Easton Staff Development Review
MEETING AGENDA

Wednesday, February 26, 2025 - 11:00 AM
Council Chambers, Easton Town Office
14 S Harrison Street

1. Discussion Items

a.

Application Number:	2025 - 1369 / ESDR 25 - 01
Applicant:	Lane Engineering LLC
Location:	28580 Mary's Court (Somerset Well Drilling) Tax Map 0025, Parcel 0046, Lots 16 & 20
Zoning District:	BC
Request:	Sketch site plan review for the addition of two (2) 3-sided pole buildings with associated stormwater management facilities and other facility improvements.

b.

Application Number:	2025 - 1391 / ESDR 25 - 04
Applicant:	Lane Engineering LLC
Location:	8275 Ocean Gateway Tax Map 0103, Grid 00EA, Parcel 2861
Zoning District:	CG
Request:	Sketch site plan review for the redevelopment of the existing property and structure to be converted to a fast-food establishment (Zaxbys).

TOWN OF
EASTON
Project Status

Date: 1/24/2025
Project Name: Somerset Well Drilling
Project Address: 28580 Marys Court
Description of Project: (2) 9,000 SF storage buildings, gravel access, SWM, abandonment of existing SDA, utility connections, reservation of (2) 8,000 SF future building locations. A subdivision of the site is anticipated but not currently submitted to the Town.

Applicant: Brittany Wallace
Applicant Email: bwallace@leinc.com
Applicant Phone Number: 4108228003

Engineer: Brittany Wallacee
Engineering Firm: Lane Engineering
Contact: bwallace@leinc.com

Owner of Property: Mike Hall
Owner Email: mike@somersetwell.com
Owner Phone Number: 4437839950

Submission History:
- 2024-08-28 ESDR Submission (Text Amendment - Rezoning) - Determination and Comments Returned 2024-8-28
- 2024-9-19 Planning Commission (Text Amendment - Rezoning) Determination Returned 2024-9-24
- Town Council (Text Amendment - Rezoning) - Ordinance
- 1/22/2025 ESDR Submission (Sketch Site Plan) – Determination and Comments returned 1/24/2025

Approval Status:
- ☑ Growth Allocation - County Approval Bill 1551 1/2/2024
- ☑ Growth Allocation - Council Approval Ordinance 807 4/23/2024
- ☑ Growth Allocation - CAC approved 11/8/2024
- ☑ ESDR (Text Amendment - Rezoning) 8/28/2024 approved for PC
- ☑ Planning Commission (Text Amendment - Rezoning) 9/19/2024 Positive recommendation for Council
- ☑ Town Council (Text Amendment - Rezoning) 11/18/2024 Ordinance 836
- ☑ ESDR - Sketch Site Plan Resubmittal Required
- ☐ Planning Commission
- ☐ Fees Paid
- ☐ Site Development Review
- ☐ Subdivision Plat Review
- ☐ Soil Conservation Approval
- ☐ Easement Exhibits Provided Prior to Final Approval
- ☐ Site Plan Approval
- ☐ Legal Documents Recorded
- ☐ Sureties Posted
- ☐ Plat Recorded

Review Fees Required:

- ☑ Site Plan Review $2,700 Paid 1/2/2025
- ☑ Zoning Map / Text Amendment $5,000 Paid 8/5/2024
- ☑ Growth Allocation $5,000 Paid 9/16/2020
- ☐ Critical Area $150
- ☑ SWM Plan Review $3,000 Paid 1/2/2025
- ☐ Capital Charges - Contact EU
- ☐ Building Permit - Contact BID
- ☐ Impact Fees - TBD
- ☐ Subdivision $800
- ☐ As-Built Review & Inspections -$300

Sureties Required

SWM $TBD
ROW $TBD
Forest Conservation $TBD

Legal Documents Required

Declaration of Covenants
Public Works Agreement
Sidewalk Easement
Utility Easement
Conditions and Restrictions for Stormwater
SWM Easement
Forest Conservation TBD

Notes from Town Staff:

The sketch site plan is expected to be resubmitted for a subsequent ESDR review prior to attending a Planning Commission meeting.

Attached please find:

- ESDR Determination Letter
- P&Z review comments
- TOE Engineering Comments
- EUC Review Comments
- TCHD Review Letter
- Building Department Review Letter
- EVFD Review Letter
- CAC Submission receipt

TOWN OF EASTON
Planning & Zoning Department
14 South Harrison Street
P.O. Box 520
Easton, Maryland 21601

Easton Staff Development Review Worksheet

Date: January 22, 2025
Project: 28580 Mary's Court
To: Brittany Wallace, Lane Engineering, LLC.
CC: Somerset Well Drilling Co., Inc % Mike Hall

The Easton Staff Development Review (ESDR) Committee meeting was held on January 22nd at 11:00 am. Staff reviewed the proposed Site Sketch Plan for a proposed addition of two 3-sided pole buildings for storage and gravel access with associated SWM, removal of existing septic system, installation of a new grinder pump and force main system and abandonment of two existing sewage reserve areas, located at 28580 Mary's Court, Lots 16 & 20, also known as Tax Map 025, Parcel 46.

The Committee determined that the project will need to address all agency comments as specified in the attached review letters and at ESDR. It was determined by the Committee that due to the additional changes required by the Committee, the application will return to the next available ESDR meeting. Please submit all revised documents.

At this time, based on the ESDR sketch plan submission, Staff did not identify any constraints which would require action by the Board of Zoning Appeals.

The next Easton Staff Development Review (ESDR) meeting is scheduled for **Wednesday, February 26, 2025 at 11:00 am.** Submit all documentation to the Planning and Zoning Department no later than Wednesday, February 5th at 12:00 pm. Provide a digital submittal (via email) of all supporting documents necessary for the ESDR review, including **three paper copies**.

Please contact the Planning & Zoning Department at 410 822-1943 with any questions.
Sincerely,

Joseph A. Mayer
Plan Reviewer

TOWN OF EASTON
PLANNING & ZONING DEPARTMENT
P.O. Box 520
Easton, Maryland 21601
410-822-1943
www.EastonMD.gov

DATE: **January 22, 2025**
TO: **Brittany Wallace –** Lane Engineering, LLC. (Agent)
Mike Hall - % Somerset Well Drilling Co., Inc. (Owner)
Cc: **Miguel Salinas –** Director of Planning & Zoning Department
Rick VanEmburgh – Town Engineer

FROM: **Joseph A. Mayer -** Plan Reviewer, Planning & Zoning Department
SUBJECT: **28580 Mary's Court, Lots 16 & 20**

We reviewed the **January 2, 2025** Sketch Plan Submittal for the Subject Project and have the following comments:

PLANNING & ZONING COMMENTS

Sketch Site Plan Review #1

1. Per Appendix B, Sketch Plan Submittal Checklist requires *conceptual building elevations or renderings illustrating the character, scale, and materials of all proposed structures. Such elevations or renderings shall be sealed by a licensed professional as described above.* Provide a color elevation for the exterior of the proposed buildings.

2. The ESDR Application indicates two three-sided pole buildings. The architectural plans depict a four-sided building with garage doors. Please revise.

3. Per Appendix B, Sketch Plan Submittal Checklist, show the location of the refuse collection for the proposed buildings.

4. Per Chapter 28-1007.3.A.6 of the Zoning Code, Include a statement regarding *"the nature of the proposed use, its expected impact on its surrounding area, expected truck traffic, and any other information necessary to provide a fair and accurate assessment of the impacts of the proposed use on the subject property and the surrounding area."*

5. Show the truck loading space location and its dimensions on the sketch plan. Each loading space shall be not less than ten (10) feet in width and forty-five (45) feet in length, and shall have a minimum overhead clearance of fourteen (14) feet.

6. Per item #8 on the Appendix B-1 Submittal Checklist and Chapter 28-901.3 A 1 of the Zoning Code, show the location of proposed fencing on the sketch plan. Indicate the

type of fencing and its minimum height.

7. Show all entrance and garage locations to proposed buildings on all plan views.
8. Provide dimensions between the building units (existing, proposed & future) and property lines.
9. Label all existing road paving widths on all plan views.
10. Dimension the width of the proposed gravel pavement.
11. Revise *Development Data *Note* on Existing Conditions Plan, sheet 1 of 2, to reference the Critical Area Commission's condition of obtaining approval within the 120 days of the Commission's approval dated November 6, 2024.
12. Revise *Development Data Phasing Note* on Existing Conditions Plan, sheet 1 of 2, elaborate more in detail if the drive aisles and parking facilities for future buildings 'C' and 'D' will be constructed during Phase 2.
13. The *Project Notes* and *Comprehensive Plan Design Principles Response Narrative* have overlapping text on the Existing Conditions Plan, sheet 1 of 2. Revise text for legibility.
14. Per Appendix B, Sketch Plan Submittal Checklist, *general location and description (r.e. intended function, proposed species, etc.) of proposed landscaping.* Describe the species for the proposed shrub hedge.
15. There are two designated existing parking facilities. The minimum number of accessible parking spaces must be determined separately for each parking facility. (§ 208.3 from the ADA Standards for Accessible Design). Show the existing parking spaces for the two parking facilities and provide the minimum number of accessible parking spaces (§ 208.2). Please revise all site plan views. In addition, will the required parking for proposed building 'A' and 'B' be utilized within the existing parking lots?
16. Revise the *Parking Required* within the Development Data on the Existing Conditions Plan, sheet 1 of 2, to include the existing parking requirements
17. Prior to Development Site Plan approval, verify and add slope information for all ADA spaces, ramps, access aisles and landing areas. Check all ADA related spot elevations and obtain approval from the Building Inspection Department.
18. Prior to Development Site Plan approval, provide Van Accessible ADA Parking Sign Detail to include the sign "*No Parking in Access Aisle*" with an arrow pointing to the access aisle, place bollards at ADA aisles adjacent to the buildings with details and dimension between the bollards to verify ADA access.

Plan Review Status

Sketch Site Plan Review			Comments
Plans Approved	☐Y	☒ N	Please review the comments above. Revise and resubmit.
Forest Stand Delineation & Forest Conservation Plan			
☐ Required ☐ Submitted ☒ **Approved**			***The Easton Forest Conservation Requirements of the Town Code, Article III, § 31-3.1 Relevance, states that the requirements are applicable to any person making application for a subdivision, project plan, grading, or sediment and erosion control approval on units of land 40,000 square feet or greater after the effective date of the Ordinance.*** **Analysis** - The development of this site has already been mitigated for Forest Conservation under the 1997 Forest Conservation Plan, recorded on record plat MAS 4/35G. Any impact into the existing Forest Conservation area would require an updated plan. **See the Critical Area Commission requirements below for the Forest Protection Areas.**
Other			
☒ **Required** ☐ Submitted ☐ Approved			**IMPACT FEES** **Please note, any future buildings will require Impact Fees. The Town's Impact Fees and Inspection Fees are to be paid upon the time you pick up your Building Permit. Please provide building square footage with appropriate use for calculation of Impact Fee.** **Any required Talbot County Impact Fees are due prior to obtaining your Building Permit. Please provide receipt of payment to the Town's Building Inspection Division.** **Demolition Permit Application** **To be submitted to the Building Inspection Division for review.** **Fence Permit Application** **To be submitted to the Building Inspection Division for review.** **Critical Area Commission** ***On November 6, 2024, the Critical Area Commission concurred that the growth allocation request could be reviewed as a refinement to the Town's Critical Area program. At that same meeting, the growth allocation request to redesignate 8.348 acres of land from Resource Conservation Area (RCA) to Intensely Developed Area (IDA), as provided on the site plan and accompanying materials accepted by Commission staff on August 13, 2024, with the following conditions:*** ***1. All areas of forest on Lots 16 and 20 shall be placed in a Forest Protection Area easement (excluding the existing Drainage Easement and Stormwater Management Easement).*** ***2. The remaining areas of Buffer on Lot 16 shall be fully established in accordance with COMAR 27.01.09 and §28-401.4 of the Town of Easton's Zoning Code.*** ***3. Within 120 days of Commission approval, the Town shall submit the following to Commission staff:*** ***a. A copy of the recorded line revision plat showing:***

	I. The consolidation of Lots 20 and 16; ***Ii. The new zoning designation of revised Lot 16; and*** ***Iii. The revised Forest Protection Area encompassing all existing forest onsite (excluding the existing Drainage Easement and Stormwater Management Easement) and the area of Buffer establishment on Lot 16.*** ***b. A Buffer Management Plan in accordance with COMAR 27.01.09 showing full Buffer establishment on Lot 16 and its inclusion in the Forest Protection Area and a signed Planting Agreement Form.*** ***c. A copy of all final reviews or authorizations regarding stormwater management, sediment and erosion control, and DNR Wildlife and Heritage Service (WHS).*** **Analysis -** Please submit all required items and obtain approval/recordation prior to the 120 days of Critical Area Commission approval dated November 6, 2024.

Please contact me if you have any questions. Thank you.

TOWN OF
EASTON
ENGINEERING DEPARTMENT

DATE: **January 22, 2025**

TO: **Brittany Wallace - Lane Engineering**

cc: **Sierra Clem - Town of Easton**

FROM: **Rick Van Emburgh, P.E. – Town Engineer**

SUBJECT: **Somerset Well Drilling**
Sketch Site Plan &
Sketch Stormwater Management Plan

I reviewed the Application for the Subject project received on 1/02/2025.

The **Sketch Site Plan and Sketch Stormwater Management Plan should be revised to address the following before Planning Commission:**

1. POI#3 indicates an increase in runoff . Please revise.
2. Provide Critical Area 10% Rule Calculations in the form of the State Spreadsheet for each of the 3 Drainage Areas. The RR Required and Provided should be added to the ESD SUMMARY CHART on Sheet 2 of 2.

Please address the comments above and submit a revised Sketch Site Plan and Sketch Stormwater Management Plan.

END OF DOCUMENT

P.O. Box 520, Easton, Maryland 21601
410-820-8822
Engineering@EastonMD.gov - www.EastonMD.gov

TOWN OF EASTON

PO Box 520
Easton, Maryland 21601
(410)-822-2526 Fax (410)-822-8738

Office of Building Inspection.

ESDR- Building Inspection and Permit Department Comments

Date: January 21, 2025

Project; 28520 Mary's Court Somerset Well Drilling Co.

A Town of Easton Building Permit is required for all new construction.
Information regarding Building Construction is not the same as listed in your application.

Contact this Department and verify current Building Codes including the Town of Easton's modifications prior to preparation of Building plans.

The following lists items required on the construction drawings in order to apply for a Building Permit for a three sided open storage building.

- Construction Documents (3 sets) for any new construction will be required. Documents must be prepared by a registered Maryland Registered Architect, with original plans signed and sealed. A code analysis completed by a Registered Maryland Architect including, classification (use group), construction type, and occupant loads must be completed and included with the application materials.
- An appointment may be set up with this department to review your permit application materials prior to permit application submission.

TALBOT COUNTY HEALTH DEPARTMENT

PHONE: (410) 770-6880

OFFICE OF ENVIRONMENTAL HEALTH
215 BAY STREET, SUITE 4, EASTON, MD 21601
Karine Ireland, Interim Health Officer
Brennan E. Greene, LEHS, Director

FAX: (410) 770-6888

MEMORANDUM

TO: Samantha Smith
Town of Easton, Planning and Zoning Department

FROM: Brennan E. Greene, LEHS BEG
Director of Environmental Health

DATE: January 8, 2025

SUBJECT: Site Plan Review, St. Mary's Court, Somerset Well Drilling
28580 St. Mary's Court, Easton, MD 21601
Tax Map: 25, Parcels: 46, Lots 16 & 20

RE: January 2025 Review and Comments

Based on review of the above referenced site plan that has been completed by this office, the following comments are provided:

1. Sewage Disposal Areas (SDAs) should be abandoned prior to issuance of building permits that may infringe upon the SDAs. As per COMAR 26.04.02.04(E) any SDAs shall be "*...exclusive of easements, rights-of-way, buildings, and any other permanent or physical objects…*"
2. Abandonment of the on-site sewage disposal system (OSDS) on lot 16 should be accomplished by a licensed septic installer in Talbot County. A list of licensed septic installers can be found on our website here: https://talbothealth.org/environmental-health/septic-systems-sewage/
    a. Additionally, abandonment of the OSDS should only be performed under permit of a sanitary construction permit. Applications can be found on the website above and have no cost for the purposes of abandonment. Inspection should still be completed by a licensed environmental health specialist from this Office after the sanitary construction permit is issued.
3. The existing drinking water supply well should be abandoned by a licensed well driller. A copy of the abandonment report should be submitted to this Office for review.
4. A lot line revision for the removal of the lot line between lots 16 & 20, as well as the abandonment of the SDAs, should be submitted to this Office for review and comment. The cost of a minor line revision plat by this office is $100 at this time.

Please contact this office with any questions concerning the above referenced comments.

EASTON UTILITIES

Life. Made better.™

Easton Utilities Commission

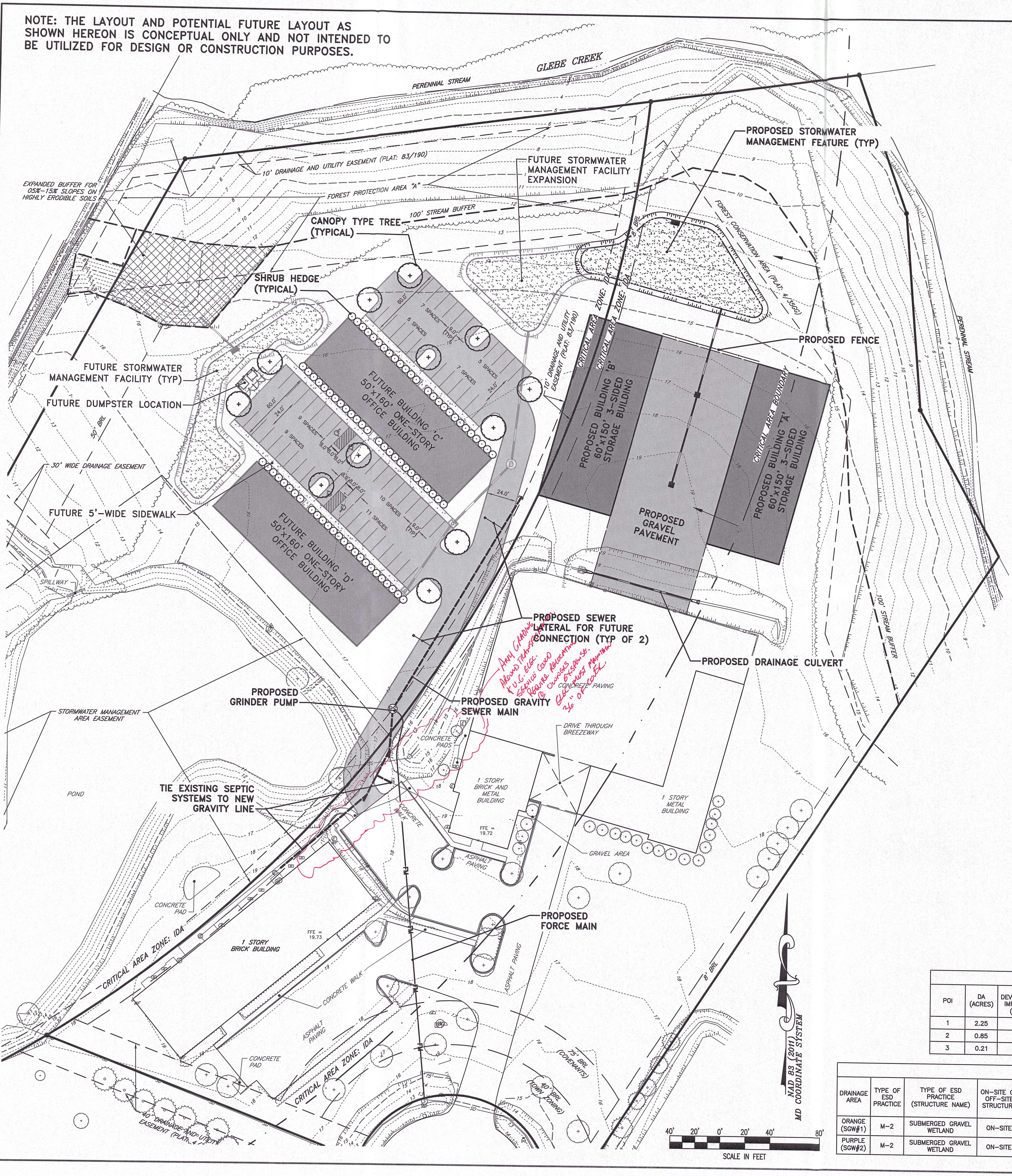
Plan Review Comments

Date: Wednesday, January 22, 2025
To: Sierra Clem, Nancy Pinkney
From: Kia Gibbs on behalf of Aaron Goller, PE **No. of Pages:** 2
Regarding: Somerset Well Drilling (28580 Mary's Ct)
Phase: Sketch Site Plan **SUBM:** 1 **Status:** Approved as Noted

Easton Utilities Commission has reviewed the above referenced plans and have provided the following comments. Please provide your corrections as listed below. Additional reviews will be required to ensure comments have been addressed. Items or documents not provided on initial submission will be subject to further review. Please contact Kia Gibbs, Admin Support at kgibbs@eucmail.com should you have any questions.

ITEM:	DRAWING / PAGE	COMMENTS:
1	2 of 2	See Electric Comments

NOTE: THE LAYOUT AND POTENTIAL FUTURE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR DESIGN OR CONSTRUCTION PURPOSES.



LANDSCAPE REQUIREMENTS § 1014.6.C. (STREET TREES)

1. 1 TREE PER 70' STREET FRONTAGE = 231'± (ALONG MARYS COURT) LESS ENTRANCE (40') = 173'/70' = 3 TREES REQUIRED – 3 EXISTING TREES PROVIDED

LANDSCAPE REQUIREMENTS § 1014.6.F. (ON-SITE)

1. OVERALL TREES– 1 TREE/3000 SF OF DISTURBED AREA– 147,554 SF±/3000 SF = 50 TREES REQUIRED; EXISTING TREES ON-SITE MEET OR EXCEED THE REQUIREMENT; NONE REQUIRED.

2A. INTERIOR PARKING LOT PLANTINGS– 1 TREE PER 10 SPACES; 57 SPACES/ 10 = 6 TREES REQUIRED/ PROVIDED

2B. PARKING HEDGE– SHALL BE PROVIDED.

2C. BUILDING FAÇADE PLANTINGS– 1 TREE/20' OF AFFECTED FAÇADE; NOT APPLICABLE, FACADE OF PROPOSED AND FUTURE BUILDINGS ARE SHIELDED BY EXISTING BUILDINGS AND LANDSCAPE.

2D. SERVICE/ LOADING AREAS– TOWN COMPLIANT ENCLOSURE, SCREENED AS SHOWN HEREON.

2F. BUFFERYARDS: NONE REQUIRED.

LANDSCAPE KEY

- 2" CALIPER MINIMUM CANOPY OR STREET TREES (OAK, MAPLE TYPES)
- SHRUB HEDGE
- STORMWATER MANAGEMENT ESD LANDSCAPING MASS / PERENNIAL MIX WITH SHRUBS AND GRASSES

LEGEND

- HVAC UNIT
- SANITARY SEWER CLEAN OUT
- SANITARY SEWER MANHOLE
- TELEPHONE PEDESTAL
- FIRE HYDRANT
- DRINKING WATER SUPPLY WELL
- WATER METER
- WATER VALVE
- WATER FAUCET
- ELECTRIC OUTLET
- ELECTRIC TRANSFORMER
- ELECTRIC METER
- ELECTRIC HANDHOLE
- LAMP POLE
- UTILITY POLE
- OVER HEAD UTILITY LINES
- TOP OF BANK
- BOTTOM OF BANK
- MAJOR CONTOUR
- MINOR CONTOUR
- APPROXIMATE TREE LINE
- TOWN ZONING LINE
- COMPUTED POINT
- IRON ROD FOUND
- IRON ROD SET
- SEWAGE DISPOSAL AREA
- PROPOSED E-ONE GRINDER PUMP
- PROPOSED FORCE MAIN

SWM QUANTITY SUMMARY CHART

POI	DA (ACRES)	POST DEVELOPMENT IMPERVIOUS (ACRES)	RCN	Tc (MINUTES)	PRE 2 YEAR	POST 2 YEAR	WSE	PRE 10 YEAR	POST 10 YEAR	WSE	PRE 100 YEAR	POST 100 YEAR	WSE
1	2.25	1.38	--	--	2.22	0.00	--	4.69	0.65	--	7.86	6.46	--
2	0.85	0.43	--	--	0.45	0.00	--	0.95	0.10	--	1.60	2.09	--
3	0.21	0.05	--	--	0.36	0.39	--	0.76	0.75	--	1.27	1.15	--

ESD SUMMARY CHART

DRAINAGE AREA	TYPE OF ESD PRACTICE	TYPE OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN)	ACTUAL PE (IN)	TARGET ESDv (FT^3)	ACTUAL ESDv (FT^3)
ORANGE (SGW#1)	M-2	SUBMERGED GRAVEL WETLAND	ON-SITE	89	401492.7738'	1580118.8427'	2.25	1.38	0.23	2	2.4	9,857	11,814
PURPLE (SGW#2)	M-2	SUBMERGED GRAVEL WETLAND	ON-SITE	86	401537.4268'	1579725.9363'	0.86	0.43	0.09	1.8	3.0	2805	4,676

APPROVED: PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER DATE

APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE

APPROVED: PLANS ARE NOT APPROVED FOR CONSTRUCTION
EASTON UTILITIES – ENGINEER DATE

REVISIONS

No.	DATE	DESCRIPTION	BY

WARNING!!
THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE QUANTITIES SHOWN ON THIS PLAN ARE FOR INFORMATIONAL AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.

THE CONTRACTOR SHALL TEST PIT AND LOCATE EXISTING UNDERGROUND UTILITIES PRIOR TO THE BEGINNING OF ANY WORK ON-SITE. THE CONTRACTOR SHALL NOTIFY DEPT. OF PUBLIC WORKS OF ANY POSSIBLE CONFLICT AND REQUEST THE RELOCATION OF THE EXISTING UNDERGROUND UTILITIES BEFORE BEGINNING ANY WORK ON-SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.

MISS UTILITY
DIG WITH CARE – CALL MISS UTILITY – KEEP MARYLAND SAFE
BEFORE YOU DIG CALL 1-800-441-8355 OR 811
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E-mail: general@leinc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 60891 , Expiration Date: 04/13/2025.

SEAL

DATE

SKETCH SITE PLAN

SOMERSET WELL DRILLING
28580 MARYS COURT

IN THE TOWN OF EASTON, WARD 1
TALBOT COUNTY, MARYLAND
TAX MAP 25, PARCEL 46, LOTS 16 & 20

ISSUED FOR: ESDR REVIEW — DATE: 01/01/25 — BY: JSC

SHEET No. 2 OF 2 | DATE: 01/01/25 | JOB No. 240060
SCALE: AS NOTED | FILE No. A037

Date: 01/02/2025 – 11:36am User: bwallace Project Manager: TWG

Re: Quick Update: 28580 Mary's Court (Somerset Well Drilling) January ESDR

1 message

Daryl Caldwell <1st.lieutenant@eastonvfd.org> Sat, Jan 18, 2025 at 11:14 AM
To: Samantha Smith <ssmith@eastonmd.gov>

Good Morning

I am (Assist Chief Daryl Caldwell) from the Easton Vol. Fire Department. We only have a few concerns about the project. The following concerns will be listed.

1.). Please make sure the Sprinkler system and please make sure the connection.

2.) Make sure it is MARKED and VISIBLE for the Sprinkler system.

3.) Make sure the electrical room is MARKED AND VISIBLE.

4.) Make sure the roads are wide enough for our fire apparatus.

5.) A sign that indicates NOT TO BLOCK THE SPRINKLER CONNETION.

Thank you

Assist Chief Daryl Caldwell
Easton Vol. Fire Department.

---- On Thu, 02 Jan 2025 12:51:09 -0500 **Samantha Smith via Smartsheet <user@app.smartsheet.com>** wrote ---

Good afternoon,

Please find the submission items for "28580 Mary's Court - Somerset Well Drilling" for January ESDR review. All comments are due by January 20th. Paper copies will be provided for EUC and TCHD.

Thanks,

Sam

28580 Mary's Court - Somerset Well Drilling

Row 32

Primary Column	Application and Plans
Date Received	01/02/25
Date Due	
Date Completed	
Item Status	
Item Complete	☐

Attachments

- 2024.12.19 Building Plans.pdf (3M) (Row 32)
- 2025.01.01 Illustrative Site Plan.pdf (2M) (Row 32)
- 2025.01.01 Sketch Site Plan.pdf (1M) (Row 32)
- 2025.01.02 ESDR Application.pdf (357k) (Row 32)
- 2025.01.02 Site Plan Application.pdf (249k) (Row 32)
- 2025.01.02 Sketch Site Plan Checklist.pdf (75k) (Row 32)
- 2025.01.02 Sketch SWM Plan Checklist.pdf (136k) (Row 32)
- December 2024 Concept SWM Narrative.pdf (3M) (Row 32)

View in Smartsheet

Joe Mayer <jmayer@eastonmd.gov>

Successfully submitted request: Somerset Well Drilling - 28580 Mary's Court

1 message

CAC Admin <cacadmin.dnr@maryland.gov> Wed, Jan 8, 2025 at 8:13 AM
To: "jmayer@eastonmd.gov" <jmayer@eastonmd.gov>

Thanks Joseph Mayer,
Your request to the Critical Area Commission has been successfully submitted. We will reach out to you if any further information is needed.

Local Case Number:
Project Name: Somerset Well Drilling - 28580 Mary's Court

Please contact (410) 260-3460 or cacadmin.dnr@maryland.gov if you have any questions.

Files attached to request (10):
2025.01.02 Sketch Checklists.pdf : 206 KB
2024.12.19 Building Plans.pdf : 3 MB
2024.12.19 Concept SWM Narrative.pdf : 3 MB
2025.01.01 Illustrative Site Plan.pdf : 2 MB
00-CAC-projectnotificationform.pdf : 3 MB
00-CAC-Transmittal.pdf : 263 KB
2025.01.02 ESDR Application.pdf : 356 KB
2025.01.02 Site Plan Application.pdf : 260 KB
2024.11.08 CAC Approval Letter.pdf : 144 KB
2025.01.01 Sketch Site Plan.pdf : 1 MB

Joe Mayer <jmayer@eastonmd.gov>

Somerset Well Drilling - 28580 Mary's Court

1 message

Ann Sekerak -DNR- <ann.sekerak@maryland.gov> Fri, Jan 24, 2025 at 11:18 AM
To: Joe Mayer <jmayer@eastonmd.gov>
Cc: Margaret White -DNR- <margaret.white@maryland.gov>

Hi Joe -

Thank you for providing information regarding the above-referenced site plan to our office for review. We note that this site was approved for growth allocation per the letter dated November 8, 2024 (attached). The applicant cannot receive a permit for the proposed project until all conditions of approval, as outlined in the attached letter, have been met.

In addition, we note that the project must meet all Critical Area requirements for development in the Intensely Developed Area (IDA), including the 10% Rule.

Please accept this email as our official review. Let me know if you have any questions.

Thank you!
Annie

Critical Area Commission for the
Chesapeake & Atlantic Coastal Bays
dnr.maryland.gov/criticalarea

Annie Sekerak, AICP
Natural Resources Planner
Critical Area Commission for the
Chesapeake & Atlantic Coastal Bays
1804 West Street, Suite 100
Annapolis, MD 21401
410-260-3466 (office)
667-500-2027 (cell)
ann.sekerak@maryland.gov

CAC Approval Letter_Cohee Growth Allocation.pdf
145K

STATE OF MARYLAND
CRITICAL AREA COMMISSION
CHESAPEAKE AND ATLANTIC COASTAL BAYS

November 8, 2024

Mr. Miguel Salinas
Town of Easton Planning and Zoning
14 South Harrison Street
Easton, MD 21601

Re: Cohee Growth Allocation
Town of Easton Ordinance No. 807
Talbot County Bill No. 1551 (Supplemental Growth Allocation)

Dear Mr. Salinas:

The purpose of this letter is to officially notify you of the Critical Area Commission's action on the above-referenced growth allocation, which is an amendment to the Town of Easton's Critical Area map. On November 6, 2024, the Critical Area Commission concurred with my determination that the growth allocation request could be reviewed as a refinement to the Town's Critical Area program. At that same meeting, I approved the growth allocation request to redesignate 8.348 acres of land from Resource Conservation Area (RCA) to Intensely Developed Area (IDA), as provided on the site plan and accompanying materials accepted by Commission staff on August 13, 2024, with the following conditions:

1. All areas of forest on Lots 16 and 20 shall be placed in a Forest Protection Area easement (excluding the existing Drainage Easement and Stormwater Management Easement).

2. The remaining areas of Buffer on Lot 16 shall be fully established in accordance with COMAR 27.01.09 and §28-401.4 of the Town of Easton's Zoning Code.

3. Within 120 days of Commission approval, the Town shall submit the following to Commission staff:
    a. A copy of the recorded line revision plat showing:
        i. The consolidation of Lots 20 and 16;
        ii. The new zoning designation of revised Lot 16; and
        iii. The revised Forest Protection Area encompassing all existing forest onsite (excluding the existing Drainage Easement and Stormwater Management Easement) and the area of Buffer establishment on Lot 16.
    b. A Buffer Management Plan in accordance with COMAR 27.01.09 showing full Buffer establishment on Lot 16 and its inclusion in the Forest Protection Area and a signed Planting Agreement Form.

c. A copy of all final reviews or authorizations regarding stormwater management, sediment and erosion control, and DNR Wildlife and Heritage Service (WHS).

Please note that the map designation change must be reflected on the Town's Critical Area map within 120 days of the completion of the above conditions. Once finalized, please forward an electronic file with the Town's updated Critical Area designation layer showing this parcel with the new Critical Area designation so that Commission staff can incorporate the change into the Critical Area map update layer.

On behalf of the Critical Area Commission and its staff, I would personally like to thank you for your help and cooperation throughout the growth allocation process. If you have any questions, you may contact Annie Sekerak at (410) 260-3466 or ann.sekerak@maryland.gov.

Sincerely,

Erik Fisher, AICP
Chair

Lane Engineering, LLC

Established 1986

Civil Engineering • Land Planning • Land Surveyors

15 Washington Street
Cambridge, Maryland 21613
Tel 410-221-0818
Fax 410-476-9942

117 Bay Street
P.O. Box 1767
Easton, Maryland 21601
Tel 410-822-8003
Fax 410-822-2024

354 Pennsylvania Avenue
Centreville, Maryland 21617
Tel 410-758-2095
Fax 410-758-4422

February 4, 2025

Mr. Joeseph Mayer
Plan Reviewer
Town of Easton
14 South Harrison Street
Easton, MD 21601

Subject: 28580 Mary's Court – Somerset Well Drilling Co, Inc.
Lane Project No. 240060
Lane File No. A037

Dear Mr. Mayer,

The following is a point-by-point response to the comment letters dated January 22, 2025. On behalf of our client, we are pleased to provide the Town with our detailed responses to comments which correspond to our re-submission of revised site construction plans and other miscellaneous attachments.

For ease of reference, the Town's comments have been reiterated below with our detailed responses included in *italics*.

ENGINEERING DEPT COMMENTS:

1. POI#3 indicates an increase in runoff . Please revise.

The proposed grading has been modified to reduce the overall drainage area to POI #3, resulting in a decrease in post-development runoff for all storm events.

2. Provide Critical Area 10% Rule Calculations in the form of the State Spreadsheet for each of the 3 Drainage Areas. The RR Required and Provided should be added to the ESD SUMMARY CHART on Sheet 2 of 2.

The CAC spreadsheet is now included in the stormwater narrative. A digital copy is also included in the submittal package

PLANNING & ZONING DEPT COMMENTS:

1. Per Appendix B, Sketch Plan Submittal Checklist requires conceptual building elevations or renderings illustrating the character, scale, and materials of all proposed structures. Such elevations or renderings shall be sealed by a licensed professional as described above. Provide a color elevation for the exterior of the proposed buildings.

Building elevations illustrating character, scale and materials have been provided.

2. The ESDR Application indicates two three-sided pole buildings. The architectural plans depict a four-sided building with garage doors. Please revise.

Apologies. The building labels, project notes, and applications have all been updated to remove references to a 3-sided pole building.

3. Per Appendix B, Sketch Plan Submittal Checklist, show the location of the refuse collection for the proposed buildings.

A location for refuse collection for Buildings C and D is shown and labeled on the plans. Buildings A and B will utilize the existing refuse collection for the existing adjacent buildings.

4. Per Chapter 28-1007.3.A.6 of the Zoning Code, Include a statement regarding "the nature of the proposed use, its expected impact on its surrounding area, expected truck traffic, and any other information necessary to provide a fair and accurate assessment of the impacts of the proposed use on the subject property and the surrounding area".

Information regarding the nature of the proposed use for improvements in both phases was included in the 'Proposed Development' section of the Project Data. A statement regarding the impact on the surrounding areas and expected truck traffic resulting from Phase 1 has been added. A similar statement for the Phase 2 improvements will be provided at the time of development.

5. Show the truck loading space location and its dimensions on the sketch plan. Each loading space shall be not less than ten (10) feet in width and forty-five (45) feet in length, and shall have a minimum overhead clearance of fourteen (14) feet.

Truck loading space location is now shown and labeled.

6. Per item #8 on the Appendix B-1 Submittal Checklist and Chapter 28-901.3 A 1 of the Zoning Code, show the location of proposed fencing on the sketch plan. Indicate the type of fencing and its minimum height.

The fencing is now called out as being 8' tall vinyl on the plans.

7. Show all entrance and garage locations to proposed buildings on all plan views.

All doors and associated landing pads have been added to the plans.

8. Provide dimensions between the building units (existing, proposed & future) and property lines.

Dimensions from all buildings to the property lines have been added to a table within the project data on sheet 1.

9. Label all existing road paving widths on all plan views.

Existing road widths have been labeled on sheet 1 of 2.

10. Dimension the width of the proposed gravel pavement.

This dimension has been added.

11. Revise Development Data *Note on Existing Conditions Plan, sheet 1 of 2, to reference the Critical Area Commission's condition of obtaining approval within the 120 days of the Commission's approval dated November 6, 2024.

*The *Note has been updated to specify that the approval letter dictates that the map designation change must be reflected on the Town's critical area map within 120 days from the date of the letter.*

12. Revise Development Data Phasing Note on Existing Conditions Plan, sheet 1 of 2, elaborate more in detail if the drive aisles and parking facilities for future buildings 'C' and 'D' will be constructed during Phase 2.

The note has been revised to explain that Buildings C and D and their associated parking lots and stormwater facilities are to be constructed in a future second phase.

13. The Project Notes and Comprehensive Plan Design Principles Response Narrative have overlapping text on the Existing Conditions Plan, sheet 1 of 2. Revise text for legibility.

This has been corrected. Apologies.

14. Per Appendix B, Sketch Plan Submittal Checklist, general location and description (r.e. intended function, proposed species, etc.) of proposed landscaping. Describe the species for the proposed shrub hedge.

Potential Proposed Native Species have been added to the Landscape Legend in regard to the shrub hedge.

15. There are two designated existing parking facilities. The minimum number of accessible parking spaces must be determined separately for each parking facility. (§ 208.3 from the ADA Standards for Accessible Design). Show the existing parking spaces for the two parking facilities and provide the minimum number of accessible parking spaces (§ 208.2). Please revise all site plan views. In addition, will the required parking for proposed building 'A' and 'B' be utilized within the existing parking lots?

The required parking for buildings 'a' and 'b' will be utilized within the concrete pad in the existing storage yard and the proposed gravel parking. The required ADA space will be striped and signage provided on the concrete pad in the existing storage yard. Lane Engineering has field verified the slope compliance at the proposed location.

Existing ADA ramps are located at the entrances of both existing buildings, however, we are proposing new striping and signage to be installed as part of the Phae 1 construction. Lane Engineering has field verified the slope compliance at these locations.

16. Revise the Parking Required within the Development Data on the Existing Conditions Plan, sheet 1 of 2, to include the existing parking requirements.

Parking requirements for the existing buildings is now included in the Project Data.

17. Prior to Development Site Plan approval, verify and add slope information for all ADA spaces, ramps, access aisles and landing areas. Check all ADA related spot elevations and obtain approval from the Building Inspection Department.

Acknowledged. Detailed grading information for ADA spaces and ramps will be shown prior to Development Site Plan approval.

18. Prior to Development Site Plan approval, provide Van Accessible ADA Parking Sign Detail to include the sign "No Parking in Access Aisle" with an arrow pointing to the access aisle, place bollards at ADA aisles adjacent to the buildings with details and dimension between the bollards to verify ADA access.

Acknowledged. Details for ADA parking space signage will be shown prior to Development Site Plan approval.

BUILDING INSPECTION AND PERMIT DEPT COMMENTS:

1. Construction Documents (3 sets) for any new construction will be required. Documents must be prepared by a registered Maryland Registered Architect, with original plans signed and sealed. A code analysis completed by a Registered Maryland Architect including, classification (use group), construction type, and occupant loads must be completed and included with the application materials.

Acknowledged.

2. An appointment may be set up with this department to review your permit application materials prior to permit application submission.

Acknowledged.

EASTON UTILITIES COMMENTS:

1. Sheet 2 of 2: See electric comments.

A note to this effect will be included on detailed grading plan on the subsequent Site Construction Plans.

OFFICE OF ENVIRONMENTAL HEALTH COMMENTS:

1. Sewage disposal areas (SDA) should be abandoned prior to issuance of building permits that may infringe upon the SDAs. As per COMAR 26.04.02.04(E) any SDAs shall be "… exclusive of easements, right-of-ways, buildings, and any other permanent or physical objects…".

Understood. A line revision plat has been submitted to the Town and will call out the abandonment of the existing SDAs.

2. Abandonment of the on-site sewage disposal system (OSDS) on lot 16 should be accomplished by a licensed septic installer in Talbot County. A list of licensed septic installers can be found on our website here: https://talbothealth.org/environmental-health/septic-systems-sewage/
    a. Additionally, abandonment of the OSDS should only be performed under permit of a sanitary construction permit. Applications can be found on the website above and have no cost for the purposes of abandonment. Inspection should still be completed by a licensed environmental health specialist from this Office after the sanitary construction permit is issued.

The owner will be submitting the required application to the Health Department.

3. The existing drinking water supply well should be abandoned by a licensed well driller. A copy of the abandonment report should be submitted to this Office for review.

The owner wishes to retain the existing water supply well while also connecting the site to the available public water system, as the Health Department indicated in previous discussions that this would be possible.

4. A lot line revision for the removal of the lot lines between lots 16 & 20, as well as the abandonment of the SDAs, should be submitted to this office for review and comment. The cost of a minor line revision plat by this office is $100 at this time.

A copy of the line revision plat will be submitted to the Health Department under separate cover.

FIRE DEPARTMENT COMMENTS:

1. Please make sure the sprinkler system and please make sure the connection.

None of the existing buildings have a sprinkler system. Per the architect, a sprinkler system is not required for the Phase 1 pole buildings.

2. Make sure it is MARKED and VISIBLE for the sprinkler system.

See previous response.

3. Make sure the electrical room is MARKED and VISIBLE.

See previous response.

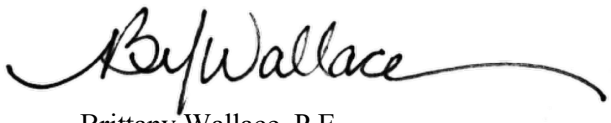
4. Make sure the roads are wide enough for our fire apparatus.

See previous response.

5. A sign that indicates NOT TO BLOCK THE SPRINKLER CONNECTION.
See previous response.

Should you have any questions, please feel free to contact me at (410) 822-8003.

Sincerely,
LANE ENGINEERING, LLC



Brittany Wallace, P.E.

Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

RECEIVED
FEB 05 2025
TOWN OF EASTON

Easton Staff Development Review

Property Information

Address	28520 MARYS COURT						
Tax Map	25	Grid		Parcel	46	Lot	16 & 20
Deed Refernce:	Liber	3111	Folio	84			
Plat Reference:	Liber	4	Folio	35G			
Base Zoning District	A1 & BC	Historic District Y ☐ N ☑		Planning Redevelopment Y ☐ N ☑			

Purpose of Application / Description of Work:

ADDITION OF TWO POLE BUILDINGS FOR STORAGE AND ASSOCIATED GRAVEL ACCESS AND STORMWATER MANAGEMENT, REMOVAL OF EXISTING SEPTIC SYSTEM, INSTALLATION OF NEW GRINDER PUMP AND FORCE MAIN SYSTEM, ABANDONMENT OF TWO EXISTING SEWAGE RESERVE AREAS

Owner

Name	SOMERSET WELL DRILLING CO, INC. C/O MIKE HALL		
Mailing Address	P.O. BOX 67, WESTOVER, MD 21871		
Telephone No.	443-783-9950	Email	mike@somersetwell.com

Applicant / Agent

Name	LANE ENGINEERING, LLC C/O BRITTANY WALLACE		
Mailing Address	410-822-8003		
Telephone No.	410-822-8003	Email	BWALLACE@LEINC.COM

Surveyor / Engineer

Name	BRITTANY WALLACE	License No.	60891	Expiration Date	4/13/25
Mailing Address	117 BAY STREET, EASTON, MD 21601				
Telephone No.	410-822-8003	Email	BWALLACE@LEINC.COM		

Any modifications during review shall warrant an updated application.

I do hereby solemnly declare and affirm that the information provided by this application and the documents attached hereto accurately represent the conditions of the request and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent: BJ Wallace

Date: 12/16/24 2/4/25

Printed Name of Applicant or Agent: BRITTANY M WALLACE

For Office Use Only

Easton Staff Development Review Meeting Required Y ☒ N ☐ **ESDR 25-01 / 2025-1369**

Easton Staff Development Review Meeting Date 02/26/2025

Completeness Check Date 02/05/2025

Revisions/Resubmissions Required Y ☒ N ☐

Resubmission Date 02/05/2025 Documents Received Y ☒ N ☐

Staff Determination

January 22, 2025 Easton Staff Development Review : Resubmission required.

Scheduled for February 26, 2025 Easton Staff Development Review

Planning Commission Requir(Y ☐ N ☐ **TBD**

BOZA Required Y ☐ N ☐ **TBD**

Historic District Commission Required Y ☐ N ☒

Resubmission for ESDR Required Y ☐ N ☐ **TBD**

Staff Signature Samantha N. Smith Date **02/05/2025**

Revised 02-2019

Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

RECEIVED
FEB 05 2025
TOWN OF EASTON

Site Plan, PUD, Planned Healthcare Application

Application Type

Planned Unit Development ☐ Amendment ☐ Health Care (HC) ☐ Site Plan ☒

Subdivision Information

Name	MARY'S COURT / TALBOT COMMERCE PARK				
Original Property Size	Acres		Square Feet		
Telephone No.		Email			

Site Plan Information

Property Size	Acres	13.99 AC	Square Feet	609,801 SF	
Structure's Floor Area	34,000 SF		Structure's Square Feet	34,000 SF	
Area of Disturbance	147,554 SF		Number of Dwelling Units	0	

Property Information

Address	28520 MARY'S COURT						
Tax Map	25	Grid		Parcel	46	Lot	16 & 20
Deed Refernce:	Liber	3111	Folio	84			
Plat Reference:	Liber	4	Folio	35G			
Base Zoning District	BC & A1	Historic	Y ☐	N ☒	Planned Redevelopment	Y ☐	N ☒
Source of Electricity	EASTON						

Owner

Name	SOMERSET WELL DRILLING CO, INC. C/O MIKE HALL		
Mailing Address	P.O. BOX 67, WESTOVER, MD 21871		
Telephone No.	443-786-9950	Email	MIKE@SOMERSETWELL.COM

Applicant or Agent

Name	LANE ENGINEERING, LLC C/O BRITTANY WALLACE		
Mailing Address	117 BAY STREET, EASTON, MD 21601		
Telephone No.	410-822-8003	Email	BWALLACE@LEINC.COM

Surveyor / Engineer

Name	BRITTANY WALLACE	License No.	60891	Expiration Date	4/13/25
Mailing Address	117 BAY STREET, EASTON, MD 21601				
Telephone No.	410-822-8003	Email	BWALLACE@LEINC.COM		

Any modifications during review shall warrant an updated application.

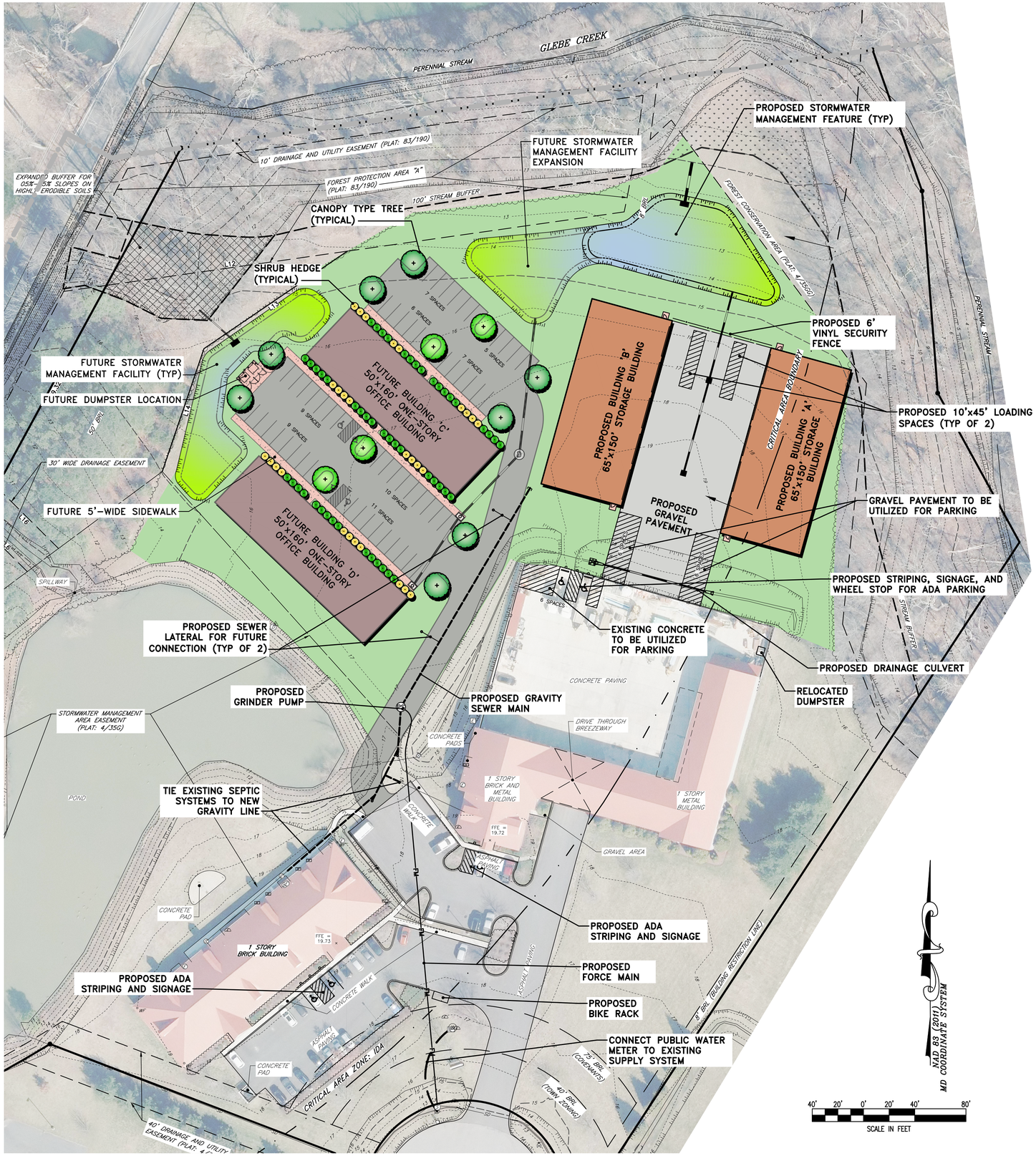
I hereby certify that I have reviewed and satisfied the Town of Easton Development Standards and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent	
Date	2/4/25
Printed Name of Applicant or Agent	BRITTANY M WALLACE

For Office Use Only

Planning Commission Required	Y ☐ N ☐		
Planning Commission Meeting Date	TBD		
Sketch Approval Date		Project No.	ESDR 25 - 01
Prelim/Dev. Approval Date		Application No.	2025-1369
Final Approval Date		Sketch Fee Paid	
Recordation Date		Develop. Fee Paid	

Revised 02-2019



NOTE: THE LAYOUT AND POTENTIAL FUTURE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR DESIGN OR CONSTRUCTION PURPOSES.

LANDSCAPE REQUIREMENTS § 1014.6.C. (STREET TREES)

1. 1 TREE PER 70' STREET FRONTAGE = 231'± (ALONG MARYS COURT) LESS ENTRANCE (40') = 173'/70' = 3 TREES REQUIRED – 3 EXISTING TREES PROVIDED

LANDSCAPE REQUIREMENTS § 1014.6.F. (ON-SITE)

1. OVERALL TREES– 1 TREE/3000 SF OF DISTURBED AREA– 147,554 SF±/3000 SF = 50 TREES REQUIRED; EXISTING TREES ON-SITE MEET OR EXCEED THE REQUIREMENT; NONE REQUIRED.

2A. INTERIOR PARKING LOT PLANTINGS– 1 TREE PER 10 SPACES; 57 SPACES/ 10 = 6 TREES REQUIRED/ PROVIDED

2B. PARKING HEDGE– SHALL BE PROVIDED.

2C. BUILDING FAÇADE PLANTINGS– 1 TREE/20' OF AFFECTED FAÇADE; NOT APPLICABLE, FACADE OF PROPOSED AND FUTURE BUILDINGS ARE SHIELDED BY EXISTING BUILDINGS AND LANDSCAPE.

2D. SERVICE/ LOADING AREAS– TOWN COMPLIANT ENCLOSURE, SCREENED AS SHOWN HEREON.

2F. BUFFERYARDS: NONE REQUIRED.

LANDSCAPE KEY

2" CALIPER MINIMUM CANOPY OR STREET TREES (OAK, MAPLE TYPES)

SHRUB HEDGE (BAYBERRY, INKBERRY TYPES)

STORMWATER MANAGEMENT ESD LANDSCAPING MASS / PERENNIAL MIX WITH SHRUBS AND GRASSES

NOTE:

THE MAJORITY OF THE PROPOSED PLANTING SHALL BE NATIVE.

LEGEND

- HVAC UNIT
- SANITARY SEWER CLEAN OUT
- SANITARY SEWER MANHOLE
- TELEPHONE PEDESTAL
- FIRE HYDRANT
- DRINKING WATER SUPPLY WELL
- WATER METER
- WATER VALVE
- WATER FAUCET
- ELECTRIC OUTLET
- ELECTRIC TRANSFORMER
- ELECTRIC METER
- ELECTRIC HANDHOLE
- LAMP POLE
- UTILITY POLE
- OHU OVER HEAD UTILITY LINES
- TOP OF BANK
- BOTTOM OF BANK
- MAJOR CONTOUR
- MINOR CONTOUR
- APPROXIMATE TREE LINE
- TOWN ZONING LINE
- COMPUTED POINT
- IRON ROD FOUND
- IRON ROD SET
- SEWAGE DISPOSAL AREA
- PROPOSED E-ONE GRINDER PUMP
- FM PROPOSED FORCE MAIN

APPROVED:
PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER DATE

APPROVED:
PLANS ARE NOT APPROVED FOR CONSTRUCTION
TOWN OF EASTON – TOWN ENGINEER DATE

REVISIONS

No.	DATE	DESCRIPTION	BY

WARNING!!
THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE QUANTITIES SHOWN ON THIS PLAN ARE FOR INFORMATIONAL AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.

THE CONTRACTOR SHALL TEST PIT AND LOCATE EXISTING UNDERGROUND UTILITIES PRIOR TO THE BEGINNING OF ANY WORK ON-SITE. THE CONTRACTOR SHALL NOTIFY DEPT. OF PUBLIC WORKS OF ANY POSSIBLE CONFLICT AND REQUEST THE RELOCATION OF THE EXISTING UNDERGROUND UTILITIES BEFORE BEGINNING ANY WORK ON-SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.

MISS UTILITY
BEFORE YOU DIG CALL 1-800-441-8355 OR 811
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E-mail: general@lecinc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 60891 , Expiration Date: 04/13/2025.

SEAL
STATE OF MARYLAND BRITTANY M. WALKER 60891 PROFESSIONAL ENGINEER
DATE

ILLUSTRATIVE SITE PLAN

SOMERSET WELL DRILLING
28580 MARYS COURT

IN THE TOWN OF EASTON, WARD 1
TALBOT COUNTY, MARYLAND
TAX MAP 25, PARCEL 46, LOTS 16 & 20

ISSUED FOR:	DATE:	BY:
ESDR REVIEW	01/01/25	JSC
ESDR REVIEW	02/04/25	JSC

SHEET No. 1 OF 1	DATE: 02/04/25
SCALE: AS NOTED	JOB No. 240060
	FILE No. A037

Date: 02/04/2025 - 3:24pm User: bwallace Project Manager: TWG
Drawing Path: J:\2024\0000\240060\Civil3D-240060\Dwg\Plots\CSK-PLTS-240060.dwg | ILLUSTRATIVE
XREF File(s): CSK-BASE-240060\HATCH-BASE-240060\YLD-BASE-240060\VSF-BASE-240060\CBS-BASE-2438-240060\RAR-BASE-240060\CEC-BASE-240060\LUP-BASE-240060\XRN-BASE-240060

DEVELOPMENT DATA

PROPERTY: TAX MAP 25, PARCEL 46, LOT 16
PLAT 4/35G
28580 MARYS CT
EASTON, MD 21601

TAX MAP 25, PARCEL 46, LOT 20
PLAT 83/190
GOLDSBOROUGH NECK RD
EASTON, MD 21601

OWNER: SOMERSET WELL DRILLING CO, INC.
C/O MICHAEL HALL
P/O BOX 67
WESTOVER, MD 21871
(443) 783–9950

DEVELOPER: SAME AS OWNER

ZONING: BC – BUSINESS COMMERCIAL

SITE AREA: LOT 16 – 6.556 ACRES±
LOT 20 – 7.443 ACRES±
TOTAL – 13.999 ACRES±

*NOTE: A REVISION PLAT TO COMBINE LOTS 16 AND 20 WILL BE REVIEWED BY THE TOWN OF EASTON AS REQUIRED BY THE GROWTH ALLOCATION APPROVAL LETTER DATED NOVEMBER 8, 2024, AS ISSUED TO MIGUEL SALINAS BY ERIC FISHER OF THE MD CRITICAL AREA COMMISSION. THE REVISION PLAT WILL INCLUDE RESPONSES TO THE CONDITIONS ISSUED IN THE APPROVAL LETTER. THE RESULTING SITE AREA IS 13.999 AC±. THE APPROVAL LETTER DICTATES THAT THE MAP DESIGNATION CHANGE MUST BE REFLECTED ON THE TOWN'S CRITICAL AREA MAP WITHIN 120 DAYS FROM THE DATE OF THE LETTER.

BUILDING SETBACKS:

		Existing: Office	Existing: Construction Office	Existing: Storage	Proposed: A	Proposed: B	Future: C	Future: D
FRONT	– 40'	161.5'	200.0'	241.0'	488.8'	484.0'	472.5'	364.0'
REAR	– 30' (OR TO AIRPORT CLEAR ZONE – SEE PLAT 4/35G)	555.1'	481.5'	457.1'	219.3'	163.6'	142.2'	246.6'
SIDE	– 10'	22.0'	195.0'	68.4'	202.3'	70.5'	162.9'	155.3'
NTW	– 25'							
SDA	– 20'							
STREAM	– 100'							

EXISTING CONDITIONS: DEVELOPED LOT CONTAINING A 12,150 SF OFFICE BUILDING WITH ASPHALT PARKING LOT AND A 4,600 SF OFFICE BUILDING WITH 8,010 SF OF SEMI–DETACHED WAREHOUSE STORAGE SPACE AND A 25,250 SF CONCRETE PAD FOR EQUIPMENT STORAGE.

PROPOSED DEVELOPMENT: (2) 9,750 SF POLE BUILDINGS (BUILDINGS 'A' AND 'B') FOR STORAGE AND ASSOCIATED GRAVEL ACCESS AND STORMWATER MANAGEMENT, THE ABANDONMENT OF TWO EXISTING SEWAGE RESERVE AREAS AND REMOVAL OF AN EXISTING SEPTIC SYSTEM TO BE REPLACED WITH A GRINDER PUMP AND FORCE MAIN TO SERVE EXISTING AND PROPOSED BUILDINGS. THE IMPROVEMENTS WILL NOT GENERATE ANY INCREASED TRUCK TRAFFIC TO OR FROM THE SITE AND IS NOT EXPECTED TO HAVE ANY IMPACT ON THE SURROUNDING AREA.
DEVELOPMENT OF TWO 8,000 SF SINGLE–STORY OFFICE BUILDINGS (BUILDINGS 'C' AND 'D') AND ASSOCIATED PARKING LOTS AND STORMWATER MANAGEMENT AREAS TO BE CONSTRUCTED IN A FUTURE SECOND PHASE.

MINIMUM LOT SIZE: 40,000 SF
MAXIMUM BUILDING HEIGHT: 35'
PROPOSED BUILDING HEIGHT: PROPOSED BUILDING NOT TO EXCEED 35'

TOTAL LOT COVERAGE PERMITTED: 50% (BUILDINGS & STRUCTURES ONLY)

*NOTE: EXISTING AND PROPOSED LOT COVERAGES LISTED BELOW WERE CALCULATED USING THE TOTAL COMBINED SITE AREA OF 13.999 AC±

TOTAL EXISTING LOT COVERAGE: 13.3%
TOTAL LOT COVERAGE: 50% PERMITTED (BUILDINGS & STRUCTURES ONLY)
PHASE 1 BUILDINGS (CONSTRUCTION RELATED BUSINESS):
STORAGE BUILDING A: 9,750 SF
STORAGE BUILDING B: 9,750 SF
PHASE 2 BUILDINGS (CONSTRUCTION RELATED BUSINESS):
1–STORY OFFICE BUILDING C: 8,000 SF
1–STORY OFFICE BUILDING D: 8,000 SF
TOTAL BUILDING: 35,500 SF PROPOSED (5.84%)

PHASING NOTE: ALL IMPROVEMENTS AS SHOWN HEREON SHALL BE COMPLETED IN PHASE 1 WITH THE EXCEPTION OF FUTURE BUILDINGS C & D WHICH SHALL BE CONSTRUCTED IN PHASE 2.

PARKING REQUIRED:
EXISTING BUILDINGS
OFFICE – OFFICE OR BANK WITHOUT DRIVE THRU @ 1/250 GFA: 12,150 SF/250 = 49 SPACES MINIMUM
1 BIKE SPACE PER 10 VEHICLE SPACES: 49/10 = 5 BIKE SPACES MINIMUM
OFFICE OR BANK WITHOUT DRIVE THRU @ 1/140 GFA: 12,150 SF/140 = 87 SPACES MAXIMUM
1 BIKE SPACE PER 10 VEHICLE SPACES: 87/10 = 9 BIKE SPACES MAXIMUM
CONSTRUCTION OFFICE – CONSTRUCTION RELATED BUSINESS @ 1/1000 GFA: 4,600 SF/1000 = 5 SPACES MINIMUM
CONSTRUCTION RELATED BUSINESS @ 1/200 GFA: 4,600 SF/200 = 23 SPACES MAXIMUM

WAREHOUSE – CONSTRUCTION RELATED BUSINESS @ 1/1000 GFA: 8,010 SF/1000 = 8 SPACES MINIMUM
CONSTRUCTION RELATED BUSINESS @ 1/200 GFA: 8,010 SF/200 = 40 SPACES MAXIMUM

PROPOSED BUILDINGS
A & B – CONSTRUCTION RELATED BUSINESS @ 1/1000 GFA: 18,000 SF/1000 = 18 SPACES MINIMUM (INCL 1 ADA SPACE)
CONSTRUCTION RELATED BUSINESS @ 1/200 GFA: 18,000 SF/200 = 90 SPACES MAXIMUM (INCL 4 ADA SPACES)

FUTURE BUILDINGS
C & D – CONSTRUCTION RELATED BUSINESS @ 1/1000 GFA: 16,000 SF/1000 = 16 SPACES MINIMUM (INCL 1 ADA SPACE)
CONSTRUCTION RELATED BUSINESS @ 1/200 GFA: 16,000 SF/200 = 80 SPACES MAXIMUM (INCL 4 ADA SPACES)
TOTAL SPACES REQUIRED = 34 SPACES (MINIMUM)

PARKING PROVIDED:
EXISTING BUILDINGS
62 EXISTING SPACES, INCLUDING 3 ADA SPACES (NOTE–SLOPE COMPLIANCE OF EXISTING ADA SPACES HAS BEEN FIELD VERIFIED BY LANE ENGINEERING)
5 BIKE SPACES (BIKE RACK TO BE INSTALLED AS PART OF PHASE 1 CONSTRUCTION)

PROPOSED BUILDINGS
18 PROPOSED SPACES PROVIDED, INCLUDING 1 VAN ACCESSIBLE ADA SPACE

FUTURE BUILDINGS
64 PROPOSED SPACES PROVIDED, INCLUDING 2 ADA SPACES AND 2 VAN ACCESSIBLE ADA SPACES

STORMWATER MANAGEMENT: QUANTITY MANAGEMENT IS ADDRESSED BY AN EXISTING REGIONAL STORMWATER FACILITY. STORMWATER QUALITY MANAGEMENT WILL BE ADDRESSED THROUGH ESD FEATURES AS REQUIRED AND SHOWN HEREON APPROXIMATELY.

FOREST CONSERVATION: PREVIOUSLY SATISFIED UNDER ORIGINAL SUBDIVISION APPROVAL (PLAT PC 4/35G)

LIGHTING: ALL LIGHTING WILL BE SCREENED FROM VIEW OR DIRECTED DOWNWARD AND SHIELDED, AT A MAXIMUM HEIGHT OF 18', AND NOT EXCEED LEVELS GREATER THAN 1–FOOT CANDLE AT PROPERTY LINES

SIGNAGE: EXISTING SIGN TO BE UTILIZED, NO NEW SIGNAGE PROPOSED WITH THIS DEVELOPMENT.

REFUSE/TRASH: BUILDINGS 'A' AND 'B' WILL UTILIZE THE DUMPSTER ALREADY IN PLACE FOR THE EXISTING STORAGE YARD. A PROPOSED DUMPSTER LOCATION FOR BUILDINGS 'C' AND 'D' IS SHOWN.

PROJECT NOTES

1. PROPERTY BOUNDARY AND EXISTING CONDITIONS SURVEYED BY LANE ENGINEERING, LLC ON AUGUST 2023.
2. SITE TOPOGRAPHY AS SHOWN HEREIN WAS DERIVED FROM A FIELD SURVEY BY LANE ENGINEERING, LLC DATED AUGUST 2023.
3. THE ELEVATIONS SHOWN HEREON ARE NAVD 1988 DATUM.
4. THE COORDINATES SHOWN HEREON ARE BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM NAD83 (2011).
5. THE SITE IS LOCATED PARTIALLY WITHIN OF THE CHESAPEAKE BAY CRITICAL AREA.
6. THERE ARE NO KNOWN HISTORIC STRUCTURES OR ARCHEOLOGICALLY SIGNIFICANT RESOURCES, STREAMS, TIDAL WETLANDS/NON–TIDAL WETLANDS OR KNOWN HABITAT PROTECTION AREAS IN PROXIMITY TO THE PROPOSED SITE IMPROVEMENTS.
7. PUBLIC WATER AND SEWER SERVICES ARE PROVIDED BY THE TOWN OF EASTON.
8. FAA DETERMINATION OF NO HAZARD TO AIR NAVIGATION SHALL BE REQUIRED.

COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE

PRINCIPLE #1– INTEGRATED USES ARE DESIRABLE– THIS DEVELOPMENT PROPOSAL PROVIDES ADDITIONAL STORAGE SPACE FOR EXISTING BUSINESSES IN THIS MIXED BUSINESS PARK

PRINCIPLE #2– NATURAL FEATURES SHOULD DETERMINE DESIGN– NO COMPELLING NATURAL FEATURES; PROPOSED IMPROVEMENTS ARE CONFIGURED TO CREATE COHESIVE SITE LAYOUT UPON COMPLETION AND TAKE ADVANTAGE OF NATURAL DRAINAGE PATTERNS

PRINCIPLE #3– AUTOMOBILES SHOULD NOT DETERMINE DESIGN– PARKING FOR OFFICE USERS AND CUSTOMERS PROVIDED FOR CONVENIENCE WITH BULK OF PARKING TO FRONT OR REAR OF BUILDING

PRINCIPLE #4– AMPLE COMMUNITY OPEN SPACE– USABLE OPEN SPACE IS NOT APPLICABLE TO THIS PROJECT

PRINCIPLE #5– ARCHITECTURE SHOULD RESPECT EASTON'S HISTORICAL DEVELOPMENT– PROPOSED ARCHITECTURE MATCHES EXISTING BUILDINGS IN DESIGN AND IS COMPATIBLE WITH THE COMMERCE PARK'S ARCHITECTURAL PALETTE

PRINCIPLE #6– SIGNS SHOULD INFORM BUT NOT DOMINATE– NO NEW SIGNAGE IS PROPOSED

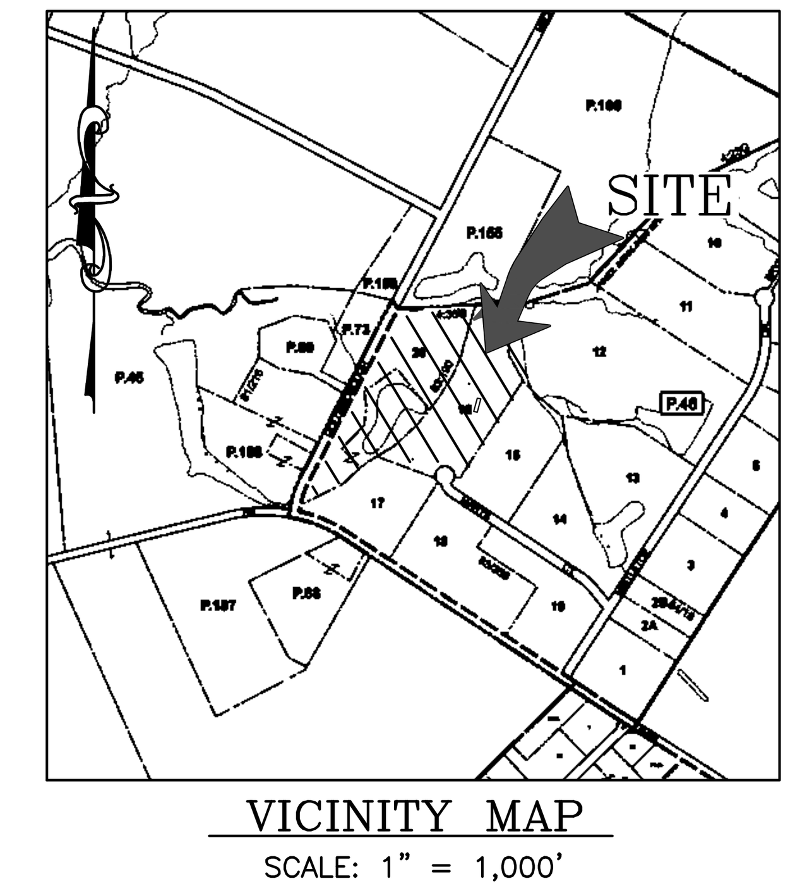
PRINCIPLE #7– NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES– NOT APPLICABLE TO THIS PROJECT

PRINCIPLE #8 RESIDENTIAL NEIGHBORHOODS SHOULD BE INTERESTING PLACES– NOT APPLICABLE TO THIS PROJECT

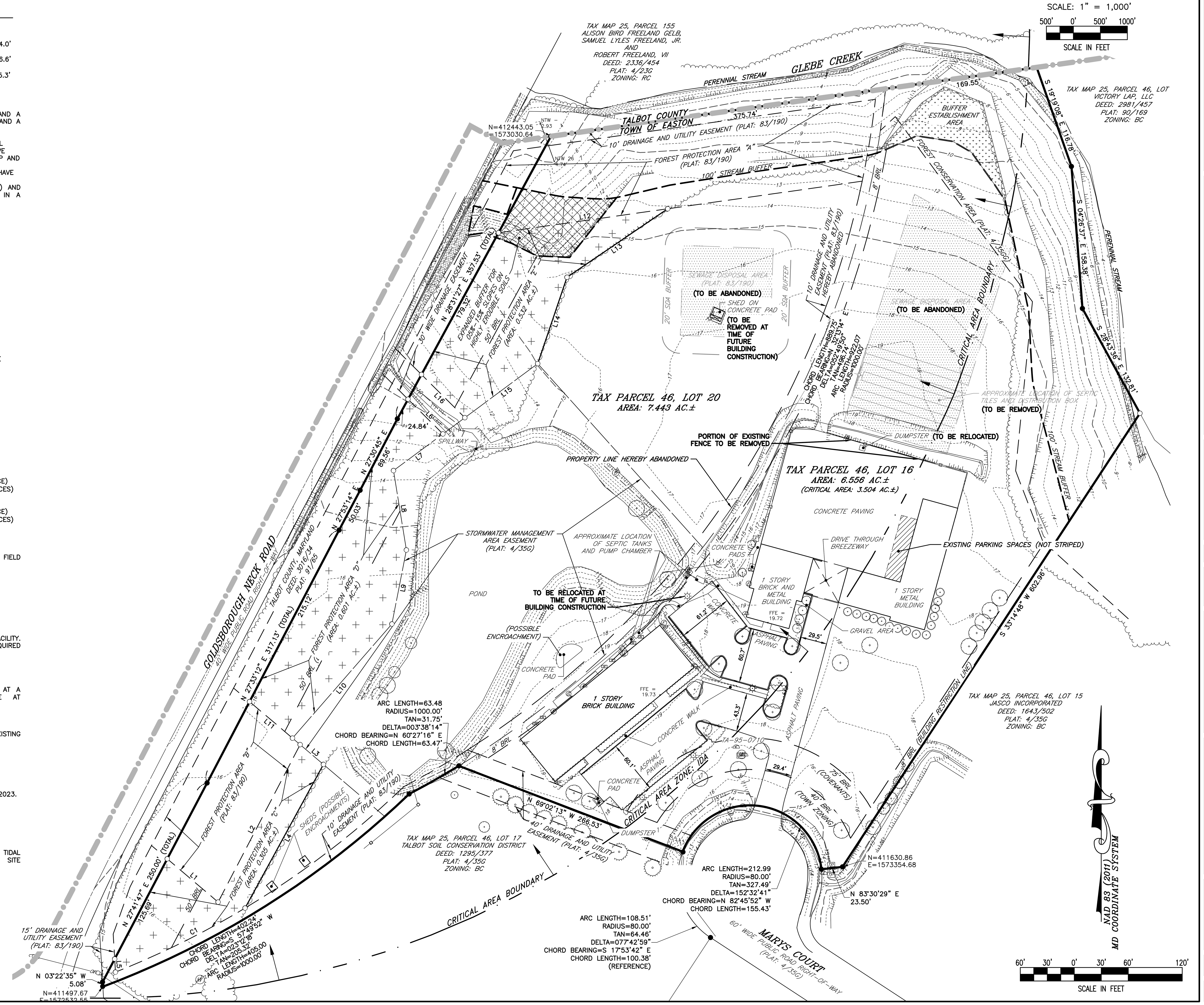
PRINCIPLE #9– NEIGHBORHOODS SHOULD CONNECT– NOT APPLICABLE TO THIS PROJECT

LEGEND

HVAC UNIT
SANITARY SEWER CLEAN OUT
SANITARY SEWER MANHOLE
TELEPHONE PEDESTAL
FIRE HYDRANT
DRINKING WATER SUPPLY WELL
WATER METER
WATER VALVE
WATER FAUCET
ELECTRIC OUTLET
ELECTRIC TRANSFORMER
ELECTRIC METER
ELECTRIC HANDHOLE
LAMP POLE
UTILITY POLE
OVER HEAD UTILITY LINES
TOP OF BANK
BOTTOM OF BANK
MAJOR CONTOUR
MINOR CONTOUR
APPROXIMATE TREE LINE
TOWN ZONING LINE
COMPUTED POINT
IRON ROD FOUND
IRON ROD SET
SEWAGE DISPOSAL AREA



VICINITY MAP
SCALE: 1" = 1,000'
500' 0' 500' 1000'
SCALE IN FEET



APPROVED:
PLAN ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER DATE
APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE
APPROVED:
PLANS ARE NOT APPROVED FOR CONSTRUCTION
EASTON UTILITIES – ENGINEER DATE

REVISIONS

No.	DATE	DESCRIPTION	BY

WARNING!!
THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE QUANTITIES SHOWN ON THIS PLAN ARE FOR INFORMATIONAL AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.

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Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E–mail: general@leinc.com
117 Bay St. Easton, MD 21601 (410) 822–8003
15 Washington St. Cambridge, MD 21613 (410) 221–0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758–2095

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 60891 , Expiration Date: 04/13/2025.

SEAL
STATE OF MARYLAND – BRITTANY M. WALLACE – 60891 – PROFESSIONAL ENGINEER
B M Wallace 2.4.25
DATE

EXISTING CONDITIONS PLAN

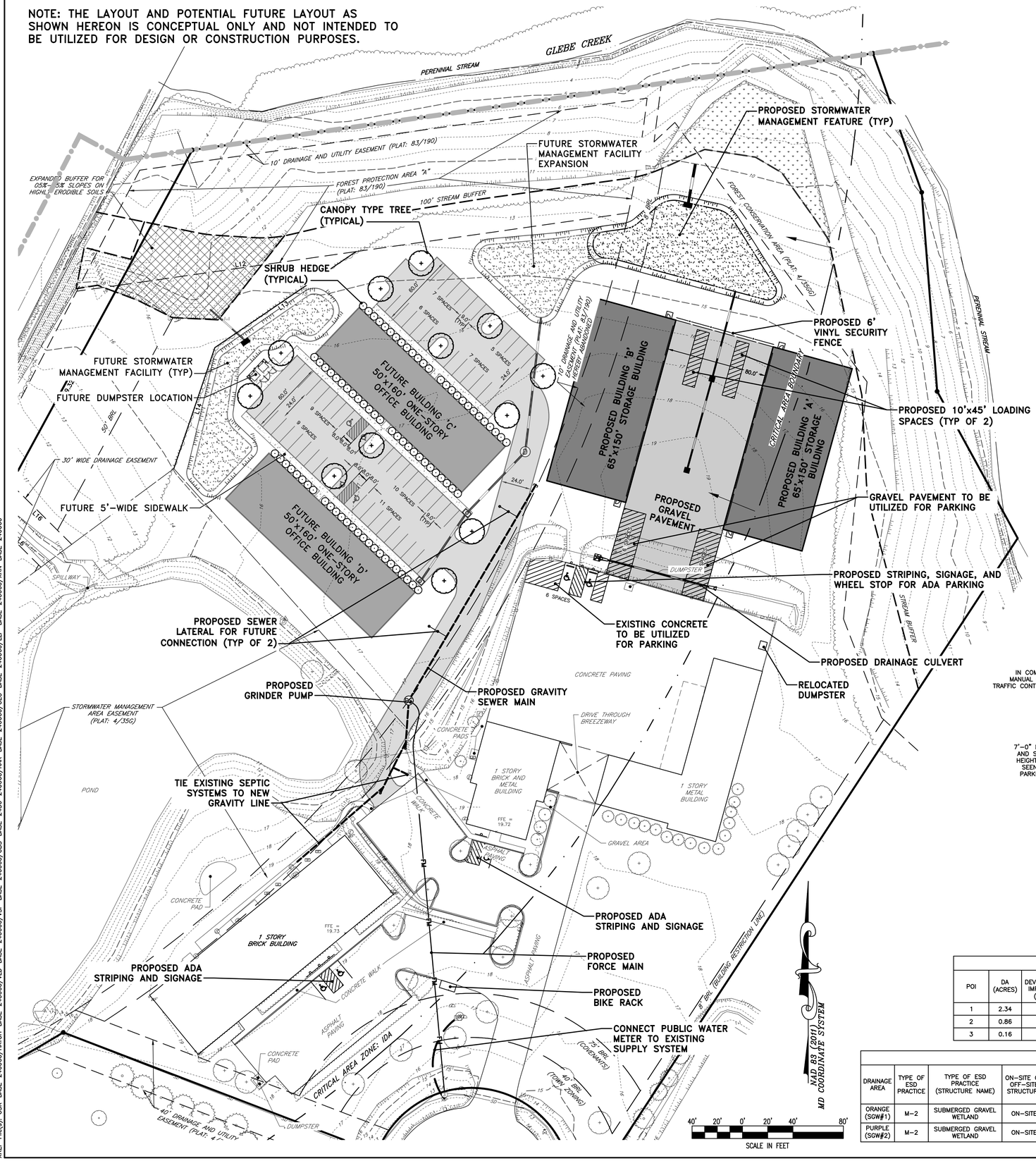
SOMERSET WELL DRILLING
28580 MARYS COURT

IN THE TOWN OF EASTON, WARD 1
TALBOT COUNTY, MARYLAND
TAX MAP 25, PARCEL 46, LOTS 16 & 20

ISSUED FOR:	DATE:	BY:
ESDR REVIEW	01/01/25	JSC
ESDR REVIEW	02/04/25	JSC

SHEET No. 1 OF 2
DATE: 02/04/25
JOB No. 240060
SCALE: AS NOTED
FILE No. A037

NOTE: THE LAYOUT AND POTENTIAL FUTURE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR DESIGN OR CONSTRUCTION PURPOSES.



LANDSCAPE REQUIREMENTS § 1014.6.C. (STREET TREES)

1. 1 TREE PER 70' STREET FRONTAGE = 231'± (ALONG MARYS COURT) LESS ENTRANCE (40') = 173'/70' = 3 TREES REQUIRED – 3 EXISTING TREES PROVIDED

LANDSCAPE REQUIREMENTS § 1014.6.F. (ON-SITE)

1. OVERALL TREES– 1 TREE/3000 SF OF DISTURBED AREA– 147,554 SF±/3000 SF = 50 TREES REQUIRED; EXISTING TREES ON-SITE MEET OR EXCEED THE REQUIREMENT; NONE REQUIRED.

2A. INTERIOR PARKING LOT PLANTINGS– 1 TREE PER 10 SPACES; 57 SPACES/ 10 = 6 TREES REQUIRED/ PROVIDED

2B. PARKING HEDGE– SHALL BE PROVIDED.

2C. BUILDING FAÇADE PLANTINGS– 1 TREE/20' OF AFFECTED FAÇADE; NOT APPLICABLE, FACADE OF PROPOSED AND FUTURE BUILDINGS ARE SHIELDED BY EXISTING BUILDINGS AND LANDSCAPE.

2D. SERVICE/ LOADING AREAS– TOWN COMPLIANT ENCLOSURE, SCREENED AS SHOWN HEREON.

2F. BUFFERYARDS: NONE REQUIRED.

LANDSCAPE KEY

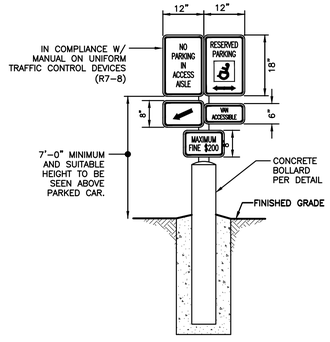
2" CALIPER MINIMUM CANOPY OR STREET TREES (OAK, MAPLE TYPES)

SHRUB HEDGE (BAYBERRY, INKBERRY TYPES)

STORMWATER MANAGEMENT ESD LANDSCAPING MASS / PERENNIAL MIX WITH SHRUBS AND GRASSES

NOTE:

THE MAJORITY OF THE PROPOSED PLANTING SHALL BE NATIVE.



VAN ACCESSIBLE ADA PARKING SIGN DETAIL
NOT TO SCALE

LEGEND

- HVAC UNIT
- SANITARY SEWER CLEAN OUT
- SANITARY SEWER MANHOLE
- TELEPHONE PEDESTAL
- FIRE HYDRANT
- DRINKING WATER SUPPLY WELL
- WATER METER
- WATER VALVE
- WATER FAUCET
- ELECTRIC OUTLET
- ELECTRIC TRANSFORMER
- ELECTRIC METER
- ELECTRIC HANDHOLE
- LAMP POLE
- UTILITY POLE
- OHU — OVER HEAD UTILITY LINES
- TOP OF BANK
- BOTTOM OF BANK
- MAJOR CONTOUR
- MINOR CONTOUR
- APPROXIMATE TREE LINE
- TOWN ZONING LINE
- COMPUTED POINT
- IRON ROD FOUND
- IRON ROD SET
- SEWAGE DISPOSAL AREA
- PS — PROPOSED E-ONE GRINDER PUMP
- FM — PROPOSED FORCE MAIN

SWM QUANTITY SUMMARY CHART

POI	DA (ACRES)	POST DEVELOPMENT IMPERVIOUS (ACRES)	RCN	Tc (MINUTES)	PRE 2 YEAR	POST 2 YEAR	WSE	PRE 10 YEAR	POST 10 YEAR	WSE	PRE 100 YEAR	POST 100 YEAR	WSE
1	2.34	1.46	--	--	2.22	0.00	--	4.69	0.92	--	7.86	5.76	--
2	0.86	0.42	--	--	0.45	0.00	--	0.95	0.11	--	1.60	2.17	--
3	0.16	0.03	--	--	0.36	0.32	--	0.76	0.62	--	1.27	1.00	--

ESD SUMMARY CHART

DRAINAGE AREA	TYPE OF ESD PRACTICE	TYPE OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN)	ACTUAL PE (IN)	TARGET ESDv (FT³)	ACTUAL ESDv (FT³)
ORANGE (SGW#1)	M-2	SUBMERGED GRAVEL WETLAND	ON-SITE	89	401492.7738'	1580118.8427'	2.34	1.46	0.23	2.0	2.0	10,406	10,651
PURPLE (SGW#2)	M-2	SUBMERGED GRAVEL WETLAND	ON-SITE	86	401537.4268'	1579725.9363'	0.86	0.42	0.09	1.8	3.0	2764	4,607

APPROVED: PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER DATE

APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE

APPROVED: PLANS ARE NOT APPROVED FOR CONSTRUCTION
EASTON PLANNING COMMISSION DATE

REVISIONS

No.	DATE	DESCRIPTION	BY

WARNING!!

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Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E-mail: general@lanei nc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 60891 , Expiration Date: 04/13/2025.

SEAL

STATE OF MARYLAND BRIAN W. WALLACE 60891 PROFESSIONAL ENGINEER

DATE 8/25

SKETCH SITE PLAN

SOMERSET WELL DRILLING
28580 MARYS COURT

IN THE TOWN OF EASTON, WARD 1
TALBOT COUNTY, MARYLAND
TAX MAP 25, PARCEL 46, LOTS 16 & 20

ISSUED FOR:	DATE:	BY:
ESDR REVIEW	01/01/25	JSC
ESDR REVIEW	02/04/25	JSC

SHEET No. 2 OF 2
DATE: 02/04/25
JOB No. 240060
SCALE: AS NOTED
FILE No. A037

Date: 02/04/2025 - 3:24pm User: bwallace Project Manager: TWG
Drawing Path: J:\2024\0000\240060\Civil\3D-240060\Dwg\Plots\CSK-PLTS-240060.dwg | 2 OF 2
XREF File(s): CSK-BASE-240060/MATCH-BASE-240060/VLD-BASE-240060/VSF-BASE-240060/CBS-BASE-2438-240060/RAR-BASE-240060/CEC-BASE-240060/LLP-BASE-240060

NEW BUILDING FOR

MIKE HALL

28580 MARY'S COURT
EASTON, MARYLAND

W. F. HORN ARCHITECT, INC.
LEWES, DELAWARE

CODE INFORMATION

CODE INFORMATION

BUILDING AREA –9,750 SQUARE FEET
SHELL BUILDING, UNCONDITIONED

I. INTERNATIONAL BUILDING CODE – 2021
A. OCCUPANCY CLASSIFICATION –
MODERATE HAZARD STORAGE GROUP S–1

B. INCIDENTAL USE AREAS
1. BOILER AND FURNACE ROOMS – NOT APPLICABLE
2. STORAGE ROOMS OVER 100 SQ. FT. – NOT APPLICABLE

C. GENERAL BUILDING HEIGHTS AND AREAS
1. HEIGHT –
GROUP S–1 – 1 STORY, 40' PERMITTED
HEIGHT MODIFICATIONS NOT REQUIRED
2. AREA –
GROUP S–1 – 9,000 SQUARE FEET PERMITTED
OPEN SPACE AT BUILDING PERIMETER = 30 FT. OR GREATER
FRONTAGE INCREASE = 500/500 – .25 X 30/30 = .75
9000 + (9000 X .75) = 9000 + 6750 = 15750
AREA MODIFICATIONS ALLOW 15750 SQUARE FEET

D. TYPE OF CONSTRUCTION – CONSTRUCTION TYPE **VB**
1. STRUCTURAL FRAME – 0 HOUR
2. BEARING WALLS, EXTERIOR – 0 HOUR
3. BEARING WALLS, INTERIOR – 0 HOUR
4. NONBEARING WALLS, EXTERIOR – 0 HOUR
5. NONBEARING WALLS, INTERIOR – 0 HOUR
6. FLOOR CONSTRUCTION – 0 HOUR
7. ROOF CONSTRUCTION – 0 HOUR
8. FIRE SEPARATION DISTANCE,
GREATER THAN 30 FT. – 0 HOUR
9. UNPROTECTED WALL OPENING,
GREATER THAN 30 FT. – UNLIMITED AREA

E. INTERIOR FINISHES –
1. WALLS AND CEILINGS –
EXIT ACCESS CORRIDORS – CLASS C
ROOMS AND ENCLOSED SPACES – CLASS C
2. FLOOR FINISH – CLASS II
3. DECORATIONS AND TRIM – FLAME RESISTANT

F. MEANS OF EGRESS
1. OCCUPANT LOAD –
WAREHOUSE –
500 SQUARE FEET PER OCCUPANT = 20 PEOPLE
2. EGRESS WIDTH –
STAIRWAYS – .3" PER OCCUPANT
OTHER EGRESS COMPONENTS – ,2" PER OCCUPANT
3. ACCESSIBLE MEANS OF EGRESS –
TWO REQUIRED
TWO PROVIDED
4. SPACES WITH ONE MEANS OF EGRESS –
MAXIMUM OCCUPANT LOAD – 50
MAXIMUM TRAVEL DISTANT – 75'
5. LENGTH OF EXIT ACCESS TRAVEL –
200 FEET MAXIMUM ALLOWED
50 FEET MAXIMUM PROVIDED
6. SIZE OF DOORS – 32 " MINIMUM
EGRESS WIDTH PER OCCUPANT = .2"/PERSON, 34 X .2" =
170 PEOPLE PER DOOR
7. PANIC HARDWARE – NOT REQUIRED
8. LIGHTED EXIT SIGNS REQUIRED

II. NFPA 101 – 2021
A. CLASSIFICATION OF OCCUPANCY –
STORAGE

B. CLASSIFICATION OF HAZARD OF CONTENTS – ORDINARY HAZARD

C. MINIMUM CONSTRUCTION REQUIREMENTS – NO REQUIREMENT

D. OCCUPANT LOAD – 20 PEOPLE

E. MEANS OF EGRESS –
1. ALL EXITS LOCATED AT LEVEL OF EXIT DISCHARGE
2. TWO EXITS REQUIRED
2. DOORS
a. 32" MINIMUM CLEAR WIDTH
b. MAXIMUM FLOOR VARIATION BOTH SIDES OF DOOR – 1/2"
c. SWING IN DIRECTION OF EGRESS TRAVEL
3. PANIC HARDWARE AT EXIT DOORS FROM BUILDING NOT REQUIRED
4. TRAVEL DISTANCE TO EXITS – 150 FEET MAXIMUM
5. EMERGENCY LIGHTS AND LIGHTED EXIT SIGNS

F. PROTECTION –
1. INTERIOR WALL AND CEILING CLASS A, CLASS B OR CLASS C
2. SMOKE DETECTORS AND FIRE ALARM SYSTEM NOT REQUIRED

IV. ADA

A. ACCESSIBLE SITES –
1. AT LEAST ONE ACCESSIBLE ROUTE PROVIDED
2. ACCESSIBLE PARKING SPACES – EXISTING
B. ACCESSIBLE BUILDING –
1. ONE ACCESSIBLE ROUTE TO ACCESSIBLE SPACES PROVIDED
2. FLOOR SURFACES TO BE SLIP RESISTANT
a. CARPET IF PROVIDED – LEVEL LOOP, GLUED INSTALLATION
3. STAIRS – NOT APPLICABLE
4. DOORS –
a. CLEAR WIDTH – 32" MINIMUM PROVIDED
b. MANEUVERING CLEARANCES – PROVIDED
c. THRESHOLDS – 1\2" MAXIMUM HEIGHT PROVIDED
d. HARDWARE – LEVER TYPE HARDWARE TO BE PROVIDED
e. 50% OF ENTRANCES MUST BE ACCESSIBLE – 100% PROVIDED
5. DRINKING FOUNTAINS – NOT REQUIRED
6. TOILET FACILITIES – NOT REQUIRED

NOTES:

1. ALL DOORS TO BE EQUIPPED WITH LEVER TYPE LOCK AND LATCHSETS. UNLESS NOTED OTHERWISE

INDEX OF DRAWINGS

GENERAL CONTRACTOR
POLE BUILDINGS
UNLIMITED

W.F.HORN ARCHITECT, INC.
30093 W. BARRIER REEF BLVD. LEWES, DELAWARE
PHONE: 302-674-1620 302-231-2176

NEW BUILDING FOR:
MIKE HALL
28580 MARY'S COURT
EASTON, MARYLAND

PRINTED 12/23/24 – FOR CONSTRUCTION

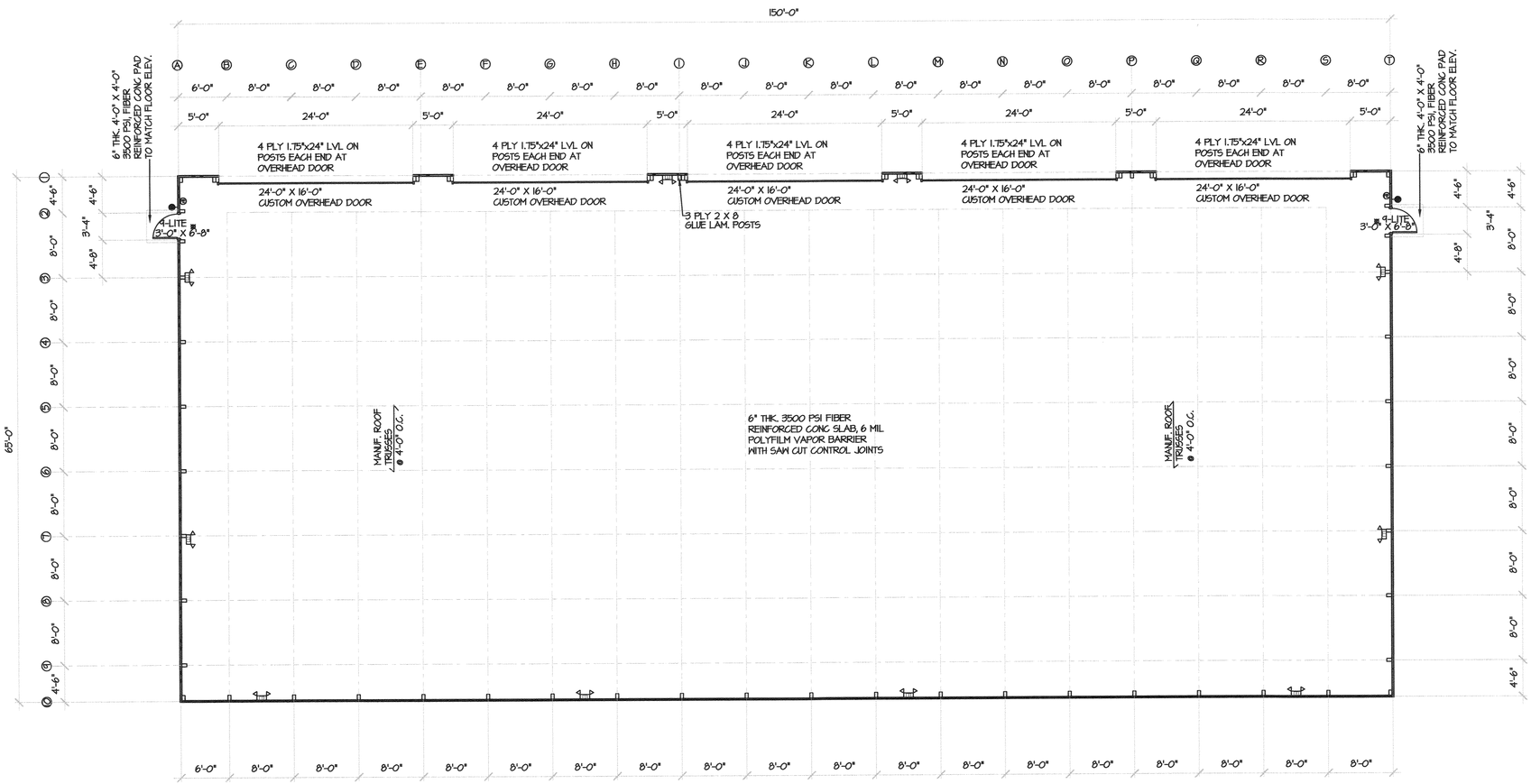
TITLE SHEET, INDEX
AND CODE INFORMATION

STATE OF MARYLAND
WILLIAM FREDERICK HORN
12319
ARCHITECT

PROFESSIONAL CERTIFICATION

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NUMBER 12319, EXPIRATION DATE 1/6/2026.

DESIGNED	WFH
DRAWN	PAH
CHECKED	WFH
DATE	12/19/24
PROJ. NO.	32469
SCALE	AS NOTED
SHEET NO.	T1.1



1 FLOOR PLAN
1/8" = 1'-0"

FOUNDATIONS

1. PRESUMPTIVE BEARING CAPACITY: 2000 PSF

2. FOUNDATION DESIGN IS BASED ON SHALLOW SPREAD FOOTINGS BEARING ON SUITABLE NATURAL SOILS AND/OR NEW COMPACTED STRUCTURAL FILL.

3. ALL ORGANIC MATERIALS EXCESSIVELY SOFT OR LOOSE SOILS, TREES, ASPHALT, CONCRETE, DEBRIS AND OTHER DELETERIOUS MATERIALS SHALL BE REMOVED. UNSUITABLE AREAS SHALL BE REMOVED AND REPLACED.

4. AREAS REQUIRING UNDERCUT AND FILL MATERIAL DUE TO THE PRESENCE OF UNSUITABLE MATERIAL SHALL BE BACKFILLED TO THE DESIGN FOOTING SUBGRADE WITH NEW COMPACTED STRUCTURAL FILL.

5. COMPACTED STRUCTURAL FILL FOR BUILDING SUPPORT UTILIZING MATERIAL APPROVED FOR USE INCLUDE:

ON-SITE GRANULAR SOILS INCLUDING GM , GP, GM, SM, SP, ND. SM, CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOLID CLASSIFICATION SYSTEM (USCS). FURTHERMORE, THE MATERIAL TO BE UTILIZED AS STRUCTURAL FILL SHOULD HAVE A PLASTICITY INDEX (PI) LESS THAN 20.

6. COMPACTED STRUCTURAL FILL BENEATH ALL FOUNDATIONS, SLABS ON GRADE AND ADJACENT TO FOUNDATION WALLS SHALL BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS AND BE COMPACTED TO 95 PERCENT OF MAXIMUM DRY DENSITY PER ASTM D-1557 MODIFIED PROCTOR TEST.

7. SOILS EXPOSED AT THE BASES OF ALL FOUNDATION EXCAVATIONS SHOULD BE PROTECTED AGAINST ANY DETRIMENTAL CHANGE IN CONDITION, SUCH AS DISTURBANCE FROM RAIN OR FROST. SURFACE RUNOFF SHOULD BE DRAINED AWAY FROM THE EXCAVATIONS AND NOT BE ALLOWED TO POND. FOUNDATION EXCAVATIONS SHOULD BE PROTECTED FROM RAINFALL OR FREEZING CONDITIONS. SLOPE FOOTINGS EXCAVATIONS AS REQUIRED FOR STABILITY AND SAFTY OR PROVIDED SHEETING OR SHORING IN ACCORDANCE WITH OSHA REQUIREMENTS IN THE EVENT THAT THE CONTRACTOR DETERMINES THAT SHEETING OR SHORING IS REQUIRED FOR ESCALATION. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER FOR DESIGN AND DOCUMENTATION OF ALL SHEETING AND SHORING REQUIRED FOR THE WORK.

8. UTILITY LINES SHALL NOT PASS UNDER FOOTINGS, STEP FOOTINGS BELOW UTILITY LINES AND SLEEVE WALL.

9. TRENCHES WHICH RUN ADJACENT TO FOOTINGS AND ARE LOWER THAN THE FOOTING BOTTOM AND ARE WITHIN A HORIZONTAL DISTANCE OF 1.5 TIMES THE ELEVATION DIFFERENCE SHALL BE BACKFILLED WITH 1500 PSI CONCRETE TO THE FOOTING BOTTOM.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318 (LATEST EDITION).

2. CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE:

FOUNDATION: 3500 PSI
FLOOR SLABS: 3500 PSI
EXTERIOR WALKS, STEPS, PADS,
RAMPS AND CURBS: 3500 PSI
ALL EXTERIOR CONCRETE SHALL BE AIR-ENTRAINED (6+/-1)%.

3. CONCRETE SHALL NOT BE PLACED IN WATER OR ON FROZEN GROUND.

4. CALCIUM CHLORIDE ADMIXTURES ARE PROHIBITED, USE OF ADMIXTURES SHALL BE SUBJECT TO APPROVAL BY THE ARCHITECT.

GENERAL NOTES

1. EXTERIOR WALLS SHALL BE 2x4 WOOD GIRTS @ 2'-0" O.C. HORIZ. W/ 29 GAUGE GALVALUM PAINTED METAL PANELS.

2. ALL DIMENSIONS ARE TO FACE AND/OR CENTER OF STRUCTURE.

3. 12" OVERHANG EAVES AND GABLES.

4. EXTERIOR FIBERGLASS SMOOTH SKIN PLASTPRO 2000 INSULATED 9 LITE ENTRANCE DOOR AND PLASTPRO PF JAMB W/ LEVER TYPE LOCKSET, ANSI F109.

SYMBOLS

- DENOTES FIRE EXTINGUISHER LOCATION. FIRE EXTINGUISHER SHALL BE 2A:10B:C MOUNTED AT 48" TO TOP.
- DENOTES EMERGENCY LIGHT WITH BATTERY BACK UP
- DENOTES LIGHTED EXIT SIGNS
- DENOTES EXTERIOR EMERGENCY LIGHT WITH BATTERY BACK UP

GENERAL CONTRACTOR
POLE BUILDINGS UNLIMITED

W.F.HORN ARCHITECT, INC.
30093 W. BARRIER REEF BLVD. LEWES, DELAWARE
PHONE: 302-674-1920 302-231-2178

NEW BUILDING FOR:
MIKE HALL
28580 MARY'S COURT
EASTON, MARYLAND

PRINTED 12/23/24 – FOR CONSTRUCTION

FLOOR PLAN AND NOTES

THE STATE OF MARYLAND · WILLIAM FREDERICK HORN · 12319 · REGISTERED ARCHITECT

PROFESSIONAL CERTIFICATION

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NUMBER 12319, EXPIRATION DATE 1/6/2026.

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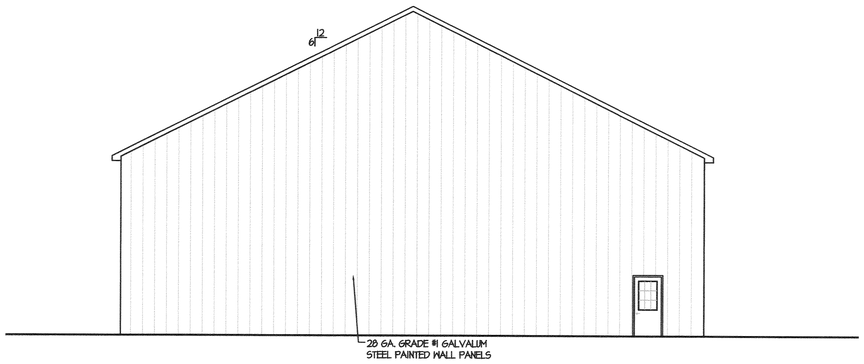
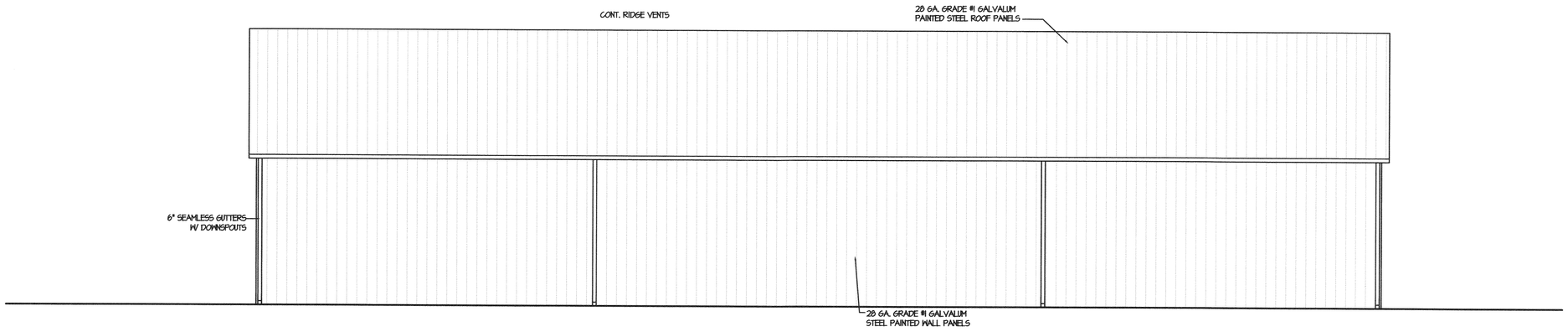
DESIGNED	WFH
DRAWN	PAH
CHECKED	WFH
DATE	12/19/24
PROJ. NO.	32469
SCALE	AS NOTED
SHEET NO.	A1.1



1 FRONT ELEVATION
1/8" = 1'-0"



2 RIGHT SIDE ELEVATION
1/8" = 1'-0"

GENERAL CONTRACTOR
POLE BUILDINGS
UNLIMITED

W.F.HORN
ARCHITECT, INC.
30093 W. BARRIER REEF BLVD. LEWES, DELAWARE
PHONE: 302-674-1620 302-231-2176

NEW BUILDING FOR:
MIKE HALL
28580 MARYS COURT
EASTON, MARYLAND

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ELEVATIONS

STATE OF MARYLAND
WILLIAM FREDERICK HORN
12319
ARCHITECT

PROFESSIONAL CERTIFICATION

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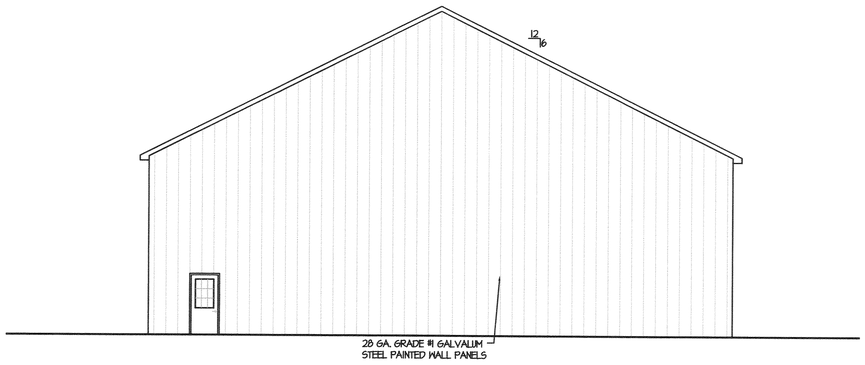
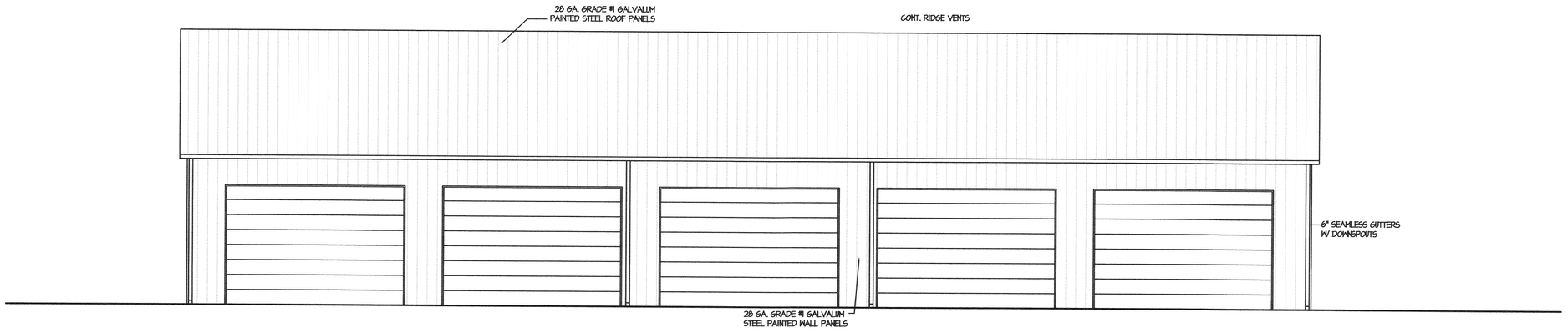
DESIGNED	WFH
DRAWN	PAH
CHECKED	WFH
DATE	12/19/24
PROJ. NO.	32469
SCALE	AS NOTED
SHEET NO.	A2.1



3 REAR ELEVATION
1/8" = 1'-0"



4 LEFT SIDE ELEVATION
1/8" = 1'-0"

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POLE BUILDINGS
UNLIMITED

W.F.HORN
ARCHITECT, INC.
30093 W. BARRIER REEF BLVD. LEWES, DELAWARE
PHONE: 302-674-1620 302-231-2176

NEW BUILDING FOR:
MIKE HALL
28580 MARY'S COURT
EASTON, MARYLAND

PRINTED 12/23/24 – FOR CONSTRUCTION

ELEVATIONS

STATE OF MARYLAND
WILLIAM FREDERICK HORN
12319
REGISTERED
ARCHITECT

PROFESSIONAL CERTIFICATION

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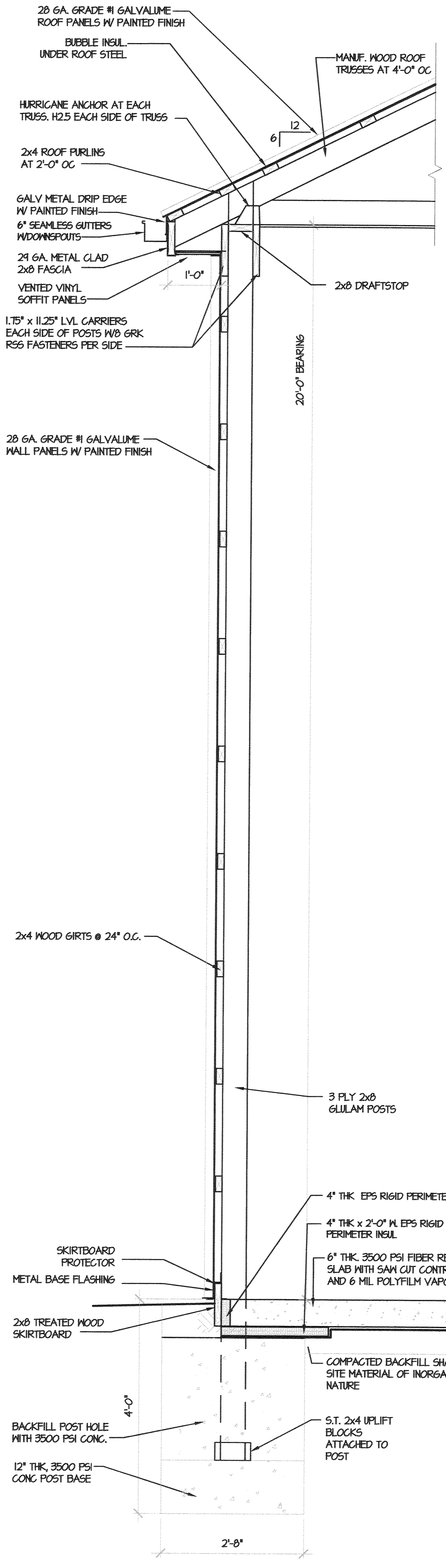
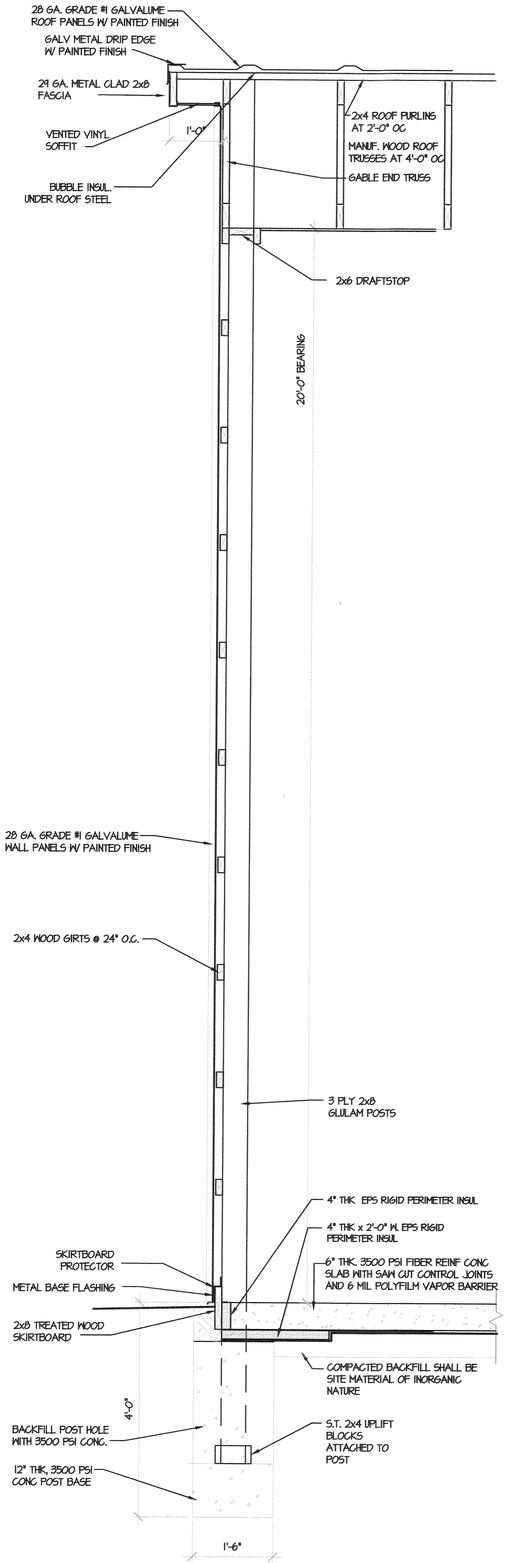
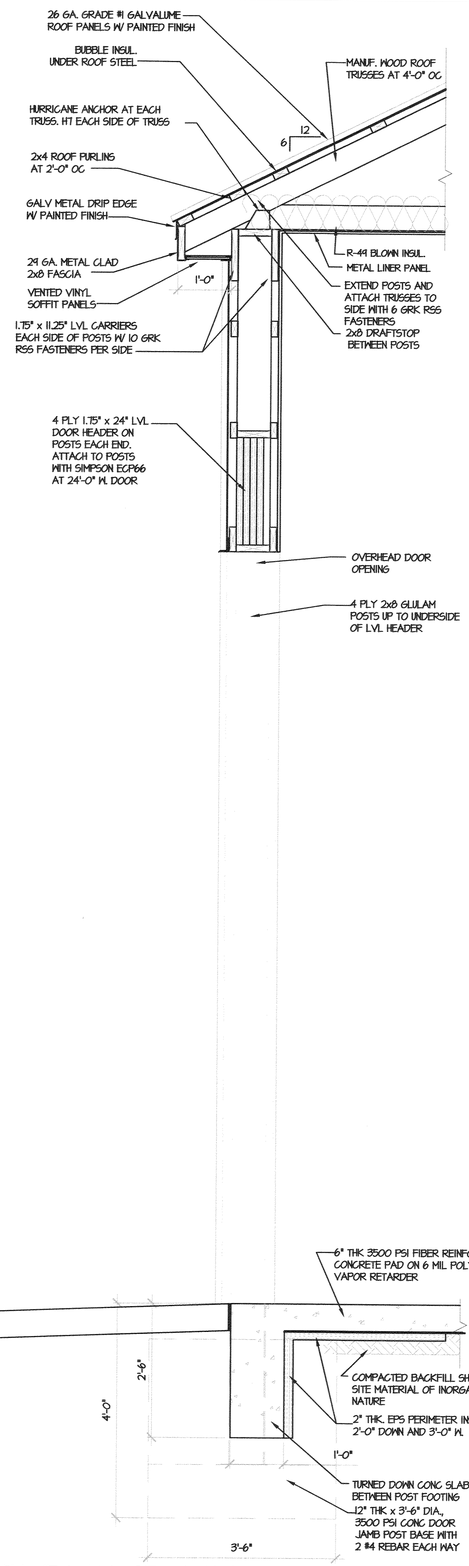


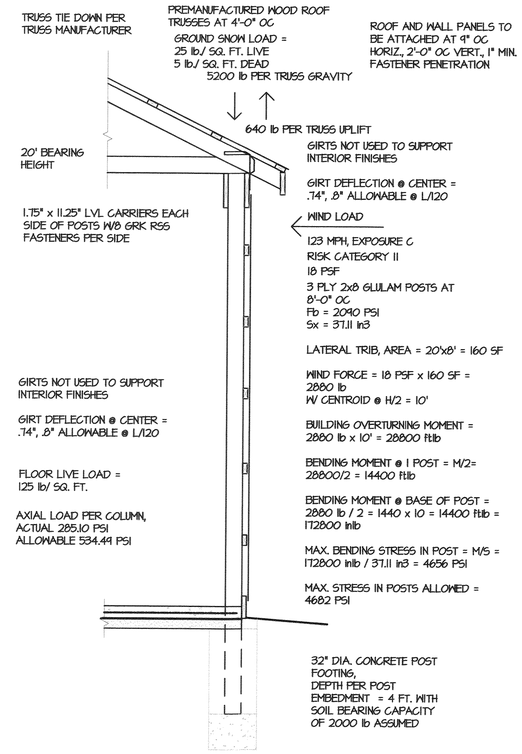
1 EAVE WALL SECTION
3/4" = 1'-0"



2 GABLE WALL SECTION
3/4" = 1'-0"



3 EAVE WALL SECTION AT OVERHEAD DOOR
3/4" = 1'-0"



5 STRUCTURAL WALL SECTION
1/2" = 1'-0"

GENERAL CONTRACTOR
POLE BUILDINGS
UNLIMITED

W.F.HORN
ARCHITECT, INC.
30093 W. BARRIER REEF BLVD. LEWES, DELAWARE
PHONE: 302-674-1620 302-231-2176

NEW BUILDING FOR:
MIKE HALL
28580 MARY'S COURT
EASTON, MARYLAND

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SECTIONS

STATE OF MARYLAND FREDERICK WILLIAM HORN 12319 ARCHITECT

PROFESSIONAL CERTIFICATION

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DESIGNED	WFH
DRAWN	PAH
CHECKED	WFH
DATE	12/19/24
PROJ. NO.	32469
SCALE	AS NOTED
SHEET NO.	A3.1

Lane Engineering, LLC

STORMWATER MANAGEMENT REPORT

SOMERSET WELL DRILLING
EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR:

Somerset Well Drilling
c/o Michael Hall
28580 Marys Court
Easton, Maryland 21601
(443) 783-9950

PREPARED BY:

Brittany Wallace, P.E.

DATE PREPARED:

February 1, 2025

PROFESSIONA CERTIFICATION: I hereby certify that this document was prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. 23152, Expiration Date: 7/05/2025.

LANE ENGINEERING, LLC
117 BAY STREET
EASTON, MARYLAND 21601
410-822-8003

Table of Contents

Appendices

Introduction

This report addresses the impacts of stormwater runoff as a result of the proposed improvements on Lots 16 and 20 of the Talbot Commerce Park, located in Easton, MD. The stormwater management plan incorporates the requirements of the 2000 Maryland Stormwater Design Manual Volumes I and II (Manual) as currently updated. This report addresses stormwater requirements and meets the intent of the guidelines and methodologies presented in the MDE document Environmental Site Design (ESD) Process & Computations dated July 2010.

General Site Information

This project is located on Parcel 46, Lots 16 and 20, on Marys Court. The parcel is within Tax Map 25 and is zoned BC – Business Commercial with a combined site area of 13.99 acres± and a Limits of Disturbance (LOD) for all phases of proposed development of 3.39 acres±. The project site is located partially inside the Chesapeake Bay Critical Area.

Figure 1: Aerial View of Site

Existing Conditions

Lots 16 and 20 are both currently developed lots within the Talbot Commerce Park. The central portion of Lot 16 contains a 4,600 square foot office building with approximately 8,010 sf of semi-detached warehouse storage space and a 25,250 concrete pad for equipment storage, as well as a 12,150 sf office building with an asphalt parking lot in the southwest corner of the lot. An existing sewage reserve area, that serves all existing buildings, is located to the north of the equipment storage pad. An existing regional stormwater management pond is located within an easement on the central portion of Lot 20, to the west of the existing office building. To the south of the stormwater pond, the lot is undeveloped. To the north of the pond, the lot is undeveloped save for a small shed on a concrete pad (approximately 800 sf) which is located on an unused sewage disposal area. Lot 20 currently has no vehicular access points from Mary's Court.

It is proposed that both sewage reserve areas on each lot be abandoned. A new grinder pump and force main system is proposed to be installed on Lot 16 to serve both the existing buildings and any future buildings, and will tie to the public sewer system located in Mary's Court. Water is served by a well located on Lot 16.

The entirety of Lot 20 and part of Lot 16 are inside the IDA Critical Area zone. Both lots are subject to stream buffers and an existing forest conservation area on their northern boundaries.

The existing building and equipment pad on Lot 16 act as a high point, directing drainage to the forest conservation area to the north and east before entering Glebe Creek, and to a drainage ditch to the west, which then enters a closed storm drain system direct to the regional stormwater pond on Lot 20. An existing high point is located generally in the east-central portion of the development area on Lot 20, directing drainage via overland flow to the regional stormwater pond to the southwest and the forest conservation area and Glee Creek to the north.

Within the proposed development area are Hydrologic Group C/D soils, per published soil maps for Talbot County.

Symbol	***Soils Name***	***Soil Group***
CsA	Crosiadore Silt Loam	C/D
MtA	Mattapex Silt Loam	C
MtB	Mattapex Silt Loam	C
WoA	Woodstown Loam	C
WoB	Woodstown Loam	C
Zk	Zekiah	C/D

Proposed Project

Of the approximately 13.99 acre site, roughly 3.39 acres is proposed to be developed. For development in the immediate future- two enclosed pole buildings for storage and an associated gravel access drive and parking pad, the removal of an existing septic system to be replaced with a grinder pump and force main, and the abandonment of two existing sewage reserve areas. There is a possibility for additional developments, two single story office buildings with associated parking lots and an access drive providing connection to the existing parking lots on Lot 16, on Lot 20 at some point in the future. Sewer stubs will be installed as part of the current construction to serve the future buildings.

The site LOD encompasses the demolition of existing site features, all proposed construction, including the possible future improvements, and landscaping. Refer to the Site Construction Plans for additional detailed information.

Stormwater Management

The overall project layout includes two submerged gravel wetlands, one located on the northern side of lots 16 and 20, bordering the existing forest conservation area, and one on Lot 20 to the west of the proposed future improvements, to capture runoff for water quality treatment and to provide quantity management. A network of open and closed storm drain systems and overland sheet flow will direct runoff to these facilities. A small portion of the future access road will drain into the existing regional stormwater pond, located in an easement on Lot 20.

The stormwater management quantity and quality computations are based on the overall proposed limits of disturbance (LOD) area, the proposed impervious areas within it, and the soil types present on site, as required.

Stormwater Quantity Management

There are 3 locations where runoff generally exits the site as it exists currently, identified on the drainage area maps as "points of interest" or POI's, which were used to evaluate the effects on downstream/offsite drainage patterns based on the changes that will occur as part of the proposed construction. Each POI was analyzed for the 2-, 10-, and 100-year storm events per the Delmarva Hydrograph, in both existing and proposed conditions.

The site was analyzed using HydroCAD software, with the following results:

POI	***Peak Runoff (cfs)***					
	2-year		***10-year***		***100-year***	
	Pre	***Post***	***Pre***	***Post***	***Pre***	***Post***
1	2.22	0.00	4.69	0.92	7.86	5.76
2	0.45	0.00	0.95	0.11	1.60	2.17
3	0.36	0.32	0.76	0.62	1.27	1.00
Total Runoff Leaving Site	**2.94**	**0.32**	**6.22**	**1.65**	**10.44**	**8.93**

As seen above, the peak runoff exiting the project site will be reduced under proposed conditions for all storm events, and flow velocities for all POIs during all storm events are non-erosive.

Please see Appendix A for quantity management calculations. Please see Appendix c for drainage area maps.

Stormwater Quality Management

A target Environmental Site Design Volume (ESDv) of 14,560 cf was computed based on the project's LOD, which covers approximately 3.39 acres and includes the future Phase 2 improvements. Approximately 60% of the LOD will be an impervious ground cover.

ESD Practices Evaluation

Alternative Surfaces

- Green Rooftops – Not economical for Industrial usage
- Permeable Pavements – Permeable pavements require significant maintenance and are not desirable for commercial applications or areas of repeated heavy equipment loading.
- Reinforced Turf - Reinforced turf areas are commonly used for emergency equipment access or for areas that receive minimal vehicular use. Reinforced turf is not desirable for commercial applications.

Nonstructural practices

- Disconnection of Rooftop Runoff – Insufficient greenspace onsite to meet the required design criterion.
- Disconnection of Non-Rooftop Runoff – Insufficient greenspace onsite to meet the required design criterion.

- Sheetflow to Conservation Area – The configuration of the improvements do not allow for sheetflow discharge to site adjacent forest conservation areas.

Micro-scale practices

- Rainwater Harvesting – Opportunities for on-site reuse of harvested rainwater is limited. Irrigation is not proposed for the site. Operations and maintenance, especially during cold-weather periods, is also a concern.
- **Submerged Gravel Wetlands** – This practice is best suited for sites with a high groundwater table and poor soils. Mapped soils are predominantly C/D soils and ponds of significant excavation are likely to intercept groundwater if placed on the lower elevation portion of the site.
- Landscape Infiltration – It is assumed there is not a significant infiltration potential within the project LOD without additional geotechnical exploration.
- Infiltration Berms – The requirements of the proposed development do not leave enough room for the implementation of this practice.
- Dry Wells – This practice is viewed as undesirable in Talbot County where many sites frequently have seasonal high ground water and other maintenance concerns. Dry wells are typically reserved for the treatment of building rooftops and would therefore require additional practices to supplement.
- Micro-Bioretention – This practice will provide significant treatment. Maintenance for this practice is reasonable.
- Rain Gardens – This practice is better suited for residential environments.
- Swales – This practice provides the required treatment, is relatively easy to construct and maintain, and will enhance existing site drainage patterns.

Due to the poor in-situ soils, as mapped and observed by field inspection, it appears that Submerged Gravel Wetland represents the most economical form of quality treatment. Gravel wetlands are ideal for large drainage areas that generate significant runoff as they need to maintain a saturated media.

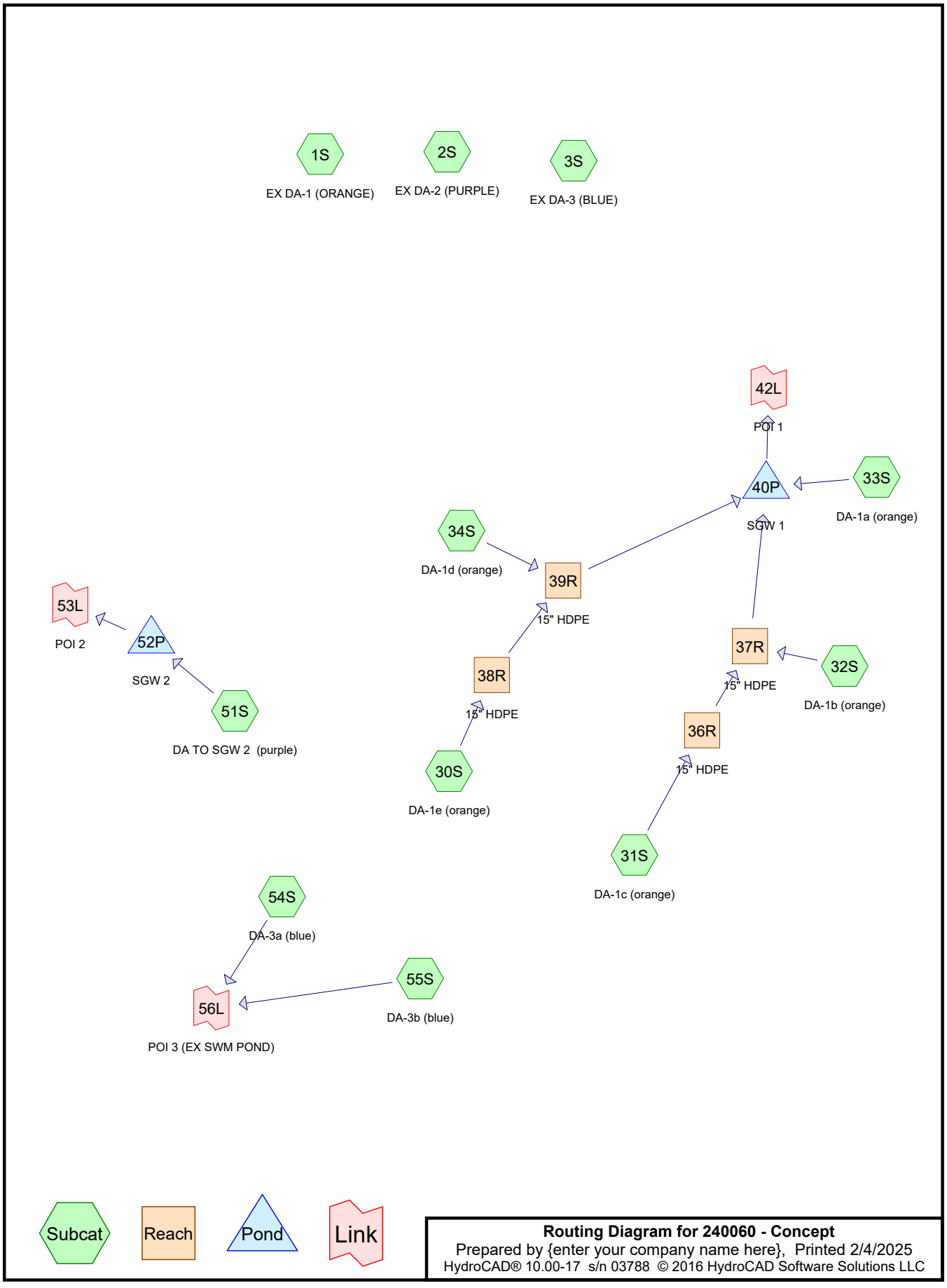
Submerged Gravel Wetlands are proposed to address the ESDv requirement. The total ESDv provided by ponding storage from these practices is 15,258 cf. Refer to Appendix B for calculations. It is proposed that SGW 1 be constructed intially at a size that would satisfy the ESDv requirement for the current development, and later expanded to satisfy the additional ESDv required for the future development.

Conclusion

This stormwater management analysis indicates that the proposed design will successfully meet stormwater quality requirements with quantity management being previously satisfied at the time of the industrial park subdivision.

APPENDIX A

HYDROCAD QUANTITY MANAGEMENT ANALYSIS



Routing Diagram for 240060 - Concept
Prepared by {enter your company name here}, Printed 2/4/2025
HydroCAD® 10.00-17 s/n 03788 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: EX DA-1 (ORANGE)

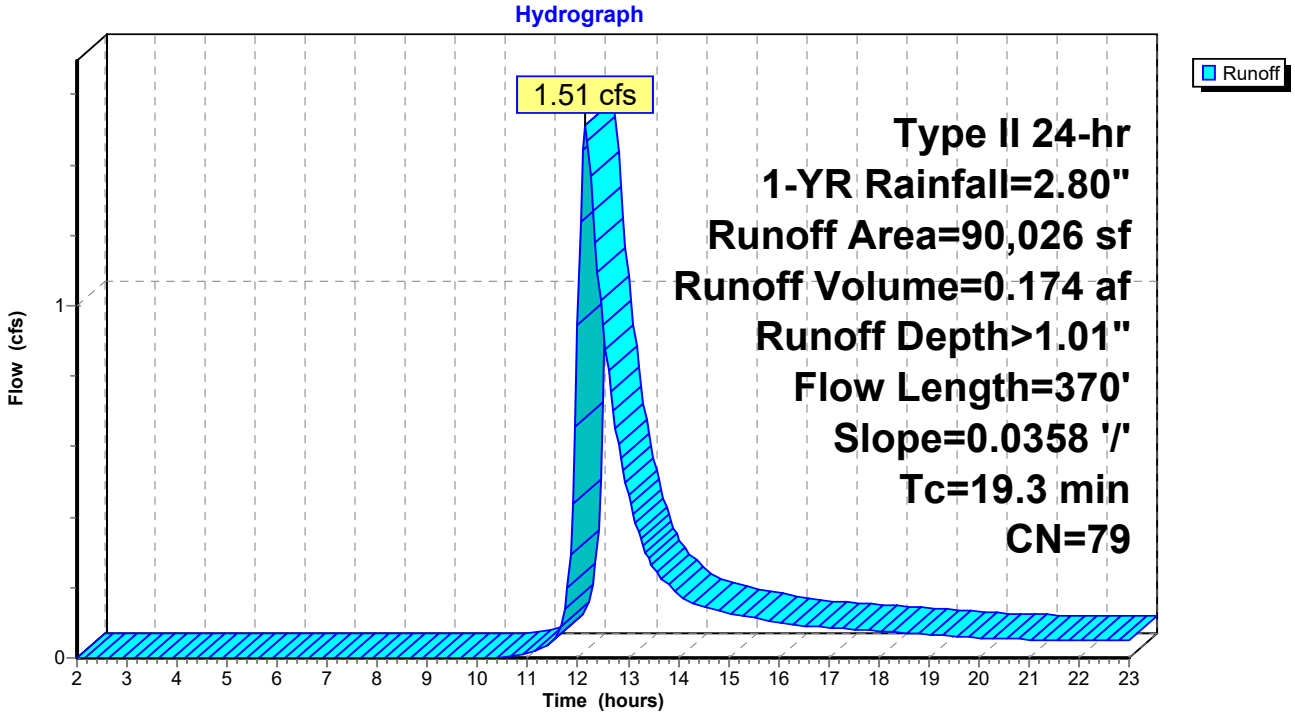
Runoff = 1.51 cfs @ 12.15 hrs, Volume= 0.174 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.80"

	Area (sf)	CN	Description
*	224	98	existing shed
	89,802	79	50-75% Grass cover, Fair, HSG C
	90,026	79	Weighted Average
	89,802		99.75% Pervious Area
	224		0.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0358	0.14		**Sheet Flow, a-b** Grass: Dense n= 0.240 P2= 2.40"
1.2	220	0.0358	3.05		**Shallow Concentrated Flow, b-c** Unpaved Kv= 16.1 fps
19.3	370	Total			

Subcatchment 1S: EX DA-1 (ORANGE)



Summary for Subcatchment 2S: EX DA-2 (PURPLE)

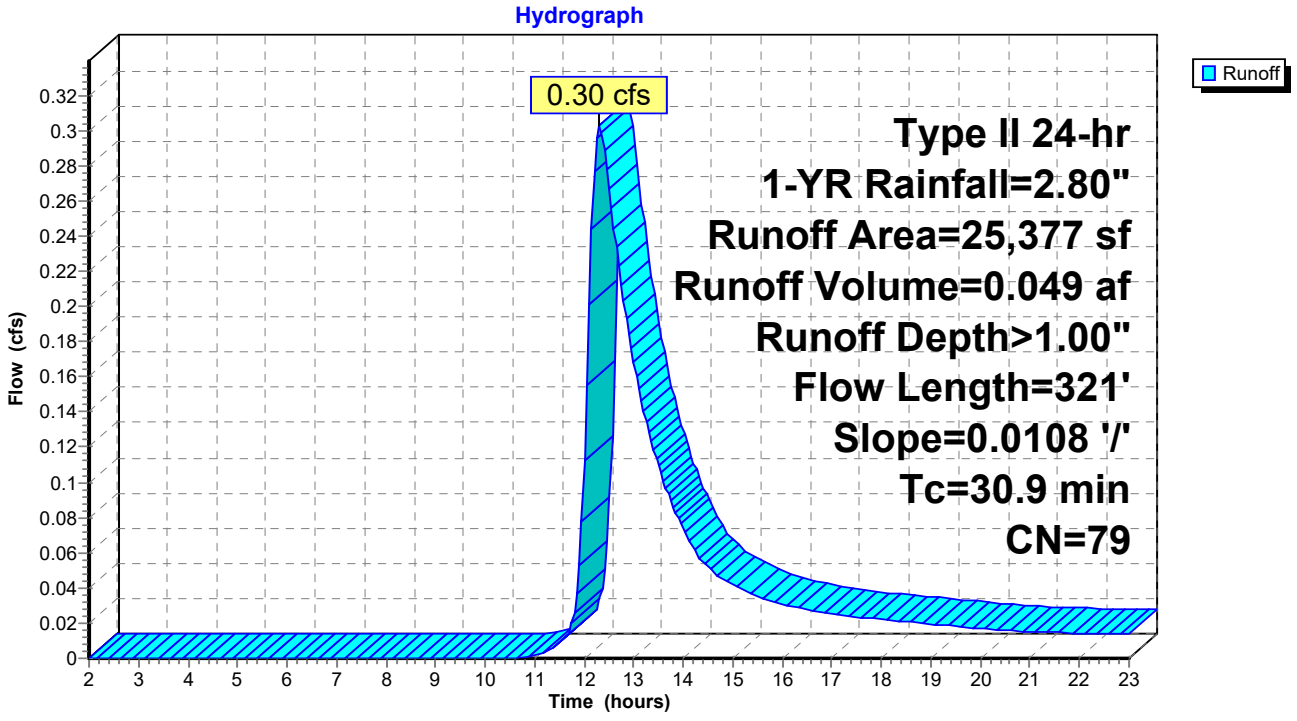
Runoff = 0.30 cfs @ 12.30 hrs, Volume= 0.049 af, Depth> 1.00"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
25,377	79	50-75% Grass cover, Fair, HSG C
25,377		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	150	0.0108	0.09		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
1.7	171	0.0108	1.67		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
30.9	321	Total			

Subcatchment 2S: EX DA-2 (PURPLE)



Summary for Subcatchment 3S: EX DA-3 (BLUE)

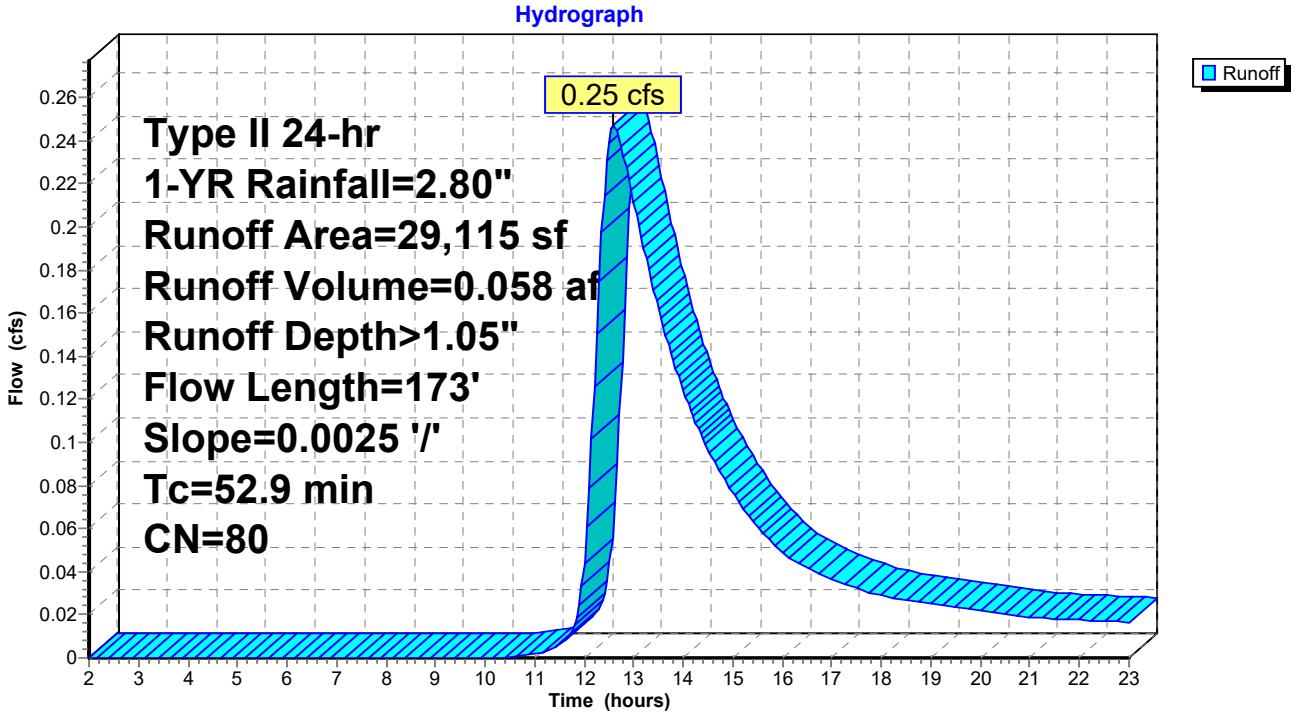
Runoff = 0.25 cfs @ 12.60 hrs, Volume= 0.058 af, Depth> 1.05"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
28,117	79	50-75% Grass cover, Fair, HSG C
998	98	Paved parking, HSG C
29,115	80	Weighted Average
28,117		96.57% Pervious Area
998		3.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.4	150	0.0025	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.5	23	0.0025	0.81		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
52.9	173	Total			

Subcatchment 3S: EX DA-3 (BLUE)



Summary for Subcatchment 30S: DA-1e (orange)

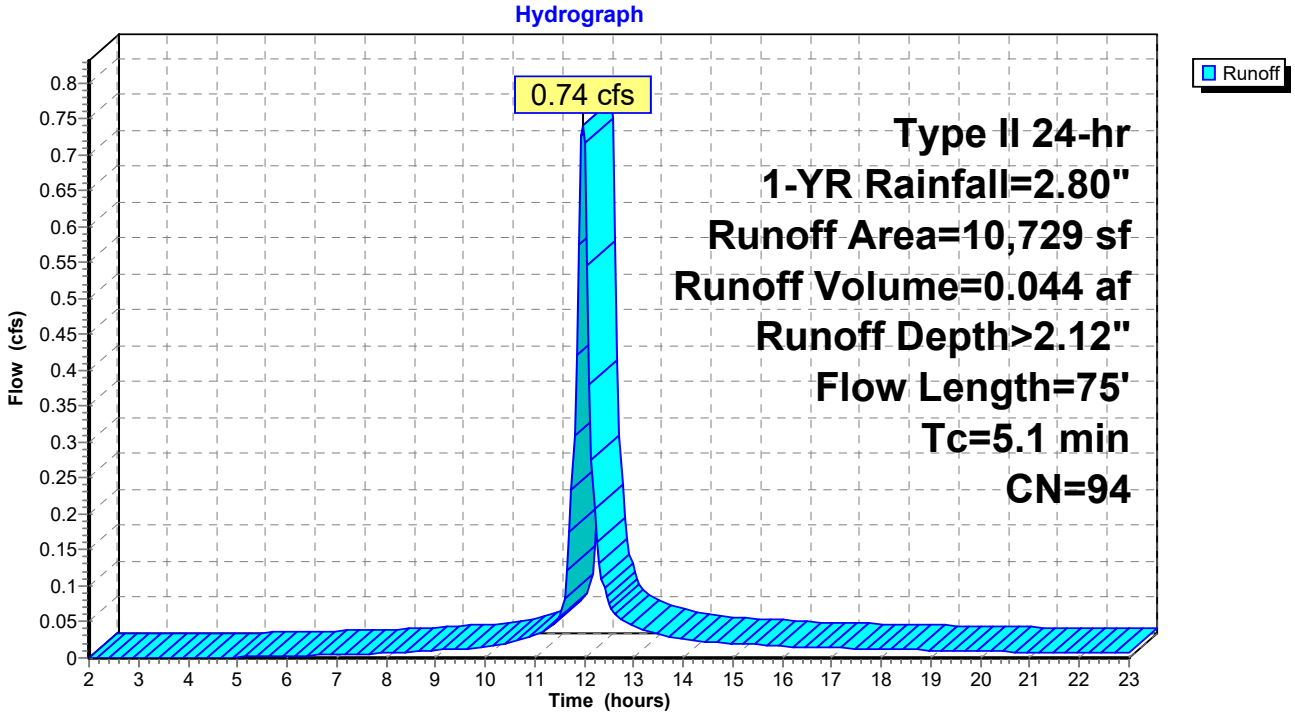
Runoff = 0.74 cfs @ 11.97 hrs, Volume= 0.044 af, Depth> 2.12"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
8,909	98	Paved parking, HSG C
1,820	74	>75% Grass cover, Good, HSG C
10,729	94	Weighted Average
1,820		16.96% Pervious Area
8,909		83.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	14	0.0095	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	48	0.0134	1.86		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.1	13	0.0075	1.76		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
5.1	75	Total			

Subcatchment 30S: DA-1e (orange)



Summary for Subcatchment 31S: DA-1c (orange)

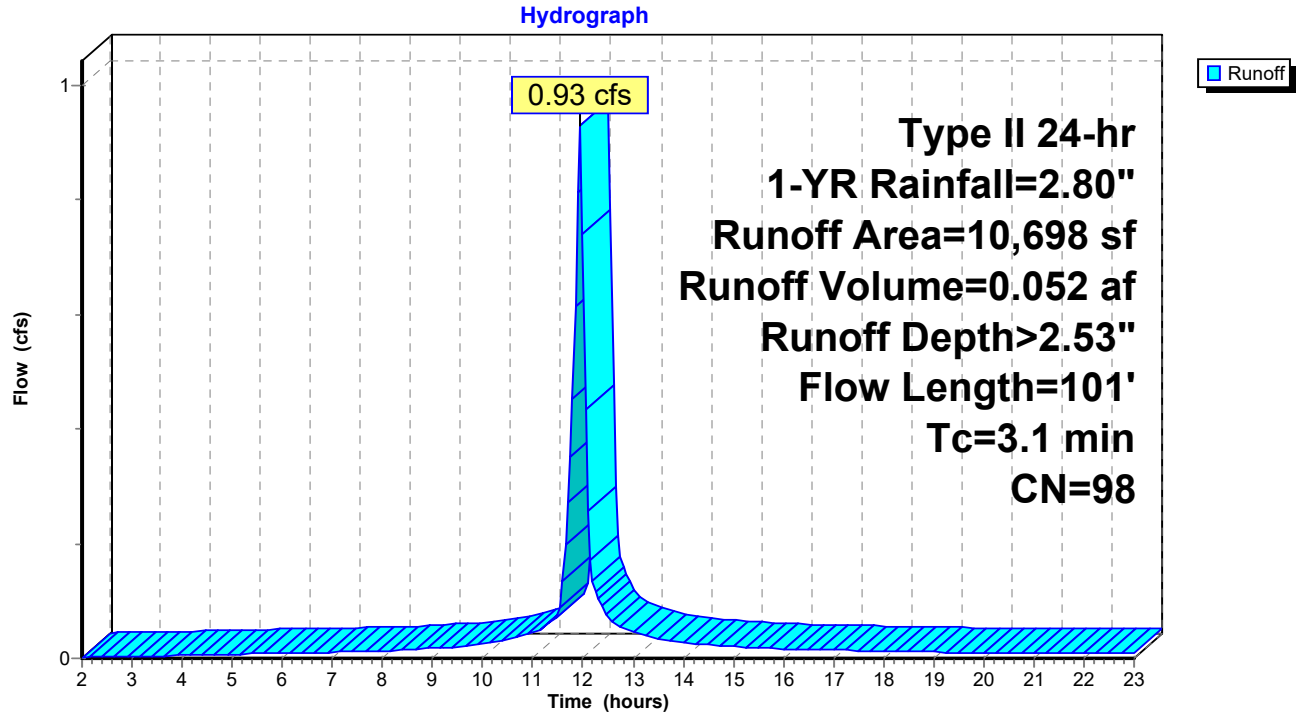
Runoff = 0.93 cfs @ 11.94 hrs, Volume= 0.052 af, Depth> 2.53"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
10,698	98	Paved parking, HSG C
10,698		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	67	0.0016	0.40		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.3	34	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
3.1	101	Total			

Subcatchment 31S: DA-1c (orange)



Summary for Subcatchment 32S: DA-1b (orange)

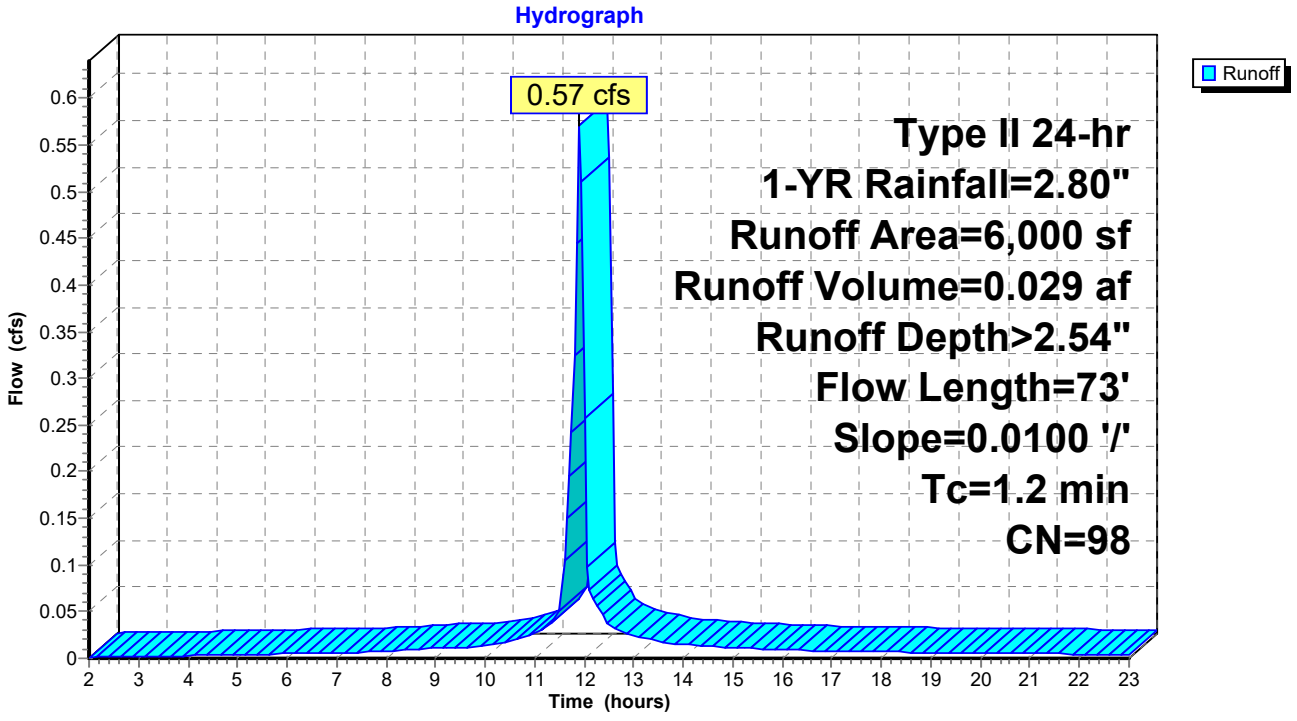
Runoff = 0.57 cfs @ 11.91 hrs, Volume= 0.029 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
6,000	98	Paved parking, HSG C
6,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	39	0.0100	0.75		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.3	34	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.2	73	Total			

Subcatchment 32S: DA-1b (orange)



Summary for Subcatchment 33S: DA-1a (orange)

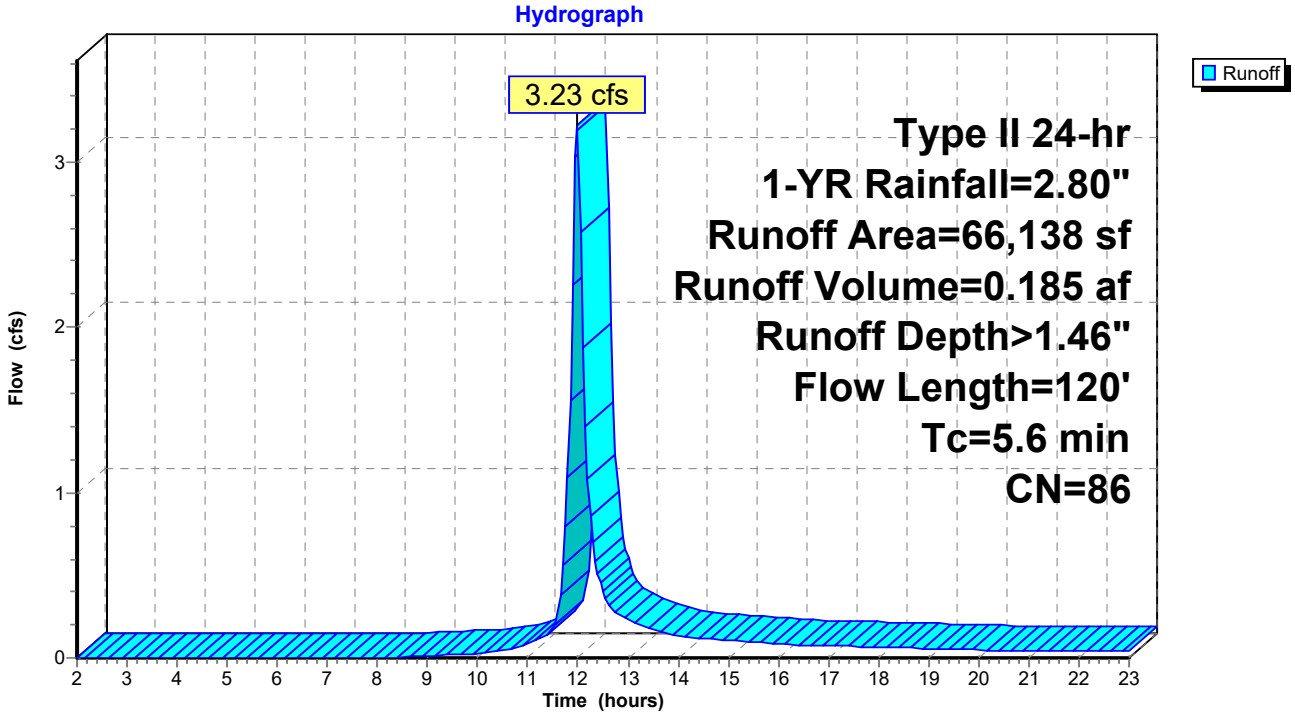
Runoff = 3.23 cfs @ 11.99 hrs, Volume= 0.185 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
32,038	98	Paved parking, HSG C
34,100	74	>75% Grass cover, Good, HSG C
66,138	86	Weighted Average
34,100		51.56% Pervious Area
32,038		48.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	33	0.0439	0.11		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.6	87	0.0253	2.56		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.6	120	Total			

Subcatchment 33S: DA-1a (orange)



Summary for Subcatchment 34S: DA-1d (orange)

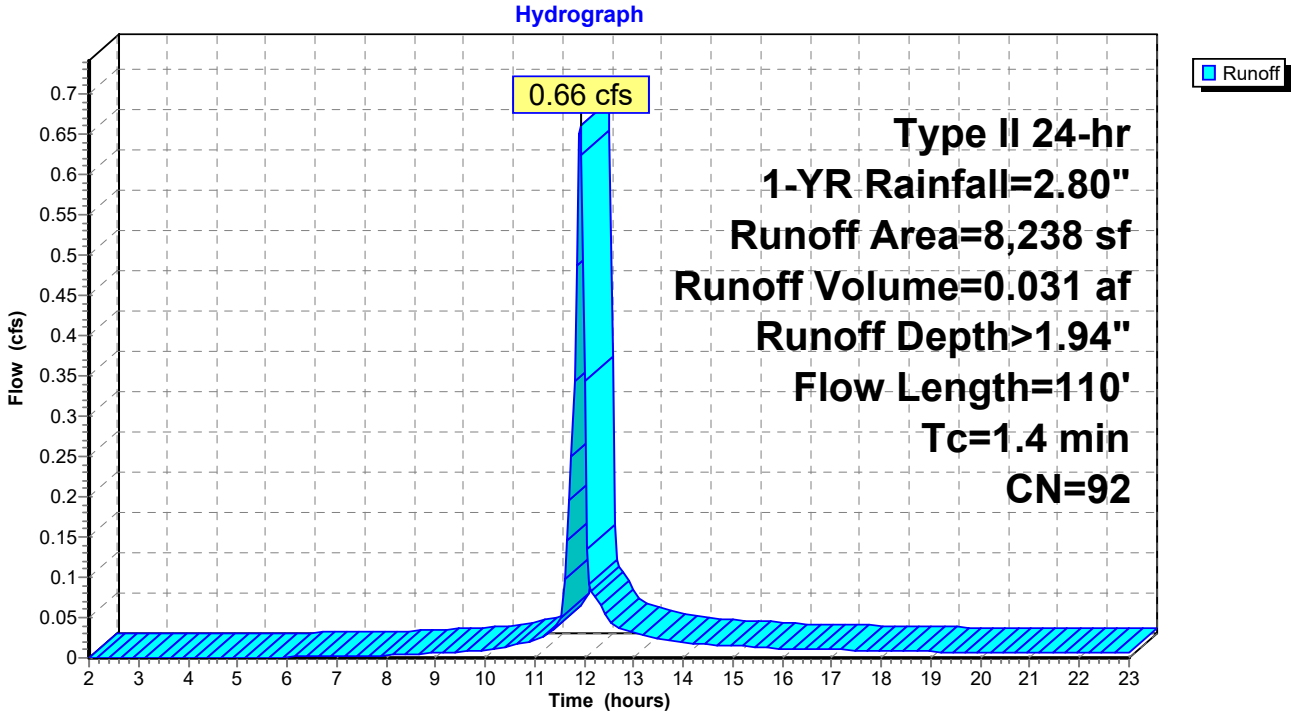
Runoff = 0.66 cfs @ 11.92 hrs, Volume= 0.031 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
6,157	98	Paved parking, HSG C
2,081	74	>75% Grass cover, Good, HSG C
8,238	92	Weighted Average
2,081		25.26% Pervious Area
6,157		74.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	34	0.0156	0.87		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.7	76	0.0075	1.76		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.4	110	Total			

Subcatchment 34S: DA-1d (orange)



Summary for Subcatchment 51S: DA TO SGW 2 (purple)

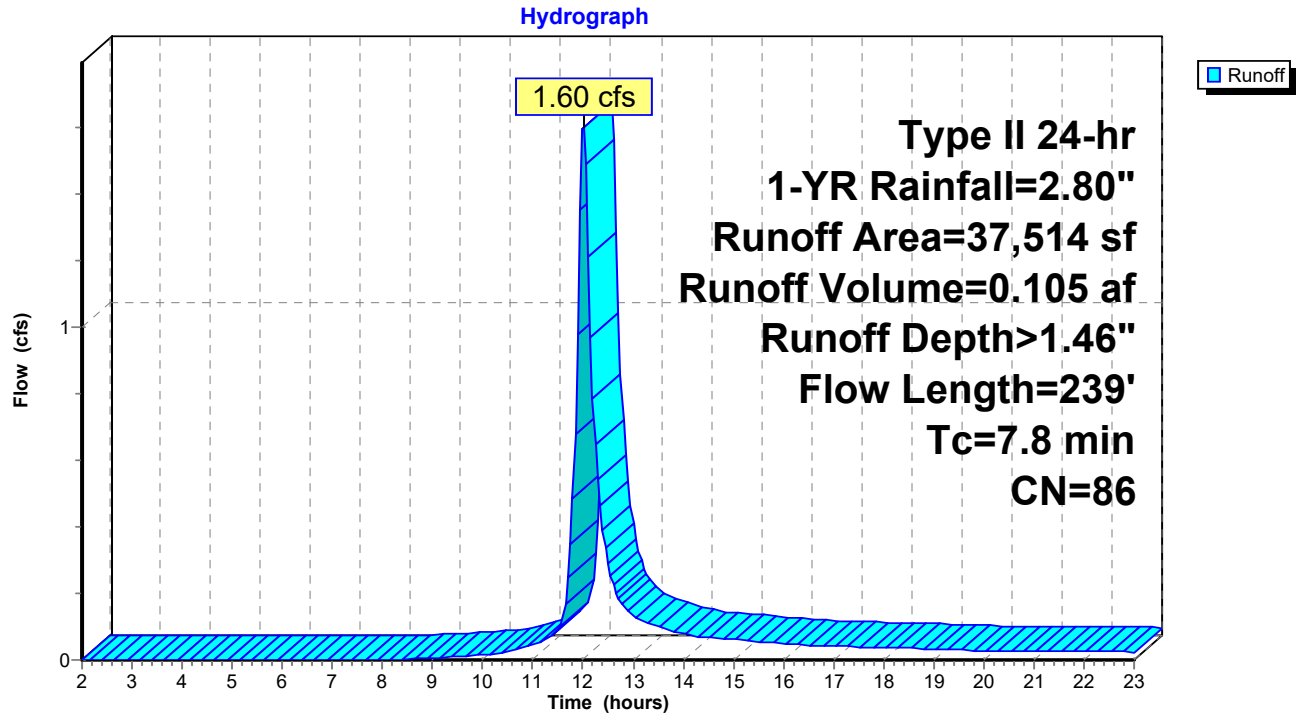
Runoff = 1.60 cfs @ 12.01 hrs, Volume= 0.105 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
18,394	98	Paved parking, HSG C
19,120	74	>75% Grass cover, Good, HSG C
37,514	86	Weighted Average
19,120		50.97% Pervious Area
18,394		49.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	14	0.0095	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	35	0.0075	1.39		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.8	190	0.0051	1.15		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
7.8	239	Total			

Subcatchment 51S: DA TO SGW 2 (purple)



Summary for Subcatchment 54S: DA-3a (blue)

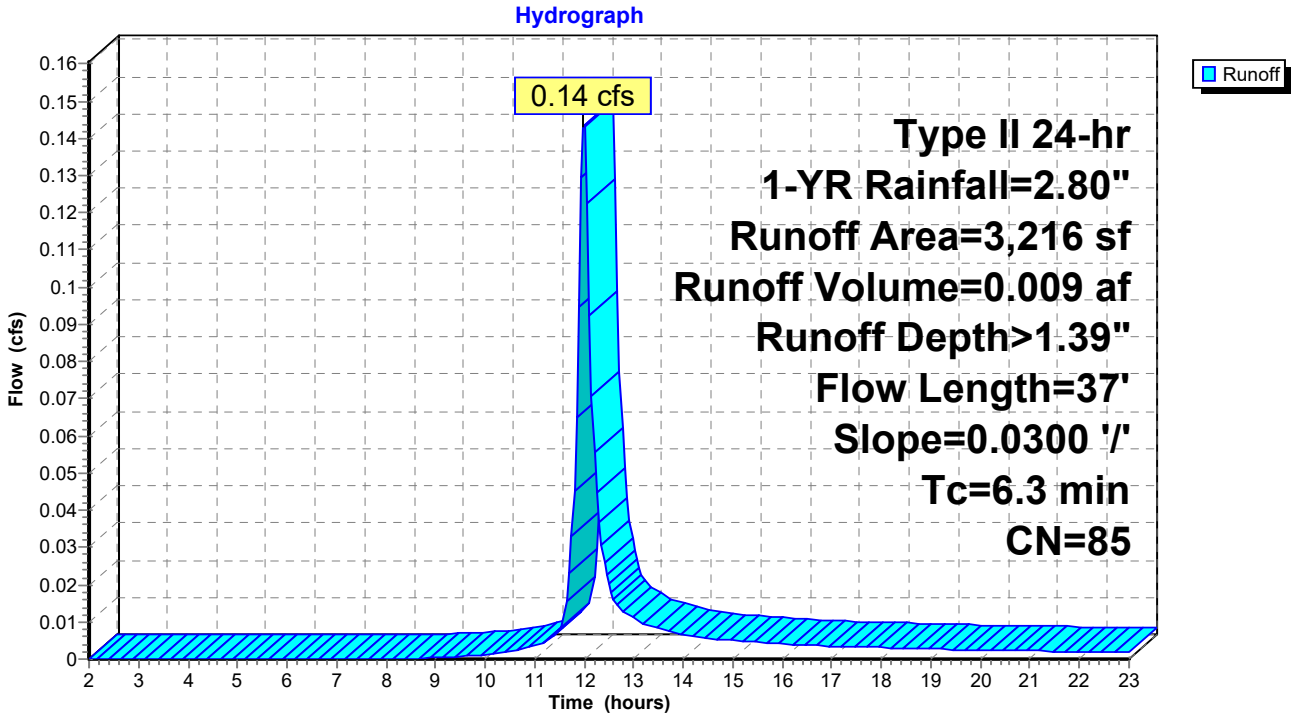
Runoff = 0.14 cfs @ 11.99 hrs, Volume= 0.009 af, Depth> 1.39"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
1,480	98	Paved parking, HSG C
1,736	74	>75% Grass cover, Good, HSG C
3,216	85	Weighted Average
1,736		53.98% Pervious Area
1,480		46.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	37	0.0300	0.10		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"

Subcatchment 54S: DA-3a (blue)



Summary for Subcatchment 55S: DA-3b (blue)

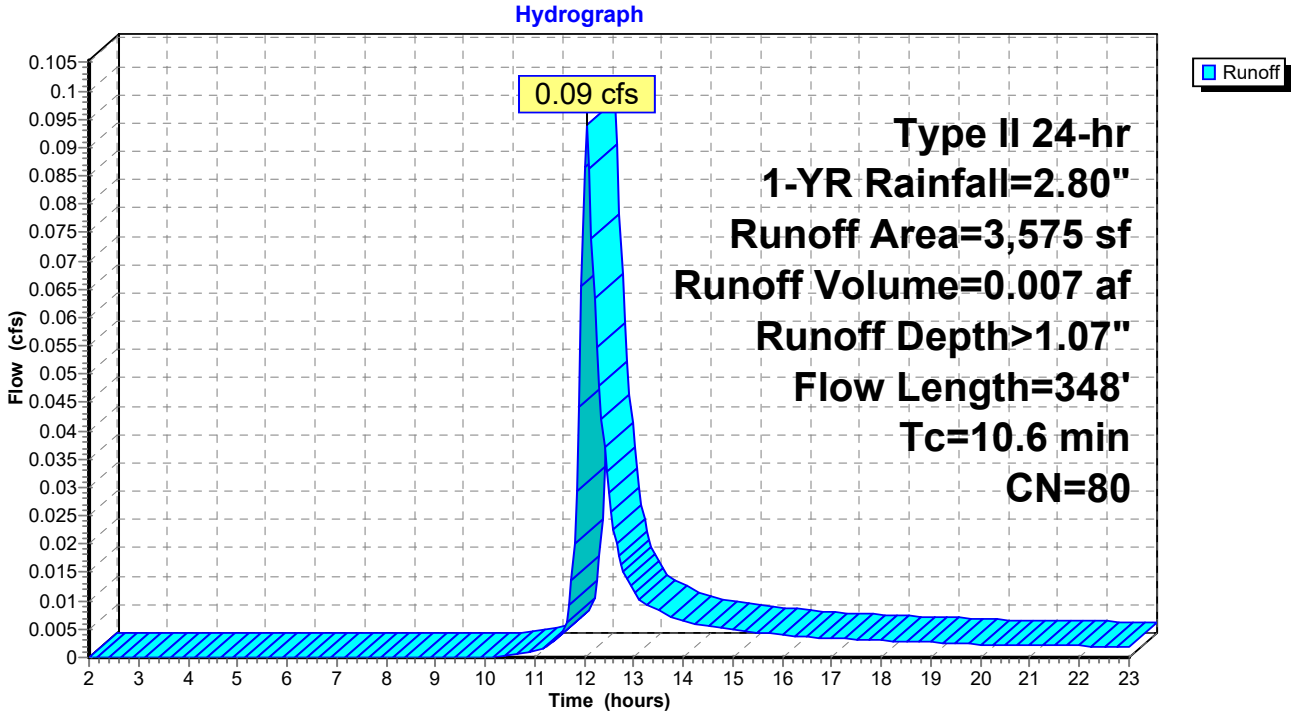
Runoff = 0.09 cfs @ 12.05 hrs, Volume= 0.007 af, Depth> 1.07"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
850	98	Paved parking, HSG C
2,725	74	>75% Grass cover, Good, HSG C
3,575	80	Weighted Average
2,725		76.22% Pervious Area
850		23.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	46	0.0222	0.09		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	100	0.0050	3.79	2.98	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
1.7	202	0.0149	1.97		**Shallow Concentrated Flow, EX SWALE TO INLET 4** Unpaved Kv= 16.1 fps
10.6	348	Total			

Subcatchment 55S: DA-3b (blue)



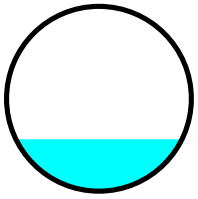
Summary for Reach 36R: 15" HDPE

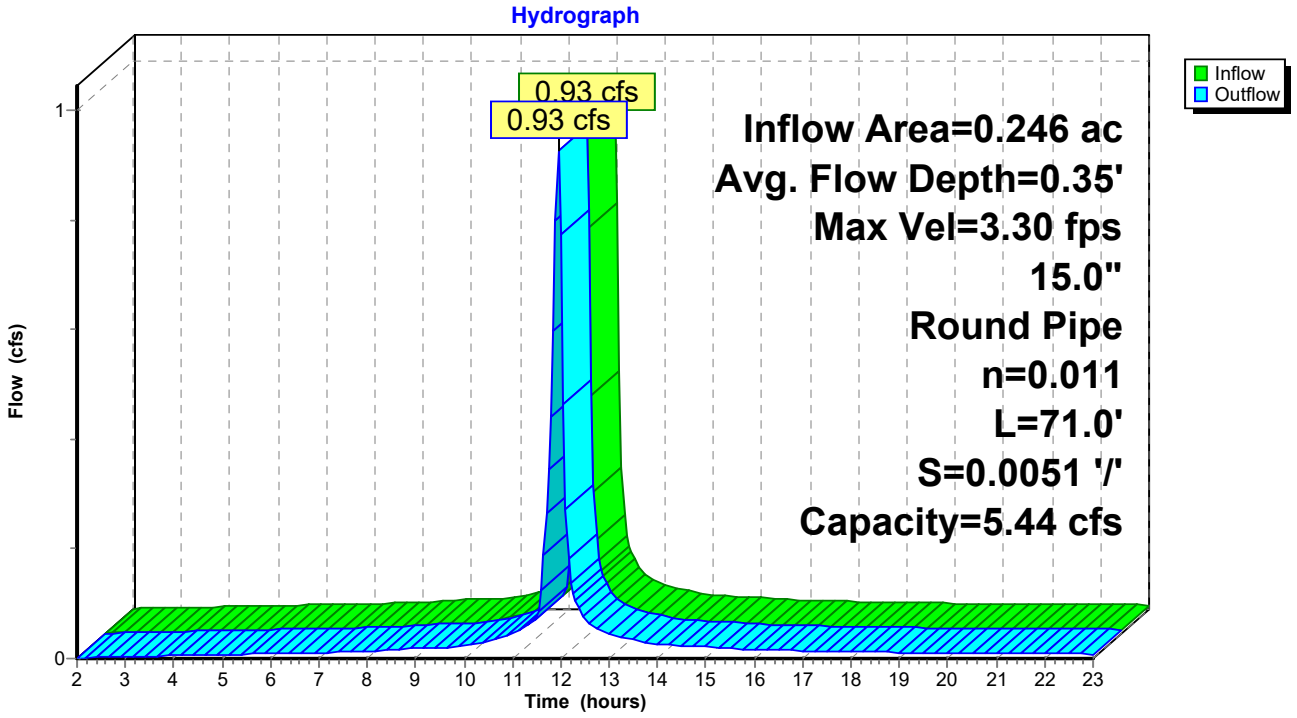
Inflow Area = 0.246 ac,100.00% Impervious, Inflow Depth > 2.53" for 1-YR event
Inflow = 0.93 cfs @ 11.94 hrs, Volume= 0.052 af
Outflow = 0.93 cfs @ 11.95 hrs, Volume= 0.052 af, Atten= 1%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.30 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.99 fps, Avg. Travel Time= 1.2 min

Peak Storage= 20 cf @ 11.95 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.44 cfs

15.0" Round Pipe
n= 0.011 PVC, smooth interior
Length= 71.0' Slope= 0.0051 '/'
Inlet Invert= 11.16', Outlet Invert= 10.80'





Stage-Area-Storage for Reach 36R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.16	0.0	0
11.18	0.0	0
11.20	0.0	1
11.22	0.0	2
11.24	0.0	2
11.26	0.0	3
11.28	0.1	4
11.30	0.1	5
11.32	0.1	7
11.34	0.1	8
11.36	0.1	9
11.38	0.1	10
11.40	0.2	12
11.42	0.2	13
11.44	0.2	15
11.46	0.2	16
11.48	0.2	18
11.50	0.3	19
11.52	0.3	21
11.54	0.3	22
11.56	0.3	24
11.58	0.4	26
11.60	0.4	27
11.62	0.4	29
11.64	0.4	31
11.66	0.5	33
11.68	0.5	34
11.70	0.5	36
11.72	0.5	38
11.74	0.6	40
11.76	0.6	41
11.78	0.6	43
11.80	0.6	45
11.82	0.7	47
11.84	0.7	48
11.86	0.7	50
11.88	0.7	52
11.90	0.8	54
11.92	0.8	55
11.94	0.8	57
11.96	0.8	59
11.98	0.9	61
12.00	0.9	62
12.02	0.9	64
12.04	0.9	66
12.06	0.9	67
12.08	1.0	69
12.10	1.0	70
12.12	1.0	72
12.14	1.0	73
12.16	1.1	75
12.18	1.1	76
12.20	1.1	77
12.22	1.1	79
12.24	1.1	80
12.26	1.1	81
12.28	1.2	82
12.30	1.2	83
12.32	1.2	84
12.34	1.2	85
12.36	1.2	86
12.38	1.2	87
12.40	**1.2**	**87**

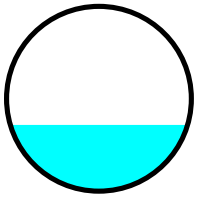
Summary for Reach 37R: 15" HDPE

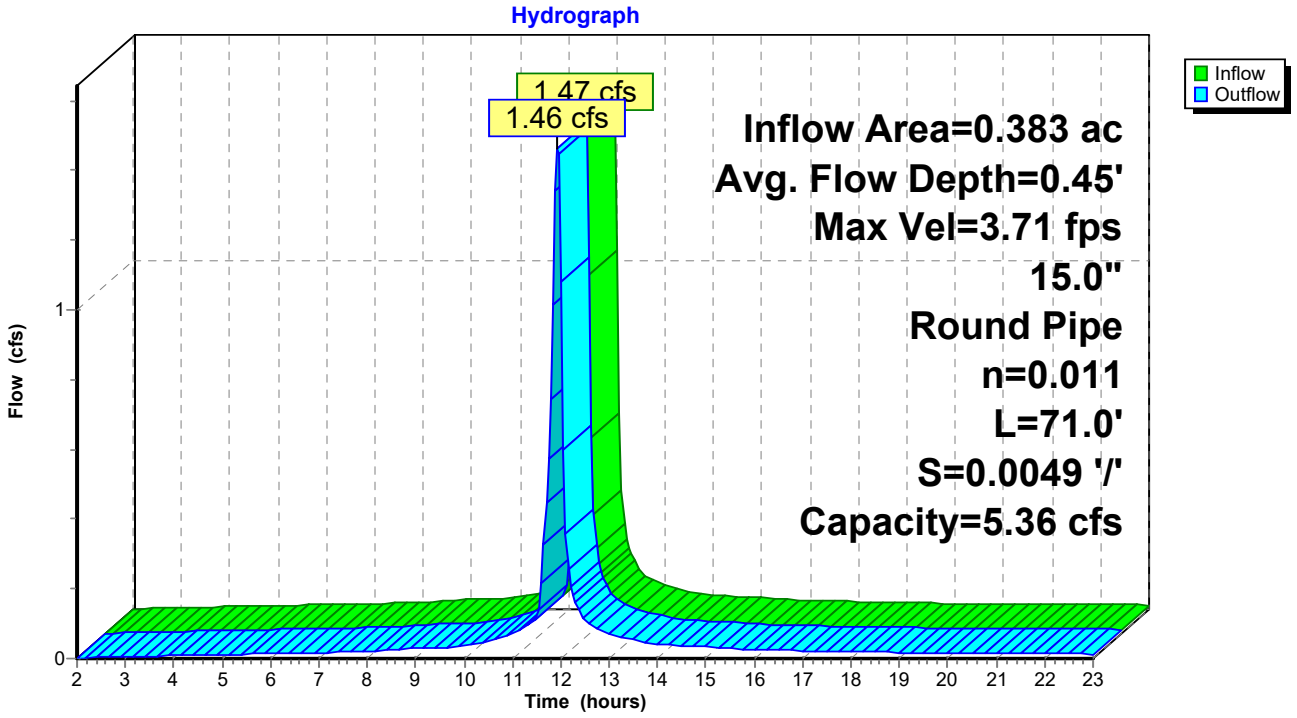
Inflow Area = 0.383 ac,100.00% Impervious, Inflow Depth > 2.53" for 1-YR event
Inflow = 1.47 cfs @ 11.93 hrs, Volume= 0.081 af
Outflow = 1.46 cfs @ 11.94 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.71 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.12 fps, Avg. Travel Time= 1.1 min

Peak Storage= 28 cf @ 11.94 hrs
Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.36 cfs

15.0" Round Pipe
n= 0.011
Length= 71.0' Slope= 0.0049 '/'
Inlet Invert= 10.80', Outlet Invert= 10.45'





Stage-Area-Storage for Reach 37R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
10.80	0.0	0
10.82	0.0	0
10.84	0.0	1
10.86	0.0	2
10.88	0.0	2
10.90	0.0	3
10.92	0.1	4
10.94	0.1	5
10.96	0.1	7
10.98	0.1	8
11.00	0.1	9
11.02	0.1	10
11.04	0.2	12
11.06	0.2	13
11.08	0.2	15
11.10	0.2	16
11.12	0.2	18
11.14	0.3	19
11.16	0.3	21
11.18	0.3	22
11.20	0.3	24
11.22	0.4	26
11.24	0.4	27
11.26	0.4	29
11.28	0.4	31
11.30	0.5	33
11.32	0.5	34
11.34	0.5	36
11.36	0.5	38
11.38	0.6	40
11.40	0.6	41
11.42	0.6	43
11.44	0.6	45
11.46	0.7	47
11.48	0.7	48
11.50	0.7	50
11.52	0.7	52
11.54	0.8	54
11.56	0.8	55
11.58	0.8	57
11.60	0.8	59
11.62	0.9	61
11.64	0.9	62
11.66	0.9	64
11.68	0.9	66
11.70	0.9	67
11.72	1.0	69
11.74	1.0	70
11.76	1.0	72
11.78	1.0	73
11.80	1.1	75
11.82	1.1	76
11.84	1.1	77
11.86	1.1	79
11.88	1.1	80
11.90	1.1	81
11.92	1.2	82
11.94	1.2	83
11.96	1.2	84
11.98	1.2	85
12.00	1.2	86
12.02	1.2	87
12.04	**1.2**	**87**

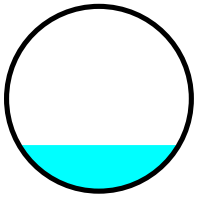
Summary for Reach 38R: 15" HDPE

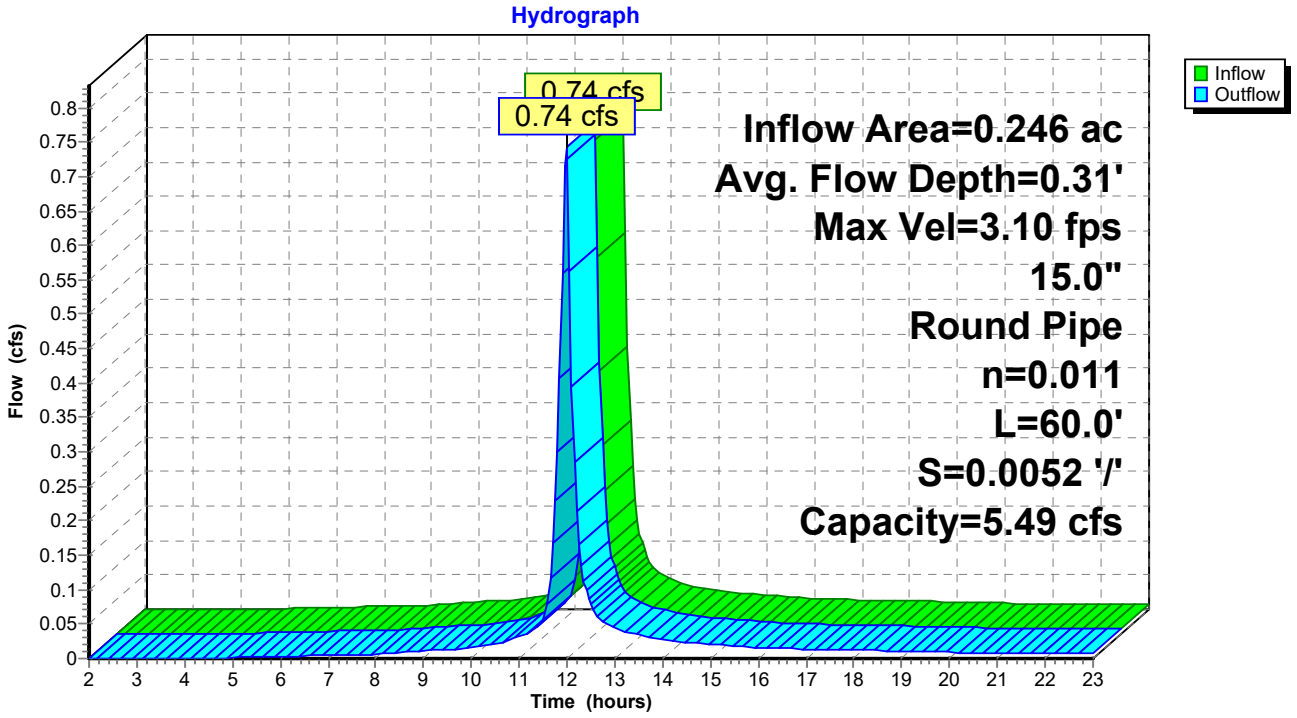
Inflow Area = 0.246 ac, 83.04% Impervious, Inflow Depth > 2.12" for 1-YR event
Inflow = 0.74 cfs @ 11.97 hrs, Volume= 0.044 af
Outflow = 0.74 cfs @ 11.98 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.10 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.96 fps, Avg. Travel Time= 1.0 min

Peak Storage= 14 cf @ 11.98 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.49 cfs

15.0" Round Pipe
n= 0.011
Length= 60.0' Slope= 0.0052 '/'
Inlet Invert= 11.82', Outlet Invert= 11.51'





Stage-Area-Storage for Reach 38R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.82	0.0	0
11.84	0.0	0
11.86	0.0	1
11.88	0.0	1
11.90	0.0	2
11.92	0.0	3
11.94	0.1	4
11.96	0.1	5
11.98	0.1	6
12.00	0.1	7
12.02	0.1	8
12.04	0.1	9
12.06	0.2	10
12.08	0.2	11
12.10	0.2	12
12.12	0.2	14
12.14	0.2	15
12.16	0.3	16
12.18	0.3	18
12.20	0.3	19
12.22	0.3	20
12.24	0.4	22
12.26	0.4	23
12.28	0.4	25
12.30	0.4	26
12.32	0.5	28
12.34	0.5	29
12.36	0.5	30
12.38	0.5	32
12.40	0.6	33
12.42	0.6	35
12.44	0.6	36
12.46	0.6	38
12.48	0.7	39
12.50	0.7	41
12.52	0.7	42
12.54	0.7	44
12.56	0.8	45
12.58	0.8	47
12.60	0.8	48
12.62	0.8	50
12.64	0.9	51
12.66	0.9	53
12.68	0.9	54
12.70	0.9	55
12.72	0.9	57
12.74	1.0	58
12.76	1.0	59
12.78	1.0	61
12.80	1.0	62
12.82	1.1	63
12.84	1.1	64
12.86	1.1	65
12.88	1.1	67
12.90	1.1	68
12.92	1.1	69
12.94	1.2	70
12.96	1.2	70
12.98	1.2	71
13.00	1.2	72
13.02	1.2	73
13.04	1.2	73
13.06	**1.2**	**74**

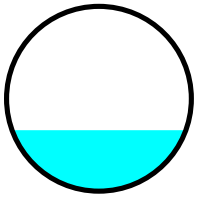
Summary for Reach 39R: 15" HDPE

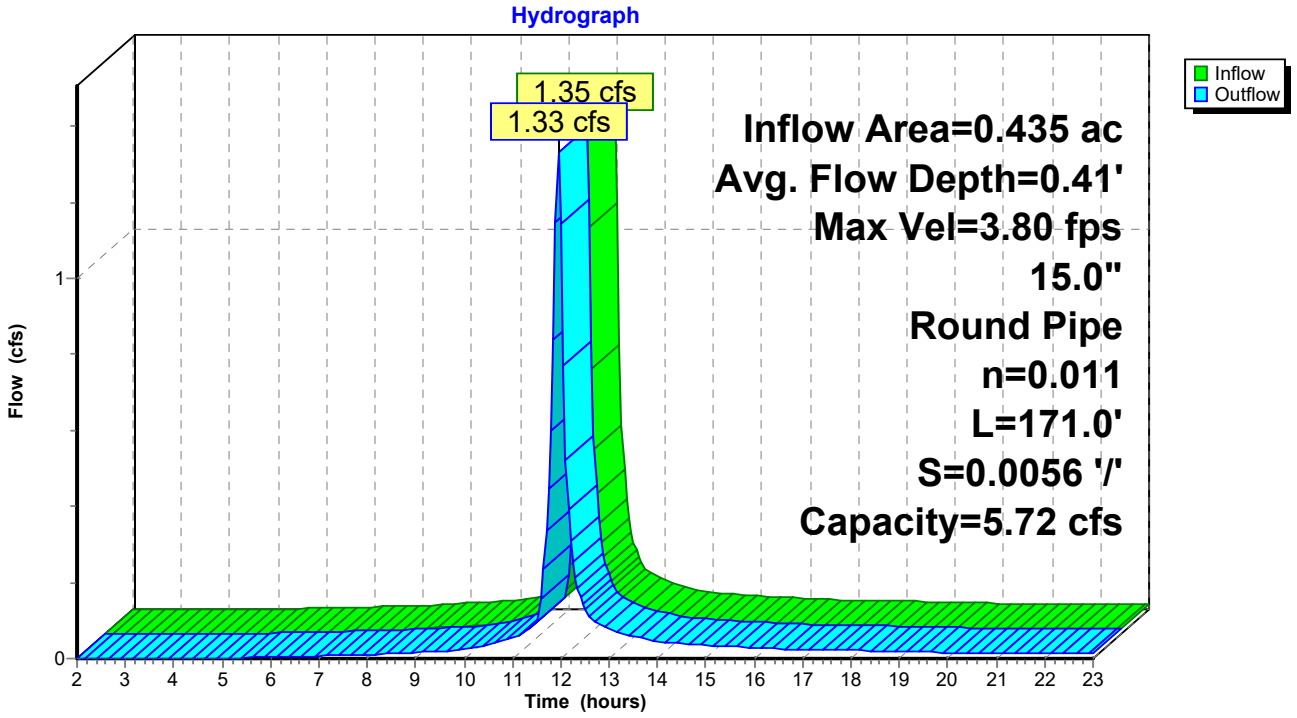
Inflow Area = 0.435 ac, 79.43% Impervious, Inflow Depth > 2.04" for 1-YR event
Inflow = 1.35 cfs @ 11.94 hrs, Volume= 0.074 af
Outflow = 1.33 cfs @ 11.95 hrs, Volume= 0.074 af, Atten= 1%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.80 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.15 fps, Avg. Travel Time= 2.5 min

Peak Storage= 60 cf @ 11.95 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.72 cfs

15.0" Round Pipe
n= 0.011
Length= 171.0' Slope= 0.0056 '/'
Inlet Invert= 11.41', Outlet Invert= 10.45'





Stage-Area-Storage for Reach 39R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.41	0.0	0
11.43	0.0	1
11.45	0.0	2
11.47	0.0	4
11.49	0.0	6
11.51	0.0	8
11.53	0.1	10
11.55	0.1	13
11.57	0.1	16
11.59	0.1	19
11.61	0.1	22
11.63	0.1	25
11.65	0.2	28
11.67	0.2	32
11.69	0.2	35
11.71	0.2	39
11.73	0.2	42
11.75	0.3	46
11.77	0.3	50
11.79	0.3	54
11.81	0.3	58
11.83	0.4	62
11.85	0.4	66
11.87	0.4	70
11.89	0.4	74
11.91	0.5	78
11.93	0.5	83
11.95	0.5	87
11.97	0.5	91
11.99	0.6	95
12.01	0.6	100
12.03	0.6	104
12.05	0.6	108
12.07	0.7	112
12.09	0.7	117
12.11	0.7	121
12.13	0.7	125
12.15	0.8	129
12.17	0.8	134
12.19	0.8	138
12.21	0.8	142
12.23	0.9	146
12.25	0.9	150
12.27	0.9	154
12.29	0.9	158
12.31	0.9	162
12.33	1.0	166
12.35	1.0	169
12.37	1.0	173
12.39	1.0	176
12.41	1.1	180
12.43	1.1	183
12.45	1.1	187
12.47	1.1	190
12.49	1.1	193
12.51	1.1	196
12.53	1.2	198
12.55	1.2	201
12.57	1.2	203
12.59	1.2	205
12.61	1.2	207
12.63	1.2	209
12.65	**1.2**	**210**

Summary for Pond 40P: SGW 1

Inflow Area = 2.337 ac, 62.67% Impervious, Inflow Depth > 1.75" for 1-YR event
Inflow = 5.84 cfs @ 11.96 hrs, Volume= 0.340 af
Outflow = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Peak Elev= 10.74' @ 23.00 hrs Surf.Area= 10,304 sf Storage= 14,812 cf

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

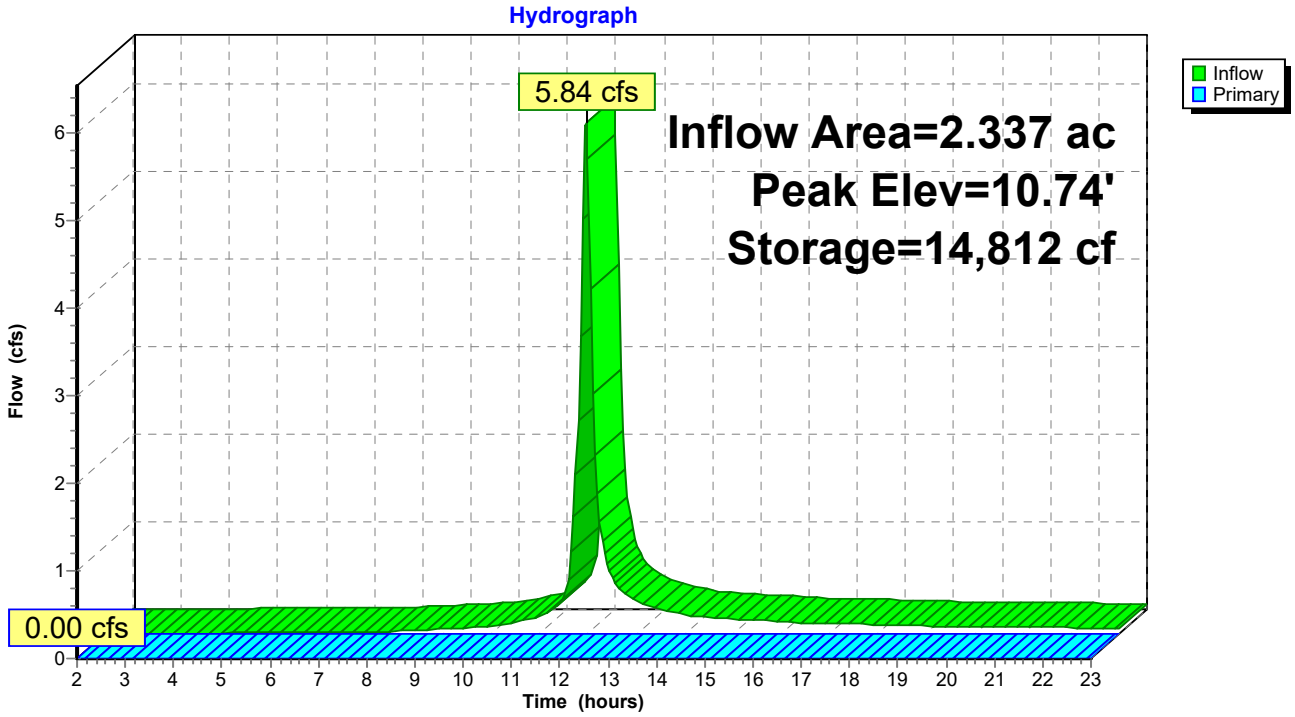
Volume	Invert	Avail.Storage	Storage Description
#1	7.44'	28,534 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
7.44	9,804	575.0	0.0	0	0	9,804
7.45	9,804	575.0	40.0	39	39	9,810
10.44	9,804	575.0	40.0	11,726	11,765	11,529
10.45	9,804	575.0	100.0	98	11,863	11,535
11.45	11,558	594.0	100.0	10,669	22,532	13,396
11.95	12,457	604.0	100.0	6,002	28,534	14,396

Device	Routing	Invert	Outlet Devices
#1	Primary	10.12'	**15.0" Round Culvert** L= 31.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 10.12' / 10.00' S= 0.0039 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	11.45'	**18.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 2.00 hrs HW=7.44' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)
↑**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 40P: SGW 1



Stage-Area-Storage for Pond 40P: SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
7.44	9,804	0
7.49	9,804	196
7.54	9,804	392
7.59	9,804	588
7.64	9,804	784
7.69	9,804	980
7.74	9,804	1,176
7.79	9,804	1,373
7.84	9,804	1,569
7.89	9,804	1,765
7.94	9,804	1,961
7.99	9,804	2,157
8.04	9,804	2,353
8.09	9,804	2,549
8.14	9,804	2,745
8.19	9,804	2,941
8.24	9,804	3,137
8.29	9,804	3,333
8.34	9,804	3,529
8.39	9,804	3,726
8.44	9,804	3,922
8.49	9,804	4,118
8.54	9,804	4,314
8.59	9,804	4,510
8.64	9,804	4,706
8.69	9,804	4,902
8.74	9,804	5,098
8.79	9,804	5,294
8.84	9,804	5,490
8.89	9,804	5,686
8.94	9,804	5,882
8.99	9,804	6,078
9.04	9,804	6,275
9.09	9,804	6,471
9.14	9,804	6,667
9.19	9,804	6,863
9.24	9,804	7,059
9.29	9,804	7,255
9.34	9,804	7,451
9.39	9,804	7,647
9.44	9,804	7,843
9.49	9,804	8,039
9.54	9,804	8,235
9.59	9,804	8,431
9.64	9,804	8,628
9.69	9,804	8,824
9.74	9,804	9,020
9.79	9,804	9,216
9.84	9,804	9,412
9.89	9,804	9,608
9.94	9,804	9,804
9.99	9,804	10,000
10.04	9,804	10,196
10.09	9,804	10,392
10.14	9,804	10,588
10.19	9,804	10,784
10.24	9,804	10,980
10.29	9,804	11,177
10.34	9,804	11,373
10.39	9,804	11,569
10.44	9,804	11,765
10.49	9,871	12,256
10.54	9,956	12,752
10.59	10,041	13,252
10.64	10,126	13,756
10.69	10,212	14,265
10.74	10,298	14,777
10.79	10,384	15,294
10.84	10,471	15,816
10.89	10,558	16,341
10.94	10,645	16,872
10.99	10,733	17,406
11.04	10,821	17,945
11.09	10,910	18,488
11.14	10,999	19,036
11.19	11,088	19,588
11.24	11,178	20,145
11.29	11,268	20,706
11.34	11,358	21,271
11.39	11,449	21,842
11.44	11,540	22,416
11.49	11,629	22,996
11.54	11,717	23,579
11.59	11,806	24,167
11.64	11,896	24,760
11.69	11,985	25,357
11.74	12,075	25,958
11.79	12,166	26,564
11.84	12,256	27,175
11.89	12,347	27,790
11.94	**12,439**	**28,410**

Summary for Pond 52P: SGW 2

Inflow Area = 0.861 ac, 49.03% Impervious, Inflow Depth > 1.46" for 1-YR event
Inflow = 1.60 cfs @ 12.01 hrs, Volume= 0.105 af
Outflow = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Peak Elev= 13.38' @ 23.00 hrs Surf.Area= 4,017 sf Storage= 4,566 cf

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

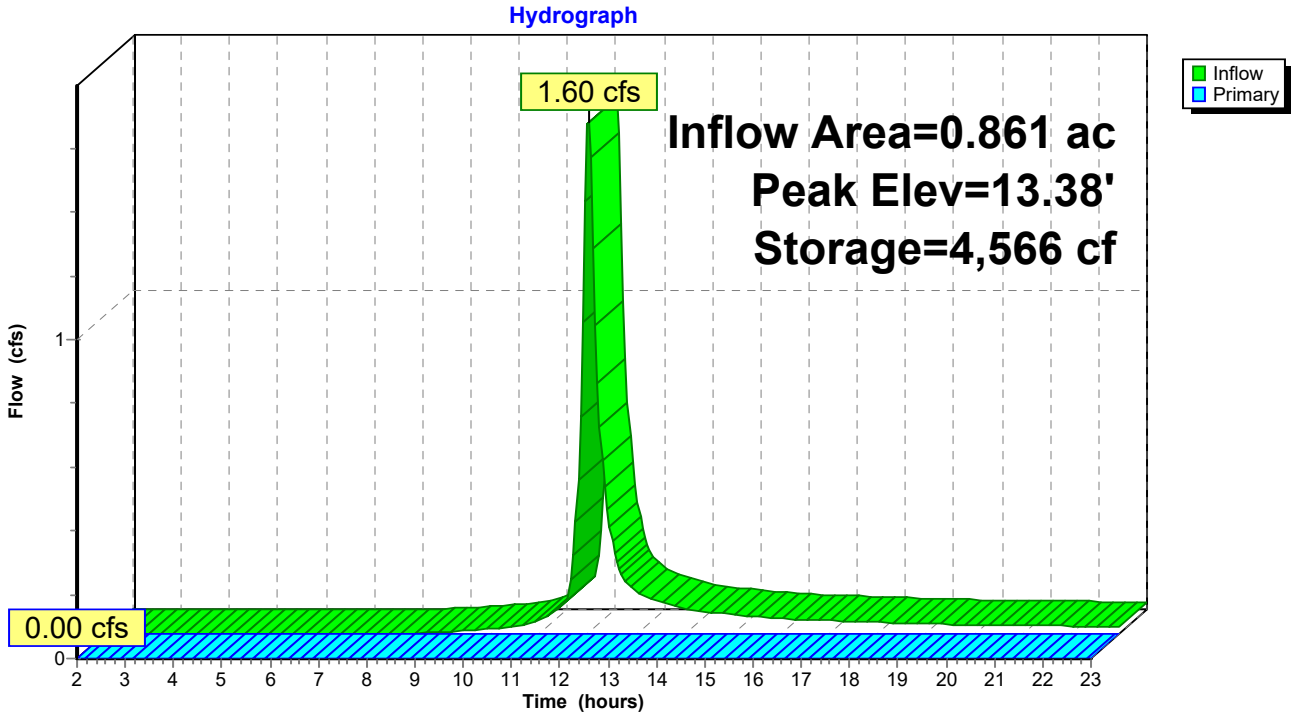
Volume	Invert	Avail.Storage	Storage Description
#1	10.54'	12,413 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
10.54	4,017	447.0	0.0	0	0	4,017
10.55	4,017	447.0	40.0	16	16	4,021
13.54	4,017	447.0	40.0	4,804	4,820	5,358
13.55	4,017	447.0	100.0	40	4,861	5,362
14.55	5,386	466.0	100.0	4,685	9,545	6,816
15.05	6,092	475.0	100.0	2,868	12,413	7,530

Device	Routing	Invert	Outlet Devices
#1	Primary	13.25'	**15.0" Round Culvert** L= 35.5' Ke= 0.500 Inlet / Outlet Invert= 13.25' / 13.02' S= 0.0065 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	14.55'	**18.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 2.00 hrs HW=10.54' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 52P: SGW 2



Stage-Area-Storage for Pond 52P: SGW 2

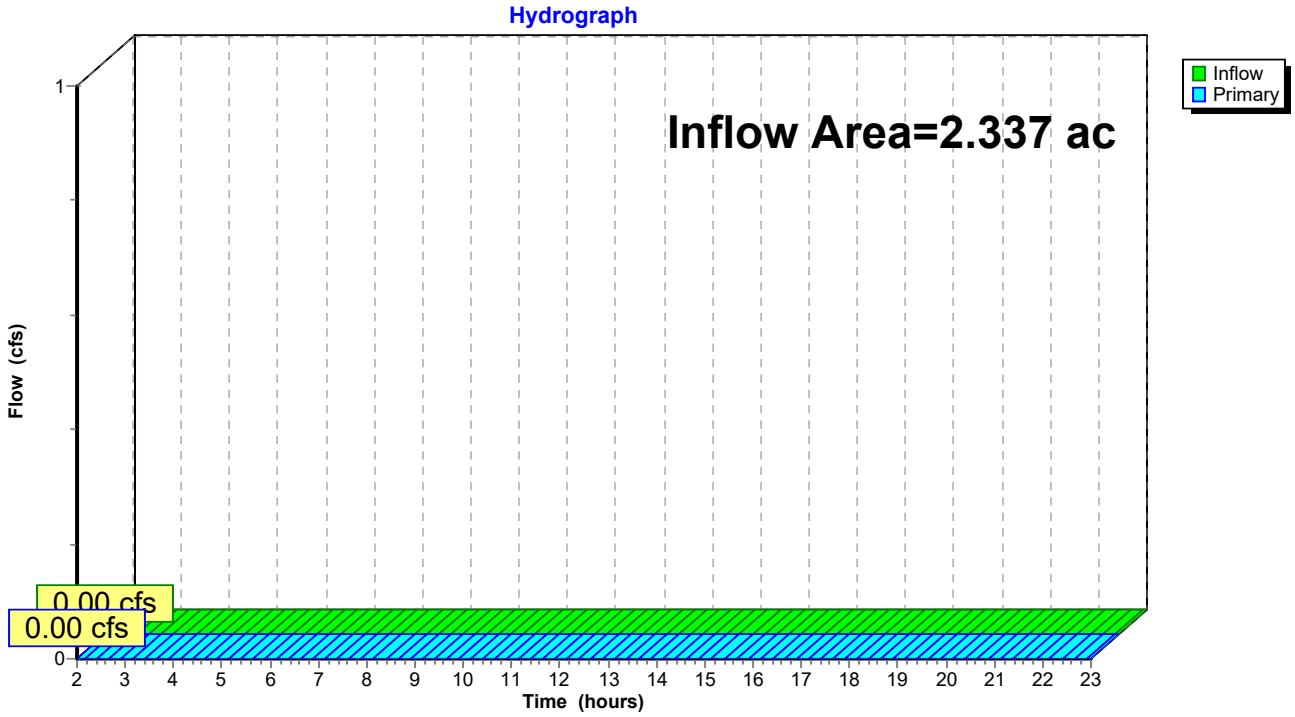
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
10.54	4,017	0
10.59	4,017	80
10.64	4,017	161
10.69	4,017	241
10.74	4,017	321
10.79	4,017	402
10.84	4,017	482
10.89	4,017	562
10.94	4,017	643
10.99	4,017	723
11.04	4,017	803
11.09	4,017	884
11.14	4,017	964
11.19	4,017	1,044
11.24	4,017	1,125
11.29	4,017	1,205
11.34	4,017	1,285
11.39	4,017	1,366
11.44	4,017	1,446
11.49	4,017	1,526
11.54	4,017	1,607
11.59	4,017	1,687
11.64	4,017	1,767
11.69	4,017	1,848
11.74	4,017	1,928
11.79	4,017	2,009
11.84	4,017	2,089
11.89	4,017	2,169
11.94	4,017	2,250
11.99	4,017	2,330
12.04	4,017	2,410
12.09	4,017	2,491
12.14	4,017	2,571
12.19	4,017	2,651
12.24	4,017	2,732
12.29	4,017	2,812
12.34	4,017	2,892
12.39	4,017	2,973
12.44	4,017	3,053
12.49	4,017	3,133
12.54	4,017	3,214
12.59	4,017	3,294
12.64	4,017	3,374
12.69	4,017	3,455
12.74	4,017	3,535
12.79	4,017	3,615
12.84	4,017	3,696
12.89	4,017	3,776
12.94	4,017	3,856
12.99	4,017	3,937
13.04	4,017	4,017
13.09	4,017	4,097
13.14	4,017	4,178
13.19	4,017	4,258
13.24	4,017	4,338
13.29	4,017	4,419
13.34	4,017	4,499
13.39	4,017	4,579
13.44	4,017	4,660
13.49	4,017	4,740
13.54	4,017	4,820
13.59	4,068	5,022
13.64	4,132	5,227
13.69	4,197	5,435
13.74	4,262	5,647
13.79	4,327	5,862
13.84	4,393	6,080
13.89	4,460	6,301
13.94	4,527	6,526
13.99	4,595	6,754
14.04	4,663	6,985
14.09	4,731	7,220
14.14	4,800	7,458
14.19	4,870	7,700
14.24	4,940	7,945
14.29	5,011	8,194
14.34	5,082	8,446
14.39	5,153	8,702
14.44	5,226	8,962
14.49	5,298	9,225
14.54	5,371	9,492
14.59	5,441	9,762
14.64	5,510	10,036
14.69	5,579	10,313
14.74	5,649	10,594
14.79	5,719	10,878
14.84	5,790	11,166
14.89	5,861	11,457
14.94	5,933	11,752
14.99	6,005	12,050
15.04	**6,077**	**12,352**

Summary for Link 42L: POI 1

Inflow Area = 2.337 ac, 62.67% Impervious, Inflow Depth = 0.00" for 1-YR event
Inflow = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 42L: POI 1

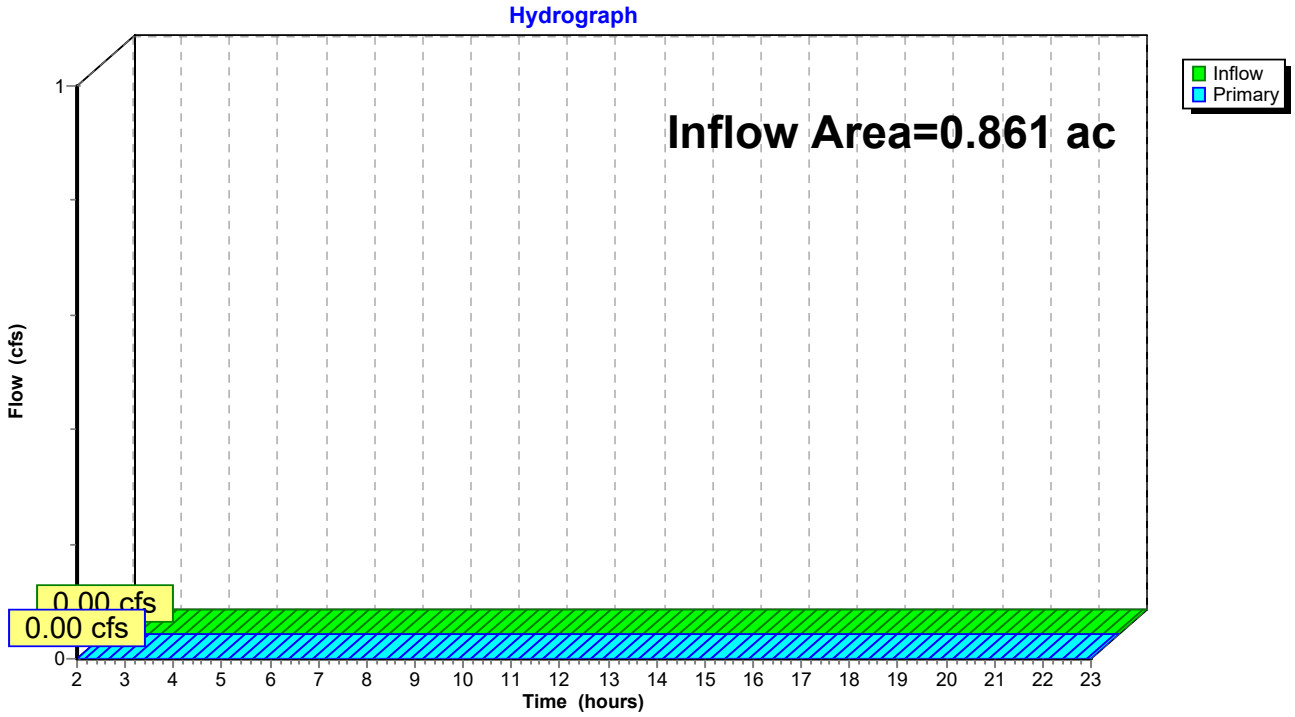


Summary for Link 53L: POI 2

Inflow Area = 0.861 ac, 49.03% Impervious, Inflow Depth = 0.00" for 1-YR event
Inflow = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 53L: POI 2

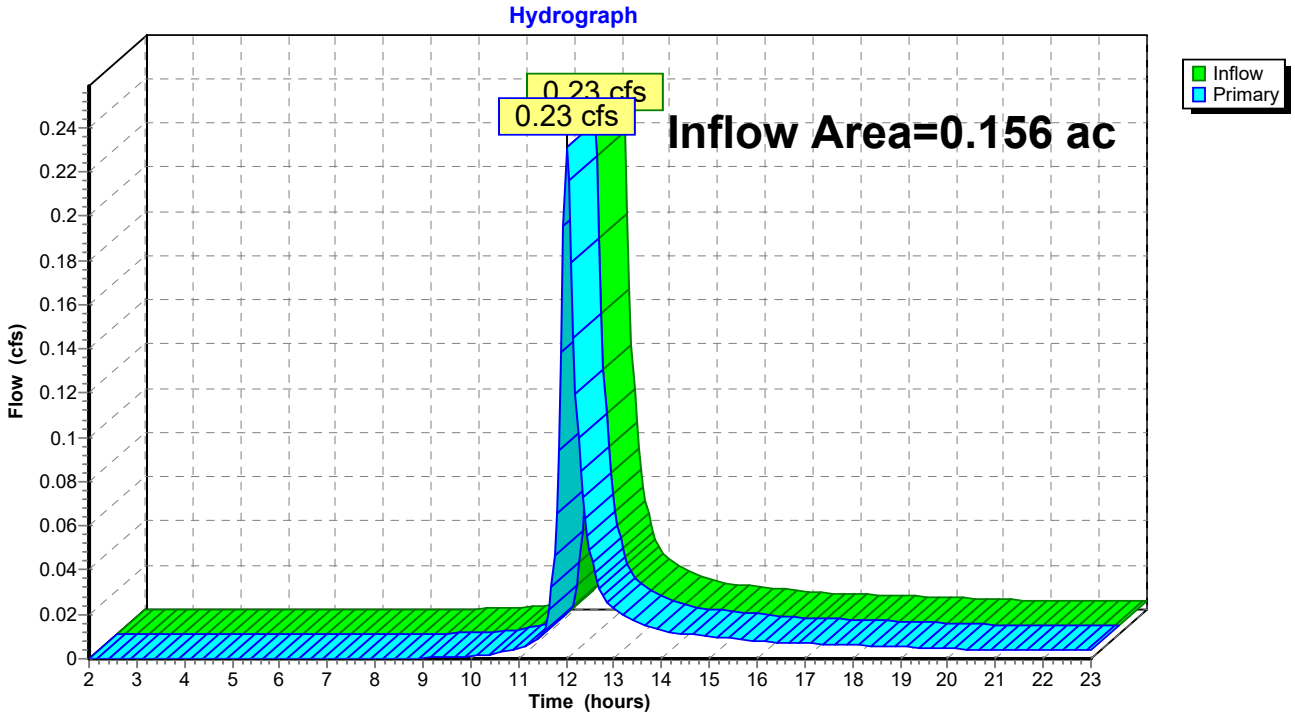


Summary for Link 56L: POI 3 (EX SWM POND)

Inflow Area = 0.156 ac, 34.31% Impervious, Inflow Depth > 1.22" for 1-YR event
Inflow = 0.23 cfs @ 12.01 hrs, Volume= 0.016 af
Primary = 0.23 cfs @ 12.01 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 56L: POI 3 (EX SWM POND)



Summary for Subcatchment 1S: EX DA-1 (ORANGE)

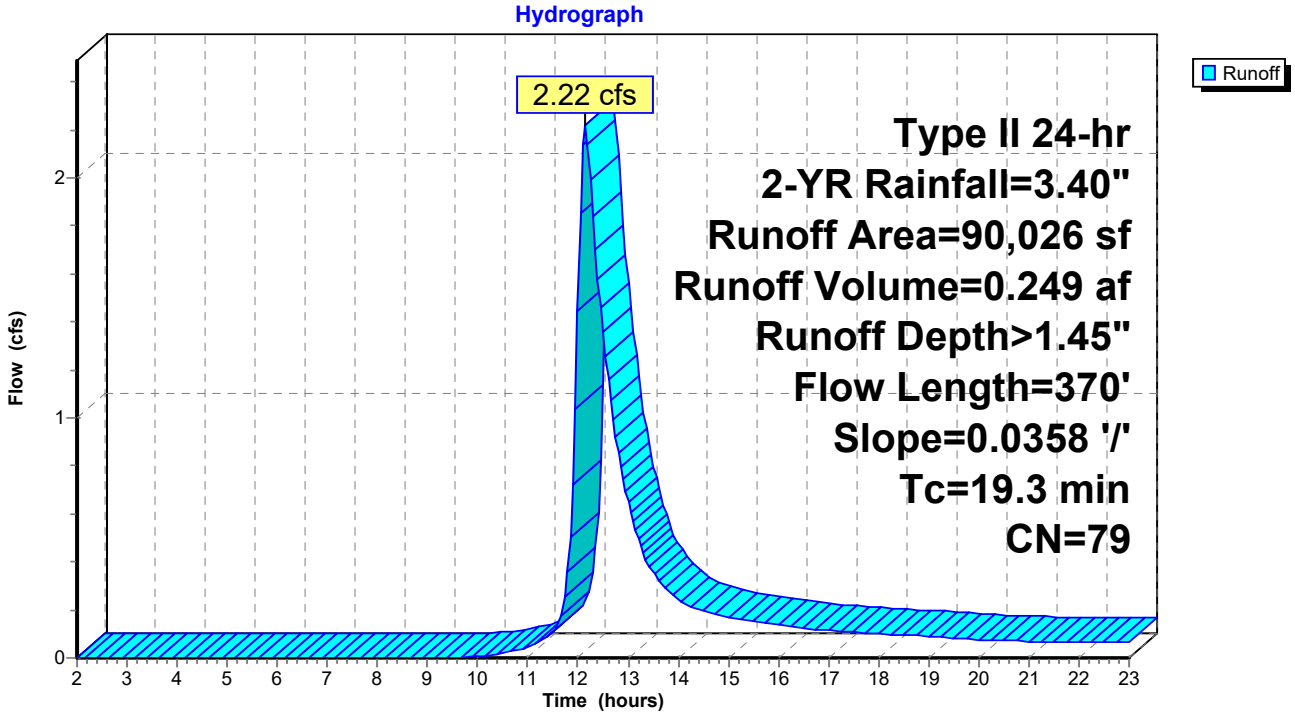
Runoff = 2.22 cfs @ 12.15 hrs, Volume= 0.249 af, Depth> 1.45"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

	Area (sf)	CN	Description
*	224	98	existing shed
	89,802	79	50-75% Grass cover, Fair, HSG C
	90,026	79	Weighted Average
	89,802		99.75% Pervious Area
	224		0.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0358	0.14		**Sheet Flow, a-b** Grass: Dense n= 0.240 P2= 2.40"
1.2	220	0.0358	3.05		**Shallow Concentrated Flow, b-c** Unpaved Kv= 16.1 fps
19.3	370	Total			

Subcatchment 1S: EX DA-1 (ORANGE)



Summary for Subcatchment 2S: EX DA-2 (PURPLE)

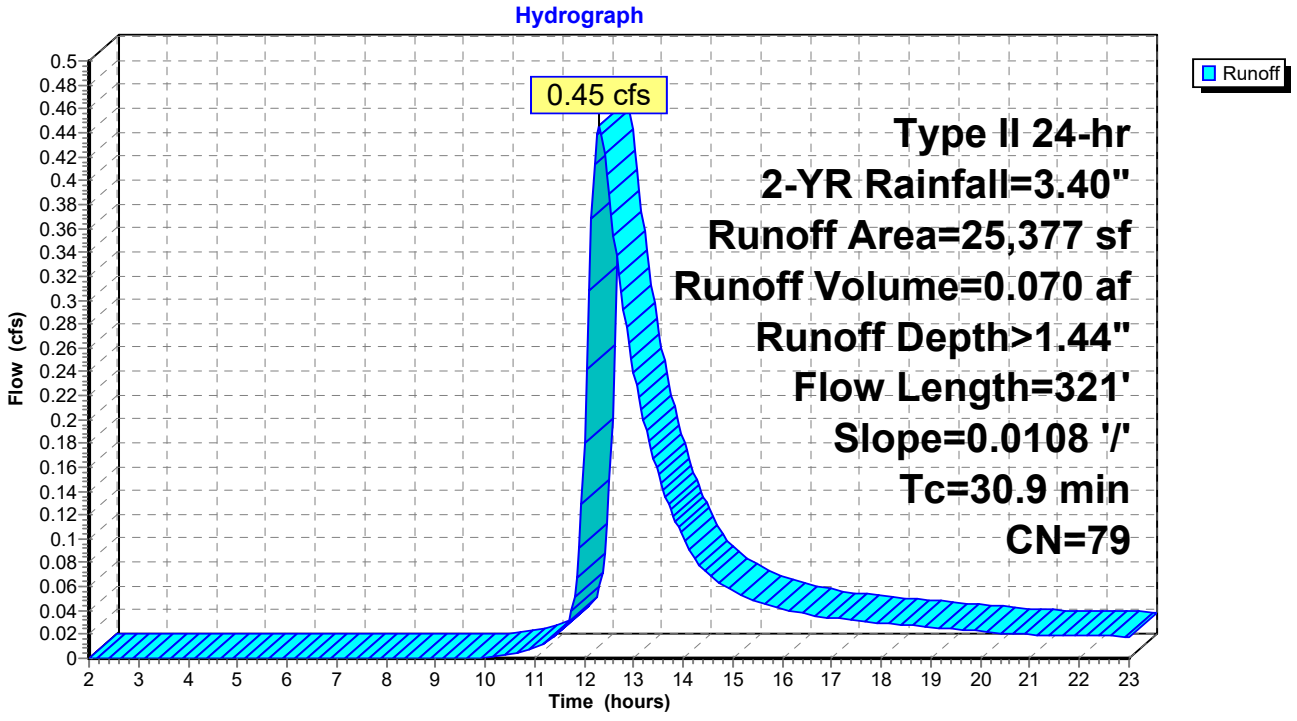
Runoff = 0.45 cfs @ 12.30 hrs, Volume= 0.070 af, Depth> 1.44"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
25,377	79	50-75% Grass cover, Fair, HSG C
25,377		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	150	0.0108	0.09		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
1.7	171	0.0108	1.67		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
30.9	321	Total			

Subcatchment 2S: EX DA-2 (PURPLE)



Summary for Subcatchment 3S: EX DA-3 (BLUE)

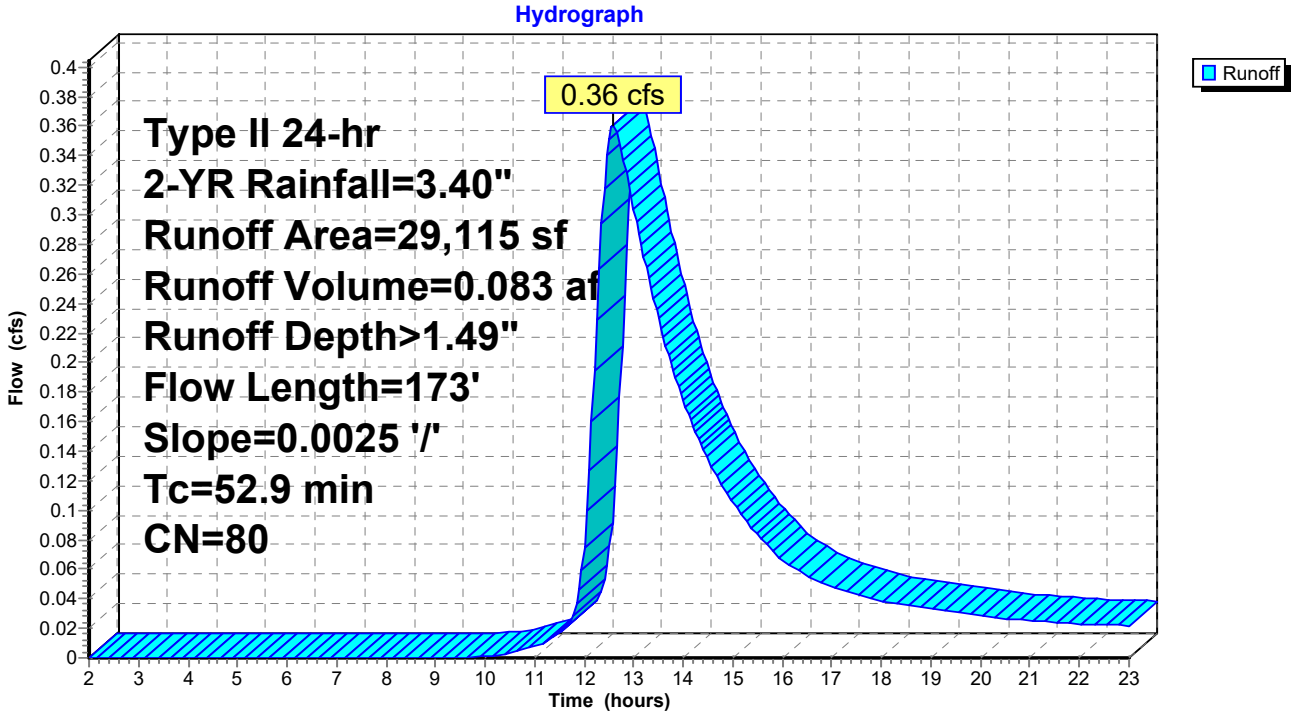
Runoff = 0.36 cfs @ 12.59 hrs, Volume= 0.083 af, Depth> 1.49"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
28,117	79	50-75% Grass cover, Fair, HSG C
998	98	Paved parking, HSG C
29,115	80	Weighted Average
28,117		96.57% Pervious Area
998		3.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.4	150	0.0025	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.5	23	0.0025	0.81		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
52.9	173	Total			

Subcatchment 3S: EX DA-3 (BLUE)



Summary for Subcatchment 30S: DA-1e (orange)

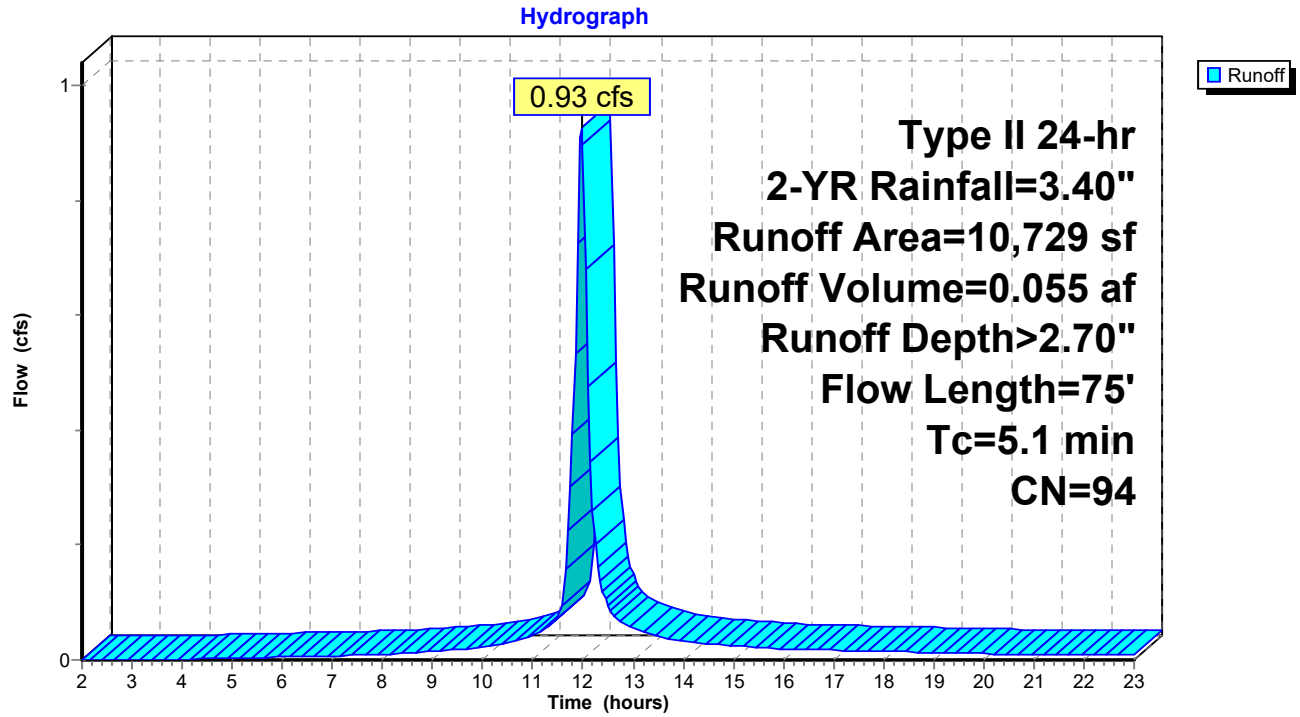
Runoff = 0.93 cfs @ 11.97 hrs, Volume= 0.055 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
8,909	98	Paved parking, HSG C
1,820	74	>75% Grass cover, Good, HSG C
10,729	94	Weighted Average
1,820		16.96% Pervious Area
8,909		83.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	14	0.0095	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	48	0.0134	1.86		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.1	13	0.0075	1.76		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
5.1	75	Total			

Subcatchment 30S: DA-1e (orange)



Summary for Subcatchment 31S: DA-1c (orange)

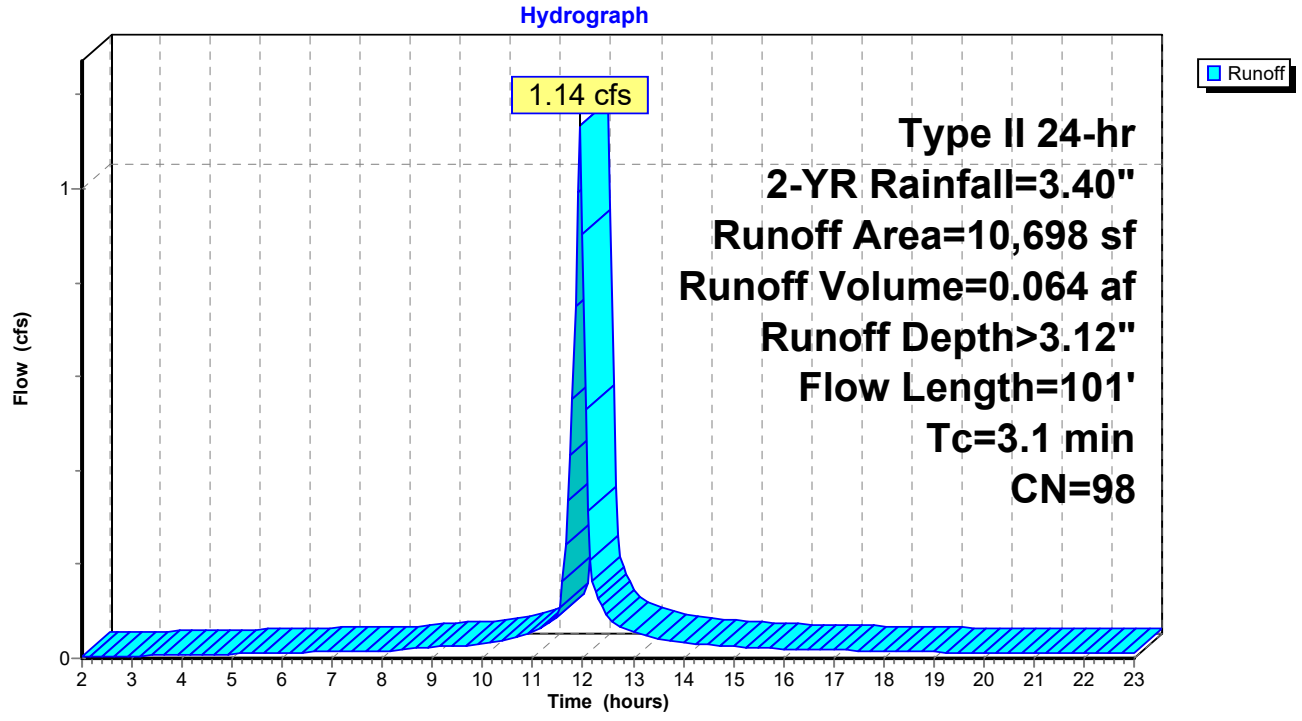
Runoff = 1.14 cfs @ 11.94 hrs, Volume= 0.064 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
10,698	98	Paved parking, HSG C
10,698		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	67	0.0016	0.40		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.3	34	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
3.1	101	Total			

Subcatchment 31S: DA-1c (orange)



Summary for Subcatchment 32S: DA-1b (orange)

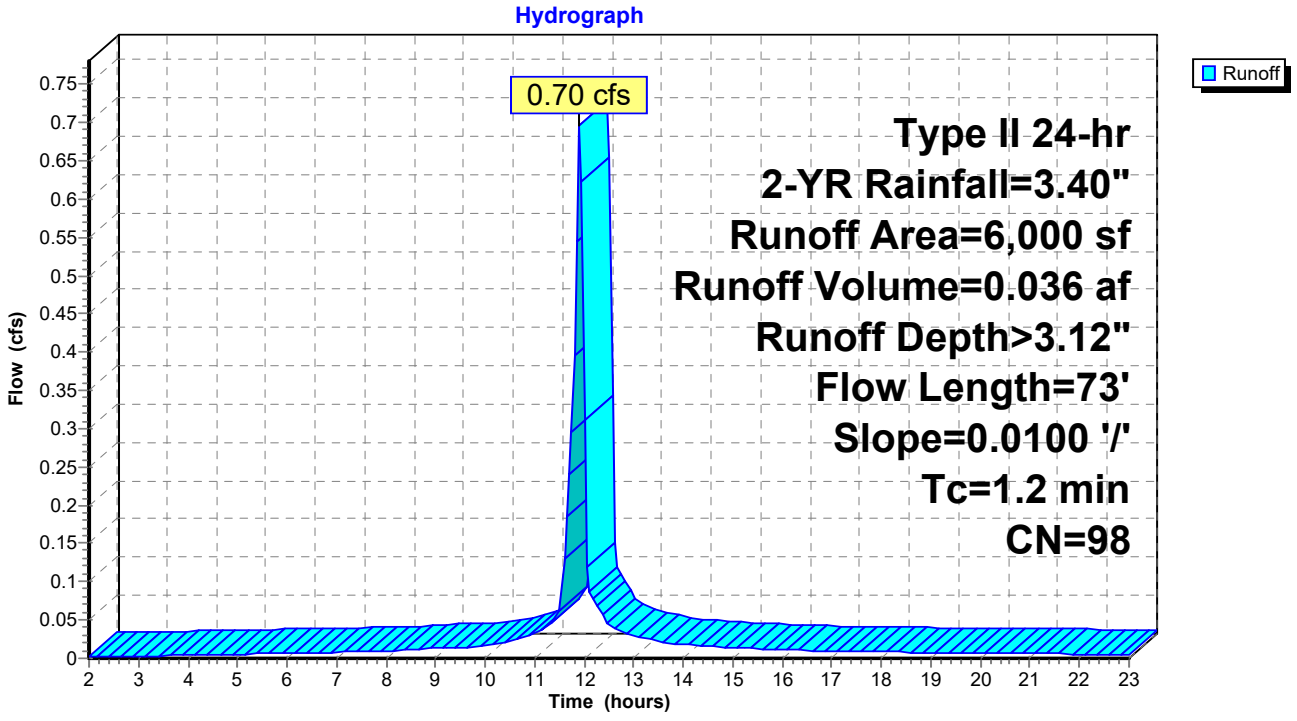
Runoff = 0.70 cfs @ 11.91 hrs, Volume= 0.036 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
6,000	98	Paved parking, HSG C
6,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	39	0.0100	0.75		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.3	34	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.2	73	Total			

Subcatchment 32S: DA-1b (orange)



Summary for Subcatchment 33S: DA-1a (orange)

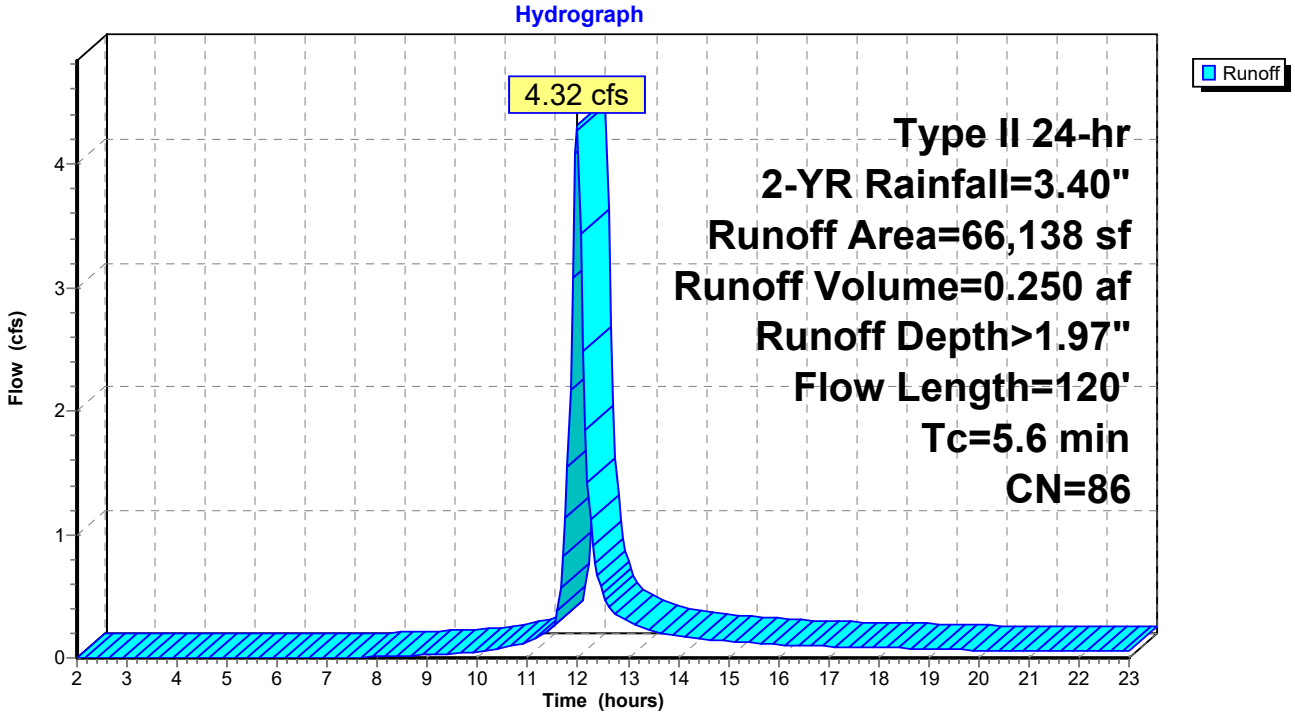
Runoff = 4.32 cfs @ 11.98 hrs, Volume= 0.250 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
32,038	98	Paved parking, HSG C
34,100	74	>75% Grass cover, Good, HSG C
66,138	86	Weighted Average
34,100		51.56% Pervious Area
32,038		48.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	33	0.0439	0.11		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.6	87	0.0253	2.56		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.6	120	Total			

Subcatchment 33S: DA-1a (orange)



Summary for Subcatchment 34S: DA-1d (orange)

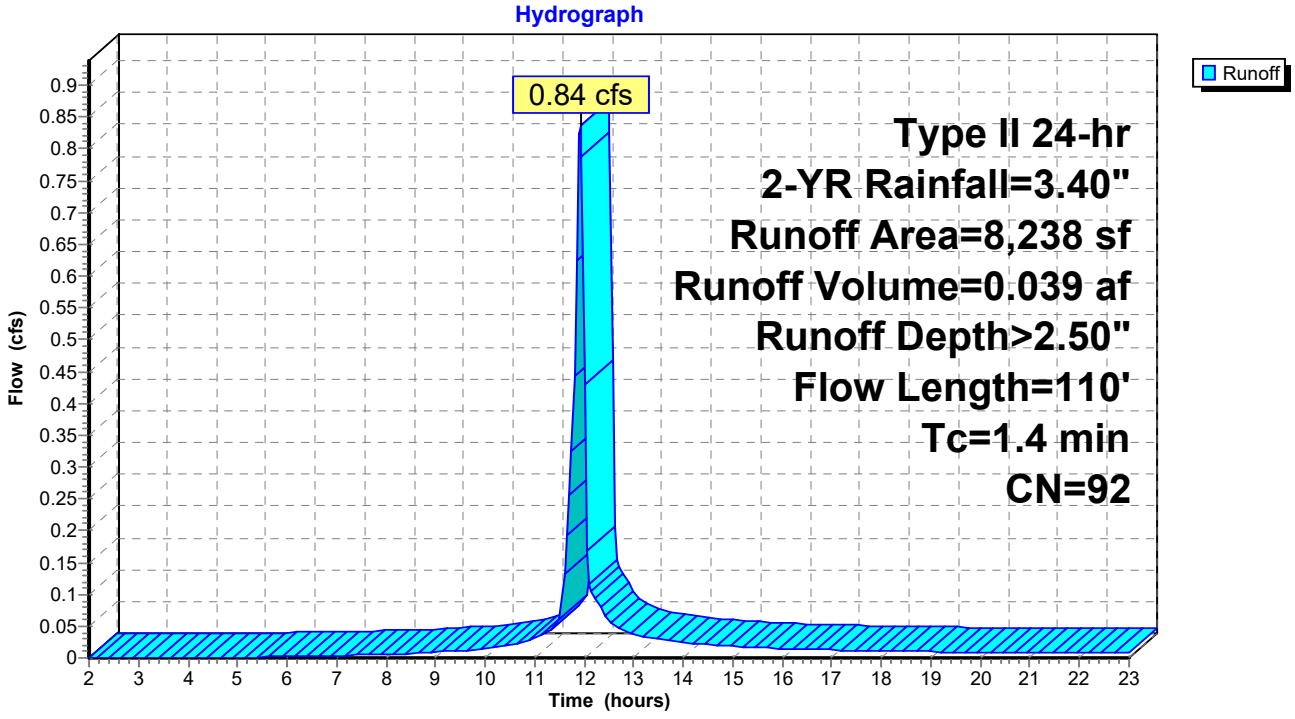
Runoff = 0.84 cfs @ 11.92 hrs, Volume= 0.039 af, Depth> 2.50"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
6,157	98	Paved parking, HSG C
2,081	74	>75% Grass cover, Good, HSG C
8,238	92	Weighted Average
2,081		25.26% Pervious Area
6,157		74.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	34	0.0156	0.87		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.7	76	0.0075	1.76		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.4	110	Total			

Subcatchment 34S: DA-1d (orange)



Summary for Subcatchment 51S: DA TO SGW 2 (purple)

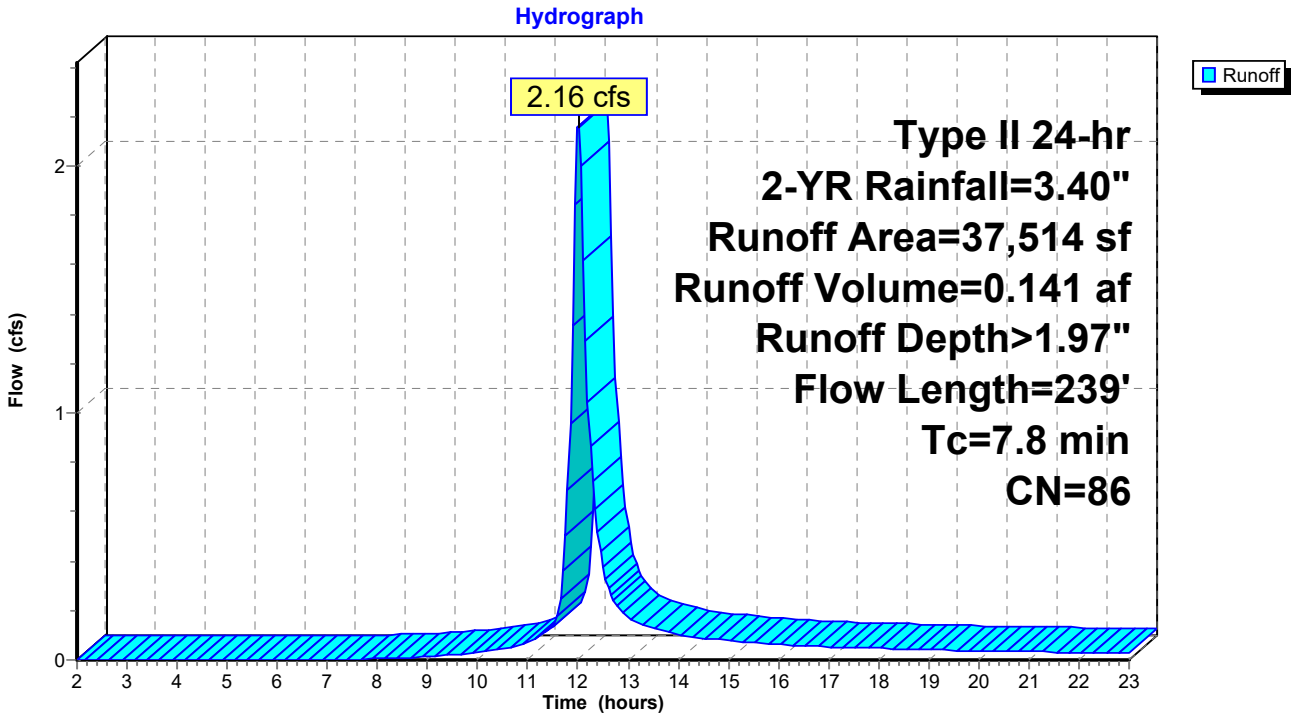
Runoff = 2.16 cfs @ 12.01 hrs, Volume= 0.141 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
18,394	98	Paved parking, HSG C
19,120	74	>75% Grass cover, Good, HSG C
37,514	86	Weighted Average
19,120		50.97% Pervious Area
18,394		49.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	14	0.0095	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	35	0.0075	1.39		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.8	190	0.0051	1.15		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
7.8	239	Total			

Subcatchment 51S: DA TO SGW 2 (purple)



Summary for Subcatchment 54S: DA-3a (blue)

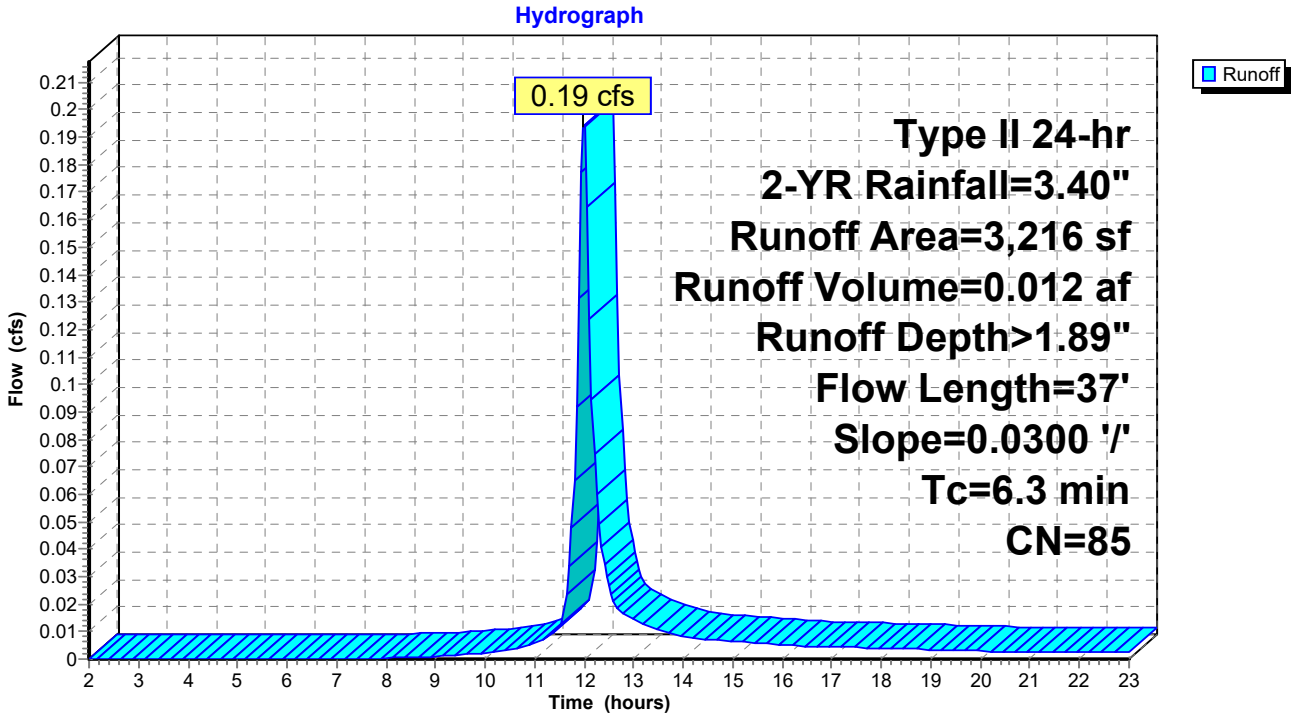
Runoff = 0.19 cfs @ 11.99 hrs, Volume= 0.012 af, Depth> 1.89"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
1,480	98	Paved parking, HSG C
1,736	74	>75% Grass cover, Good, HSG C
3,216	85	Weighted Average
1,736		53.98% Pervious Area
1,480		46.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	37	0.0300	0.10		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"

Subcatchment 54S: DA-3a (blue)



Summary for Subcatchment 55S: DA-3b (blue)

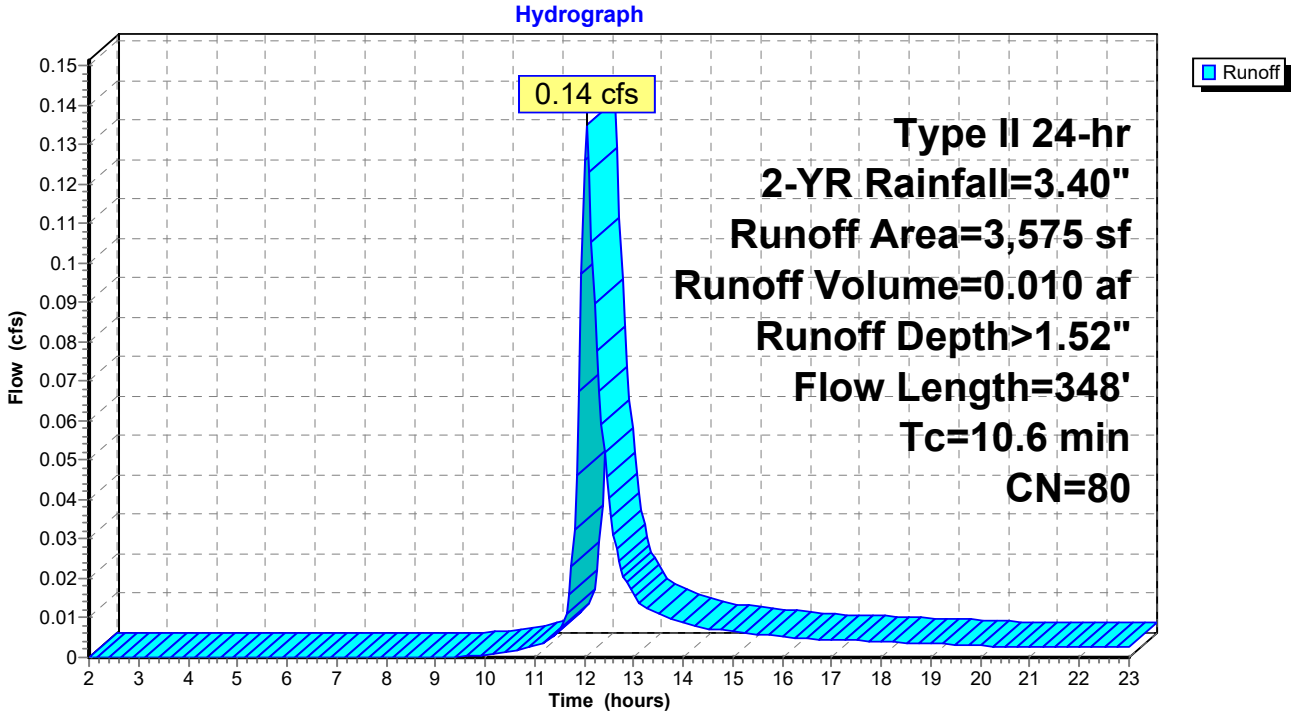
Runoff = 0.14 cfs @ 12.05 hrs, Volume= 0.010 af, Depth> 1.52"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
850	98	Paved parking, HSG C
2,725	74	>75% Grass cover, Good, HSG C
3,575	80	Weighted Average
2,725		76.22% Pervious Area
850		23.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	46	0.0222	0.09		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	100	0.0050	3.79	2.98	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
1.7	202	0.0149	1.97		**Shallow Concentrated Flow, EX SWALE TO INLET 4** Unpaved Kv= 16.1 fps
10.6	348	Total			

Subcatchment 55S: DA-3b (blue)



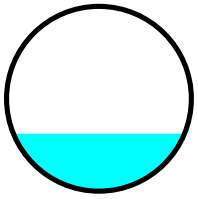
Summary for Reach 36R: 15" HDPE

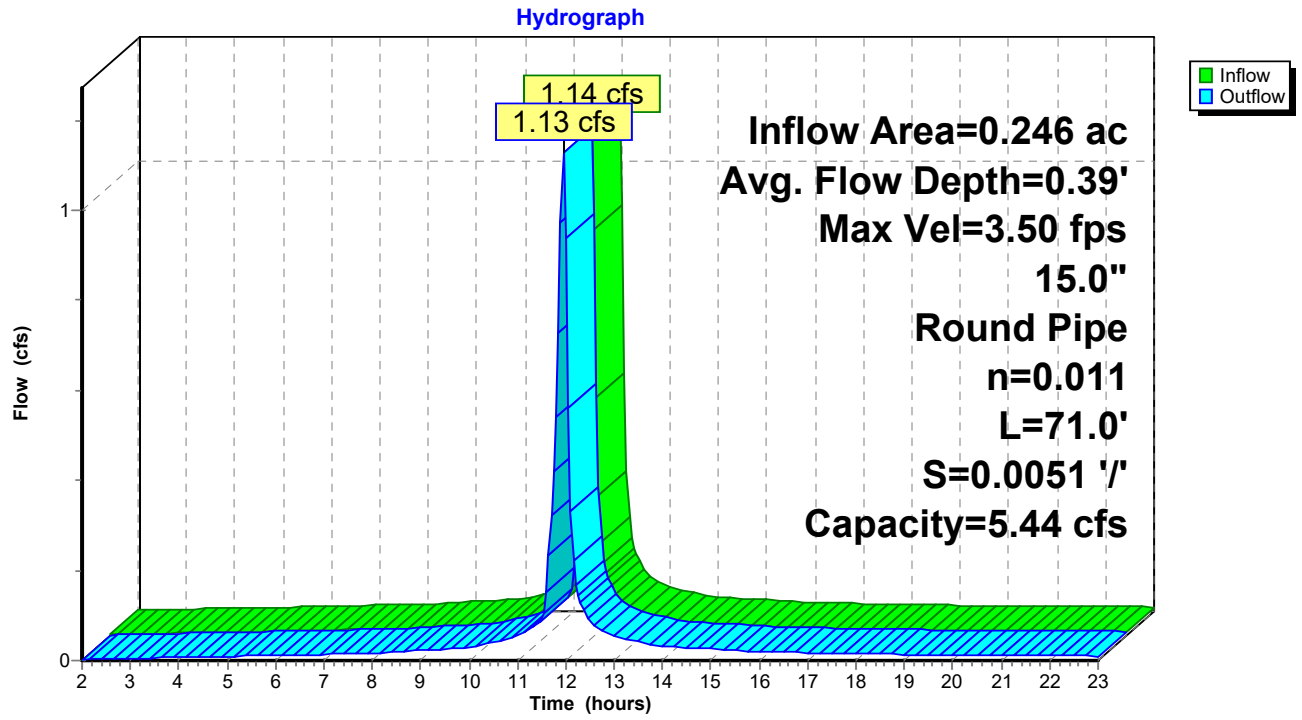
Inflow Area = 0.246 ac,100.00% Impervious, Inflow Depth > 3.12" for 2-YR event
Inflow = 1.14 cfs @ 11.94 hrs, Volume= 0.064 af
Outflow = 1.13 cfs @ 11.95 hrs, Volume= 0.064 af, Atten= 1%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.50 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.06 fps, Avg. Travel Time= 1.1 min

Peak Storage= 23 cf @ 11.95 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.44 cfs

15.0" Round Pipe
n= 0.011 PVC, smooth interior
Length= 71.0' Slope= 0.0051 '/'
Inlet Invert= 11.16', Outlet Invert= 10.80'





Stage-Area-Storage for Reach 36R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.16	0.0	0
11.18	0.0	0
11.20	0.0	1
11.22	0.0	2
11.24	0.0	2
11.26	0.0	3
11.28	0.1	4
11.30	0.1	5
11.32	0.1	7
11.34	0.1	8
11.36	0.1	9
11.38	0.1	10
11.40	0.2	12
11.42	0.2	13
11.44	0.2	15
11.46	0.2	16
11.48	0.2	18
11.50	0.3	19
11.52	0.3	21
11.54	0.3	22
11.56	0.3	24
11.58	0.4	26
11.60	0.4	27
11.62	0.4	29
11.64	0.4	31
11.66	0.5	33
11.68	0.5	34
11.70	0.5	36
11.72	0.5	38
11.74	0.6	40
11.76	0.6	41
11.78	0.6	43
11.80	0.6	45
11.82	0.7	47
11.84	0.7	48
11.86	0.7	50
11.88	0.7	52
11.90	0.8	54
11.92	0.8	55
11.94	0.8	57
11.96	0.8	59
11.98	0.9	61
12.00	0.9	62
12.02	0.9	64
12.04	0.9	66
12.06	0.9	67
12.08	1.0	69
12.10	1.0	70
12.12	1.0	72
12.14	1.0	73
12.16	1.1	75
12.18	1.1	76
12.20	1.1	77
12.22	1.1	79
12.24	1.1	80
12.26	1.1	81
12.28	1.2	82
12.30	1.2	83
12.32	1.2	84
12.34	1.2	85
12.36	1.2	86
12.38	1.2	87
12.40	**1.2**	**87**

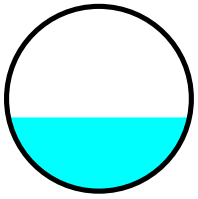
Summary for Reach 37R: 15" HDPE

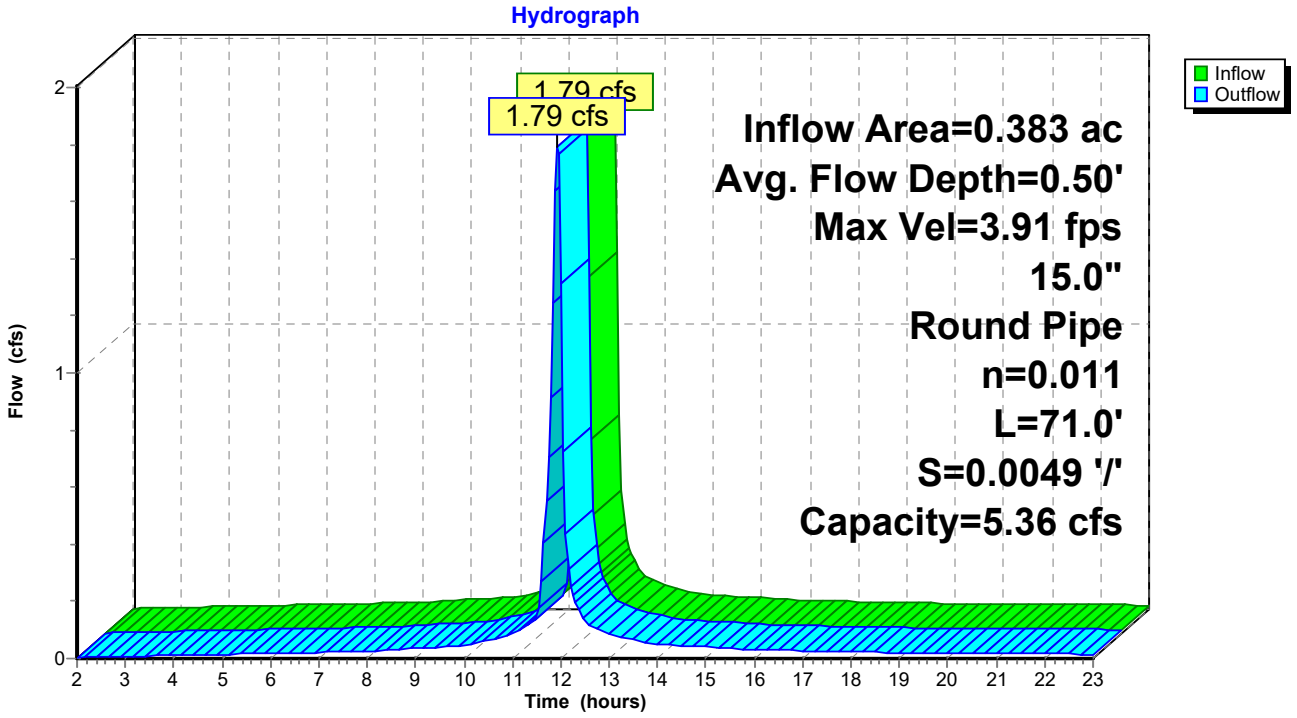
Inflow Area = 0.383 ac,100.00% Impervious, Inflow Depth > 3.12" for 2-YR event
Inflow = 1.79 cfs @ 11.93 hrs, Volume= 0.100 af
Outflow = 1.79 cfs @ 11.94 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.91 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.20 fps, Avg. Travel Time= 1.0 min

Peak Storage= 32 cf @ 11.94 hrs
Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.36 cfs

15.0" Round Pipe
n= 0.011
Length= 71.0' Slope= 0.0049 '/'
Inlet Invert= 10.80', Outlet Invert= 10.45'





Stage-Area-Storage for Reach 37R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
10.80	0.0	0
10.82	0.0	0
10.84	0.0	1
10.86	0.0	2
10.88	0.0	2
10.90	0.0	3
10.92	0.1	4
10.94	0.1	5
10.96	0.1	7
10.98	0.1	8
11.00	0.1	9
11.02	0.1	10
11.04	0.2	12
11.06	0.2	13
11.08	0.2	15
11.10	0.2	16
11.12	0.2	18
11.14	0.3	19
11.16	0.3	21
11.18	0.3	22
11.20	0.3	24
11.22	0.4	26
11.24	0.4	27
11.26	0.4	29
11.28	0.4	31
11.30	0.5	33
11.32	0.5	34
11.34	0.5	36
11.36	0.5	38
11.38	0.6	40
11.40	0.6	41
11.42	0.6	43
11.44	0.6	45
11.46	0.7	47
11.48	0.7	48
11.50	0.7	50
11.52	0.7	52
11.54	0.8	54
11.56	0.8	55
11.58	0.8	57
11.60	0.8	59
11.62	0.9	61
11.64	0.9	62
11.66	0.9	64
11.68	0.9	66
11.70	0.9	67
11.72	1.0	69
11.74	1.0	70
11.76	1.0	72
11.78	1.0	73
11.80	1.1	75
11.82	1.1	76
11.84	1.1	77
11.86	1.1	79
11.88	1.1	80
11.90	1.1	81
11.92	1.2	82
11.94	1.2	83
11.96	1.2	84
11.98	1.2	85
12.00	1.2	86
12.02	1.2	87
12.04	**1.2**	**87**

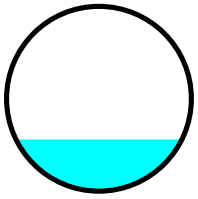
Summary for Reach 38R: 15" HDPE

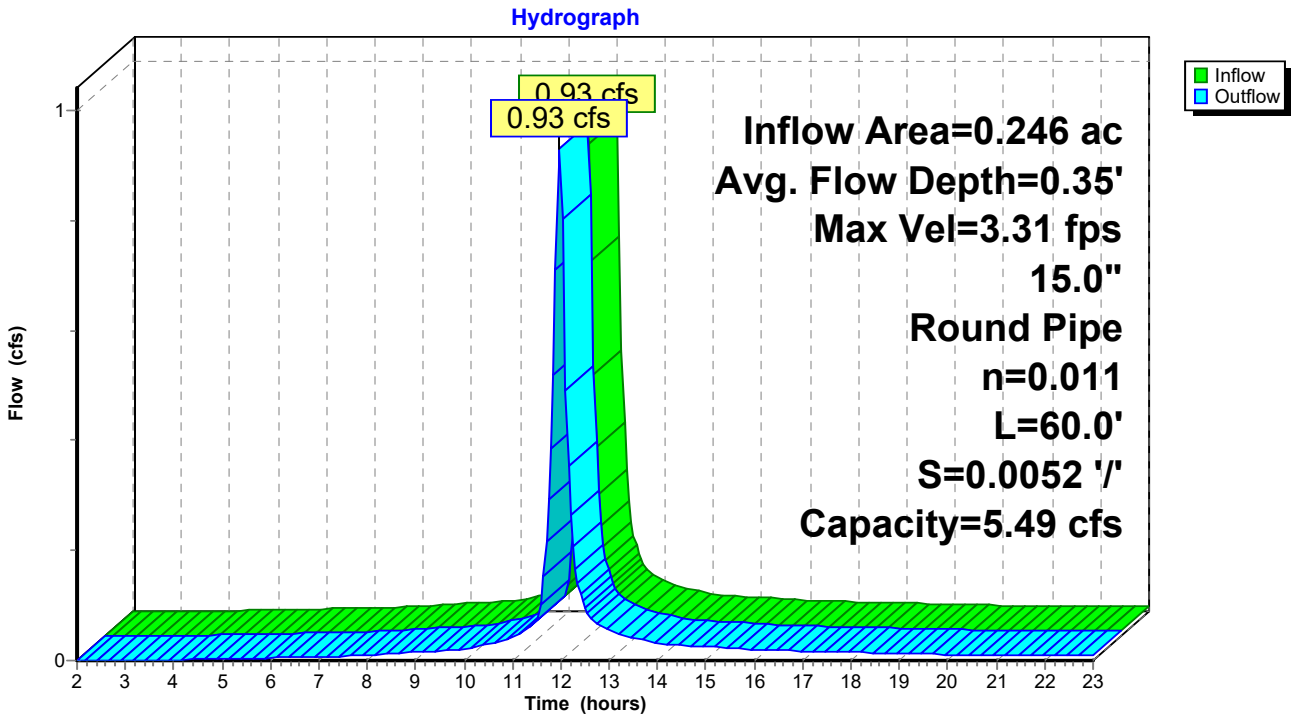
Inflow Area = 0.246 ac, 83.04% Impervious, Inflow Depth > 2.70" for 2-YR event
Inflow = 0.93 cfs @ 11.97 hrs, Volume= 0.055 af
Outflow = 0.93 cfs @ 11.98 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.31 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.02 fps, Avg. Travel Time= 1.0 min

Peak Storage= 17 cf @ 11.98 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.49 cfs

15.0" Round Pipe
n= 0.011
Length= 60.0' Slope= 0.0052 '/'
Inlet Invert= 11.82', Outlet Invert= 11.51'





Stage-Area-Storage for Reach 38R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.82	0.0	0
11.84	0.0	0
11.86	0.0	1
11.88	0.0	1
11.90	0.0	2
11.92	0.0	3
11.94	0.1	4
11.96	0.1	5
11.98	0.1	6
12.00	0.1	7
12.02	0.1	8
12.04	0.1	9
12.06	0.2	10
12.08	0.2	11
12.10	0.2	12
12.12	0.2	14
12.14	0.2	15
12.16	0.3	16
12.18	0.3	18
12.20	0.3	19
12.22	0.3	20
12.24	0.4	22
12.26	0.4	23
12.28	0.4	25
12.30	0.4	26
12.32	0.5	28
12.34	0.5	29
12.36	0.5	30
12.38	0.5	32
12.40	0.6	33
12.42	0.6	35
12.44	0.6	36
12.46	0.6	38
12.48	0.7	39
12.50	0.7	41
12.52	0.7	42
12.54	0.7	44
12.56	0.8	45
12.58	0.8	47
12.60	0.8	48
12.62	0.8	50
12.64	0.9	51
12.66	0.9	53
12.68	0.9	54
12.70	0.9	55
12.72	0.9	57
12.74	1.0	58
12.76	1.0	59
12.78	1.0	61
12.80	1.0	62
12.82	1.1	63
12.84	1.1	64
12.86	1.1	65
12.88	1.1	67
12.90	1.1	68
12.92	1.1	69
12.94	1.2	70
12.96	1.2	70
12.98	1.2	71
13.00	1.2	72
13.02	1.2	73
13.04	1.2	73
13.06	**1.2**	**74**

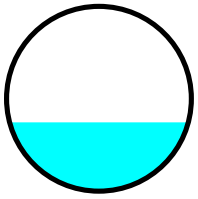
Summary for Reach 39R: 15" HDPE

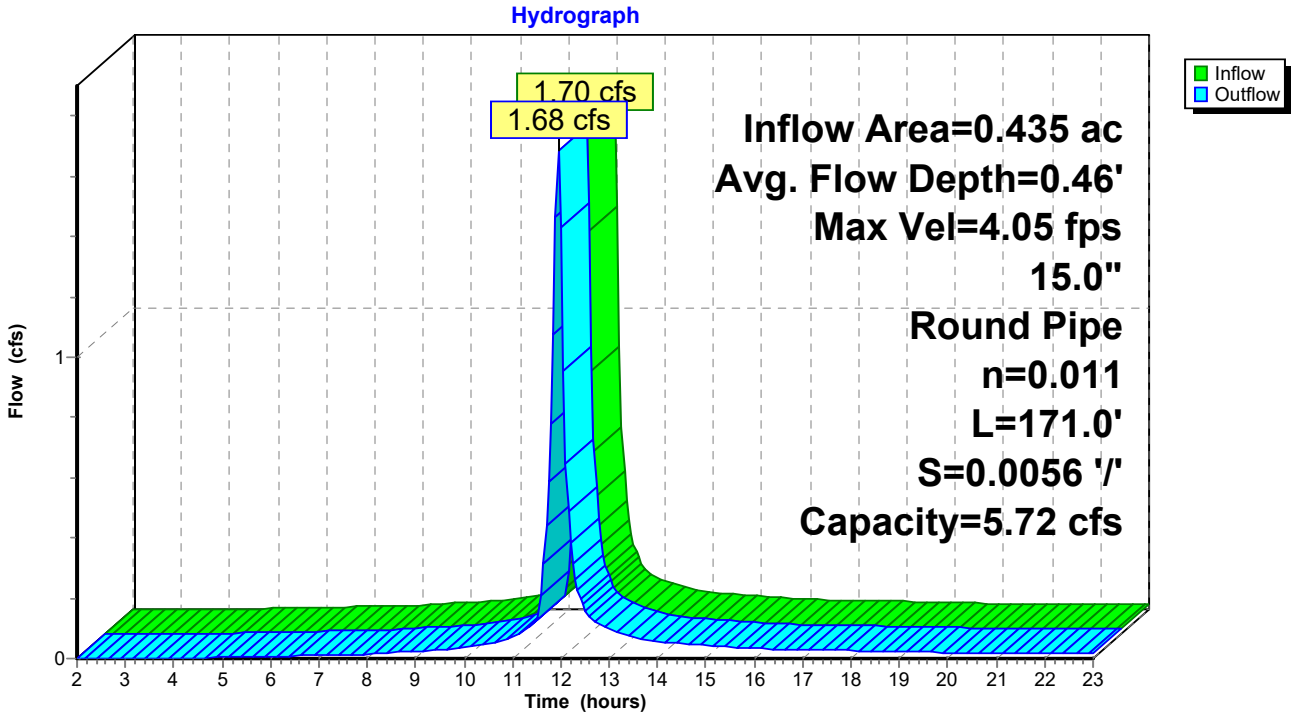
Inflow Area = 0.435 ac, 79.43% Impervious, Inflow Depth > 2.61" for 2-YR event
Inflow = 1.70 cfs @ 11.94 hrs, Volume= 0.095 af
Outflow = 1.68 cfs @ 11.95 hrs, Volume= 0.095 af, Atten= 1%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.05 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.22 fps, Avg. Travel Time= 2.3 min

Peak Storage= 71 cf @ 11.95 hrs
Average Depth at Peak Storage= 0.46'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.72 cfs

15.0" Round Pipe
n= 0.011
Length= 171.0' Slope= 0.0056 '/'
Inlet Invert= 11.41', Outlet Invert= 10.45'





Stage-Area-Storage for Reach 39R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.41	0.0	0
11.43	0.0	1
11.45	0.0	2
11.47	0.0	4
11.49	0.0	6
11.51	0.0	8
11.53	0.1	10
11.55	0.1	13
11.57	0.1	16
11.59	0.1	19
11.61	0.1	22
11.63	0.1	25
11.65	0.2	28
11.67	0.2	32
11.69	0.2	35
11.71	0.2	39
11.73	0.2	42
11.75	0.3	46
11.77	0.3	50
11.79	0.3	54
11.81	0.3	58
11.83	0.4	62
11.85	0.4	66
11.87	0.4	70
11.89	0.4	74
11.91	0.5	78
11.93	0.5	83
11.95	0.5	87
11.97	0.5	91
11.99	0.6	95
12.01	0.6	100
12.03	0.6	104
12.05	0.6	108
12.07	0.7	112
12.09	0.7	117
12.11	0.7	121
12.13	0.7	125
12.15	0.8	129
12.17	0.8	134
12.19	0.8	138
12.21	0.8	142
12.23	0.9	146
12.25	0.9	150
12.27	0.9	154
12.29	0.9	158
12.31	0.9	162
12.33	1.0	166
12.35	1.0	169
12.37	1.0	173
12.39	1.0	176
12.41	1.1	180
12.43	1.1	183
12.45	1.1	187
12.47	1.1	190
12.49	1.1	193
12.51	1.1	196
12.53	1.2	198
12.55	1.2	201
12.57	1.2	203
12.59	1.2	205
12.61	1.2	207
12.63	1.2	209
12.65	**1.2**	**210**

Summary for Pond 40P: SGW 1

Inflow Area = 2.337 ac, 62.67% Impervious, Inflow Depth > 2.28" for 2-YR event
Inflow = 7.58 cfs @ 11.96 hrs, Volume= 0.444 af
Outflow = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Peak Elev= 11.17' @ 23.00 hrs Surf.Area= 11,047 sf Storage= 19,334 cf

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

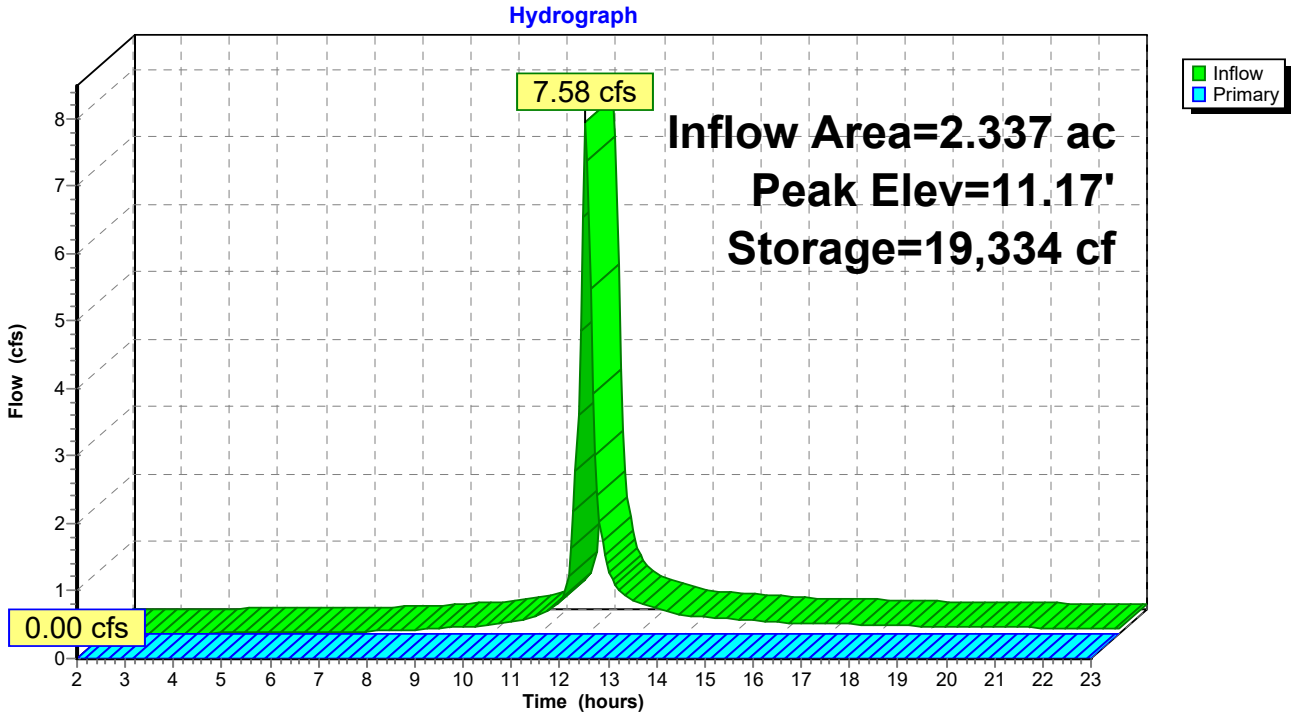
Volume	Invert	Avail.Storage	Storage Description
#1	7.44'	28,534 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
7.44	9,804	575.0	0.0	0	0	9,804
7.45	9,804	575.0	40.0	39	39	9,810
10.44	9,804	575.0	40.0	11,726	11,765	11,529
10.45	9,804	575.0	100.0	98	11,863	11,535
11.45	11,558	594.0	100.0	10,669	22,532	13,396
11.95	12,457	604.0	100.0	6,002	28,534	14,396

Device	Routing	Invert	Outlet Devices
#1	Primary	10.12'	**15.0" Round Culvert** L= 31.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 10.12' / 10.00' S= 0.0039 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	11.45'	**18.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 2.00 hrs HW=7.44' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)
↑**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 40P: SGW 1



Stage-Area-Storage for Pond 40P: SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
7.44	9,804	0
7.49	9,804	196
7.54	9,804	392
7.59	9,804	588
7.64	9,804	784
7.69	9,804	980
7.74	9,804	1,176
7.79	9,804	1,373
7.84	9,804	1,569
7.89	9,804	1,765
7.94	9,804	1,961
7.99	9,804	2,157
8.04	9,804	2,353
8.09	9,804	2,549
8.14	9,804	2,745
8.19	9,804	2,941
8.24	9,804	3,137
8.29	9,804	3,333
8.34	9,804	3,529
8.39	9,804	3,726
8.44	9,804	3,922
8.49	9,804	4,118
8.54	9,804	4,314
8.59	9,804	4,510
8.64	9,804	4,706
8.69	9,804	4,902
8.74	9,804	5,098
8.79	9,804	5,294
8.84	9,804	5,490
8.89	9,804	5,686
8.94	9,804	5,882
8.99	9,804	6,078
9.04	9,804	6,275
9.09	9,804	6,471
9.14	9,804	6,667
9.19	9,804	6,863
9.24	9,804	7,059
9.29	9,804	7,255
9.34	9,804	7,451
9.39	9,804	7,647
9.44	9,804	7,843
9.49	9,804	8,039
9.54	9,804	8,235
9.59	9,804	8,431
9.64	9,804	8,628
9.69	9,804	8,824
9.74	9,804	9,020
9.79	9,804	9,216
9.84	9,804	9,412
9.89	9,804	9,608
9.94	9,804	9,804
9.99	9,804	10,000
10.04	9,804	10,196
10.09	9,804	10,392
10.14	9,804	10,588
10.19	9,804	10,784
10.24	9,804	10,980
10.29	9,804	11,177
10.34	9,804	11,373
10.39	9,804	11,569
10.44	9,804	11,765
10.49	9,871	12,256
10.54	9,956	12,752
10.59	10,041	13,252
10.64	10,126	13,756
10.69	10,212	14,265
10.74	10,298	14,777
10.79	10,384	15,294
10.84	10,471	15,816
10.89	10,558	16,341
10.94	10,645	16,872
10.99	10,733	17,406
11.04	10,821	17,945
11.09	10,910	18,488
11.14	10,999	19,036
11.19	11,088	19,588
11.24	11,178	20,145
11.29	11,268	20,706
11.34	11,358	21,271
11.39	11,449	21,842
11.44	11,540	22,416
11.49	11,629	22,996
11.54	11,717	23,579
11.59	11,806	24,167
11.64	11,896	24,760
11.69	11,985	25,357
11.74	12,075	25,958
11.79	12,166	26,564
11.84	12,256	27,175
11.89	12,347	27,790
11.94	**12,439**	**28,410**

Summary for Pond 52P: SGW 2

Inflow Area = 0.861 ac, 49.03% Impervious, Inflow Depth > 1.97" for 2-YR event
Inflow = 2.16 cfs @ 12.01 hrs, Volume= 0.141 af
Outflow = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Peak Elev= 13.86' @ 23.00 hrs Surf.Area= 4,417 sf Storage= 6,157 cf

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

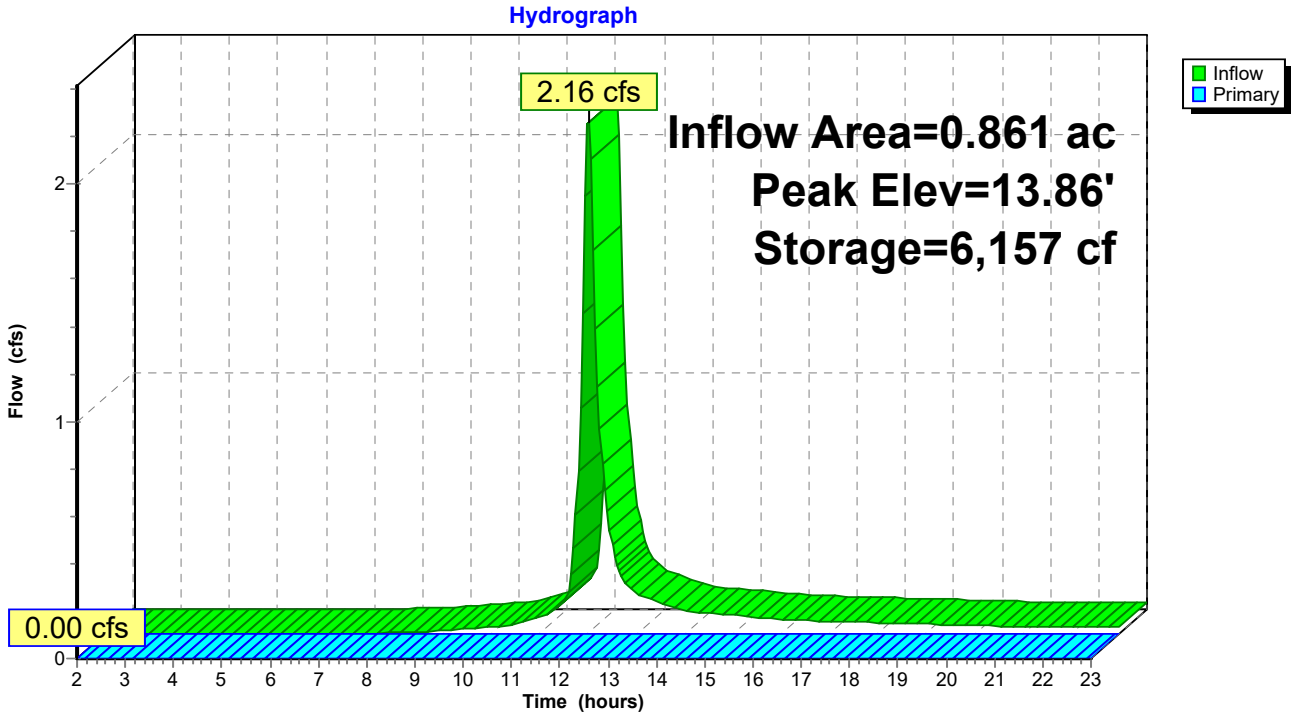
Volume	Invert	Avail.Storage	Storage Description
#1	10.54'	12,413 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
10.54	4,017	447.0	0.0	0	0	4,017
10.55	4,017	447.0	40.0	16	16	4,021
13.54	4,017	447.0	40.0	4,804	4,820	5,358
13.55	4,017	447.0	100.0	40	4,861	5,362
14.55	5,386	466.0	100.0	4,685	9,545	6,816
15.05	6,092	475.0	100.0	2,868	12,413	7,530

Device	Routing	Invert	Outlet Devices
#1	Primary	13.25'	**15.0" Round Culvert** L= 35.5' Ke= 0.500 Inlet / Outlet Invert= 13.25' / 13.02' S= 0.0065 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	14.55'	**18.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 2.00 hrs HW=10.54' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 52P: SGW 2



Stage-Area-Storage for Pond 52P: SGW 2

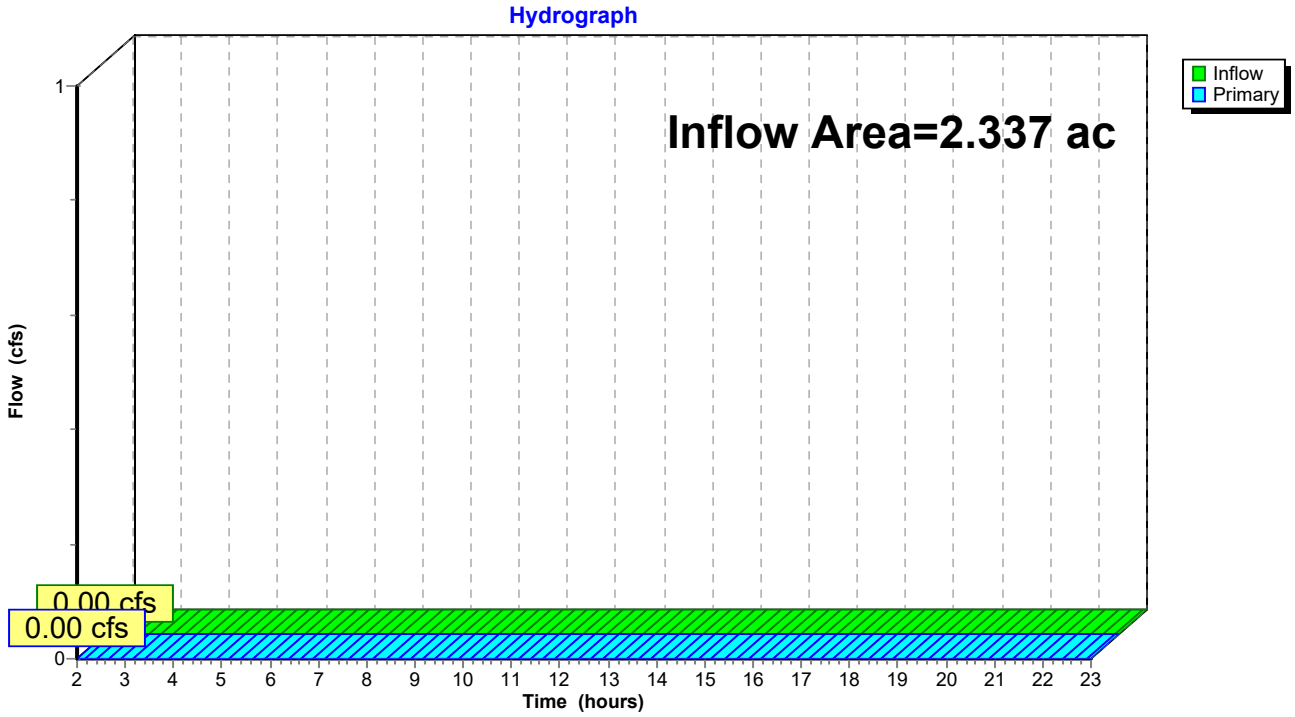
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
10.54	4,017	0
10.59	4,017	80
10.64	4,017	161
10.69	4,017	241
10.74	4,017	321
10.79	4,017	402
10.84	4,017	482
10.89	4,017	562
10.94	4,017	643
10.99	4,017	723
11.04	4,017	803
11.09	4,017	884
11.14	4,017	964
11.19	4,017	1,044
11.24	4,017	1,125
11.29	4,017	1,205
11.34	4,017	1,285
11.39	4,017	1,366
11.44	4,017	1,446
11.49	4,017	1,526
11.54	4,017	1,607
11.59	4,017	1,687
11.64	4,017	1,767
11.69	4,017	1,848
11.74	4,017	1,928
11.79	4,017	2,009
11.84	4,017	2,089
11.89	4,017	2,169
11.94	4,017	2,250
11.99	4,017	2,330
12.04	4,017	2,410
12.09	4,017	2,491
12.14	4,017	2,571
12.19	4,017	2,651
12.24	4,017	2,732
12.29	4,017	2,812
12.34	4,017	2,892
12.39	4,017	2,973
12.44	4,017	3,053
12.49	4,017	3,133
12.54	4,017	3,214
12.59	4,017	3,294
12.64	4,017	3,374
12.69	4,017	3,455
12.74	4,017	3,535
12.79	4,017	3,615
12.84	4,017	3,696
12.89	4,017	3,776
12.94	4,017	3,856
12.99	4,017	3,937
13.04	4,017	4,017
13.09	4,017	4,097
13.14	4,017	4,178
13.19	4,017	4,258
13.24	4,017	4,338
13.29	4,017	4,419
13.34	4,017	4,499
13.39	4,017	4,579
13.44	4,017	4,660
13.49	4,017	4,740
13.54	4,017	4,820
13.59	4,068	5,022
13.64	4,132	5,227
13.69	4,197	5,435
13.74	4,262	5,647
13.79	4,327	5,862
13.84	4,393	6,080
13.89	4,460	6,301
13.94	4,527	6,526
13.99	4,595	6,754
14.04	4,663	6,985
14.09	4,731	7,220
14.14	4,800	7,458
14.19	4,870	7,700
14.24	4,940	7,945
14.29	5,011	8,194
14.34	5,082	8,446
14.39	5,153	8,702
14.44	5,226	8,962
14.49	5,298	9,225
14.54	5,371	9,492
14.59	5,441	9,762
14.64	5,510	10,036
14.69	5,579	10,313
14.74	5,649	10,594
14.79	5,719	10,878
14.84	5,790	11,166
14.89	5,861	11,457
14.94	5,933	11,752
14.99	6,005	12,050
15.04	**6,077**	**12,352**

Summary for Link 42L: POI 1

Inflow Area = 2.337 ac, 62.67% Impervious, Inflow Depth = 0.00" for 2-YR event
Inflow = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 42L: POI 1

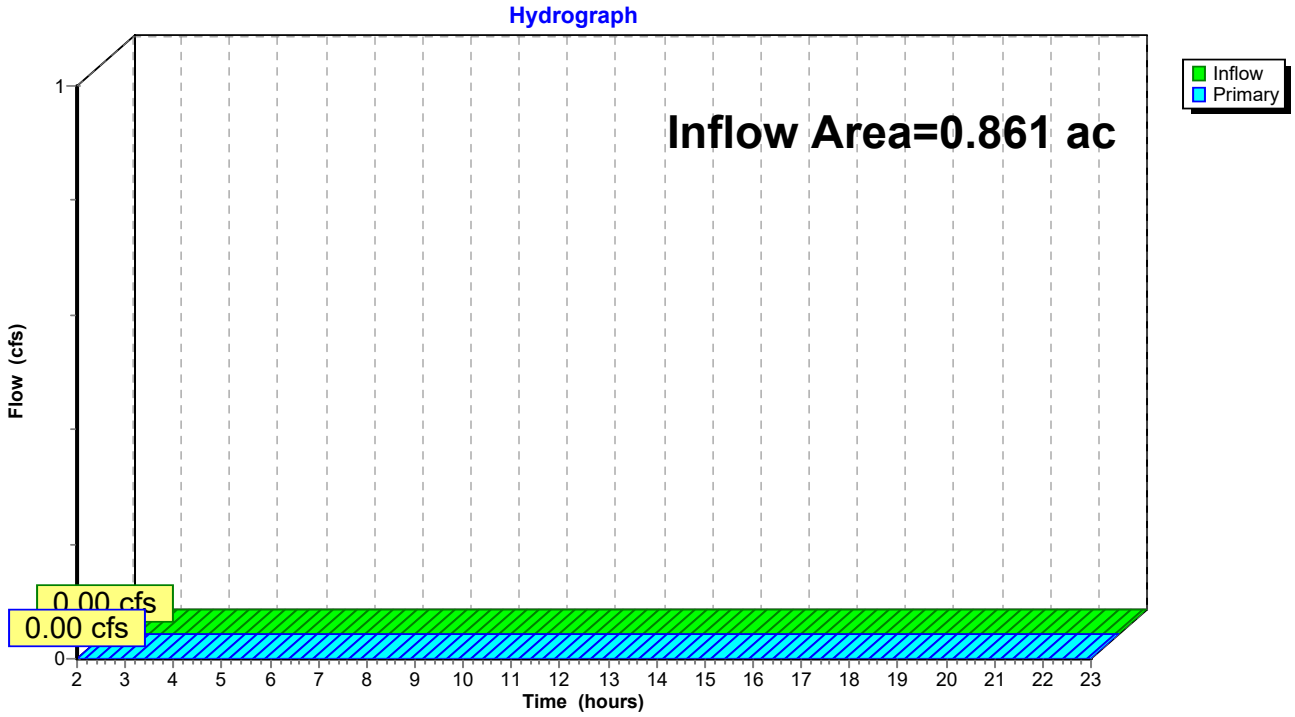


Summary for Link 53L: POI 2

Inflow Area = 0.861 ac, 49.03% Impervious, Inflow Depth = 0.00" for 2-YR event
Inflow = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 53L: POI 2

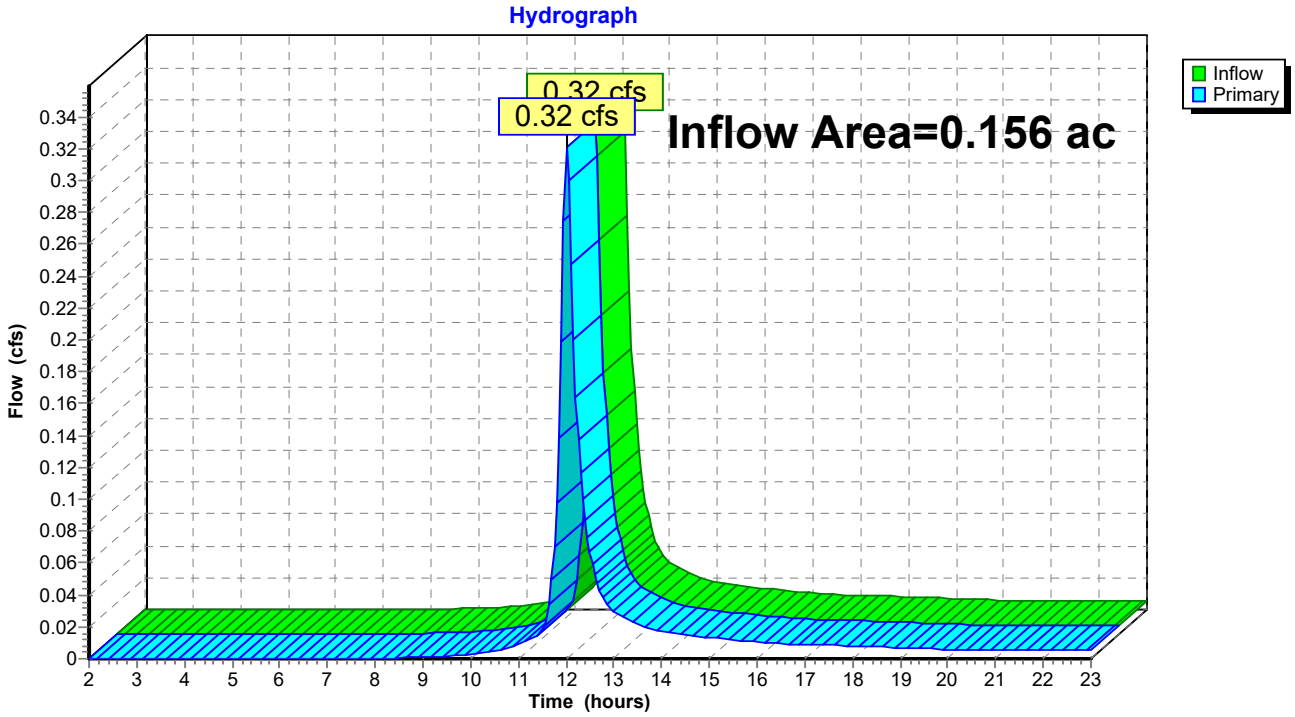


Summary for Link 56L: POI 3 (EX SWM POND)

Inflow Area = 0.156 ac, 34.31% Impervious, Inflow Depth > 1.70" for 2-YR event
Inflow = 0.32 cfs @ 12.01 hrs, Volume= 0.022 af
Primary = 0.32 cfs @ 12.01 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 56L: POI 3 (EX SWM POND)



Summary for Subcatchment 1S: EX DA-1 (ORANGE)

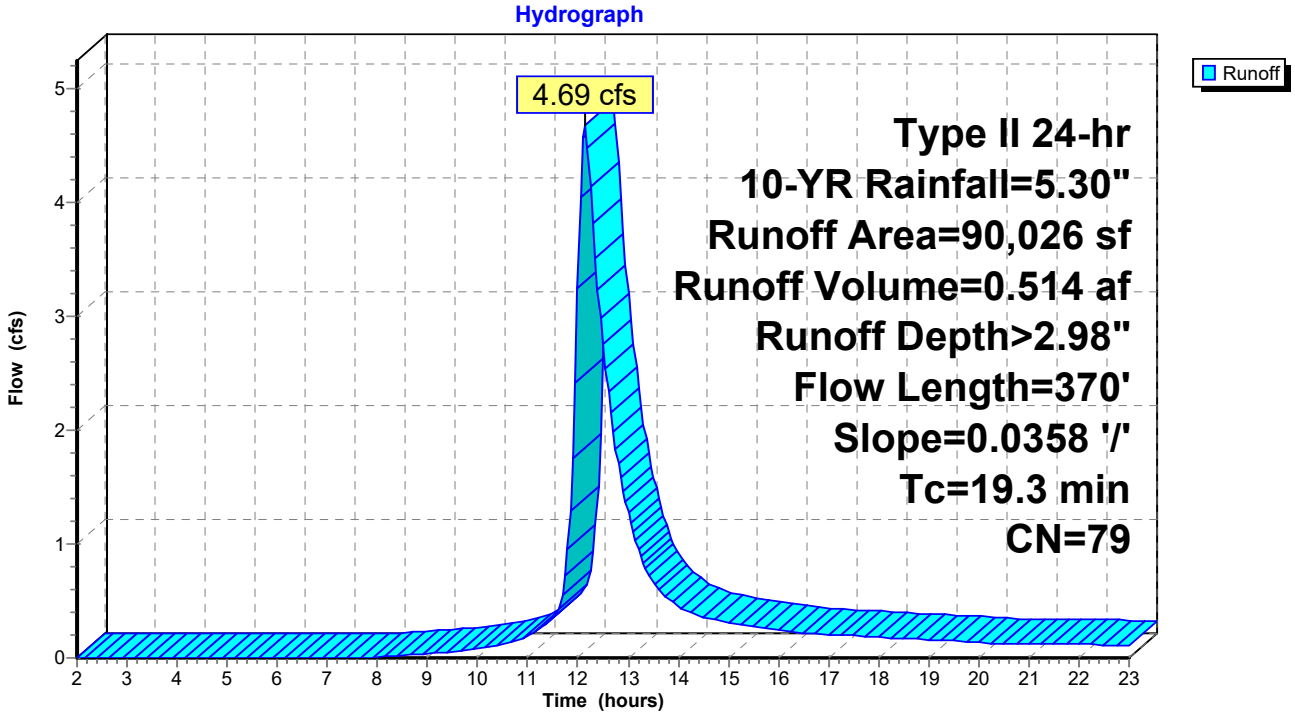
Runoff = 4.69 cfs @ 12.14 hrs, Volume= 0.514 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

	Area (sf)	CN	Description
*	224	98	existing shed
	89,802	79	50-75% Grass cover, Fair, HSG C
	90,026	79	Weighted Average
	89,802		99.75% Pervious Area
	224		0.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0358	0.14		**Sheet Flow, a-b** Grass: Dense n= 0.240 P2= 2.40"
1.2	220	0.0358	3.05		**Shallow Concentrated Flow, b-c** Unpaved Kv= 16.1 fps
19.3	370	Total			

Subcatchment 1S: EX DA-1 (ORANGE)



Summary for Subcatchment 2S: EX DA-2 (PURPLE)

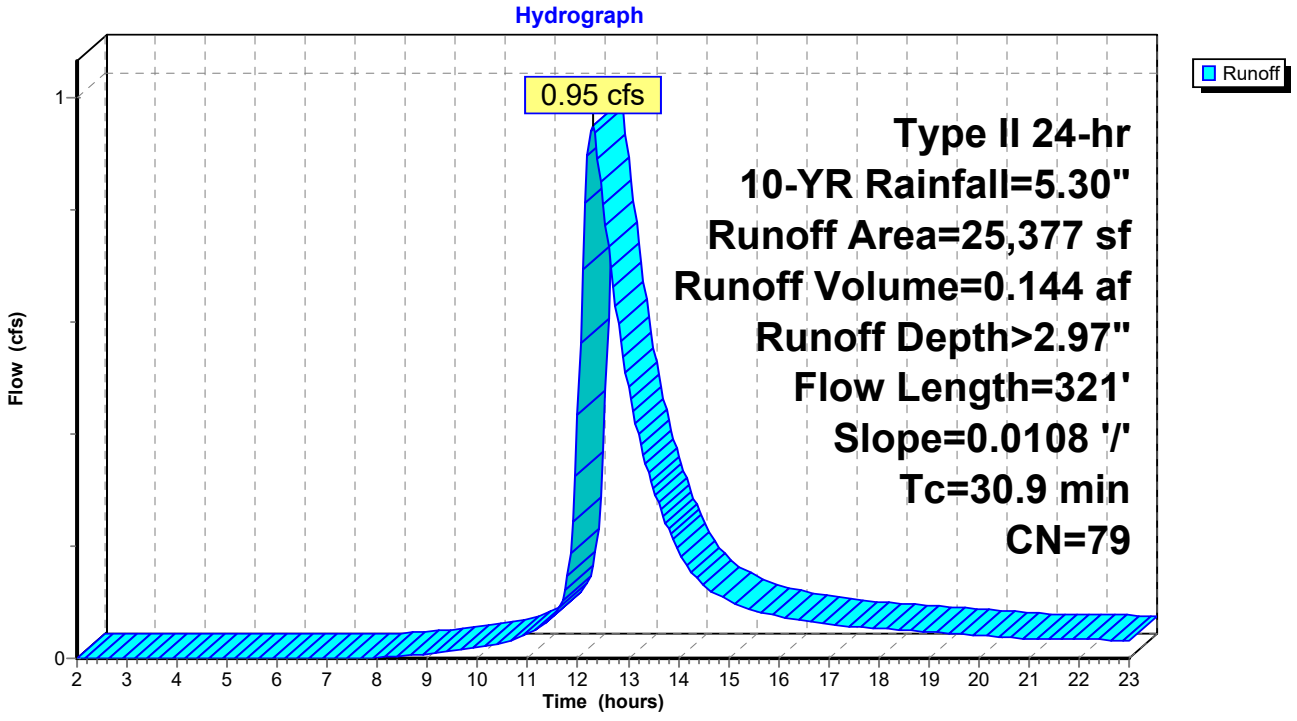
Runoff = 0.95 cfs @ 12.29 hrs, Volume= 0.144 af, Depth> 2.97"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
25,377	79	50-75% Grass cover, Fair, HSG C
25,377		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	150	0.0108	0.09		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
1.7	171	0.0108	1.67		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
30.9	321	Total			

Subcatchment 2S: EX DA-2 (PURPLE)



Summary for Subcatchment 3S: EX DA-3 (BLUE)

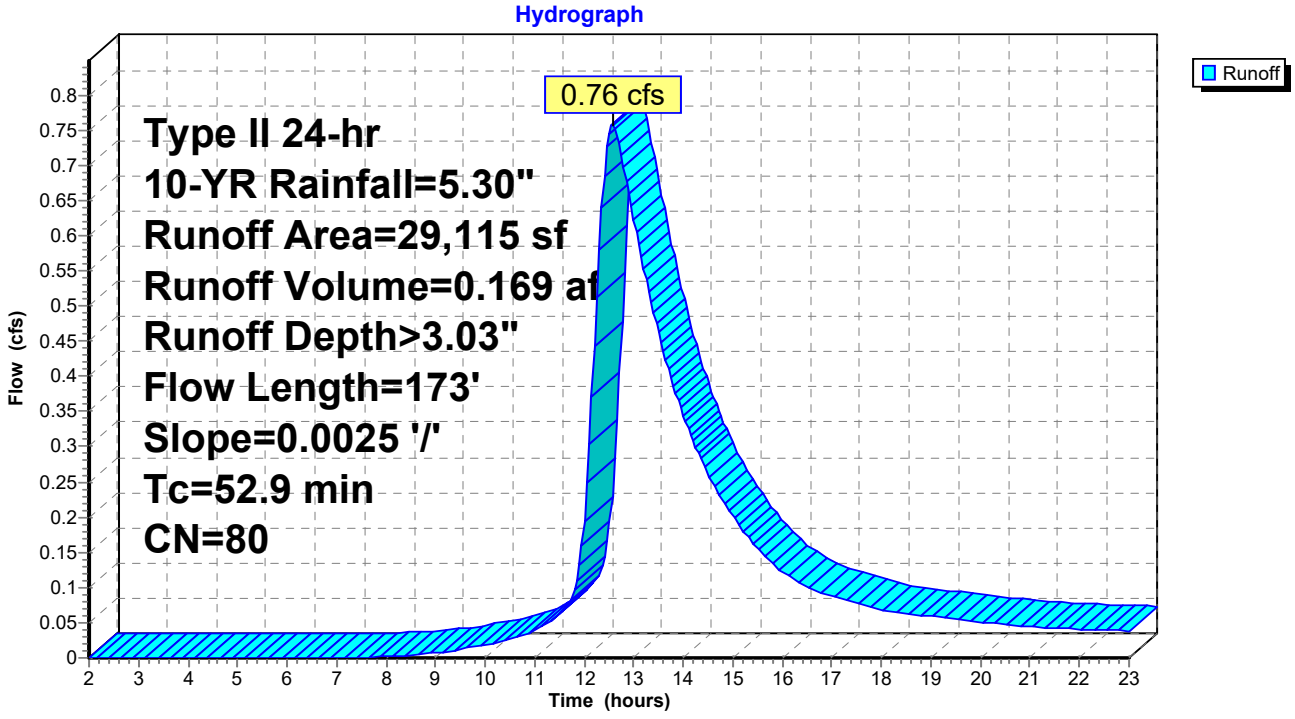
Runoff = 0.76 cfs @ 12.58 hrs, Volume= 0.169 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
28,117	79	50-75% Grass cover, Fair, HSG C
998	98	Paved parking, HSG C
29,115	80	Weighted Average
28,117		96.57% Pervious Area
998		3.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.4	150	0.0025	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.5	23	0.0025	0.81		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
52.9	173	Total			

Subcatchment 3S: EX DA-3 (BLUE)



Summary for Subcatchment 30S: DA-1e (orange)

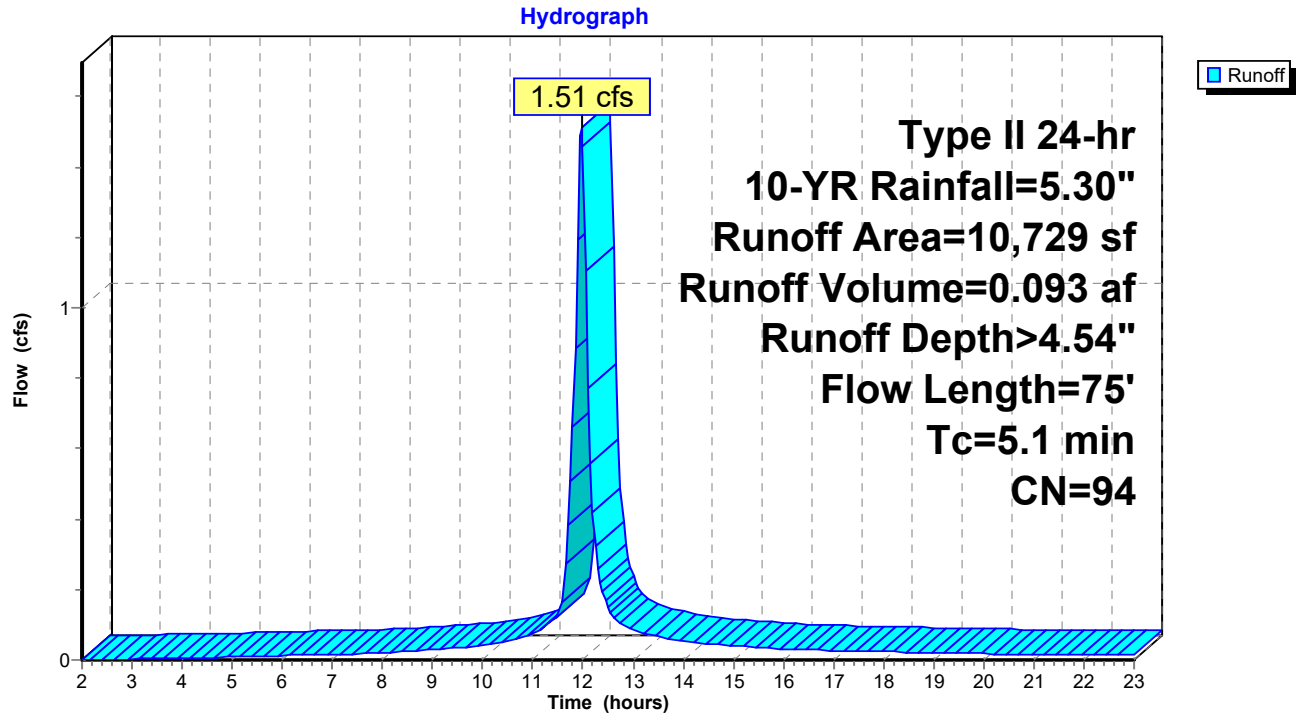
Runoff = 1.51 cfs @ 11.97 hrs, Volume= 0.093 af, Depth> 4.54"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
8,909	98	Paved parking, HSG C
1,820	74	>75% Grass cover, Good, HSG C
10,729	94	Weighted Average
1,820		16.96% Pervious Area
8,909		83.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	14	0.0095	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	48	0.0134	1.86		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.1	13	0.0075	1.76		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
5.1	75	Total			

Subcatchment 30S: DA-1e (orange)



Summary for Subcatchment 31S: DA-1c (orange)

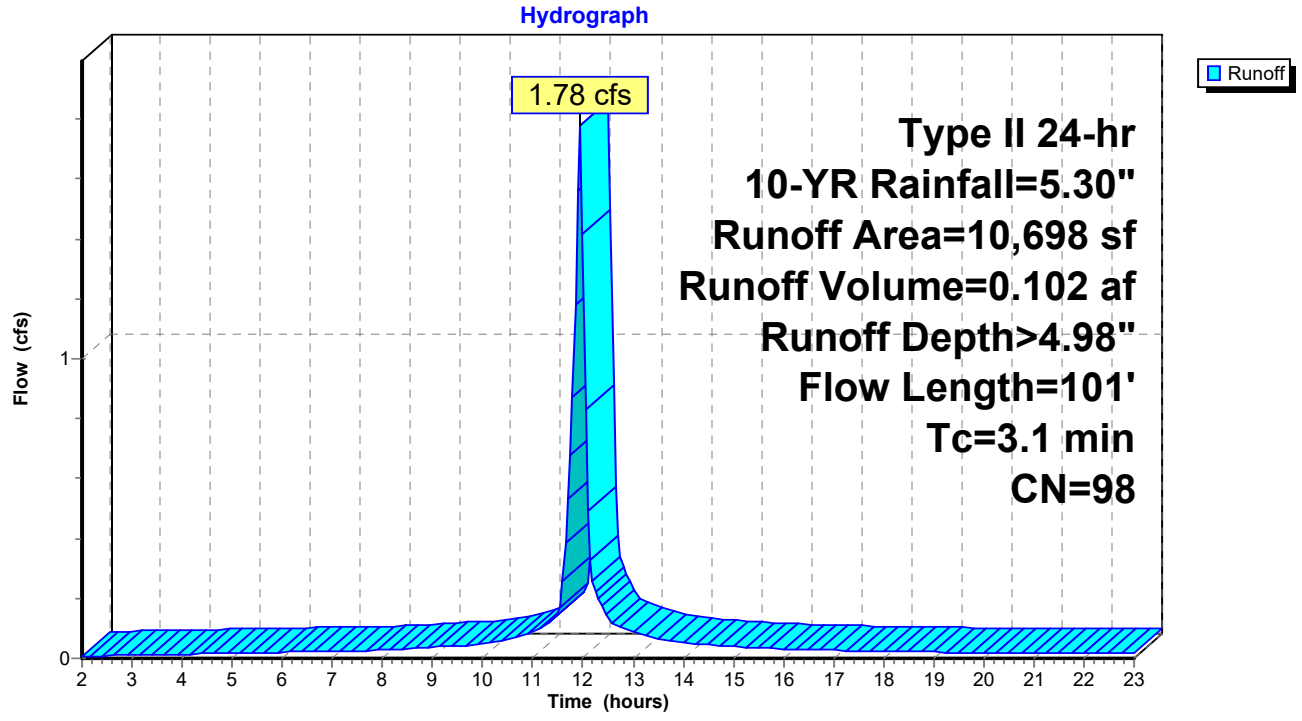
Runoff = 1.78 cfs @ 11.94 hrs, Volume= 0.102 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
10,698	98	Paved parking, HSG C
10,698		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	67	0.0016	0.40		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.3	34	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
3.1	101	Total			

Subcatchment 31S: DA-1c (orange)



Summary for Subcatchment 32S: DA-1b (orange)

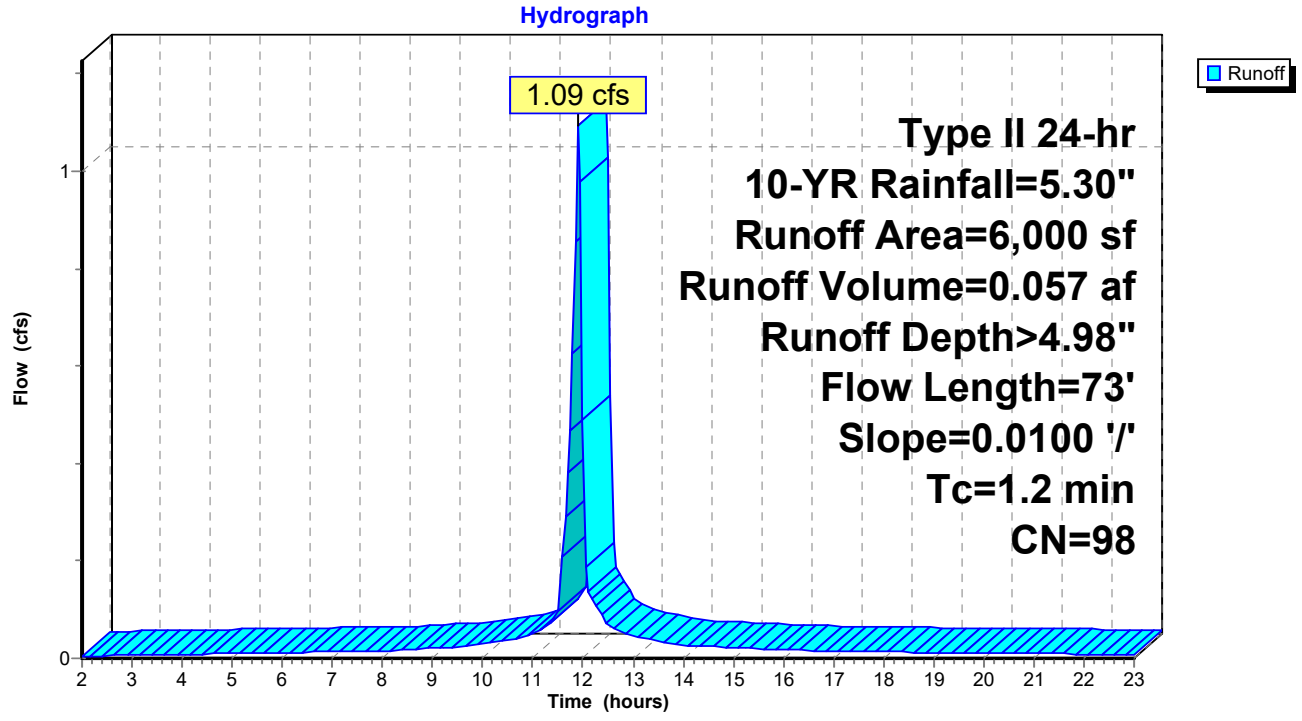
Runoff = 1.09 cfs @ 11.91 hrs, Volume= 0.057 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
6,000	98	Paved parking, HSG C
6,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	39	0.0100	0.75		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.3	34	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.2	73	Total			

Subcatchment 32S: DA-1b (orange)



Summary for Subcatchment 33S: DA-1a (orange)

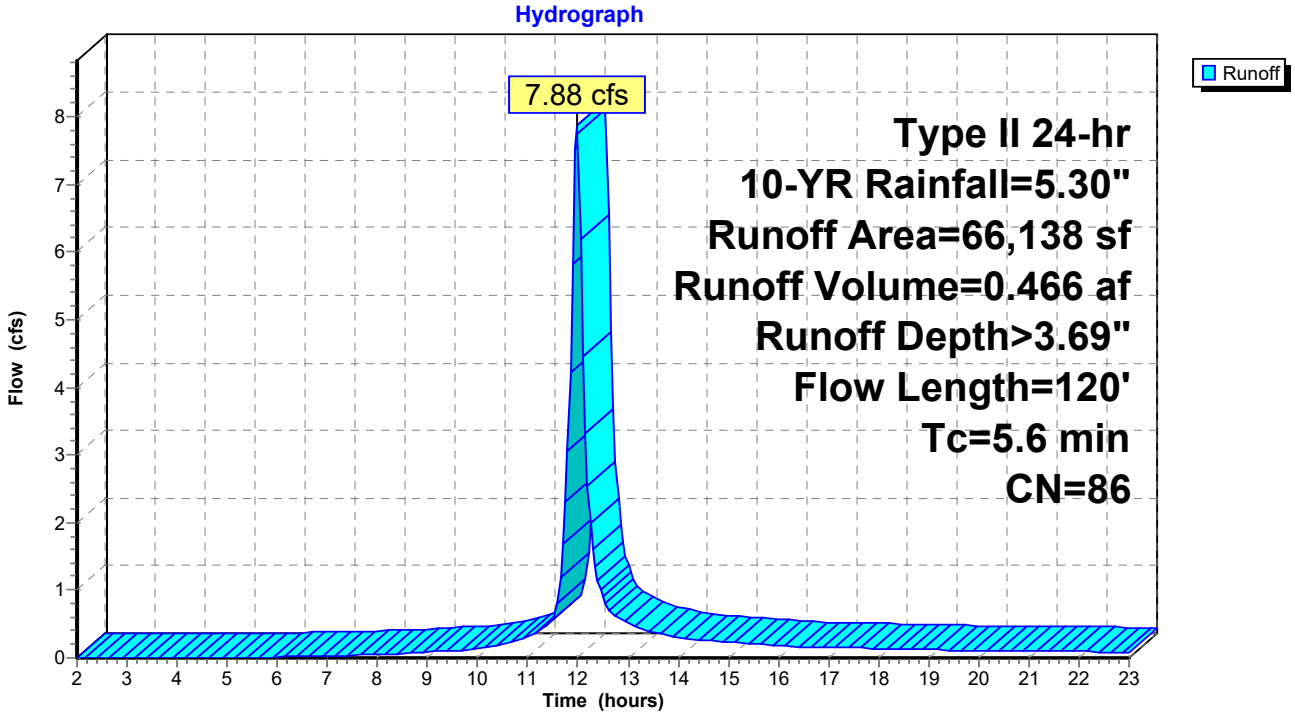
Runoff = 7.88 cfs @ 11.98 hrs, Volume= 0.466 af, Depth> 3.69"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
32,038	98	Paved parking, HSG C
34,100	74	>75% Grass cover, Good, HSG C
66,138	86	Weighted Average
34,100		51.56% Pervious Area
32,038		48.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	33	0.0439	0.11		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.6	87	0.0253	2.56		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.6	120	Total			

Subcatchment 33S: DA-1a (orange)



Summary for Subcatchment 34S: DA-1d (orange)

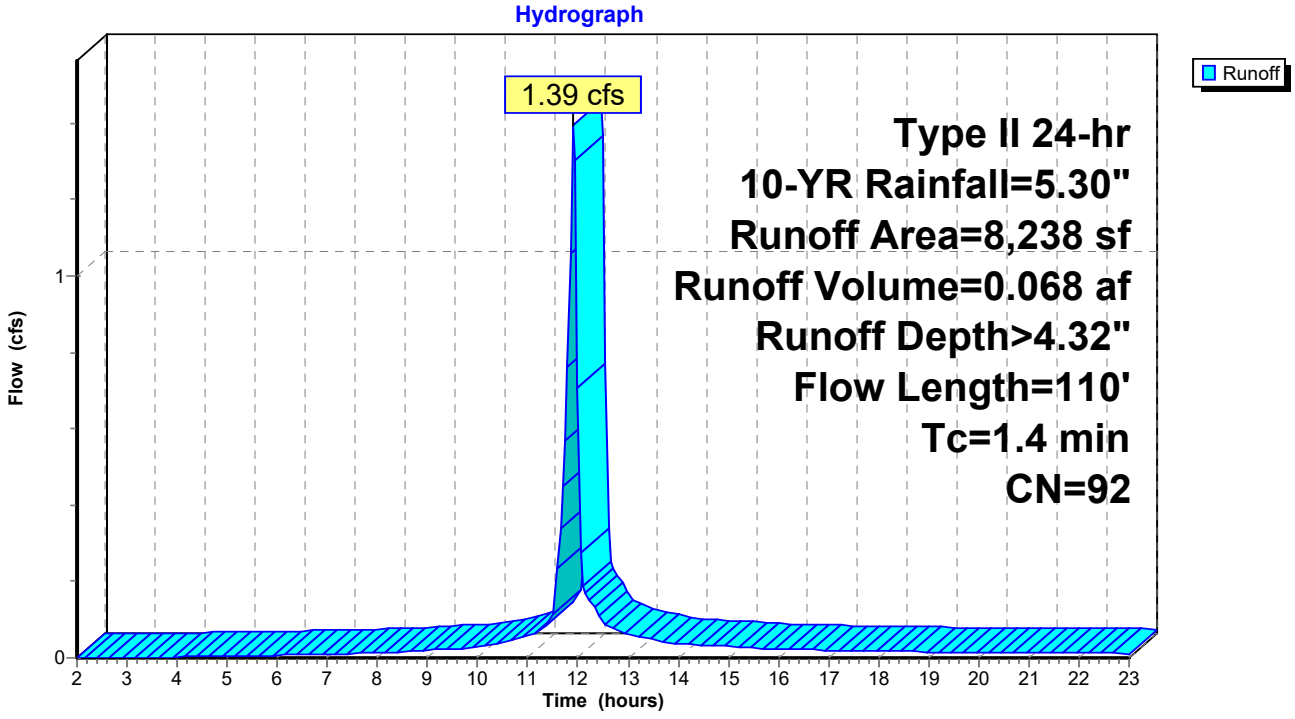
Runoff = 1.39 cfs @ 11.92 hrs, Volume= 0.068 af, Depth> 4.32"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
6,157	98	Paved parking, HSG C
2,081	74	>75% Grass cover, Good, HSG C
8,238	92	Weighted Average
2,081		25.26% Pervious Area
6,157		74.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	34	0.0156	0.87		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.7	76	0.0075	1.76		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.4	110	Total			

Subcatchment 34S: DA-1d (orange)



Summary for Subcatchment 51S: DA TO SGW 2 (purple)

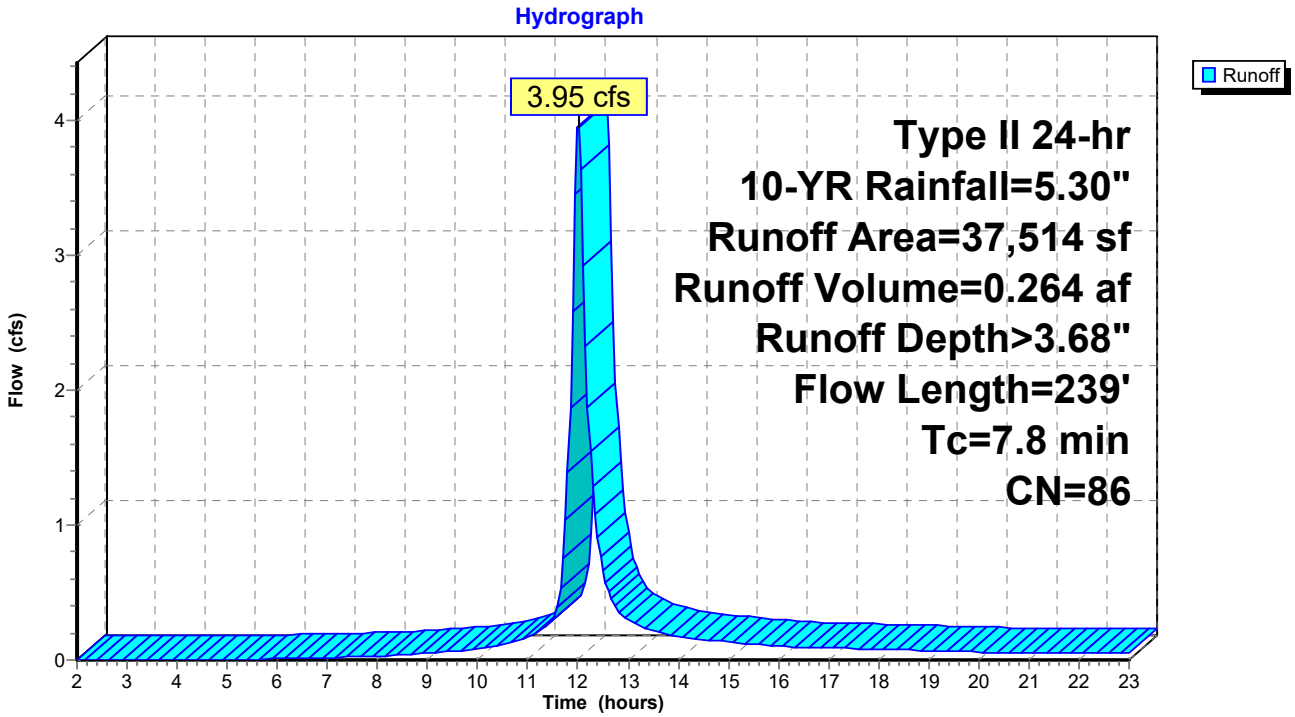
Runoff = 3.95 cfs @ 12.01 hrs, Volume= 0.264 af, Depth> 3.68"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
18,394	98	Paved parking, HSG C
19,120	74	>75% Grass cover, Good, HSG C
37,514	86	Weighted Average
19,120		50.97% Pervious Area
18,394		49.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	14	0.0095	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	35	0.0075	1.39		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.8	190	0.0051	1.15		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
7.8	239	Total			

Subcatchment 51S: DA TO SGW 2 (purple)



Summary for Subcatchment 54S: DA-3a (blue)

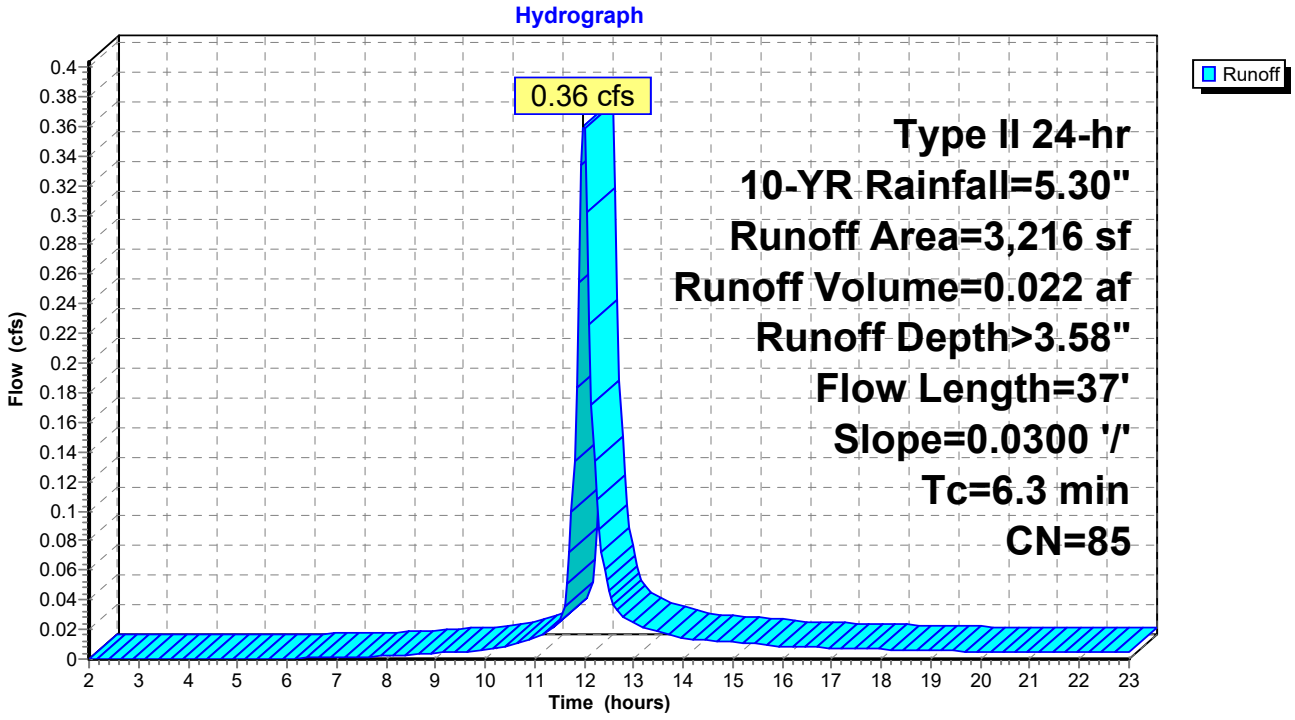
Runoff = 0.36 cfs @ 11.99 hrs, Volume= 0.022 af, Depth> 3.58"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
1,480	98	Paved parking, HSG C
1,736	74	>75% Grass cover, Good, HSG C
3,216	85	Weighted Average
1,736		53.98% Pervious Area
1,480		46.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	37	0.0300	0.10		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"

Subcatchment 54S: DA-3a (blue)



Summary for Subcatchment 55S: DA-3b (blue)

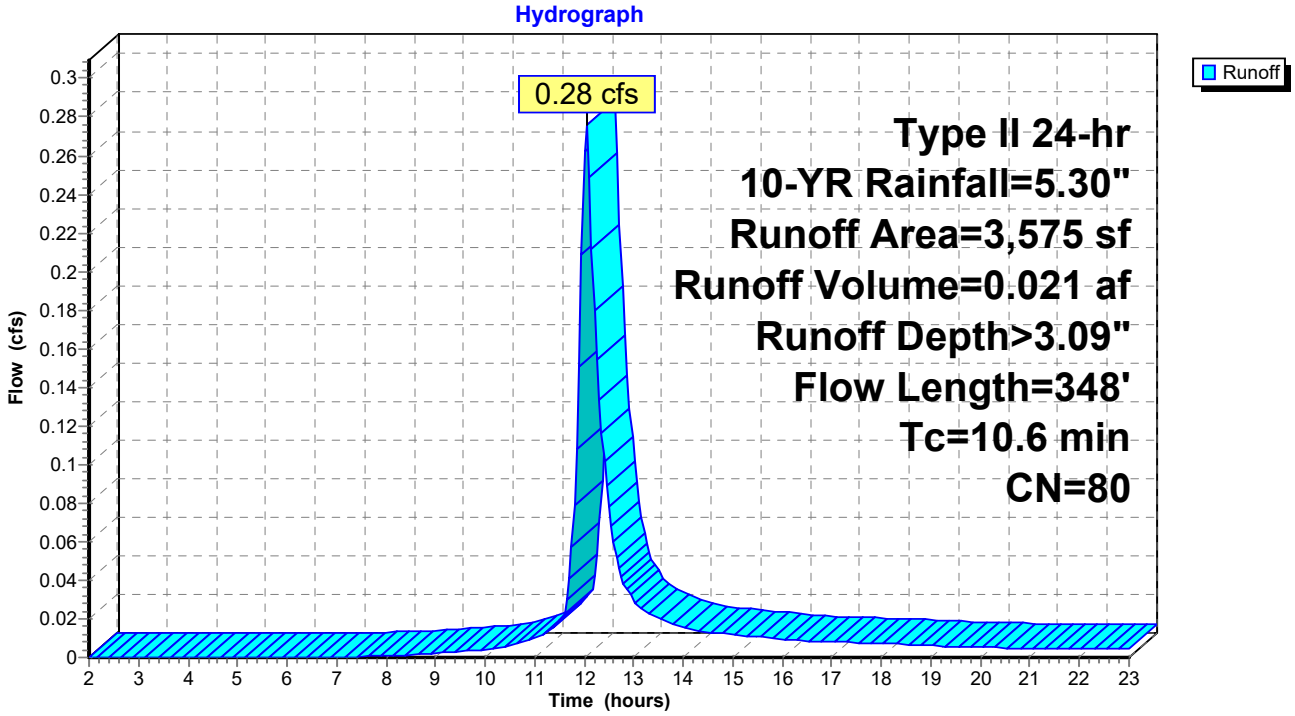
Runoff = 0.28 cfs @ 12.04 hrs, Volume= 0.021 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
850	98	Paved parking, HSG C
2,725	74	>75% Grass cover, Good, HSG C
3,575	80	Weighted Average
2,725		76.22% Pervious Area
850		23.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	46	0.0222	0.09		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	100	0.0050	3.79	2.98	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
1.7	202	0.0149	1.97		**Shallow Concentrated Flow, EX SWALE TO INLET 4** Unpaved Kv= 16.1 fps
10.6	348	Total			

Subcatchment 55S: DA-3b (blue)



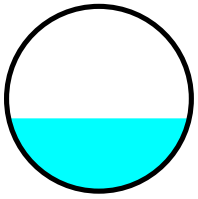
Summary for Reach 36R: 15" HDPE

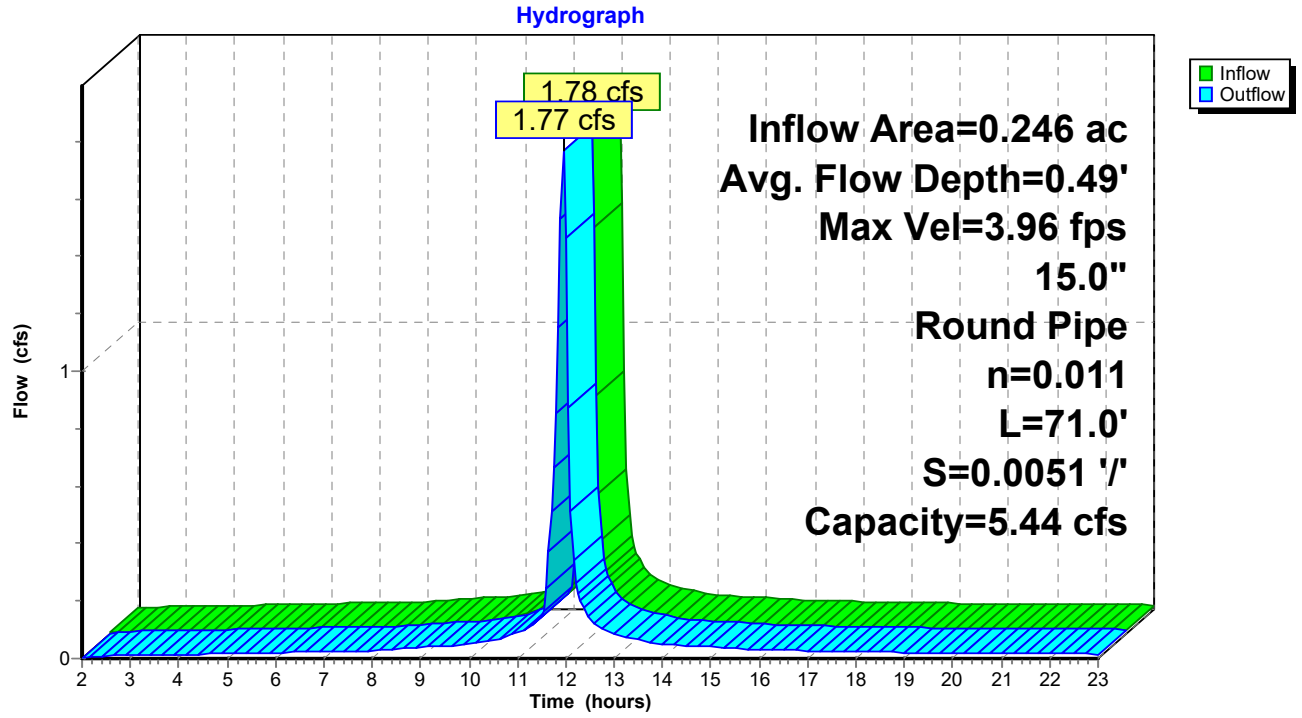
Inflow Area = 0.246 ac,100.00% Impervious, Inflow Depth > 4.98" for 10-YR event
Inflow = 1.78 cfs @ 11.94 hrs, Volume= 0.102 af
Outflow = 1.77 cfs @ 11.95 hrs, Volume= 0.102 af, Atten= 1%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.96 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 1.0 min

Peak Storage= 32 cf @ 11.95 hrs
Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.44 cfs

15.0" Round Pipe
n= 0.011 PVC, smooth interior
Length= 71.0' Slope= 0.0051 '/'
Inlet Invert= 11.16', Outlet Invert= 10.80'





Stage-Area-Storage for Reach 36R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.16	0.0	0
11.18	0.0	0
11.20	0.0	1
11.22	0.0	2
11.24	0.0	2
11.26	0.0	3
11.28	0.1	4
11.30	0.1	5
11.32	0.1	7
11.34	0.1	8
11.36	0.1	9
11.38	0.1	10
11.40	0.2	12
11.42	0.2	13
11.44	0.2	15
11.46	0.2	16
11.48	0.2	18
11.50	0.3	19
11.52	0.3	21
11.54	0.3	22
11.56	0.3	24
11.58	0.4	26
11.60	0.4	27
11.62	0.4	29
11.64	0.4	31
11.66	0.5	33
11.68	0.5	34
11.70	0.5	36
11.72	0.5	38
11.74	0.6	40
11.76	0.6	41
11.78	0.6	43
11.80	0.6	45
11.82	0.7	47
11.84	0.7	48
11.86	0.7	50
11.88	0.7	52
11.90	0.8	54
11.92	0.8	55
11.94	0.8	57
11.96	0.8	59
11.98	0.9	61
12.00	0.9	62
12.02	0.9	64
12.04	0.9	66
12.06	0.9	67
12.08	1.0	69
12.10	1.0	70
12.12	1.0	72
12.14	1.0	73
12.16	1.1	75
12.18	1.1	76
12.20	1.1	77
12.22	1.1	79
12.24	1.1	80
12.26	1.1	81
12.28	1.2	82
12.30	1.2	83
12.32	1.2	84
12.34	1.2	85
12.36	1.2	86
12.38	1.2	87
12.40	**1.2**	**87**

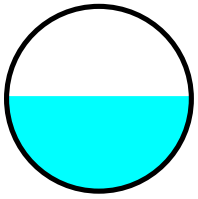
Summary for Reach 37R: 15" HDPE

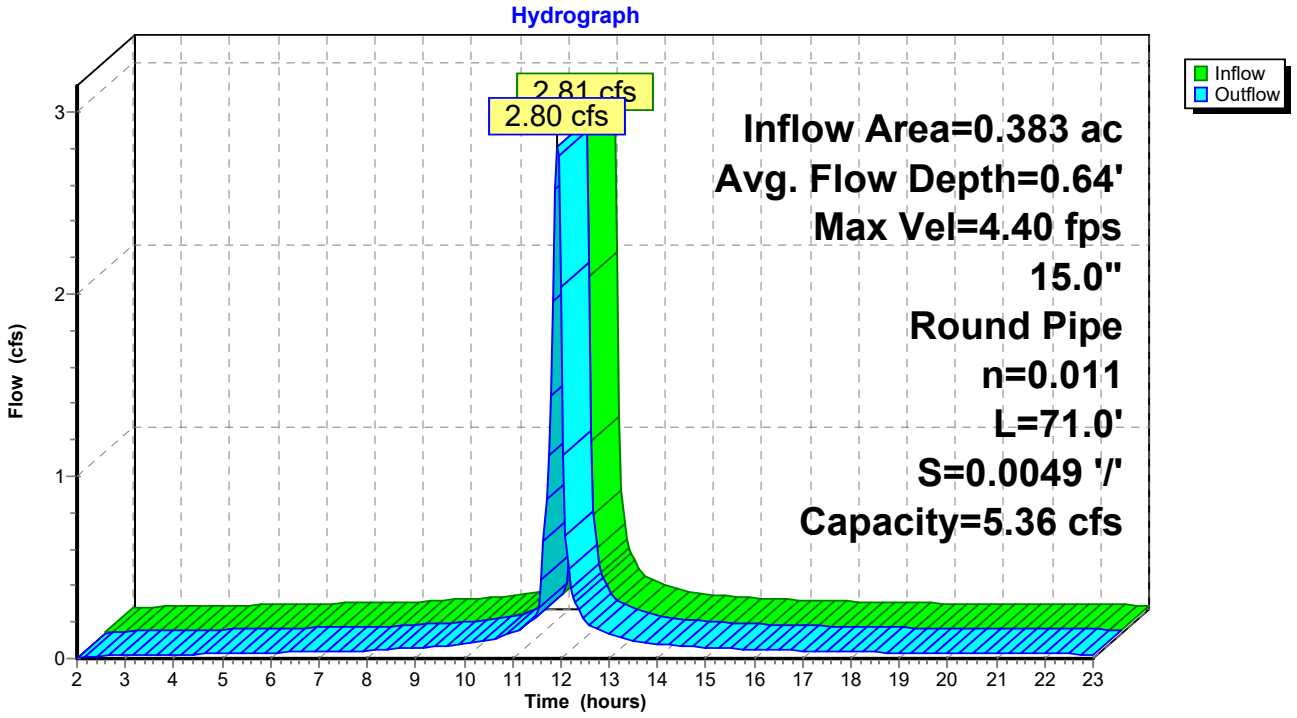
Inflow Area = 0.383 ac,100.00% Impervious, Inflow Depth > 4.98" for 10-YR event
Inflow = 2.81 cfs @ 11.93 hrs, Volume= 0.159 af
Outflow = 2.80 cfs @ 11.94 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.40 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.40 fps, Avg. Travel Time= 0.8 min

Peak Storage= 45 cf @ 11.93 hrs
Average Depth at Peak Storage= 0.64'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.36 cfs

15.0" Round Pipe
n= 0.011
Length= 71.0' Slope= 0.0049 '/'
Inlet Invert= 10.80', Outlet Invert= 10.45'





Stage-Area-Storage for Reach 37R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
10.80	0.0	0
10.82	0.0	0
10.84	0.0	1
10.86	0.0	2
10.88	0.0	2
10.90	0.0	3
10.92	0.1	4
10.94	0.1	5
10.96	0.1	7
10.98	0.1	8
11.00	0.1	9
11.02	0.1	10
11.04	0.2	12
11.06	0.2	13
11.08	0.2	15
11.10	0.2	16
11.12	0.2	18
11.14	0.3	19
11.16	0.3	21
11.18	0.3	22
11.20	0.3	24
11.22	0.4	26
11.24	0.4	27
11.26	0.4	29
11.28	0.4	31
11.30	0.5	33
11.32	0.5	34
11.34	0.5	36
11.36	0.5	38
11.38	0.6	40
11.40	0.6	41
11.42	0.6	43
11.44	0.6	45
11.46	0.7	47
11.48	0.7	48
11.50	0.7	50
11.52	0.7	52
11.54	0.8	54
11.56	0.8	55
11.58	0.8	57
11.60	0.8	59
11.62	0.9	61
11.64	0.9	62
11.66	0.9	64
11.68	0.9	66
11.70	0.9	67
11.72	1.0	69
11.74	1.0	70
11.76	1.0	72
11.78	1.0	73
11.80	1.1	75
11.82	1.1	76
11.84	1.1	77
11.86	1.1	79
11.88	1.1	80
11.90	1.1	81
11.92	1.2	82
11.94	1.2	83
11.96	1.2	84
11.98	1.2	85
12.00	1.2	86
12.02	1.2	87
12.04	**1.2**	**87**

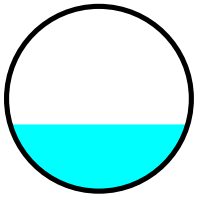
Summary for Reach 38R: 15" HDPE

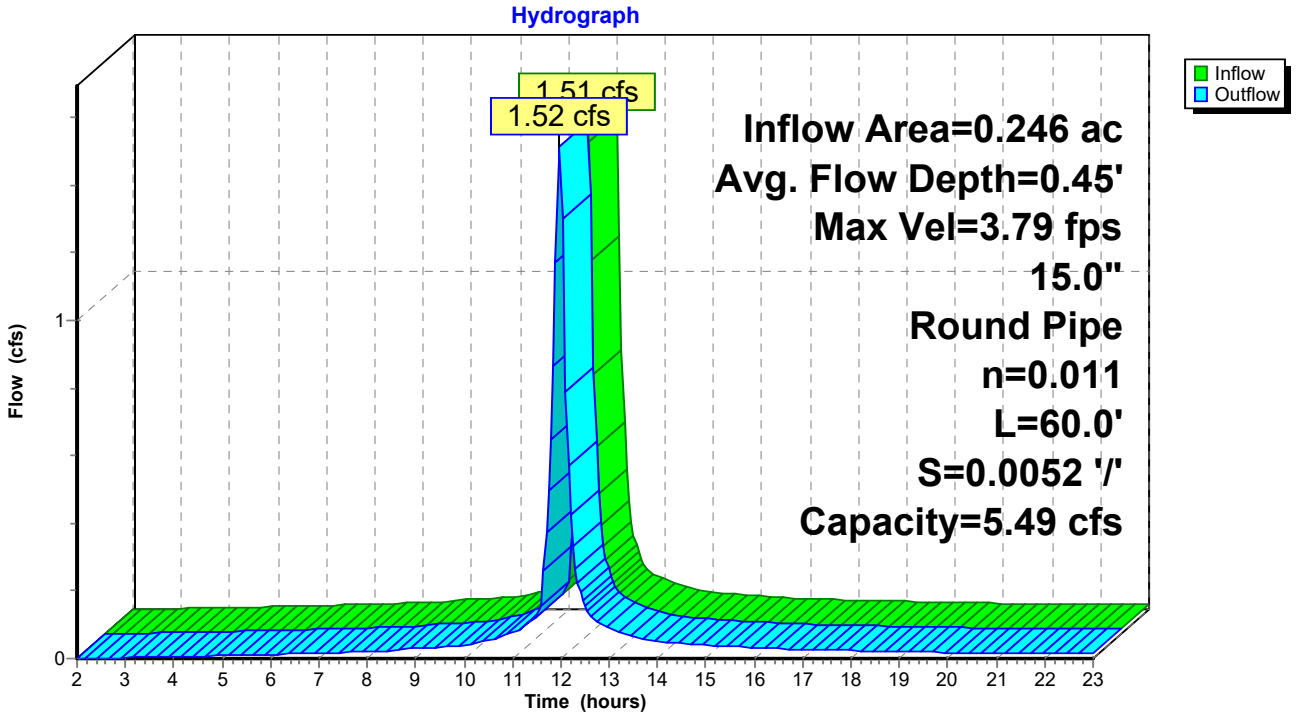
Inflow Area = 0.246 ac, 83.04% Impervious, Inflow Depth > 4.54" for 10-YR event
Inflow = 1.51 cfs @ 11.97 hrs, Volume= 0.093 af
Outflow = 1.52 cfs @ 11.98 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.79 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.18 fps, Avg. Travel Time= 0.9 min

Peak Storage= 24 cf @ 11.98 hrs
Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.49 cfs

15.0" Round Pipe
n= 0.011
Length= 60.0' Slope= 0.0052 '/'
Inlet Invert= 11.82', Outlet Invert= 11.51'





Stage-Area-Storage for Reach 38R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.82	0.0	0
11.84	0.0	0
11.86	0.0	1
11.88	0.0	1
11.90	0.0	2
11.92	0.0	3
11.94	0.1	4
11.96	0.1	5
11.98	0.1	6
12.00	0.1	7
12.02	0.1	8
12.04	0.1	9
12.06	0.2	10
12.08	0.2	11
12.10	0.2	12
12.12	0.2	14
12.14	0.2	15
12.16	0.3	16
12.18	0.3	18
12.20	0.3	19
12.22	0.3	20
12.24	0.4	22
12.26	0.4	23
12.28	0.4	25
12.30	0.4	26
12.32	0.5	28
12.34	0.5	29
12.36	0.5	30
12.38	0.5	32
12.40	0.6	33
12.42	0.6	35
12.44	0.6	36
12.46	0.6	38
12.48	0.7	39
12.50	0.7	41
12.52	0.7	42
12.54	0.7	44
12.56	0.8	45
12.58	0.8	47
12.60	0.8	48
12.62	0.8	50
12.64	0.9	51
12.66	0.9	53
12.68	0.9	54
12.70	0.9	55
12.72	0.9	57
12.74	1.0	58
12.76	1.0	59
12.78	1.0	61
12.80	1.0	62
12.82	1.1	63
12.84	1.1	64
12.86	1.1	65
12.88	1.1	67
12.90	1.1	68
12.92	1.1	69
12.94	1.2	70
12.96	1.2	70
12.98	1.2	71
13.00	1.2	72
13.02	1.2	73
13.04	1.2	73
13.06	**1.2**	**74**

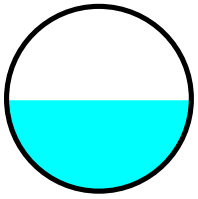
Summary for Reach 39R: 15" HDPE

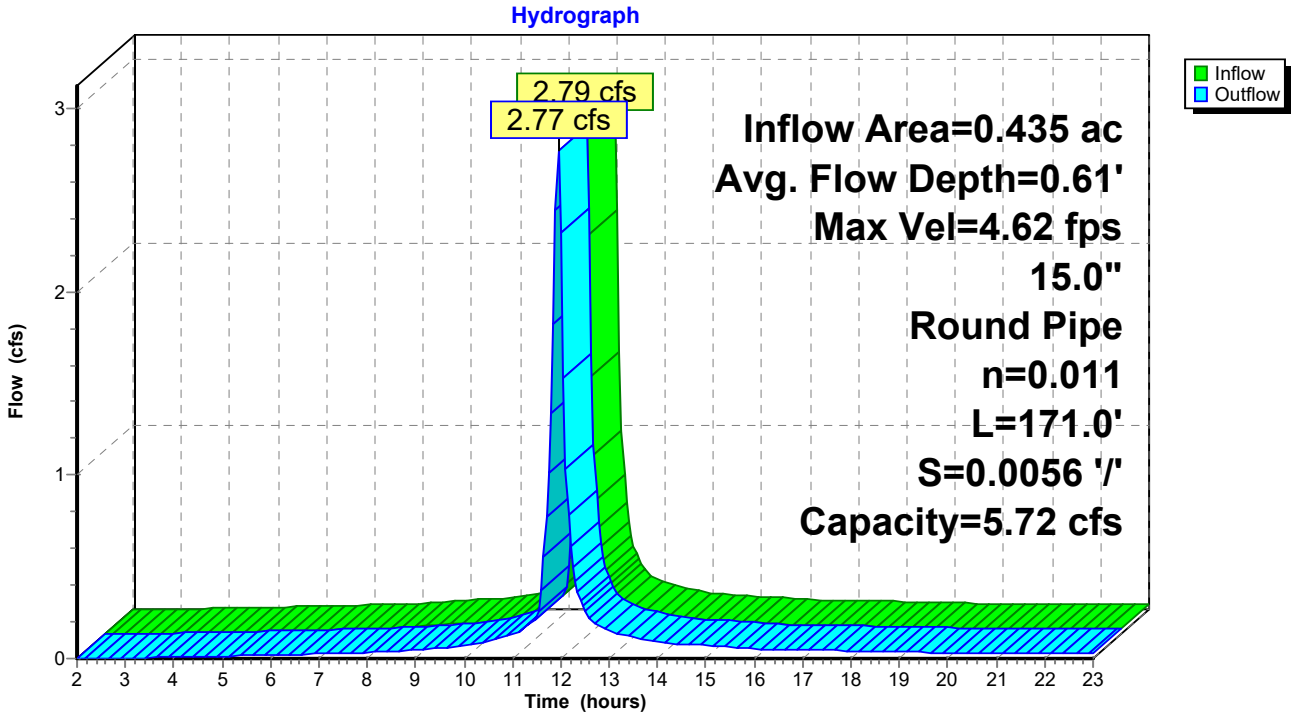
Inflow Area = 0.435 ac, 79.43% Impervious, Inflow Depth > 4.44" for 10-YR event
Inflow = 2.79 cfs @ 11.94 hrs, Volume= 0.161 af
Outflow = 2.77 cfs @ 11.95 hrs, Volume= 0.161 af, Atten= 1%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.62 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.42 fps, Avg. Travel Time= 2.0 min

Peak Storage= 103 cf @ 11.95 hrs
Average Depth at Peak Storage= 0.61'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.72 cfs

15.0" Round Pipe
n= 0.011
Length= 171.0' Slope= 0.0056 '/'
Inlet Invert= 11.41', Outlet Invert= 10.45'





Stage-Area-Storage for Reach 39R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.41	0.0	0
11.43	0.0	1
11.45	0.0	2
11.47	0.0	4
11.49	0.0	6
11.51	0.0	8
11.53	0.1	10
11.55	0.1	13
11.57	0.1	16
11.59	0.1	19
11.61	0.1	22
11.63	0.1	25
11.65	0.2	28
11.67	0.2	32
11.69	0.2	35
11.71	0.2	39
11.73	0.2	42
11.75	0.3	46
11.77	0.3	50
11.79	0.3	54
11.81	0.3	58
11.83	0.4	62
11.85	0.4	66
11.87	0.4	70
11.89	0.4	74
11.91	0.5	78
11.93	0.5	83
11.95	0.5	87
11.97	0.5	91
11.99	0.6	95
12.01	0.6	100
12.03	0.6	104
12.05	0.6	108
12.07	0.7	112
12.09	0.7	117
12.11	0.7	121
12.13	0.7	125
12.15	0.8	129
12.17	0.8	134
12.19	0.8	138
12.21	0.8	142
12.23	0.9	146
12.25	0.9	150
12.27	0.9	154
12.29	0.9	158
12.31	0.9	162
12.33	1.0	166
12.35	1.0	169
12.37	1.0	173
12.39	1.0	176
12.41	1.1	180
12.43	1.1	183
12.45	1.1	187
12.47	1.1	190
12.49	1.1	193
12.51	1.1	196
12.53	1.2	198
12.55	1.2	201
12.57	1.2	203
12.59	1.2	205
12.61	1.2	207
12.63	1.2	209
12.65	**1.2**	**210**

Summary for Pond 40P: SGW 1

Inflow Area = 2.337 ac, 62.67% Impervious, Inflow Depth > 4.04" for 10-YR event
Inflow = 13.14 cfs @ 11.96 hrs, Volume= 0.787 af
Outflow = 0.92 cfs @ 12.79 hrs, Volume= 0.265 af, Atten= 93%, Lag= 50.1 min
Primary = 0.92 cfs @ 12.79 hrs, Volume= 0.265 af

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Peak Elev= 11.51' @ 12.79 hrs Surf.Area= 11,666 sf Storage= 23,239 cf

Plug-Flow detention time= 322.6 min calculated for 0.264 af (34% of inflow)
Center-of-Mass det. time= 189.5 min (964.3 - 774.8)

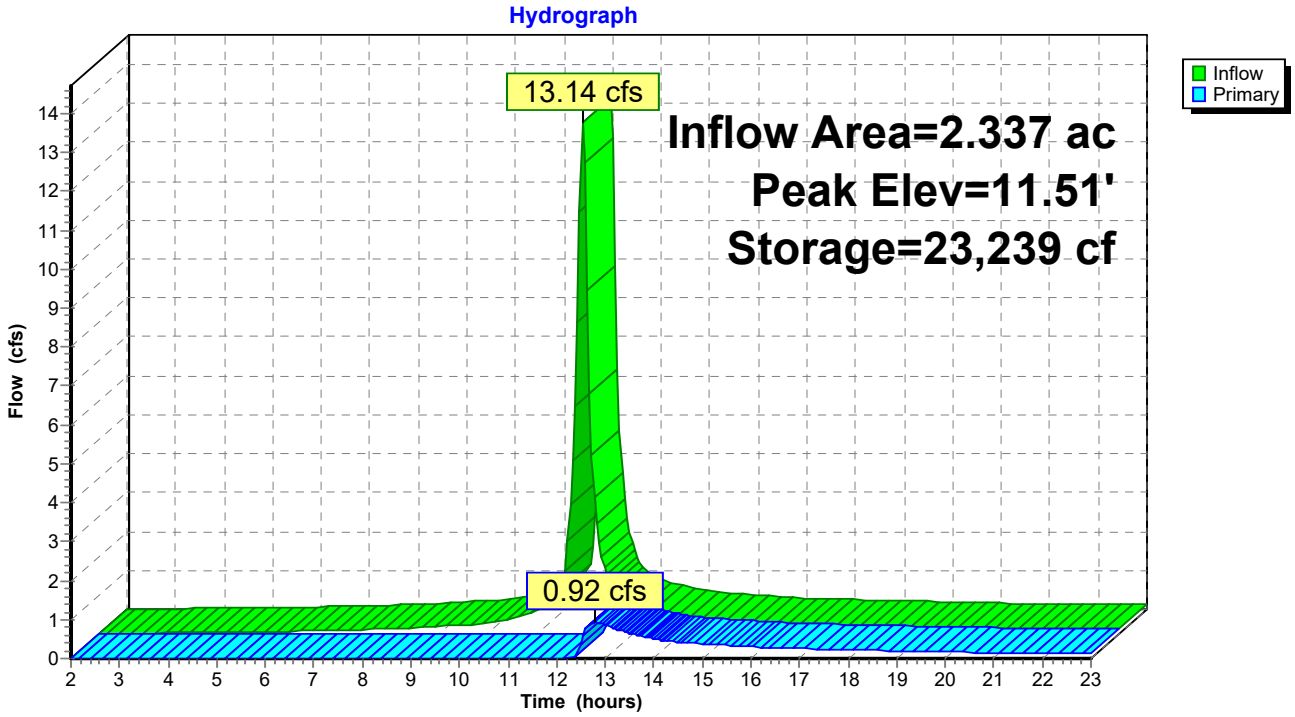
Volume	Invert	Avail.Storage	Storage Description
#1	7.44'	28,534 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
7.44	9,804	575.0	0.0	0	0	9,804
7.45	9,804	575.0	40.0	39	39	9,810
10.44	9,804	575.0	40.0	11,726	11,765	11,529
10.45	9,804	575.0	100.0	98	11,863	11,535
11.45	11,558	594.0	100.0	10,669	22,532	13,396
11.95	12,457	604.0	100.0	6,002	28,534	14,396

Device	Routing	Invert	Outlet Devices
#1	Primary	10.12'	**15.0" Round Culvert** L= 31.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 10.12' / 10.00' S= 0.0039 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	11.45'	**18.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.92 cfs @ 12.79 hrs HW=11.51' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.92 cfs of 4.36 cfs potential flow)
↑**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.92 cfs @ 0.81 fps)

Pond 40P: SGW 1



Stage-Area-Storage for Pond 40P: SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
7.44	9,804	0
7.49	9,804	196
7.54	9,804	392
7.59	9,804	588
7.64	9,804	784
7.69	9,804	980
7.74	9,804	1,176
7.79	9,804	1,373
7.84	9,804	1,569
7.89	9,804	1,765
7.94	9,804	1,961
7.99	9,804	2,157
8.04	9,804	2,353
8.09	9,804	2,549
8.14	9,804	2,745
8.19	9,804	2,941
8.24	9,804	3,137
8.29	9,804	3,333
8.34	9,804	3,529
8.39	9,804	3,726
8.44	9,804	3,922
8.49	9,804	4,118
8.54	9,804	4,314
8.59	9,804	4,510
8.64	9,804	4,706
8.69	9,804	4,902
8.74	9,804	5,098
8.79	9,804	5,294
8.84	9,804	5,490
8.89	9,804	5,686
8.94	9,804	5,882
8.99	9,804	6,078
9.04	9,804	6,275
9.09	9,804	6,471
9.14	9,804	6,667
9.19	9,804	6,863
9.24	9,804	7,059
9.29	9,804	7,255
9.34	9,804	7,451
9.39	9,804	7,647
9.44	9,804	7,843
9.49	9,804	8,039
9.54	9,804	8,235
9.59	9,804	8,431
9.64	9,804	8,628
9.69	9,804	8,824
9.74	9,804	9,020
9.79	9,804	9,216
9.84	9,804	9,412
9.89	9,804	9,608
9.94	9,804	9,804
9.99	9,804	10,000
10.04	9,804	10,196
10.09	9,804	10,392
10.14	9,804	10,588
10.19	9,804	10,784
10.24	9,804	10,980
10.29	9,804	11,177
10.34	9,804	11,373
10.39	9,804	11,569
10.44	9,804	11,765
10.49	9,871	12,256
10.54	9,956	12,752
10.59	10,041	13,252
10.64	10,126	13,756
10.69	10,212	14,265
10.74	10,298	14,777
10.79	10,384	15,294
10.84	10,471	15,816
10.89	10,558	16,341
10.94	10,645	16,872
10.99	10,733	17,406
11.04	10,821	17,945
11.09	10,910	18,488
11.14	10,999	19,036
11.19	11,088	19,588
11.24	11,178	20,145
11.29	11,268	20,706
11.34	11,358	21,271
11.39	11,449	21,842
11.44	11,540	22,416
11.49	11,629	22,996
11.54	11,717	23,579
11.59	11,806	24,167
11.64	11,896	24,760
11.69	11,985	25,357
11.74	12,075	25,958
11.79	12,166	26,564
11.84	12,256	27,175
11.89	12,347	27,790
11.94	**12,439**	**28,410**

Summary for Pond 52P: SGW 2

Inflow Area = 0.861 ac, 49.03% Impervious, Inflow Depth > 3.68" for 10-YR event
Inflow = 3.95 cfs @ 12.01 hrs, Volume= 0.264 af
Outflow = 0.11 cfs @ 15.95 hrs, Volume= 0.044 af, Atten= 97%, Lag= 236.5 min
Primary = 0.11 cfs @ 15.95 hrs, Volume= 0.044 af

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Peak Elev= 14.56' @ 15.95 hrs Surf.Area= 5,406 sf Storage= 9,623 cf

Plug-Flow detention time= 491.7 min calculated for 0.044 af (17% of inflow)
Center-of-Mass det. time= 331.1 min (1,125.6 - 794.6)

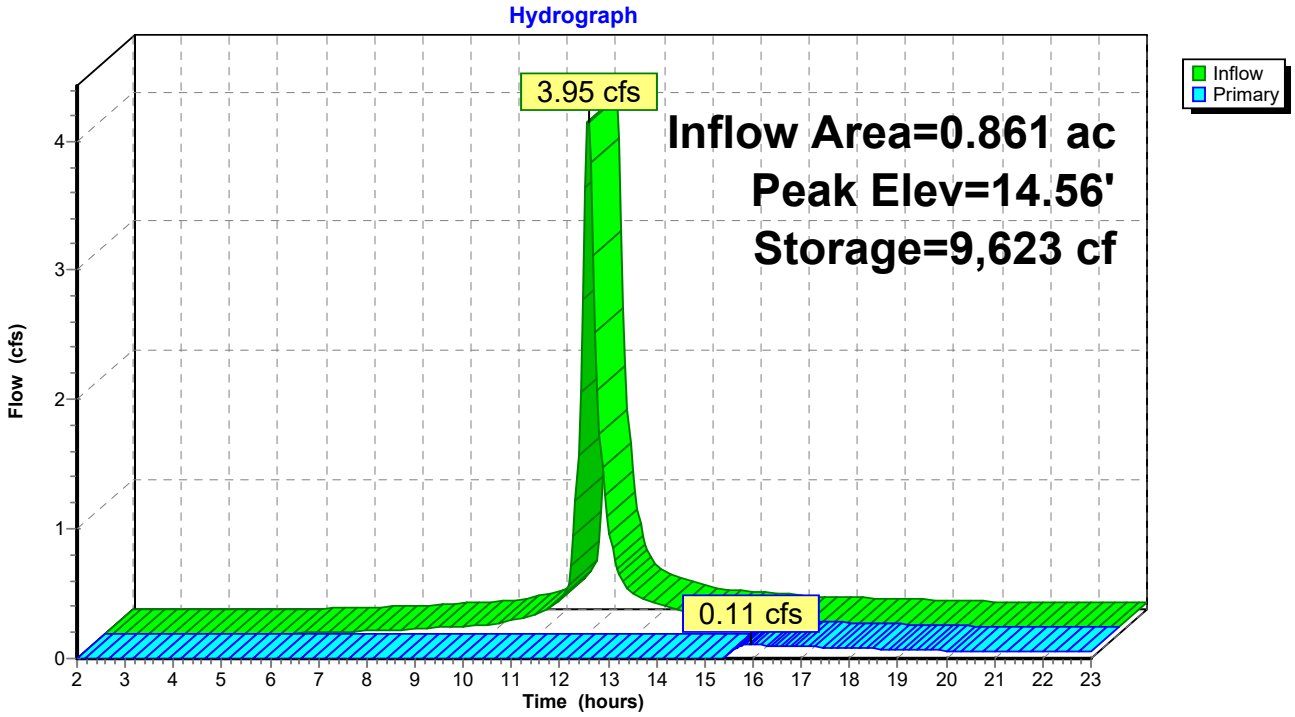
Volume	Invert	Avail.Storage	Storage Description
#1	10.54'	12,413 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
10.54	4,017	447.0	0.0	0	0	4,017
10.55	4,017	447.0	40.0	16	16	4,021
13.54	4,017	447.0	40.0	4,804	4,820	5,358
13.55	4,017	447.0	100.0	40	4,861	5,362
14.55	5,386	466.0	100.0	4,685	9,545	6,816
15.05	6,092	475.0	100.0	2,868	12,413	7,530

Device	Routing	Invert	Outlet Devices
#1	Primary	13.25'	**15.0" Round Culvert** L= 35.5' Ke= 0.500 Inlet / Outlet Invert= 13.25' / 13.02' S= 0.0065 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	14.55'	**18.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.11 cfs @ 15.95 hrs HW=14.56' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.11 cfs of 4.45 cfs potential flow)
↑**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.11 cfs @ 0.39 fps)

Pond 52P: SGW 2



Stage-Area-Storage for Pond 52P: SGW 2

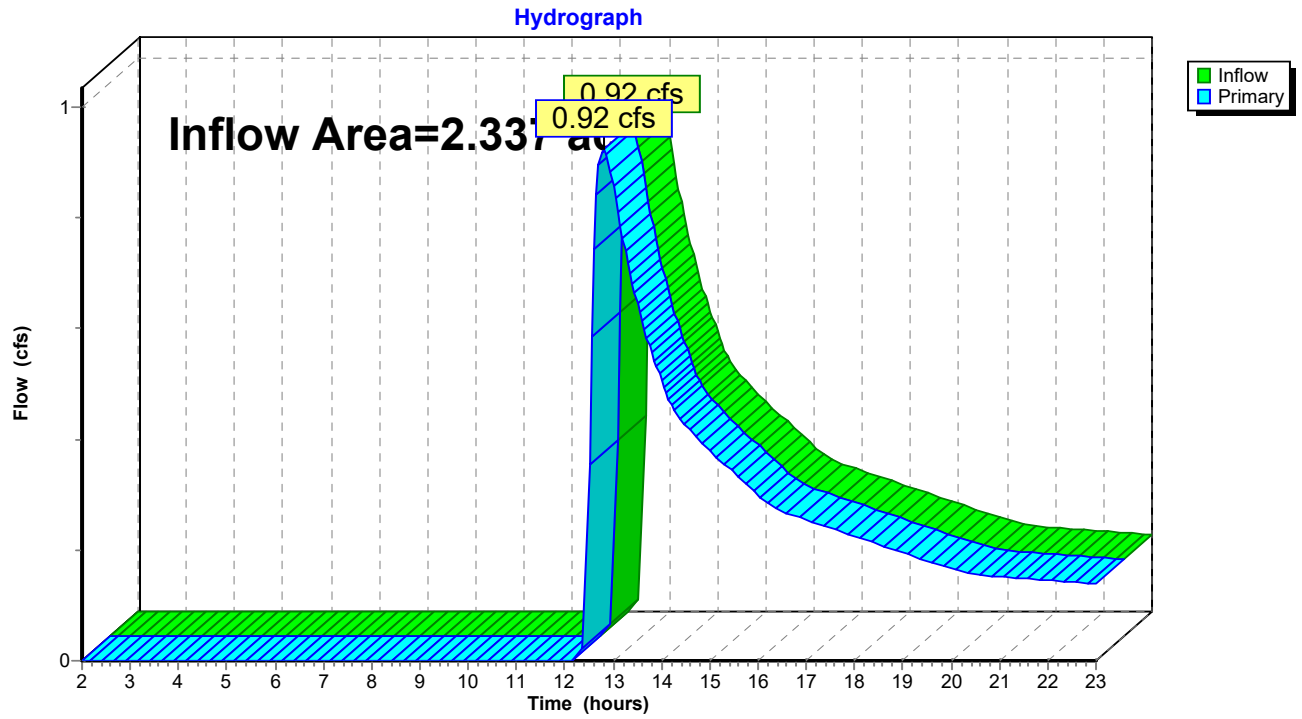
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
10.54	4,017	0
10.59	4,017	80
10.64	4,017	161
10.69	4,017	241
10.74	4,017	321
10.79	4,017	402
10.84	4,017	482
10.89	4,017	562
10.94	4,017	643
10.99	4,017	723
11.04	4,017	803
11.09	4,017	884
11.14	4,017	964
11.19	4,017	1,044
11.24	4,017	1,125
11.29	4,017	1,205
11.34	4,017	1,285
11.39	4,017	1,366
11.44	4,017	1,446
11.49	4,017	1,526
11.54	4,017	1,607
11.59	4,017	1,687
11.64	4,017	1,767
11.69	4,017	1,848
11.74	4,017	1,928
11.79	4,017	2,009
11.84	4,017	2,089
11.89	4,017	2,169
11.94	4,017	2,250
11.99	4,017	2,330
12.04	4,017	2,410
12.09	4,017	2,491
12.14	4,017	2,571
12.19	4,017	2,651
12.24	4,017	2,732
12.29	4,017	2,812
12.34	4,017	2,892
12.39	4,017	2,973
12.44	4,017	3,053
12.49	4,017	3,133
12.54	4,017	3,214
12.59	4,017	3,294
12.64	4,017	3,374
12.69	4,017	3,455
12.74	4,017	3,535
12.79	4,017	3,615
12.84	4,017	3,696
12.89	4,017	3,776
12.94	4,017	3,856
12.99	4,017	3,937
13.04	4,017	4,017
13.09	4,017	4,097
13.14	4,017	4,178
13.19	4,017	4,258
13.24	4,017	4,338
13.29	4,017	4,419
13.34	4,017	4,499
13.39	4,017	4,579
13.44	4,017	4,660
13.49	4,017	4,740
13.54	4,017	4,820
13.59	4,068	5,022
13.64	4,132	5,227
13.69	4,197	5,435
13.74	4,262	5,647
13.79	4,327	5,862
13.84	4,393	6,080
13.89	4,460	6,301
13.94	4,527	6,526
13.99	4,595	6,754
14.04	4,663	6,985
14.09	4,731	7,220
14.14	4,800	7,458
14.19	4,870	7,700
14.24	4,940	7,945
14.29	5,011	8,194
14.34	5,082	8,446
14.39	5,153	8,702
14.44	5,226	8,962
14.49	5,298	9,225
14.54	5,371	9,492
14.59	5,441	9,762
14.64	5,510	10,036
14.69	5,579	10,313
14.74	5,649	10,594
14.79	5,719	10,878
14.84	5,790	11,166
14.89	5,861	11,457
14.94	5,933	11,752
14.99	6,005	12,050
15.04	**6,077**	**12,352**

Summary for Link 42L: POI 1

Inflow Area = 2.337 ac, 62.67% Impervious, Inflow Depth > 1.36" for 10-YR event
Inflow = 0.92 cfs @ 12.79 hrs, Volume= 0.265 af
Primary = 0.92 cfs @ 12.79 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 42L: POI 1

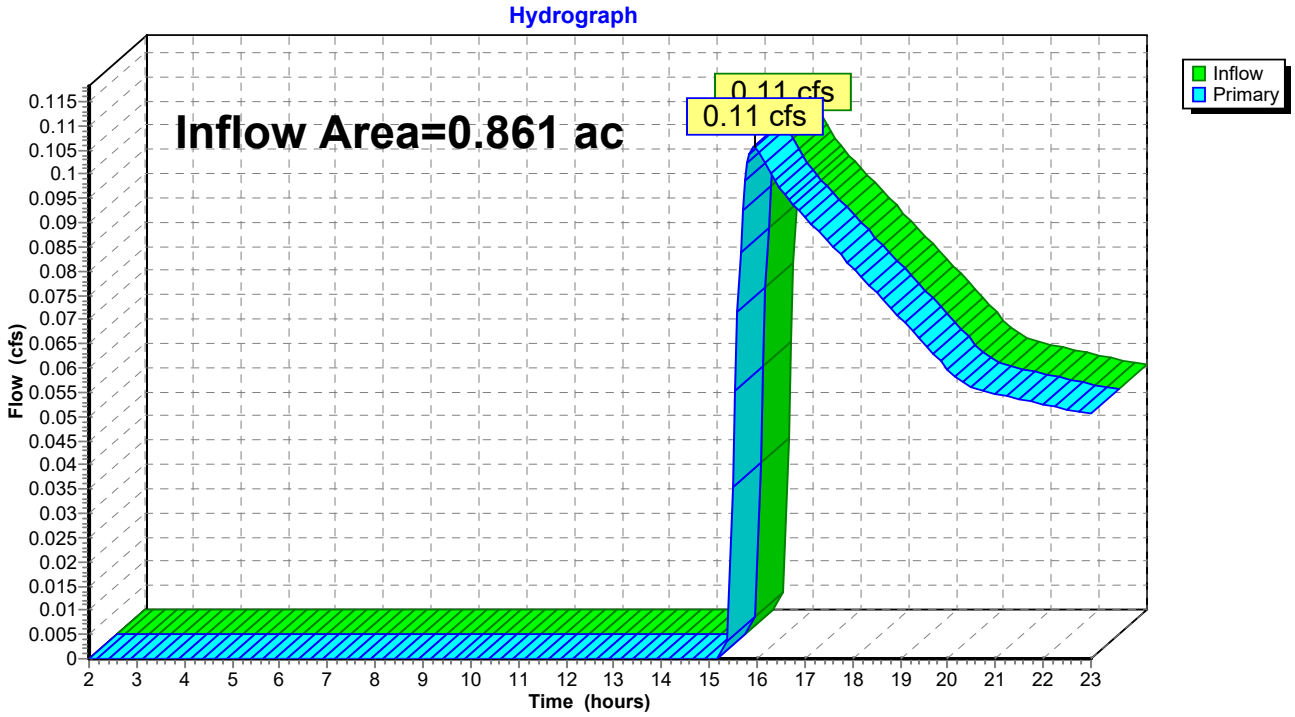


Summary for Link 53L: POI 2

Inflow Area = 0.861 ac, 49.03% Impervious, Inflow Depth > 0.61" for 10-YR event
Inflow = 0.11 cfs @ 15.95 hrs, Volume= 0.044 af
Primary = 0.11 cfs @ 15.95 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 53L: POI 2

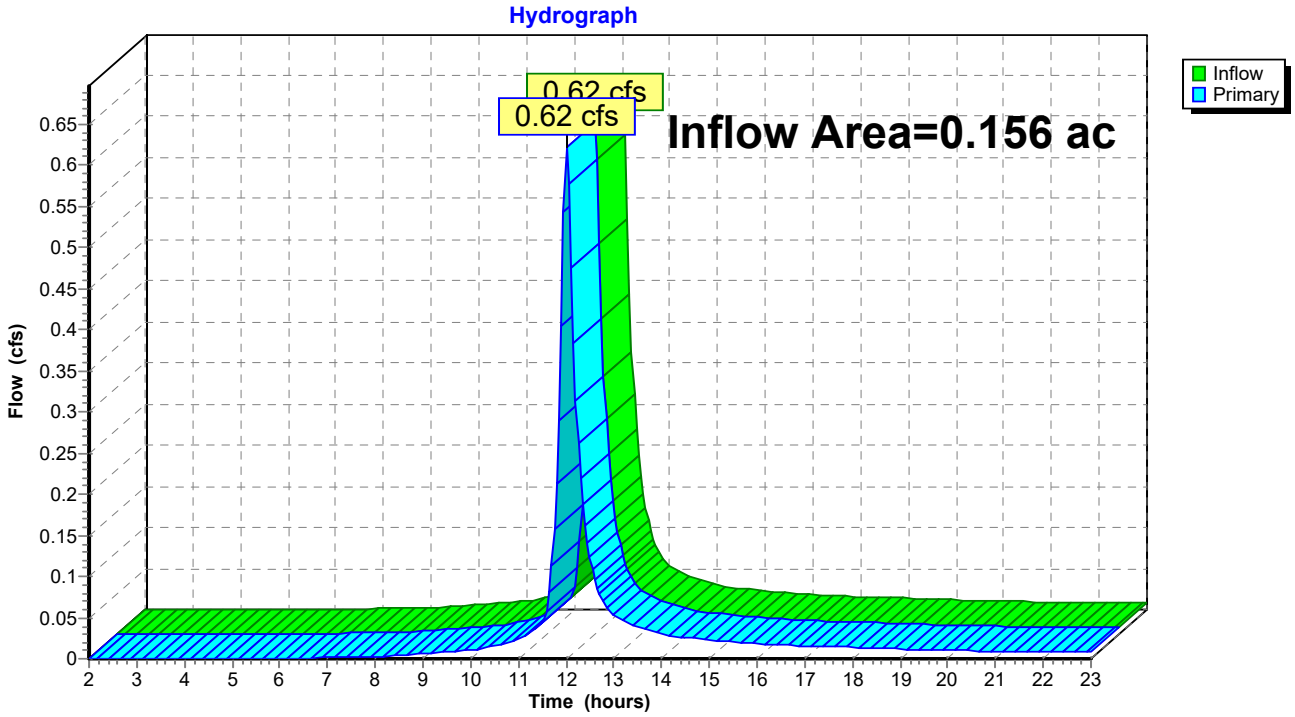


Summary for Link 56L: POI 3 (EX SWM POND)

Inflow Area = 0.156 ac, 34.31% Impervious, Inflow Depth > 3.32" for 10-YR event
Inflow = 0.62 cfs @ 12.01 hrs, Volume= 0.043 af
Primary = 0.62 cfs @ 12.01 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 56L: POI 3 (EX SWM POND)



Summary for Subcatchment 1S: EX DA-1 (ORANGE)

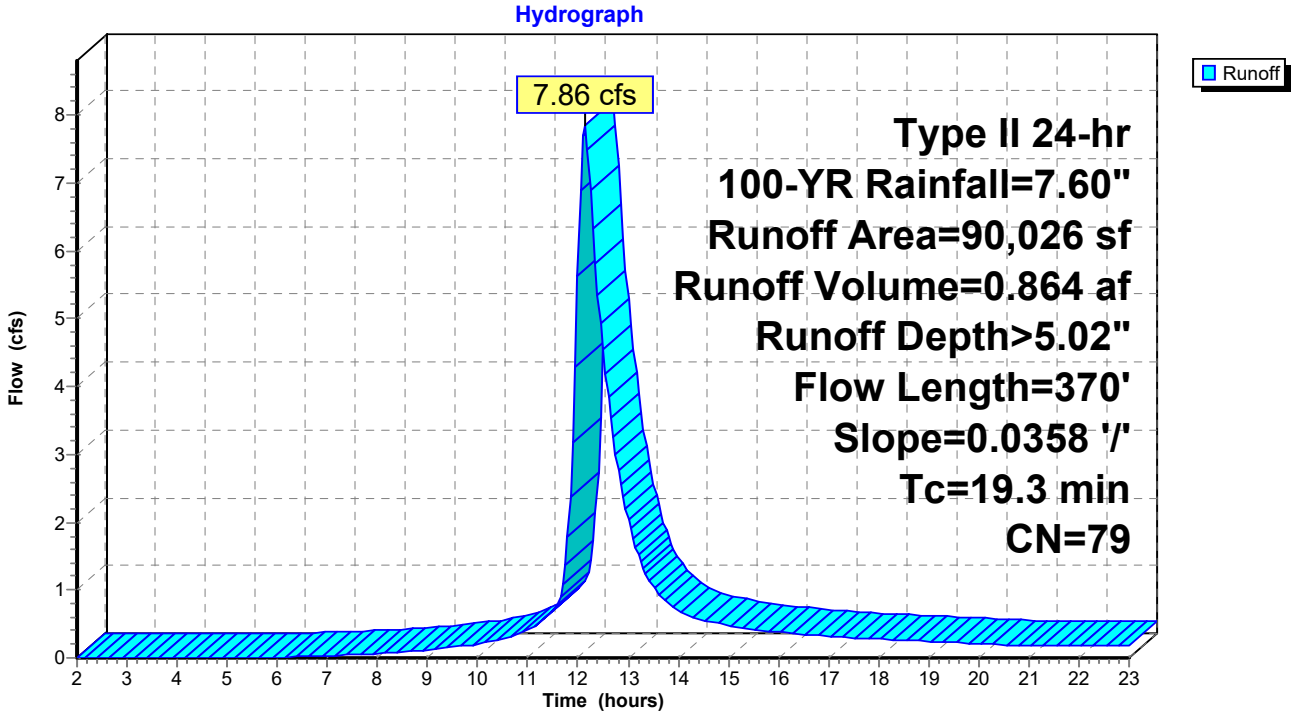
Runoff = 7.86 cfs @ 12.14 hrs, Volume= 0.864 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

	Area (sf)	CN	Description
*	224	98	existing shed
	89,802	79	50-75% Grass cover, Fair, HSG C
	90,026	79	Weighted Average
	89,802		99.75% Pervious Area
	224		0.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0358	0.14		**Sheet Flow, a-b** Grass: Dense n= 0.240 P2= 2.40"
1.2	220	0.0358	3.05		**Shallow Concentrated Flow, b-c** Unpaved Kv= 16.1 fps
19.3	370	Total			

Subcatchment 1S: EX DA-1 (ORANGE)



Summary for Subcatchment 2S: EX DA-2 (PURPLE)

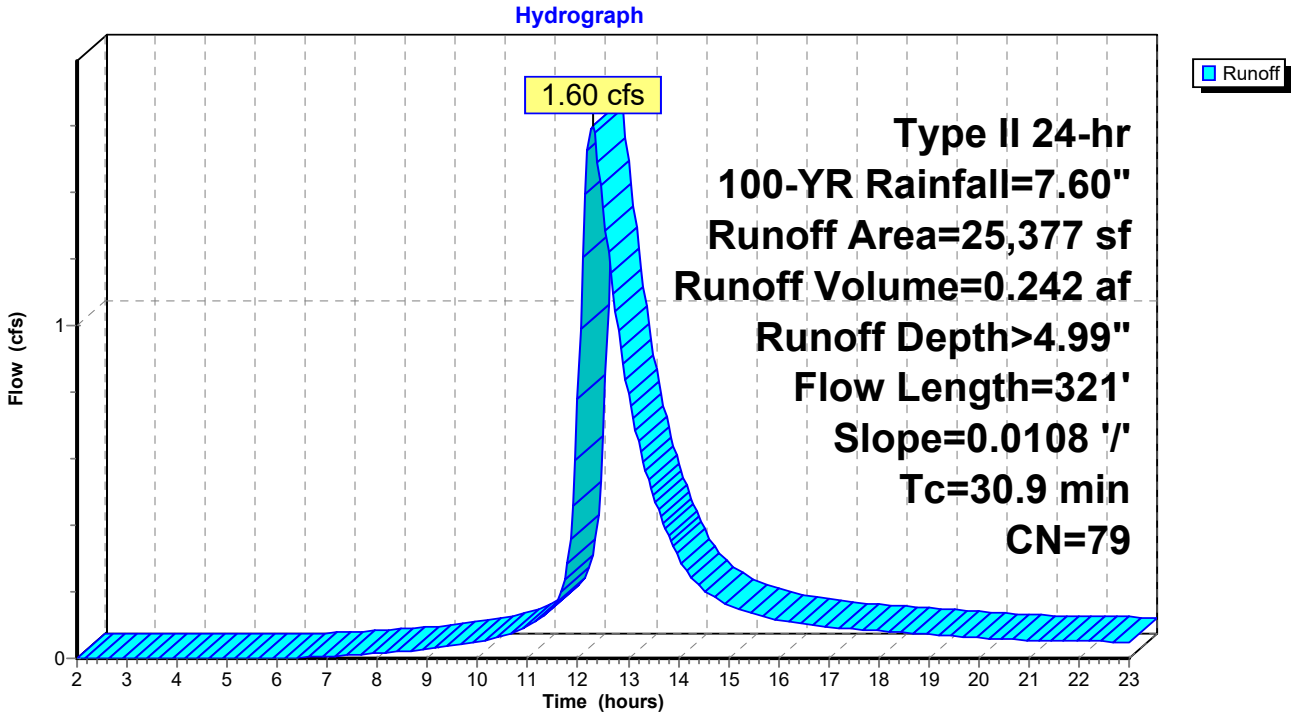
Runoff = 1.60 cfs @ 12.28 hrs, Volume= 0.242 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
25,377	79	50-75% Grass cover, Fair, HSG C
25,377		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	150	0.0108	0.09		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
1.7	171	0.0108	1.67		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
30.9	321	Total			

Subcatchment 2S: EX DA-2 (PURPLE)



Summary for Subcatchment 3S: EX DA-3 (BLUE)

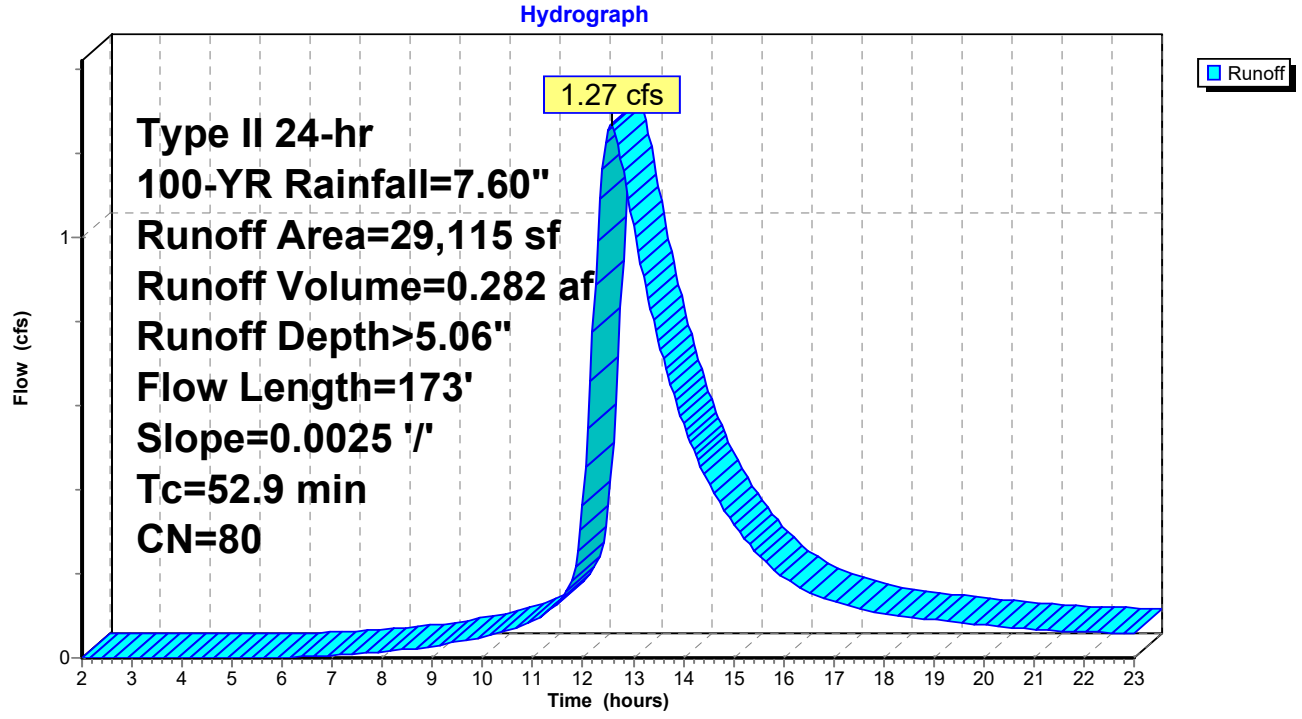
Runoff = 1.27 cfs @ 12.57 hrs, Volume= 0.282 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
28,117	79	50-75% Grass cover, Fair, HSG C
998	98	Paved parking, HSG C
29,115	80	Weighted Average
28,117		96.57% Pervious Area
998		3.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.4	150	0.0025	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.5	23	0.0025	0.81		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
52.9	173	Total			

Subcatchment 3S: EX DA-3 (BLUE)



Summary for Subcatchment 30S: DA-1e (orange)

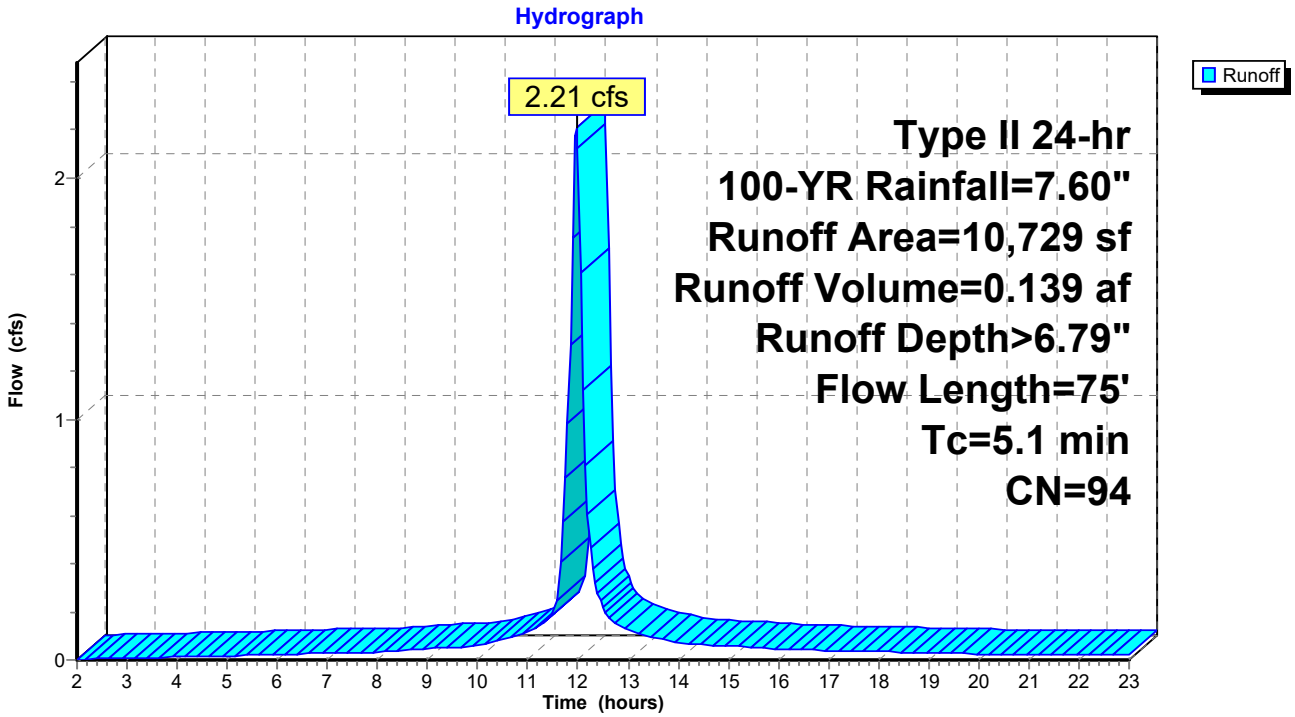
Runoff = 2.21 cfs @ 11.97 hrs, Volume= 0.139 af, Depth> 6.79"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
8,909	98	Paved parking, HSG C
1,820	74	>75% Grass cover, Good, HSG C
10,729	94	Weighted Average
1,820		16.96% Pervious Area
8,909		83.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	14	0.0095	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	48	0.0134	1.86		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.1	13	0.0075	1.76		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
5.1	75	Total			

Subcatchment 30S: DA-1e (orange)



Summary for Subcatchment 31S: DA-1c (orange)

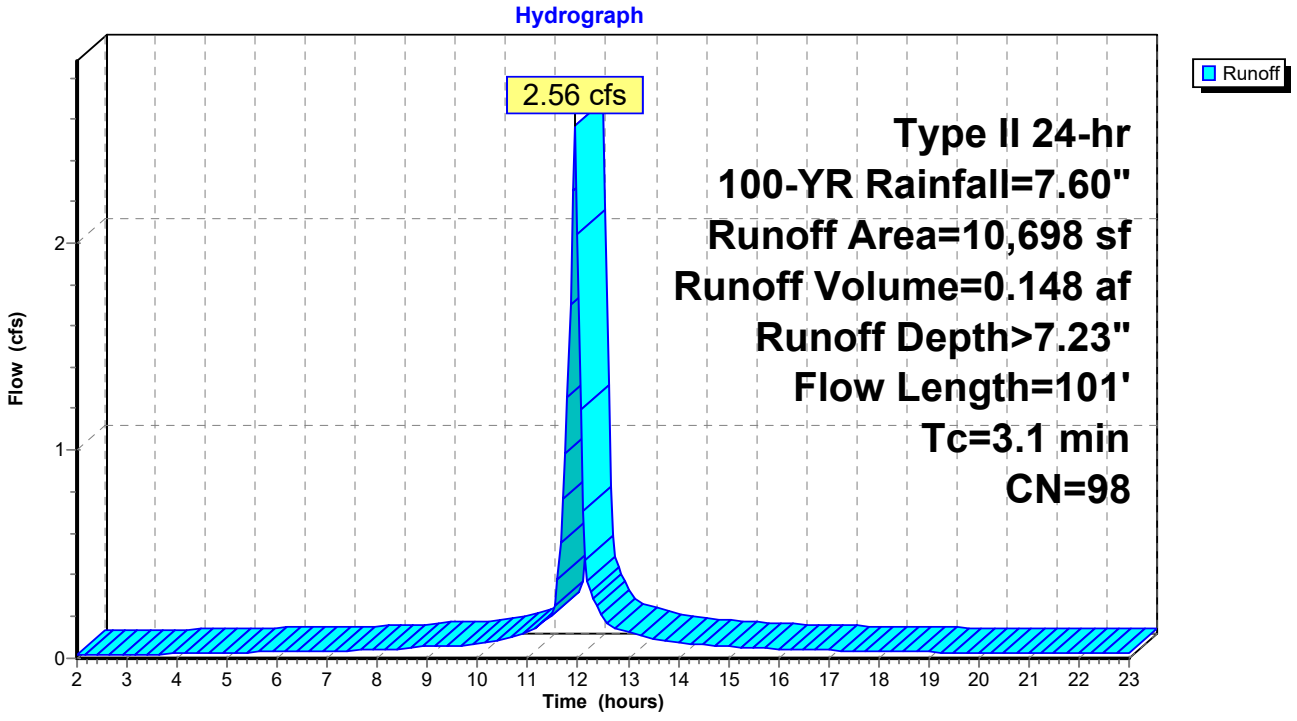
Runoff = 2.56 cfs @ 11.94 hrs, Volume= 0.148 af, Depth> 7.23"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
10,698	98	Paved parking, HSG C
10,698		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	67	0.0016	0.40		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.3	34	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
3.1	101	Total			

Subcatchment 31S: DA-1c (orange)



Summary for Subcatchment 32S: DA-1b (orange)

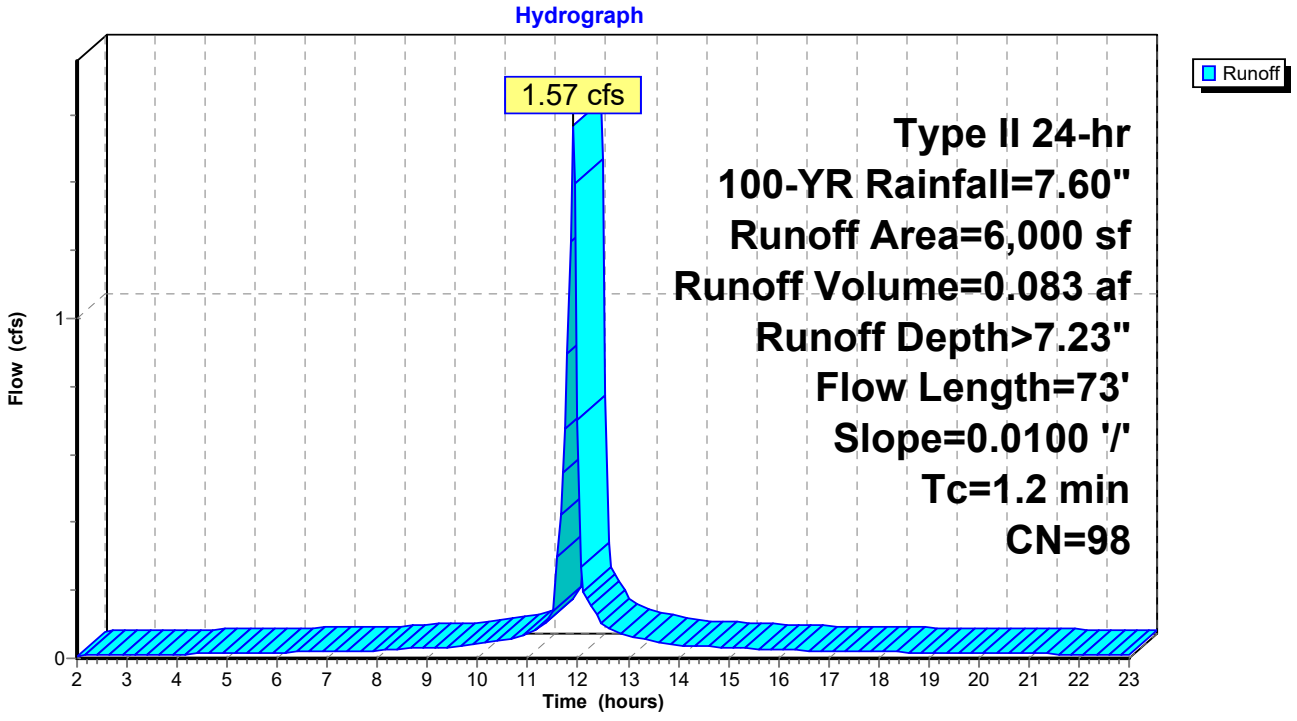
Runoff = 1.57 cfs @ 11.91 hrs, Volume= 0.083 af, Depth> 7.23"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
6,000	98	Paved parking, HSG C
6,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	39	0.0100	0.75		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.3	34	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.2	73	Total			

Subcatchment 32S: DA-1b (orange)



Summary for Subcatchment 33S: DA-1a (orange)

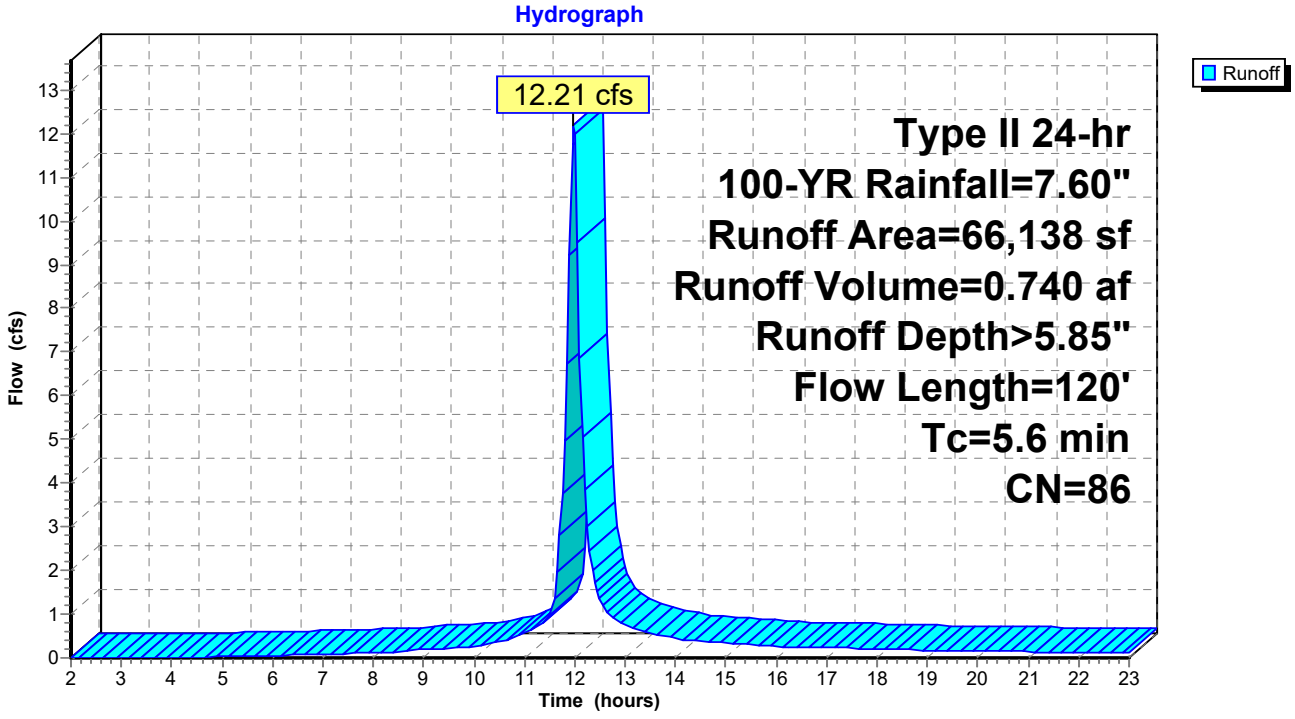
Runoff = 12.21 cfs @ 11.98 hrs, Volume= 0.740 af, Depth> 5.85"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
32,038	98	Paved parking, HSG C
34,100	74	>75% Grass cover, Good, HSG C
66,138	86	Weighted Average
34,100		51.56% Pervious Area
32,038		48.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	33	0.0439	0.11		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.6	87	0.0253	2.56		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
5.6	120	Total			

Subcatchment 33S: DA-1a (orange)



Summary for Subcatchment 34S: DA-1d (orange)

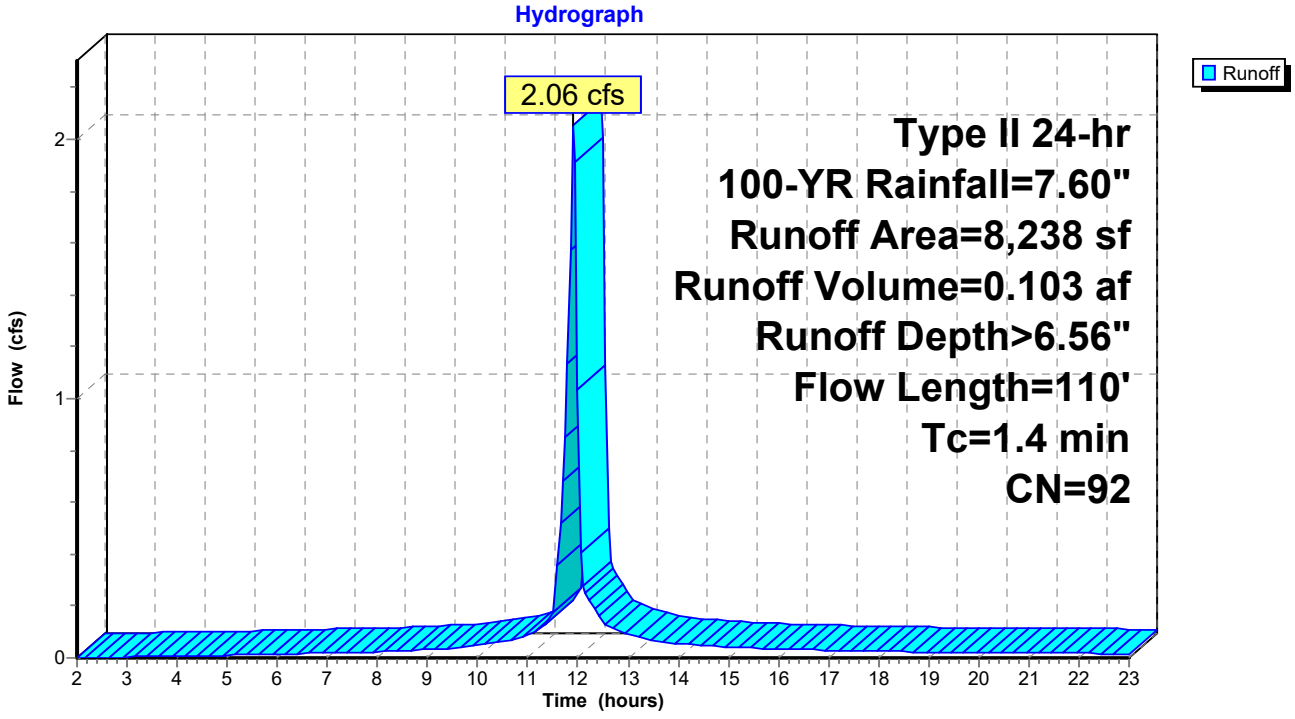
Runoff = 2.06 cfs @ 11.91 hrs, Volume= 0.103 af, Depth> 6.56"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
6,157	98	Paved parking, HSG C
2,081	74	>75% Grass cover, Good, HSG C
8,238	92	Weighted Average
2,081		25.26% Pervious Area
6,157		74.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	34	0.0156	0.87		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 2.40"
0.7	76	0.0075	1.76		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.4	110	Total			

Subcatchment 34S: DA-1d (orange)



Summary for Subcatchment 51S: DA TO SGW 2 (purple)

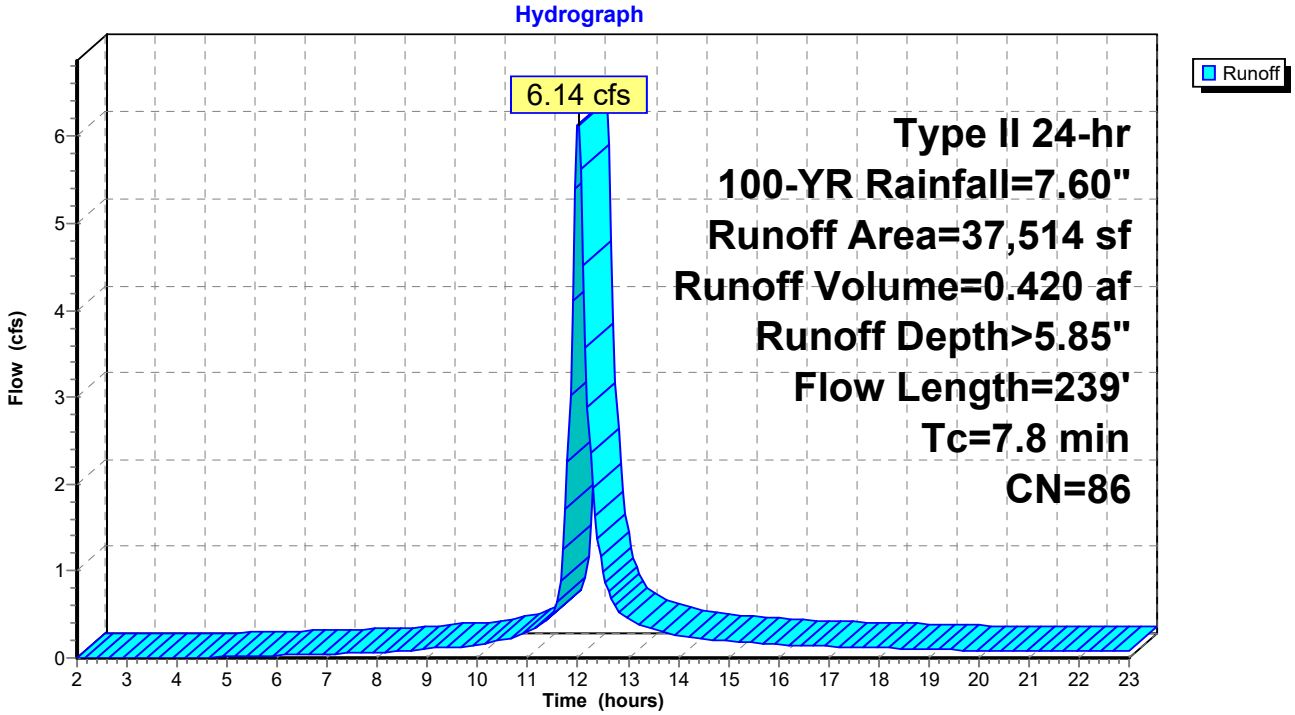
Runoff = 6.14 cfs @ 12.00 hrs, Volume= 0.420 af, Depth> 5.85"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
18,394	98	Paved parking, HSG C
19,120	74	>75% Grass cover, Good, HSG C
37,514	86	Weighted Average
19,120		50.97% Pervious Area
18,394		49.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	14	0.0095	0.05		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	35	0.0075	1.39		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.8	190	0.0051	1.15		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
7.8	239	Total			

Subcatchment 51S: DA TO SGW 2 (purple)



Summary for Subcatchment 54S: DA-3a (blue)

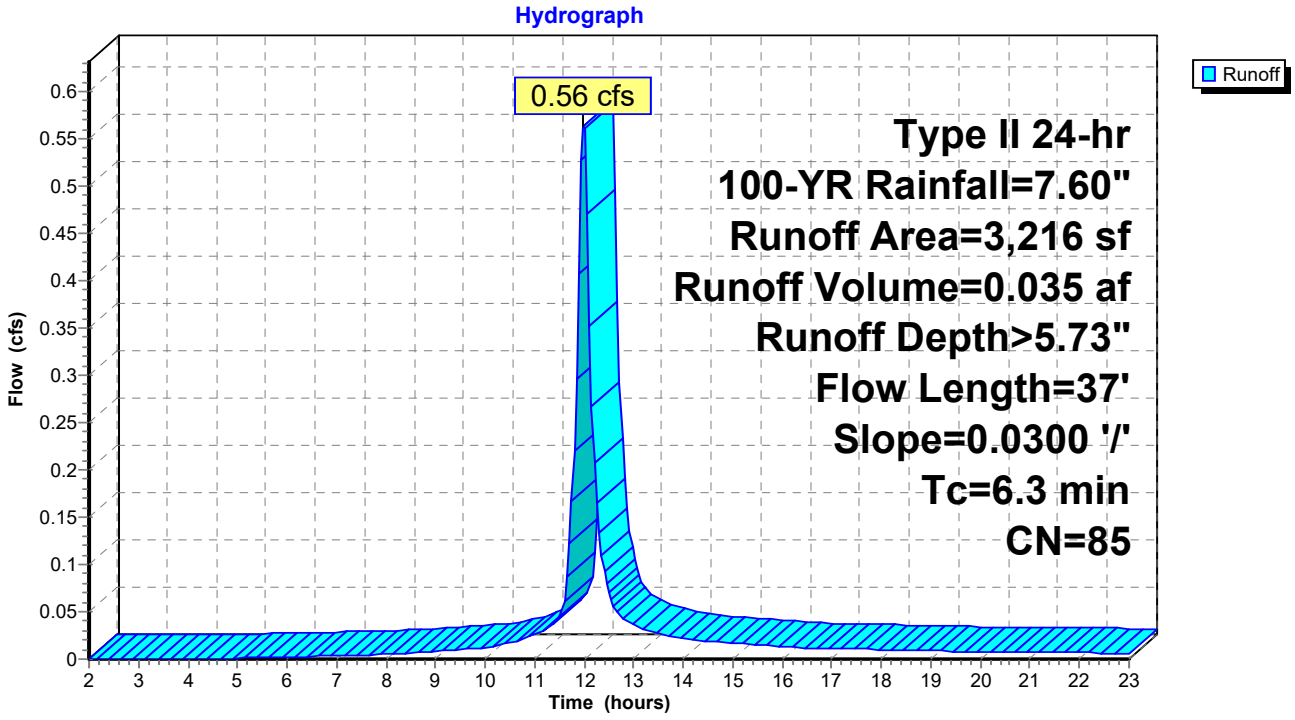
Runoff = 0.56 cfs @ 11.99 hrs, Volume= 0.035 af, Depth> 5.73"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
1,480	98	Paved parking, HSG C
1,736	74	>75% Grass cover, Good, HSG C
3,216	85	Weighted Average
1,736		53.98% Pervious Area
1,480		46.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	37	0.0300	0.10		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"

Subcatchment 54S: DA-3a (blue)



Summary for Subcatchment 55S: DA-3b (blue)

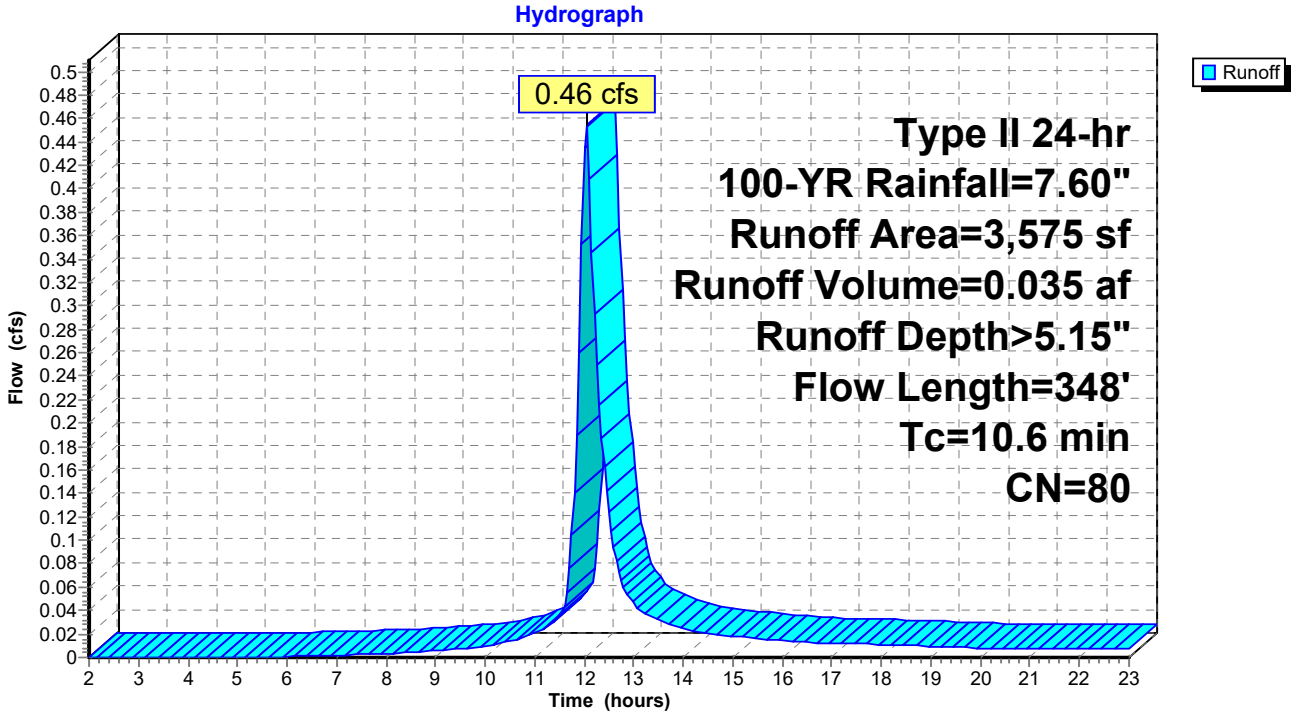
Runoff = 0.46 cfs @ 12.04 hrs, Volume= 0.035 af, Depth> 5.15"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
850	98	Paved parking, HSG C
2,725	74	>75% Grass cover, Good, HSG C
3,575	80	Weighted Average
2,725		76.22% Pervious Area
850		23.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	46	0.0222	0.09		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.40"
0.4	100	0.0050	3.79	2.98	**Pipe Channel, 12" HDPE** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
1.7	202	0.0149	1.97		**Shallow Concentrated Flow, EX SWALE TO INLET 4** Unpaved Kv= 16.1 fps
10.6	348	Total			

Subcatchment 55S: DA-3b (blue)



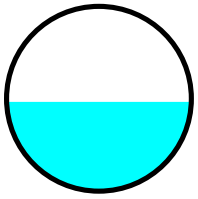
Summary for Reach 36R: 15" HDPE

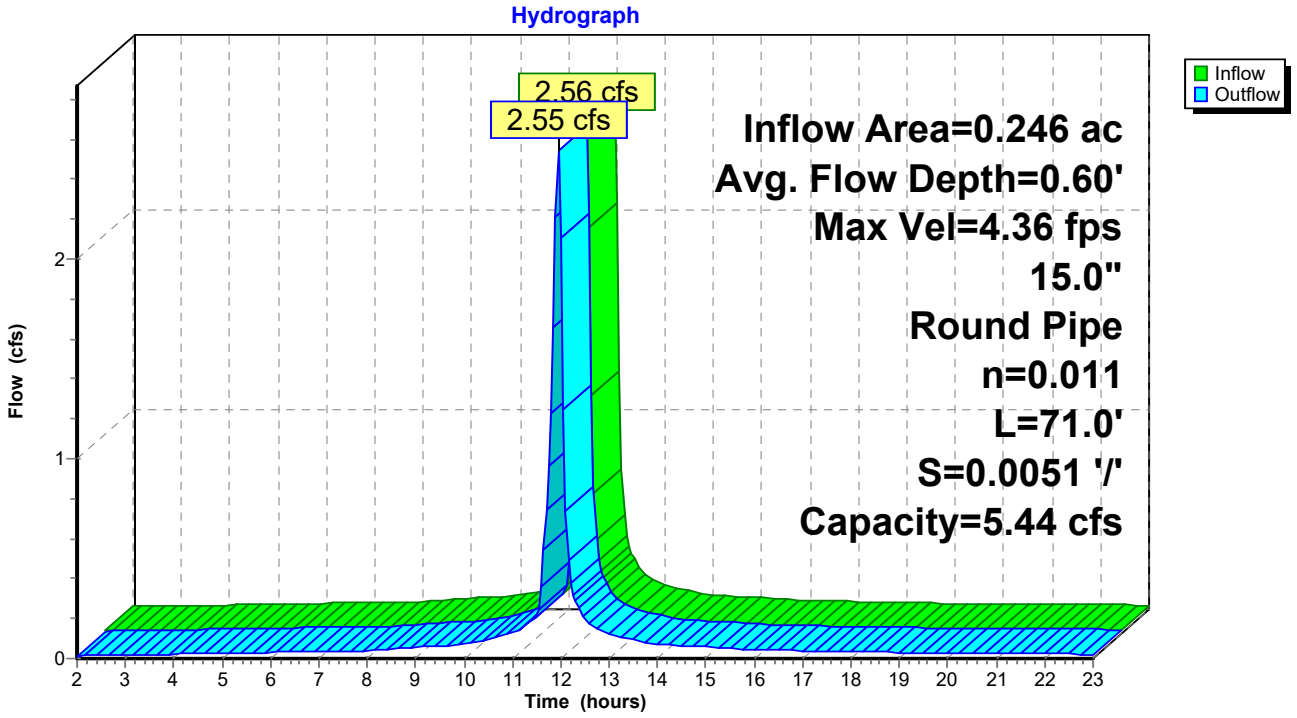
Inflow Area = 0.246 ac,100.00% Impervious, Inflow Depth > 7.23" for 100-YR event
Inflow = 2.56 cfs @ 11.94 hrs, Volume= 0.148 af
Outflow = 2.55 cfs @ 11.95 hrs, Volume= 0.148 af, Atten= 1%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.36 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.39 fps, Avg. Travel Time= 0.9 min

Peak Storage= 42 cf @ 11.95 hrs
Average Depth at Peak Storage= 0.60'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.44 cfs

15.0" Round Pipe
n= 0.011 PVC, smooth interior
Length= 71.0' Slope= 0.0051 '/'
Inlet Invert= 11.16', Outlet Invert= 10.80'





Stage-Area-Storage for Reach 36R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.16	0.0	0
11.18	0.0	0
11.20	0.0	1
11.22	0.0	2
11.24	0.0	2
11.26	0.0	3
11.28	0.1	4
11.30	0.1	5
11.32	0.1	7
11.34	0.1	8
11.36	0.1	9
11.38	0.1	10
11.40	0.2	12
11.42	0.2	13
11.44	0.2	15
11.46	0.2	16
11.48	0.2	18
11.50	0.3	19
11.52	0.3	21
11.54	0.3	22
11.56	0.3	24
11.58	0.4	26
11.60	0.4	27
11.62	0.4	29
11.64	0.4	31
11.66	0.5	33
11.68	0.5	34
11.70	0.5	36
11.72	0.5	38
11.74	0.6	40
11.76	0.6	41
11.78	0.6	43
11.80	0.6	45
11.82	0.7	47
11.84	0.7	48
11.86	0.7	50
11.88	0.7	52
11.90	0.8	54
11.92	0.8	55
11.94	0.8	57
11.96	0.8	59
11.98	0.9	61
12.00	0.9	62
12.02	0.9	64
12.04	0.9	66
12.06	0.9	67
12.08	1.0	69
12.10	1.0	70
12.12	1.0	72
12.14	1.0	73
12.16	1.1	75
12.18	1.1	76
12.20	1.1	77
12.22	1.1	79
12.24	1.1	80
12.26	1.1	81
12.28	1.2	82
12.30	1.2	83
12.32	1.2	84
12.34	1.2	85
12.36	1.2	86
12.38	1.2	87
12.40	**1.2**	**87**

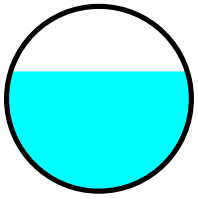
Summary for Reach 37R: 15" HDPE

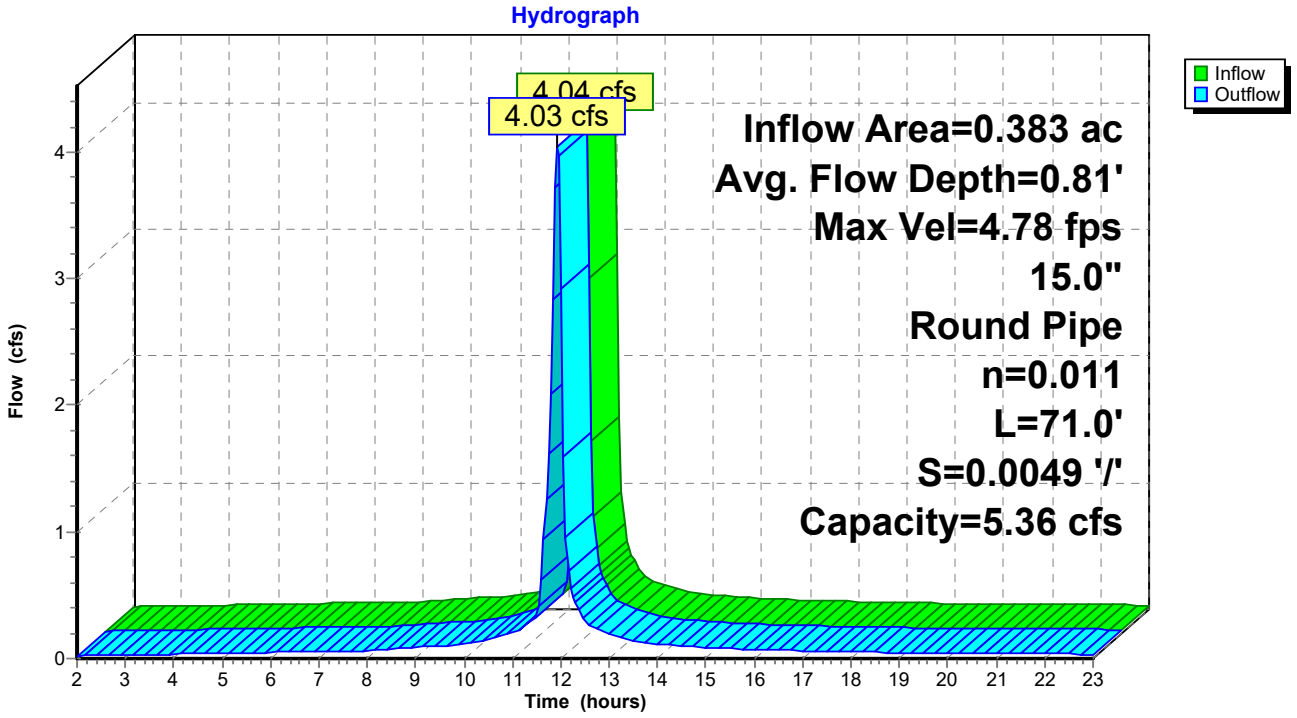
Inflow Area = 0.383 ac,100.00% Impervious, Inflow Depth > 7.23" for 100-YR event
Inflow = 4.04 cfs @ 11.93 hrs, Volume= 0.231 af
Outflow = 4.03 cfs @ 11.93 hrs, Volume= 0.231 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.78 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.57 fps, Avg. Travel Time= 0.8 min

Peak Storage= 60 cf @ 11.93 hrs
Average Depth at Peak Storage= 0.81'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.36 cfs

15.0" Round Pipe
n= 0.011
Length= 71.0' Slope= 0.0049 '/'
Inlet Invert= 10.80', Outlet Invert= 10.45'





Stage-Area-Storage for Reach 37R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
10.80	0.0	0
10.82	0.0	0
10.84	0.0	1
10.86	0.0	2
10.88	0.0	2
10.90	0.0	3
10.92	0.1	4
10.94	0.1	5
10.96	0.1	7
10.98	0.1	8
11.00	0.1	9
11.02	0.1	10
11.04	0.2	12
11.06	0.2	13
11.08	0.2	15
11.10	0.2	16
11.12	0.2	18
11.14	0.3	19
11.16	0.3	21
11.18	0.3	22
11.20	0.3	24
11.22	0.4	26
11.24	0.4	27
11.26	0.4	29
11.28	0.4	31
11.30	0.5	33
11.32	0.5	34
11.34	0.5	36
11.36	0.5	38
11.38	0.6	40
11.40	0.6	41
11.42	0.6	43
11.44	0.6	45
11.46	0.7	47
11.48	0.7	48
11.50	0.7	50
11.52	0.7	52
11.54	0.8	54
11.56	0.8	55
11.58	0.8	57
11.60	0.8	59
11.62	0.9	61
11.64	0.9	62
11.66	0.9	64
11.68	0.9	66
11.70	0.9	67
11.72	1.0	69
11.74	1.0	70
11.76	1.0	72
11.78	1.0	73
11.80	1.1	75
11.82	1.1	76
11.84	1.1	77
11.86	1.1	79
11.88	1.1	80
11.90	1.1	81
11.92	1.2	82
11.94	1.2	83
11.96	1.2	84
11.98	1.2	85
12.00	1.2	86
12.02	1.2	87
12.04	**1.2**	**87**

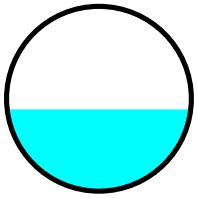
Summary for Reach 38R: 15" HDPE

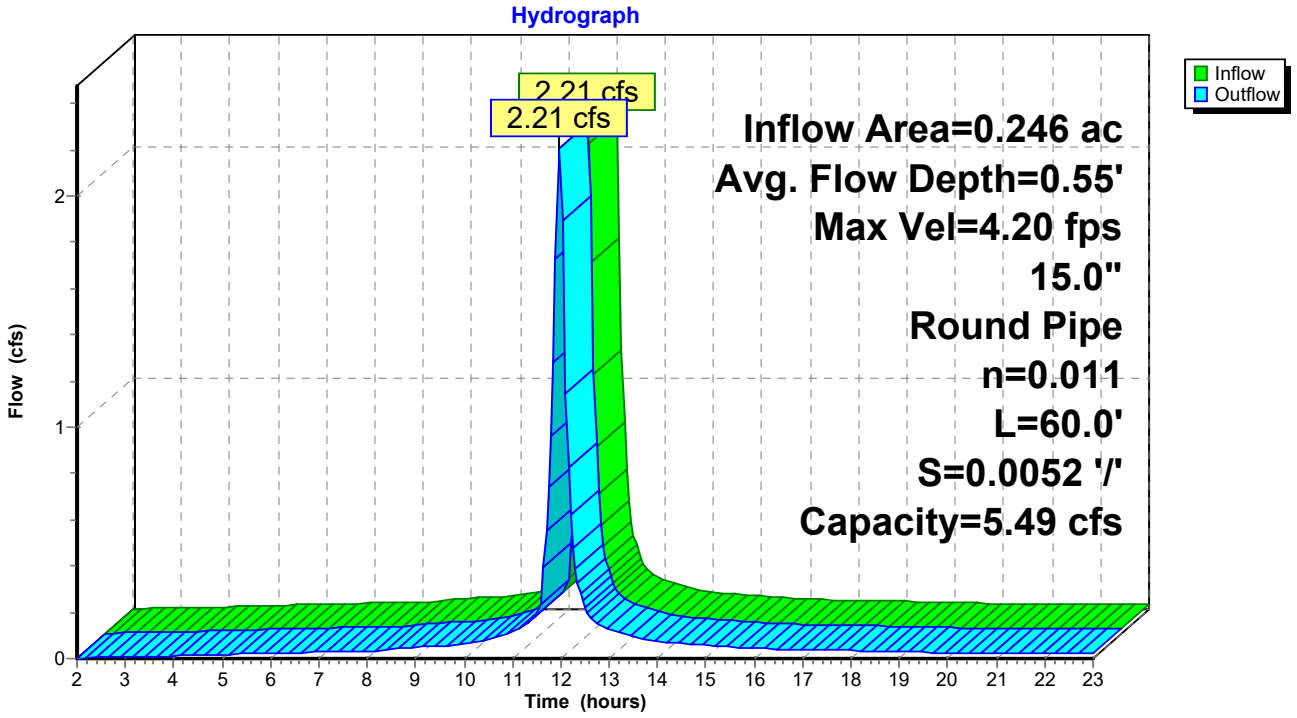
Inflow Area = 0.246 ac, 83.04% Impervious, Inflow Depth > 6.79" for 100-YR event
Inflow = 2.21 cfs @ 11.97 hrs, Volume= 0.139 af
Outflow = 2.21 cfs @ 11.97 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.20 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.34 fps, Avg. Travel Time= 0.7 min

Peak Storage= 31 cf @ 11.97 hrs
Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.49 cfs

15.0" Round Pipe
n= 0.011
Length= 60.0' Slope= 0.0052 '/'
Inlet Invert= 11.82', Outlet Invert= 11.51'





Stage-Area-Storage for Reach 38R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.82	0.0	0
11.84	0.0	0
11.86	0.0	1
11.88	0.0	1
11.90	0.0	2
11.92	0.0	3
11.94	0.1	4
11.96	0.1	5
11.98	0.1	6
12.00	0.1	7
12.02	0.1	8
12.04	0.1	9
12.06	0.2	10
12.08	0.2	11
12.10	0.2	12
12.12	0.2	14
12.14	0.2	15
12.16	0.3	16
12.18	0.3	18
12.20	0.3	19
12.22	0.3	20
12.24	0.4	22
12.26	0.4	23
12.28	0.4	25
12.30	0.4	26
12.32	0.5	28
12.34	0.5	29
12.36	0.5	30
12.38	0.5	32
12.40	0.6	33
12.42	0.6	35
12.44	0.6	36
12.46	0.6	38
12.48	0.7	39
12.50	0.7	41
12.52	0.7	42
12.54	0.7	44
12.56	0.8	45
12.58	0.8	47
12.60	0.8	48
12.62	0.8	50
12.64	0.9	51
12.66	0.9	53
12.68	0.9	54
12.70	0.9	55
12.72	0.9	57
12.74	1.0	58
12.76	1.0	59
12.78	1.0	61
12.80	1.0	62
12.82	1.1	63
12.84	1.1	64
12.86	1.1	65
12.88	1.1	67
12.90	1.1	68
12.92	1.1	69
12.94	1.2	70
12.96	1.2	70
12.98	1.2	71
13.00	1.2	72
13.02	1.2	73
13.04	1.2	73
13.06	**1.2**	**74**

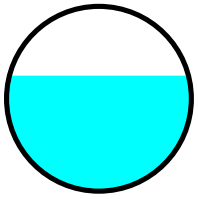
Summary for Reach 39R: 15" HDPE

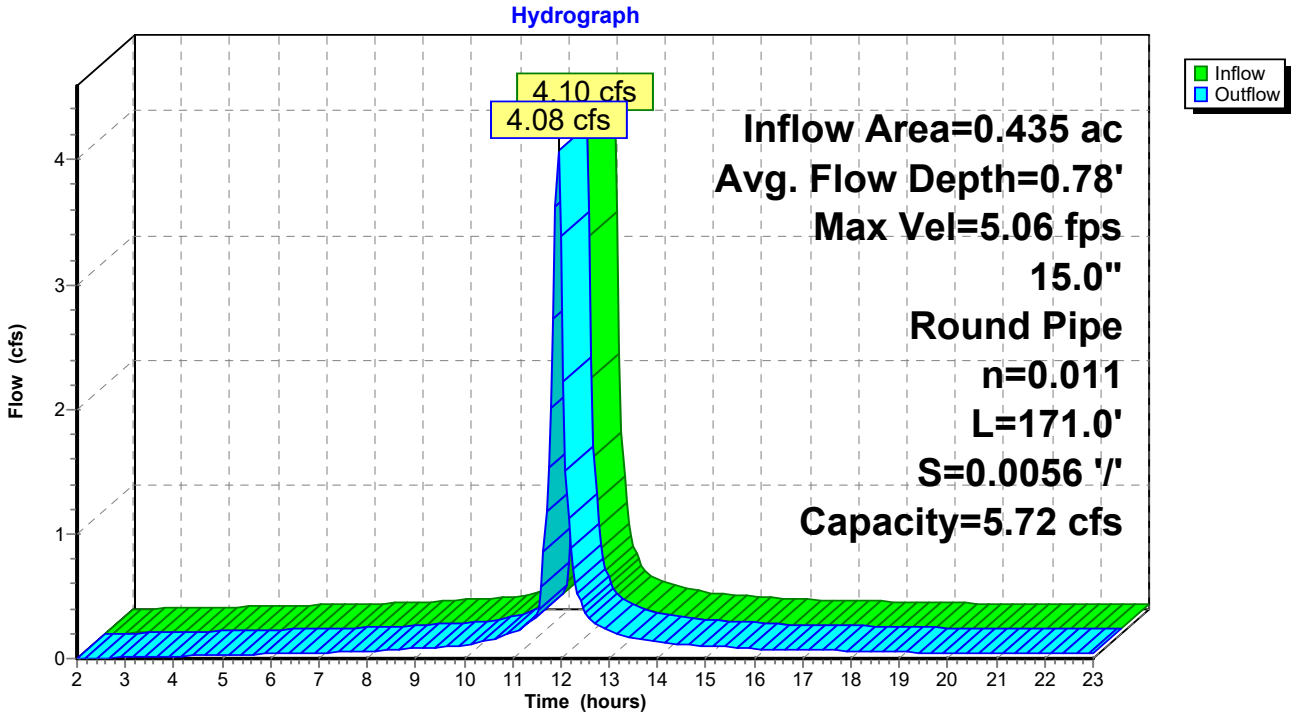
Inflow Area = 0.435 ac, 79.43% Impervious, Inflow Depth > 6.69" for 100-YR event
Inflow = 4.10 cfs @ 11.94 hrs, Volume= 0.243 af
Outflow = 4.08 cfs @ 11.94 hrs, Volume= 0.243 af, Atten= 1%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.06 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.61 fps, Avg. Travel Time= 1.8 min

Peak Storage= 138 cf @ 11.94 hrs
Average Depth at Peak Storage= 0.78'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.72 cfs

15.0" Round Pipe
n= 0.011
Length= 171.0' Slope= 0.0056 '/'
Inlet Invert= 11.41', Outlet Invert= 10.45'





Stage-Area-Storage for Reach 39R: 15" HDPE

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
11.41	0.0	0
11.43	0.0	1
11.45	0.0	2
11.47	0.0	4
11.49	0.0	6
11.51	0.0	8
11.53	0.1	10
11.55	0.1	13
11.57	0.1	16
11.59	0.1	19
11.61	0.1	22
11.63	0.1	25
11.65	0.2	28
11.67	0.2	32
11.69	0.2	35
11.71	0.2	39
11.73	0.2	42
11.75	0.3	46
11.77	0.3	50
11.79	0.3	54
11.81	0.3	58
11.83	0.4	62
11.85	0.4	66
11.87	0.4	70
11.89	0.4	74
11.91	0.5	78
11.93	0.5	83
11.95	0.5	87
11.97	0.5	91
11.99	0.6	95
12.01	0.6	100
12.03	0.6	104
12.05	0.6	108
12.07	0.7	112
12.09	0.7	117
12.11	0.7	121
12.13	0.7	125
12.15	0.8	129
12.17	0.8	134
12.19	0.8	138
12.21	0.8	142
12.23	0.9	146
12.25	0.9	150
12.27	0.9	154
12.29	0.9	158
12.31	0.9	162
12.33	1.0	166
12.35	1.0	169
12.37	1.0	173
12.39	1.0	176
12.41	1.1	180
12.43	1.1	183
12.45	1.1	187
12.47	1.1	190
12.49	1.1	193
12.51	1.1	196
12.53	1.2	198
12.55	1.2	201
12.57	1.2	203
12.59	1.2	205
12.61	1.2	207
12.63	1.2	209
12.65	**1.2**	**210**

Summary for Pond 40P: SGW 1

Inflow Area = 2.337 ac, 62.67% Impervious, Inflow Depth > 6.23" for 100-YR event
Inflow = 19.87 cfs @ 11.96 hrs, Volume= 1.214 af
Outflow = 5.76 cfs @ 12.19 hrs, Volume= 0.691 af, Atten= 71%, Lag= 13.7 min
Primary = 5.76 cfs @ 12.19 hrs, Volume= 0.691 af

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Peak Elev= 11.94' @ 12.19 hrs Surf.Area= 12,440 sf Storage= 28,420 cf

Plug-Flow detention time= 202.1 min calculated for 0.691 af (57% of inflow)
Center-of-Mass det. time= 100.1 min (865.5 - 765.4)

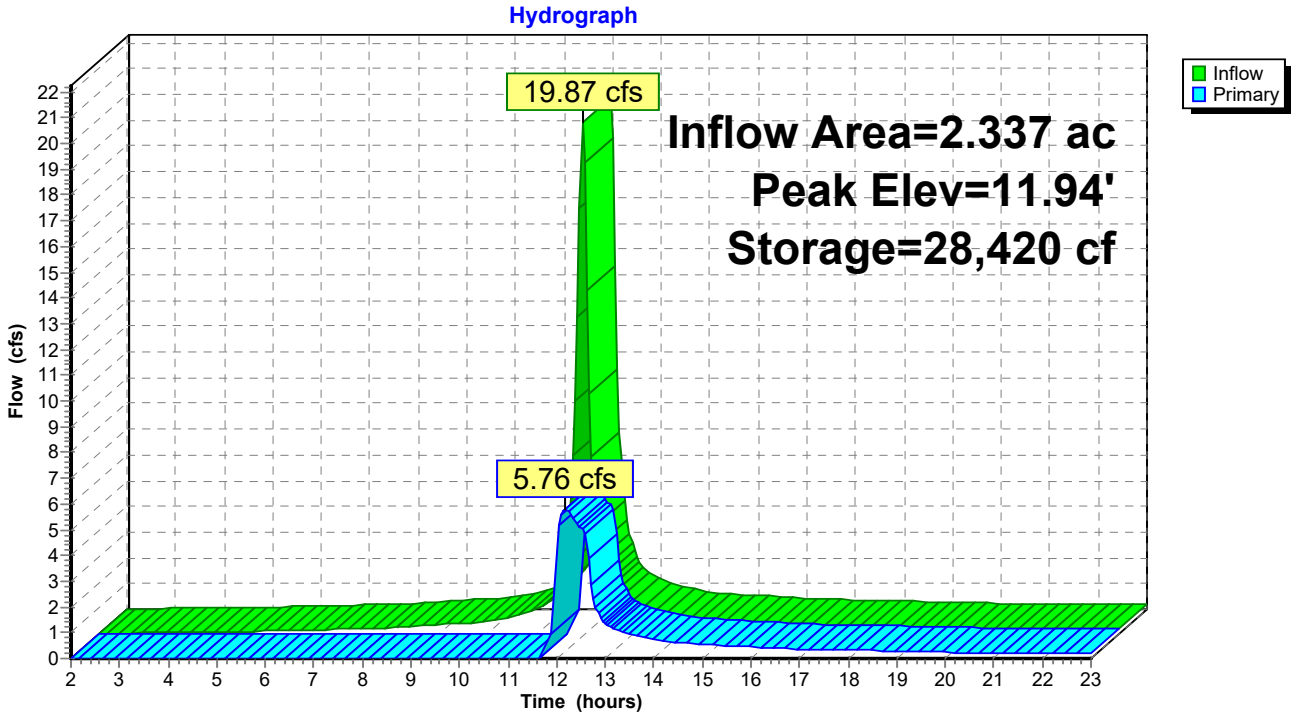
Volume	Invert	Avail.Storage	Storage Description
#1	7.44'	28,534 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
7.44	9,804	575.0	0.0	0	0	9,804
7.45	9,804	575.0	40.0	39	39	9,810
10.44	9,804	575.0	40.0	11,726	11,765	11,529
10.45	9,804	575.0	100.0	98	11,863	11,535
11.45	11,558	594.0	100.0	10,669	22,532	13,396
11.95	12,457	604.0	100.0	6,002	28,534	14,396

Device	Routing	Invert	Outlet Devices
#1	Primary	10.12'	**15.0" Round Culvert** L= 31.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 10.12' / 10.00' S= 0.0039 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	11.45'	**18.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=5.76 cfs @ 12.19 hrs HW=11.94' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 5.76 cfs @ 4.69 fps)
↑**2=Sharp-Crested Rectangular Weir** (Passes 5.76 cfs of 20.92 cfs potential flow)

Pond 40P: SGW 1



Stage-Area-Storage for Pond 40P: SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
7.44	9,804	0
7.49	9,804	196
7.54	9,804	392
7.59	9,804	588
7.64	9,804	784
7.69	9,804	980
7.74	9,804	1,176
7.79	9,804	1,373
7.84	9,804	1,569
7.89	9,804	1,765
7.94	9,804	1,961
7.99	9,804	2,157
8.04	9,804	2,353
8.09	9,804	2,549
8.14	9,804	2,745
8.19	9,804	2,941
8.24	9,804	3,137
8.29	9,804	3,333
8.34	9,804	3,529
8.39	9,804	3,726
8.44	9,804	3,922
8.49	9,804	4,118
8.54	9,804	4,314
8.59	9,804	4,510
8.64	9,804	4,706
8.69	9,804	4,902
8.74	9,804	5,098
8.79	9,804	5,294
8.84	9,804	5,490
8.89	9,804	5,686
8.94	9,804	5,882
8.99	9,804	6,078
9.04	9,804	6,275
9.09	9,804	6,471
9.14	9,804	6,667
9.19	9,804	6,863
9.24	9,804	7,059
9.29	9,804	7,255
9.34	9,804	7,451
9.39	9,804	7,647
9.44	9,804	7,843
9.49	9,804	8,039
9.54	9,804	8,235
9.59	9,804	8,431
9.64	9,804	8,628
9.69	9,804	8,824
9.74	9,804	9,020
9.79	9,804	9,216
9.84	9,804	9,412
9.89	9,804	9,608
9.94	9,804	9,804
9.99	9,804	10,000
10.04	9,804	10,196
10.09	9,804	10,392
10.14	9,804	10,588
10.19	9,804	10,784
10.24	9,804	10,980
10.29	9,804	11,177
10.34	9,804	11,373
10.39	9,804	11,569
10.44	9,804	11,765
10.49	9,871	12,256
10.54	9,956	12,752
10.59	10,041	13,252
10.64	10,126	13,756
10.69	10,212	14,265
10.74	10,298	14,777
10.79	10,384	15,294
10.84	10,471	15,816
10.89	10,558	16,341
10.94	10,645	16,872
10.99	10,733	17,406
11.04	10,821	17,945
11.09	10,910	18,488
11.14	10,999	19,036
11.19	11,088	19,588
11.24	11,178	20,145
11.29	11,268	20,706
11.34	11,358	21,271
11.39	11,449	21,842
11.44	11,540	22,416
11.49	11,629	22,996
11.54	11,717	23,579
11.59	11,806	24,167
11.64	11,896	24,760
11.69	11,985	25,357
11.74	12,075	25,958
11.79	12,166	26,564
11.84	12,256	27,175
11.89	12,347	27,790
11.94	**12,439**	**28,410**

Summary for Pond 52P: SGW 2

Inflow Area = 0.861 ac, 49.03% Impervious, Inflow Depth > 5.85" for 100-YR event
Inflow = 6.14 cfs @ 12.00 hrs, Volume= 0.420 af
Outflow = 2.17 cfs @ 12.28 hrs, Volume= 0.199 af, Atten= 65%, Lag= 16.5 min
Primary = 2.17 cfs @ 12.28 hrs, Volume= 0.199 af

Routing by Dyn-Stor-Ind method, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs
Peak Elev= 14.66' @ 12.28 hrs Surf.Area= 5,534 sf Storage= 10,133 cf

Plug-Flow detention time= 223.9 min calculated for 0.199 af (47% of inflow)
Center-of-Mass det. time= 117.7 min (900.0 - 782.3)

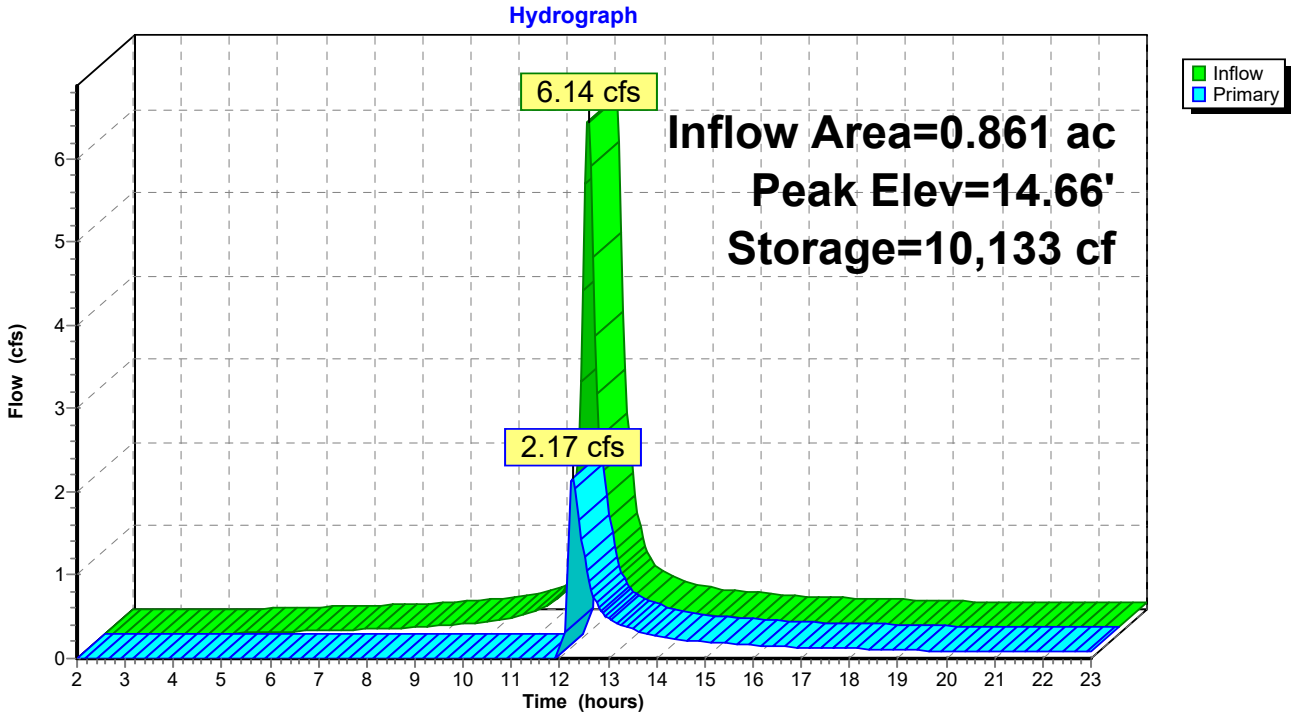
Volume	Invert	Avail.Storage	Storage Description
#1	10.54'	12,413 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
10.54	4,017	447.0	0.0	0	0	4,017
10.55	4,017	447.0	40.0	16	16	4,021
13.54	4,017	447.0	40.0	4,804	4,820	5,358
13.55	4,017	447.0	100.0	40	4,861	5,362
14.55	5,386	466.0	100.0	4,685	9,545	6,816
15.05	6,092	475.0	100.0	2,868	12,413	7,530

Device	Routing	Invert	Outlet Devices
#1	Primary	13.25'	**15.0" Round Culvert** L= 35.5' Ke= 0.500 Inlet / Outlet Invert= 13.25' / 13.02' S= 0.0065 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	14.55'	**18.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.14 cfs @ 12.28 hrs HW=14.66' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Passes 2.14 cfs of 4.83 cfs potential flow)
↑**2=Sharp-Crested Rectangular Weir** (Weir Controls 2.14 cfs @ 1.07 fps)

Pond 52P: SGW 2



Stage-Area-Storage for Pond 52P: SGW 2

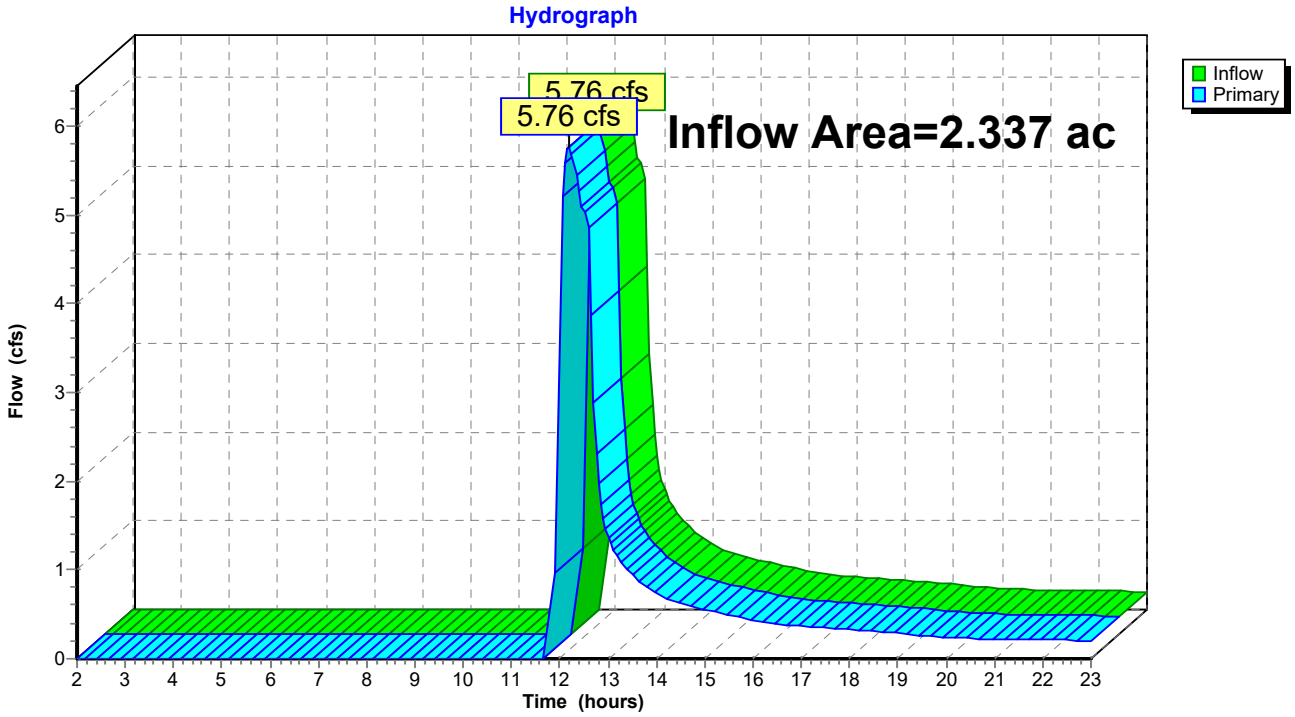
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
10.54	4,017	0
10.59	4,017	80
10.64	4,017	161
10.69	4,017	241
10.74	4,017	321
10.79	4,017	402
10.84	4,017	482
10.89	4,017	562
10.94	4,017	643
10.99	4,017	723
11.04	4,017	803
11.09	4,017	884
11.14	4,017	964
11.19	4,017	1,044
11.24	4,017	1,125
11.29	4,017	1,205
11.34	4,017	1,285
11.39	4,017	1,366
11.44	4,017	1,446
11.49	4,017	1,526
11.54	4,017	1,607
11.59	4,017	1,687
11.64	4,017	1,767
11.69	4,017	1,848
11.74	4,017	1,928
11.79	4,017	2,009
11.84	4,017	2,089
11.89	4,017	2,169
11.94	4,017	2,250
11.99	4,017	2,330
12.04	4,017	2,410
12.09	4,017	2,491
12.14	4,017	2,571
12.19	4,017	2,651
12.24	4,017	2,732
12.29	4,017	2,812
12.34	4,017	2,892
12.39	4,017	2,973
12.44	4,017	3,053
12.49	4,017	3,133
12.54	4,017	3,214
12.59	4,017	3,294
12.64	4,017	3,374
12.69	4,017	3,455
12.74	4,017	3,535
12.79	4,017	3,615
12.84	4,017	3,696
12.89	4,017	3,776
12.94	4,017	3,856
12.99	4,017	3,937
13.04	4,017	4,017
13.09	4,017	4,097
13.14	4,017	4,178
13.19	4,017	4,258
13.24	4,017	4,338
13.29	4,017	4,419
13.34	4,017	4,499
13.39	4,017	4,579
13.44	4,017	4,660
13.49	4,017	4,740
13.54	4,017	4,820
13.59	4,068	5,022
13.64	4,132	5,227
13.69	4,197	5,435
13.74	4,262	5,647
13.79	4,327	5,862
13.84	4,393	6,080
13.89	4,460	6,301
13.94	4,527	6,526
13.99	4,595	6,754
14.04	4,663	6,985
14.09	4,731	7,220
14.14	4,800	7,458
14.19	4,870	7,700
14.24	4,940	7,945
14.29	5,011	8,194
14.34	5,082	8,446
14.39	5,153	8,702
14.44	5,226	8,962
14.49	5,298	9,225
14.54	5,371	9,492
14.59	5,441	9,762
14.64	5,510	10,036
14.69	5,579	10,313
14.74	5,649	10,594
14.79	5,719	10,878
14.84	5,790	11,166
14.89	5,861	11,457
14.94	5,933	11,752
14.99	6,005	12,050
15.04	**6,077**	**12,352**

Summary for Link 42L: POI 1

Inflow Area = 2.337 ac, 62.67% Impervious, Inflow Depth > 3.55" for 100-YR event
Inflow = 5.76 cfs @ 12.19 hrs, Volume= 0.691 af
Primary = 5.76 cfs @ 12.19 hrs, Volume= 0.691 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 42L: POI 1

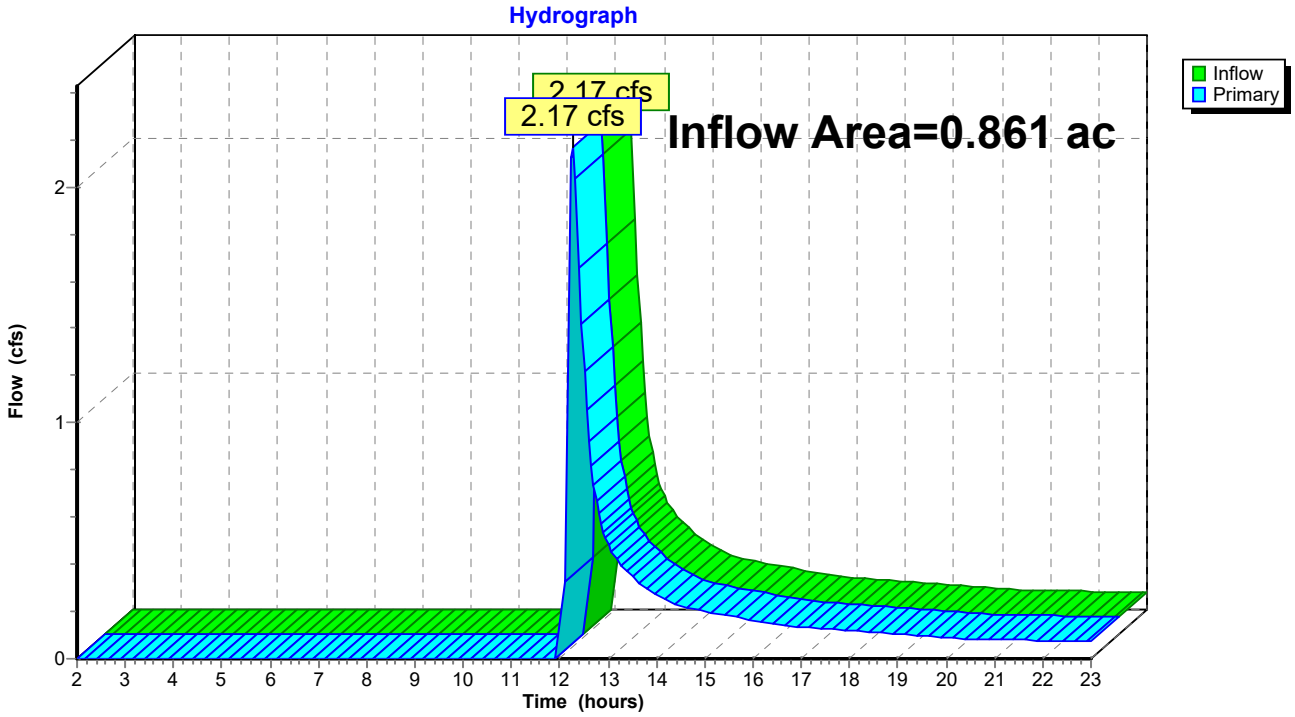


Summary for Link 53L: POI 2

Inflow Area = 0.861 ac, 49.03% Impervious, Inflow Depth > 2.77" for 100-YR event
Inflow = 2.17 cfs @ 12.28 hrs, Volume= 0.199 af
Primary = 2.17 cfs @ 12.28 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 53L: POI 2

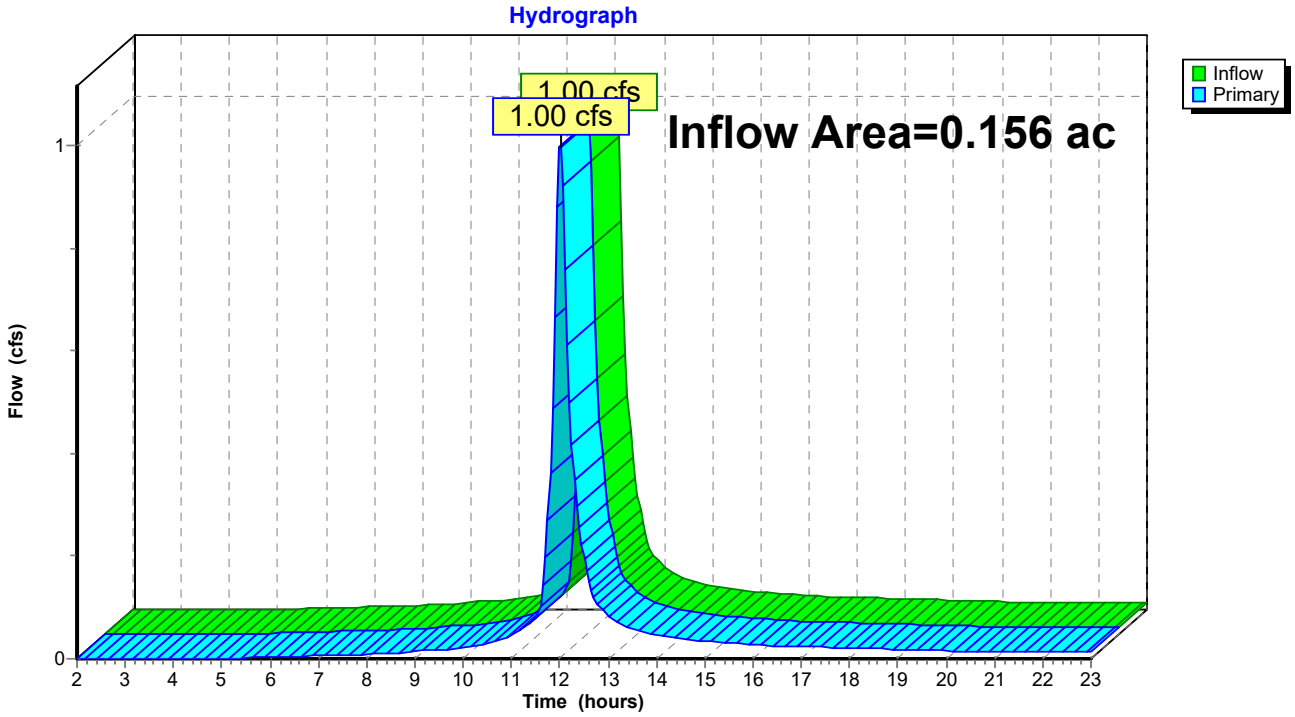


Summary for Link 56L: POI 3 (EX SWM POND)

Inflow Area = 0.156 ac, 34.31% Impervious, Inflow Depth > 5.43" for 100-YR event
Inflow = 1.00 cfs @ 12.01 hrs, Volume= 0.071 af
Primary = 1.00 cfs @ 12.01 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-23.00 hrs, dt= 0.05 hrs

Link 56L: POI 3 (EX SWM POND)



APPENDIX B

ESD CALCULATIONS

Project: Somerset Well
Location: 28580 Marys Ct, Easton, MD
Job No.: 240060 Designed By: BMW
File No.: A037 Date: 2/4/2025

Lane Engineering, LLC

DESIGN PHASE: CONCEPT PRELIMINARY FINAL

MARYLAND ENVIRONMENTAL SITE DESIGN (ESD) CALCULATIONS

Site Data

Total Disturbance Area (A) = 147,534 sf
Proposed Impervious Area (A_i) = 88,872 sf → Percent Impervious (I) = 60 %

Site Soils				
HSG	A	B	C	D
Area (sf)			147,534	
% of Area	0%	0%	100%	0%

INPUT
CONSTANT
CALCULATED

Determine RCN for Woods in Good Condition

HSG	A	B	C	D
Area (sf)	-	-	147,534	-
% of Area	0%	0%	100%	0%
RCN	38	55	70	77

Weighted RCN= **70**

Determine Target ESD $_v$ for Entire Site

Volumetric Runoff Coefficient (R_v) = 0.59 $R_v = 0.05 + 0.009\,(I)$
Percent Impervious (I) = 60 % → use 60 % (from Table 5.3)

HSG	A	B	C	D
Area (sf)	-	-	147,534	-
Target P_E (in)	2.0	2.0	2.0	1.8

Composite Target P_E= **2.0** in

Target ESDv = 14,560 cf $ESD_v = [(P_E)(A)(R_v)]/12$

M-2: SUBMERGED GRAVEL WETLAND DESIGN CALCULATIONS

SWM Feature No. 1

Contributing Drainage Area Data

Total Contributing Area (A) =	100,253	sf		INPUT
Contributing Impervious Area (A_i) =	63,802	sf		CONSTANT
Percent Impervious (I) =	64	%		CALCULATED
Volumetric Runoff Coefficient (R_v) =	0.62		$R_v = 0.05 + 0.009\,(I)$	
Target P_E =	2	in		
Target ESD_v =	10,406	cf	$ESD_v = [(P_E)(A)(R_v)]/12$	

Determine Limiting Storage Volume

The maximum treatment volume that can be credited to this practice is limited to the lesser of the amount of: a) runoff from the 1-year 24-hour storm (the Cpv storm=3.0 in) draining to it, or b) the computed ESDv provided.

1-yr, 24-hr ESDV= 15,609 cf $Limiting\ ESD_v = [(3.0)(A)(R_v)]/12$

Determine Storage Volume Provided

Temporary ponding depth =	1	ft	
Provided ESD_v =	10,651	cf	$Provided\ ESD_v = Ponding\ storage\ volume\ as\ determined\ by\ HydroCAD\ model$

The volume of runoff treated by this feature is 10,651 cf

SWM Feature No. 2

Contributing Drainage Area Data

Total Contributing Area (A) =	37,512	sf		INPUT
Contributing Impervious Area (A_i) =	18,393	sf		CONSTANT
Percent Impervious (I) =	49	%		CALCULATED
Volumetric Runoff Coefficient (R_v) =	0.49		$R_v = 0.05 + 0.009\,(I)$	
Target P_E =	1.8	in		
Target ESD_v =	2,764	cf	$ESD_v = [(P_E)(A)(R_v)]/12$	

Determine Limiting Storage Volume

The maximum treatment volume that can be credited to this practice is limited to the lesser of the amount of: a) runoff from the 1-year 24-hour storm (the Cpv storm=3.0 in) draining to it, or b) the computed ESDv provided.

1-yr, 24-hr ESDV= 4,607 cf $Limiting\ ESD_v = [(3.0)(A)(R_v)]/12$

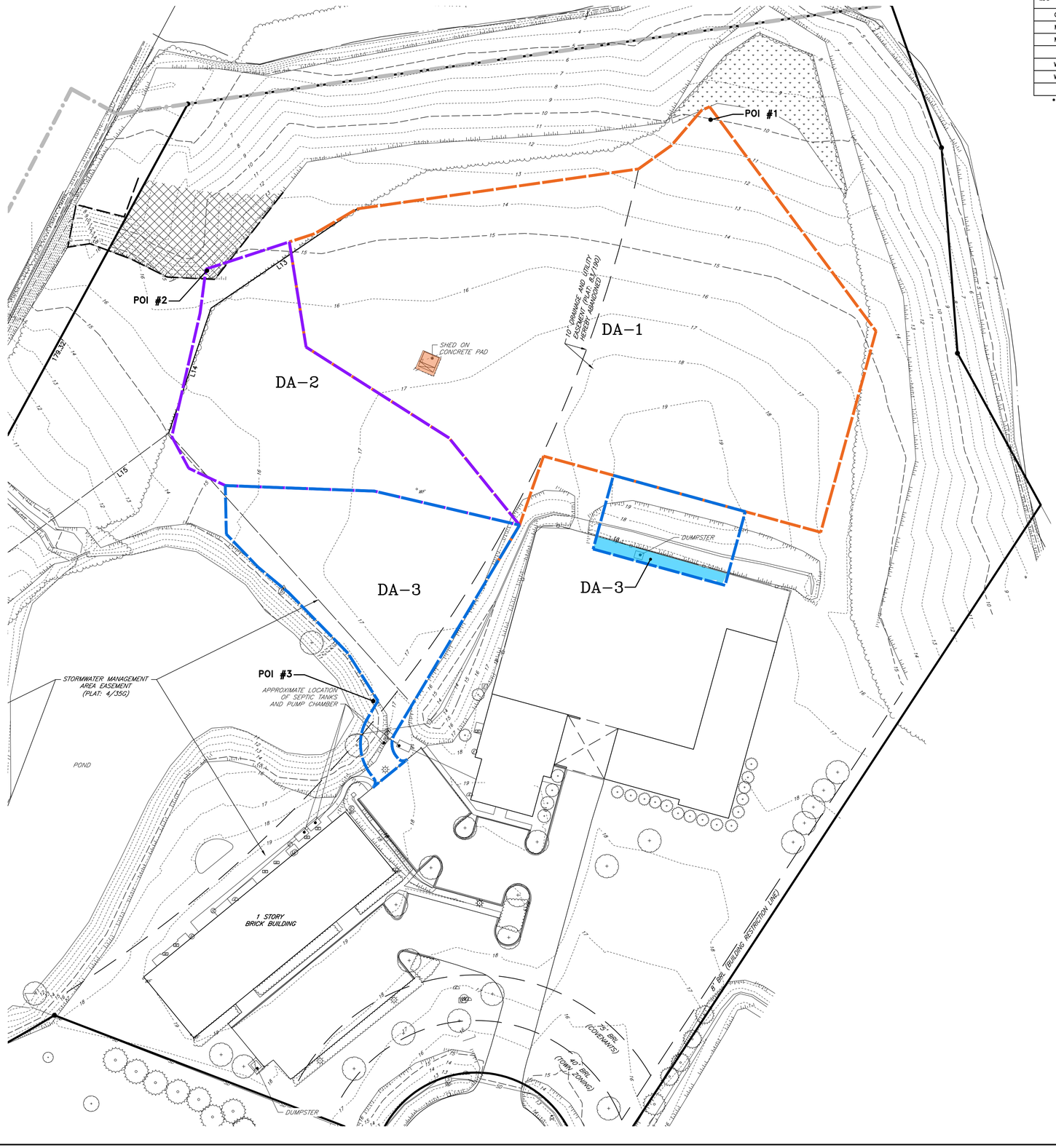
Determine Storage Volume Provided

Temporary ponding depth =	1	ft	
Provided ESD_v =	4,832	cf	$Provided\ ESD_v = Ponding\ storage\ volume\ as\ determined\ by\ HydroCAD\ model$

The volume of runoff treated by this feature is 4,607 cf

APPENDIX C

DRAINAGE AREA MAPS



TALBOT COUNTY SOILS				
MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
CsA	CROSIADORE SILT LOAM	*	0.49	C/D
MtA	MATTAPEX SILT LOAM	*	0.49	C
MtB	MATTAPEX SILT LOAM	*	0.49	C
W	WATER		N/A	
WoA	WOODSTOWN LOAM	*	0.32	C
WoB	WOODSTOWN LOAM	*	0.32	C
Zk	ZEKIAH	YES	0.37	C/D

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

SWM POST DEVELOPMENT DISCHARGES (CFS)			
STUDY POINT	Q_2	Q_{10}	Q_{100}
1	2.22	4.69	7.86
2	0.45	0.95	1.60
3	0.36	0.76	1.27

STORMWATER MANAGEMENT DRAINAGE AREA TABLE				
AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
DA-1	90,026	19.30	0.25	LOD TO FOREST CONSERVATION AREA
DA-2	25,377	30.90	0.00	LOD TO NE FOREST CONSERVATION AREA
DA-3	29,115	52.90	3.43	LOD TO EXISTING SWM POND

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TOWN OF EASTON – TOWN PLANNER DATE

APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE

APPROVED:
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EASTON PLANNING COMMISSION DATE

REVISIONS

No.	DATE	DESCRIPTION	BY

WARNING!!
THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE QUANTITIES SHOWN ON THIS PLAN ARE FOR INFORMATIONAL AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.

THE CONTRACTOR SHALL TEST PIT AND LOCATE EXISTING UNDERGROUND UTILITIES PRIOR TO THE BEGINNING OF ANY WORK ON-SITE. THE CONTRACTOR SHALL NOTIFY DEPT. OF PUBLIC WORKS OF ANY POSSIBLE CONFLICT AND REQUEST THE RELOCATION OF THE EXISTING UNDERGROUND UTILITIES BEFORE BEGINNING ANY WORK ON-SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.

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354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 60891 , Expiration Date: 04/13/2025.

SEAL
STATE OF MARYLAND
BRITTANY W. WALLACE
60891
PROFESSIONAL ENGINEER
DATE

PRE-DEVELOPMENT DRAINAGE AREA MAP

SOMERSET WELL DRILLING
28580 MARYS COURT

IN THE TOWN OF EASTON, WARD 1
TALBOT COUNTY, MARYLAND
TAX MAP 25, PARCEL 46, LOTS 16 & 20

ISSUED FOR:	DATE:	BY:
ESDR REVIEW	01/01/25	JSC
ESDR REVIEW	02/04/25	JSC

SHEET No. 1 OF 1
DATE: 02/04/25
JOB No. 240060
SCALE: AS NOTED
FILE No. A037

Date: 02/04/2025 - 10:38am User: bwallace Project Manager: TWG
Drawing Path: J:\2024\0000\240060\Civil3D-240060\Dwg\Plots\VDA-PLTS-240060.dwg | 1 of 1
XREF File(s): VLD-BASE-240060/VSF-BASE-240060/CBS-BASE-2435-240060/HSL-BASE-240060

Date: 02/04/2025 – 10:21am User: bwallace Project Manager: TWG
Drawing Path: J:\2024\0000\240060\Civil3D-240060\Dwg\Plots\CDA-PLTS-240060.dwg | 1 of 1
XREF File(s): CSK-BASE-240060/HATCH-BASE-240060/VLD-BASE-240060/VSF-BASE-240060/CBS-BASE-2436-240060/CEC-BASE-240060/HSL-BASE-240060

TALBOT COUNTY SOILS

MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
CsA	CROSIADORE SILT LOAM	*	0.49	C/D
MtA	MATTAPEX SILT LOAM	*	0.49	C
MtB	MATTAPEX SILT LOAM	*	0.49	C
W	WATER		N/A	
WoA	WOODSTOWN LOAM	*	0.32	C
WoB	WOODSTOWN LOAM	*	0.32	C
Zk	ZEKIAH	YES	0.37	C/D

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

SWM POST DEVELOPMENT DISCHARGES (CFS)

STUDY POINT	Q_2	Q_{10}	Q_{100}
1	0.00	0.92	5.76
2	0.00	0.11	2.17
3	0.32	0.62	1.00

STORMWATER MANAGEMENT DRAINAGE AREA TABLE

AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
DA-1a	66,138	5.60	48.44	PARKING LOT, POLE BUILDINGS & SWM FEATURE
DA-1b	6,000	1.20	100.00	GRAVEL ACCESS/ PARKING PAD
DA-1c	10,698	3.10	100.00	GRAVEL ACCESS/ PARKING PAD
DA-1d	8,238	1.40	74.74	FUTURE OFFICE BUILDING & PARKING LOT
DA-1e	10,729	5.10	83.04	FUTURE OFFICE BUILDING & PARKING LOT
DA-2	37,514	7.80	49.03	FUTURE OFFICE BUILDING & PARKING LOT
DA-3a	3,216	6.30	46.02	FUTURE ACCESS DRIVE
DA-3b	3,575	10.60	22.38	LOD TO EX INLET 4

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APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE

APPROVED:
EASTON UTILITIES – ENGINEER DATE

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REVISIONS

No.	DATE	DESCRIPTION	BY

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354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 60891 , Expiration Date: 04/13/2025.

SEAL
BRITTANY M. WALLACE
60891

DATE

POST-DEVELOPMENT DRAINAGE AREA MAP

SOMERSET WELL DRILLING
28580 MARYS COURT

IN THE TOWN OF EASTON, WARD 1
TALBOT COUNTY, MARYLAND
TAX MAP 25, PARCEL 46, LOTS 16 & 20

ISSUED FOR:	DATE:	BY:
ESDR REVIEW	01/01/25	JSC

SHEET No. 1 OF 1
SCALE: AS NOTED
DATE: 01/01/25
JOB No. 240060
FILE No. A037

APPENDIX D

CRITICAL AREA COMMISSION 10% SPREADSHEET

Maryland ESD Calculations and 10% Phosphorus Removal

Last Update: 12/5/2016

Project Name:	**Somereset Well Drilling Co, 28530 Marys Ct, Easton, MD**
Date:	**22-Jan-25**
	data input cells
	calculation cells

Step 1: Complete ESD Implementation Checklist

Check all of the Following ESD Practices That Were Implemented at Site	*Yes - No - N/A*
Environmental Mapping Was Conducted at Site Prior to Layout	*YES*
Natural Areas Were Conserved (e.g., forests, wetlands, steep slopes, floodplains)	*YES*
Stream, Wetland and Shoreline Buffers Were Reserved	*YES*
Disturbance of Permeable Soils Was Minimized	*YES*
Natural Flow Paths Were Maintained Across the Site	*YES*
Building Layout Was Fingerprinted to Reduce Clearing and Grading at Site	*YES*
Site Grading Promoted Sheetflow From Impervious Areas to Pervious Ones	*YES*
Site Design Was Evaluated to Reduce Creation of Needless Impervious Cover	*YES*
Site Design Was Evaluated to Maximize Disconnection of Impervious Cover	*YES*
Site Design Was Evaluated to Identify Potential Hotspot Generating Area for Stormwater Treatment	*YES*
Erosion and Sediment Control Practices and Post Construction Stormwater Management Practices Were Integrated into a Comprehensive Plan	*YES*
Tree PlantingWas Used at the Site to Convert Turf Areas into Forest	*NO*

Step 2: Calculate Site Imperviousness and Water Quality Volume, WQv (for redevelopment)

Site Area, A (acres)	3.39
Existing Impervious Surface Area (acres)	0.05
Proposed Impervious Surface Area (acres)	1.96
Rainfall Depth, P (in)	1.0
Existing Imperviousness, I_{pre}	1.4%
Proposed Imperviousness, I_{post}	57.8%
Water Quality Calculation for Redevelopment Only	
Required Treatment Area (acres)	0.00
Runoff Coefficient, Rv	0.95
Water Quality Volume, WQv (cf)	**0**

Step 3: Calculate Phosphorous Removal Requirement, RR for Critical Area Sites

Development Category (for 10%)	**New Development**
New Development	
Average Annual Predevelopment Load, Lpre (lbs P / yr)	1.69
Redevelopment:	
Predevelopment Runoff Coefficient, Rv_{pre}	0.06
Phosphorous Mean Concentration, C (mg/L)	0.3
Average Annual Predevelopment Load, L_{pre} (lbs P / yr)	0.52
Post-Development Runoff Coefficient, Rv_{post}	0.57
Average Annual Post-Development Load, L_{post} (lbs P / yr)	4.73
Removal Requirement, RR (lbs P / yr)	**3.20**

Step 4: Calculate Environmental Site Design (ESD) Rainfall Target, P_E

Development Category (for ESD)	**New Development**
% Soil Type A	0%
% Soil Type B	0%
% Soil Type C	100%
% Soil Type D	0%
Pre-Developed Condition, RCN_{woods}	70
Soil Type A ESD Rainfall Target, P_E (in)	0.00
Soil Type B ESD Rainfall Target, P_E (in)	0.00
Soil Type C ESD Rainfall Target, P_E (in)	2.00
Soil Type D ESD Rainfall Target, P_E (in)	0.00
Maximum P_E (in)	2.7
Site ESD Rainfall Target, P_E (in)	2.00
ESD Runoff Depth, Q_E (in)	1.14
ESD Runoff Volume, ESDv (cf)	**14,022**
Total Treatment Volume (cf)	**14,022**

Step 5: Select Nonstructural Practices to Treat the ESD Rainfall Target

Nonstructural Practices	P_E Credit Description	Contributing Drainage Area (sf)	Direct WQv or ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	P_E Credit (in)	WQV or ESDv credit (cf)	Runoff Volume Remaining (cf)	Baseline Phosphorous Removal Efficiency	*Critical Area Credits* Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
Disconnection of Rooftop Runoff (A/B Soils)	Up to 1 inch credit provided based upon disconnection flow length.	0	0	0	#DIV/0!	0	0	50%	0%	0.00	0.00	0.00
Disconnection of Rooftop Runoff (C/D Soils)	Up to 1 inch credit provided based upon disconnection flow length.	0	0	0	#DIV/0!	0	0	25%	0%	0.00	0.00	0.00
Disconnection of Non-Rooftop Runoff (A/B Soils)	Up to 1 inch credit provided based upon disconnection and contributing flow lengths.	0	0	0	#DIV/0!	0	0	50%	0%	0.00	0.00	0.00
Disconnection of Non-Rooftop Runoff (C/D Soils)	disconnection and contributing flow lengths.	0	0	0	#DIV/0!	0	0	25%	0%	0.00	0.00	0.00
Sheetflow to Conservation Areas (A/B Soils)	Up to 1 inch credit provided based upon conservation area width.	0	0	0	0	0	0	50%	0%	0.00	0.00	0.00
Sheetflow to Conservation Areas (C/D Soils)	Up to 1 inch credit provided based upon conservation area width.	0	0	0	0	0	0	25%	0%	0.00	0.00	0.00

Step 6: Select Micro-Scale Practices to Treat the ESD Rainfall Target

Micro-Scale Practices	P_E Credit Description	Contributing Drainage Area (sf)	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)	Baseline Phosphorous Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
Green Roof (Level 1)	ESDv credit is based on roof thickness	0	0	N/A	0	0	45%	0%	0.00	0.00	0.00
Green Roof (Level 2)	ESDv credit is based on roof thickness	0	0	N/A	0	0	60%	0%	0.00	0.00	0.00
Pemeable Pavement (A Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0	80%	0%	0.00	0.00	0.00
Pemeable Pavement (B Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0	80%	0%	0.00	0.00	0.00
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0	40%	0%	0.00	0.00	0.00
Rainwater Harvesting	ESDv credit is based on design storage volume and annual use	0	0	0	0	0	45%	0%	0.00	0.00	0.00
Submerged Gravel Wetlands	ESDv credit is based on design storage volume	137,765	18,265	0	18,265	0	60%	79%	4.56	3.59	0.98
Micro-Infiltration/Dry Wells	ESDv credit is based on design storage volume	0	0	0	0	0	65%	0%	0.00	0.00	0.00
Rain Gardens (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0	65%	0%	0.00	0.00	0.00
Rain Gardens (C/D Soils)	ESDv credit is based on design storage volume	0	0	0	0	0	25%	0%	0.00	0.00	0.00
Micro-Bioretention (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0	75%	0%	0.00	0.00	0.00
Micro-Bioretention (C/D Soils)	ESDv credit is based on design storage volume	0	0	0	0	0	50%	0%	0.00	0.00	0.00
Landscape Infiltration	ESDv credit is based on design storage volume	0	0	0	0	0	75%	0%	0.00	0.00	0.00
Grass Swales (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0	40%	0%	0.00	0.00	0.00
	ESDv credit is based on design storage										

Grass Swales (C/D Soils)	volume	0	0	0	0	0					20%	0%	0.00	0.00	0.00		
Bio-swales (A/B Soils)	ESDv credit is based on design storage volume	0	0	0	0	0					75%	0%	0.00	0.00	0.00		
Bio-swales (C/D Soils)	ESDv credit is based on design storage volume	0	0	0	0	0					50%	0%	0.00	0.00	0.00		
Wet Swales	ESDv credit is based on design storage volume	0	0	0	0	0					40%	0%	0.00	0.00	0.00		

Step 7: Check for ESDv to MEP compliance and Revise Site If Necessary

Drainage Area Treated (sf)	137,765
WQv or ESDv Treated (cf)	18,265
P_E achieved (inches)	2.61
Total Load Reduction (lbs P / year)	3.59
Total Load Reduction Remaining (lbs P / yr)	**0.00**
Entire ESDv Treated Through Environmental Site Design?	**YES**
ESDv Remaining? (cf)	**0**
If ESDV is not fully treated, is ESD to MEP achieved?	
Redevelopment WQv Requirements Met Through Environmental Site Design?	**N/A**
WQv Remaining? (cf)	**0**
New Development WQv Requirements Met Through Environmental Site Design?	**YES**
WQv Remaining? (cf)	**0**

New Development Water Quality Volume Requirements

Required Treatment Area (acres)	3.39
Runoff Coefficient, Rv	0.57
Water Quality Volume, WQv (cf)	**7,011**

Step 8: Determine Reduced RCN and Volume Management Requirements Based Upon P_E Achieved

Reduced RCN for Type A Soils	N/A
Reduced RCN for Type B Soils	N/A
Reduced RCN for Type C Soils	N/A
Reduced RCN for Type D Soils	N/A
Composite Reduced RCN	**N/A**
Q_E (in) for Reduced RCN	N/A
V (ft^3) for Reduced RCN	N/A
Volume Management Required (cf)	**0**

Q_E (in) for RCN of 55	0.12
V (ft^3) for RCN of 55	1521

Step 9: Select Structural Practices to Meet Volume Management Requirements

Critical Area Credits

Structural Practices	Contributing Drainage Area (sf)	% Impervious Cover	Direct ESDv Received by Practice (cf)	ESDv from Upstream Practices (cf)	Treatment Volume (cf)	Phosphorous Removal Efficiency	Adjusted Phosphorus Removal Efficiency	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
Stormwater Ponds (Level 1)	0	0%	0	0	0	50%	0%	0.00	0.00	0.00
Stormwater Ponds (Level 2)	0	0%	0	0	0	75%	0%	0.00	0.00	0.00
Stormwater Wetlands (Level 1)	0	0%	0	0	0	50%	0%	0.00	0.00	0.00
Stormwater Wetlands (Level 2)	0	0%	0	0	0	75%	0%	0.00	0.00	0.00
Stormwater Filtering Systems (Level 1)	0	0%	0	0	0	60%	0%	0.00	0.00	0.00
Stormwater Filtering Systems (Level 2)	0	0%	0	0	0	65%	0%	0.00	0.00	0.00
Stormwater Infiltration (Level 1)	0	0%	0	0	0	60%	0%	0.00	0.00	0.00
Stormwater Infiltration (Level 2)	0	0%	0	0	0	90%	0%	0.00	0.00	0.00

Total structural CPv provided	0
Management Requirement Met?	**YES**
Volume Remaining (cf)	**0**

Total Load Reduction (lbs P / year)	3.59
Total Load Reduction Remaining (lbs P / yr)	**0.00**

Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

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FEB 05 2025
TOWN OF EASTON

Easton Staff Development Review

Property Information

Address	8275 Ocean Gateway, Easton, MD 21601 (Zaxbys Easton)						
Tax Map	103	Grid	EA	Parcel	2861	Lot	10-13
Deed Refernce:	Liber	3059	Folio	79			
Plat Reference:	Liber	2	Folio	72			
Base Zoning District		GC	Historic District	Y ☐ N ☒	Planning Redevelopment	Y ☐ N ☒	

Purpose of Application / Description of Work:

The proposed project is to revitalize and redevelop the former Wendy's fast-food restaurant site to convert to a Zaxbys fast-food restaurant.

Owner

Name	Delmarva Real Estate Management Group, LLC c/o Curtis S. Snyder, Esq. (Developer)		
Mailing Address	1807 Chancellor Point Road, Trappe, MD 21673		
Telephone No.	443-523-5620	Email	curtis.snyder@delmarvarealestatemanagement.com

Applicant / Agent

Name	Lane Engineering, LLC c/o Brett Ewing, AICP		
Mailing Address	117 Bay Street, Easton, MD 21601		
Telephone No.	410-822-8003	Email	bewing@leinc.com

Surveyor / Engineer

Name	Alec Chosta, P.E.	License No.	51461	Expiration Date	4/4/2026
Mailing Address	Lane Engineering, LLC, 117 Bay Street, Easton, MD 21601				
Telephone No.	410-822-8003	Email	achosta@leinc.com		

Any modifications during review shall warrant an updated application.

I do hereby solemnly declare and affirm that the information provided by this application and the documents attached hereto accurately represent the conditions of the request and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date 2/5/2025

Printed Name of Applicant or Agent Brett Ewing, Lane Engineering, LLC

For Office Use Only

Easton Staff Development Review Meeting Required Y ☒ N ☐

Easton Staff Development Review Meeting Date 02/26/2025 **2025 - 1391 / ESDR 25 - 04**

Completeness Check Date 02/05/2025

Revisions/Resubmissions Required Y ☐ N ☐ TBD

Resubmission Date

Documents Received Y ☐ N ☐

Staff Determination

Scheduled for February 26, 2025 Easton Staff Development Review.

Planning Commission Requir(Y ☐ N ☐ TBD

BOZA Required Y ☐ N ☐ TBD

Historic District Commission Required Y ☐ N ☒

Resubmission for ESDR Required Y ☐ N ☐ TBD

Staff Signature Samantha N. Smith Date 02/05/2025

Revised 02-2019

RECEIVED
FEB 05 2025
TOWN OF EASTON

Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

Site Plan, PUD, Planned Healthcare Application

Application Type

Planned Unit Development ☐ Amendment ☐ Health Care (HC) ☐ Site Plan ☒

Subdivision Information

Name	8275 Ocean Gateway, Easton, MD 21601				
Original Property Size	Acres		Square Feet		
Telephone No.		Email			

Site Plan Information

Property Size	Acres	0.867 AC	Square Feet	37,763 SF	
Structure's Floor Area	3,580 SF		Structure's Square Feet	3,580 SF	
Area of Disturbance	37,763 SF		Number of Dwelling Units	0	

Property Information

Address	8275 Ocean Gateway, Easton, MD 21601 (Zaxbys Easton)						
Tax Map	103	Grid	EA	Parcel	2861	Lot	
Deed Refernce:	Liber	3059	Folio	79			
Plat Reference:	Liber	2	Folio	72			
Base Zoning District		GC	Historic Y ☐ N ☒		Planned Redevelopment Y ☐ N ☒		
Source of Electricity		Easton					

Owner

Name	Delmarva Real Estate Management Group, LLC c/o Curtis S. Snyder, Esq. (Developer)		
Mailing Address	1807 Chancellor Point Road, Trappe, MD 21673		
Telephone No.	443-523-5620	Email	curtis.snyder@delmarvarealestatemanagement.com

Applicant or Agent

Name	Lane Engineering, LLC c/o Brett Ewing, AICP		
Mailing Address	117 Bay Street, Easton, MD 21601		
Telephone No.	410-822-8003	Email	bewing@leinc.com

Surveyor / Engineer

Name	Alec Chosta, P.E.	License No.	51461	Expiration Date	4/4/2026
Mailing Address	Lane Engineering, LLC, 117 Bay Street, Easton, MD 21601				
Telephone No.	410-822-8003	Email	achosta@leinc.com		

Any modifications during review shall warrant an updated application.

I hereby certify that I have reviewed and satisfied the Town of Easton Development Standards and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent 

Date 2/5/2025

Printed Name of Applicant or Agent Brett Ewing, Lane Engineering, LLC

For Office Use Only

Planning Commission Required	Y ☐ N ☐		
Planning Commission Meeting Date	**TBD**		
Sketch Approval Date		Project No.	**ESDR 25-04**
Prelim/Dev. Approval Date		Application No.	**2025-1391**
Final Approval Date		Sketch Fee Paid	
Recordation Date		Develop. Fee Paid	

Revised 02-2019

RECEIVED
FEB 05 2025
TOWN OF EASTON

Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

2025-1391 / W 25 -02

Supplemental Waiver Request Application

Waiver Request Type

Sidewalk ☐	Parking Spaces ☐	Parking/Aisle Dimension ☐
Landscaping & Buffering ☒	Signage ☐	Other ☐

Project Information

Address	8275 Ocean Gateway, Easton, MD 21601						
Tax Map	103	Grid	EA	Parcel	2861	Lot	
Zoning District	GC	PC Meeting Date	3/20/25	Historic District	Yes ☐	No ☒	
Owner or Agent	Delmarva Real Estate Management Group, LLC c/o Curtis Snyder Agent: Lane Engineering, LLC						
Mailing Address	1807 Chancellor Point Road, Trappe, MD 21673						
Telephone No.	443-523-5620	Email	bewing@leinc.com; curtis.snyder@delmarvarealestatemanagement.com				

Request Details

Please attach a detailed description of the waiver request(s) being made and the justification(s) for requesting said waiver(s).

The proposed project is a redevelopment of an existing fast-food restaurant site to establish a new fast-food restaurant (Zaxbys Easton). The site is currently not compliant with the landscaping code. We are adding new landscaping, however, site limitations prevent full compliance with §28-1014.6.E: Overall trees - 26 trees required, 21 provided, requesting waiver of 5 trees; §28-1014.7.E Bufferyard - 6 canopy trees required, 2 provided, waiver of 4 trees; 3 evergreen trees required, 1 provided, waiver of 2 evergreen trees.

☐ Ordinance Section Supporting Waiver Request. §28-1014.6, 1014.7

Any modifications during review shall warrant an updated application.

I do hereby solemnly declare and affirm that the information provided by this application and the documents attached hereto accurately represent the conditions of the request and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date 2/5/2025

Printed Name of Applicant or Agent Brett Ewing, Lane Engineering, LLC

PROTOTYPE


ZAXBYS
PICKUP
DO NOT ENTER


ZAXBYS
PICKUP
SIGNATURE SANDWICH
DO NOT ENTER


ZAXBYS
PICKUP
DRIVE-THRU
CLEARANCE 8'-6"
Welcome!
DO NOT ENTER
DRIVE-THRU


ZAXBYS
FAMOUS FINGERZ & SAUCES
DRIVE-THRU
ZAXBYS

PROJECT DATA

PROPERTY: 8275 OCEAN GATEWAY
EASTON, MD 21601

PREPARED FOR: DELMARVA REAL ESTATE MANAGEMENT GROUP, LLC
C/O CURTIS S. SNYDER, ESQ.
1807 CHANCELLOR POINT ROAD
TRAPPE, MD 21673
(443) 523-5620

ZONING: GC (GENERAL COMMERCIAL)

SITE AREA: 37,763 SF±

PROJECT NOTES

THE IMPROVEMENTS AS SHOWN HEREON ARE BASED UPON DEEDS AND PLATS OF RECORD IN CONJUNCTION WITH COUNTY AERIAL IMAGERY, AND AN AS-BUILT COMPLETED BY CAS BAZIS AND ASSOCIATES ON JUNE 5, 1984.

THE CONTOURS SHOWN HEREON WERE TAKEN FROM TOPOGRAPHY PROVIDED BY TALBOT COUNTY, MARYLAND AND ARE APPROXIMATE ONLY.

THE PROPERTY SHOWN HEREON LIES ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA AS SHOWN ON THE TALBOT COUNTY CRITICAL AREA MAPS IN ACCORDANCE WITH TALBOT COUNTY BILL No. 1295, ENACTED AUGUST 12, 2014.

THE PROPERTY SHOWN HEREON IS NOT LOCATED IN THE NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SPECIAL FLOOD HAZARD AREA (SFHA) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. THE PROPERTY IS MAPPED IN THE "X" FLOOD ZONE AS SHOWN ON THE FEDERAL INSURANCE RATE MAPS FOR COMMUNITY NO. 240067, MAP NO. 24041C0193C FOR THE TOWN OF EASTON, MARYLAND. THE 1% ANNUAL CHANCE FLOOD (100-YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SFHA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. THE SFHA INCLUDE ZONES A, AE, AH, AO, AR, A99, V & VE. THE BASE FLOOD ELEVATION (BFE) IS THE WATER SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD. FLOOD INSURANCE MAY BE REQUIRED FOR STRUCTURES LOCATED IN THE SPECIAL FLOOD HAZARD AREA.

FLOOD ZONE LEGEND
ZONES A, AE, AH, AO, AR, A99, V & VE – 1% ANNUAL CHANCE FLOOD
ZONE X (SHADED) – 0.2% ANNUAL CHANCE FLOOD
ZONE X – AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD

THE FLOOD DATA SHOWN HEREON IS BASED ON AVAILABLE MAPPED AND/OR DIGITAL INFORMATION AND IS DEPICTED AS DIRECTED AND REQUIRED BY FEDERAL, STATE AND LOCAL REGULATIONS. IT IS SUBJECT TO DATA INACCURACIES AND REGULATORY CHANGE AND SHOULD BE VERIFIED PRIOR TO FINALIZING DEVELOPMENT OR IMPROVEMENT PLANS FOR THE SUBJECT LANDS.

EXISTING CONDITIONS: A COMMERCIAL PROPERTY CURRENTLY UTILIZED WITH A FAST-FOOD RESTAURANT (WENDY'S).

PROPOSED DEVELOPMENT: THE PROPOSED PROJECT IS TO REVITALIZE AND REDEVELOP THE EXISTING PARCEL 2861 AS SHOWN HEREON TO ACCOMMODATE A NEW FAST-FOOD RESTAURANT (ZAXBYS)

STORMWATER MANAGEMENT: STORMWATER QUANTITY/QUALITY CONTROL WILL BE ADDRESSED THROUGH ESD FEATURES (PERMEABLE PAVERS) AS REQUIRED AND DETAILED IN THE CONCEPT SWM REPORT INCLUDED WITH THIS SKETCH SITE PLAN. THE PROPERTY IS WITHIN THE TANYARD BRANCH WATERSHED.

LOT COVERAGE: ALL BUILDINGS AND STRUCTURES SHALL NOT EXCEED 50% OF THE LOT AREA.

TOTAL STRUCTURE LOT COVERAGE: 3,580 SF (9.5%)

SPECIAL EXCEPTIONS/VARIANCES: NONE

REFUSE/TRASH: DUMPSTER AREA AND SCREENING AS SHOWN HEREON.

SITE LIGHTING: EXISTING ONSITE. ALL PROPOSED LIGHTING, UNLESS OTHERWISE APPROVED BY THE PLANNING COMMISSION, SHALL BE SHARP CUT-OFF SHIELDED LUMINARIES ON 18' HEIGHT POLES MAX. LIGHT SHALL NOT SHINE OFF-SITE AT LEVELS GREATER THAN 1 FOOT CANDLE.

FOREST CONSERVATION: THE SITE IS UNDER 40,000 SQUARE FEET AND IS THEREFORE EXEMPT.

BUILDING HEIGHT: NOT TO EXCEED 50'

PARKING

EXISTING PARKING: 1 STORY FAST-FOOD RESTAURANT @ 1/100 SF GFA: 3,044 SF/100 = 30 SPACES MINIMUM
1 STORY FAST-FOOD RESTAURANT @ 1/50 SF GFA: 3,044 SF/50 = 61 SPACES MAXIMUM

45 REGULAR PARKING SPACES + 2 ADA ACCESSIBLE PARKING SPACES PROVIDED

PROPOSED PARKING: 1 STORY FAST-FOOD RESTAURANT @ 1/100 SF GFA: 2,005 SF/100 = 20 SPACES MINIMUM
1 STORY FAST-FOOD RESTAURANT @ 1/50 SF GFA: 2,005 SF/50 = 40 SPACES MAXIMUM

TOTAL SPACES PROVIDED: 20 SPACES PROVIDED

BIKE RACKS REQUIRED: FAST-FOOD RESTAURANT – 1 BIKE SPACE/10 VEHICLE SPACES: 2 BIKE SPACES REQUIRED

SITE NOTES

ZONING CLASSIFICATION: CG (GENERAL COMMERCIAL)

SETBACKS:		PROPOSED RESTAURANT (FAST-FOOD)
FRONT-	40'	50'±
SIDE-	10'	58'±
REAR-	15'	89'±

COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE

PRINCIPLE #1- INTEGRATED USES ARE DESIRABLE- THIS PLAN PROPOSES TO REDEVELOP A SITE THAT IS CURRENTLY UTILIZED AS A FAST-FOOD INTO ANOTHER FAST-FOOD RESTAURANT. THIS USE IS ESPECIALLY PREVALENT ALONG THE ROUTE 50 CORRIDOR.

PRINCIPLE #2- NATURAL FEATURES SHOULD DETERMINE DESIGN- THE PROPOSED DEVELOPMENT INTENDS TO MIMIC THE EXISTING BOUNDARIES OF THE PARKING LOT IN ORDER TO AVOID ADDING IMPERVIOUS AREAS AND ALSO INCLUDES THE MITIGATION OF STORMWATER THAT WAS NOT PREVIOUSLY INTEGRATED ON SITE.

PRINCIPLE #3- AUTOMOBILES SHOULD NOT DETERMINE DESIGN- N/A TO DRIVE-THRU RESTAURANT PERMITTED IN THE CG DISTRICT

PRINCIPLE #4- AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN & AROUND NEIGHBORHOODS- N/A

PRINCIPLE #5- ARCHITECTURE SHOULD RESPECT EASTON'S HISTORICAL DEVELOPMENT- THIS APPLICATION PROPOSES ARCHITECTURE IMPROVEMENTS COMPATIBLE WITH EXISTING ROUTE 50 CORRIDOR IMPROVEMENTS.

PRINCIPLE #6- SIGNS SHOULD INFORM BUT NOT DOMINATE- SIGNAGE WILL COMPLY WITH BASE ZONING REQUIREMENTS;

PRINCIPLE #7- NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES- NOT APPLICABLE TO THIS APPLICATION

PRINCIPLE #8 RESIDENTIAL NEIGHBORHOODS SHOULD BE INTERESTING PLACES- NOT APPLICABLE TO THIS APPLICATION

PRINCIPLE #9- NEIGHBORHOODS SHOULD CONNECT- NOT APPLICABLE TO THIS APPLICATION

LANDSCAPE REQUIREMENTS SUMMARY PER ZONING ORDINANCE:

SECTION 1014.6.C.:

STREET TREES @ 1 TREE/70' OF STREET FRONTAGES = NOT APPLICABLE; NONE PROVIDED

SECTION 1014.6.E.:

1. OVERALL TREES: 1 TREE/1500 SQ FT DISTURBED AREA; 37,763 SF SQ FT/1500 = 26 TREES REQUIRED; 21 PROVIDED, WAIVER REQUEST FOR 5 TREES

2.B. INTERIOR PARKING LOT PLANTINGS: NOT APPLICABLE

2.C. PARKING LOT HEDGE: AS SHOWN

2.D.I. BUILDING FAÇADE PLANTINGS: ONE TREE/50' OF APPLICABLE ENTRANCE FAÇADE ALONG US ROUTE NO. 50; FRONTAGE 50'/50

2.D.II. FAÇADE LANDSCAPE BEDS: 25% OF APPLICABLE FAÇADE = LANDSCAPE BEDS PROVIDED

2.E. SERVICE LOADING AREA SCREENING: PROVIDED AS SHOWN

2.F. SHRUB/GROUNDCOVER PLANTINGS: PROVIDED AS SHOWN

SECTION 1014.7.E.:

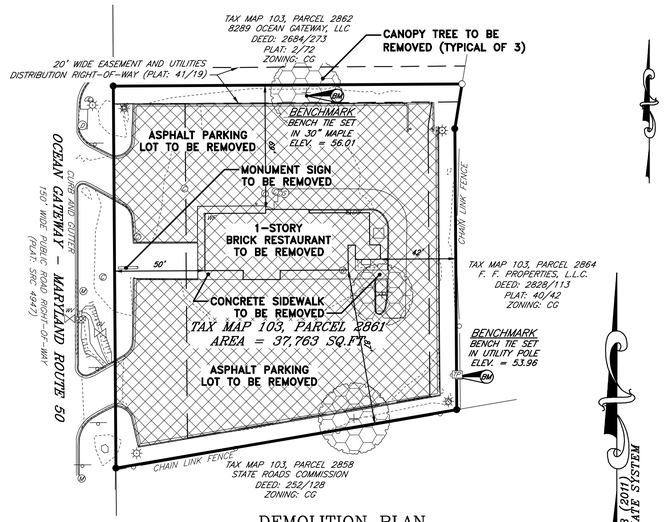
25' WIDE LANDSCAPE BUFFERYARD 'B' (ALONG US ROUTE 50)
214 LF LESS ACCESS ENTRANCES & UTILITY EASEMENT (71 LF)= 143 LF / 50' = 2.86 PLANT UNITS (PU)

2 SHADE/ CANOPY TREES X 2.86 PU = 6 SHADE/ CANOPY TREES REQUIRED; 2 CANOPY TREES PROVIDED, WAIVER REQUEST FOR 4 CANOPY TREES

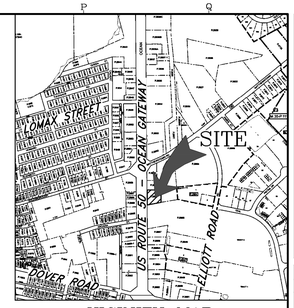
1 EVERGREEN TREES X 2.86 PU = 3 EVERGREEN TREES REQUIRED, 1 EVERGREEN TREE PROVIDED WAIVER REQUEST FOR 2 EVERGREEN TREES

LEGEND

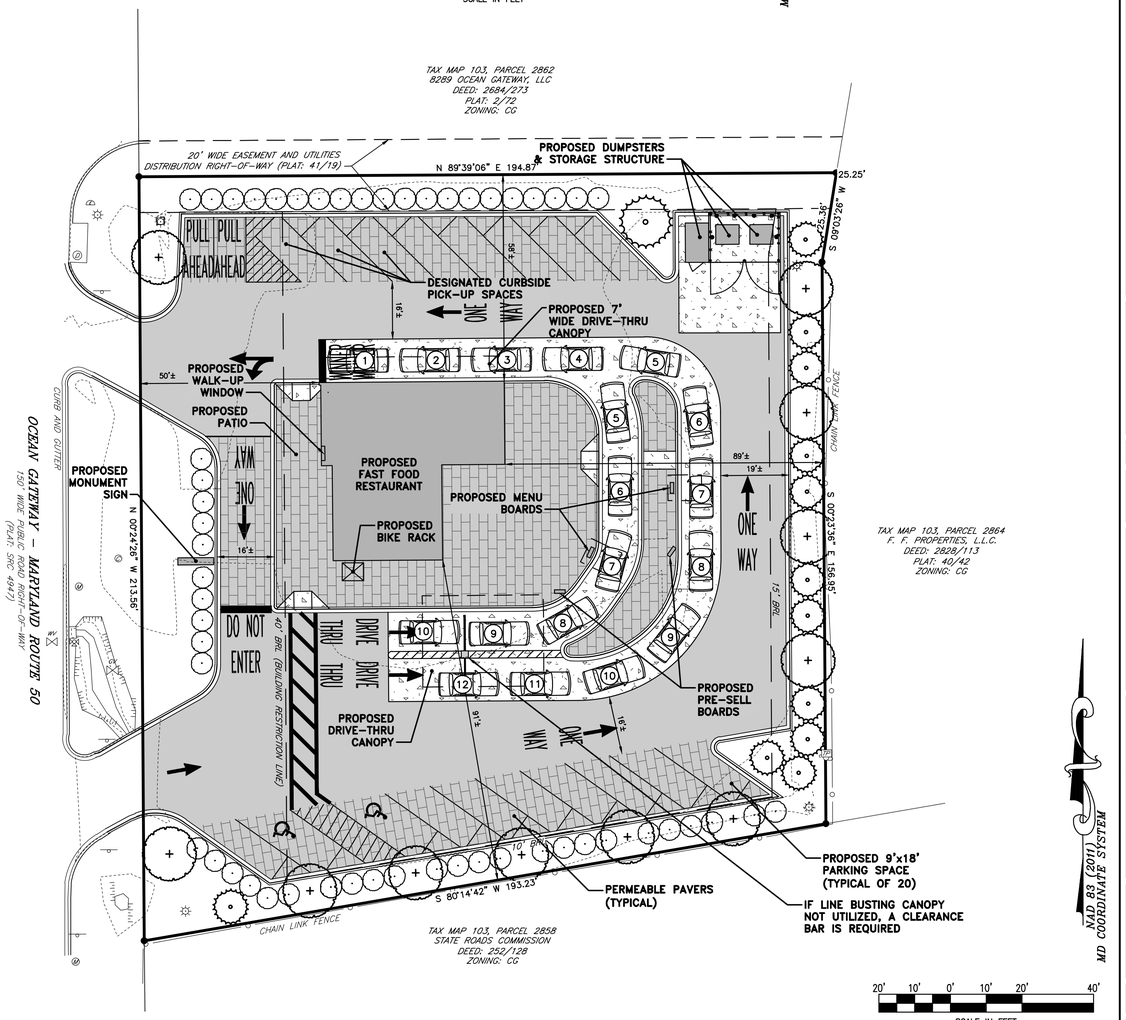
DECIDUOUS TREE
BOLLARD
SINGLE POST SIGN
ELECTRIC HANDHOLE
UTILITY POLE
LAMP POLE
TELEPHONE PEDESTAL
STORM DRAIN MANHOLE
SANITARY SEWER CLEAN OUT
SANITARY SEWER MANHOLE
GAS METER
GAS SHUTOFF VALVE
WATER FAUCET
FIRE HYDRANT
WATER METER
WATER VALVE
COMPUTED POINT
IRON ROD FOUND



DEMOLITION PLAN
SCALE: 1" = 40'
40' 20' 0' 20' 40' 80'
SCALE IN FEET



VICINITY MAP
SCALE: 1" = 1,000'



20' 10' 0' 10' 20' 40'
SCALE IN FEET

SWM QUANTITY SUMMARY CHART

POI	DA (ACRES)	IMPERVIOUS (ACRES)	RCN	Tc (MINUTES)	PRE 2 YEAR	POST 2 YEAR	WSE	PRE 10 YEAR	POST 10 YEAR	WSE	PRE 100 YEAR	POST 100 YEAR	WSE
1	0.22	0.13	--	1.40	1.22	0.94	--	1.98	1.63	--	2.88	2.45	--
2	0.28	0.15	--	1.80	1.28	1.11	--	2.05	1.98	--	2.97	3.02	--
3	0.20	0.09	--	1.90	0.85	0.75	--	1.38	1.35	--	2.02	2.07	--
4	0.17	0.09	--	1.50	0.89	0.68	--	1.45	1.20	--	2.12	1.83	--
				TOTAL	4.24	3.48	--	6.86	6.16	--	9.99	9.37	--

PROJECT IS IN TANYARD BRANCH AND IS UTILIZING STORMWATER REDEVELOPMENT – REFER TO ASSOCIATED STORMWATER REPORT FOR ADDITIONAL DETAILS AND COMPLIANCE NARRATIVE

ESD SUMMARY CHART

DRAINAGE AREA	TYPE OF ESD PRACTICE	TYPE OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN)	ACTUAL PE (IN)	TARGET ESDv (FT³)	ACTUAL ESDv (FT³)
TOTAL SITE	A-2	PERMEABLE PAVERS	ON-SITE	--	405466.9633'	1580403.7119'	0.866	--	0.22	1.0	1.0	401	1,536

REVISIONS TO APPROVED PLANS

No.	DATE	DESCRIPTION	BY

WARNING!!
THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE QUANTITIES SHOWN ON THIS PLAN ARE FOR INFORMATIONAL AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.

THE CONTRACTOR SHALL TEST PIT AND LOCATE EXISTING UNDERGROUND UTILITIES PRIOR TO THE BEGINNING OF ANY WORK ON-SITE. THE CONTRACTOR SHALL NOTIFY DEPT. OF PUBLIC WORKS OF ANY POSSIBLE CONFLICT AND REQUEST THE RELOCATION OF THE EXISTING UNDERGROUND UTILITIES BEFORE BEGINNING ANY WORK ON-SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.

MISS UTILITY
DIG WITH CARE
CALL BEFORE YOU DIG
KNOW WHAT'S BELOW
BEFORE YOU DIG CALL
1-800-441-8355 OR 811
PROTECT YOURSELF, ONE
TWO WORKING DAYS NOTICE

Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E-mail: general@lanei nc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 51461 , Expiration Date: 04/04/2026.

SEAL
STATE OF MARYLAND CHRISTOPHER B. ENGLE 51461 PROFESSIONAL ENGINEER
02-05-25
DATE

SKETCH SITE PLAN

FOR
DELMARVA REAL ESTATE MANAGEMENT GROUP, LLC

IN THE TOWN OF EASTON, WARD 2
TALBOT COUNTY, MARYLAND
TAX MAP 103 GRID 0EA PARCEL 2861

ISSUED/REVISED FOR: DATE: BY:
ESD SUBMITTAL 02/05/25 BCE

SHEET No. 1 OF 1
JOB No. 240547
SCALE: AS NOTED
FILE No. D481

Date: 02/05/2025 - 8:24am User: barnes Project Manager: BCE
Drawing Path: J:\2024\0500\240547\Civil3D-240547\Dwg\Plots\VSK-PLTS-240547.dwg | 1
XREF File(s): RAR-BASE-240547/CSK-BASE-240547/VLD-BASE-240547/VSF-BASE-240547/CBS-BASE-2438-240547/LUP-BASE-240547

Lane Engineering, LLC

STORMWATER MANAGEMENT REPORT

ZAXBY'S RESTAURANT

TOWN OF EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR:

Delmarva Real Estate Management Group, LLC
c/o Curtis Snyder, Esquire
1807 Chancellor Point Road
Easton, Maryland 21629
(443) 523-5620

PREPARED BY:

Alec F. Chosta, P.E.

DATE PREPARED:

February 5, 2025

02/05/2025

PROFESSIONAL CERTIFICATION: I hereby certify that this document was prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. 51461, Expiration Date: 4/04/2026.

LANE ENGINEERING, LLC
117 BAY STREET
EASTON, MARYLAND 21601
410-822-8003

Table of Contents

Appendices

Introduction

This report addresses the impacts of stormwater runoff as a result of the proposed re-development of the former Wendy's site located in Easton, MD. This stormwater management plan incorporates the requirements of the 2000 Maryland Stormwater Design Manual Volumes I and II (Manual) as currently updated. This report addresses stormwater requirements and meets the intent of the guidelines and methodologies presented in the MDE document Environmental Site Design (ESD) Process & Computations dated July 2010.

General Site Information

The project reference is Tax Map 103, Tax Parcel 2861 at 8275 Ocean Gateway with GC (General Commercial) zoning. The property has been previously developed as a franchise restaurant (Wendys) with associated parking & access to US 50. The Limit of Disturbance (LOD) associated with the restaurant re-development is 0.866 acres±. The project site is located entirely outside of the Chesapeake Bay Critical Area. Refer to the Site Improvement Plans for more detailed site information.

Figure 1: Aerial View of Site

Existing Conditions

The project is located north of the existing MDOT SHA District shop on westbound Ocean Gateway (US 50). This site is previously developed with a restaurant, drive through, and parking lot. Most of the site is covered in impervious surface and is already served by utilities.

In general, the property is relatively flat with the existing building in the center of the lot creating a high point to shed water toward the edges of the property. Unmanaged drainage runoff leaves the site in four (4) locations along the curb line bounding the parking lot.

The site is mapped as Urban soils according to USDA soil maps. Urban soils are assumed to act as Hydrologic Group D soils in absence of additional geotechnical evaluations that will be included in the preliminary stormwater report phase.

Proposed Project

The existing access points & improvements within the MDOT SHA Right-of-Way will be retained. All existing onsite improvements will be removed.

A new Zaxby's restaurant & drive-thru will be constructed with 20 parking spaces for interior dining, a reduction from the approximately 45 spaces currently onsite and reflective of current dining trends. Updated landscaping, accessible parking, and utility connections will be provided.

In general, the existing use, function, and operation of the property will remain, but with updated materials and aesthetics for the current market.

Stormwater Management

There are four primary drainage areas within the development area – providing one point of interest (POI) roughly on each corner of the property. Two drain toward the MDOT SHA right of way and two drain toward neighboring properties. No quantitative or qualitative management is currently provided by the existing site.

The property sits within the Tanyard Branch Watershed and is therefore subject to additional quantitative requirements as practicable onsite.

The stormwater management quality and quantity computations and management compliance are based on the overall proposed limits of disturbance (LOD) area, land cover and curve numbers, soil types, runoff characteristics and other parameters as required.

Stormwater Quantity Management

The existing property is dominated by impervious coverage with runoff leaving the site completely unmanaged. Under the baseline quantity controls described by the Manual, any reduction in lot coverage or other form of onsite management would provide an implicit reduction in the total 2- and 10-year runoff from the site.

However, the Town of Easton's Tanyard Branch ordinance, as currently written, requires management of the 10-year post development runoff down to the 2-year predevelopment condition. Under many circumstances this criterion can be met, generally with larger ponding volumes to be retained in micro-scale practices on-site.

In the case of the current project, there is minimal room to construct micro-scale practices without substantial degradation of existing site functionality and vehicular access – to accommodate a micro-bioretention or similar feature would result in further reductions to parking & drive-thru access making the site unviable as a franchise restaurant.

Lacking a deep storm drain system adjacent to the site also limits options for retaining storage using underground practices or other less conventional systems.

The project team & ownership have met with Town Engineering staff prior to this report and the development of concept plans. Based on the constraints of the site, it has been agreed to provide a 10% reduction of runoff for the net project as a quantity management goal that works toward the intent of the Tanyard Branch ordinance but as practicable onsite. Each POI must also be a reduction from current conditions per Town staff for the 2 and 10 year events.

For the purposes of this concept report, the minimum functional conditions of the proposed pavers, as described in MDE's Environmental Site Design Process & Computations guidance, is assumed. Using permeable pavers throughout the project site and assuming a minimum effective reduced curve number (RCN) of 70 for pavers with a 12" stone base, the above goals are met. Additional geotechnical evaluation may indicate these pavers will function with a better RCN if onsite soils are more conducive to infiltration – additional stormwater methodology for quality and quantity may also become viable.

The site was analyzed using HydroCAD software, with the following results:

Study Point	***Peak Runoff (cfs)***					
	2-year		***10-year***		***100-year***	
	Pre	***Post***	***Pre***	***Post***	***Pre***	***Post***
1	1.22	0.94	1.98	1.63	2.88	2.45
2	1.28	1.11	2.05	1.68	2.97	3.02
3	0.85	0.75	1.38	1.35	2.02	2.07
4	0.89	0.68	1.45	1.20	2.12	1.83
Total Runoff Leaving Site	**4.24**	**3.48**	**6.86**	**6.16**	**9.99**	**9.37**
10% Reduction of Ex Runoff	**4.24 x 90% = 3.816**		**6.86 x 90% = 6.174**		**--**	
Goal met?	**3.48 < 3.816 (OK)**		**6.16 < 6.174 (OK)**		**--**	

As seen above, the peak runoff leaving the project site at all study points will be reduced under proposed conditions for the 2 and 10 year storm events. The 10% net reduction of the project runoff is also met. Flow velocities for both study points for all storm events are non-erosive.

Please see Appendices A for quantity management calculations and see Appendix C for drainage area maps.

Stormwater Quality Treatment

Existing onsite coverage is 29,926± sf (79.33%) of a 0.866-acre (37,723± sf) parcel. As such, the project qualifies for stormwater re-development (existing impervious coverage is greater than 40%) whereby half of all existing impervious surface (29,926 ± sf x ½ = 14,962± sf) must either be treated to a P_E of 1.0 inch or removed.

The proposed project, in part to meet the requirements of Tanyard Branch as discussed above, will employ significant alternative surfaces (permeable pavers) which are not considered impervious surfaces by the Manual. The result is a post construction lot coverage of 20,023± sf. Therefore, the proposed development results in a reduction in onsite impervious coverage by 9,903± sf which is deducted from the 14,962± sf impervious surface treatment target. The remaining coverage, 5,059± sf, in conjunction to a P_E of 1.0 inch is used to develop a site target of 401 cf.

The pavers will utilize a 12" stone base that provides 0.16 cf of ESD_v per square foot of pavement. Employing 9,957 sf of pavers throughout the site results in a treatment volume of 1,536 cf. Please see Appendix B for additional information.

The objective of stormwater quality treatment is to provide the target ESDv using Environmental Site Design (ESD) features/practices to the Maximum Extent Practicable (MEP) before utilizing structural stormwater practices from Chapter 3 of the Manual.

ESD Practices Evaluation

Alternative Surfaces

- Green Rooftops – The restaurant project employs a specific architectural aesthetic as part of their corporate brand. A green roof is not readily incorporated into this architecture and would also require significant maintenance in the long term.
- **Permeable Pavements** – Permeable pavements are ideal for redevelopment projects as they both reduce stormwater runoff and do not count towards onsite impervious coverage. Given site constraints and the desire to maximize vehicular use, permeable pavements are ideal for this project.
- Reinforced Turf - Reinforced turf areas are commonly used for emergency equipment access or for areas that receive minimal vehicular use. Not applicable for a site dominated by vehicular use.

Nonstructural practices

- Disconnection of Rooftop Runoff – Not enough onsite greenspace (existing or proposed) to employ this practice to substantial effect.
- Disconnection of Non-Rooftop Runoff – Not enough onsite greenspace (existing or proposed) to employ this practice to substantial effect.
- Sheetflow to Conservation Area – Not applicable; No conservation areas are within or adjacent to the project.

Micro-scale practices

- Rainwater Harvesting – Opportunities for on-site reuse of harvested rainwater are limited. Operations and maintenance, especially during cold-weather periods, is also a concern.
- Submerged Gravel Wetlands – Onsite space is limited for micro-scale practices without reducing the overall functionality & onsite circulation of the project.
- Landscape Infiltration – There is potential for a form of infiltration-based practices, however, soil maps show onsite conditions as urban. Additional soil investigation may present an opportunity to implement this practice in the preliminary design phase of this project, if in-situ conditions support it.
- Infiltration Berms – The requirements of the proposed development do not leave enough room for the implementation of this practice.
- Dry Wells – This could be a viable practice, contingent upon additional geotechnical investigations.
- Micro-Bioretention – Onsite space is limited for micro-scale practices without reducing the overall functionality & onsite circulation of the project.
- Rain Gardens – This practice is better suited for residential environments.
- Swales – swales do not fit within the constraints of the site.

Permeable Pavers (A-2) are proposed to address the ESDv requirement. The total ESDv provided by these practices is 1,536 cf, which is greater than the 401 cf required. Therefore, ESD has been achieved to the MEP. Refer to Appendix B for calculations.

Conclusion

This stormwater management analysis indicates that the proposed design will successfully meet stormwater quality and quantity requirements. It is respectfully requested that the stormwater analysis and report and project design be approved as presented.

APPENDIX A

HYDROCAD QUANTITY MANAGEMENT ANALYSIS

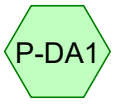
Ex. NE Area to POI-1

Ex. SE Area to POI-2

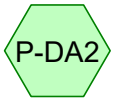
Ex. NW Area to POI-3
(Rt.50)

Ex. SW Area to POI-4
(Rt.50)

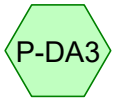
PRE-DEVELOPMENT CONDITIONS



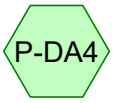
Prop. NE Area to POI-1



Prop. SE Area to POI-2

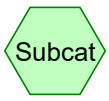


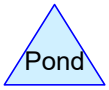
Prop. NW Area to POI-3
(Rt.50)



Prop. SW Area to POI-4
(Rt.50)

POST-DEVELOPMENT CONDITIONS





Routing Diagram for 240547-Zaxbys Easton
Prepared by Lane Engineering, LLC, Printed 2/5/2025

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.366	80	>75% Grass cover, Good, HSG D (EX1, EX2, EX3, EX4, P-DA1, P-DA2, P-DA3, P-DA4)
0.219	98	Aspahlt & Roof, HSG D (EX2)
0.194	98	Asphalt & Roof, HSG D (EX1)
0.734	98	Paved parking, HSG D (EX3, EX4, P-DA1, P-DA2, P-DA3, P-DA4)
0.220	70	Perm. Pavers (P-DA1, P-DA2, P-DA3, P-DA4)
1.733	**91**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.513	HSG D	EX1, EX2, EX3, EX4, P-DA1, P-DA2, P-DA3, P-DA4
0.220	Other	P-DA1, P-DA2, P-DA3, P-DA4
1.733		**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
0.000	0.000	0.000	0.366	0.000	0.366	>75% Grass cover, Good	EX1, EX2, EX3, EX4, P-DA1, P-DA2, P-DA3, P-DA4
0.000	0.000	0.000	0.219	0.000	0.219	Aspahlt & Roof	EX2
0.000	0.000	0.000	0.194	0.000	0.194	Asphalt & Roof	EX1
0.000	0.000	0.000	0.734	0.000	0.734	Paved parking	EX3, EX4, P-DA1, P-DA2, P-DA3, P-DA4
0.000	0.000	0.000	0.000	0.220	0.220	Perm. Pavers	P-DA1, P-DA2, P-DA3, P-DA4
0.000	**0.000**	**0.000**	**1.513**	**0.220**	**1.733**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX1: Ex. NE Area to POI-1 Runoff Area=10,733 sf 78.64% Impervious Runoff Depth>2.74"
Flow Length=112' Slope=0.0160 '/' Tc=1.4 min CN=94 Runoff=1.22 cfs 0.056 af

Subcatchment EX2: Ex. SE Area to POI-2 Runoff Area=11,314 sf 84.36% Impervious Runoff Depth>2.84"
Flow Length=165' Tc=1.8 min CN=95 Runoff=1.28 cfs 0.061 af

Subcatchment EX3: Ex. NW Area to POI-3 Runoff Area=7,763 sf 75.82% Impervious Runoff Depth>2.74"
Flow Length=139' Tc=1.9 min CN=94 Runoff=0.85 cfs 0.041 af

Subcatchment EX4: Ex. SW Area to POI-4 Runoff Area=7,934 sf 76.53% Impervious Runoff Depth>2.74"
Flow Length=114' Slope=0.0151 '/' Tc=1.5 min CN=94 Runoff=0.89 cfs 0.042 af

Subcatchment P-DA1: Prop. NE Area to Runoff Area=9,498 sf 58.25% Impervious Runoff Depth>2.26"
Tc=1.4 min CN=89 Runoff=0.94 cfs 0.041 af

Subcatchment P-DA2: Prop. SE Area to Runoff Area=12,329 sf 54.53% Impervious Runoff Depth>2.09"
Tc=1.8 min CN=87 Runoff=1.11 cfs 0.049 af

Subcatchment P-DA3: Prop. NW Area to Runoff Area=8,617 sf 47.30% Impervious Runoff Depth>2.01"
Tc=1.9 min CN=86 Runoff=0.75 cfs 0.033 af

Subcatchment P-DA4: Prop. SW Area to Runoff Area=7,300 sf 50.74% Impervious Runoff Depth>2.09"
Tc=1.5 min CN=87 Runoff=0.68 cfs 0.029 af

Total Runoff Area = 1.733 ac Runoff Volume = 0.353 af Average Runoff Depth = 2.44"
33.79% Pervious = 0.586 ac 66.21% Impervious = 1.147 ac

Summary for Subcatchment EX1: Ex. NE Area to POI-1

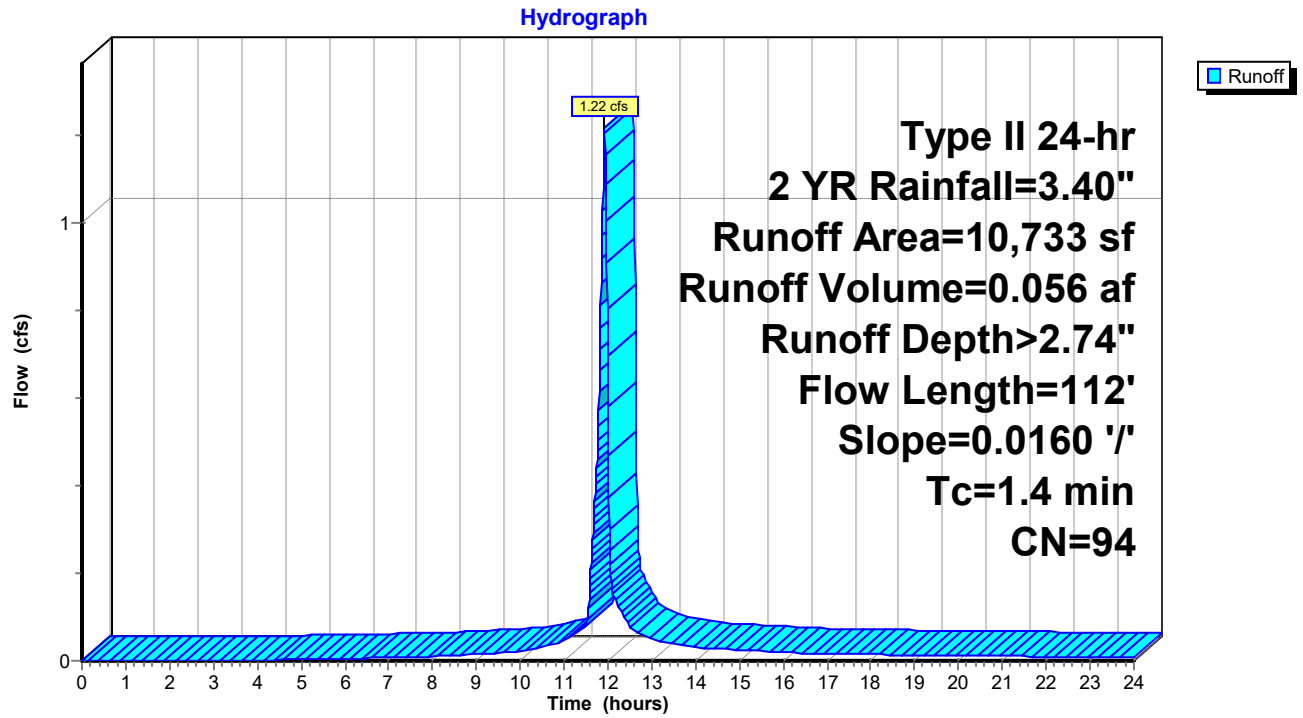
Runoff = 1.22 cfs @ 11.92 hrs, Volume= 0.056 af, Depth> 2.74"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2 YR Rainfall=3.40"

	Area (sf)	CN	Description
	2,293	80	>75% Grass cover, Good, HSG D
*	8,440	98	Asphalt & Roof, HSG D
	10,733	94	Weighted Average
	2,293		21.36% Pervious Area
	8,440		78.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	112	0.0160	1.33		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment EX1: Ex. NE Area to POI-1



Summary for Subcatchment EX2: Ex. SE Area to POI-2

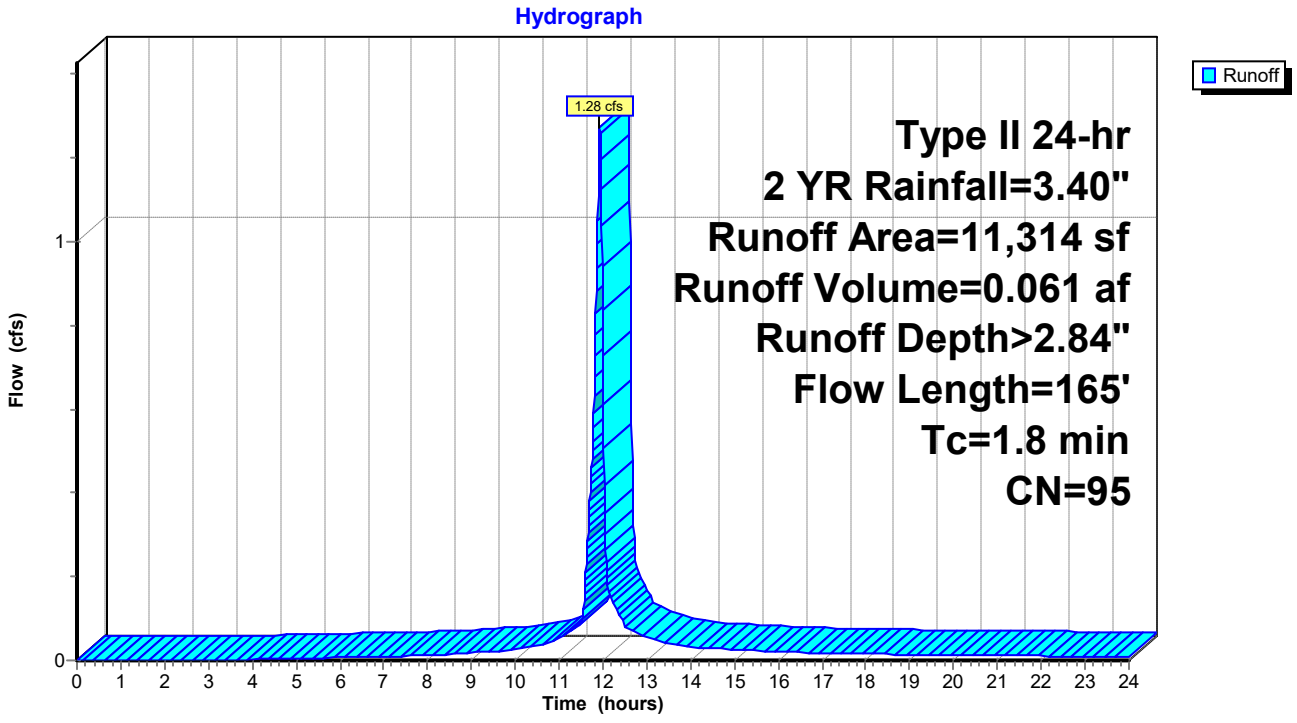
Runoff = 1.28 cfs @ 11.93 hrs, Volume= 0.061 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2 YR Rainfall=3.40"

	Area (sf)	CN	Description
	1,770	80	>75% Grass cover, Good, HSG D
*	9,544	98	Aspahlt & Roof, HSG D
	11,314	95	Weighted Average
	1,770		15.64% Pervious Area
	9,544		84.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	89	0.0146	1.22		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"
0.6	76	0.0107	2.10		**Shallow Concentrated Flow, Curb Line** Paved Kv= 20.3 fps
1.8	165	Total			

Subcatchment EX2: Ex. SE Area to POI-2



Summary for Subcatchment EX3: Ex. NW Area to POI-3 (Rt.50)

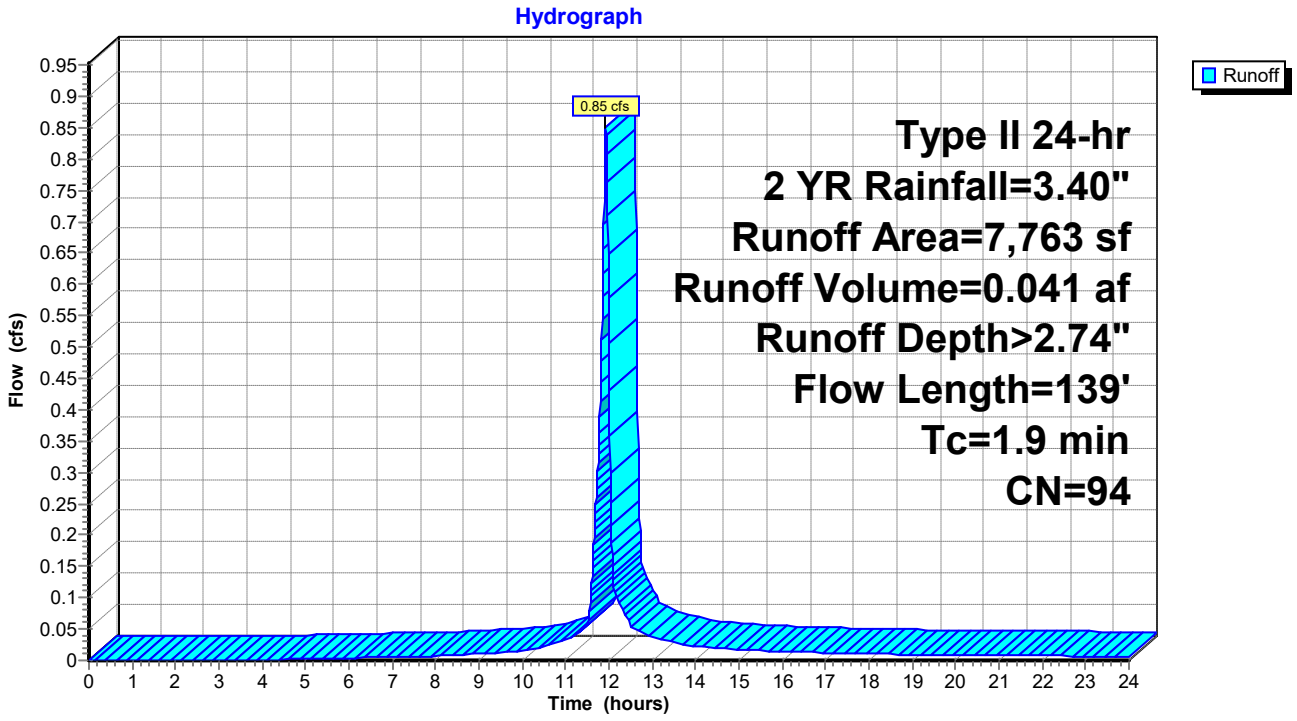
Runoff = 0.85 cfs @ 11.93 hrs, Volume= 0.041 af, Depth> 2.74"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2 YR Rainfall=3.40"

Area (sf)	CN	Description
5,886	98	Paved parking, HSG D
1,877	80	>75% Grass cover, Good, HSG D
7,763	94	Weighted Average
1,877		24.18% Pervious Area
5,886		75.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	116	0.0108	1.14		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"
0.2	23	0.0098	2.01		**Shallow Concentrated Flow, Curb Line** Paved Kv= 20.3 fps
1.9	139	Total			

Subcatchment EX3: Ex. NW Area to POI-3 (Rt.50)



Summary for Subcatchment EX4: Ex. SW Area to POI-4 (Rt.50)

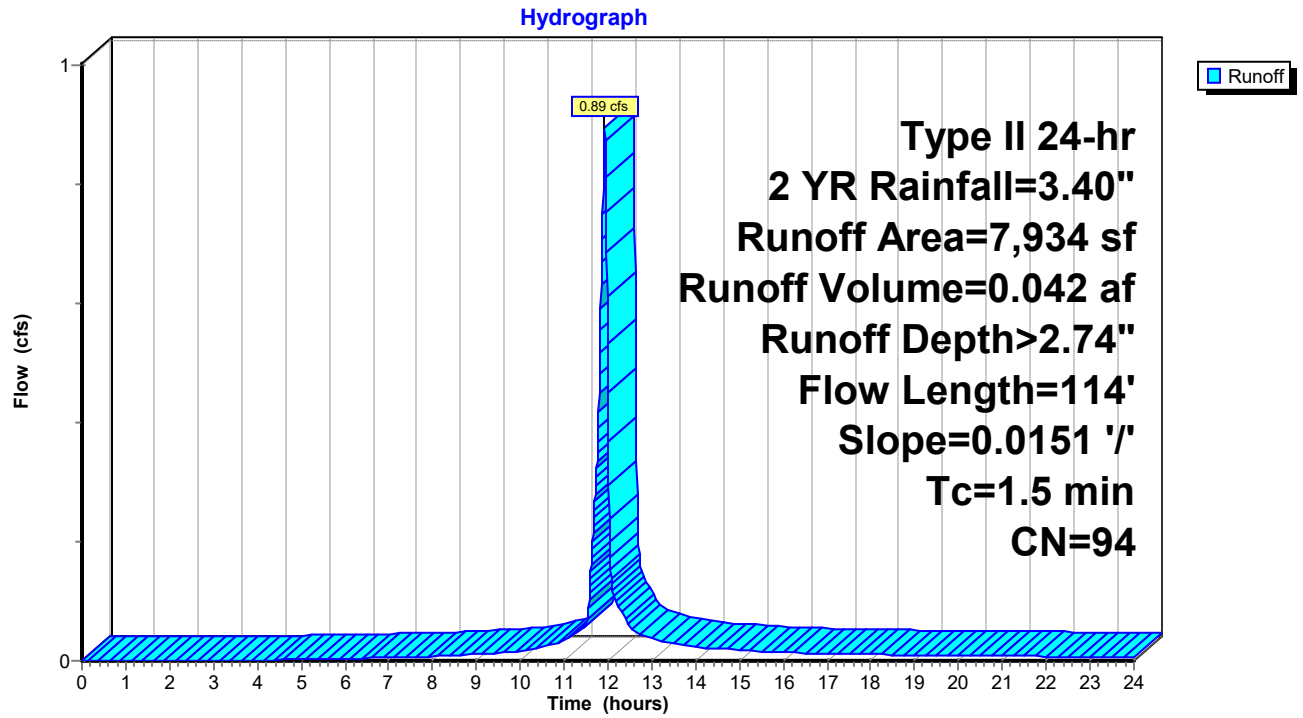
Runoff = 0.89 cfs @ 11.92 hrs, Volume= 0.042 af, Depth> 2.74"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2 YR Rainfall=3.40"

Area (sf)	CN	Description
6,072	98	Paved parking, HSG D
1,862	80	>75% Grass cover, Good, HSG D
7,934	94	Weighted Average
1,862		23.47% Pervious Area
6,072		76.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	114	0.0151	1.30		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment EX4: Ex. SW Area to POI-4 (Rt.50)



Summary for Subcatchment P-DA1: Prop. NE Area to POI-1

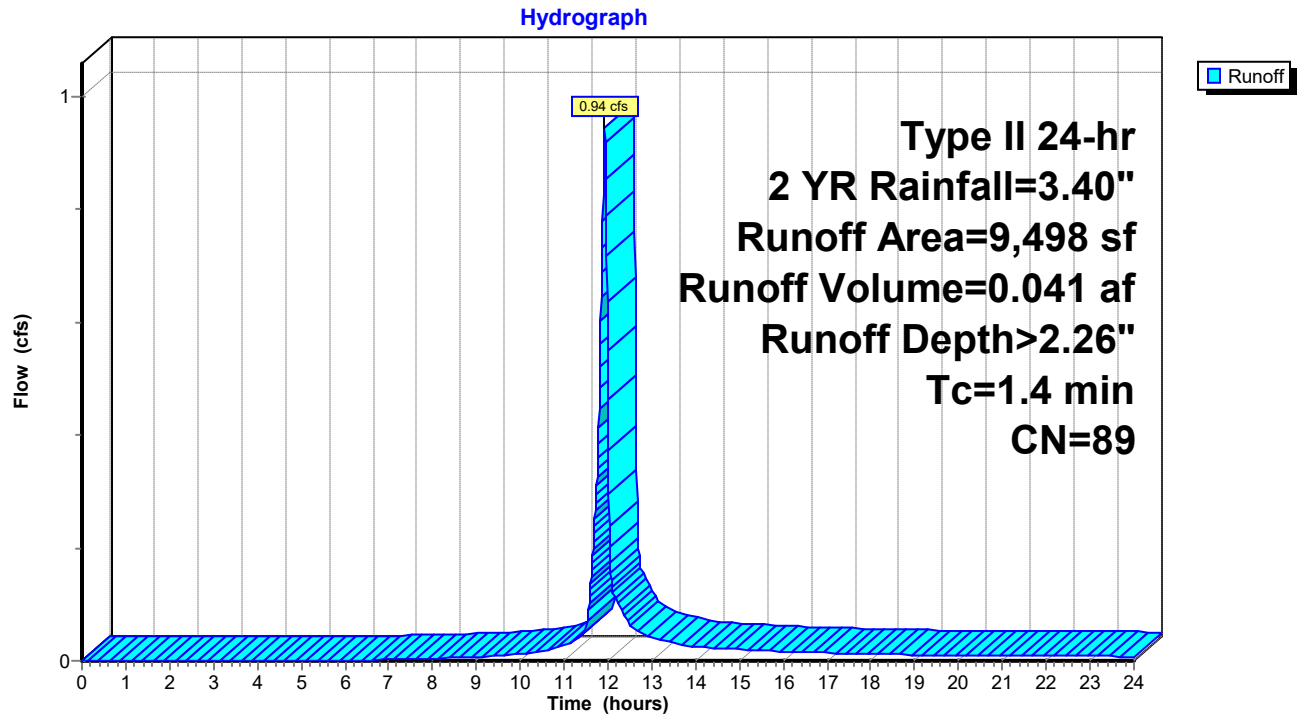
Runoff = 0.94 cfs @ 11.92 hrs, Volume= 0.041 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2 YR Rainfall=3.40"

	Area (sf)	CN	Description
	2,151	80	>75% Grass cover, Good, HSG D
	5,533	98	Paved parking, HSG D
*	1,814	70	Perm. Pavers
	9,498	89	Weighted Average
	3,965		41.75% Pervious Area
	5,533		58.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4					**Direct Entry, Matches Ex TC**

Subcatchment P-DA1: Prop. NE Area to POI-1



Summary for Subcatchment P-DA2: Prop. SE Area to POI-2

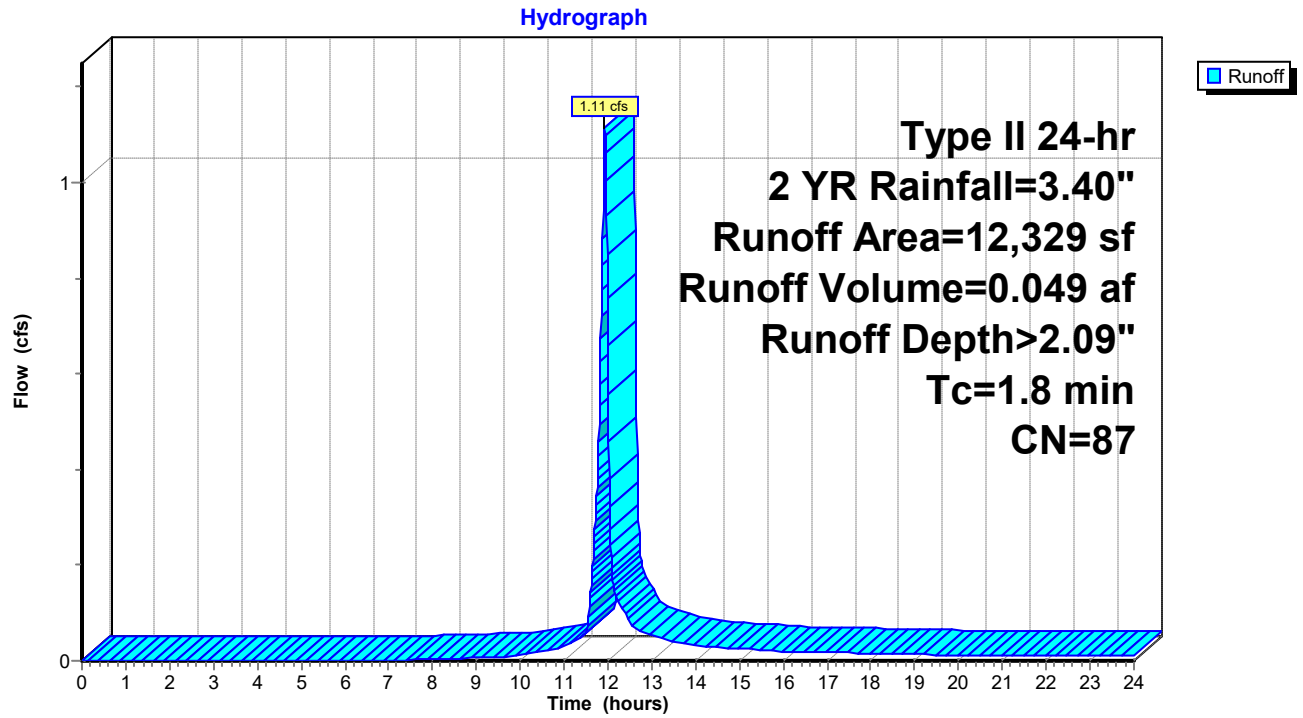
Runoff = 1.11 cfs @ 11.93 hrs, Volume= 0.049 af, Depth> 2.09"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2 YR Rainfall=3.40"

	Area (sf)	CN	Description
	1,892	80	>75% Grass cover, Good, HSG D
*	6,723	98	Paved parking, HSG D
*	3,714	70	Perm. Pavers
	12,329	87	Weighted Average
	5,606		45.47% Pervious Area
	6,723		54.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8					**Direct Entry, Matches Ex TC**

Subcatchment P-DA2: Prop. SE Area to POI-2



Summary for Subcatchment P-DA3: Prop. NW Area to POI-3 (Rt.50)

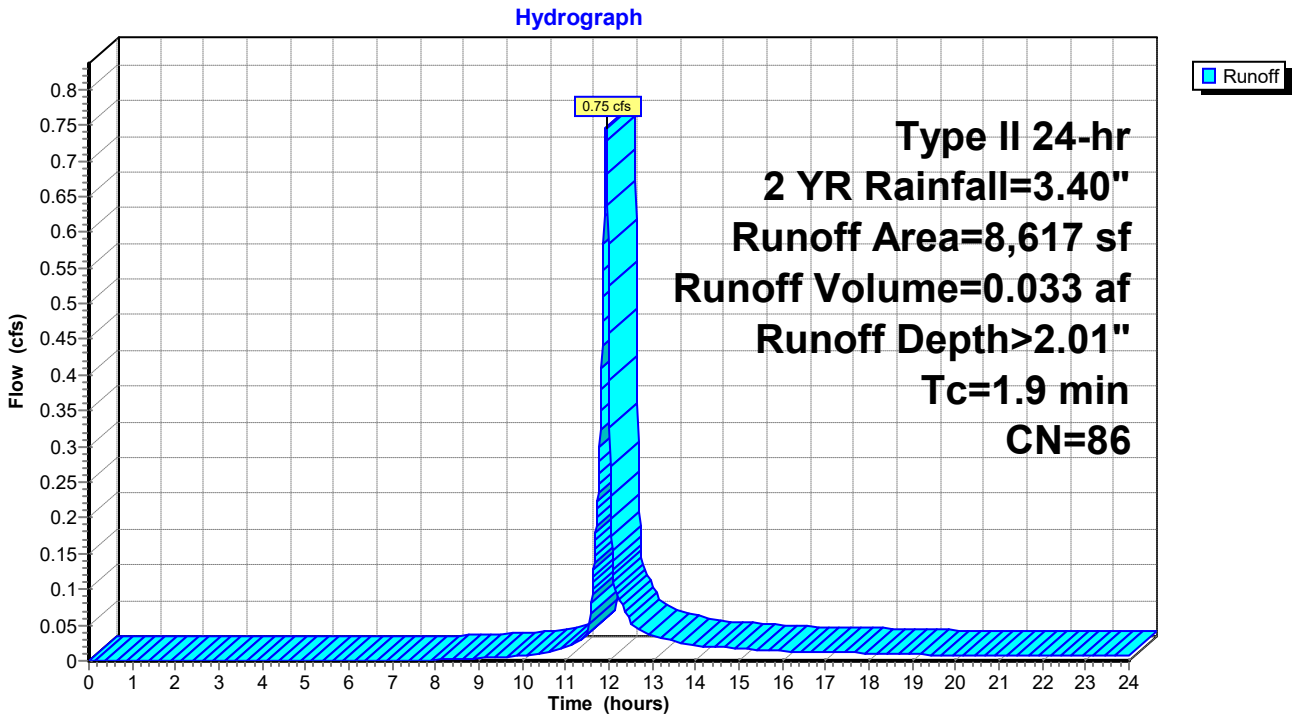
Runoff = 0.75 cfs @ 11.93 hrs, Volume= 0.033 af, Depth> 2.01"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2 YR Rainfall=3.40"

	Area (sf)	CN	Description
	1,976	80	>75% Grass cover, Good, HSG D
	4,076	98	Paved parking, HSG D
*	2,565	70	Perm. Pavers
	8,617	86	Weighted Average
	4,541		52.70% Pervious Area
	4,076		47.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9					**Direct Entry, Matches Ex TC**

Subcatchment P-DA3: Prop. NW Area to POI-3 (Rt.50)



Summary for Subcatchment P-DA4: Prop. SW Area to POI-4 (Rt.50)

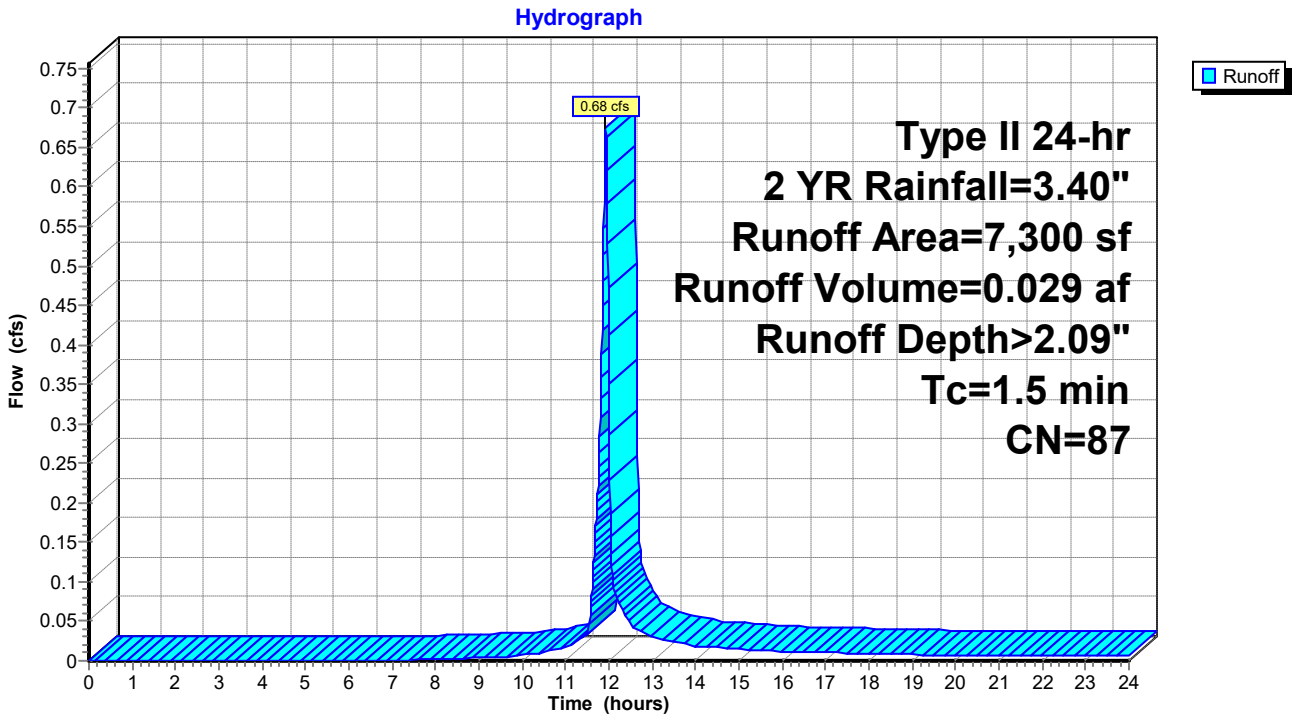
Runoff = 0.68 cfs @ 11.92 hrs, Volume= 0.029 af, Depth> 2.09"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2 YR Rainfall=3.40"

	Area (sf)	CN	Description
	2,101	80	>75% Grass cover, Good, HSG D
	3,704	98	Paved parking, HSG D
*	1,495	70	Perm. Pavers
	7,300	87	Weighted Average
	3,596		49.26% Pervious Area
	3,704		50.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry, Matches Ex TC**

Subcatchment P-DA4: Prop. SW Area to POI-4 (Rt.50)



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX1: Ex. NE Area to POI-1 Runoff Area=10,733 sf 78.64% Impervious Runoff Depth>4.60"
Flow Length=112' Slope=0.0160 '/' Tc=1.4 min CN=94 Runoff=1.98 cfs 0.095 af

Subcatchment EX2: Ex. SE Area to POI-2 Runoff Area=11,314 sf 84.36% Impervious Runoff Depth>4.71"
Flow Length=165' Tc=1.8 min CN=95 Runoff=2.05 cfs 0.102 af

Subcatchment EX3: Ex. NW Area to POI-3 Runoff Area=7,763 sf 75.82% Impervious Runoff Depth>4.60"
Flow Length=139' Tc=1.9 min CN=94 Runoff=1.38 cfs 0.068 af

Subcatchment EX4: Ex. SW Area to POI-4 Runoff Area=7,934 sf 76.53% Impervious Runoff Depth>4.60"
Flow Length=114' Slope=0.0151 '/' Tc=1.5 min CN=94 Runoff=1.45 cfs 0.070 af

Subcatchment P-DA1: Prop. NE Area to Runoff Area=9,498 sf 58.25% Impervious Runoff Depth>4.06"
Tc=1.4 min CN=89 Runoff=1.63 cfs 0.074 af

Subcatchment P-DA2: Prop. SE Area to Runoff Area=12,329 sf 54.53% Impervious Runoff Depth>3.85"
Tc=1.8 min CN=87 Runoff=1.98 cfs 0.091 af

Subcatchment P-DA3: Prop. NW Area to Runoff Area=8,617 sf 47.30% Impervious Runoff Depth>3.75"
Tc=1.9 min CN=86 Runoff=1.35 cfs 0.062 af

Subcatchment P-DA4: Prop. SW Area to Runoff Area=7,300 sf 50.74% Impervious Runoff Depth>3.85"
Tc=1.5 min CN=87 Runoff=1.20 cfs 0.054 af

Total Runoff Area = 1.733 ac Runoff Volume = 0.615 af Average Runoff Depth = 4.26"
33.79% Pervious = 0.586 ac 66.21% Impervious = 1.147 ac

Summary for Subcatchment EX1: Ex. NE Area to POI-1

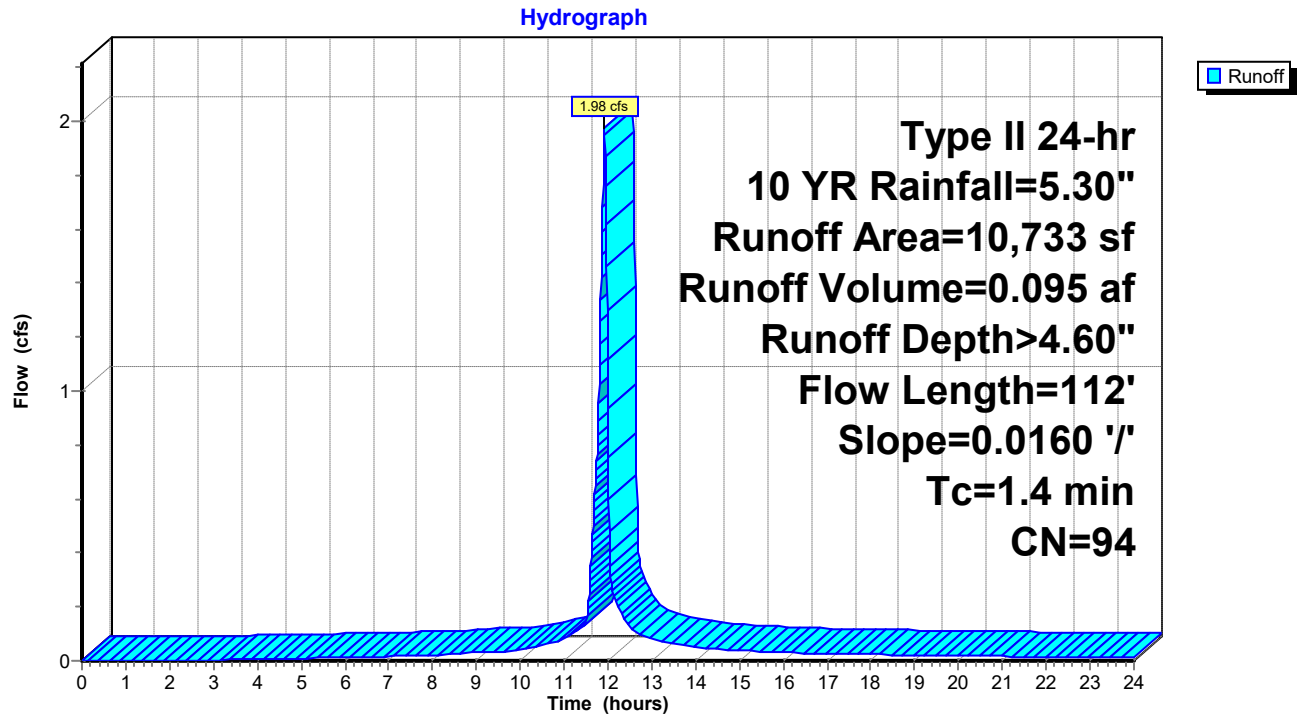
Runoff = 1.98 cfs @ 11.92 hrs, Volume= 0.095 af, Depth> 4.60"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=5.30"

	Area (sf)	CN	Description
	2,293	80	>75% Grass cover, Good, HSG D
*	8,440	98	Asphalt & Roof, HSG D
	10,733	94	Weighted Average
	2,293		21.36% Pervious Area
	8,440		78.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	112	0.0160	1.33		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment EX1: Ex. NE Area to POI-1



Summary for Subcatchment EX2: Ex. SE Area to POI-2

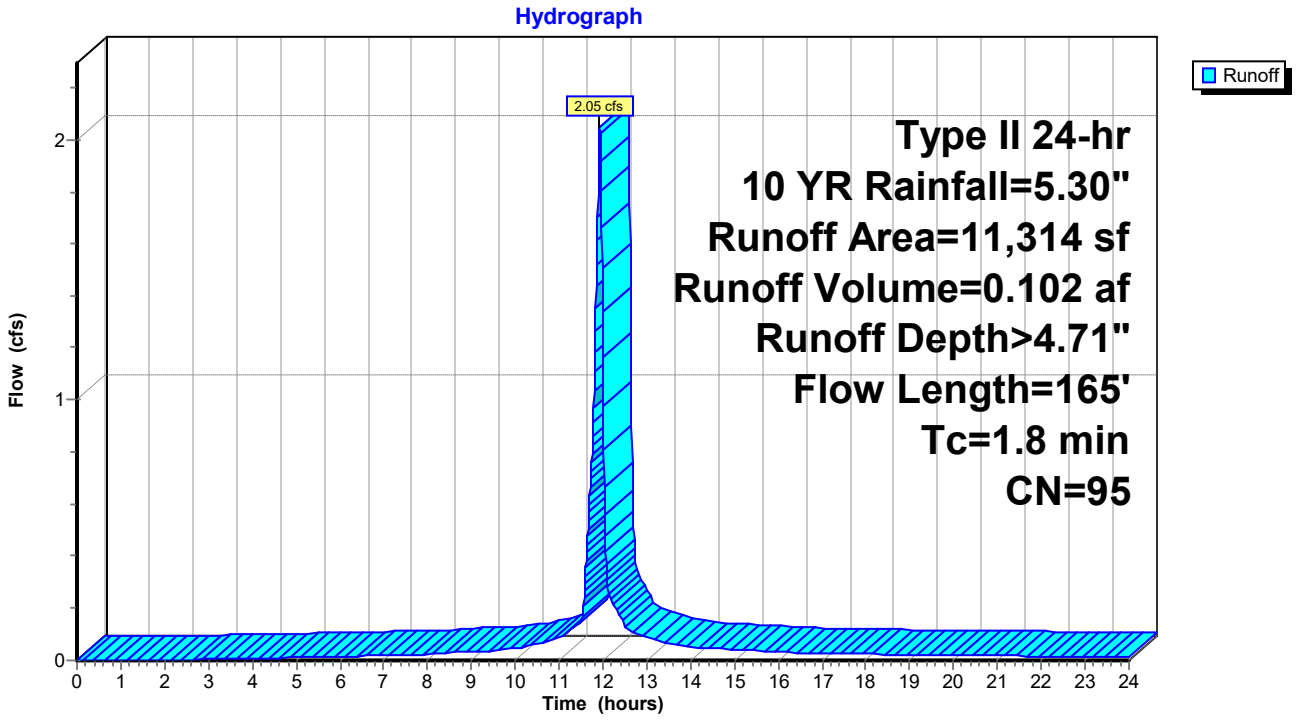
Runoff = 2.05 cfs @ 11.93 hrs, Volume= 0.102 af, Depth> 4.71"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=5.30"

	Area (sf)	CN	Description
	1,770	80	>75% Grass cover, Good, HSG D
*	9,544	98	Aspahlt & Roof, HSG D
	11,314	95	Weighted Average
	1,770		15.64% Pervious Area
	9,544		84.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	89	0.0146	1.22		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"
0.6	76	0.0107	2.10		**Shallow Concentrated Flow, Curb Line** Paved Kv= 20.3 fps
1.8	165	Total			

Subcatchment EX2: Ex. SE Area to POI-2



Summary for Subcatchment EX3: Ex. NW Area to POI-3 (Rt.50)

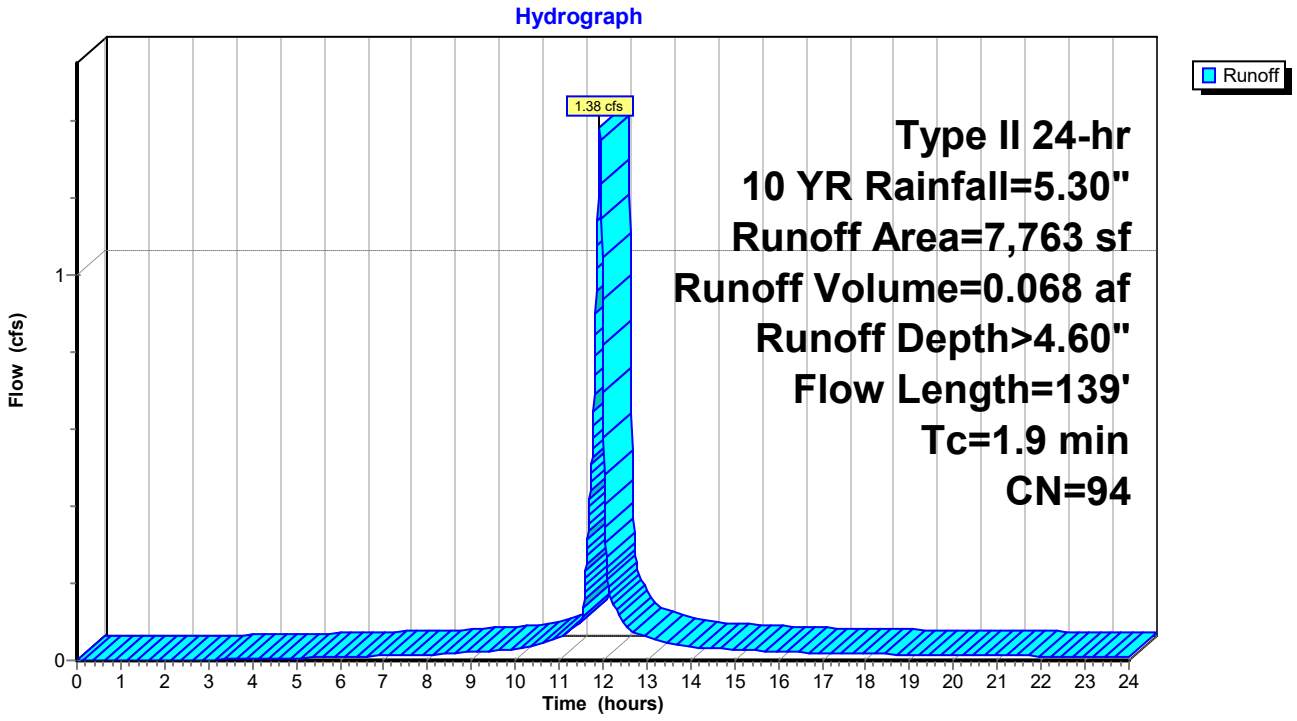
Runoff = 1.38 cfs @ 11.93 hrs, Volume= 0.068 af, Depth> 4.60"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=5.30"

Area (sf)	CN	Description
5,886	98	Paved parking, HSG D
1,877	80	>75% Grass cover, Good, HSG D
7,763	94	Weighted Average
1,877		24.18% Pervious Area
5,886		75.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	116	0.0108	1.14		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"
0.2	23	0.0098	2.01		**Shallow Concentrated Flow, Curb Line** Paved Kv= 20.3 fps
1.9	139	Total			

Subcatchment EX3: Ex. NW Area to POI-3 (Rt.50)



Summary for Subcatchment EX4: Ex. SW Area to POI-4 (Rt.50)

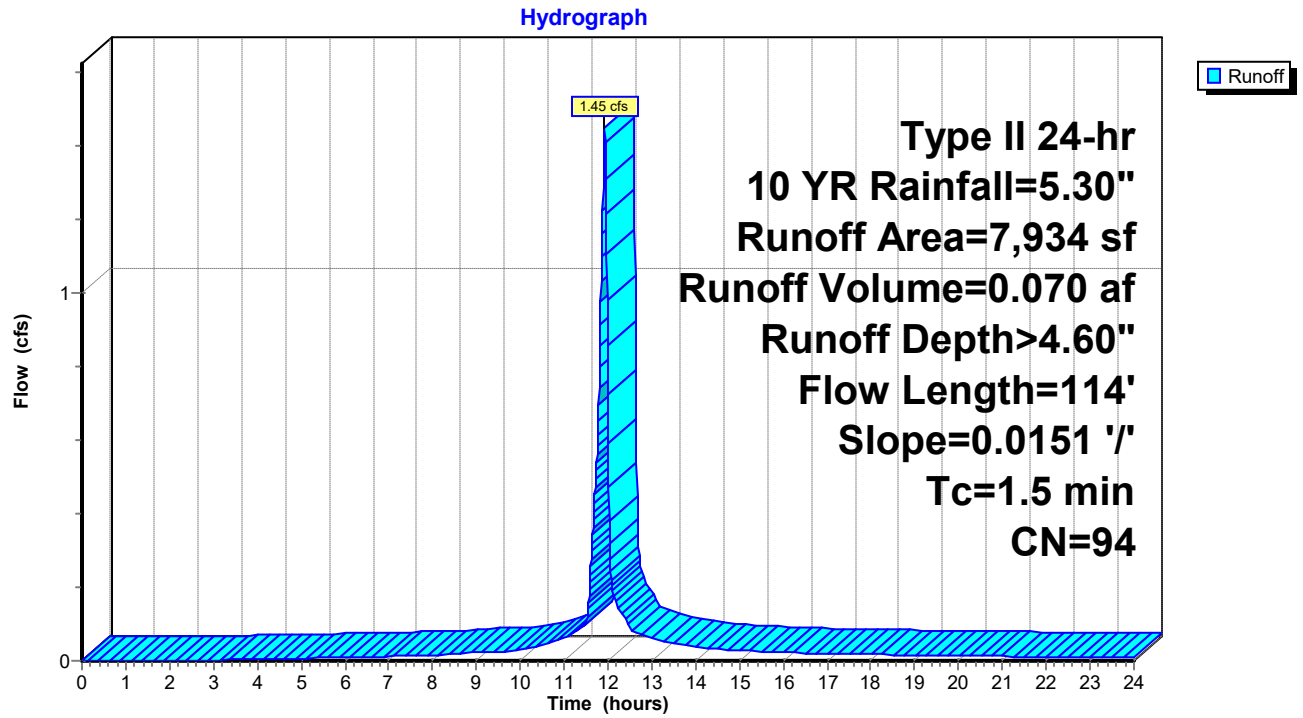
Runoff = 1.45 cfs @ 11.92 hrs, Volume= 0.070 af, Depth> 4.60"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=5.30"

Area (sf)	CN	Description
6,072	98	Paved parking, HSG D
1,862	80	>75% Grass cover, Good, HSG D
7,934	94	Weighted Average
1,862		23.47% Pervious Area
6,072		76.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	114	0.0151	1.30		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment EX4: Ex. SW Area to POI-4 (Rt.50)



Summary for Subcatchment P-DA1: Prop. NE Area to POI-1

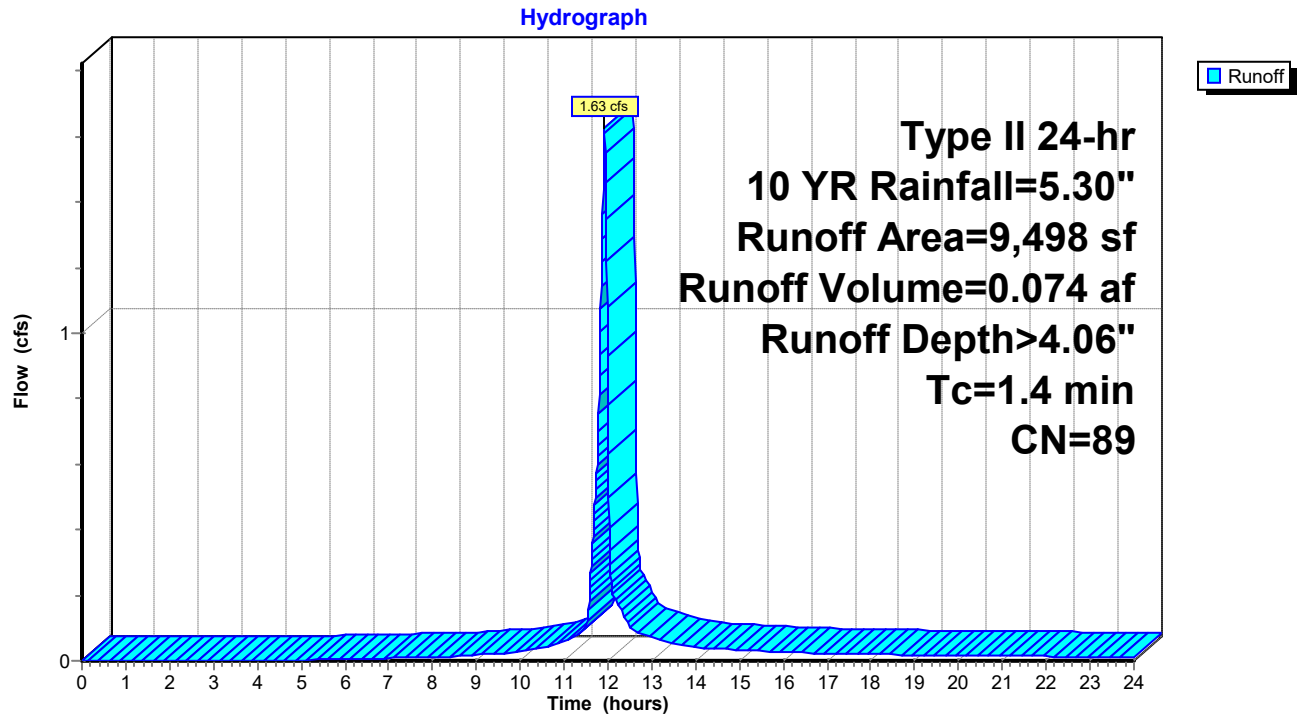
Runoff = 1.63 cfs @ 11.92 hrs, Volume= 0.074 af, Depth> 4.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=5.30"

	Area (sf)	CN	Description
	2,151	80	>75% Grass cover, Good, HSG D
	5,533	98	Paved parking, HSG D
*	1,814	70	Perm. Pavers
	9,498	89	Weighted Average
	3,965		41.75% Pervious Area
	5,533		58.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4					**Direct Entry, Matches Ex TC**

Subcatchment P-DA1: Prop. NE Area to POI-1



Summary for Subcatchment P-DA2: Prop. SE Area to POI-2

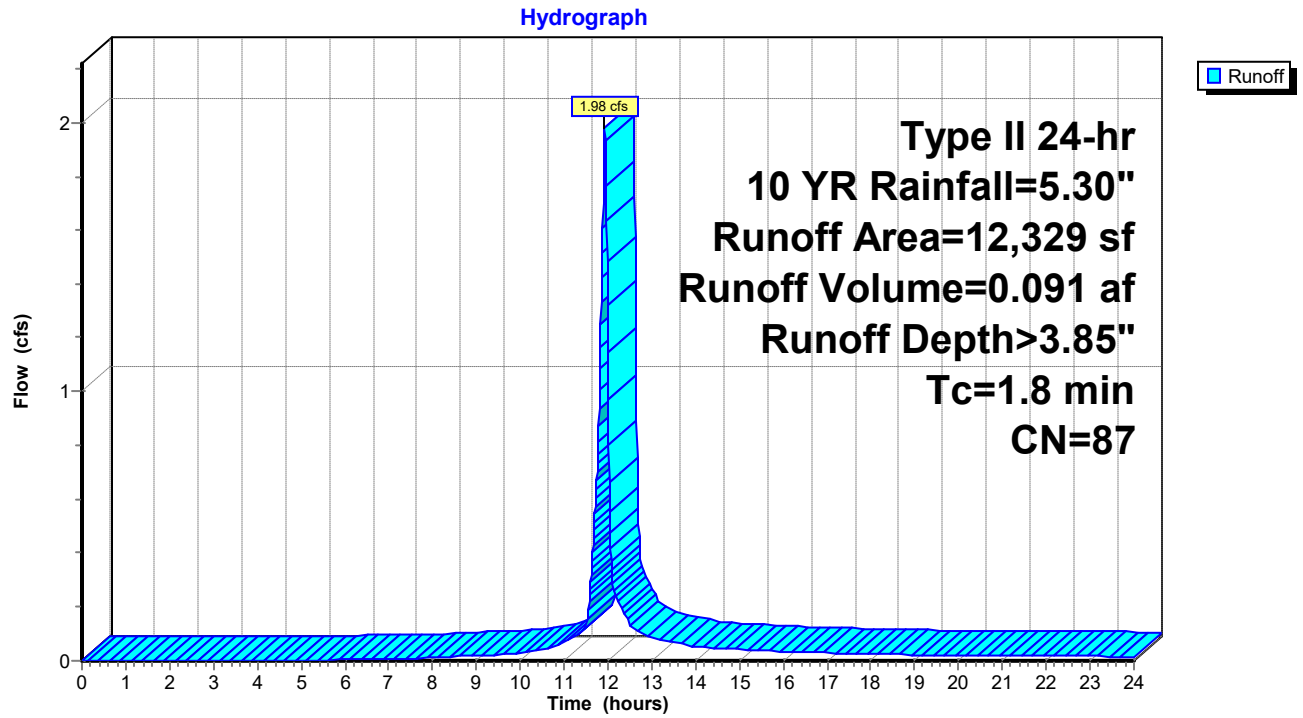
Runoff = 1.98 cfs @ 11.93 hrs, Volume= 0.091 af, Depth> 3.85"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=5.30"

	Area (sf)	CN	Description
	1,892	80	>75% Grass cover, Good, HSG D
*	6,723	98	Paved parking, HSG D
*	3,714	70	Perm. Pavers
	12,329	87	Weighted Average
	5,606		45.47% Pervious Area
	6,723		54.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8					**Direct Entry, Matches Ex TC**

Subcatchment P-DA2: Prop. SE Area to POI-2



Summary for Subcatchment P-DA3: Prop. NW Area to POI-3 (Rt.50)

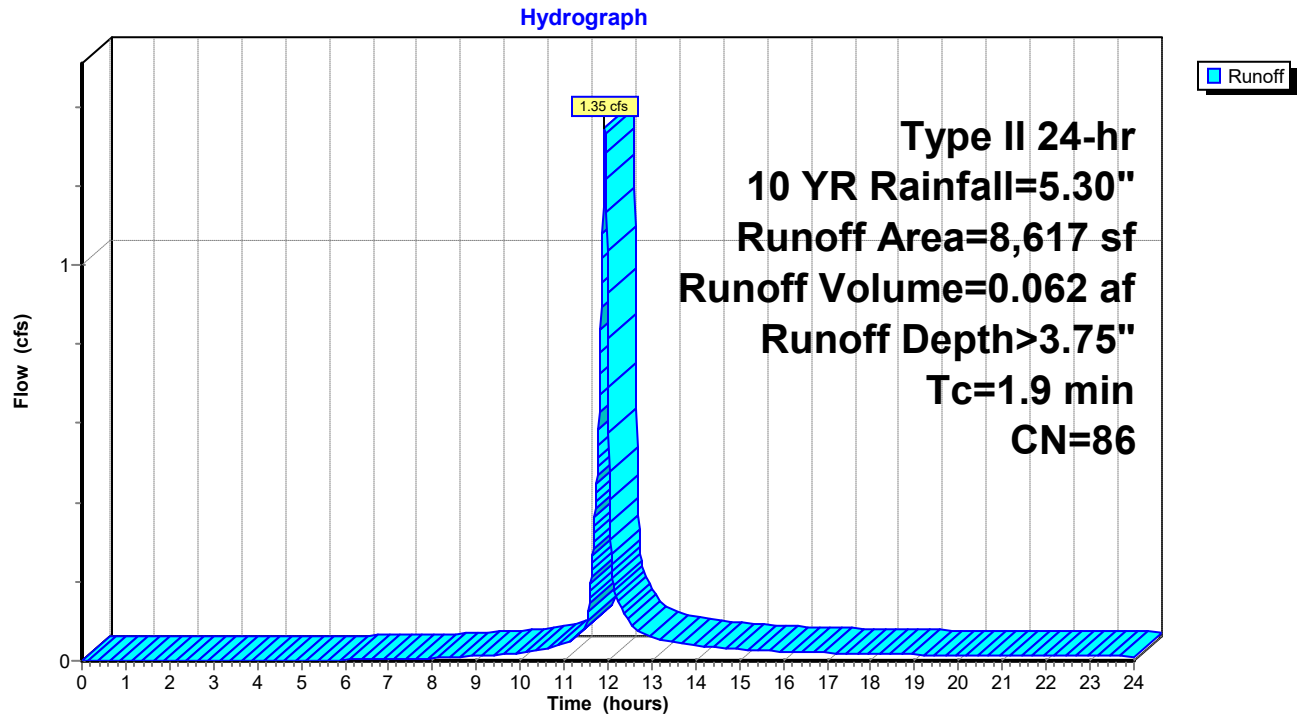
Runoff = 1.35 cfs @ 11.93 hrs, Volume= 0.062 af, Depth> 3.75"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=5.30"

	Area (sf)	CN	Description
	1,976	80	>75% Grass cover, Good, HSG D
	4,076	98	Paved parking, HSG D
*	2,565	70	Perm. Pavers
	8,617	86	Weighted Average
	4,541		52.70% Pervious Area
	4,076		47.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9					**Direct Entry, Matches Ex TC**

Subcatchment P-DA3: Prop. NW Area to POI-3 (Rt.50)



Summary for Subcatchment P-DA4: Prop. SW Area to POI-4 (Rt.50)

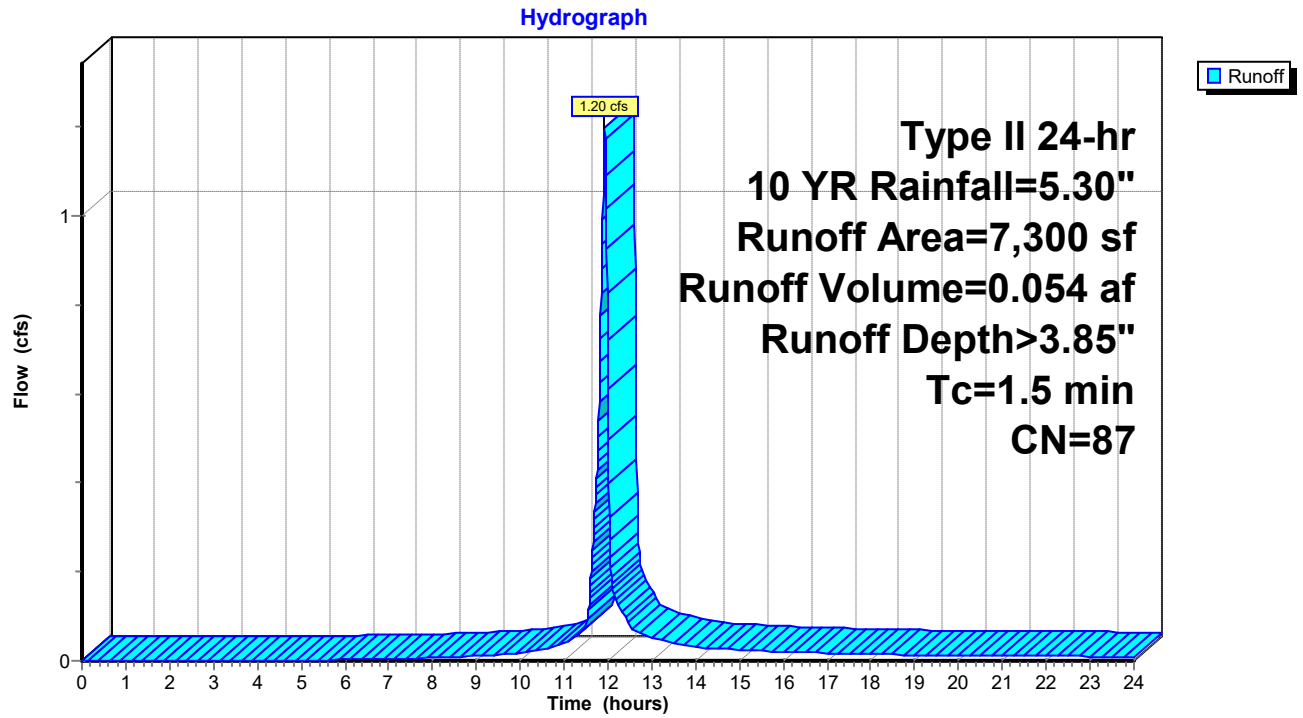
Runoff = 1.20 cfs @ 11.92 hrs, Volume= 0.054 af, Depth> 3.85"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10 YR Rainfall=5.30"

	Area (sf)	CN	Description
	2,101	80	>75% Grass cover, Good, HSG D
	3,704	98	Paved parking, HSG D
*	1,495	70	Perm. Pavers
	7,300	87	Weighted Average
	3,596		49.26% Pervious Area
	3,704		50.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry, Matches Ex TC**

Subcatchment P-DA4: Prop. SW Area to POI-4 (Rt.50)



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX1: Ex. NE Area to POI-1 Runoff Area=10,733 sf 78.64% Impervious Runoff Depth>6.88"
Flow Length=112' Slope=0.0160 '/' Tc=1.4 min CN=94 Runoff=2.88 cfs 0.141 af

Subcatchment EX2: Ex. SE Area to POI-2 Runoff Area=11,314 sf 84.36% Impervious Runoff Depth>7.00"
Flow Length=165' Tc=1.8 min CN=95 Runoff=2.97 cfs 0.152 af

Subcatchment EX3: Ex. NW Area to POI-3 Runoff Area=7,763 sf 75.82% Impervious Runoff Depth>6.88"
Flow Length=139' Tc=1.9 min CN=94 Runoff=2.02 cfs 0.102 af

Subcatchment EX4: Ex. SW Area to POI-4 Runoff Area=7,934 sf 76.53% Impervious Runoff Depth>6.88"
Flow Length=114' Slope=0.0151 '/' Tc=1.5 min CN=94 Runoff=2.12 cfs 0.104 af

Subcatchment P-DA1: Prop. NE Area to Runoff Area=9,498 sf 58.25% Impervious Runoff Depth>6.29"
Tc=1.4 min CN=89 Runoff=2.45 cfs 0.114 af

Subcatchment P-DA2: Prop. SE Area to Runoff Area=12,329 sf 54.53% Impervious Runoff Depth>6.06"
Tc=1.8 min CN=87 Runoff=3.02 cfs 0.143 af

Subcatchment P-DA3: Prop. NW Area to Runoff Area=8,617 sf 47.30% Impervious Runoff Depth>5.94"
Tc=1.9 min CN=86 Runoff=2.07 cfs 0.098 af

Subcatchment P-DA4: Prop. SW Area to Runoff Area=7,300 sf 50.74% Impervious Runoff Depth>6.06"
Tc=1.5 min CN=87 Runoff=1.83 cfs 0.085 af

Total Runoff Area = 1.733 ac Runoff Volume = 0.939 af Average Runoff Depth = 6.50"
33.79% Pervious = 0.586 ac 66.21% Impervious = 1.147 ac

Summary for Subcatchment EX1: Ex. NE Area to POI-1

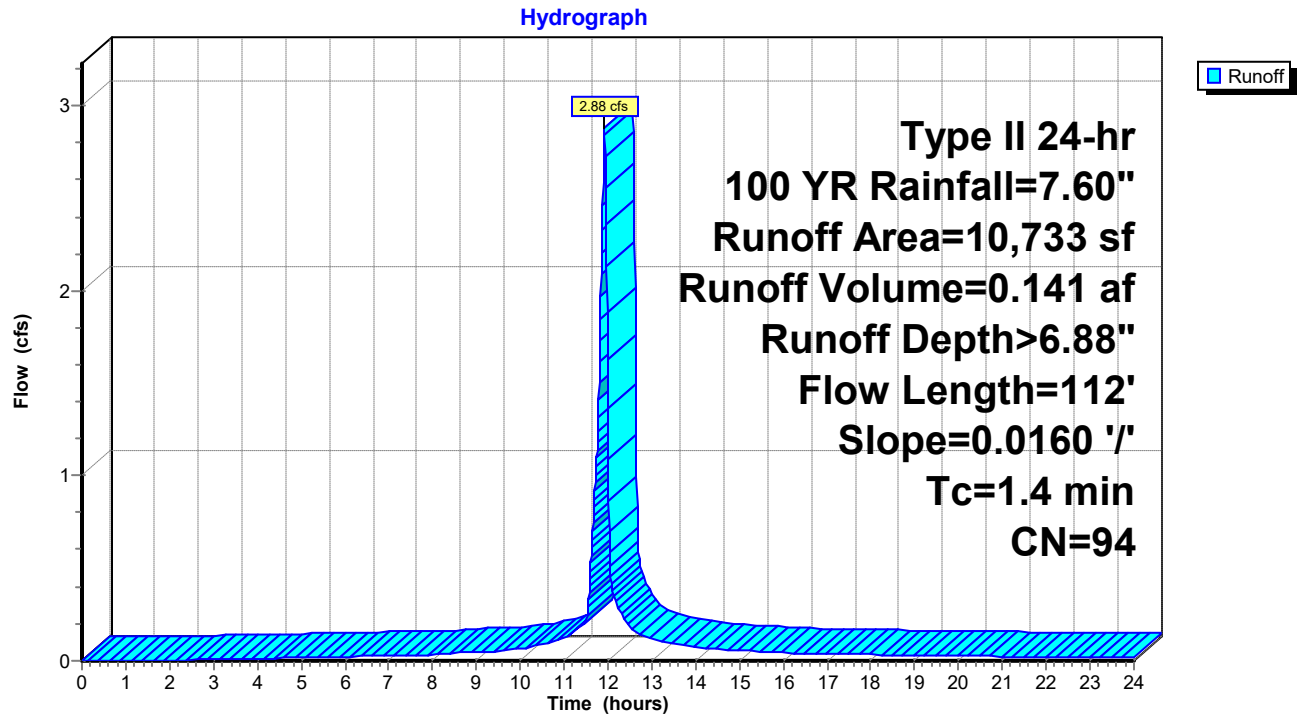
Runoff = 2.88 cfs @ 11.92 hrs, Volume= 0.141 af, Depth> 6.88"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=7.60"

	Area (sf)	CN	Description
	2,293	80	>75% Grass cover, Good, HSG D
*	8,440	98	Asphalt & Roof, HSG D
	10,733	94	Weighted Average
	2,293		21.36% Pervious Area
	8,440		78.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	112	0.0160	1.33		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment EX1: Ex. NE Area to POI-1



Summary for Subcatchment EX2: Ex. SE Area to POI-2

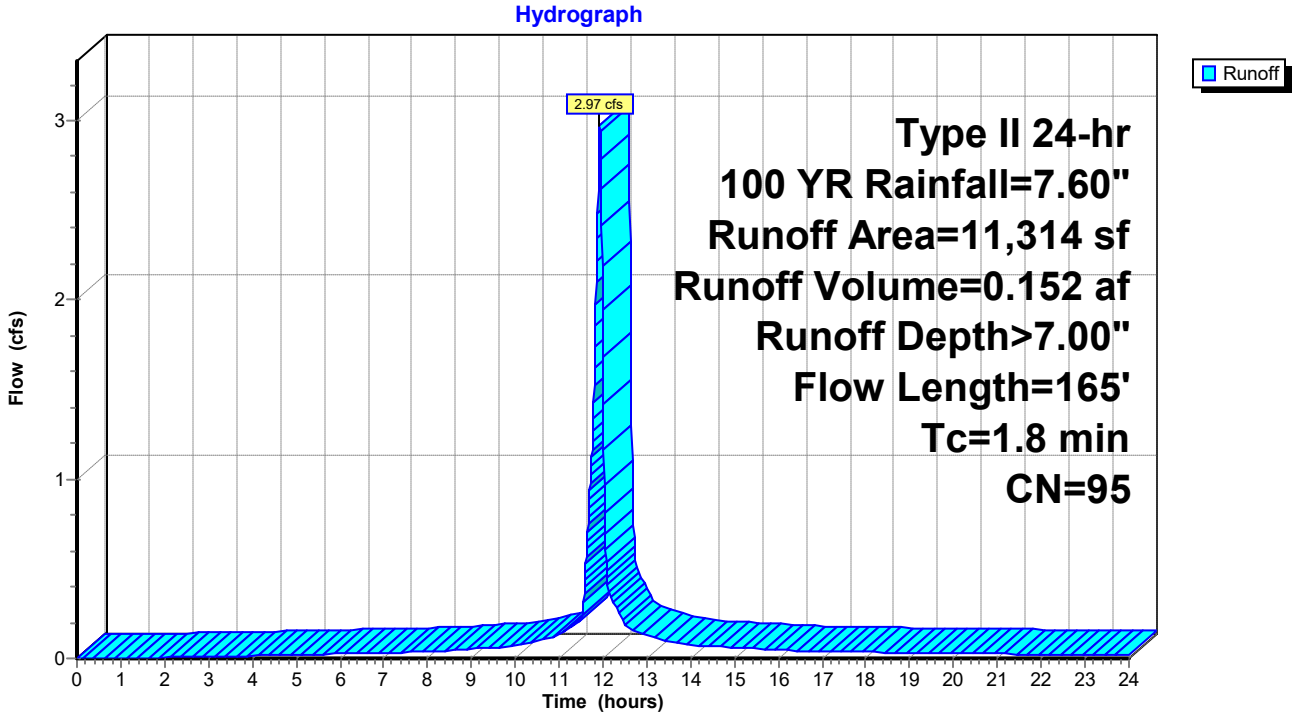
Runoff = 2.97 cfs @ 11.93 hrs, Volume= 0.152 af, Depth> 7.00"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=7.60"

	Area (sf)	CN	Description
	1,770	80	>75% Grass cover, Good, HSG D
*	9,544	98	Aspahlt & Roof, HSG D
	11,314	95	Weighted Average
	1,770		15.64% Pervious Area
	9,544		84.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	89	0.0146	1.22		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"
0.6	76	0.0107	2.10		**Shallow Concentrated Flow, Curb Line** Paved Kv= 20.3 fps
1.8	165	Total			

Subcatchment EX2: Ex. SE Area to POI-2



Summary for Subcatchment EX3: Ex. NW Area to POI-3 (Rt.50)

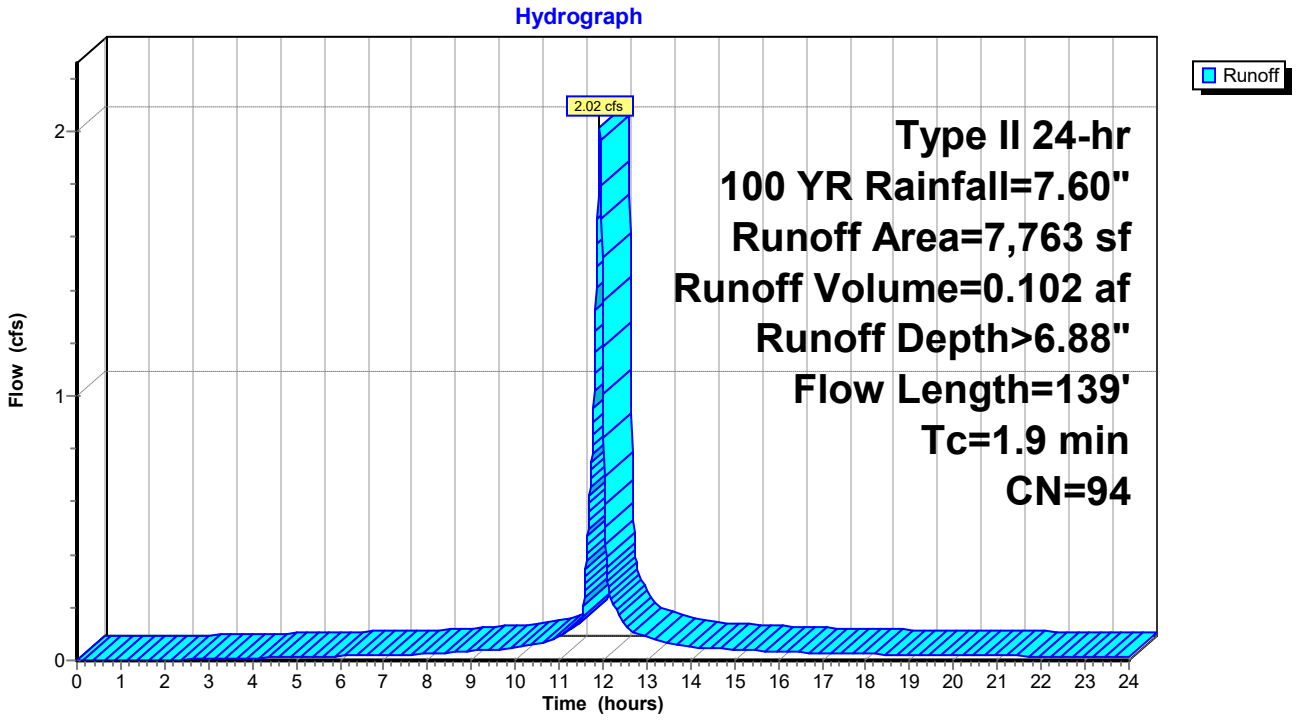
Runoff = 2.02 cfs @ 11.93 hrs, Volume= 0.102 af, Depth> 6.88"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=7.60"

Area (sf)	CN	Description
5,886	98	Paved parking, HSG D
1,877	80	>75% Grass cover, Good, HSG D
7,763	94	Weighted Average
1,877		24.18% Pervious Area
5,886		75.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	116	0.0108	1.14		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"
0.2	23	0.0098	2.01		**Shallow Concentrated Flow, Curb Line** Paved Kv= 20.3 fps
1.9	139	Total			

Subcatchment EX3: Ex. NW Area to POI-3 (Rt.50)



Summary for Subcatchment EX4: Ex. SW Area to POI-4 (Rt.50)

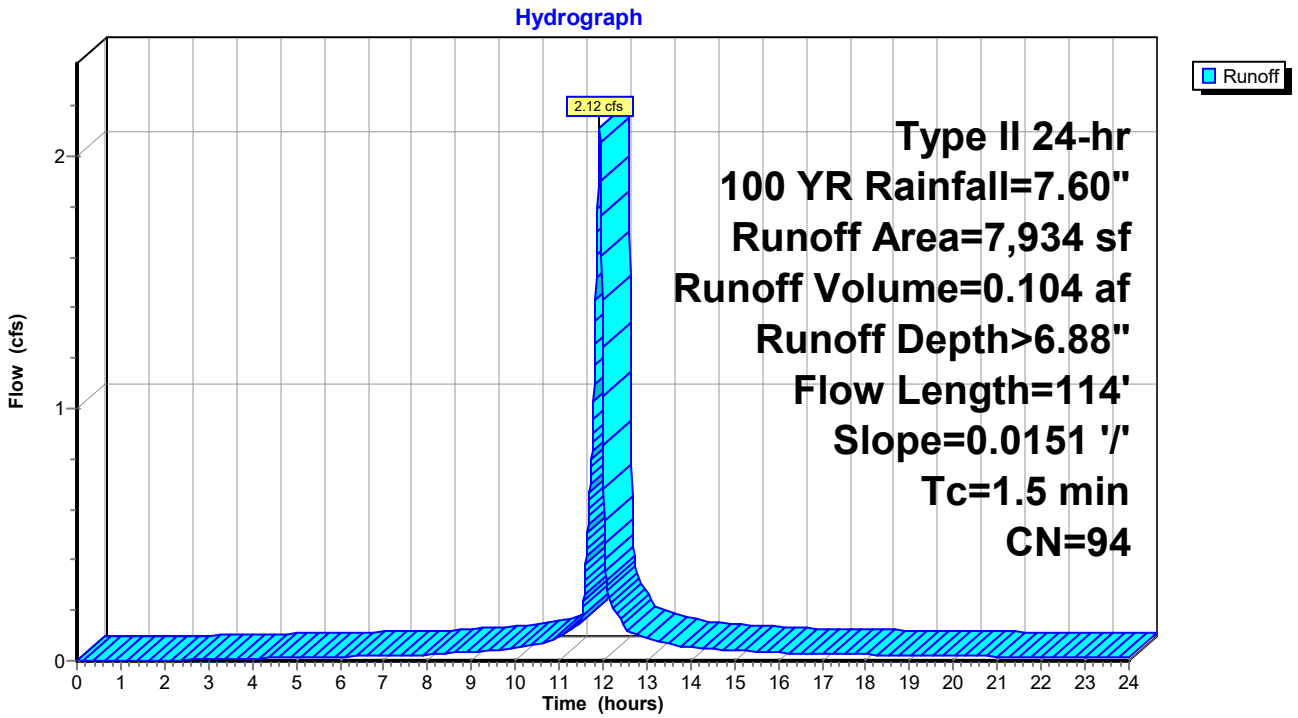
Runoff = 2.12 cfs @ 11.92 hrs, Volume= 0.104 af, Depth> 6.88"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=7.60"

Area (sf)	CN	Description
6,072	98	Paved parking, HSG D
1,862	80	>75% Grass cover, Good, HSG D
7,934	94	Weighted Average
1,862		23.47% Pervious Area
6,072		76.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	114	0.0151	1.30		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment EX4: Ex. SW Area to POI-4 (Rt.50)



Summary for Subcatchment P-DA1: Prop. NE Area to POI-1

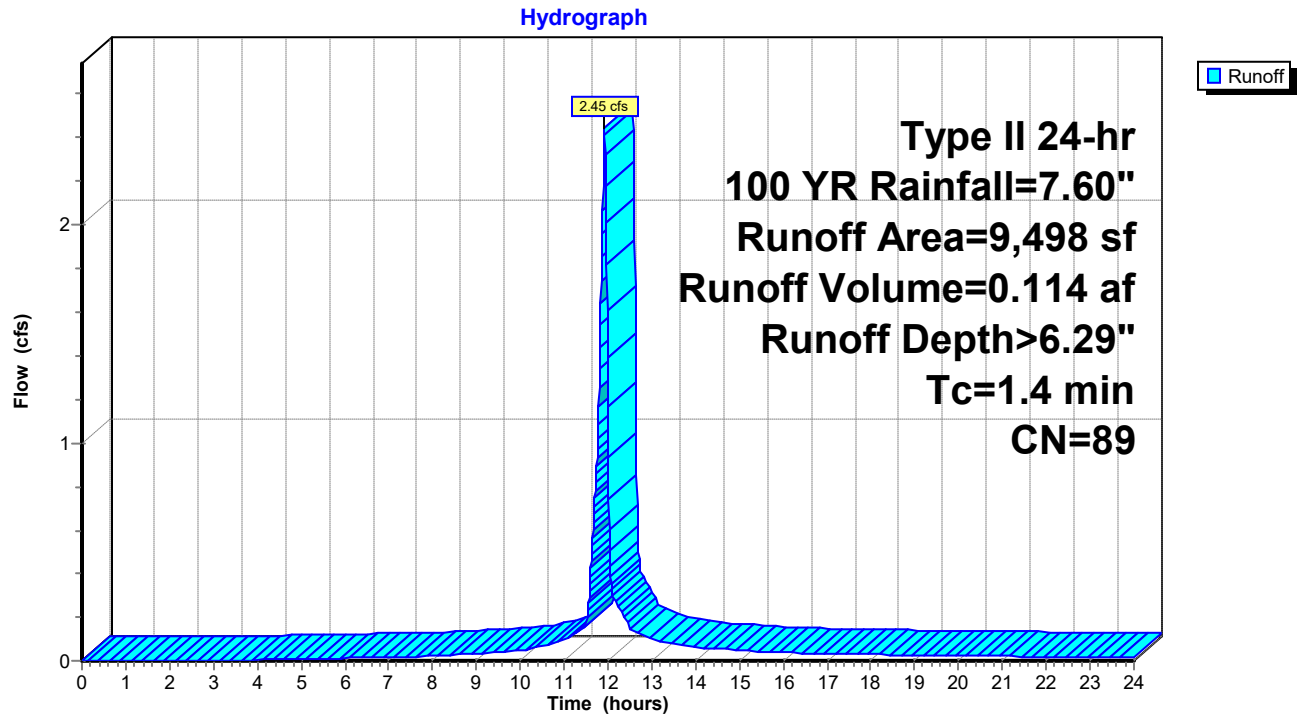
Runoff = 2.45 cfs @ 11.92 hrs, Volume= 0.114 af, Depth> 6.29"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=7.60"

	Area (sf)	CN	Description
	2,151	80	>75% Grass cover, Good, HSG D
	5,533	98	Paved parking, HSG D
*	1,814	70	Perm. Pavers
	9,498	89	Weighted Average
	3,965		41.75% Pervious Area
	5,533		58.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4					**Direct Entry, Matches Ex TC**

Subcatchment P-DA1: Prop. NE Area to POI-1



Summary for Subcatchment P-DA2: Prop. SE Area to POI-2

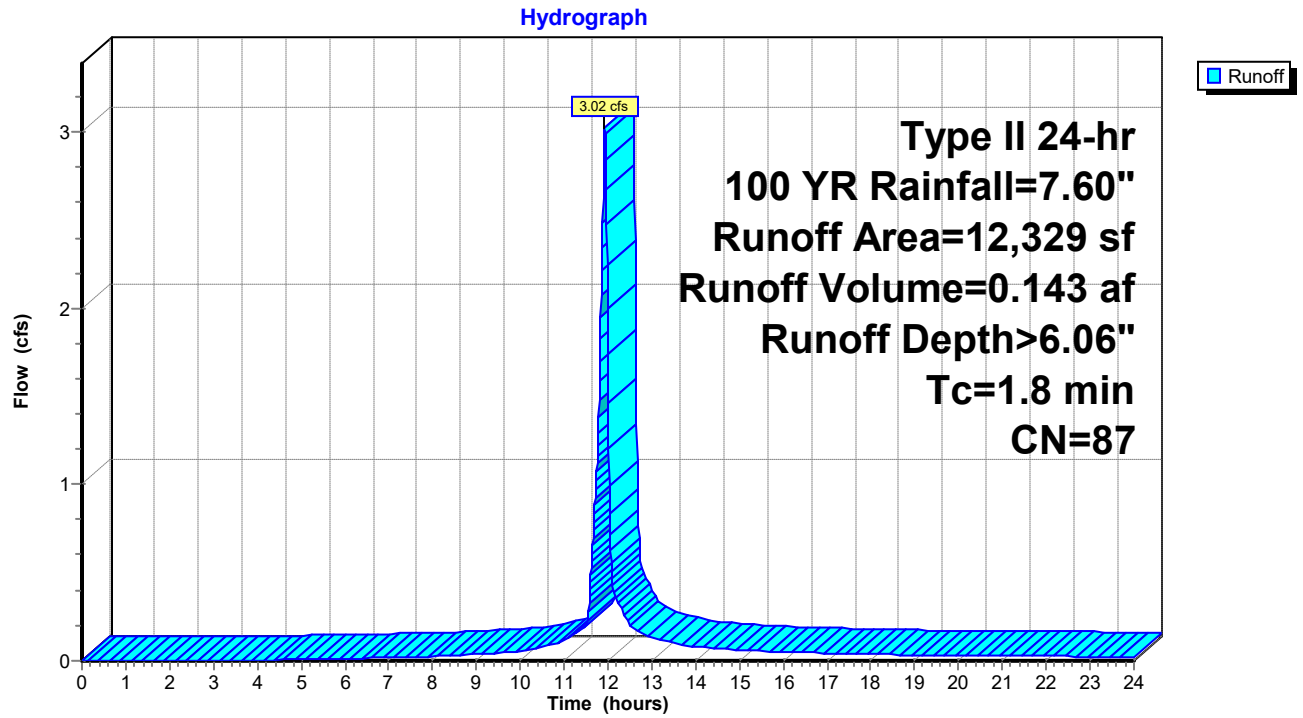
Runoff = 3.02 cfs @ 11.93 hrs, Volume= 0.143 af, Depth> 6.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=7.60"

	Area (sf)	CN	Description
	1,892	80	>75% Grass cover, Good, HSG D
*	6,723	98	Paved parking, HSG D
*	3,714	70	Perm. Pavers
	12,329	87	Weighted Average
	5,606		45.47% Pervious Area
	6,723		54.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8					**Direct Entry, Matches Ex TC**

Subcatchment P-DA2: Prop. SE Area to POI-2



Summary for Subcatchment P-DA3: Prop. NW Area to POI-3 (Rt.50)

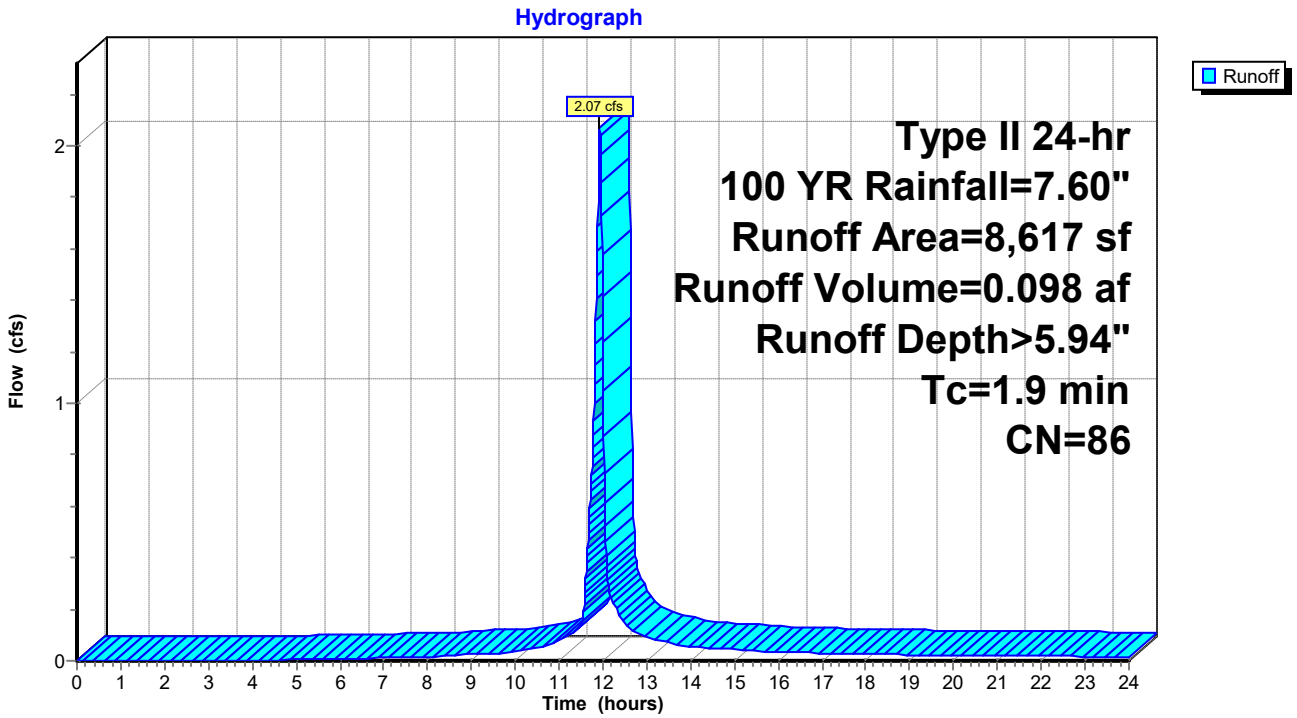
Runoff = 2.07 cfs @ 11.93 hrs, Volume= 0.098 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=7.60"

	Area (sf)	CN	Description
	1,976	80	>75% Grass cover, Good, HSG D
	4,076	98	Paved parking, HSG D
*	2,565	70	Perm. Pavers
	8,617	86	Weighted Average
	4,541		52.70% Pervious Area
	4,076		47.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9					**Direct Entry, Matches Ex TC**

Subcatchment P-DA3: Prop. NW Area to POI-3 (Rt.50)



Summary for Subcatchment P-DA4: Prop. SW Area to POI-4 (Rt.50)

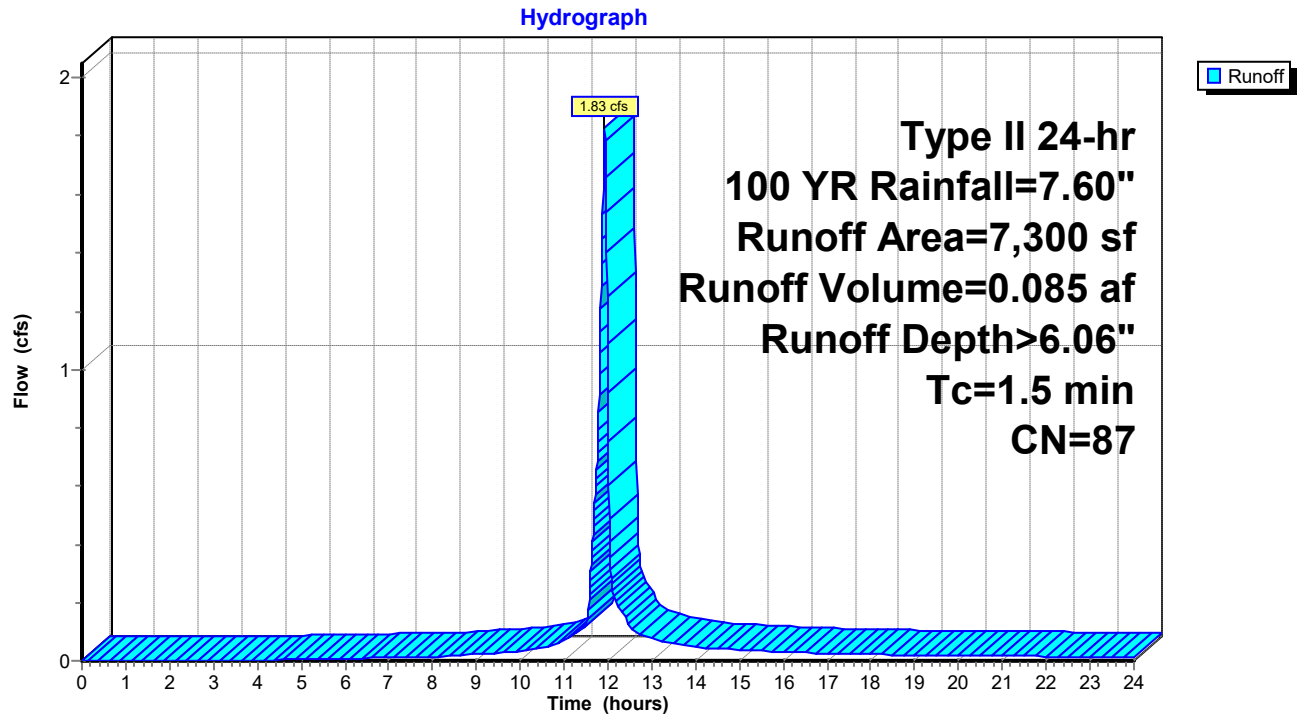
Runoff = 1.83 cfs @ 11.92 hrs, Volume= 0.085 af, Depth> 6.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 YR Rainfall=7.60"

	Area (sf)	CN	Description
	2,101	80	>75% Grass cover, Good, HSG D
	3,704	98	Paved parking, HSG D
*	1,495	70	Perm. Pavers
	7,300	87	Weighted Average
	3,596		49.26% Pervious Area
	3,704		50.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry, Matches Ex TC**

Subcatchment P-DA4: Prop. SW Area to POI-4 (Rt.50)



APPENDIX B

ESD CALCULATIONS

ESD SITE TARGET

EARTHEN DISTURBANCE (LOD) = 37,723 SF; ASSUMED AS ENTIRE PARCEL 0.866 ACRES

EXISTING IMPERVIOUS 29,926 SF (79.33%); PROJECT QUALIFIES FOR REDEVELOPMENT ($I_{EXISTING}$ >40%)

ONSITE SOILS ARE MAPPED AS "URBAN" – ASSUME COMPACTED SOILS FUNCTION AS HYDROLOGIC GROUP "D"

TREAT, TO A P_E OF 1.0", OR REMOVE 50% OF EXISTING IMPERVIOUS SURFACE:

HALF EXISTING COVERAGE = 29,926 SF X ½ = 14,962 SF TO BE TREATED OR REMOVED

PROPOSED DEVELOPMENT = 20,023 SF; 9,903 SF REMOVED

REMAINING IMPERVIOUS TO BE TREATED = 5,059 SF

R_V = 0.95, P_E = 1.0"

$ESD_{V\ (HALF\ EXISTING)} = \frac{(Pe)(Rv)(A)}{12} = \frac{(1.0)(0.95)(5{,}059)}{12}$ = **401 CF**

PERMEABLE PAVERS (A-2)

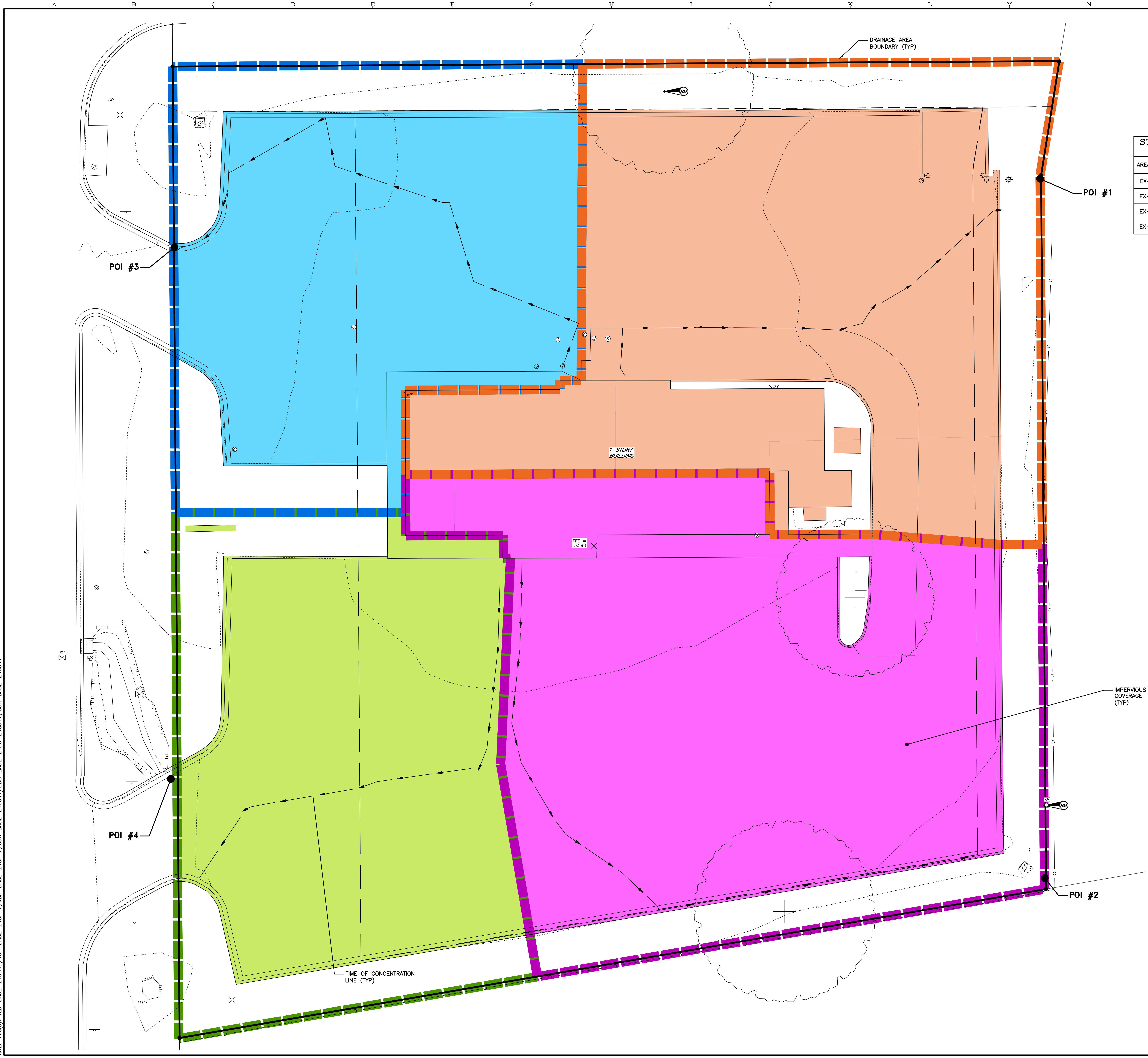
PER MDE ENVIRONMENTAL SITE DESIGN (ESD) PROCESS & COMPUTATIONS TABLE 1

12" GRAVEL SUBBASE YIELDS 0.16 ESD_V PER FT^2

9597 SF X 0.16 CF/SF = **1,536 CF**

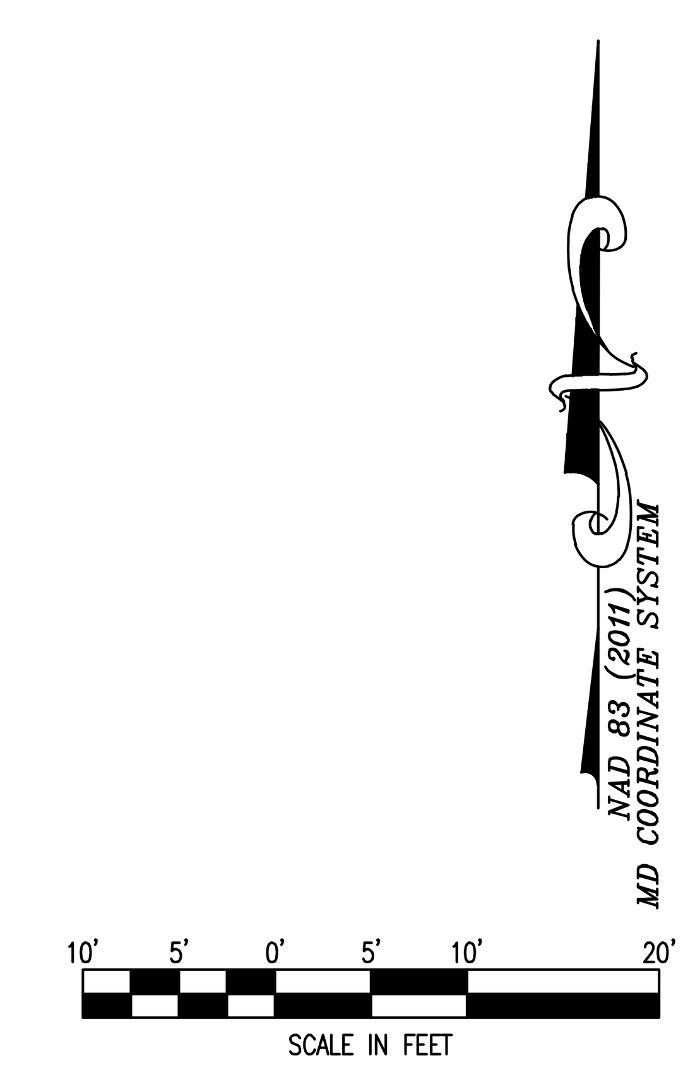
APPENDIX C

DRAINAGE AREA MAPS



SWM PRE-DEVELOPMENT DISCHARGES (CFS)			
STUDY POINT	Q_2	Q_{10}	Q_{100}
1	1.22	1.98	2.88
2	1.28	2.05	2.97
3	0.85	1.38	2.02
4	0.89	1.45	2.12
TOTAL	4.24	6.86	9.99

STORMWATER MANAGEMENT DRAINAGE AREA TABLE				
AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
EX-1	10733	1.40	78.64	QUARTER OF PROJECT SITE
EX-2	11314	1.80	84.36	QUARTER OF PROJECT SITE
EX-3	7763	1.90	75.82	QUARTER OF PROJECT SITE
EX-4	7934	1.50	76.53	QUARTER OF PROJECT SITE



REVISIONS TO APPROVED PLANS			
No.	DATE	DESCRIPTION	BY

WARNING!!

THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE QUANTITIES SHOWN ON THIS PLAN ARE FOR INFORMATIONAL AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.

THE CONTRACTOR SHALL TEST PIT AND LOCATE EXISTING UNDERGROUND UTILITIES PRIOR TO THE BEGINNING OF ANY WORK ON-SITE. THE CONTRACTOR SHALL NOTIFY DEPT. OF PUBLIC WORKS OF ANY POSSIBLE CONFLICT AND REQUEST THE RELOCATION OF THE EXISTING UNDERGROUND UTILITIES BEFORE BEGINNING ANY WORK ON-SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.

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Civil Engineers • Land Planning • Land Surveyors
E-mail: general@leinc.com
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15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 51461 , Expiration Date: 04/04/2026.

SEAL
STATE OF MARYLAND · ALEC F. CHOSTA · 51461 · PROFESSIONAL ENGINEER
DATE

PRE-DEVELOPMENT DRAINAGE AREA MAP

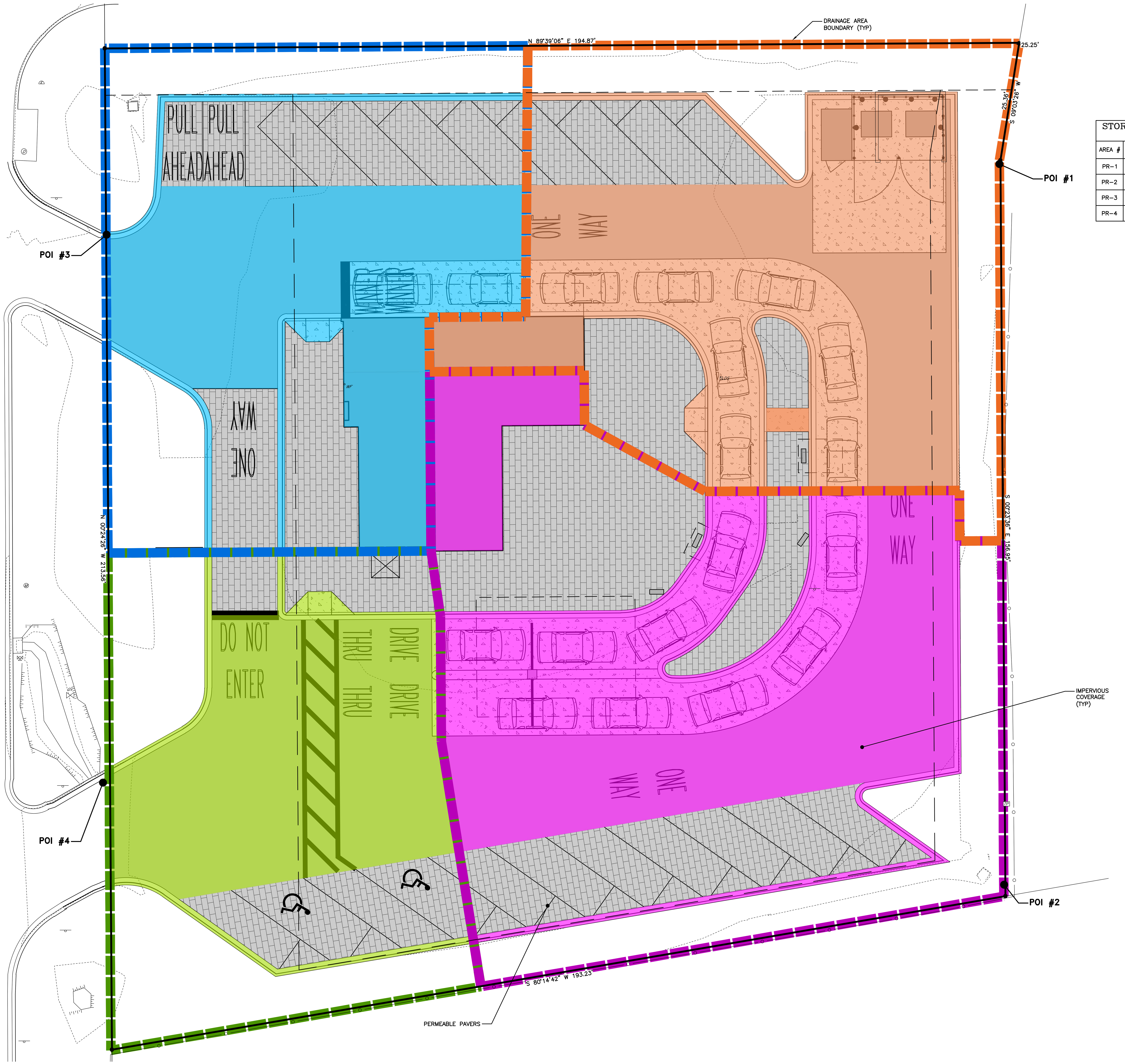
FOR DELMARVA REAL ESTATE MANAGEMENT GROUP, LLC

IN THE TOWN OF EASTON, WARD 2
TALBOT COUNTY, MARYLAND
TAX MAP 103 GRID 0EA PARCEL 2861

ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	02/05/25	BCE

SHEET No. 1 OF 2
SCALE: AS NOTED
JOB No. 240547
FILE No. D481

Date: 02/05/2025 – 7:43am User: achosta Project Manager: BCE
Drawing Path: J:\2024\0500\240547\Civil3D-240547\Dwg\Plots\CDA-PLTS-240547.dwg | PRE
XREF File(s): VLD-BASE-240547/VSF-BASE-240547/VDA-BASE-240547/CDA-BASE-240547/CBS-BASE-2436-240547/CSK-BASE-240547



SWM POST-DEVELOPMENT DISCHARGES (CFS)			
STUDY POINT	Q_2	Q_{10}	Q_{100}
1	0.94	1.63	2.45
2	1.11	1.98	3.02
3	0.75	1.35	2.07
4	0.68	1.20	1.83
TOTAL	3.48	6.16	9.37

STORMWATER MANAGEMENT DRAINAGE AREA TABLE

AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
PR-1	9498	1.40	58.25	QUARTER OF PROJECT SITE
PR-2	12329	1.80	54.53	QUARTER OF PROJECT SITE
PR-3	8617	1.90	47.30	QUARTER OF PROJECT SITE
PR-4	7300	1.50	50.74	QUARTER OF PROJECT SITE

REVISIONS TO APPROVED PLANS

No.	DATE	DESCRIPTION	BY

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SEAL
STATE OF MARYLAND
ALEC F. CHOSTA
51461
PROFESSIONAL ENGINEER
DATE

POST-DEVELOPMENT DRAINAGE AREA MAP

FOR
DELMARVA REAL ESTATE MANAGEMENT GROUP, LLC

IN THE TOWN OF EASTON, WARD 2
TALBOT COUNTY, MARYLAND
TAX MAP 103 GRID 0EA PARCEL 2861

ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	02/05/25	BCE

SHEET No. 2 OF 2
SCALE: AS NOTED
JOB No. 240547
FILE No. D481