow Depth > 0.79" for 10-Year event
Inflow = 0.75 cfs @ 12.25 hrs, Volume= 0.078 af
Outflow = 0.75 cfs @ 12.25 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min
Primary = 0.75 cfs @ 12.25 hrs, Volume= 0.078 af
Routed to Pond 10P : CB-4

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 166.28' @ 12.25 hrs

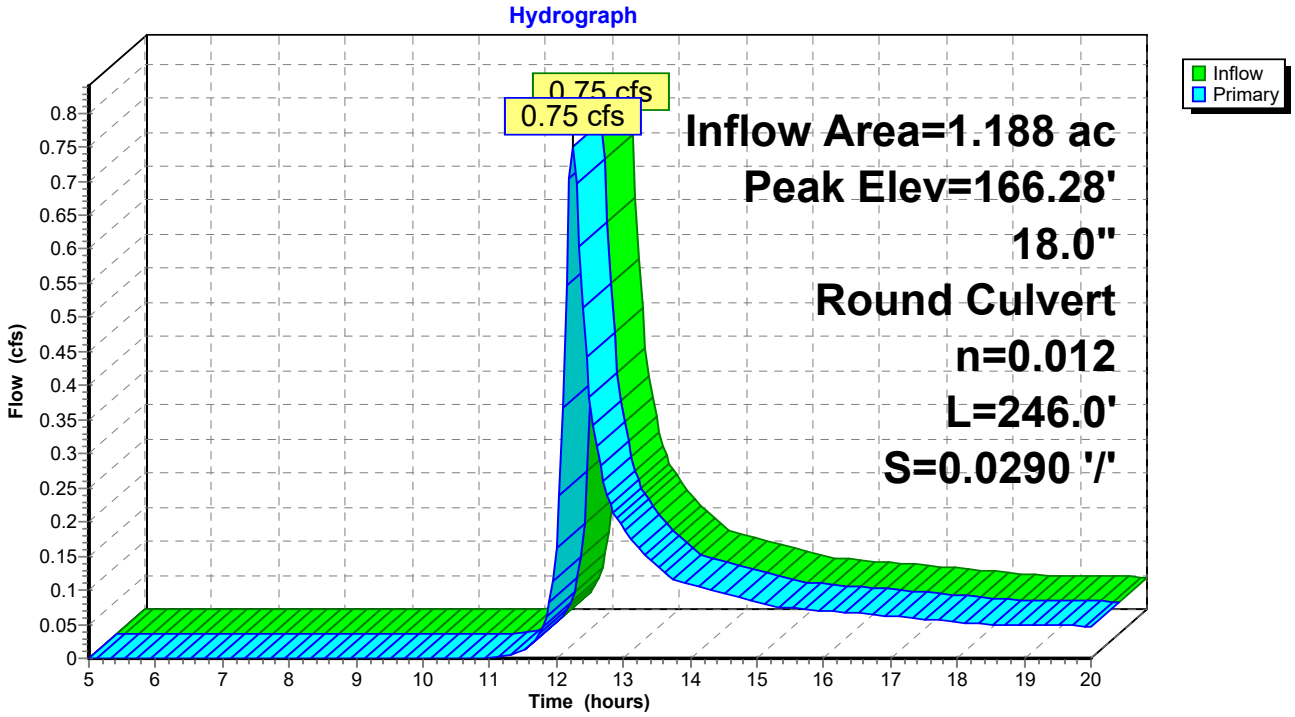
Device	Routing	Invert	Outlet Devices
#1	Primary	165.90'	**18.0" Round Culvert** L= 246.0' Ke= 0.500 Inlet / Outlet Invert= 165.90' / 158.77' S= 0.0290 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=0.75 cfs @ 12.25 hrs HW=166.28' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.75 cfs @ 2.11 fps)



Pond 7P: CB-2

Pond 7P: CB-2


Hydrograph
0.75 cfs
0.75 cfs
Inflow Area=1.188 ac
Peak Elev=166.28'
18.0"
Round Culvert
n=0.012
L=246.0'
S=0.0290 '/'
Inflow
Primary
Flow (cfs)
Time (hours)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
0.8
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Summary for Pond 8P: CB-1

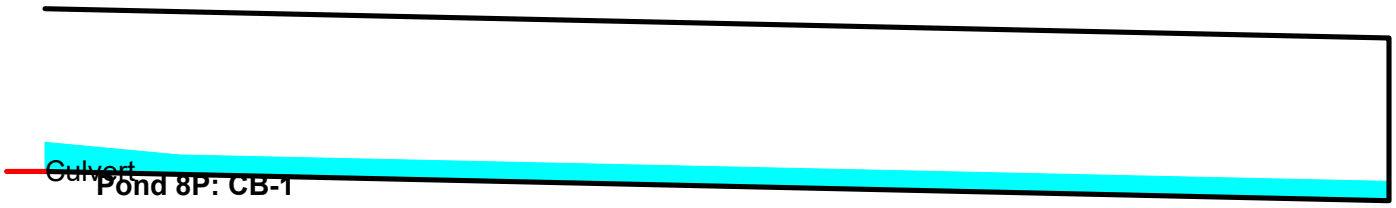
[57] Hint: Peaked at 166.57' (Flood elevation advised)

Inflow Area = 0.711 ac, 34.85% Impervious, Inflow Depth > 0.71" for 10-Year event
Inflow = 0.38 cfs @ 12.27 hrs, Volume= 0.042 af
Outflow = 0.38 cfs @ 12.27 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.27 hrs, Volume= 0.042 af
Routed to Pond 7P : CB-2

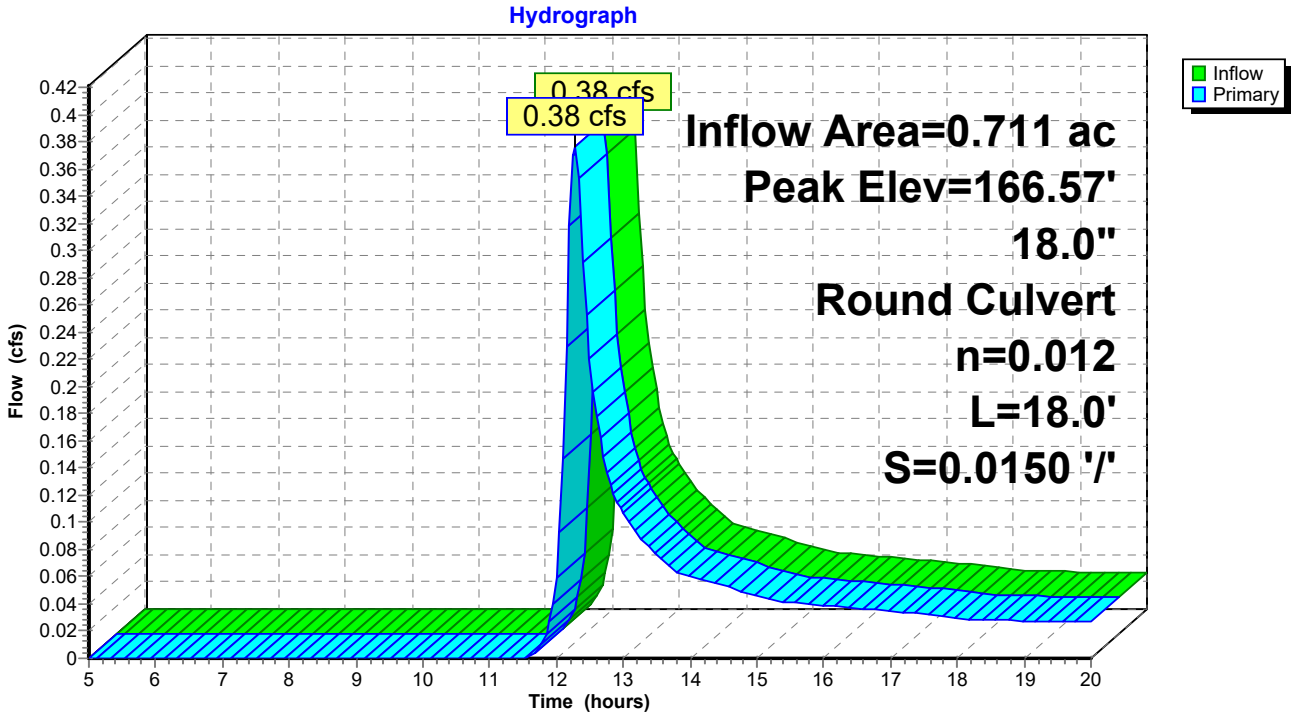
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 166.57' @ 12.27 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	166.30'	**18.0" Round Culvert** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 166.30' / 166.03' S= 0.0150 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=0.37 cfs @ 12.27 hrs HW=166.57' (Free Discharge)
1=Culvert (Inlet Controls 0.37 cfs @ 1.75 fps)



Pond 8P: CB-1


Hydrograph
0.38 cfs
0.38 cfs
Inflow Area=0.711 ac
Peak Elev=166.57'
18.0"
Round Culvert
n=0.012
L=18.0'
S=0.0150 '/'
Inflow
Primary
Flow (cfs)
Time (hours)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22
0.24
0.26
0.28
0.3
0.32
0.34
0.36
0.38
0.4
0.42
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Summary for Pond 9P: CB-3

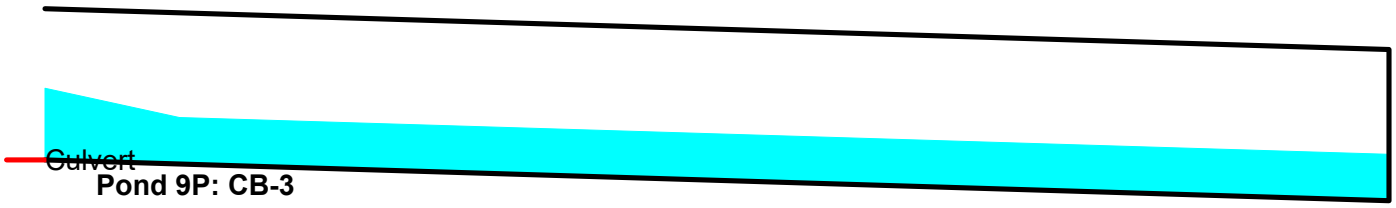
[57] Hint: Peaked at 159.47' (Flood elevation advised)

Inflow Area = 0.359 ac, 49.80% Impervious, Inflow Depth > 1.96" for 10-Year event
Inflow = 0.85 cfs @ 12.13 hrs, Volume= 0.059 af
Outflow = 0.85 cfs @ 12.13 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min
Primary = 0.85 cfs @ 12.13 hrs, Volume= 0.059 af
Routed to Pond 10P : CB-4

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 159.47' @ 12.13 hrs

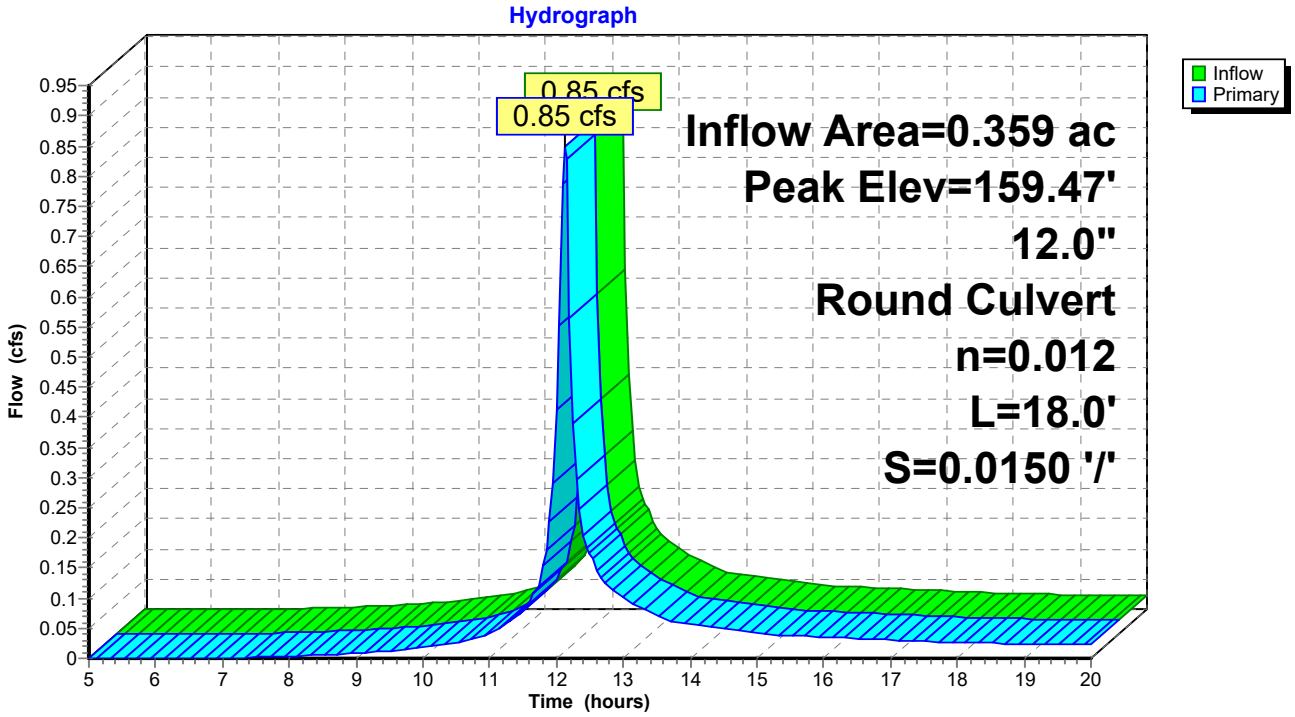
Device	Routing	Invert	Outlet Devices
#1	Primary	159.00'	**12.0" Round Culvert** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 159.00' / 158.73' S= 0.0150 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.81 cfs @ 12.13 hrs HW=159.46' (Free Discharge)
1=Culvert (Barrel Controls 0.81 cfs @ 3.37 fps)



Pond 9P: CB-3

Pond 9P: CB-3


Hydrograph
Inflow
Primary
0.85 cfs
0.85 cfs
Inflow Area=0.359 ac
Peak Elev=159.47'
12.0"
Round Culvert
n=0.012
L=18.0'
S=0.0150 '/'
Flow (cfs)
Time (hours)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Summary for Pond 10P: CB-4

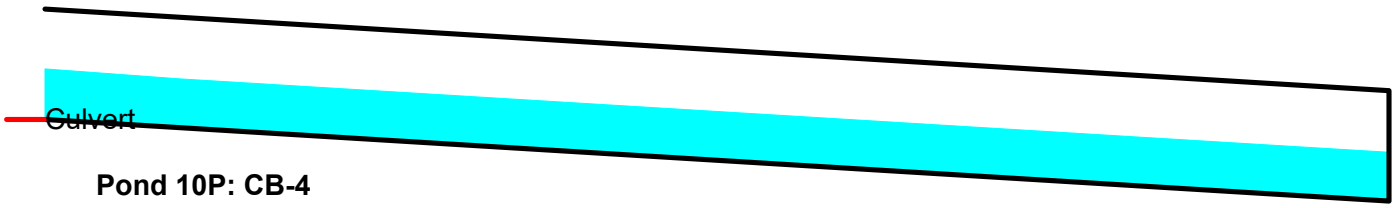
[57] Hint: Peaked at 159.29' (Flood elevation advised)
[79] Warning: Submerged Pond 7P Primary device # 1 OUTLET by 0.52'
[79] Warning: Submerged Pond 9P Primary device # 1 INLET by 0.29'

Inflow Area = 1.840 ac, 44.79% Impervious, Inflow Depth > 1.30" for 10-Year event
Inflow = 2.22 cfs @ 12.14 hrs, Volume= 0.199 af
Outflow = 2.22 cfs @ 12.14 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min
Primary = 2.22 cfs @ 12.14 hrs, Volume= 0.199 af
Routed to Pond 42P : DMH-1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 159.29' @ 12.14 hrs

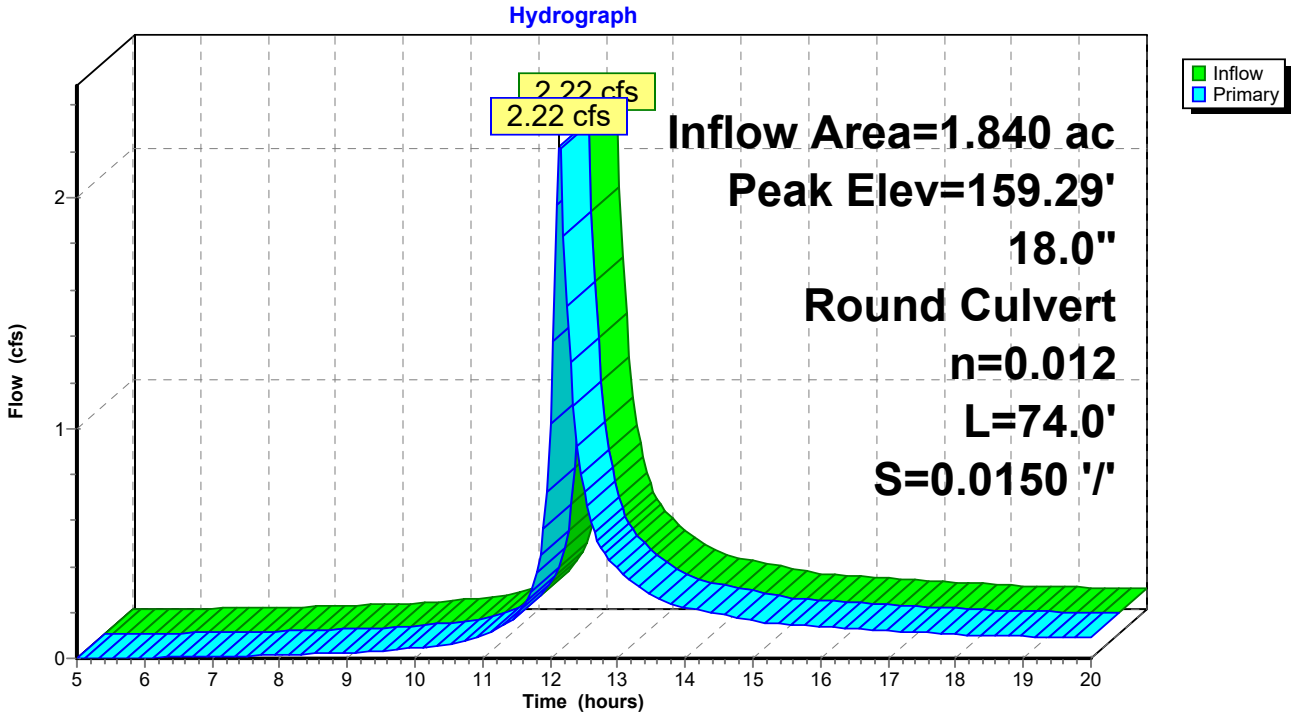
Device	Routing	Invert	Outlet Devices
#1	Primary	158.60'	**18.0" Round Culvert** L= 74.0' Ke= 0.500 Inlet / Outlet Invert= 158.60' / 157.49' S= 0.0150 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.19 cfs @ 12.14 hrs HW=159.28' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 2.19 cfs @ 2.81 fps)



Pond 10P: CB-4

Pond 10P: CB-4


Hydrograph
2.22 cfs
2.22 cfs
Inflow Area=1.840 ac
Peak Elev=159.29'
18.0"
Round Culvert
n=0.012
L=74.0'
S=0.0150 '/'
Inflow
Primary
Flow (cfs)
0
1
2
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Time (hours)

Summary for Pond 15P: CB-6

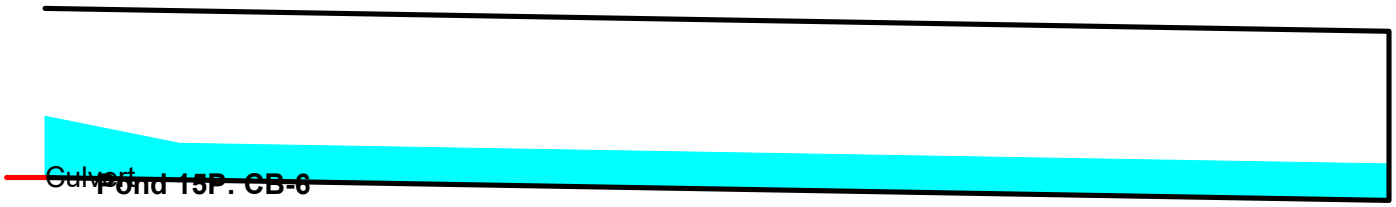
[57] Hint: Peaked at 156.72' (Flood elevation advised)
[79] Warning: Submerged Pond 42P Primary device # 1 OUTLET by 0.63'

Inflow Area = 2.008 ac, 46.85% Impervious, Inflow Depth > 1.41" for 10-Year event
Inflow = 2.73 cfs @ 12.14 hrs, Volume= 0.236 af
Outflow = 2.73 cfs @ 12.14 hrs, Volume= 0.236 af, Atten= 0%, Lag= 0.0 min
Primary = 2.73 cfs @ 12.14 hrs, Volume= 0.236 af
Routed to Pond 16P : CB-5

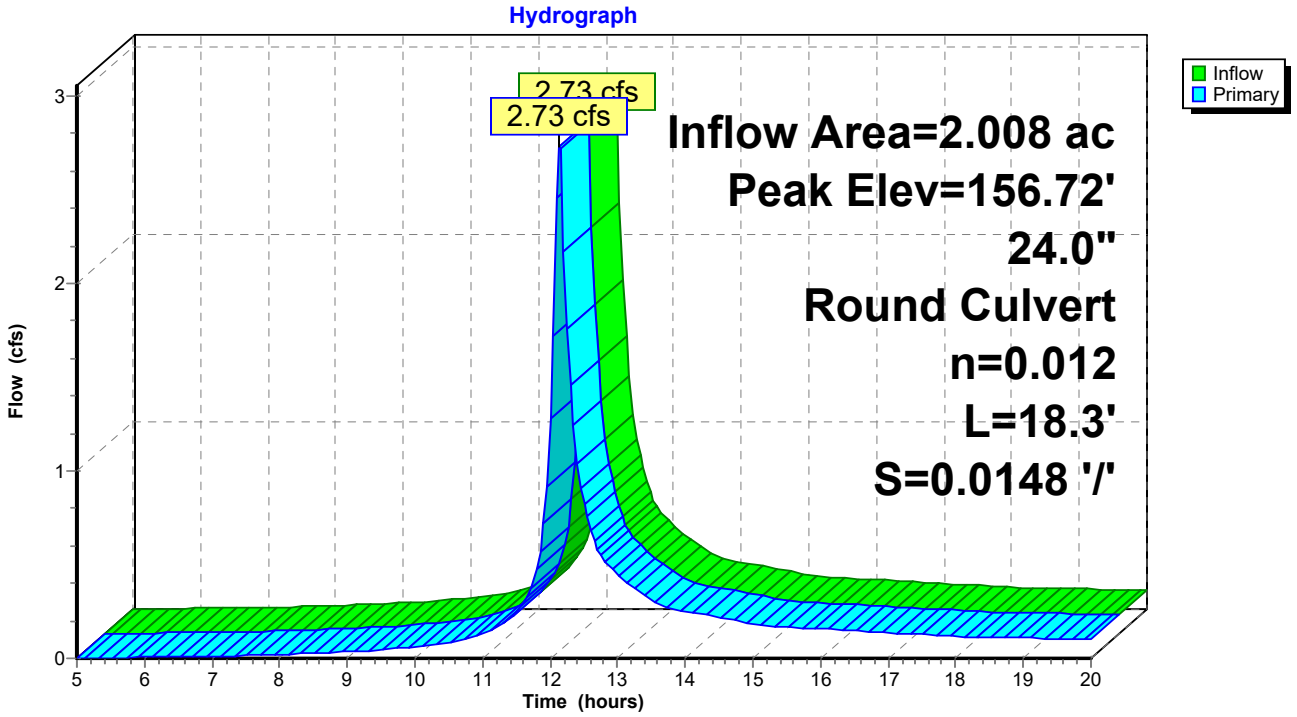
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 156.72' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	156.00'	**24.0" Round Culvert** L= 18.3' Ke= 0.500 Inlet / Outlet Invert= 156.00' / 155.73' S= 0.0148 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.67 cfs @ 12.14 hrs HW=156.72' (Free Discharge)
└**1=Culvert** (Barrel Controls 2.67 cfs @ 3.94 fps)



Pond 15P: CB-6


Hydrograph
2.73 cfs
2.73 cfs
Inflow Area=2.008 ac
Peak Elev=156.72'
24.0"
Round Culvert
n=0.012
L=18.3'
S=0.0148 '/'
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
3
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Summary for Pond 16P: CB-5

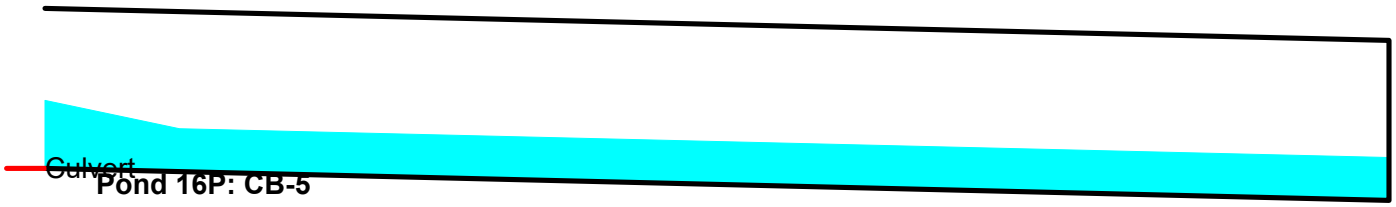
[57] Hint: Peaked at 156.45' (Flood elevation advised)
[79] Warning: Submerged Pond 15P Primary device # 1 INLET by 0.45'

Inflow Area = 2.427 ac, 49.44% Impervious, Inflow Depth > 1.58" for 10-Year event
Inflow = 3.89 cfs @ 12.14 hrs, Volume= 0.319 af
Outflow = 3.89 cfs @ 12.14 hrs, Volume= 0.319 af, Atten= 0%, Lag= 0.0 min
Primary = 3.89 cfs @ 12.14 hrs, Volume= 0.319 af
Routed to Pond 38P : Sediment Forebay 1

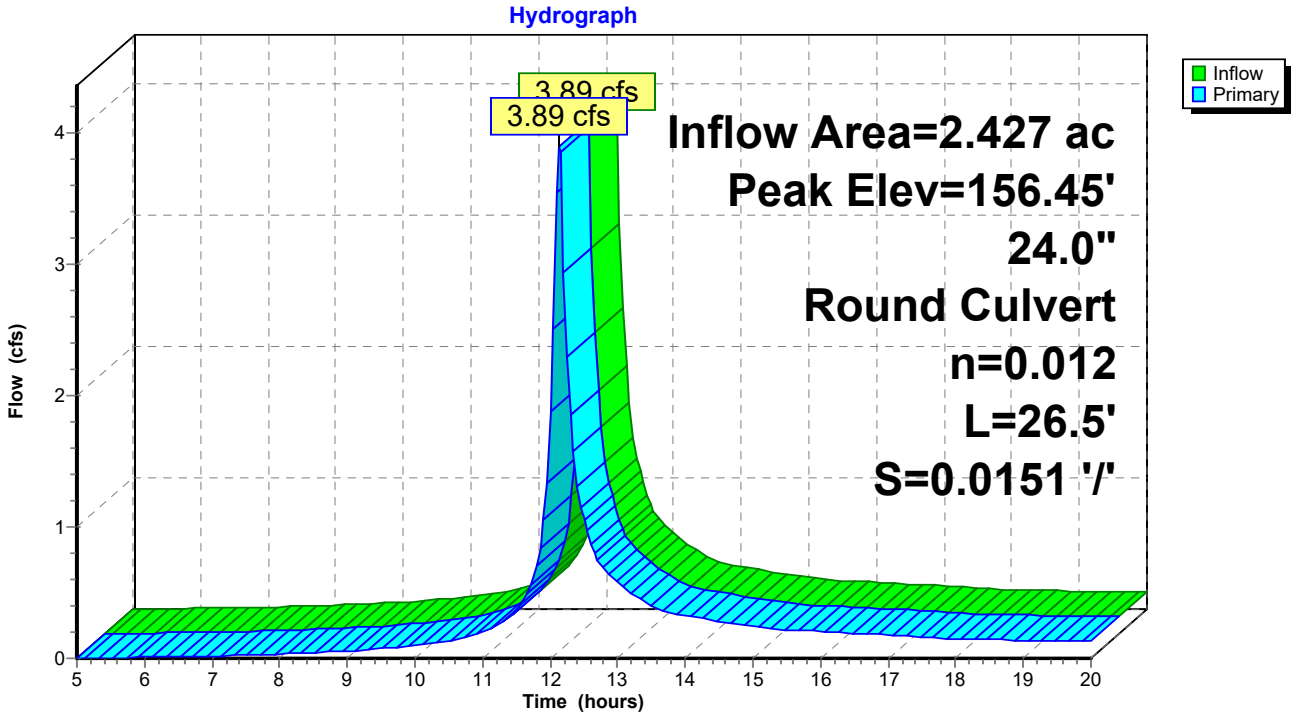
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 156.45' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	155.60'	**24.0" Round Culvert** L= 26.5' Ke= 0.500 Inlet / Outlet Invert= 155.60' / 155.20' S= 0.0151 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=3.78 cfs @ 12.14 hrs HW=156.44' (Free Discharge)
└**1=Culvert** (Barrel Controls 3.78 cfs @ 4.49 fps)



Pond 16P: CB-5


Hydrograph
3.89 cfs
3.89 cfs
Inflow Area=2.427 ac
Peak Elev=156.45'
24.0"
Round Culvert
n=0.012
L=26.5'
S=0.0151 '/'
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Summary for Pond 17P: DI-2

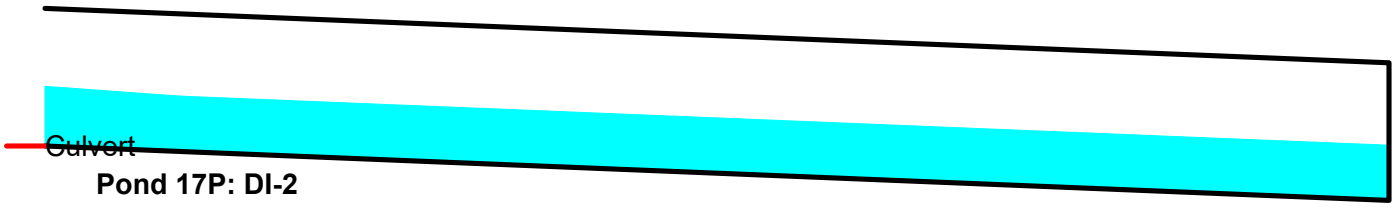
[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 157.73' (Flood elevation advised)

Inflow Area = 0.141 ac, 78.64% Impervious, Inflow Depth > 2.91" for 10-Year event
Inflow = 0.46 cfs @ 12.13 hrs, Volume= 0.034 af
Outflow = 0.46 cfs @ 12.13 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.13 hrs, Volume= 0.034 af
Routed to Pond 37P : Basin 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 157.73' @ 12.13 hrs

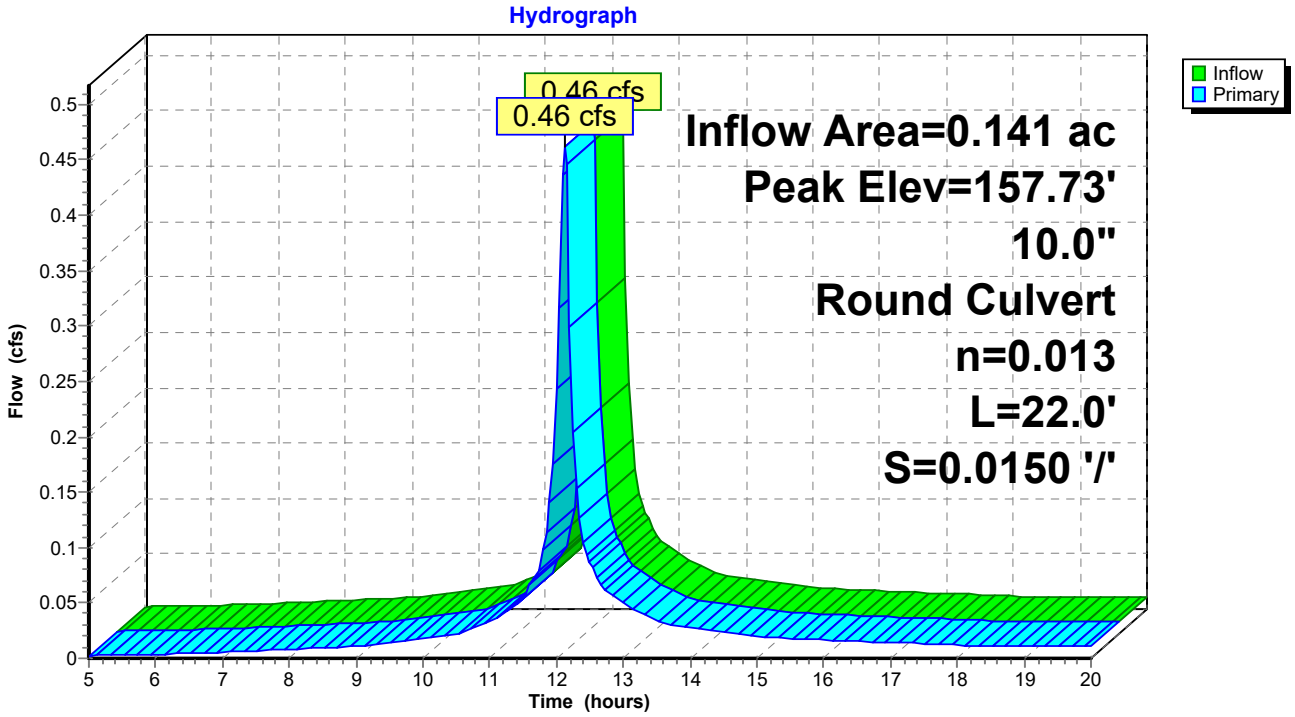
Device	Routing	Invert	Outlet Devices
#1	Primary	157.37'	**10.0" Round Culvert** L= 22.0' Ke= 0.500 Inlet / Outlet Invert= 157.37' / 157.04' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.44 cfs @ 12.13 hrs HW=157.72' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.44 cfs @ 2.02 fps)



Pond 17P: DI-2

Pond 17P: DI-2


Hydrograph
Inflow
Primary
0.46 cfs
0.46 cfs
Inflow Area=0.141 ac
Peak Elev=157.73'
10.0"
Round Culvert
n=0.013
L=22.0'
S=0.0150 '/'
Flow (cfs)
Time (hours)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Summary for Pond 18P: DI-1

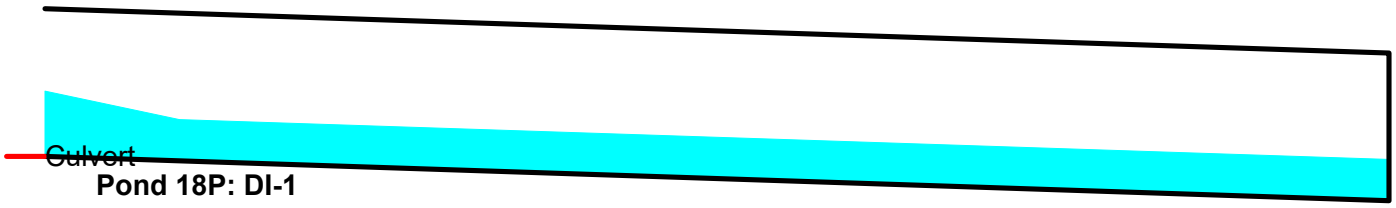
[57] Hint: Peaked at 157.75' (Flood elevation advised)

Inflow Area = 0.157 ac, 67.99% Impervious, Inflow Depth > 2.55" for 10-Year event
Inflow = 0.47 cfs @ 12.13 hrs, Volume= 0.033 af
Outflow = 0.47 cfs @ 12.13 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.13 hrs, Volume= 0.033 af
Routed to Pond 34P : Sediment Forebay 3

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 157.75' @ 12.13 hrs

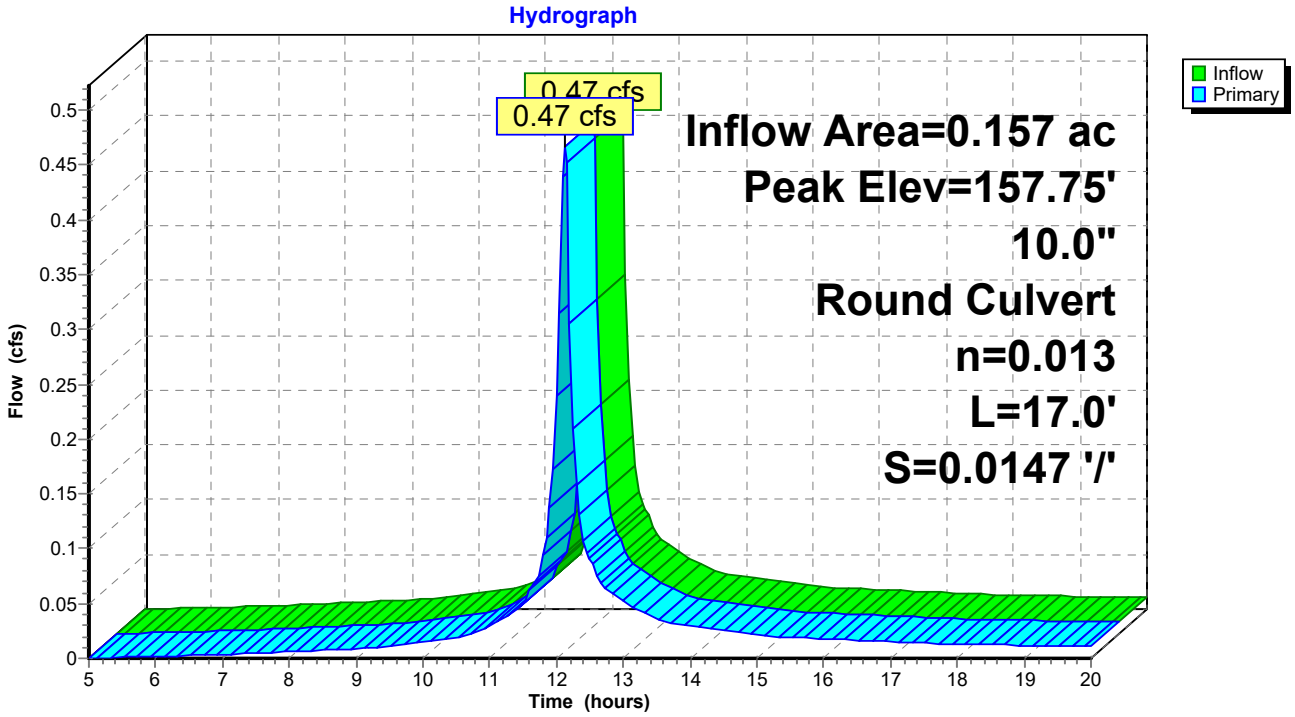
Device	Routing	Invert	Outlet Devices
#1	Primary	157.38'	**10.0" Round Culvert** L= 17.0' Ke= 0.500 Inlet / Outlet Invert= 157.38' / 157.13' S= 0.0147 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.45 cfs @ 12.13 hrs HW=157.74' (Free Discharge)
1=Culvert (Barrel Controls 0.45 cfs @ 2.93 fps)



Pond 18P: DI-1

Pond 18P: DI-1


Hydrograph
0.47 cfs
0.47 cfs
Inflow Area=0.157 ac
Peak Elev=157.75'
10.0"
Round Culvert
n=0.013
L=17.0'
S=0.0147 '/'
Inflow
Primary
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Time (hours)

Summary for Pond 29P: Basin 1

[81] Warning: Exceeded Pond 38P by 0.28' @ 15.80 hrs

Inflow Area = 9.744 ac, 14.19% Impervious, Inflow Depth > 0.57" for 10-Year event
Inflow = 3.07 cfs @ 12.23 hrs, Volume= 0.464 af
Outflow = 0.55 cfs @ 15.47 hrs, Volume= 0.279 af, Atten= 82%, Lag= 194.0 min
Primary = 0.55 cfs @ 15.47 hrs, Volume= 0.279 af
Routed to Reach 8R : Wetland/FES-1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 155.64' @ 15.47 hrs Surf.Area= 24,550 sf Storage= 9,213 cf

Plug-Flow detention time= 199.5 min calculated for 0.279 af (60% of inflow)
Center-of-Mass det. time= 103.0 min (988.8 - 885.7)

Volume	Invert	Avail.Storage	Storage Description
#1	151.61'	0 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 25,728 cf Overall x 0.0% Voids
#2	155.00'	41,159 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		41,159 cf	Total Available Storage

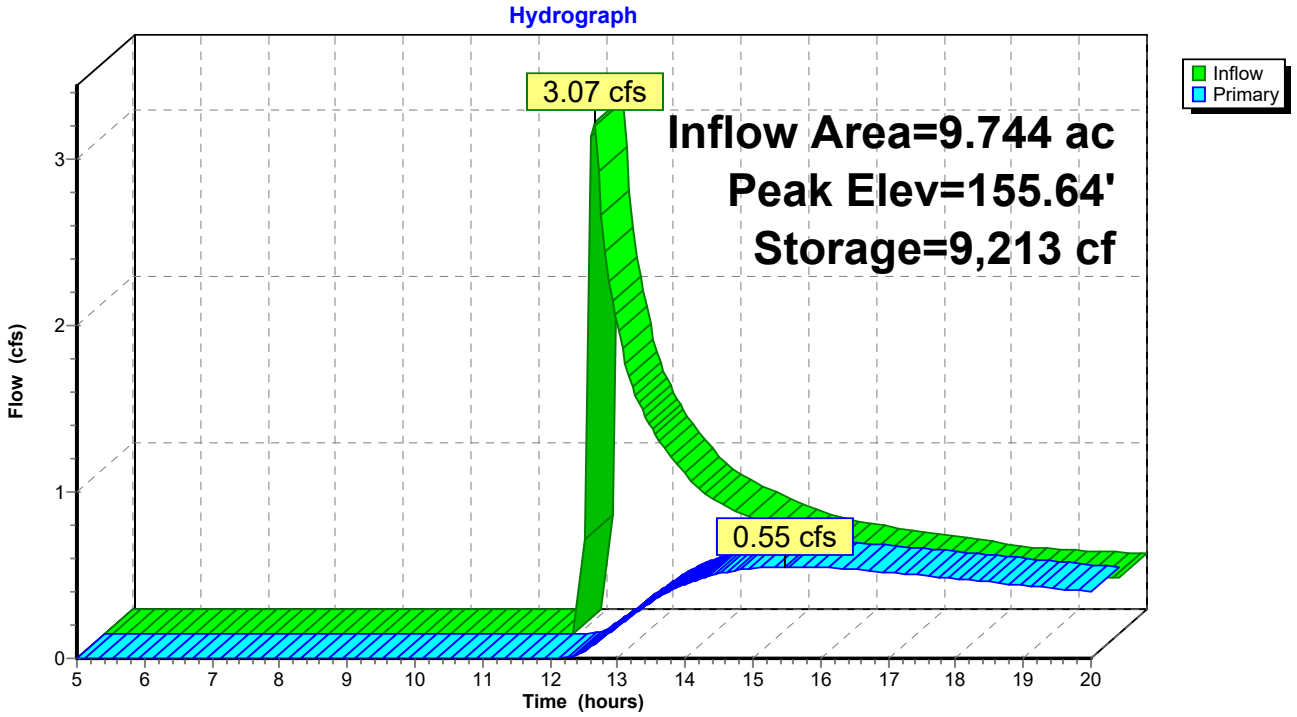
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
151.61	6,056	0	0
152.00	6,205	2,391	2,391
154.00	8,285	14,490	16,881
155.00	9,409	8,847	25,728

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
155.00	13,781	0	0
156.00	15,916	14,849	14,849
157.00	18,124	17,020	31,869
157.50	19,037	9,290	41,159

Device	Routing	Invert	Outlet Devices
#1	Primary	155.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.35 1.35 2.50 Width (feet) 0.00 1.75 10.00 10.00

Primary OutFlow Max=0.55 cfs @ 15.47 hrs HW=155.64' (Free Discharge)
↑—**1=Custom Weir/Orifice** (Weir Controls 0.55 cfs @ 2.09 fps)

Pond 29P: Basin 1



Summary for Pond 34P: Sediment Forebay 3

[81] Warning: Exceeded Pond 18P by 0.32' @ 13.50 hrs

Inflow Area = 0.265 ac, 50.58% Impervious, Inflow Depth > 2.05" for 10-Year event
Inflow = 0.64 cfs @ 12.13 hrs, Volume= 0.045 af
Outflow = 0.13 cfs @ 12.52 hrs, Volume= 0.045 af, Atten= 80%, Lag= 23.6 min
Discarded = 0.06 cfs @ 12.52 hrs, Volume= 0.043 af
Primary = 0.06 cfs @ 12.52 hrs, Volume= 0.003 af
Routed to Reach 8R : Wetland/FES-1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 157.83' @ 12.52 hrs Surf.Area= 898 sf Storage= 624 cf

Plug-Flow detention time= 87.0 min calculated for 0.045 af (100% of inflow)
Center-of-Mass det. time= 86.2 min (878.0 - 791.9)

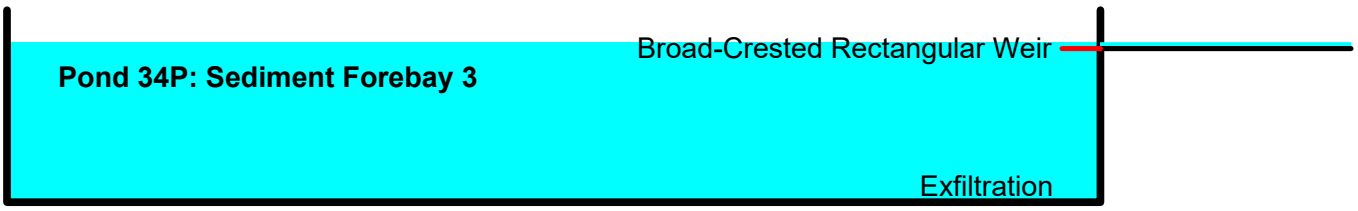
Volume	Invert	Avail.Storage	Storage Description
#1	157.00'	782 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
157.00	605	0	0
158.00	958	782	782

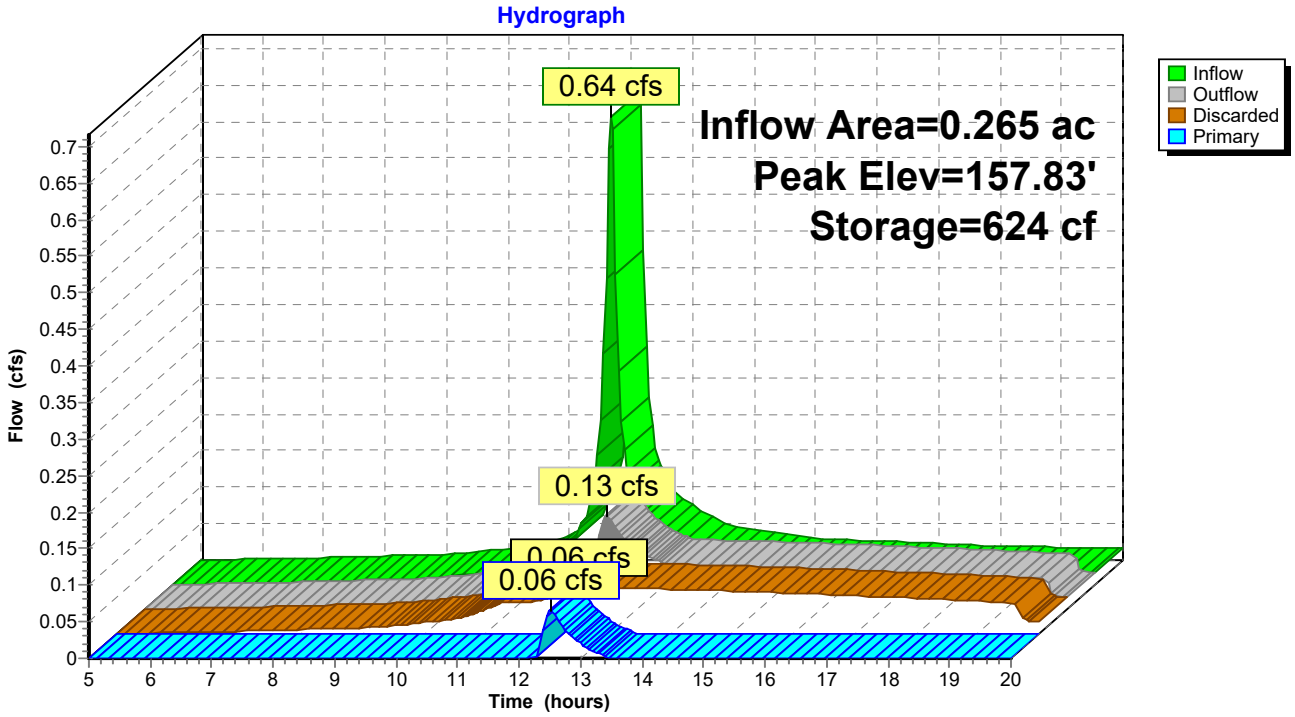
Device	Routing	Invert	Outlet Devices
#1	Discarded	157.00'	**3.000 in/hr Exfiltration over Surface area**
#2	Primary	157.80'	**5.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.06 cfs @ 12.52 hrs HW=157.83' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.06 cfs @ 12.52 hrs HW=157.83' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.06 cfs @ 0.42 fps)



Pond 34P: Sediment Forebay 3



Summary for Pond 37P: Basin 2

[82] Warning: Early inflow requires earlier time span

Inflow Area = 3.947 ac, 4.63% Impervious, Inflow Depth > 0.36" for 10-Year event
Inflow = 0.47 cfs @ 12.13 hrs, Volume= 0.119 af
Outflow = 0.22 cfs @ 13.55 hrs, Volume= 0.087 af, Atten= 53%, Lag= 85.0 min
Primary = 0.22 cfs @ 13.55 hrs, Volume= 0.087 af
Routed to Pond 38P : Sediment Forebay 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 156.73' @ 13.55 hrs Surf.Area= 4,167 sf Storage= 1,731 cf

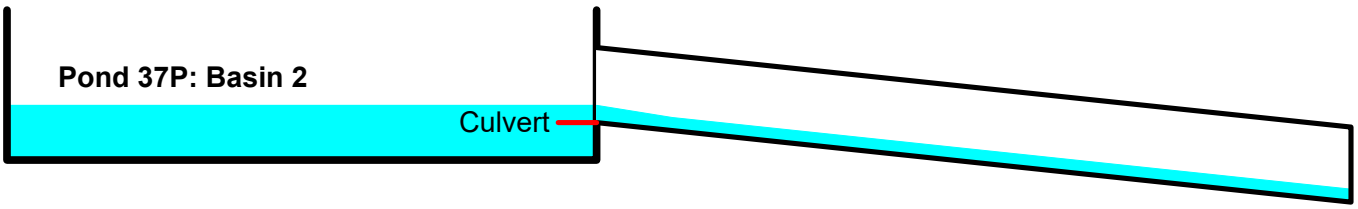
Plug-Flow detention time= 154.2 min calculated for 0.087 af (73% of inflow)
Center-of-Mass det. time= 77.1 min (945.8 - 868.8)

Volume	Invert	Avail.Storage	Storage Description
#1	156.00'	10,623 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

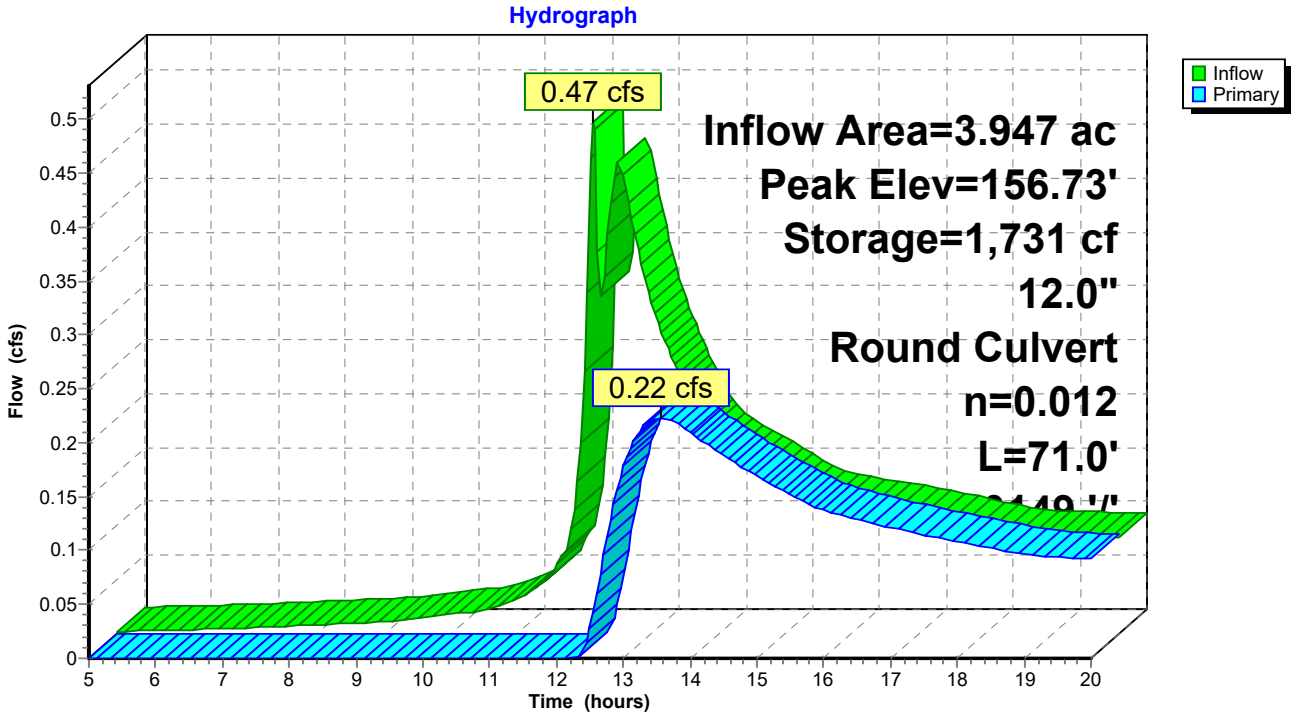
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
156.00	577	0	0
157.00	5,495	3,036	3,036
158.00	9,678	7,587	10,623

Device	Routing	Invert	Outlet Devices
#1	Primary	156.50'	**12.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 156.50' / 155.44' S= 0.0149 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 13.55 hrs HW=156.73' (Free Discharge)
1=Culvert (Inlet Controls 0.22 cfs @ 1.63 fps)



Pond 37P: Basin 2



Summary for Pond 38P: Sediment Forebay 1

[79] Warning: Submerged Pond 16P Primary device # 1 OUTLET by 0.31'
[79] Warning: Submerged Pond 37P Primary device # 1 OUTLET by 0.07'

Inflow Area = 6.811 ac, 20.30% Impervious, Inflow Depth > 0.76" for 10-Year event
Inflow = 4.26 cfs @ 12.14 hrs, Volume= 0.433 af
Outflow = 3.02 cfs @ 12.22 hrs, Volume= 0.338 af, Atten= 29%, Lag= 5.2 min
Primary = 3.02 cfs @ 12.22 hrs, Volume= 0.338 af
Routed to Pond 29P : Basin 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 155.52' @ 12.22 hrs Surf.Area= 4,002 sf Storage= 4,844 cf

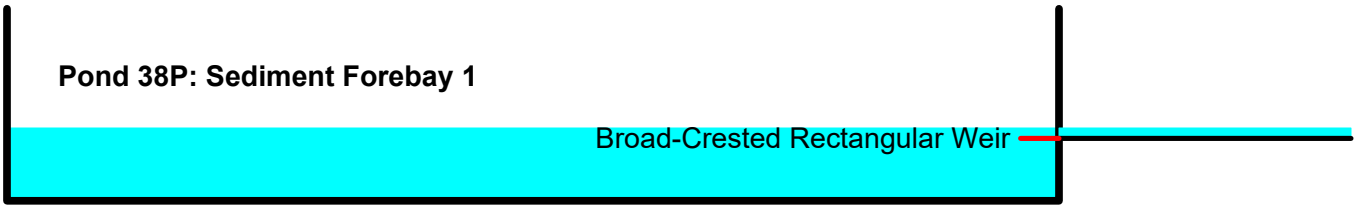
Plug-Flow detention time= 114.9 min calculated for 0.338 af (78% of inflow)
Center-of-Mass det. time= 48.3 min (884.1 - 835.8)

Volume	Invert	Avail.Storage	Storage Description
#1	154.00'	18,315 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

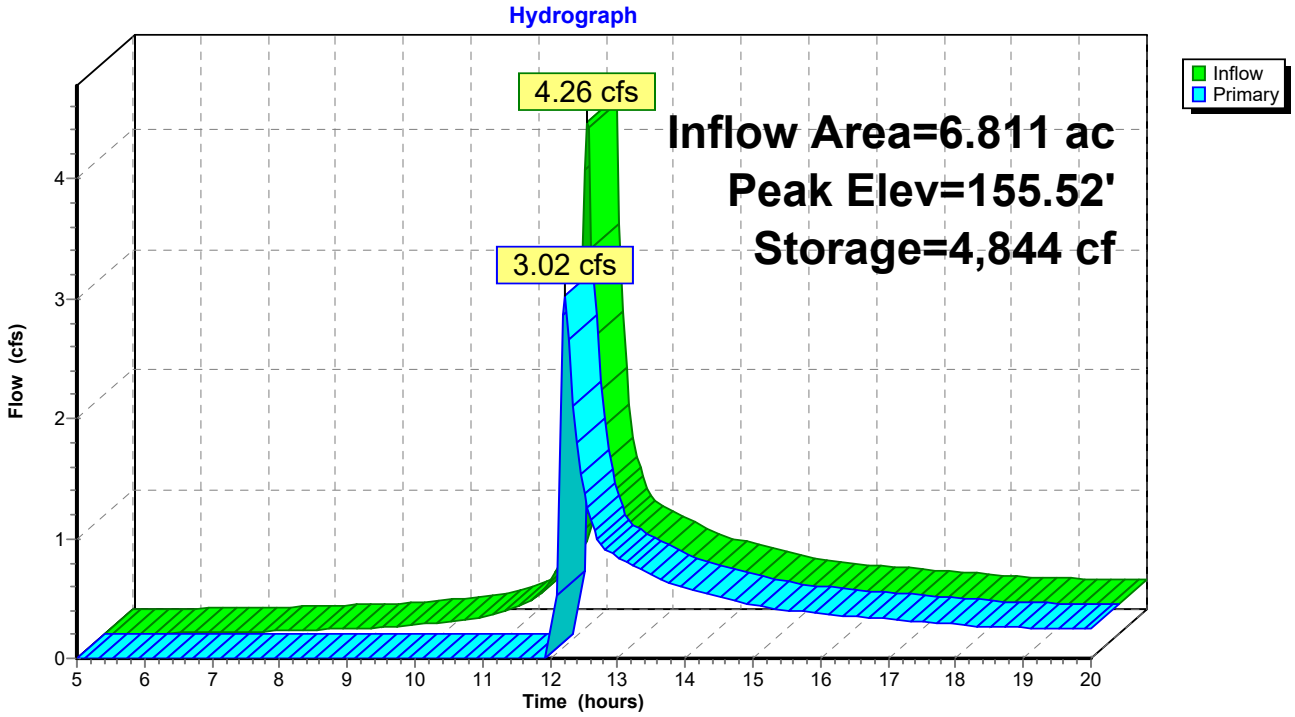
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
154.00	2,385	0	0
156.00	4,517	6,902	6,902
158.00	6,896	11,413	18,315

Device	Routing	Invert	Outlet Devices
#1	Primary	155.30'	**11.5' long x 13.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=2.85 cfs @ 12.22 hrs HW=155.51' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 2.85 cfs @ 1.19 fps)



Pond 38P: Sediment Forebay 1



Summary for Pond 42P: DMH-1

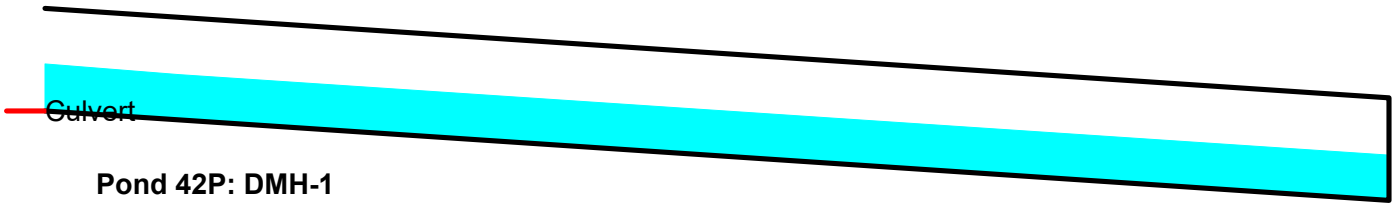
[57] Hint: Peaked at 158.09' (Flood elevation advised)
[79] Warning: Submerged Pond 10P Primary device # 1 OUTLET by 0.60'

Inflow Area = 1.840 ac, 44.79% Impervious, Inflow Depth > 1.30" for 10-Year event
Inflow = 2.22 cfs @ 12.14 hrs, Volume= 0.199 af
Outflow = 2.22 cfs @ 12.14 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min
Primary = 2.22 cfs @ 12.14 hrs, Volume= 0.199 af
Routed to Pond 15P : CB-6

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 158.09' @ 12.14 hrs

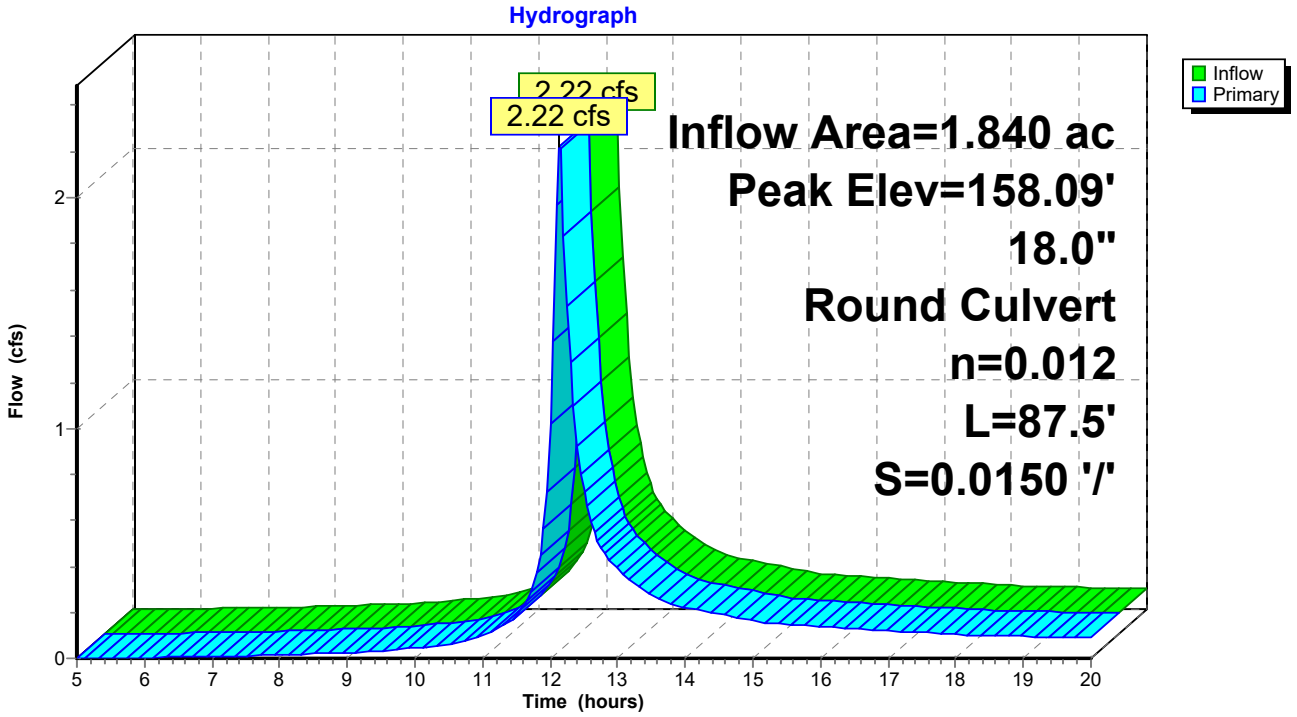
Device	Routing	Invert	Outlet Devices
#1	Primary	157.40'	**18.0" Round Culvert** L= 87.5' Ke= 0.500 Inlet / Outlet Invert= 157.40' / 156.09' S= 0.0150 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.19 cfs @ 12.14 hrs HW=158.08' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.19 cfs @ 2.81 fps)



Pond 42P: DMH-1

Pond 42P: DMH-1



Events for Subcatchment 3S: To M128 L89

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.15**	**0.040**	**0.32**

Events for Subcatchment 5S: Slope to 138/79

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.00**	**0.000**	**0.00**

Events for Subcatchment 11S: CB-4

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.87**	**0.062**	**2.55**

Events for Subcatchment 12S: CB-3

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.85**	**0.059**	**1.96**

Events for Subcatchment 13S: CB-2

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.39**	**0.036**	**0.91**

Events for Subcatchment 14S: CB-1

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.38**	**0.042**	**0.71**

Events for Subcatchment 19S: Entry Left Side

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.46**	**0.034**	**2.91**

Events for Subcatchment 20S: Entry Right side

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.47**	**0.033**	**2.55**

Events for Subcatchment 21S: CB-6

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.51**	**0.037**	**2.63**

Events for Subcatchment 22S: CB-5

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**1.17**	**0.083**	**2.37**

Events for Subcatchment 24S: Direct to Basin 2

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.35**	**0.084**	**0.33**

Events for Subcatchment 30S: Slope to 138/78

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.00**	**0.000**	**0.03**

Events for Subcatchment 33S: Direct to Basin 1

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.66**	**0.126**	**0.52**

Events for Subcatchment 35S: Direct to Pond BR

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.17**	**0.012**	**1.33**

Events for Subcatchment 36S: Direct to Wetland

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.89**	**0.200**	**0.55**

Events for Subcatchment 43S: Slope Face

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.00**	**0.001**	**0.01**

Events for Subcatchment 44S: Direct to Sed Forebay 1

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
10-Year	**4.28**	**0.37**	**0.028**	**0.76**

Events for Reach 2R: M128 L89

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**0.15**	**0.15**	**0.00**	**0**

Events for Reach 4R: MAP 138 LOT 78

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**0.00**	**0.00**	**0.00**	**0**

Events for Reach 6R: MAP 138 LOT 79

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**0.00**	**0.00**	**0.00**	**0**

Events for Reach 8R: Wetland/FES-1

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**1.08**	**1.08**	**0.00**	**0**

Events for Reach 44R: Pipe to Swale

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**0.00**	**0.00**	**170.52**	**0**

Events for Reach 45R: Basin 2 Swale

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**0.00**	**0.00**	**160.00**	**2**

Events for Pond 7P: CB-2

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
10-Year	**0.75**	**0.75**	**166.28**	**0.000**

Events for Pond 8P: CB-1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
10-Year	**0.38**	**0.38**	**166.57**	**0.000**

Events for Pond 9P: CB-3

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
10-Year	**0.85**	**0.85**	**159.47**	**0.000**

Events for Pond 10P: CB-4

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
10-Year	**2.22**	**2.22**	**159.29**	**0.000**

Events for Pond 15P: CB-6

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
10-Year	**2.73**	**2.73**	**156.72**	**0.000**

Events for Pond 16P: CB-5

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
10-Year	**3.89**	**3.89**	**156.45**	**0.000**

Events for Pond 17P: DI-2

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
10-Year	**0.46**	**0.46**	**157.73**	**0.000**

Events for Pond 18P: DI-1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
10-Year	**0.47**	**0.47**	**157.75**	**0.000**

Events for Pond 29P: Basin 1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**3.07**	**0.55**	**155.64**	**9,213**

Events for Pond 34P: Sediment Forebay 3

Event	Inflow (cfs)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**0.64**	**0.13**	**0.06**	**0.06**	**157.83**	**624**

Events for Pond 37P: Basin 2

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**0.47**	**0.22**	**156.73**	**1,731**

Events for Pond 38P: Sediment Forebay 1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
10-Year	**4.26**	**3.02**	**155.52**	**4,844**

Events for Pond 42P: DMH-1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
10-Year	**2.22**	**2.22**	**158.09**	**0.000**

SUBDIVISION APPLICATION

Date of Application: April 22, 2025 Tax Map #: 138 Lot #: 82&88

Site Address: 9 Alvirne Drive, Hudson

Name of Project: Taybre Drive, Hudson

Zoning District: R1&R2 General SB#: _____
(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:	DEVELOPER:
Name: M.R. Lacasse Homes LLC	M.R. Lacasse Homes LLC
Address: 9 Scenic Lane	9 Scenic Lane
Address: Hudson,NH 03051	Hudson,NH 03051
Telephone # 603-321-8374	603-321-8374
Email: michelrlacasse@gmail.com	michelrlacasse@gmail.com

PROJECT ENGINEER:	SURVEYOR:
Name: Hess Engineering and Construction Consultants	Maynard & Paquette Engineering Associates LLC C/O John Yule
Address: 63 West Street, Ashland NH 03217	31 Quincy Street
Address: P.O Box 991, Ashland NH 03217	Nashua NH 03060
Telephone # 603-968-5664	603-883-7227
Email: whess@hessengineeringllc.com; idesmarais@hessengineeringllc.com	

PURPOSE OF PLAN:
This application is for a 9 lot subdivision on Alvirne Drive.

(For Town Use Only)

Routing Date: _____ Deadline Date: _____ Meeting Date: _____

X I have no comments _____ I have comments (attach to form)

SCM Title: Captain Steve McElhinney Date: 05/21/25
(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: X Fire: ___ DPW: ___ Consultant: ___

SUBDIVISION APPLICATION

Date of Application: April 22, 2025 Tax Map #: 138 Lot #: 82&88

Site Address: 9 Alvirne Drive, Hudson

Name of Project: Taybre Drive, Hudson

Zoning District: R1&R2 General SB#: _____
(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:	DEVELOPER:
Name: M.R. Lacasse Homes LLC	M.R. Lacasse Homes LLC
Address: 9 Scenic Lane	9 Scenic Lane
Address: Hudson,NH 03051	Hudson,NH 03051
Telephone # 603-321-8374	603-321-8374
Email: michelrlacasse@gmail.com	michelrlacasse@gmail.com

PROJECT ENGINEER:	SURVEYOR:
Name: Hess Engineering and Construction Consultants	Maynard & Paquette Engineering Associates LLC C/O John Yule
Address: 63 West Street, Ashland NH 03217	31 Quincy Street
Address: P.O Box 991, Ashland NH 03217	Nashua NH 03060
Telephone # 603-968-5664	603-883-7227
Email: whess@hessengineeringllc.com; idesmarais@hessengineeringllc.com	

PURPOSE OF PLAN:
This application is for a 9 lot subdivision on Alvirne Drive.

(For Town Use Only)

Routing Date: _____ Deadline Date: _____ Meeting Date: _____

_____ I have no comments ✓ I have comments (attach to form)

DRH Title: Fire Marshal Date: 5/20/25
(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___ Fire: ✓ DPW: ___ Consultant: ___

Attachment "D"

TOWN OF HUDSON

FIRE DEPARTMENT

INSPECTIONAL SERVICES DIVISION

12 SCHOOL STREET, HUDSON, NEW HAMPSHIRE 03051

Emergency 911
Business 603-886-6005
Fax 603-594-1142

Scott Tice
Chief of Department

TO: Town Planner

FR: David Hebert
Fire Marshal

DT: May 20, 2025

RE: 9 Alvirne Drive

The site plan needs to show the roadway width and the cul-de-sac roadway width.

The site plan needs to show a fire apparatus roadway grade diagram.

The site plan shall show a fire apparatus turning radius diagram.

David Hebert
Fire Marshal

Dubowik, Brooke

From: Dhima, Elvis
Sent: Tuesday, May 20, 2025 2:23 PM
To: Dubowik, Brooke
Subject: RE: Dept. Sign Off - Taybre Drive Subdivision SB# 03-25

One more item

6. Applicant shall include the water main and drainage features on the road profile plan

E

Elvis Dhima, P.E.
Town Engineer

12 School Street
Hudson, NH 03051
Phone: (603) 886-6008
Town of Hudson
NEW HAMPSHIRE 03051

From: Dhima, Elvis
Sent: Tuesday, May 20, 2025 11:52 AM
To: Dubowik, Brooke <bdubowik@hudsonnh.gov>
Subject: RE: Dept. Sign Off - Taybre Drive Subdivision SB# 03-25

Brooke

Please see below

1. Applicant shall provide a current status on the approved state subdivision. Is a revised approval required based on the 2024 soil testing.
2. Applicant shall evaluate the proposed swale location behind proposed Lot 88-1 and 88-2. Applicant should consider moving it further away from the setback to provide more existing tree buffer.
3. Applicant will require a water main extension for this project, subject to Board of Selectmen approval.
4. The sidewalk requirement should be discussed, taking in consideration it will not be plowed by the Town or connected to another sidewalk. Applicant should consider providing a donation towards other sidewalks in Town.
5. Applicant shall update the road grade to 2% minimum, as required.

Elvis Dhima, P.E.
Town Engineer

12 School Street

Attachment "D"

Dubowik, Brooke

From: Twardosky, Jason
Sent: Tuesday, May 20, 2025 1:06 PM
To: Dubowik, Brooke
Subject: RE: Dept. Sign Off - Taybre Drive Subdivision SB# 03-25

Street grade needs to be a minimum of 2% for drainage flow.

SUBDIVISION APPLICATION

Date of Application: April 22, 2025 Tax Map #: 138 Lot #: 82&88

Site Address: 9 Alvirne Drive, Hudson

Name of Project: Taybre Drive, Hudson

Zoning District: R1&R2 General SB#: _____ (For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:

Name: M.R. Lacasse Homes LLC
Address: 9 Scenic Lane
Address: Hudson,NH 03051
Telephone # 603-321-8374
Email: michelrlacasse@gmail.com

DEVELOPER:

M.R. Lacasse Homes LLC
9 Scenic Lane
Hudson,NH 03051
603-321-8374
michelrlacasse@gmail.com

PROJECT ENGINEER:

Name: Hess Engineering and Construction Consultants
Address: 63 West Street, Ashland NH 03217
Address: P.O Box 991, Ashland NH 03217
Telephone # 603-968-5664
Email: whess@hessengineeringllc.com; idesmarais@hessengineeringllc.com

SURVEYOR:

Maynard & Paquette Engineering Associates LLC
C/O John Yule
31 Quincy Street
Nashua NH 03060
603-883-7227

PURPOSE OF PLAN:

This application is for a 9 lot subdivision on Alvirne Drive.

(For Town Use Only)

Routing Date: 5/20/25 Deadline Date: _____ Meeting Date: _____

_____ I have no comments _____ I have comments (attach to form)

_____ Title: Chief Assessor Date: 5-20-25
(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___ Fire: ___ DPW: ___ Consultant: ___

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

APPROVAL FOR SUBDIVISION OF LAND

AS AUTHORIZED BY THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES, WATER DIVISION PURSUANT TO RSA 485-A, WATER POLLUTION AND WASTE DISPOSAL AND ENV-WQ 1000, SUBDIVISION AND INDIVIDUAL SEWAGE DISPOSAL SYSTEM DESIGN

SUBDIVISION APPROVAL DATE: 11/4/2021

APPROVAL NUMBER: eSA2021110407

I. PROJECT LOCATION
Subdivision Name: TAYBRE ESTATES
Address: 9 ALVIRNE DRIVE
HUDSON NH 03051
Tax Map: 168
Parent Lot No.: 82 & 88
No. of Lots: 9
Lot Nos.: 88-1 TO 88-9

II. OWNER INFORMATION
Name: RICHARD MAYNARD
Address: HUDSON FIVE, LLC
31 QUINCY STREET
NASHUA NH 03060

III. APPLICANT INFORMATION
Name: RICHARD A MAYNARD
Address: 31 QUINCY ST
NASHUA NH 03060

IV. DESIGNER INFORMATION
Name: RICHARD A MAYNARD
Address: 31 QUINCY ST
NASHUA NH 03060
Permit No.: 01079

V. SURVEYOR INFORMATION
Name: JOHN W YULE
Address: 87 WEST ST
MILFORD NH 03055
Permit No.: 00813

IV. SPECIFIC TERMS AND CONDITIONS: Applicable to this Approval for Subdivision of Land

A. OTHER CONDITIONS AND WAIVERS:

1. Approved for residential lot 88-1 to 88-9 only.
2. The lot loading is approved based on the current site conditions.
3. Approved with a municipal water supply only.

Darren K. King
Subsurface Systems Bureau

APPROVAL FOR SUBDIVISION OF LAND

V. GENERAL TERMS AND CONDITIONS: Applicable to this Approval for Subdivision of Land

A. By exercising any rights under this approval, the parties have agreed to all terms and conditions.

B. No liability is incurred by the State of New Hampshire by reason of any approval of any Approval for Subdivision of Land. Approval by the Department of Environmental Services of any subdivision of land is based on plans and specifications supplied by the Applicant.

C. This Approval for Subdivision of Land does not supersede any equivalent or more stringent local ordinances or regulations. State standards are minimal and must be met statewide.

Attachment "F"

TOWN OF HUDSON

Planning Board

Timothy Malley, Chairman

12 School Street · Hudson, New Hampshire 03051 · Tel: 603-886-6008 · Fax: 603-594-1142

CAP FEE WORKSHEET - 2025

Date: 05-28-25 Zone # 1 Map/Lot: 138/088-000 & 082-000
9 Alvirne Drive & 190 R Derry Road
Project Name: Taybre Drive Subdivision

Proposed ITE Use #1: (9) Single Family Residential Lots

Proposed Building Area (square footage): N/A S.F.

CAP FEES: (ONE CHECK NEEDED)

1.	**(Bank 09) 2070-701**	**Traffic Improvements**	**$ 2,252.00**
2.	**(Bank 09) 2050-182**	**Recreation**	**$ 400.00**
3.	**(Bank 09) 2080-051**	**School**	**$ 3,578.00**
		Total CAP Fee	**$ 6,230.00**

***** This CAP Fee to be paid prior to issuance of a Certificate of Occupancy. *****

Check should be made payable to the Town of Hudson.

Thank you,

Brooke Dubowik

Planning Administrative Aid II