TOWN OF WEDDINGTON
TOWN COUNCIL AGENDA
2025 RETREAT WORK SESSION
Rolling Hills Country Club Monroe NC
March 27
9:00 a.m.

Call to Order

Determination of Quorum

Review and Adoption of the agenda

Define Expectations

Administrative Topics
1. Town Event Calendar
    a. Park and Events Committee
2. Discussion of Public Services
    a. Deputies/public safety
    b. Trash
3. RFQ Engineering

Finance Discussion
1. FY 2024-2025 Budget Discussion
    a. Additional staff position
    b. Tax rate
    c. Fees
    d. Board members pay

Facilities Discussion
1. Park
    a. Possible Grants
2. Fire station
3. Landscaping RFP

Lunch at 12:15 with Planning Board Members

Planning Discussion
1. Stormwater

2. Subcommittee topics
3. Downtown Overlay
4. Fee Schedule

Discussion of Regular Meeting Schedule

Review Action Items/Goals

Enter into Closed Session pursuant to NCGS 143-318.11(a)(3) To consult with attorney

TO: Town Council

FROM: Karen Dewey, Town Administrator/Clerk

DATE: March 27, 2025

SUBJECT: Town Events Discussion

Per the Town Events Policy, events shall be discussed at the beginning of each calendar year and approved by adopting the annual Fiscal Year Budget. The Town may partner with any agency to support an event if it is approved by the Town Council and if the event is of general interest to the public. These events must be approved by the Council.

Event Ideas:

- Movie Nights – Union County hosted in the past at no cost to the Town, but due to rising costs, they no longer budget for that. The Town will be responsible for purchasing the movie license and renting equipment to project the move.
- Food Truck Fridays – scheduled for first 3 Fridays in May.
- School Tools Drive – running before school starts to complement the Library or UCPS efforts
- CPR/First Aid Class – held at town hall
- Tree Lighting – scheduled for Friday, November 21, 2025
- Spring/Fall Shredding Event coordinated with Litter Sweeps

2025-2026 Calendar

EnchantedLearning.com

July 2025

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

August 2025

Su	Mo	Tu	We	Th	Fr	Sa
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September 2025

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October 2025

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November 2025

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December 2025

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January 2026

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25	26	27	28	29	30	31

February 2026

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March 2026

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29	30	31				

April 2026

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May 2026

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June 2026

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28	29	30				

December 5, 2024

To the Weddington Town Council and Clerk:

While we, at Active Waste Solutions, understand and respect the processes and the terms of our contract with the Town of Weddington, the unprecedented price increases on both disposal and recycling in 2024 have placed us in the position of requesting a 6% increase on all services for 2025.

As you are aware, due to Union County and the recycling facility informing us of increases after your budget approval process, we did not receive even a 3% increase for 2024. The increase from both sites was substantially more than 3%. We are simply trying to cover our cost.

In the following months, after the increases, I have reached out to Union County officials, Patrick Niland and Brian Matthews for updates on any projected increases for 2025. I was told "Sometime this winter we will meet to discuss the plan for next year."

In this unique situation, as Active Waste Solutions' contract manager, I am respectfully requesting the Town's consideration of a 6% increase on all services for 2025.

If council would like to meet with me and our CEO, John Glauda, we welcome a meeting.

We thank you in advance for your consideration.

Respectfully,

Heather Hamilton
Sales Director for Active Waste Solutions
Contract manager
hhamilton@activewastesolutions.com
(704) 303-3234

Town of Weddington
1924 Weddington Road
Weddington, NC 28104

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The Town of Weddington, NC is seeking Consultants to provide Qualifications for On-Call Professional Services

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Issued By: Town of Weddington

ENVELOPE MUST STATE CLEARLY THAT THE ENCLOSED SUBMITTAL IS FOR THE ON-CALL PROFESSIONAL SERVICES R.F.Q.

Published: April?

Due May>, 2025 by 2:00 P.M.

NO LATE SUBMITTALS WILL BE ACCEPTED FOR ANY REASON WHATSOEVER

REQUEST FOR QUALIFICATIONS (RFQ) – ON-CALL PROFESSIONAL SERVICES

1. Introduction

Weddington is a small but growing Town in Union County with approximately 14,000 residents. The Town is responsible for managing solid waste collection, planning & zoning, and contracts for police services.

The Town is seeking qualified firms to provide professional services on an "On-Call" basis to assist the Town with Engineering, Erosion and Sediment Control Permitting, Inspection, and Reporting and other professional services associated with the Public Works, Planning and Zoning, and other Town Departments to help with capital improvement projects, development plan reviews, and assist with the day-to-day engineering work of the Town.

Proposals are due by 2:00 p.m. May 28th, 2025

2. Project Background and Purpose

The Town of Weddington NC is seeking qualifications from qualified consulting engineering firms to provide professional services including engineering, surveying, plan review, and other professional services to support the Planning and Zoning Department. The Town has identified the following categories for which firms may submit to provide services. Firms may elect to submit on one or multiple categories in a single Statement of Qualifications.

A. Transportation

Work under this category will include the typical professional services associated with transportation projects including, but not limited to, roadways, sidewalks, multi-use paths, greenways, and parking. These include but are not limited to project management, project development, budgeting, engineering analysis and studies, surveying, preliminary design, detailed design, permitting, subsurface utility engineering, geotechnical engineering, stakeholder coordination, easement and real property mapping and acquisition, preparation of construction documents, construction management, construction observation, preparation of as-builts, project closeout, grant application and management, loan application and management, Traffic Impact Analysis preparation, traffic signals, and other professional services as needed to meet the Town's goals.

B. Stormwater Systems

Work under this category will include the typical professional engineering services associated with water resources projects including, but not limited to, engineering analysis, design, and construction plans and specifications as related to stormwater systems, pipe and culvert replacement, repair, and/or installation, stream stabilization and/or restoration projects, traditional and innovative stormwater system design, culvert and/or bridge retrofits, energy dissipaters, low dams, traditional and innovative Best Management Practices (BMPs), flood studies and certifications, NPDES compliance, flood management, storm modeling, TMDL development and model applications, and other services relating to storm water systems. These include but are not limited to project management, project development, budgeting, engineering analysis and studies, surveying, preliminary design, detailed design, permitting, subsurface utility engineering, geotechnical engineering, stakeholder coordination, easement and real property mapping and acquisition, preparation of construction documents, construction management, construction observation, preparation of as-builts, project closeout, and other professional services as needed to meet the Town's goals.

C. Erosion and Sediment Control

Work under this category will include the field inspection services for the Town's delegated Erosion Control Program. Services may include, but are not limited to erosion and sediment plan reviews and

calculations, inspections of land-disturbing activities to ensure compliance with the Erosion and Sediment Control Ordinance, determine measures required are effective in controlling erosion and sedimentation resulting from land disturbing activity, report on monthly activities and provide NOVS and reinspection to ensure compliance.

D. Administrative
Work under this category will include the typical professional engineering services of a general nature that may overlap with some or all the other categories. Services under this category may include, but are not limited to, program management, engineering reviews of plans, calculations, and other information submitted to the town for review and approval. This may include subdivision plans, grading and erosion control plans, commercial development projects, floodplain development projects, review of construction estimates for private development bonding requirements, and provide general consultation for drainage complaints, or as requested, and other professional services as may be needed to meet the Town's goals.

E. Funding
Work under this category will include the typical professional engineering services of a general nature that may overlap with some of all the other categories. Services under this category may include finding, applying for, managing, performing final reporting work, and other professional services as may be needed to meet the Town's goals with various agencies for funding sources. Sources and agencies may include but are not limited to USDA, GOLDEN LEAF, NC Commerce, NC DWI, EDA, and others.

3. Federal Aid Funding Through NCDOT

This contract may be partially reimbursed with Federal Aid funding through NCDOT (the Department). The solicitation, selection and negotiation of a contract shall be conducted in accordance with all Department requirements and guidelines. The primary and any subconsultant firms shall be pre-qualified by the Department. Discipline Codes for the services that the primary and subconsultant firms anticipate performing under this contract shall be listed on the respective RS-2 Forms.

Except as provided below, any firm wishing to be considered must be properly registered with the Office of the Secretary of State and with the North Carolina Board of Examiners for Engineers and Surveyors. Any firm proposing to use corporate subsidiaries or subcontractors must include a statement that these companies are properly registered with the North Carolina Board of Examiners for Engineers and Surveyors and/or the NC Board for Licensing of Geologists. The Engineers performing the work and in responsible charge of the work must be registered Professional Engineers in the State of North Carolina and must have a good ethical and professional standing. It will be the responsibility of the selected private firm to verify the registration of any corporate subsidiary or subcontractor prior to submitting a response to the R.F.Q. Firms which are not providing engineering services need not be registered with the North Carolina Board of Examiners for Engineers and Surveyors. Some of the services being solicited may not require a license. It is the responsibility of each firm to adhere to all laws of the State of North Carolina.

The firm must have the financial ability to undertake the work and assume the liability. The selected firm(s) will be required to furnish proof of Professional Liability insurance coverage in the minimum amount of $1,000,000.00. The firm(s) must have an adequate accounting system to identify costs chargeable to the project.

4. Proposal Requirements

All proposals shall include the following items:

a) A cover letter on company letterhead signed by a Principal or other member of the firm authorized to commit the firm to contract for professional services (max 2 pages).

b) Executive Summary: Should address the highlights of the RFQ, along with the strengths and special expertise of the firm and the associated team to successfully accomplish the objectives of the Town. (max 2 pages).

c) Statement of Qualifications: Identify and describe the qualifications of the firm and professional services that may be provided by the consultant or consultant team in response to this RFQ. Also include information on any proposed sub-consultants. Note which team members were involved in referenced projects and time period involved in referenced, completed or current projects. Also highlight any projects performed for the Town during the past 5 years (max 4 pages per category).

d) Project Team & Project Management: Identify the proposed project team (including any sub consultants) and key personnel for the successful completion of projects in partnership with the Town. Include brief resumes of the project team members including office location, years of experience, certifications, and education. Identify the project manager or primary contact and any other team leaders proposed, and briefly describe how projects will be successfully managed. It is expected that the team members proposed in the RFQ will be the ones that will actually work on projects for the Town. Also describe the firm's quality assurance / quality control methods (max 3 pages per category).

e) Project Schedule: Describe the planned and envisioned workload of the proposed team members for the timeframe of this contract, and verify that proposed staff will be prepared for timely completion of projects under a potential contractual agreement with the Town. Submittals should also include a description of the firm's ability to respond to rushed and emergency projects (max 2 pages).

f) References: Project reference list describing at least four (4) projects completed within the past five years that represent the strengths and unique qualifications of the firm or team in the areas identified in the Scope of Work described in this document. The list should contain project titles, locations, cost of projects, start and end dates, name of project managers, and name, phone number, and email address of references. The contact person should be capable of speaking to the firm's and team's ability to finish projects within the project timeframe and the firm's demonstrated ability to respond to the proposed project (max 2 pages).

g) Copy of firm's Equal Employment Opportunity Policy and statement regarding planned use of Historically Underutilized Businesses requested in RFQ.

h) RS-2 Forms for Prime and Subconsultants ("Task Orders Only" pdf from NCDOT website)

5. Equal Employment Opportunity Policy & Encouragement of HUB

The Town of Weddington, NC provides equal employment opportunities to all employees and applicants for employment and prohibits discrimination and harassment of any type without regard to race, color, religion, age, sex, national origin, disability status, genetics, protected veteran status, sexual orientation, gender identity or expression, or any other characteristic protected by federal, state or local laws. This policy applies to all terms and conditions of employment, including recruiting, hiring, placement, promotion, termination, layoff, recall, transfer, leaves of absence, compensation and training. The Town of Weddington expects all contract service providers, subcontractors, and firms it works with to abide by the same.

It is the goal of the Town of Weddington to facilitate the establishment, preservation, and strengthening of historically underutilized businesses, (i.e. small businesses and businesses owned by women and minorities), and to encourage their participation in the Town's procurement activities. Toward that end, the Town encourages these firms to compete and encourages non-minority firms to provide for the participation of small businesses and businesses owned by women and minorities through subcontracting, partnerships, joint ventures, and other contractual opportunities. All firms are requested to include a statement in its response to this RFQ to describe any planned use of such businesses in fulfilling this goal of the Town.

6. Evaluation of Proposals

RFQs must be limited to no more than the allowed pages for the number of categories the firm is submitting, with a minimum font size of 11 pt. A page is counted as a single side of an 8.5x11 piece of paper.

Section dividers are for section identification only and are not to be utilized for additional information space or they will be counted in the page limit. The proposal shall be submitted by an official authorized to bind the submitter to its provisions and who is authorized to negotiate the final scope of work and fees for inclusion in a later Supplemental Professional Services Agreement with the Town.

Evaluation and selection of firms will be a Qualifications Based Selection (QBS) process in accordance with the Mini-Brooks Act (NCGS 143-64.31), 2 CFR 200, and 23 CFR 172. Price will not be considered in the QBS process. Proposals will be evaluated according to the following criteria:

1. Related project experience. (30%)
2. Project staff experience. (20%)
3. Methodology-understanding and approach to the project. (15%)
4. Accessibility of key individuals assigned to the project and Knowledge of Town's system. (20%)
5. Availability and interest in providing Services. (10%)
6. References. (5%)

7. Submission Deadline and Address

Please submit five (5) sealed (corporate seal and individual seal of the person signing the cover letter) copies of the proposals, along with one digital copy of the proposal in PDF format, clearly labeled as "Statement of Qualifications for On-Call Professional Services" to the Town of Weddington no later than 2:00 p.m. May XX 2025 at the following address:

Town of Weddington
1924 Weddington Road
Weddington, NC 28104

All questions concerning the proposal requirements or project in general should be directed to Gregory Gordos at ggordos@townofweddington.com. Questions must be submitted in writing by no later than 2:00 p.m. April XX 2025; responses to questions will be provided in addendum format no later than 5:00 p.m. April XX 2025.

8. Additional Requirements

The Town of Weddington reserves the right to reject any "Statement of Qualifications". The "Statement of Qualifications" shall be prepared at the sole expense of the consultants. All proposals shall be subject to public review and copying as a public record. After evaluation, the Town may select one or more firms for any of the

categories. Each of the selected firms will enter into a master agreement covering the general terms of the contract. Upon identification of a project or task, the Town will utilize the information submitted in the SOQ to select the most qualified firm. A task authorization against the master agreement will be used to define the scope and price of the work. The Town of Weddington has a right to enter into agreements with the firm which, at the Town's sole discretion, best satisfy the requirements, goals and objectives of the Town. The Town reserves the right to reject all SOQs and not enter into any contracts as part of this process.

9. Term of Agreement

Each firm selected under this RFQ will be eligible for an initial term of three (3) years from the date of selection. The Town has the sole option to extend the selected firm(s) term for one (1) additional three (3) year term. Therefore, the maximum length of time that a selected consultant is eligible to complete work under this RFQ is six (6) years. However, the Town reserves the right to cancel this at any time and solicit new SOQ's. Firms that do not meet the Town's performance expectations, routinely decline opportunities to participate in this program, or lose significant internal expertise submitted with the original Statement of Qualifications may be removed from the Town's qualified consultant list.

FY2026 PRELIMINARY BUDGET

PREPARATION PROCESS:

1) OPERATING BUDGETS ARE PREPARED WITH THE REVAL ESTIMATED AT 50% INCREASE. 3 OPERATING SCENARIOS ARE PRESENTED: NO CHANGE IN TAX RATE (2.5 CENTS), REVENUE NEUTRAL TAX RATE (1.67 CENTS), INCORPORATE TRASH COSTS IN TAX RATE (3.5 CENTS)

OPERATING BUDGET COMMENTS:

1) ESTIMATED AD VALOREM REVENUE WAS CALCULATED BASED ON FY2025 APPRAISED TAX VALUE PLUS ESTIMATED VALUE OF HOMES ADDED IN CALENDAR YEAR 2024 AND THEN ADJUSTED FOR ESTIMATED 50% REVAL INCREASE. ESTIMATE BASED ON CERTIFICATES OF OCCUPANCY ISSUED.

2) REVALUATION APPRAISALS HAVE BEEN SENT TO CITIZENS AND COUNTY IS CURRENTLY WITHIN THE APPEAL WINDOW. COUNTY HAS NOT YET PROVIDED TOWN WITH THE ESTIMATED TOWN APPRAISED VALUE. ESTIMATE IS EXPECTED TO BE RECEIVED SOMETIME IN APRIL.

3) REVENUES & EXPENDITURES ARE BUDGETED CONSERVATIVELY (I.E. REVENUES ARE BUDGETED AT LOWEST EXPECTED AMOUNTS & EXPENDITURES AT HIGHEST EXPECTED AMOUNTS)

4) POLICE, SALARIES ARE BUDGETED AT CURRENT CONTRACT/SALARY AMOUNTS. PROPOSED INCREASES ARE INCLUDED AS PROPOSED NONOPERATING ITEMS. PROPOSED INCREASES ARE CURRENTLY ESTIMATES ONLY

   THE SHERIFF'S DEPARTMENT USUALLY SUBMITS THEIR REVISED CONTRACT AMOUNT IN APRIL

5) NO POTENTIAL NON-OPERATING EXPENSE ANALYSIS WAS PREPARED FOR THE TAX RATE REMAINING UNCHANGED AS THIS SCENARIO IS NOT FEASIBLE

FUTURE ACTIONS:

BUDGET WILL BE DISCUSSED AGAIN AT APRIL COUNCIL MEETING AND/OR AT A BUDGET WORKSESSION. A FINAL BUDGET WILL BE PRESENTED IN MAY AND A PUBLIC HEARING WILL BE HELD IN JUNE. BUDGET MUST BE APPROVED PRIOR TO JULY 1.

TOWN OF WEDDINGTON
FY2026 PRELIMINARY OPERATING BUDGET
TAX RATE SCENARIOS (2.5 CENTS, 1.67 CENTS, 3.5 CENTS)

Account Id	Account Description	Estimated Final Actual FY2025	Estimated Operating Budget No Reval FY2026	Revaluation with no tax rate change (2.5 cents)	Revenue Neutral ad valorem rate (1.67 cents)	Incorporate Trash (3.5 cents)
10-3101-110	AD VALOREM TAX - CURRENT	781,526.94	785,000.00	1,175,000.00	785,000.00	1,645,000.00
10-3102-110	AD VALOREM TAX - 1ST PRIOR YR	10,500.00	7,500.00	7,500.00	7,500.00	7,500.00
10-3103-110	AD VALOREM TAX - NEXT 8 YRS PRIOR	1,000.00	500.00	500.00	500.00	500.00
10-3110-121	AD VALOREM TAX - MOTOR VEH CURRENT	75,000.00	75,000.00	112,500.00	75,000.00	105,000.00
10-3115-180	TAX INTEREST	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00
10-3120-000	SOLID WASTE FEE REVENUES	1,183,000.00	1,185,000.00	1,185,000.00	1,185,000.00	
10-3231-220	LOCAL OPTION SALES TAX REV - ART 39	684,000.00	600,000.00	600,000.00	450,000.00	625,000.00
10-3322-220	BEER & WINE TAX	65,000.00	60,000.00	60,000.00	45,000.00	65,000.00
10-3324-220	UTILITY FRANCHISE TAX	500,000.00	450,000.00	450,000.00	337,500.00	475,000.00
10-3333-220	SOLID WASTE DISPOSAL TAX	2,850.00	3,000.00	3,000.00	3,000.00	3,000.00
10-3340-400	ZONING & PERMIT FEES	25,000.00	5,000.00	5,000.00	5,000.00	5,000.00
10-3350-400	SUBDIVISION FEES	10,000.00	5,000.00	5,000.00	5,000.00	5,000.00
10-3360-400	STORMWATER EROSION CONTROL FEES	12,000.00	500.00	500.00	500.00	500.00
10-3830-891	MISCELLANEOUS REVENUES	245,000.00	2,500.00	2,500.00	2,500.00	2,500.00
10-3831-491	INVESTMENT INCOME	315,000.00	250,000.00	250,000.00	250,000.00	250,000.00
	General Fund Revenue Totals	**3,912,876.94**	**3,432,000.00**	**3,859,500.00**	**3,154,500.00**	**3,192,000.00**
10-4110-000	GENERAL GOVERNMENT	-	-			
10-4110-110	SOLID WASTE	-	-			
10-4110-115	SOLID WASTE	1,020,000.00	1,020,000.00	1,020,000.00	1,020,000.00	1,020,000.00
10-4110-120	FIRE	-	-	-	-	
10-4110-126	FIRE DEPT SUBSIDIES					
10-4110-127	FIRE DEPARTMENT BLDG/MAINTENANCE					
10-4110-150	POLICE	-	-	-	-	
10-4110-155	POLICE PROTECTION	501,451.87	654,075.00	654,075.00	654,075.00	654,075.00
10-4110-160	EVENT PUBLIC SAFETY		2,500.00	2,500.00	2,500.00	2,500.00
10-4110-180	GOVERNING BOARD	-	-	-	-	-
10-4110-190	LEGAL	-	-	-	-	-

Account Id	Account Description	Estimated Final Actual FY2025	Estimated Operating Budget No Reval FY2026	Revaluation with no tax rate change (2.5 cents)	Revenue Neutral ad valorem rate (1.67 cents)	Incorporate Trash (3.5 cents)
10-4110-192	ATTORNEY FEES - GENERAL	65,000.00	65,000.00	65,000.00	65,000.00	65,000.00
10-4110-193	ATTORNEY FEES - LITIGATION		5,000.00	5,000.00	5,000.00	5,000.00
10-4110-320	OTHER GENERAL GOVERNMENT	-	-	-	-	-
10-4110-330	ELECTION EXPENSE	5,000.00	20,000.00	20,000.00	20,000.00	20,000.00
10-4110-340	PUBLICATIONS	-	-	-	-	-
10-4110-342	HOLIDAY/TREE LIGHTING	9,000.00	-	-	-	-
10-4110-343	SPRING EVENT	10,250.00	-	-	-	-
10-4110-344	OTHER COMMUNITY EVENTS	2,500.00	-	-	-	-
10-4110-499	OTHER	75,000.00	-	-	-	-
	4110 GENERAL GOVERNMENT	**1,688,201.87**	**1,766,575.00**	**1,766,575.00**	**1,766,575.00**	**1,766,575.00**
10-4120-000	ADMINISTRATIVE	-	-	-	-	-
10-4120-120	SALARIES & EMPLOYEE BENEFITS	-	-	-	-	-
10-4120-121	SALARIES - ADMINISTRATOR/CLERK	69,678.09	69,750.00	69,750.00	69,750.00	69,750.00
10-4120-123	SALARIES - TAX COLLECTOR	57,899.06	60,500.00	60,500.00	60,500.00	60,500.00
10-4120-124	SALARIES - FINANCE OFFICER	19,661.06	21,755.00	21,755.00	21,755.00	21,755.00
10-4120-125	SALARIES - MAYOR & TOWN COUNCIL	25,200.00	25,200.00	25,200.00	25,200.00	25,200.00
10-4120-181	FICA EXPENSE	13,795.06	14,200.00	14,200.00	14,200.00	14,200.00
10-4120-182	EMPLOYEE RETIREMENT	28,325.00	28,325.00	28,325.00	28,325.00	28,325.00
10-4120-183	EMPLOYEE INSURANCE	33,095.00	33,325.00	33,325.00	33,325.00	33,325.00
10-4120-184	EMPLOYEE LIFE INSURANCE	464.64	500.00	500.00	500.00	500.00
10-4120-185	EMPLOYEE S-T DISABILITY	322.00	375.00	375.00	375.00	375.00
10-4120-190	PROFESSIONAL SERVICES	-	-	-	-	-
10-4120-191	AUDIT FEES	10,500.00	25,000.00	25,000.00	25,000.00	25,000.00
10-4120-193	CONTRACT LABOR	35,000.00	5,000.00	5,000.00	5,000.00	5,000.00
10-4120-200	OTHER ADMINISTRATIVE	-	-	-	-	-
10-4120-205	OFFICE SUPPLIES - ADMIN	5,000.00	7,500.00	7,500.00	7,500.00	7,500.00
10-4120-210	PLANNING CONFERENCE	500.00	500.00	500.00	500.00	500.00
10-4120-321	TELEPHONE - ADMIN	1,700.00	2,000.00	2,000.00	2,000.00	2,000.00
10-4120-325	POSTAGE - ADMIN	2,475.00	2,500.00	2,500.00	2,500.00	2,500.00
10-4120-331	UTILITIES - ADMIN	4,000.00	5,000.00	5,000.00	5,000.00	5,000.00
10-4120-351	REPAIRS & MAINTENANCE - BUILDING	15,000.00	5,000.00	5,000.00	5,000.00	5,000.00
10-4120-352	REPAIRS & MAINTENANCE - EQUIPMENT	65,767.22	70,000.00	70,000.00	70,000.00	70,000.00
10-4120-354	REPAIRS & MAINTENANCE - GROUNDS	69,469.34	50,000.00	50,000.00	50,000.00	50,000.00

Account Id	Account Description	Estimated Final Actual FY2025	Estimated Operating Budget No Reval FY2026	Revaluation with no tax rate change (2.5 cents)	Revenue Neutral ad valorem rate (1.67 cents)	Incorporate Trash (3.5 cents)
10-4120-355	REPAIRS & MAINTENANCE - PEST CONTRL	1,013.36	1,500.00	1,500.00	1,500.00	1,500.00
10-4120-356	REPAIRS & MAINTENANCE - CUSTODIAL	6,260.00	6,500.00	6,500.00	6,500.00	6,500.00
10-4120-370	ADVERTISING - ADMIN	500.00	500.00	500.00	500.00	500.00
10-4120-397	TAX LISTING & TAX COLLECTION FEES	500.00	500.00	500.00	500.00	500.00
10-4120-400	ADMINISTRATIVE:TRAINING	4,500.00	6,500.00	6,500.00	6,500.00	6,500.00
10-4120-410	ADMINISTRATIVE:TRAVEL	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
10-4120-450	INSURANCE	27,000.00	28,350.00	28,350.00	28,350.00	28,350.00
10-4120-491	DUES & SUBSCRIPTIONS	23,773.04	29,925.00	29,925.00	29,925.00	29,925.00
10-4120-498	GIFTS & AWARDS	1,000.00	1,500.00	1,500.00	1,500.00	1,500.00
10-4120-499	MISCELLANEOUS	20,000.00	15,000.00	15,000.00	15,000.00	15,000.00
	4120 ADMINISTRATIVE	**547,397.87**	**521,705.01**	**521,705.01**	**521,705.01**	**521,705.01**
10-4130-000	ECONOMIC & PHYSICAL DEVELOPMENT	-	-	-	-	-
10-4130-120	SALARIES & EMPLOYEE BENEFITS	-	-	-	-	-
10-4130-121	SALARIES - ZONING ADMINISTRATOR	81,220.42	82,000.00	82,000.00	82,000.00	82,000.00
10-4130-123	SALARIES - ADMINISTRATIVE ASSISTANT	23,012.35	23,000.00	23,000.00	23,000.00	23,000.00
10-4130-124	SALARIES - PLANNING BOARD	2,650.00	5,150.00	5,150.00	5,150.00	5,150.00
10-4130-125	SALARIES - SIGN REMOVAL	3,575.00	3,600.00	3,600.00	3,600.00	3,600.00
10-4130-181	FICA EXPENSE - P&Z	8,836.62	9,100.00	9,100.00	9,100.00	9,100.00
10-4130-182	EMPLOYEE RETIREMENT - P&Z	13,571.93	17,350.00	17,350.00	17,350.00	17,350.00
10-4130-183	EMPLOYEE INSURANCE	16,544.00	16,500.00	16,500.00	16,500.00	16,500.00
10-4130-184	EMPLOYEE LIFE INSURANCE	307.20	375.00	375.00	375.00	375.00
10-4130-185	EMPLOYEE S-T DISABILITY	168.00	200.00	200.00	200.00	200.00
10-4130-190	CONTRACTED SERVICES	-	-	-	-	-
10-4130-192	CONSULTING STORMWATER CONTROL	90,000.00	95,000.00	95,000.00	95,000.00	95,000.00
10-4130-193	CONSULTING	65,000.00	75,000.00	75,000.00	75,000.00	75,000.00
10-4130-194	CONSULTING - COG	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
10-4130-195	STORMWATER EROSION CONTROL	-	-	-	-	-
10-4130-200	OTHER PLANNING	-	-	-	-	-
10-4130-201	OFFICE SUPPLIES - PLANNING & ZONING	5,000.00	7,500.00	7,500.00	7,500.00	7,500.00
10-4130-202	ZONING SPECIFIC OFFICE SUPPLIES	-	-	-	-	-
10-4130-215	HISTORIC PRESERVATION	-	250.00	250.00	250.00	250.00
10-4130-220	INFRASTRUCTURE	75,000.00	-	-	-	-
10-4130-321	TELEPHONE - PLANNING & ZONING	1,700.00	2,000.00	2,000.00	2,000.00	2,000.00

Account Id	Account Description	Estimated Final Actual FY2025	Estimated Operating Budget No Reval FY2026	Revaluation with no tax rate change (2.5 cents)	Revenue Neutral ad valorem rate (1.67 cents)	Incorporate Trash (3.5 cents)
10-4130-325	POSTAGE - PLANNING & ZONING	2,475.00	2,500.00	2,500.00	2,500.00	2,500.00
10-4130-331	UTILITIES - PLANNING & ZONING	4,450.00	5,000.00	5,000.00	5,000.00	5,000.00
10-4130-370	ADVERTISING - PLANNING & ZONING	550.00	500.00	500.00	500.00	500.00
10-4130-500	CAPITAL EXPENDITURES - P&Z					
	4130 ECONOMIC & PHYSICAL DEVELOPMENT	**396,560.52**	**347,525.00**	**347,525.00**	**347,525.00**	**347,525.00**
	General Fund Expenditure Totals	**2,632,160.25**	**2,635,805.01**	**2,635,805.01**	**2,635,805.01**	**2,635,805.01**
	NET REVENUES OVER/(UNDER) EXPENDITURES	1,280,716.69	796,195.00	1,223,695.00	518,695.00	556,195.00

TOWN OF WEDDINGTON
POTENTIAL NON-OPERATING REVENUES & EXPENDITURES

Changes in yellow

		NO REVAL PROPOSED FY2026	REVENUE NEUTRAL FY2026	INCORPORATE TRASH FY2026	FY2025
ESTIMATED OPERATING REVENUES		796,195.00	518,695.00	556,195.00	800,375.00
Zoning & Permit Fees		5,000.00	5,000.00	5,000.00	10,000.00
Subdivision Fees					
	Future unidentified	5,000.00	5,000.00	5,000.00	5,000.00
Driveway easement (to be collected in FY25)					25,000.00
TOTAL ADJUSTED NET OPERATING REVENUES		806,195.00	528,695.00	566,195.00	840,375.00
Proposed non-operating expenditures to be funded					
Police	Increase in contract price (estimated at approx 10%)	65,425.00	65,425.00	65,425.00	30,795.00
	Additional overnight deputies				195,000.00
	Flock camera lease	16,000.00	16,000.00	16,000.00	
Public Safety	New radar trailer	15,000.00	15,000.00	15,000.00	15,000.00
Solid Waste	Billing differential (billing for new homes not on tax scroll yet)	1,750.00	1,750.00	1,750.00	2,650.00
	CPI Increase (6%)	61,200.00	61,200.00	61,200.00	
Attorney	Board of Adjustment; miscellaneous	7,500.00	7,500.00	7,500.00	5,000.00
Publications	Resident wide mailings	15,000.00	10,000.00	10,000.00	10,000.00
Parks & Rec	Spring Event (Shredding)	0.00	0.00	0.00	0.00
	Bunny Hop/Movie Nights/Back to School Drive	1,500.00	1,500.00	1,500.00	1,500.00
	Tree lighting/Christmas cards & decorations	8,000.00	8,000.00	8,000.00	4,500.00
	Litter sweeps	0.00	0.00	0.00	0.00
	Deputies/EMTs (Food Truck Fridays/Tree Lighting)	2,500.00	2,500.00	2,500.00	2,500.00
	Contract labor (i.e. patriotic banner installation, photographer, etc.)	4,000.00	4,000.00	4,000.00	4,000.00
	Food trucks	4,000.00	4,000.00	4,000.00	4,000.00
	Activities	6,250.00	6,550.00	6,550.00	6,250.00
Office supplies	Computer/office equipment replacement/upgrades	5,000.00	5,000.00	5,000.00	2,000.00
	Cellphones for council/administrator				
Grounds maintenance	Landscape upgrades/medians/roundabout	35,000.00	35,000.00	35,000.00	35,000.00
	Town Hall park landscaping/mowing	5,000.00	5,000.00	5,000.00	5,000.00
	Mulching	20,000.00	20,000.00	20,000.00	
Building Maintenance	Town Hall	30,000.00	30,000.00	30,000.00	5,000.00
	Electrical repairs				
Consulting/ Contract Labor	Code Enforcement contract	7,500.00	7,500.00	7,500.00	7,500.00
	Code Enforcement (funds for remedies; Ambassador Ct)	5,000.00	5,000.00	5,000.00	5,000.00
	Planning Conferences (mediator/rental/etc)	3,500.00	3,500.00	3,500.00	3,500.00
	Transportation consulting (i.e. Kimley Horn intersection studies)	11,000.00	11,000.00	11,000.00	11,000.00
	Misc projects	10,000.00	10,000.00	10,000.00	10,000.00
	Urban Forester	8,000.00	8,000.00	8,000.00	7,500.00
Salary adj	Merit/Bonus/Taxes/Benefits	16,100.00	16,100.00	16,100.00	13,680.00
	Increase in admin asst hours	1,375.00	1,375.00	1,375.00	
	Planning tech	31,250.00	31,250.00	31,250.00	
	Council/planning board increases	8,100.00	8,100.00	8,100.00	
	Employee health insurance estimated increase	7,500.00	7,500.00	7,500.00	
	Retirement increase due to increase in rates	945.00	945.00	945.00	

Infrastructure	Other				
	12 Mile @ Beulah Church cost participation	104,000.00		37,500.00	104,000.00
	Tilley-Morris roundabout (FY23 budgets for 20% construction cost overrun)				
	Gateway marker/traffic light masts	25,000.00	25,000.00	25,000.00	
	Town participation in stoplights at Antioch Church/Forest Lawn & 12 Mile Roundabout at Potter & Forest Lawn				75,000.00
Park	Site improvements				200,000.00
	Labella consulting	95,000.00	95,000.00	95,000.00	
Library	Donation to Library Foundation for reading nook				75,000.00
Contingency		168,800.00			0.00
Total cost of non-operating expenditures		806,195.00	528,695.00	566,195.00	840,375.00
		0.00	0.00	0.00	

ESTIMATED TAX BASE INCREASE

STATUS QUO		**AD VALOREM REVENUE NEUTRAL**	
3,340,532,000	Appraised value FY2025	3,340,532,000	Appraised value FY2025
(128,089,800)	Exemptions	(128,089,800)	Exemptions
54,000,000	54 COC @ $1000000k	54,000,000	54 COC @ $1000000k
3,266,442,200	Estimated value FY2026	3,266,442,200	Estimated value FY2026
		1.5	50% reval increase
		4,899,663,300	
2.50	Tax rate	1.67	Tax rate
816,611	Gross tax collection	818,244	Gross tax collection
0.96	Collection percentage	0.96	Collection percentage
783,946	Estimated ad valorem	785,514	Estimated ad valorem

REVENUE NEUTRAL &
INCLUDE TRASH

3,340,532,000	Appraised value FY2025
(128,089,800)	Exemptions
54,000,000	54 COC @ $1000000k
3,266,442,200	Estimated value FY2026
1.5	50% reval increase
4,899,663,300	
3.5	Tax rate
1,714,882	Gross tax collection
0.96	Collection percentage
1,646,287	Estimated ad valorem

REVENUE ANALYSIS

785,514	Revenue neutral Ad valorem
1,082,950	Revenue neutral trash cost
75,000	Revenue neutral M/V
1,943,464	Rev neutral town revenues
450,000	Rev neutral state revenues
45,000	Rev neutral state revenues
337,500	Rev neutral state revenues
2,775,964	Total ad valorem affected revenues (revenue neutral)

1,645,000	3.5 cent tax ad valorem revenues
105,000	M/V @ 3.5 cents
625,000	State revenues
65,000	State revenues
475,000	State revenues
2,915,000	Total ad valorem affected revenues with trash

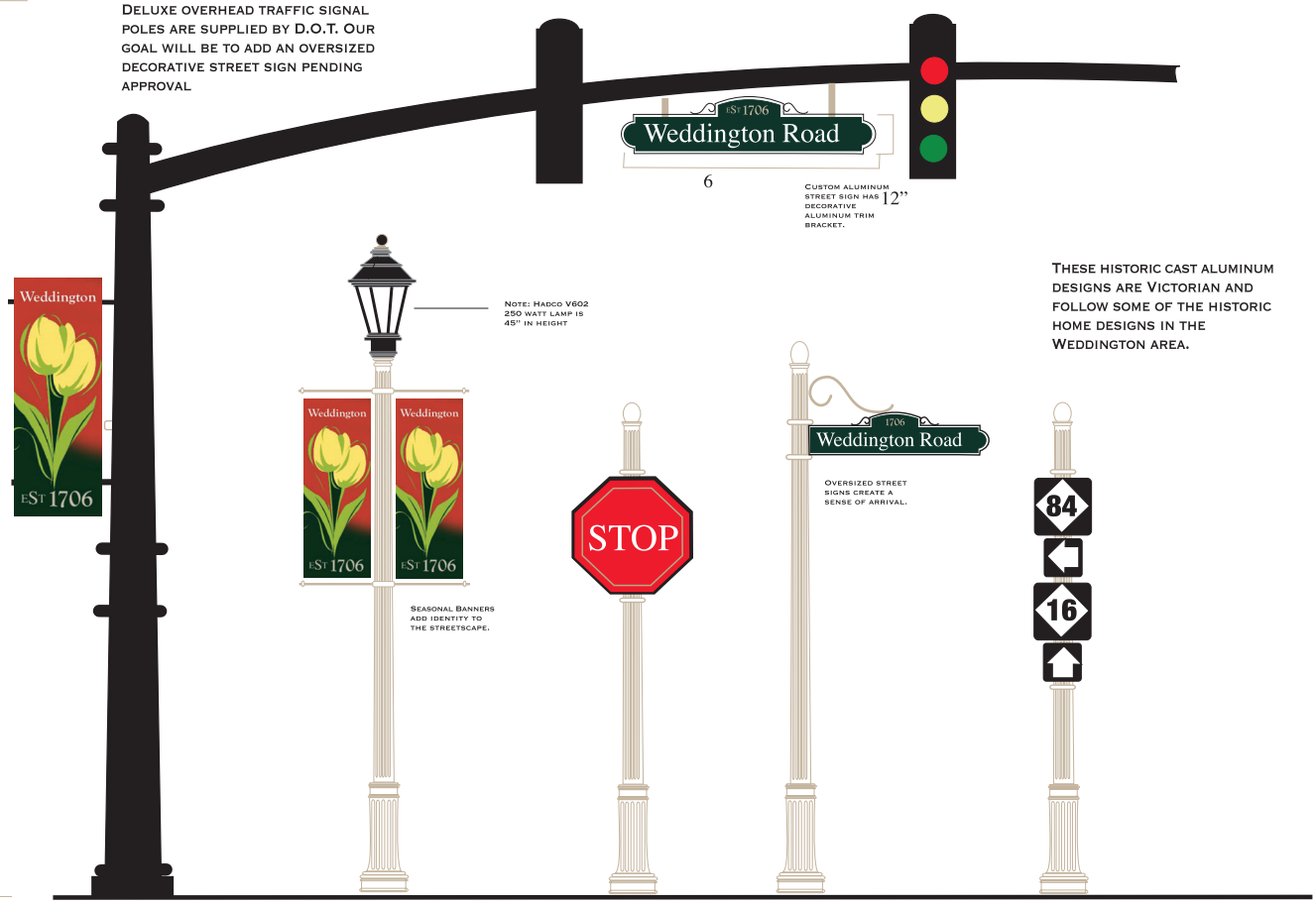
Preliminary Design Guidelines / Design Option

21

16

10

Deluxe overhead traffic signal poles are supplied by D.O.T. Our goal will be to add an oversized decorative street sign pending approval



These historic cast aluminum designs are Victorian and follow some of the historic home designs in the Weddington area.

REQUEST FOR PROPOSALS
FOR LANDSCAPE & GROUND MAINTENANCE SERVICES

April 4, 2025

TOWN OF WEDDINGTON
NORTH CAROLINA

The Weddington Town Council is accepting proposals from experienced and qualified companies to enter into a contract for landscape and grounds maintenance services.

Those wishing to be considered for the contract should submit a proposal to Town Administrator/Clerk, Town of Weddington, 1924 Weddington Rd., Weddington, NC 28104. The deadline for applications is **April 30, 2025 by 1:00 PM.**

SCOPE OF SERVICES, DUTIES AND RESPONSIBILITIES

During the Term the Contractor shall care for and maintain the Town Hall property, medians, and right(s) of way as set forth on Exhibit A and Exhibit B. All Services rendered shall be completed with the highest standard of care and workmanship prevailing in the field of landscape maintenance in the general geographic area in which the Town is located.

Equipment: Contractor shall provide all equipment and tools required to fulfill the terms and conditions as outlined in these specifications. The contractor shall operate the equipment in a safe manner so as not to create a hazard to the public and keep all work equipment wheels off travel ways during grounds maintenance operations. All equipment used must be commercial grade equipment for the entire term of this agreement.

MINIMUM QUALIFICATIONS

Proposals will be considered only from companies normally engaged in performing the type of work specified within this Request for Proposal. In the determination of the evidence of responsibility and ability to perform the required services by the Proposer, the Town in its discretion shall determine whether the evidence of responsibility and ability to perform is satisfactory. The Town reserves the right to reject any or all proposals.

Proposer must be licensed to do business in the State of North Carolina.

Proposer warrants that he/she is fully qualified, with adequate personnel, experience and resources to undertake the services required and meet all obligations outlined in this RFP and the resulting contract within a reasonable time.

Proposer shall be an equal opportunity employer and shall adhere to all applicable local, state, or federal affirmative action requirement

SUBMITTAL INFORMATION

In addition to the completed "Contractor's Price Proposal," all proposals must provide the following:

1. Reference list of at least three (3) clients to whom the Proposer has provided similar services as prime contractor within the past five years. References must include the name of client, address, contact person and title, telephone number, and date(s) of service.
2. Evidence of general liability insurance with minimum limits of $500,000 per occurrence combined single limit for bodily injury liability and property damage liability. Certificates of Insurance shall be filed with the Town and shall list the Town as additional insured.

3. Evidence of workers' compensation insurance for all employees for statutory limits in compliance with applicable state and federal laws.

TERMS AND CONDITIONS

1. Term of Contract: The contract resulting from this RFP shall be for a period of one (1) year from July 1, 2025 to June 30, 2026. This agreement shall automatically renew for an additional one (1) year term, up to a maximum of two additional years.

2. Hours of Work: The Contractor's operations will be restricted to daylight hours and no work may be performed on Sundays. Work shall only be performed when visibility conditions allow safe operations. The hours shall meet all Town ordinances as they pertain to noise.

3. Billing and Payment: The Contractor shall submit a monthly bill for services rendered to Town of Weddington, 1924 Weddington Road, Weddington, NC 28104. The Town will make payment within thirty (30) days of receipt of an accurate invoice. Invoices should include a description of services provided during the billed month.

4. Modifications of Work: The Town may at any time change the scope of work in the contractor by written notice to the Contractor, giving therein a date upon which the change shall become effective. On such effective date, the Contractor shall make the required changes in operations. Upon receipt of a change notice, the Contractor shall submit to the Administrator an estimate of the change in working hours or increase in cost resulting from said change. The Town shall then provide notice to the Contractor that it consents to the change in scope and increase in costs or that it has determined not to change the scope of work whereby the contract price would remain the same or the parties may negotiate any such changes.

5. Performance of Extra Services: The Contractor shall, upon written or oral request from the Town, perform extra services. The Contractor shall be entitled to charge for such services at a negotiated price. Requests for payment for additional services shall be submitted no later than the next regular monthly invoice and should be specifically identified as services rendered over and above contract provisions.

6. Price Increases: The prices bid in this proposal shall remain intact for the entire first year of this agreement. Adjustments, if needed, are to be made annually on the anniversary date of this agreement and cannot exceed the CPI percentage adjustment for the previous year based on the month of June.

7. Personnel: Contractor represents and warrants to the Town that Contractor has, or shall secure at its own expense prior to the commencement of services hereunder, all necessary personnel required to perform the services under this Contract. All services required of Contractor hereunder shall be performed by Contractor or under its supervision, and all personnel engaged in performing such services shall be fully qualified, and if necessary, authorized under applicable law to perform such services. Contractor represents and warrants to the Town that all services shall be performed by skilled and competent personnel to the highest professional standards in the field.

8. Non-discrimination: Contractor represents and warrants that all of its employees are and shall be treated equally during employment by Contractor without regard to race, color, religion, physical handicap, sex, age, or national origin.

9. Safety: Contractor understands and acknowledges that it will be working in a roadside area. Contractor shall be responsible for the conduct and actions of all of its employees and subcontractors.

10. Liability and Indemnity: Contractor agrees that s/he shall be responsible for all damages and all liability to both public and private property in the performance of its duties under the Contract, and shall report such damages to the Town as soon as possible. Contractor agrees to indemnify and save harmless the Town of Weddington, its officers, agents, monitors, representatives, employees and attorneys from and against any and all losses and claims, demands, payments, suits, actions and judgments of every kind, including, without limitation, attorneys fees and expenses for the total cost of review and defending same, that may be brought or recovered against them by reason of any action or omission of the Contractor, its agents or employees (including those of any of his sub-contractors) in the performance of work under this Contract.

11. Liability Insurance: The Contractor agrees to and shall procure and maintain during the duration of this Contract, Contractor's general public liability and property damage insurance, including auto liability and employer's liability coverage, insuring Contractor from all claims from personal injury, including death, and claims for destruction or damage to property arising out of or in connection with any operations under this Contact, whether such operations are by the Contractor or a subcontractor of the Contractor, and said insurance shall name as additional insured, waive and hold harmless the Town of Weddington.

12. Workers Compensation Insurance: Contractor shall provide Workers Compensation Insurance and maintain at its expense during the term of this Contract, in accordance with workers compensation laws of the State of North Carolina, including occupational disease provisions, for all of the Contractor's employees, and in case any work is sublet, Contractor shall require any such subcontractor similarly to provide Workers Compensation Insurance, including occupational disease provisions, for all of the subcontractor's employees unless such employees are covered by the protection by the Contractor.

13. Termination: The Contractor may terminate this Contract upon sixty (60) days written notice to the Town, provided, however, that during such sixty (60) days (or until earlier release by the Town), Contractor shall continue to diligently perform all of its duties hereunder. The Town may cancel this Contract at any time for any reason, with or without cause, upon sixty (60) days written notice to the Contractor. If this Contract is terminated by the Town with written notice to Contractor, the Contractor shall be paid for the eligible work performed to the time of termination. The termination of this Contract by the Town for inadequate performance shall not relieve Contractor of any obligations and liabilities that have accrued at the time of such termination. If this Contract is so terminated, the Town shall be liable only for goods or services then delivered by Contractor and accepted by the Town.

14. Severability: If any term or provision of this Contract shall be held to be invalid or unenforceable, the remainder of this Contract, or the application of such term or provision, to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected, and every other term and provision of this Contract shall be deemed valid and enforceable to the extent permitted by law.

15. Default: Either party shall be in default hereunder upon the failure to perform any material provision hereof. In the event of a default by the Town, Contractor shall be entitled to exercise any and all rights and remedies available under the laws of the State of North Carolina. In the event of a default by Contractor, the Town shall be entitled to exercise any or all of the following remedies, alone or in conjunction with others: (a) the termination of this Contract; (b) the withholding of the retainage specified herein to be applied to damages incurred by reason of

such default; and (c) the exercise of all other rights and remedies available under the laws of the State of North Carolina.

16. Successors and Assigns: This Contract shall be binding upon the parties and their respective successors and assigns; provided, however, that this Contract may not be assigned by Contractor without the prior written consent of the Town, which consent may be withheld at the sole and absolute discretion of the Town. No provision hereof shall be deemed to create any personal liability on the part of any officer, agent for the town, nor shall this Contract be deemed to create any rights or benefits to any person other than the Town or Contractor.

17. Performance: Contractor shall perform its obligations hereunder in a manner so as not to interfere with the normal operations of the Town, such performance by Contractor shall comply with all applicable local, State, and federal laws and regulations. Contractor shall have periodic communications with the council member in charge/and or staff to maintain satisfaction for both parties.

18. Inspection: All work shall be subject to inspection by the Town at any time.

19. Entire Agreement: This Contract constitutes the entire agreement between the parties, and there are no promises or understandings other than those stated herein. None of the provisions, terms, and conditions contained in this Contract may be added to, deleted from, modified, superseded, or otherwise changed, except by written instrument executed by the parties hereto.

20. Non-Exclusive Contract: This Contract shall be non-exclusive and the Town may procure the services contemplated hereby from other sources at the Town’s discretion.

Contractor's Price Proposal

This price proposal form must be completed, signed, and submitted. No substitute forms will be accepted. Proposals submitted without this completed price proposal will be rejected. Proposal of

_____
(Name of Proposer)

_____
(Address of Proposer)
_____

_____ _____
(Business Phone) (Fax Number)

_____
(E-Mail Address)

The Proposer (hereinafter called "Contractor"), in compliance with your invitation for proposals for: Proposal for the Town of Weddington Landscape & Grounds Maintenance Services, having examined the specifications with related documents and the sites of the proposed work, and being familiar with all of the conditions surrounding the work of the proposed project, including availability of equipment and labor, hereby proposes to perform in accordance with this Request for Proposal, and at the prices stated.

These prices shall cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Contractor's Price Proposal:

_____ per month for Services outlined in Exhibit A

_____ per month for Services outlined in Exhibit B

Respectfully submitted:

Name of Company _____

Signature of Officer _____

Name of Officer _____

Title of Officer _____

Exhibit A – Town Hall Property

1. Cut all grass areas as needed or as deemed necessary to maintain a high degree of curb appeal. Grass will be cut weekly during the accepted normal growth period except when weather dictates otherwise.

2. Edge all walkways, curbs, driveways, and or streets as needed during the growing season. Normally twice monthly edging will suffice to maintain a manicured appearance.

3. Clean all grass and debris from walkways curbs, driveways, and or streets after mowing and edging operations.

4. Police grounds to remove trash, limbs, litter prior to mowing.

5. Keep shrubbery, flower beds and mulched areas weeded and groomed at all times. Weed control will be accomplished with herbicides when possible and by hand pulling when danger to desirable plant material may exist.

6. Mulch all shrubbery, flower beds, and tree areas with hardwood mulch on an annual basis. Annual mulching is to occur between January 1, and February 28, any extra mulching to be additionally charged on a monthly basis.

7. Keep all shrubbery trimmed as needed on a year round basis. Shrubbery trimming will be performed a minimum of two times per year.

8. Aerate all established grass areas in the fall before over seeding.

9. Fertilize all grassed areas four times annually with 2- slow release applications, 1-Crab Grass Pre-Emergent, 1-Crab Grass Pre-Emergent with Broadleaf Weed Killer Fertilize Application. Fertilize all trees and shrubbery at least once annually.

10. Control all vegetation in paved areas with the herbicides.

11. During the fall season, leaves will be blown from the grassed areas and removed from maintained ground area.

12. Debris will be removed from gutters four times per year.

13. During winter months, grounds will be policed periodically for trash and debris. Paved areas will also be blown clear.

14. Remove all dead plants, shrubs, and trees less than 6” in diameter within the primary maintenance area. All contract tree removal will occur between November 1 and March 30, unless otherwise jointly agreed.

Exhibit B - Medians and Right(s)-of-way

1. Cut grass along shoulders 10’ – 15’ behind sidewalks and medians/round about as marked on the attached map (exhibit C). Grass will be cut as needed or as deemed necessary to maintain a high degree of curb appeal.

2. Edge all curbs, sidewalks and medians as needed during the growing season. Normally, once monthly edging will suffice to maintain a manicured appearance.

3. Weed eating around tree beds, signs, and along banks will be done after each mowing.

4. Clean all grass and debris from walkways, curbs, driveways, and / or streets after mowing and edging operations.

5. Police grounds to remove trash, limbs, litter prior to mowing.

6. Weeds in joints of concrete and in mulched median beds and beds around trees will be treated with herbicides.

7. During the fall season, leaves will be blown from the grassed areas and removed from the maintained ground area.

8. During winter months, grounds will be policed periodically for trash and debris. Paved areas will also be blown clear.

9. Remove all dead plants, shrubs, and trees less than 6” in diameter within the primary maintenance area. All contract tree removal will occur between November 1 and March 30, unless otherwise jointly agreed.

10. Shrubs and trees will be trimmed one time per year. Shrubbery trimming will include dead heading daylilies, but not include ornamental grasses.

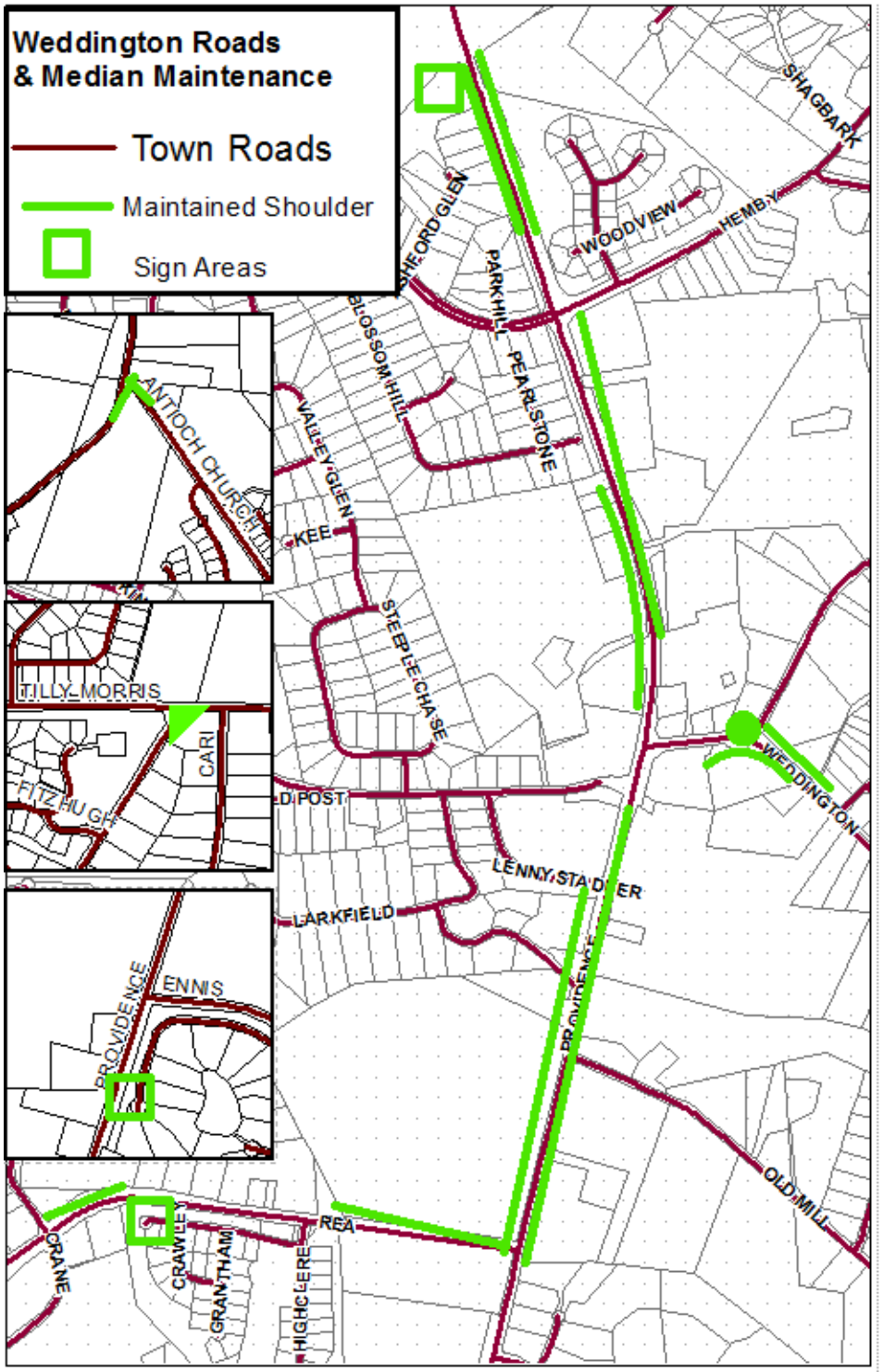
11. Fertilize all trees and shrubbery once annually. This will occur in early spring.

12. Mulch all medians and tree beds one time every two years. Mulching will be done December 2025 to February 28, 2026. Mulching will be applied at a minimum of 4” depth.

13. Maintain town entry monuments (3 locations) and the landscaping beds surrounding it and trimming surrounding shrubbery and trees to maintain visibility

14. Maintain median at intersections of Matthews-Weddington Road and Antioch Church Road intersection.

Exhibit C


Weddington Roads
& Median Maintenance
Town Roads
Maintained Shoulder
Sign Areas
SHAGBARK
WOODVIEW
HEMBY
PARKHILL
PEARLSTONE
BLOSSOM HILL
VALLEY GLEN
ANTIOCH CHURCH
KEE
STEEPLECHASE
TILLY MORRIS
CARI
FITZHUGH
POST
WEDDINGTON
LENNY STADLER
LARKFIELD
PROVIDENCE
ENNIS
OLD MILL
REA
CRANE
CRAWLEY
GRANTHAM
HIGHCLERE

LAND USE PLAN AMENDMENT (Reference to Overlay District – Page 50)

Commercial Development. As indicated previously, the Town has very limited commercial activity. The only commercial area in Weddington is located at the intersection of NC 16 and NC 84. The existing commercial development is zoned for mixed uses, business, retail, and office uses. Uses are limited in nature and size; setback requirements are significant. Tenants in the shopping center include a grocery store, fitness center, three restaurants, a mail delivery center, a hair salon, nail salon, pet salon, drycleaners, and an animal hospital. Adjacent to the shopping center is a small professional office complex that contains a dentist office, orthodontic office, chiropractic office, two medical health office, an insurance company, a real estate agency, a law firm, clothing alteration and an interior design office. A convenience store and bank are located along NC 16. Adjacent to the shopping center is an indoor gymnasium facility. A 15,000 square foot office building was recently approved. Weddington's Town Hall lies adjacent to this shopping/office complex. All land that is currently zoned for commercial purposes in Weddington is found in the vicinity of the Town Center.

In May of 2015, the Town Council adopted a Downtown Overlay District to provide additional regulations for the above-mentioned 34 acres already designated future business on the Future Land Use Map. The Overlay District policies are based on the Goals, Policies, and Strategies already included in this Land Use Plan, and will help create an attractive, accessible, and unified Town Center.

Although commercial facilities are limited within Weddington itself, there are numerous commercial facilities within a short distance of Weddington. There are a number of existing shopping centers within five miles from Weddington, with more planned or under construction. A 2009 market study by Arnett Muldrow indicated that there were 7,174,000 square feet of existing or planned retail space within a 15 minute drive of Weddington.

The large amount of commercial development in southern Mecklenburg County and western Union County, close to Weddington, provides additional commercial development opportunities and supports existing Town demand. Future commercial development in the Town should therefore be limited due to existing traffic volumes on major thoroughfares and overall community sentiment as reflected in the 2010 land use survey. However, the survey also showed a preference for innovative commercial uses that blend in, rather than are differentiated from, adjacent areas. Such land uses, such as limited retail and office, if properly designed, can be both appealing and harmonious with adjacent land uses.

An existing shopping facility close to Weddington is the Arboretum, at Providence Road and NC 51. It contains over 500,000 square feet of retail floor area and contains a wide variety of stores;

including grocery, discount retail, clothing, restaurants, fast food, and movie theaters. It is one of the largest shopping centers in southern Mecklenburg County and serves many of the shopping needs of Weddington residents. The Promenade on Providence is located at the intersection of Providence Road and Ballantyne Commons Parkway. The Promenade offers over 450,000 square feet of commercial area. This includes a strip shopping center, retail uses, pharmacy, convenience store and a two "big box" home improvement stores, as well as an office complex The Arboretum is located approximately five miles north of the Weddington "Town Center".

Two other shopping complexes, Stonecrest and Blakeney serve the Weddington area and are located along Rea Road. These two shopping centers plus Village Commons in Wesley Chapel, Rea Village Shopping Center at Providence Road and Ardrey Kell Road and Idlewild Village in Stallings serve the Weddington community.

In nearby Marvin, a fifteen-acre parcel was rezoned to accommodate a small shopping area along the west side of that portion of Rea Road Extension that lies in Marvin. A similar sized tract along the east side of Rea Road Extension that lies in unincorporated Union County is also zoned for commercial purposes.

Other existing shopping areas that are relatively close to Weddington include Plantation Market, on Weddington-Matthews Road in Matthews; Potter Square, which lies off Old Monroe Road in Stallings; and at the intersection of McKee Road and Potter Square in Stallings. There also are two other strip shopping centers that lie along US 74 in Indian Trail that provide many of the same shopping opportunities as are found in the other previously mentioned shopping facilities. The only true "downtown" shopping opportunities that are located nearby are found in Matthews and Waxhaw, which includes a limited number of specialty shopping stores, restaurants, and offices.

B. Public Hearing to Review Proposed Text Amendments to Section 58-272: Downtown Overlay District – Creation of Overlay District Policy

Mayor Deter opened the Public Hearing.

Planner Burton advised this is a proposed new section of our Zoning Ordinance 59-272 for the creation of a Downtown Overlay District. Council has seen previous drafts of this document and recommendations that guided this document. To summarize it will place additional regulations on approximately 30 acres already designated future business in our Land Use Plan. The main purpose is to help contain commercial development in the area where it's already designated in our Land Use Plan and to encourage connectivity between those two parcels to create a more unified town center. Council and the Town Attorney have reviewed this document and provided comments which are reflected in this document already.

Nancy Anderson stated she was in favor of a plan and appreciates the Council taking this on.

Mayor Deter closed the Public Hearing.

Councilwoman Hadley stated when she read certain sections she had some concern but after reviewing the entire document she was more comfortable with the document.

Council each made a positive statement which summarized states that it goes a long way to contain our commercial district.

Councilwoman Harrison made a motion to approve Section 58-272: Downtown Overlay District as written. **(COPY ATTACHED HERETO AND MADE A PART OF THE MINUTES)**
All were in favor, with votes recorded as follows:

AYES:	Councilmembers Harrison, Hadley, Smith and Mayor Pro Tem Titherington
NAYS:	None

C. Public Hearing: Text Amendment to Sections 58-541 – 58-547: Drainage, Storm Water Management & Wetland Protection – revisions to definitions and applications of impervious area, and creation of stormwater management regulations for the Overlay District

Mayor Deter opened the Public Hearing.

Planner Burton advised most of this ordinance was already approved in November; these are some minor tweaks to help improve the policy effectiveness in the Town. This was looked at and some of which was proposed by USI. The Town Attorney has reviewed it as well.

Planner Burton reviewed some of the sections for Council: 58-543B helps to define new impervious area, resulting from Council comments at a previous meeting it being unclear; a more substantial change is 12, which is related to Downtown Overlay District that was just approved. Specifically dealing with stormwater management on the parcels within the Downtown Overlay District and encourages construction of a regional and shared stormwater pond, providing a slightly different base line requirement at 25 year storm instead of 100 year storm retention. If the development is serving an area of 9 acres or more, providing an incentive for different property owners to work together to create a regional stormwater pond and the Council would still have final say through the conditional zoning process to go up from that base line. It provides Council with more flexibility when reviewing a pond that would potentially take up less land area and provide an amenity for what could be a town center area.

AN ORDINANCE TO AMEND
THE CODE OF ORDINANCES
OF THE TOWN OF WEDDINGTON
O-2015-07

BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF WEDDINGTON THAT SECTION 58-272 BE AMENDED TO INCLUDE THE DOWTOWN OVERLAY DISTRICT ORDINANCE IN THE CODE OF ORDINANCES AS FOLLOWS:

Section 58-272 Downtown Overlay District

(a) Downtown Overlay Boundary

The Downtown Overlay shall apply to those parcels designated as future business in the Town of Weddington 2013 Land Use Plan. The Downtown Overlay shall include the northern edge of Parcels 06150059A and 06150059, the northern boundary; Weddington-Matthews Road, the eastern boundary; Weddington Road (Highway 84), the southern boundary; and Providence Road, the western boundary. All commercial development proposed within any parcels included within this Downtown Overlay shall also be subject to the requirements of with the MX zoning district (Section 58-60), and the Conditional Zoning application process described in Section 58-271. The Downtown Overlay District will supersede any requirements defined in Section 58-60 (MX Zoning District) when there is a conflict in the requirements between the two sections.

(b) Maintenance of shared facilities within the Downtown Overlay

The Council may require that the owners, or applicants, create, participate in, or be a signatory to a Maintenance Agreement with any or all other property owners located within the Downtown Overlay's jurisdiction. The Maintenance Agreement shall provide for the maintenance of any shared facilities or spaces within the Downtown Overlay, potentially including but not limited to shared open space, pathways, roadways, shared entrances, entryway monuments, decorative street lighting, stormwater facilities, and sewer/septic facilities. Existing property owners shall be allowed to join in any maintenance agreements.

(c) Access from Thoroughfares

1. Access to parcels within the Overlay District from Providence Road shall be limited to the existing number of access points. Any existing access point may be shifted or modified to accommodate new development and/or parking, subject to Council approval and provided the total number of access points is not increased.

2. Access to parcels within the Overlay District from Weddington-Matthews Road shall be limited to one shared access point.

3. The Town Council may require all applicants proposing new commercial development within the Downtown Overlay to coordinate with NCDOT and contribute to the cost of construction for the east-west collector road as shown in the Local Area Regional Transportation Plan. The cost of the contribution will be approved by both the Town Council and NCDOT and may be placed into an escrow account, or a similar account, until sufficient funds are in place for construction of the road.

a. The Town Council may require that maintenance of the collector road to be the responsibility of any or all of the owners within the Downtown Overlay, until the point that NCDOT takes over maintenance of the road.

b. If and when the collector road is constructed, it shall be limited to one shared access point to parcels within the Downtown Overlay.

(d) Connectivity within the Town Center

1. Any proposed development site plan must create roadway stubs to connect with any or all adjacent parcels also located within the Downtown Overlay District.

2. Any proposed development site plan must create pedestrian pathway stubs to connect with any or all adjacent parcels also located within the Downtown Overlay District.

3. Any proposed development site plan must include clearly identifiable crosswalks to allow pedestrians to safely cross parking lots and interior streets.

4. Any proposed development site plan must coordinate with NCDOT and include sidewalks along the thoroughfare or the collector road ((c), 3). Maintenance of the sidewalks must be the responsibility of the property owner, or included within a maintenance agreement including several property owners.

5. Any proposed development must include street trees and decorative street lighting to encourage pedestrian activity. All street trees must be included in the Town of Weddington's List of Acceptable Plant Species.

(e) Open Space and Natural Features

1. Any proposed development within the Town Center shall be required to provide 10% open space. The development shall also be required to dedicate an additional 10% of open space to create shared open spaces. The Council will approve the location of any shared open space, and may require that the shared open space be located on the boundary of the parcel so that it can be combined with the shared open space of an adjoining parcel.

2. Any application for a conditional rezoning for property within the Downtown Overlay District shall include an environmental survey locating and detailing all natural features

on the property, including but not limited to trees. The Town Council may require that any or all existing natural features on the property be preserved and/or maintained by the property owner as a condition of a Conditional Zoning approval.

(f) Design and Parking

1. New construction should align facades with those of any adjacent structures. Exceptions may be granted if the setback is pedestrian-oriented and contributes to the quality and character of the streetscape. An example would be for outdoor dining.

2. All roof equipment must be screened from public view and shall not be visible from the street.

3. All exterior trash and storage areas, service yards, loading areas, transformers and air conditioning units must be screened from view. Camouflaging air conditioning units is an acceptable screening method. The screening must use the same materials, color and/or style as the primary building in order to be architecturally compatible with the adjacent building.

4. Shared entry monuments located at shared access points shall be predominantly brick and compatible with existing entryway monuments within the Downtown Overlay District. Maintenance of the entry monument structures and any landscaping associated with the monuments shall be the responsibility of property owners within the Downtown Overlay District and/or signatories to the Maintenance Agreement.

5. Decorative street lighting shall be approved by the Town of Weddington, and must be installed within any new development proposed within the Downtown Overlay at the sole cost of the developer. The decorative street lighting should be placed at an appropriate and uniform distance along the roadways or pathways, and shall be coordinated with the spacing and locations of the lighting on adjoining parcels within the Downtown Overlay District.

6. Proposed structures within the Downtown Overlay District must be designed in a manner that promotes adaptive reuse, as defined in Section 58-4.

7. Proposed structures within the Downtown Overlay should be located towards the exterior of the parcels (along the thoroughfares), and contain interior parking. The Town Council may approve structures located towards the interior of the parcels if more than one structure is proposed on the same parcel.

8. The Town Council may reduce parking requirements by up to 50% if proposed development provides shared parking between more than one use or property owner.

(g) Infrastructure

1. Any new development within the Downtown Overlay must connect to a sewer system, whether private or public, unless it is shown to be unreasonable to make the connection, or unless the applicant provides a suitable alternative.

(h) Planned Unit Development

1. The Overlay District is designed to create a unified town center out of separate development projects. However, a large area could be developed simultaneously by one developer. One major project could allow for development to meet the intent of the Overlay District, while not meeting every specific requirement as stated this ordinance. Therefore, the Town Council may provide exceptions to any requirements within this ordinance if the overall intent of the Ordinance is being met by a proposed development of 9 acres or more.

Adopted this 8th day of June, 2015.

Bill Deter, Mayor

Attest:

Peggy S. Piontek, Town Clerk

4. As provided in the Table of Permissible Uses some land uses are of such a nature or scale that they have significant impacts on both the immediately surrounding area and/or the entire community that cannot be predetermined and controlled by general district standards and thus are only permitted with a Conditional Zoning district rezoning approval. Additionally, there may be instances where a general zoning district designation is clearly inappropriate for a certain property, but a specific use permitted under that district and subject to restrictive conditions would be consistent with the spirit and objectives of this Ordinance and applicable land plans. Both of these circumstances are reasonably addressed through a Conditional Zoning process.
5. The rezoning of any parcel of land to a CZ district shall be a voluntary process initiated by the property owner or his authorized agent.
6. To provide guidance and information, some rules, regulations and conditions that may be incorporated as part of the CZ zoning approval are identified in this UDO. Conditional Zoning is a legislative procedure under which the Town Council has the authority to increase, tighten, add, vary, modify or waive specific conditions or standards.
7. Once a property has been rezoned to a CZ, it shall be referenced with the letters "CZ" on the Zoning Map.
8. The process for approval of a CZ district is explained in greater detail in Article 6.

D. Downtown Overlay District. As of the date of this UDO, the Town has a single overlay district, the Downtown Overlay District.

1. **Overview**. The downtown overlay shall apply to those parcels designated as future business in the Town of Weddington Land Use Plan and zoning map. All commercial development proposed within any parcels included within this downtown overlay shall also be subject to the requirements of with the section above, and the conditional zoning application process.
2. **Maintenance of shared facilities within the downtown overlay.** The Town Council may require that the owners, or applicants, create, participate in, or be a signatory to a maintenance agreement with any or all other property owners located within the downtown overlay's jurisdiction. The maintenance agreement shall provide for the maintenance of any shared facilities or spaces within the downtown overlay, potentially including but not limited to, shared open space, pathways, roadways, shared entrances, entryway monuments, decorative street lighting, stormwater facilities, and sewer/septic facilities. Existing property owners shall be allowed to join in any maintenance agreements.
3. **Access from thoroughfares.**
    - Access to parcels within the overlay district from Providence Road shall be limited to the existing number of access points. Any existing access point may be shifted or modified to accommodate new development and/or parking, subject to council approval and provided the total number of access points is not increased.
    - Access to parcels within the overlay district from Weddington-Matthews Road shall be limited to one shared access point
    - The Town Council may require all applicants proposing new commercial development within the downtown overlay to coordinate with NCDOT and contribute to the cost of construction for the east-west collector road as shown in the local area regional transportation plan. The cost of the contribution will be approved by both the Town Council and NCDOT and may be placed into an escrow account, or a similar account, until sufficient funds are in place for construction of the road.
4. **Collector Road.** If and when the collector road is constructed, it shall be limited to one shared access point to parcels within the downtown overlay. The Town Council may require that maintenance of the collector road to be the responsibility of any or all of the owners within the downtown overlay, until the point that NCDOT takes over maintenance of the road.
5. **Connectivity within the Town Center.**
    - Any proposed development site plan must create roadway stubs to connect with any or all adjacent parcels also located within the downtown overlay district.

- Any proposed development site plan must create pedestrian pathway stubs to connect with any or all adjacent parcels also located within the downtown overlay district.
- Any proposed development site plan must include clearly identifiable crosswalks to allow pedestrians to safely cross parking lots and interior streets.
- Any proposed development site plan must coordinate with NCDOT and include sidewalks along the thoroughfare or the collector road. Maintenance of the sidewalks must be the responsibility of the property owner or included within a maintenance agreement including several property owners.
- Any proposed development must include street trees and decorative street lighting to encourage pedestrian activity. All street trees must be included in the Town of Weddington's List of Acceptable Plant Species.

6. **Open space and natural features.**
   - Any proposed development within the Town Center shall be required to provide ten percent open space. The development shall also be required to dedicate an additional ten percent of open space to create shared open spaces. The council will approve the location of any shared open space and may require that the shared open space be located on the boundary of the parcel so that it can be combined with the shared open space of an adjoining parcel.
   - Any application for a conditional rezoning for property within the downtown overlay district shall include an environmental survey locating and detailing all natural features on the property, including but not limited to trees. The Town Council may require that any or all existing natural features on the property be preserved and/or maintained by the property owner as a condition of a conditional zoning approval.
7. **Design Standards.**
   - New construction should align facades with those of any adjacent structures. Exceptions may be granted if the setback is pedestrian-oriented and contributes to the quality and character of the streetscape. An example would be for outdoor dining.
   - All roof equipment must be screened from public view and shall not be visible from the street.
   - All exterior trash and storage areas, service yards, loading areas, transformers and air conditioning units must be screened from view. Camouflaging air conditioning units is an acceptable screening method. The screening must use the same materials, color and/or style as the primary building in order to be architecturally compatible with the adjacent building.
   - Shared entry monuments located at shared access points shall be predominantly brick and compatible with existing entryway monuments within the downtown overlay district. Maintenance of the entry monument structures, and any landscaping associated with the monuments shall be the responsibility of property owners within the downtown overlay district and/or signatories to the maintenance agreement.
   - Decorative street lighting shall be approved by the Town of Weddington and must be installed within any new development proposed within the downtown overlay at the sole cost of the developer. The decorative street lighting should be placed at an appropriate and uniform distance along the roadways or pathways and shall be coordinated with the spacing and locations of the lighting on adjoining parcels within the downtown overlay district.
   - Proposed structures within the downtown overlay district must be designed in a manner that promotes adaptive reuse (as defined in **Appendix 1** (Definitions)).
8. **Location of Structures.** Proposed structures within the downtown overlay should be located towards the exterior of the parcels (along the thoroughfares) and contain interior parking. The Town Council may approve structures located towards the interior of the parcels if more than one structure is proposed on the same parcel.

9. **Possible Reduction in Parking Requirements (as part of CZ Process).** As part of the conditional zoning process, the Town Council may reduce parking requirements by up to 50 percent if proposed development provides shared parking between more than one use or property owner.
10. **Infrastructure.** Any new development within the downtown overlay must connect to a sewer system, whether private or public, unless it is shown to be unreasonable to make the connection, or unless the applicant provides a suitable alternative.

E. Zoning Map. The Town's Zoning Map is incorporated herein by reference. The Zoning Map may be changed by Town Council from time-to-time in accordance with the procedures set forth herein.

F. Permitted Uses (by zoning district).

1. By-right Uses. Certain primary uses of land are permitted "by right" (BR) in each conventional zoning district, provided all applicable provisions of this UDO (and any other applicable legal requirements) are satisfied. This UDO also provides for additional supplemental requirements (SR) that are applicable to a certain "by-right" uses of land as set forth in Article 9.
2. Conditional Uses. Others primary uses of land are permitted through the CZ zoning process. This UDO also identifies, in some cases, supplemental requirements (SR) that are likely to be applicable and desirable in connection with any CZ approval. Additionally, a property owner may petition the Town Council through the CZ zoning process to consider permitting primary uses that are not identified as permitted in this UDO (although the Town Council has no obligation to approve any such requests).
3. Unless a use is allowed as a permitted, been approved through a CZ zoning process, or is a permitted nonconforming use as set forth in Article 1, then such use is expressly prohibited, and such use shall constitute a violation of this UDO.
4. Permitted uses (BR and CZ) are identified in Table 1, Permitted Uses – Zoning Districts. Standard yard requirements (lot sizes and setbacks) are identified in Table 2, Yard Requirements and Setbacks – Zoning Districts.
5. Use specific regulations are set forth in Article 9.

[Permitted Use Table on Following Page]

SCHEDULE OF FEES ZONING AND SUBDIVISION ADMINISTRATION	
Zoning Confirmation	$25.00
Floodplain Development Review	Reimbursement of Engineering Fees
Temporary structure permit	$55.00
Temporary use permit for sales for civic organizations, etc.	$27.50
Temporary use permit for public	$110.00
Subdivision sales office	$110.00
Conditional zoning district – New	$1,650.00
Conditional zoning district major amendment (>/= 1,000 SF Change)	$1,200.00
Conditional zoning district minor amendment – Less than 1,000 SF	$300.00
Construction Documents Review – MX	$250.00
Construction Documents Review – All Other	$100.00
Temporary sign permit including temporary banners, off-premise special event signs, construction announcement signs and subdivision sales signs	$27.50 – Non-profit organizations as recognized by the IRS are exempt
Permanent sign permit	$50.00
ZONING PERMIT(S)	
a. Residential	$110.00
b. Residential – Up-fit	$25.00
c. Non-residential	$275.00
d. Non-residential – up-fit	$55.00
e. Accessory or Agricultural	$50.00
f. Additions	
1. Minor, no more than 25% or 500 square feet total (unheated)	$27.50
2. Minor, no more than 25% or 500 square feet total (heated)	$55.00
3. Major	$110.00
g. Renewal of zoning permit	$110.00
CERTIFICATE OF COMPLIANCE	
a. Residential	$110.00
b. Non-residential	$275.00
c. Accessory or Agricultural	No Charge
d. Additions-	No Charge
Variance and Modification of Subdivision Ordinance	$715.00 + Notification
Appeal of decision of zoning officer to Board of Adjustment and Application to Board of Adjustment for interpretation of ordinance	$500.00
Amendment to zoning ordinance/text amendment/map amendment	$715.00 + Notification
Approval of changes to subdivision lots	
Per each subdivision	
a. 1 to 2 lots	$110.00
b. 3 to 5 lots	$220.00
c. 6 to 10 lots	$330.00
Telecommunication Tower Engineering and Surveying Fee	Cost to Town + $715.00 administrative fee
Small Cell Telecommunication Facility	$75.00/unit
Annual Biosolids Land Application Permit Fee	$33.00 for the first acre and $22.00 for each additional acre
Notification of Affected Property Owners	

21-50	$55.00
51-100	$110.00
Over 100	$220.00
Lot Line Revision and Recombination Fee	$200.00
SUBDIVISION FEES	
MINOR SUBDIVISION	
Preliminary Plat Submittal - Subdivision Containing Up to 6 Lots	$165.00 per Lot
Pre-Submittal Sketch for Easement Lot	$110.00
Final Plat Submittal - Subdivision Containing Up to 6 Lots	$55.00 per Lot
MAJOR SUBDIVISIONS	
Residential Conservation District (R-CD) Pre-Sketch Plan Conference	$165.00
Sketch Plan Review	$275.00 per Lot
Preliminary Plat Submittal	$275.00 per Lot
Final Plat Submittal	$110.00 per Lot
Site or Field Inspection	$77.00/hr.
SEDIMENT AND EROSION CONTROL REVIEWS & INSPECTIONS	
Erosion Control Permit – Commercial over 12,000 sq ft, or any tract over 1 acre disturbed	$400 per acre disturbed
Revised Plan Review after EC plan approval	$200.00
Single-Family Residential Lot Inspection/Compliance with ESC Installation and Maintenance Agreement	$50.00
Reinspection Fee	$100.00
Erosion Control Civil Penalty – Administration Fee	$125.00
Per Notice of Violation	$5000.00 per day, based on the degree and extent of harm caused by the violation, the cost of rectifying the damage, the amount of money the violator saved by non-compliance, whether the violation was committed willfully and the prior record of the violator in complying with or failing to comply with the ordinance.
Copying Fee	$.05 per copy for B/W and $.25 per copy for Color
CD Disk	$1.00

	A	B	C	D	E	F
1		TOW	WC	WXW	Mar	MinSpr
2	Zoning Confirmation	25	50	25	25	50
3	Floodplain Dev. Rev.	reimburse	150	125 +zoning construction permit		
4						
5	Temp Structure	55	75	110		
6	Temp Use for sales	27.5	75			
7	Tem use for public event	110	75			75
8	Subdivision sales office	110				
9						
10	CZ district	1650		<2 acres 400 zoning + 200engineering >2<10 800 zoning +400 eng >10 acres 2500 zoning 1250 eng. Plus 50 per total acre	2000 plus 400/acre	
11	CZ major amendment >= 1000sqft change	1200	1500		300	
12	CZ minor amendmt	300	1500			
13						
14	Construction Docs Rev MX	250			1000 plus 100/acre	
15	Construction Docs Rev all other	100				
16						
17	Temp sign	27.5		11		25
18	Perm sign	50	100	40		35
19						
20	Zoning permits					
21	a. residential	110		85	50	50
22	b. residential upfit	25	25		25	10
23	c. non res	275		275	250	

	A	B	C	D	E	F
24	d. non res upfit	55			50	10
25	e. accessory or ag	50	25		25	25
26	f. addition-minora (500 sq ft total unheated)	27.5	50		25	
27	g. addition-minor heated	55	50		25	
28	h. addition major	110	50		25	
29	i. renewl of zoning	110				
30						
31	Certificate of Compliance					
32	a. residential	110	100		50	100
33	b. non residential	275	100		250	
34	c. accessory or ag	none				
35	d. additions	none				
36						
37	variance/mod of Sub Ord	715	500	330	500	200
38	appeal of zoning admin decision to BOA	500	500	330	500	150
39	Amendment to zoning ordinance/text amendment/map amendment	715	1000	500	300/1000 + 15 per acre/	250
40						
41	**approval of changes to subdivision lots**					
42	per subdivision		500/per modification			minor plat changes $150 + engineering fees
43	a. 1-2 lots	110				
44	b. 3-5 lots	220				
45	c. 6-10 lots	330				
46						

	A	B	C	D	E	F
47	Telecom town engineering and survey fee	750 plus cost to town				
48	small cell telecom facility	75				
49						
50	annual biosolids land app permint	33 for 1st acre 22 each addit'l				
51	Notification of affected prop owners					
52	21-50	55				
53	51-100	110				
54	over 100	220				
55						
56	lot line revision and recombo fee	200		200		$50
57						
58	**SUBDIVISION FEES**					
59	minor-prelim plat	165/lot	100			175/lot
60	minor- pre submittal sketch for easement	110			2 lots 300;3 lot 400; four lots 400	100
61	minor final plat	55/lot	100	55/per lot		50
62	major RCD pre-sketch plan	165				
63	major sketch plan review	275/lot	500	<50 lots 250 + 250 eng >50 lots 500 + 500 eng	200/acre or portion	0-10 lots $100/lot 11-50 lots $500 over 50 lots $ 25 each addit'l lot
64	major prelim plat	275/lot	275/lot	275 plus engineering fees	400/acre or portion	11-50 lots160 51+ 135 per lot
65	major final plat	110/lot	500/10 lots 25$ each addit'l lot	80/lot + 500 flat fee per phase	50/acre or portion (revision 300)	50 first 10 lots 5 each addit'l

	A	B	C	D	E	F
66	major site or field insp.	77/hr	200			
67						
68	ESC reviews					
69	Erosion Control-Commercial over 12000 sqft or any tract over 1 acre disturbed	400/acre disturbed		500/1st acre disturbed or portion plus $100 for any addit'l		
70	revised plan review after EC plan approval	200		200		
71	Single family residential lot	50		50		
72	reinspection fee	100		100		
73	Erosion control civil Penalty - Admin fee	125		125		
74	per NOV	5000/day based on degree and extento of harm caused., cost of rectifying damage, amt. of money violator saved by non compliance, whether violation was committed willfully and the prior record of the violator.		5000 max/day		
75						

LUNA SUBDIVISION

MC # ***02741-0010***

CALCULATIONS FOR:

Downstream
Stormwater
Analysis

DATE: ***10/02/23***

REV: ***N/A***

8020 TOWER POINT DRIVE. CHARLOTTE, NORTH CAROLINA 28227
TEL 704.841.2588 www.mckimcreed.com

TABLE OF CONTENTS

LUNA SUBDIVISION
DOWNSTREAM ANALYSIS NARRATIVE

Luna is a proposed 18-lot single-family subdivision located on +/- 29 acres in Weddington, Union County, North Carolina. The existing site conditions include a mix of grass and trees. The predominant soil types according to the USDA Soil Survey are Cecil, Helena & Appling, both Cecil and Appling have a hydrologic soil group rating of "B" while Helena has a hydrologic soil group rating of "D". The site is located in the Sixmile Creek watershed, within the Catawba River Basin. The development will be located off Weddington-Matthews Road, adjacent to the existing Bromley Subdivision.

Stormwater management for the project will be designed in accordance with the Charlotte-Mecklenburg Stormwater Design Manual, with exceptions where Weddington's ordinances list a stricter regulation. Over 20,000 square feet of new impervious will be created as part of the Luna development, therefore stormwater detention will be provided to control runoff to pre-developed rates for the 2-, 10-, 25-, 50- and 100-year, 24-hour storm events. Volume control for the 1-year, 24-hour storm will also be provided.

A downstream analysis of the existing Bromley subdivision storm system was performed to ensure that the proposed Luna development will not create downstream drainage issues. The existing Bromley storm system was modeled using Bentley StormCAD to compare flows under existing conditions versus flows after the development of Luna subdivision. The storm system was modeled for the 10-, 25- and 100-year storm events.

The summary tables provided on the following page demonstrate that flows entering Bromley Subdivision will decrease as a result of the Luna development. Stormwater Control Measure (SCM) #2 located behind Bromley lots 23-25 is designed to restrict flows leaving the site at point of interest (POI) #2 to below pre-development rates. The offsite drainage area flowing to Bromley lots 19-22 and the dead end of Delaney Drive will be reduced from 2.99 acres to approximately 0.15 acres

PRE-DEVELOPMENT FLOWS TO POINT OF INTEREST #2

STORM EVENT	PEAK FLOW (CFS)
2-YEAR	6.65
10-YEAR	17.78
25-YEAR	25.64
50-YEAR	32.31
100-YEAR	39.50

POST-DEVELOPMENT FLOWS TO POINT OF INTEREST #2

STORM EVENT	PEAK FLOW (CFS)
2-YEAR	5.60
10-YEAR	13.75
25-YEAR	19.66
50-YEAR	24.51
100-YEAR	29.68

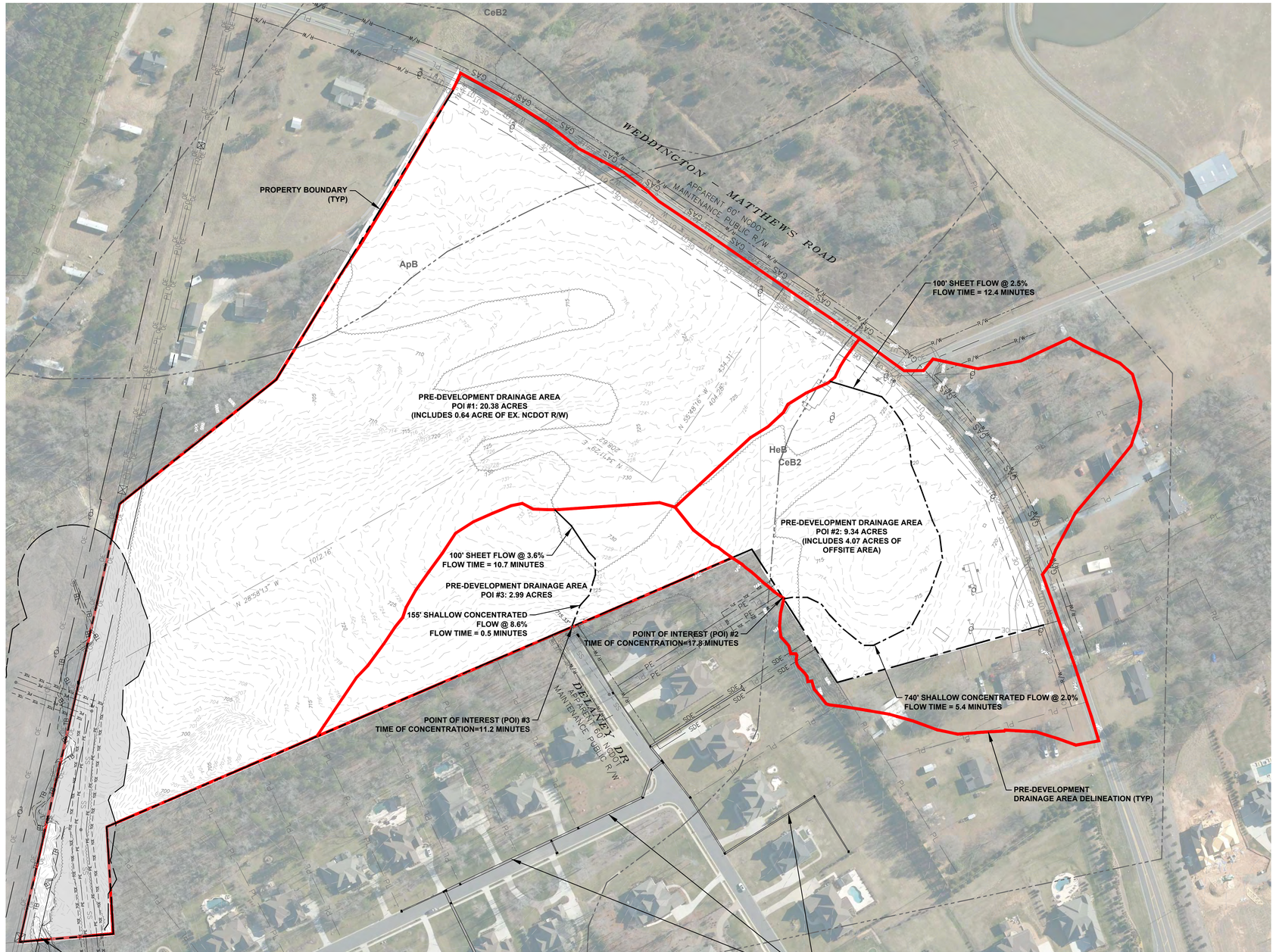
PRE-DEVELOPMENT FLOWS TO POINT OF INTEREST #3

STORM EVENT	PEAK FLOW (CFS)
2-YEAR	6.39
10-YEAR	12.13
25-YEAR	15.82
50-YEAR	18.80
100-YEAR	21.93

POST-DEVELOPMENT FLOWS TO POINT OF INTEREST #3

STORM EVENT	PEAK FLOW (CFS)
2-YEAR	0.46
10-YEAR	0.83
25-YEAR	1.06
50-YEAR	1.24
100-YEAR	1.43

APPENDIX A



811 Know what's below. Call before you dig.

100' 0 100' 200'

SCALE: 1"=100' (Horiz.)

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

McKIM&CREED

8020 Tower Point Drive
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Toll Brothers
AMERICA'S LUXURY HOME BUILDER®

LUNA SUBDIVISION
WEDDINGTON, UNION COUNTY
NORTH CAROLINA

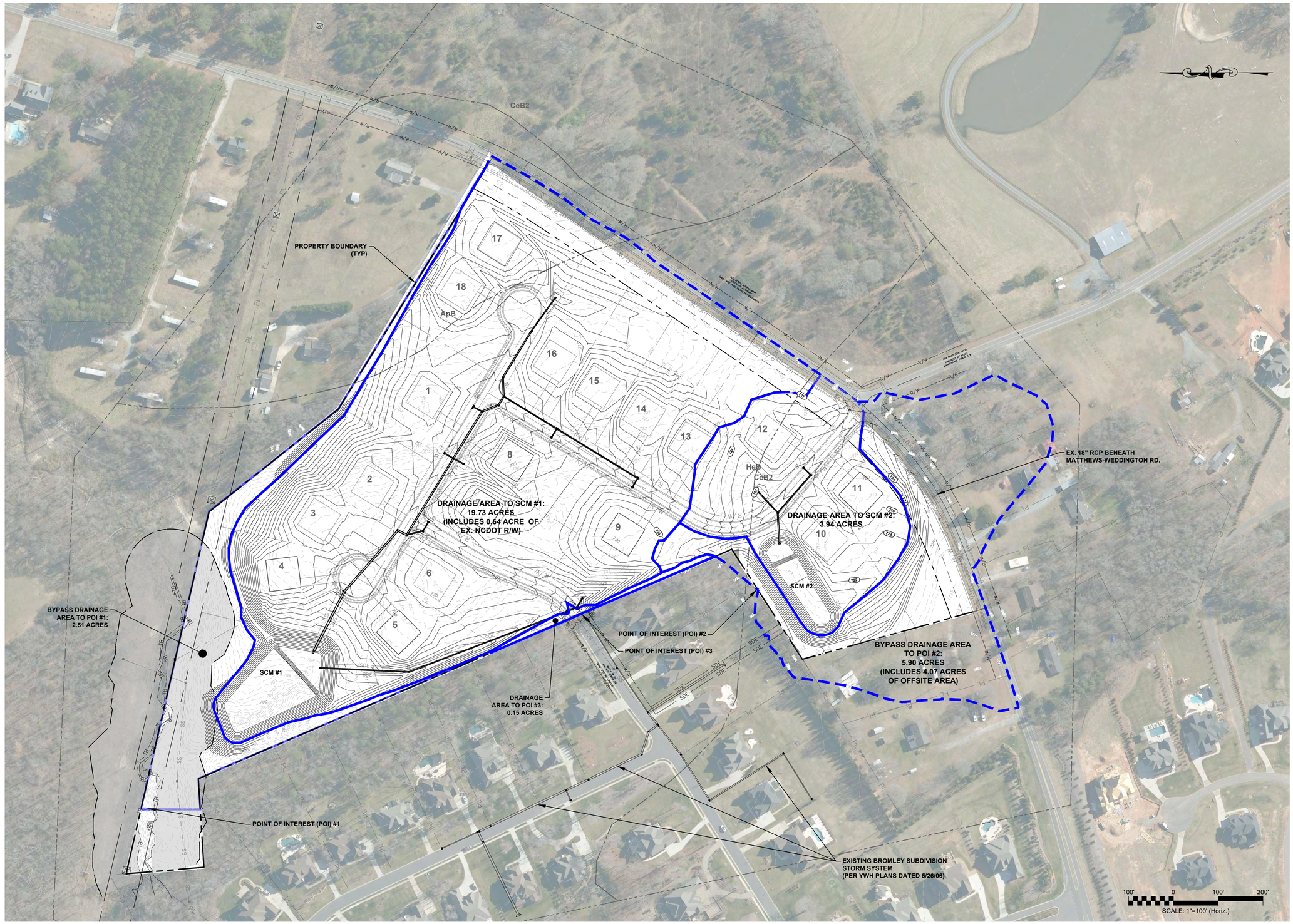
PRE-DEVELOPMENT DRAINAGE AREA MAP

DATE:	AUGUST 2023
MCE PROJ. #	02741-0010
DRAWN	ECB
DESIGNED	ECB
CHECKED	TMM
PROJ. MGR.	TMM

SCALE
HORIZONTAL: 1" = 100'
VERTICAL: N/A

DA-1
DRAWING NUMBER
REVISION

STATUS: PRELIMINARY DRAWING NOT FOR CONSTRUCTION



811 Know what's below. Call before you dig.

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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LUNA SUBDIVISION
WEDDINGTON, UNION COUNTY
NORTH CAROLINA

POST-DEVELOPMENT DRAINAGE AREA MAP

DATE:	AUGUST 2023
MCE PROJ. #	02741-0010
DRAWN	ECB
DESIGNED	ECB
CHECKED	TMM
PROJ. MGR.	TMM

SCALE
HORIZONTAL: 1" = 100'
VERTICAL: N/A

DA-2
DRAWING NUMBER
REVISION

STATUS: PRELIMINARY DRAWING NOT FOR CONSTRUCTION

I:\02741\0010\ENG\80-DRAWINGS\81_PRODUCTION_SHEETS\5_EXHIBIT_PERMIT\2023.09.29 DA-MAPS_02741-0010.DWG ---- 10/02/2023 14:06:47

APPENDIX B

EXISTING CONDITIONS - 10-YEAR STORM

FlexTable: Conduit Table

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (Unified) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Manning's n	Flow (ft^3/s)	Capacity (Full Flow) (ft^3/s)	Velocity (ft/s)	System Intensity (in/h)
DI 63	706.00	DI 64	702.20	119.83	0.032	15.0	706.78	702.69	0.013	3.67	11.50	8.33	7.540
HW 51	705.00	CB 52	696.00	199.93	0.045	36.0	706.35	697.40	0.013	17.78	141.51	13.68	7.570
DI 64	701.45	CB 65	698.53	195.10	0.015	24.0	702.65	699.41	0.013	11.14	27.67	8.33	7.467
OPEN PIPE	707.00	CB 62	701.80	120.71	0.043	15.0	707.74	702.23	0.013	3.35	13.41	9.08	7.540
CB 62	701.60	CB 52	697.75	120.64	0.032	15.0	702.54	698.35	0.013	5.33	11.54	9.22	7.473
CB 65	698.33	CB 66	696.89	121.41	0.012	24.0	699.65	697.94	0.013	13.38	24.64	8.00	7.348
CB 66	696.69	DCB 53	695.72	83.70	0.012	24.0	698.08	696.86	0.013	14.91	24.35	8.14	7.272
CB 52	695.80	DCB 53	694.72	35.62	0.030	36.0	697.40	696.60	0.013	24.70	116.14	13.05	7.406
CB 54	693.80	CB 55	693.23	52.34	0.011	36.0	695.91	694.99	0.013	41.82	69.60	10.29	7.209
DCB 53	694.52	CB 54	694.00	25.96	0.020	36.0	696.60	695.63	0.013	40.81	94.39	12.87	7.220
CB 55	693.00	CB 56	688.59	131.67	0.033	36.0	695.11	690.79	0.013	41.88	122.06	15.65	7.184
CB 56	688.49	CB 57	687.42	54.96	0.019	36.0	690.79	689.15	0.013	49.90	93.06	13.40	7.141
CB 68	690.00	DCB 59	689.00	88.92	0.011	15.0	690.54	689.44	0.013	1.84	6.85	4.73	7.540
CB 57	687.42	CB 58	686.39	186.20	0.006	42.0	689.70	688.70	0.013	52.92	74.82	8.43	7.120
CB 67	690.00	CB 57	689.74	25.92	0.010	15.0	690.45	690.12	0.013	1.28	6.47	4.10	7.540
CB 60	685.90	FES 61	685.00	179.96	0.005	42.0	688.32	687.40	0.013	58.53	71.15	8.26	6.974
DCB 59	686.13	CB 60	686.00	24.79	0.005	42.0	688.52	688.36	0.013	58.05	72.86	8.41	6.989
CB 58	686.39	DCB 59	686.23	30.78	0.005	42.0	688.70	688.49	0.013	54.22	72.53	8.27	7.008
DI 56A	694.48	CB 56	690.70	180.00	0.021	18.0	695.47	691.39	0.013	6.60	15.22	8.31	7.540

EXISTING CONDITIONS - 25-YEAR STORM

FlexTable: Conduit Table

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (Unified) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Manning's n	Flow (ft^3/s)	Capacity (Full Flow) (ft^3/s)	Velocity (ft/s)	System Intensity (in/h)
DI 63	706.00	DI 64	702.20	119.83	0.032	15.0	706.82	702.71	0.013	4.06	11.50	8.56	8.330
HW 51	705.00	CB 52	696.00	199.93	0.045	36.0	706.64	697.67	0.013	25.64	141.51	15.20	8.364
DI 64	701.45	CB 65	698.53	195.10	0.015	24.0	702.71	699.47	0.013	12.31	27.67	8.55	8.251
OPEN PIPE	707.00	CB 62	701.80	120.71	0.043	15.0	707.78	702.58	0.013	3.70	13.41	9.34	8.330
CB 62	701.60	CB 52	697.75	120.64	0.032	15.0	702.58	698.38	0.013	5.88	11.54	9.45	8.257
CB 65	698.33	CB 66	696.89	121.41	0.012	24.0	699.72	698.01	0.013	14.79	24.64	8.20	8.123
CB 66	696.69	DCB 53	695.72	83.70	0.012	24.0	698.16	696.93	0.013	16.48	24.35	8.33	8.039
CB 52	695.80	DCB 53	694.72	35.62	0.030	36.0	697.67	696.85	0.013	33.29	116.14	14.18	8.185
CB 54	693.80	CB 55	693.23	52.34	0.011	36.0	696.15	695.26	0.013	52.22	69.60	10.81	7.972
DCB 53	694.52	CB 54	694.00	25.96	0.020	36.0	696.85	695.87	0.013	51.10	94.39	13.62	7.983
CB 55	693.00	CB 56	688.59	131.67	0.033	36.0	695.35	691.01	0.013	52.29	122.06	16.60	7.945
CB 56	688.49	CB 57	687.42	54.96	0.019	36.0	691.01	689.39	0.013	61.18	93.06	14.05	7.900
CB 68	690.00	DCB 59	689.00	88.92	0.011	15.0	690.57	689.47	0.013	2.03	6.85	4.86	8.330
CB 57	687.42	CB 58	686.39	186.20	0.006	42.0	689.94	689.02	0.013	64.52	74.82	8.75	7.878
CB 67	690.00	CB 57	689.74	25.92	0.010	15.0	690.47	690.14	0.013	1.41	6.47	4.22	8.330
CB 60	685.90	FES 61	685.00	179.96	0.005	42.0	688.75	687.64	0.013	70.75	71.15	8.43	7.721
DCB 59	686.13	CB 60	686.00	24.79	0.005	42.0	688.88	688.75	0.013	70.22	72.86	8.63	7.738
CB 58	686.39	DCB 59	686.23	30.78	0.005	42.0	689.02	688.88	0.013	65.98	72.53	8.54	7.758
DI 56A	694.48	CB 56	690.70	180.00	0.021	18.0	695.53	691.43	0.013	7.29	15.22	8.52	8.330

EXISTING CONDITIONS - 100-YEAR STORM

FlexTable: Conduit Table

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (Unified) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Manning's n	Flow (ft^3/s)	Capacity (Full Flow) (ft^3/s)	Velocity (ft/s)	System Intensity (in/h)
DI 63	706.00	DI 64	702.20	119.83	0.032	15.0	706.87	702.75	0.013	4.56	11.50	8.83	9.370
HW 51	705.00	CB 52	696.00	199.93	0.045	36.0	707.05	698.06	0.013	39.50	141.51	17.16	9.408
DI 64	701.45	CB 65	698.53	195.10	0.015	24.0	702.79	699.53	0.013	13.85	27.67	8.81	9.283
OPEN PIPE	707.00	CB 62	701.80	120.71	0.043	15.0	707.83	702.64	0.013	4.17	13.41	9.64	9.370
CB 62	701.60	CB 52	697.75	120.64	0.032	15.0	702.64	698.43	0.013	6.62	11.54	9.73	9.290
CB 65	698.33	CB 66	696.89	121.41	0.012	24.0	699.80	698.10	0.013	16.64	24.64	8.42	9.141
CB 66	696.69	DCB 53	695.72	83.70	0.012	24.0	698.24	697.03	0.013	18.55	24.35	8.53	9.049
CB 52	695.80	DCB 53	694.72	35.62	0.030	36.0	698.06	697.15	0.013	48.11	116.14	15.66	9.210
CB 54	693.80	CB 55	693.23	52.34	0.011	36.0	696.45	695.72	0.013	69.42	69.60	11.22	8.975
DCB 53	694.52	CB 54	694.00	25.96	0.020	36.0	697.15	696.22	0.013	68.16	94.39	14.54	8.986
CB 55	693.00	CB 56	688.59	131.67	0.033	36.0	695.65	692.11	0.013	69.51	122.06	17.83	8.945
CB 56	688.49	CB 57	687.42	54.96	0.019	36.0	692.11	691.33	0.013	79.52	93.06	11.25	8.898
CB 68	690.00	DCB 59	689.00	88.92	0.011	15.0	690.60	689.84	0.013	2.28	6.85	5.02	9.370
CB 57	687.42	CB 58	686.39	186.20	0.006	42.0	691.33	690.06	0.013	83.26	74.82	8.65	8.866
CB 67	690.00	CB 57	689.74	25.92	0.010	15.0	691.35	691.33	0.013	1.59	6.47	1.29	9.370
CB 60	685.90	FES 61	685.00	179.96	0.005	42.0	689.64	687.95	0.013	90.27	71.15	9.38	8.689
DCB 59	686.13	CB 60	686.00	24.79	0.005	42.0	689.84	689.64	0.013	89.66	72.86	9.32	8.706
CB 58	686.39	DCB 59	686.23	30.78	0.005	42.0	690.06	689.84	0.013	84.89	72.53	8.82	8.729
DI 56A	694.48	CB 56	690.70	180.00	0.021	18.0	695.59	692.11	0.013	8.20	15.22	8.77	9.370

APPENDIX C

PROPOSED CONDITIONS - 10-YEAR STORM

FlexTable: Conduit Table

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (Unified) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Manning's n	Flow (ft^3/s)	Capacity (Full Flow) (ft^3/s)	Velocity (ft/s)	System Intensity (in/h)
DI 63	706.00	DI 64	702.20	119.83	0.032	15.0	706.78	702.69	0.013	3.67	11.50	8.33	7.540
HW 51	705.00	CB 52	696.00	199.93	0.045	36.0	706.18	696.63	0.013	13.75	141.51	12.69	7.570
DI 64	701.45	CB 65	698.53	195.10	0.015	24.0	702.65	699.41	0.013	11.14	27.67	8.33	7.467
OPEN PIPE	707.00	CB 62	701.80	120.71	0.043	15.0	707.37	702.28	0.013	0.90	13.41	6.22	7.540
CB 62	701.60	CB 52	697.75	120.64	0.032	15.0	702.28	698.18	0.013	2.89	11.54	7.82	7.442
CB 65	698.33	CB 66	696.89	121.41	0.012	24.0	699.65	697.94	0.013	13.38	24.64	8.00	7.348
CB 66	696.69	DCB 53	695.72	83.70	0.012	24.0	698.08	696.86	0.013	14.91	24.35	8.14	7.272
CB 52	695.80	DCB 53	694.72	35.62	0.030	36.0	697.17	696.43	0.013	18.24	116.14	11.98	7.364
CB 54	693.80	CB 55	693.23	52.34	0.011	36.0	695.74	694.83	0.013	35.44	69.60	9.89	7.209
DCB 53	694.52	CB 54	694.00	25.96	0.020	36.0	696.43	695.48	0.013	34.43	94.39	12.30	7.220
CB 55	693.00	CB 56	688.59	131.67	0.033	36.0	694.94	690.56	0.013	35.52	122.06	14.97	7.182
CB 56	688.49	CB 57	687.42	54.96	0.019	36.0	690.56	688.94	0.013	40.19	93.06	12.68	7.137
CB 68	690.00	DCB 59	689.00	88.92	0.011	15.0	690.54	689.44	0.013	1.84	6.85	4.73	7.540
CB 57	687.42	CB 58	686.39	186.20	0.006	42.0	689.47	688.47	0.013	43.22	74.82	8.06	7.116
CB 67	690.00	CB 57	689.74	25.92	0.010	15.0	690.45	690.12	0.013	1.28	6.47	4.10	7.540
CB 60	685.90	FES 61	685.00	179.96	0.005	42.0	688.09	687.13	0.013	48.90	71.15	7.97	6.963
DCB 59	686.13	CB 60	686.00	24.79	0.005	42.0	688.30	688.10	0.013	48.42	72.86	8.10	6.979
CB 58	686.39	DCB 59	686.23	30.78	0.005	42.0	688.47	688.23	0.013	44.59	72.53	7.92	6.998
DI 56A	694.48	CB 56	690.70	180.00	0.021	18.0	695.15	691.16	0.013	3.06	15.22	6.73	7.540

PROPOSED CONDITIONS - 25-YEAR STORM

FlexTable: Conduit Table

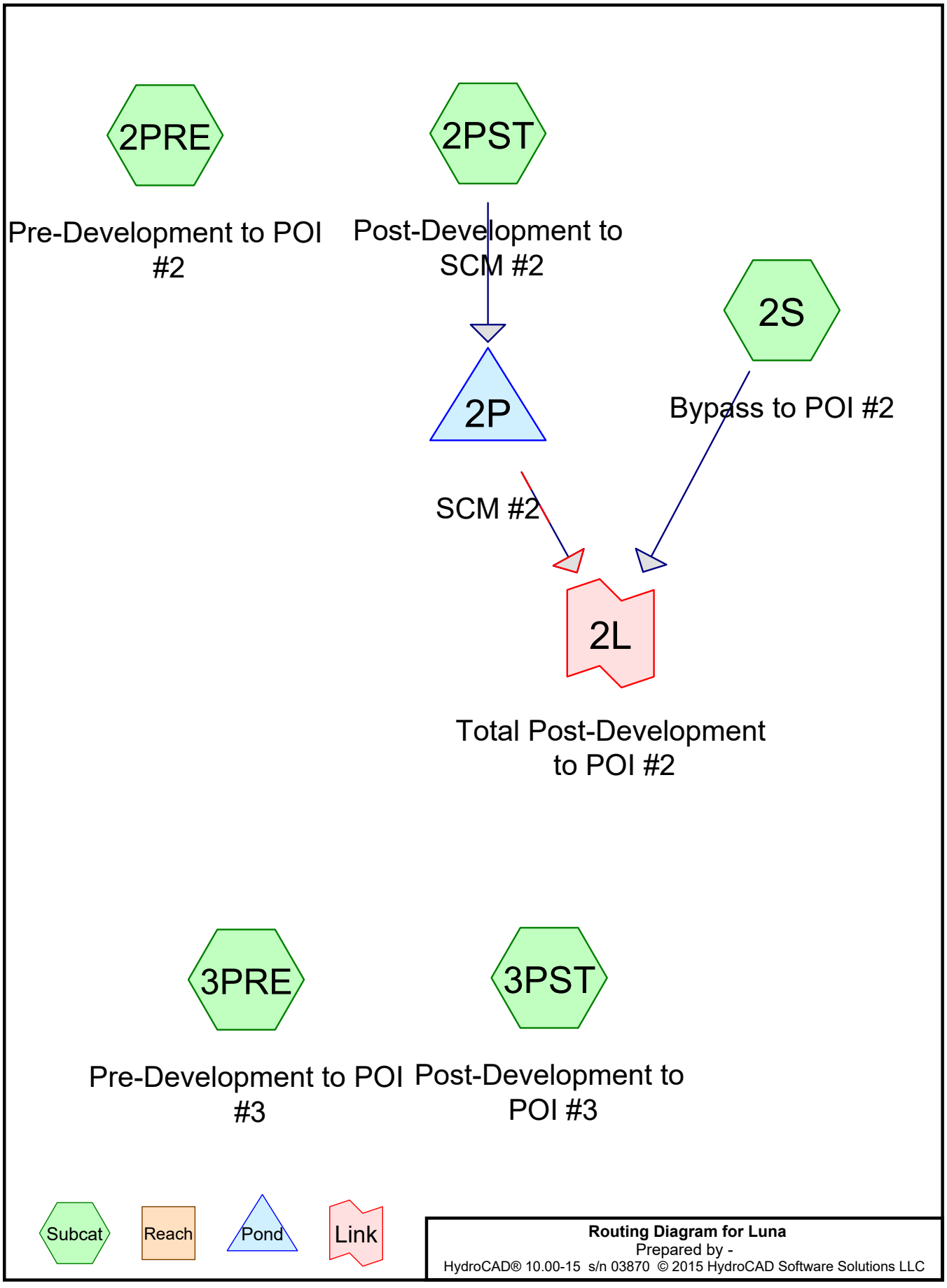
Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (Unified) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Manning's n	Flow (ft^3/s)	Capacity (Full Flow) (ft^3/s)	Velocity (ft/s)	System Intensity (in/h)
DI 63	706.00	DI 64	702.20	119.83	0.032	15.0	706.82	702.71	0.013	4.06	11.50	8.56	8.330
HW 51	705.00	CB 52	696.00	199.93	0.045	36.0	706.42	696.76	0.013	19.66	141.51	14.08	8.364
DI 64	701.45	CB 65	698.53	195.10	0.015	24.0	702.71	699.47	0.013	12.31	27.67	8.55	8.251
OPEN PIPE	707.00	CB 62	701.80	120.71	0.043	15.0	707.39	702.32	0.013	1.00	13.41	6.41	8.330
CB 62	701.60	CB 52	697.75	120.64	0.032	15.0	702.32	698.20	0.013	3.19	11.54	8.04	8.224
CB 65	698.33	CB 66	696.89	121.41	0.012	24.0	699.72	698.01	0.013	14.79	24.64	8.20	8.123
CB 66	696.69	DCB 53	695.72	83.70	0.012	24.0	698.16	696.93	0.013	16.48	24.35	8.33	8.039
CB 52	695.80	DCB 53	694.72	35.62	0.030	36.0	697.40	696.65	0.013	24.63	116.14	13.04	8.139
CB 54	693.80	CB 55	693.23	52.34	0.011	36.0	695.95	695.04	0.013	43.65	69.60	10.40	7.971
DCB 53	694.52	CB 54	694.00	25.96	0.020	36.0	696.65	695.67	0.013	42.53	94.39	13.01	7.983
CB 55	693.00	CB 56	688.59	131.67	0.033	36.0	695.16	690.77	0.013	43.73	122.06	15.84	7.943
CB 56	688.49	CB 57	687.42	54.96	0.019	36.0	690.77	689.13	0.013	48.91	93.06	13.33	7.896
CB 68	690.00	DCB 59	689.00	88.92	0.011	15.0	690.57	689.47	0.013	2.03	6.85	4.86	8.330
CB 57	687.42	CB 58	686.39	186.20	0.006	42.0	689.68	688.69	0.013	52.27	74.82	8.41	7.873
CB 67	690.00	CB 57	689.74	25.92	0.010	15.0	690.47	690.14	0.013	1.41	6.47	4.22	8.330
CB 60	685.90	FES 61	685.00	179.96	0.005	42.0	688.32	687.40	0.013	58.59	71.15	8.26	7.711
DCB 59	686.13	CB 60	686.00	24.79	0.005	42.0	688.52	688.36	0.013	58.04	72.86	8.41	7.727
CB 58	686.39	DCB 59	686.23	30.78	0.005	42.0	688.69	688.48	0.013	53.80	72.53	8.26	7.748
DI 56A	694.48	CB 56	690.70	180.00	0.021	18.0	695.18	691.18	0.013	3.38	15.22	6.93	8.330

PROPOSED CONDITIONS - 100-YEAR STORM

FlexTable: Conduit Table

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (Unified) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Manning's n	Flow (ft^3/s)	Capacity (Full Flow) (ft^3/s)	Velocity (ft/s)	System Intensity (in/h)
DI 63	706.00	DI 64	702.20	119.83	0.032	15.0	706.87	702.75	0.013	4.56	11.50	8.83	9.370
HW 51	705.00	CB 52	696.00	199.93	0.045	36.0	706.77	696.93	0.013	29.68	141.51	15.84	9.408
DI 64	701.45	CB 65	698.53	195.10	0.015	24.0	702.79	699.53	0.013	13.85	27.67	8.81	9.283
OPEN PIPE	707.00	CB 62	701.80	120.71	0.043	15.0	707.42	702.37	0.013	1.12	13.41	6.63	9.370
CB 62	701.60	CB 52	697.75	120.64	0.032	15.0	702.37	698.23	0.013	3.59	11.54	8.30	9.254
CB 65	698.33	CB 66	696.89	121.41	0.012	24.0	699.80	698.10	0.013	16.64	24.64	8.42	9.141
CB 66	696.69	DCB 53	695.72	83.70	0.012	24.0	698.24	697.03	0.013	18.55	24.35	8.53	9.049
CB 52	695.80	DCB 53	694.72	35.62	0.030	36.0	697.73	696.94	0.013	35.27	116.14	14.41	9.160
CB 54	693.80	CB 55	693.23	52.34	0.011	36.0	696.24	695.37	0.013	56.69	69.60	10.97	8.974
DCB 53	694.52	CB 54	694.00	25.96	0.020	36.0	696.94	695.96	0.013	55.42	94.39	13.89	8.986
CB 55	693.00	CB 56	688.59	131.67	0.033	36.0	695.44	691.04	0.013	56.78	122.06	16.95	8.944
CB 56	688.49	CB 57	687.42	54.96	0.019	36.0	691.04	689.99	0.013	62.63	93.06	14.12	8.894
CB 68	690.00	DCB 59	689.00	88.92	0.011	15.0	690.60	689.50	0.013	2.28	6.85	5.02	9.370
CB 57	687.42	CB 58	686.39	186.20	0.006	42.0	689.99	689.12	0.013	66.42	74.82	8.79	8.869
CB 67	690.00	CB 57	689.74	25.92	0.010	15.0	690.50	690.16	0.013	1.59	6.47	4.36	9.370
CB 60	685.90	FES 61	685.00	179.96	0.005	42.0	688.86	687.69	0.013	73.56	71.15	8.41	8.692
DCB 59	686.13	CB 60	686.00	24.79	0.005	42.0	688.99	688.86	0.013	72.95	72.86	8.63	8.711
CB 58	686.39	DCB 59	686.23	30.78	0.005	42.0	689.12	688.99	0.013	68.16	72.53	8.57	8.734
DI 56A	694.48	CB 56	690.70	180.00	0.021	18.0	695.23	691.21	0.013	3.80	15.22	7.16	9.370

APPENDIX D


2PRE
Pre-Development to POI #2
2PST
Post-Development to SCM #2
2S
2P
Bypass to POI #2
SCM #2
2L
Total Post-Development to POI #2
3PRE
3PST
Pre-Development to POI #3
Post-Development to POI #3
Subcat
Reach
Pond
Link
Routing Diagram for Luna
Prepared by -
HydroCAD® 10.00-15 s/n 03870 © 2015 HydroCAD Software Solutions LLC

Summary for Subcatchment 2PRE: Pre-Development to POI #2

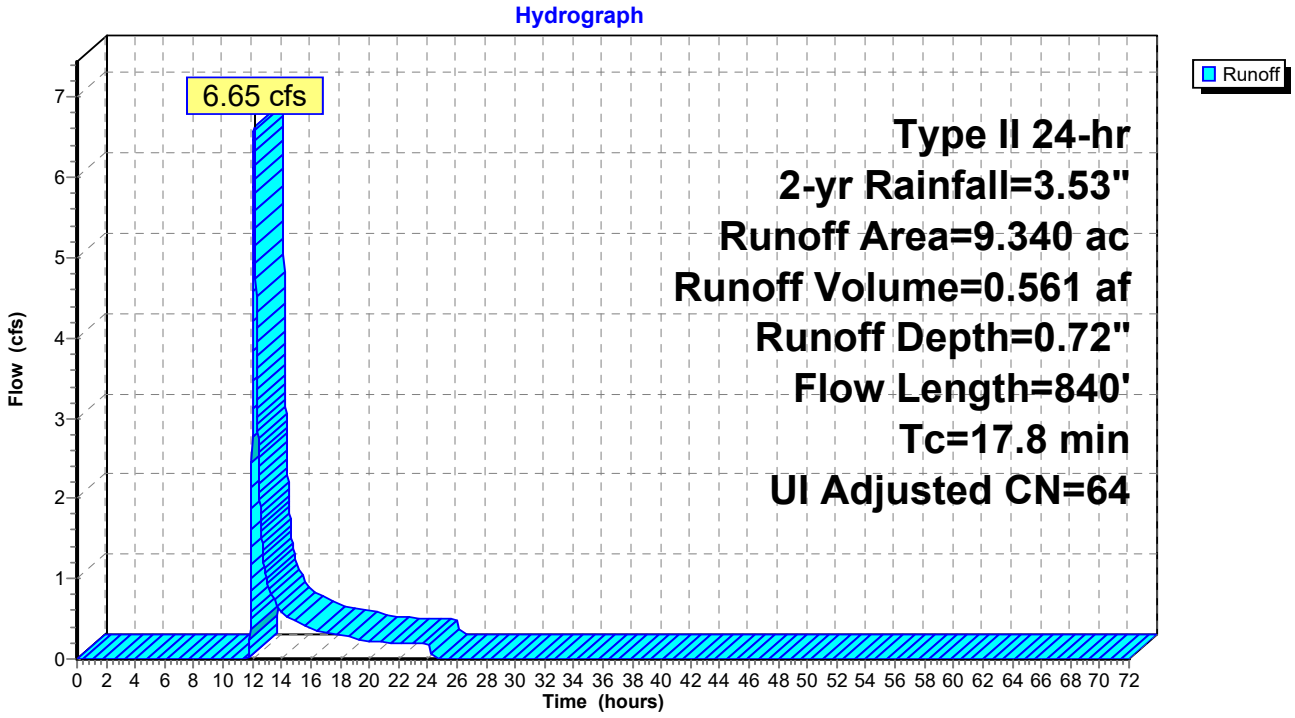
Runoff = 6.65 cfs @ 12.13 hrs, Volume= 0.561 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.53"

Area (ac)	CN	Adj	Description
0.590	55		Woods, Good, HSG B
0.700	77		Woods, Good, HSG D
0.750	98		Unconnected roofs, HSG B
0.080	80		>75% Grass cover, Good, HSG D
7.220	61		>75% Grass cover, Good, HSG B
9.340	65	64	Weighted Average, UI Adjusted
8.590			91.97% Pervious Area
0.750			8.03% Impervious Area
0.750			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0250	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.53"
5.4	740	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
17.8	840	Total			

Subcatchment 2PRE: Pre-Development to POI #2



Hydrograph for Subcatchment 2PRE: Pre-Development to POI #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.17	0.00	0.00
5.00	0.22	0.00	0.00
6.00	0.28	0.00	0.00
7.00	0.35	0.00	0.00
8.00	0.42	0.00	0.00
9.00	0.52	0.00	0.00
10.00	0.64	0.00	0.00
11.00	0.83	0.00	0.00
12.00	2.34	0.22	**3.48**
13.00	2.73	0.35	**0.97**
14.00	2.89	0.42	0.59
15.00	3.01	0.47	0.46
16.00	3.11	0.52	0.37
17.00	3.18	0.55	0.32
18.00	3.25	0.58	0.29
19.00	3.31	0.61	0.26
20.00	3.36	0.64	0.22
21.00	3.41	0.66	0.21
22.00	3.45	0.68	0.20
23.00	3.49	0.70	0.19
24.00	**3.53**	**0.72**	0.19
25.00	3.53	0.72	0.00
26.00	3.53	0.72	0.00
27.00	3.53	0.72	0.00
28.00	3.53	0.72	0.00
29.00	3.53	0.72	0.00
30.00	3.53	0.72	0.00
31.00	3.53	0.72	0.00
32.00	3.53	0.72	0.00
33.00	3.53	0.72	0.00
34.00	3.53	0.72	0.00
35.00	3.53	0.72	0.00
36.00	3.53	0.72	0.00
37.00	3.53	0.72	0.00
38.00	3.53	0.72	0.00
39.00	3.53	0.72	0.00
40.00	3.53	0.72	0.00
41.00	3.53	0.72	0.00
42.00	3.53	0.72	0.00
43.00	3.53	0.72	0.00
44.00	3.53	0.72	0.00
45.00	3.53	0.72	0.00
46.00	3.53	0.72	0.00
47.00	3.53	0.72	0.00
48.00	3.53	0.72	0.00
49.00	3.53	0.72	0.00
50.00	3.53	0.72	0.00
51.00	3.53	0.72	0.00
52.00	3.53	0.72	0.00
53.00	3.53	0.72	0.00
54.00	3.53	0.72	0.00
55.00	3.53	0.72	0.00
56.00	3.53	0.72	0.00
57.00	3.53	0.72	0.00
58.00	3.53	0.72	0.00
59.00	3.53	0.72	0.00
60.00	3.53	0.72	0.00
61.00	3.53	0.72	0.00
62.00	3.53	0.72	0.00
63.00	3.53	0.72	0.00
64.00	3.53	0.72	0.00
65.00	3.53	0.72	0.00
66.00	3.53	0.72	0.00
67.00	3.53	0.72	0.00
68.00	3.53	0.72	0.00
69.00	3.53	0.72	0.00
70.00	3.53	0.72	0.00
71.00	3.53	0.72	0.00
72.00	3.53	0.72	0.00

Summary for Subcatchment 2PST: Post-Development to SCM #2

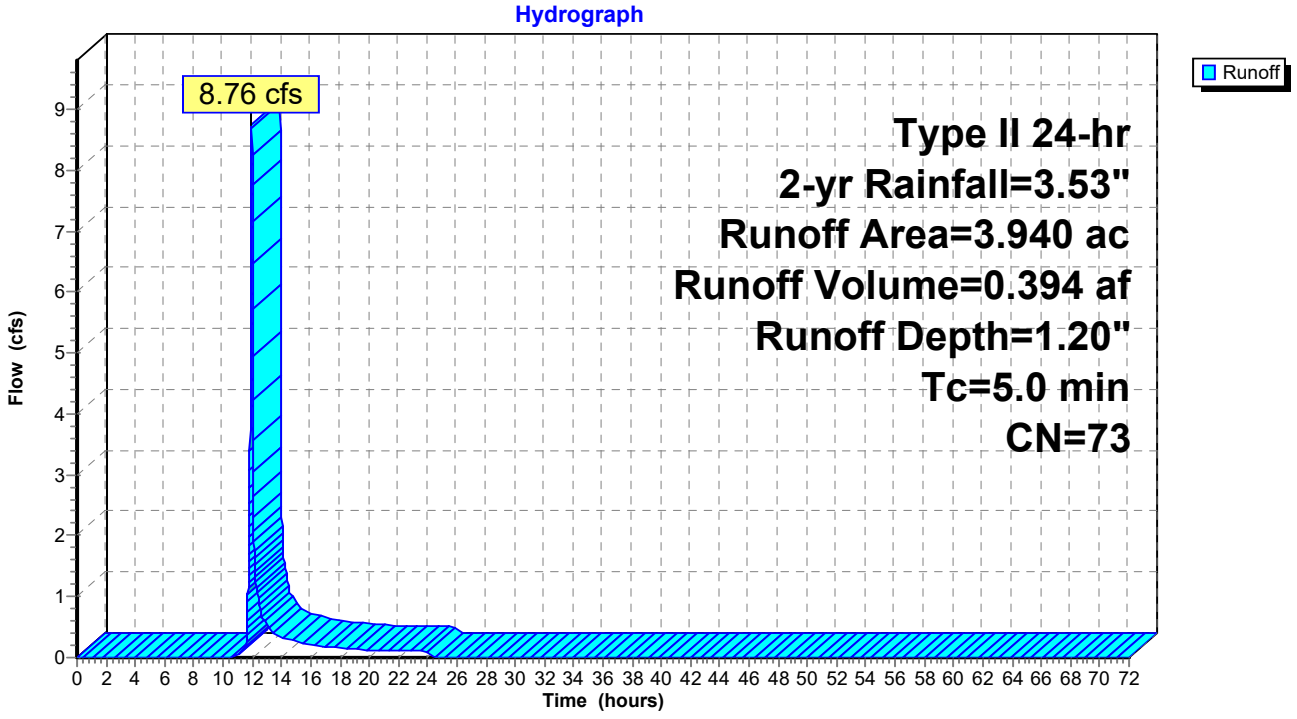
Runoff = 8.76 cfs @ 11.97 hrs, Volume= 0.394 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.53"

	Area (ac)	CN	Description
*	0.880	98	Proposed Impervious
*	0.020	98	Existing Impervious
	2.290	61	>75% Grass cover, Good, HSG B
	0.750	80	>75% Grass cover, Good, HSG D
	3.940	73	Weighted Average
	3.040		77.16% Pervious Area
	0.900		22.84% Impervious Area

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

Subcatchment 2PST: Post-Development to SCM #2



Hydrograph for Subcatchment 2PST: Post-Development to SCM #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.17	0.00	0.00
5.00	0.22	0.00	0.00
6.00	0.28	0.00	0.00
7.00	0.35	0.00	0.00
8.00	0.42	0.00	0.00
9.00	0.52	0.00	0.00
10.00	0.64	0.00	0.00
11.00	0.83	0.00	**0.04**
12.00	2.34	0.48	**7.78**
13.00	2.73	0.69	0.52
14.00	2.89	0.79	0.32
15.00	3.01	0.87	0.26
16.00	3.11	0.92	0.21
17.00	3.18	0.97	0.18
18.00	3.25	1.02	0.16
19.00	3.31	1.05	0.14
20.00	3.36	1.09	0.12
21.00	3.41	1.12	0.12
22.00	3.45	1.15	0.11
23.00	3.49	1.17	0.11
24.00	**3.53**	**1.20**	0.10
25.00	3.53	1.20	0.00
26.00	3.53	1.20	0.00
27.00	3.53	1.20	0.00
28.00	3.53	1.20	0.00
29.00	3.53	1.20	0.00
30.00	3.53	1.20	0.00
31.00	3.53	1.20	0.00
32.00	3.53	1.20	0.00
33.00	3.53	1.20	0.00
34.00	3.53	1.20	0.00
35.00	3.53	1.20	0.00
36.00	3.53	1.20	0.00
37.00	3.53	1.20	0.00
38.00	3.53	1.20	0.00
39.00	3.53	1.20	0.00
40.00	3.53	1.20	0.00
41.00	3.53	1.20	0.00
42.00	3.53	1.20	0.00
43.00	3.53	1.20	0.00
44.00	3.53	1.20	0.00
45.00	3.53	1.20	0.00
46.00	3.53	1.20	0.00
47.00	3.53	1.20	0.00
48.00	3.53	1.20	0.00
49.00	3.53	1.20	0.00
50.00	3.53	1.20	0.00
51.00	3.53	1.20	0.00
52.00	3.53	1.20	0.00
53.00	3.53	1.20	0.00
54.00	3.53	1.20	0.00
55.00	3.53	1.20	0.00
56.00	3.53	1.20	0.00
57.00	3.53	1.20	0.00
58.00	3.53	1.20	0.00
59.00	3.53	1.20	0.00
60.00	3.53	1.20	0.00
61.00	3.53	1.20	0.00
62.00	3.53	1.20	0.00
63.00	3.53	1.20	0.00
64.00	3.53	1.20	0.00
65.00	3.53	1.20	0.00
66.00	3.53	1.20	0.00
67.00	3.53	1.20	0.00
68.00	3.53	1.20	0.00
69.00	3.53	1.20	0.00
70.00	3.53	1.20	0.00
71.00	3.53	1.20	0.00
72.00	3.53	1.20	0.00

Summary for Subcatchment 2S: Bypass to POI #2

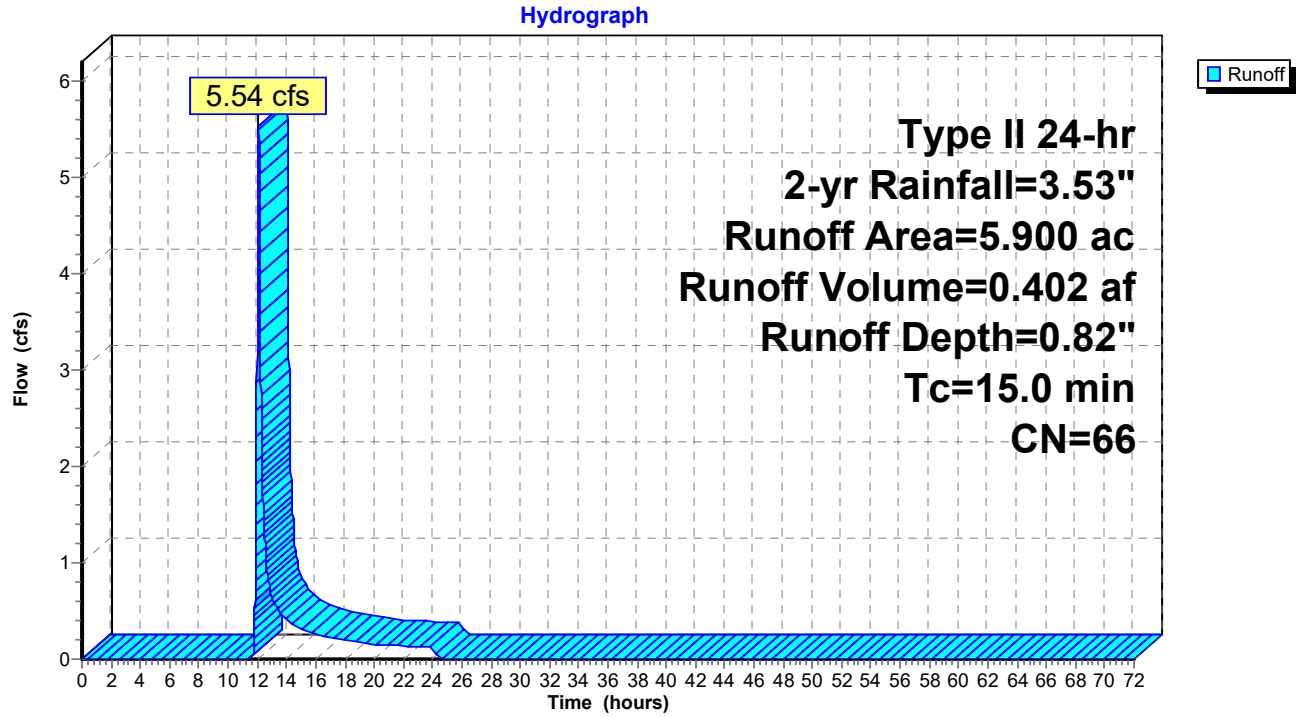
Runoff = 5.54 cfs @ 12.09 hrs, Volume= 0.402 af, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.53"

	Area (ac)	CN	Description
*	0.650	98	Existing Impervious
	4.740	61	>75% Grass cover, Good, HSG B
	0.280	80	>75% Grass cover, Good, HSG D
	0.180	55	Woods, Good, HSG B
	0.050	77	Woods, Good, HSG D
	5.900	66	Weighted Average
	5.250		88.98% Pervious Area
	0.650		11.02% Impervious Area

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

Subcatchment 2S: Bypass to POI #2



Hydrograph for Subcatchment 2S: Bypass to POI #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.17	0.00	0.00
5.00	0.22	0.00	0.00
6.00	0.28	0.00	0.00
7.00	0.35	0.00	0.00
8.00	0.42	0.00	0.00
9.00	0.52	0.00	0.00
10.00	0.64	0.00	0.00
11.00	0.83	0.00	0.00
12.00	2.34	0.27	**3.82**
13.00	2.73	0.42	**0.65**
14.00	2.89	0.50	0.40
15.00	3.01	0.55	0.32
16.00	3.11	0.60	0.25
17.00	3.18	0.63	0.22
18.00	3.25	0.67	0.20
19.00	3.31	0.70	0.17
20.00	3.36	0.73	0.15
21.00	3.41	0.75	0.14
22.00	3.45	0.77	0.14
23.00	3.49	0.80	0.13
24.00	**3.53**	**0.82**	0.13
25.00	3.53	0.82	0.00
26.00	3.53	0.82	0.00
27.00	3.53	0.82	0.00
28.00	3.53	0.82	0.00
29.00	3.53	0.82	0.00
30.00	3.53	0.82	0.00
31.00	3.53	0.82	0.00
32.00	3.53	0.82	0.00
33.00	3.53	0.82	0.00
34.00	3.53	0.82	0.00
35.00	3.53	0.82	0.00
36.00	3.53	0.82	0.00
37.00	3.53	0.82	0.00
38.00	3.53	0.82	0.00
39.00	3.53	0.82	0.00
40.00	3.53	0.82	0.00
41.00	3.53	0.82	0.00
42.00	3.53	0.82	0.00
43.00	3.53	0.82	0.00
44.00	3.53	0.82	0.00
45.00	3.53	0.82	0.00
46.00	3.53	0.82	0.00
47.00	3.53	0.82	0.00
48.00	3.53	0.82	0.00
49.00	3.53	0.82	0.00
50.00	3.53	0.82	0.00
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53.00	3.53	0.82	0.00
54.00	3.53	0.82	0.00
55.00	3.53	0.82	0.00
56.00	3.53	0.82	0.00
57.00	3.53	0.82	0.00
58.00	3.53	0.82	0.00
59.00	3.53	0.82	0.00
60.00	3.53	0.82	0.00
61.00	3.53	0.82	0.00
62.00	3.53	0.82	0.00
63.00	3.53	0.82	0.00
64.00	3.53	0.82	0.00
65.00	3.53	0.82	0.00
66.00	3.53	0.82	0.00
67.00	3.53	0.82	0.00
68.00	3.53	0.82	0.00
69.00	3.53	0.82	0.00
70.00	3.53	0.82	0.00
71.00	3.53	0.82	0.00
72.00	3.53	0.82	0.00

Summary for Subcatchment 3PRE: Pre-Development to POI #3

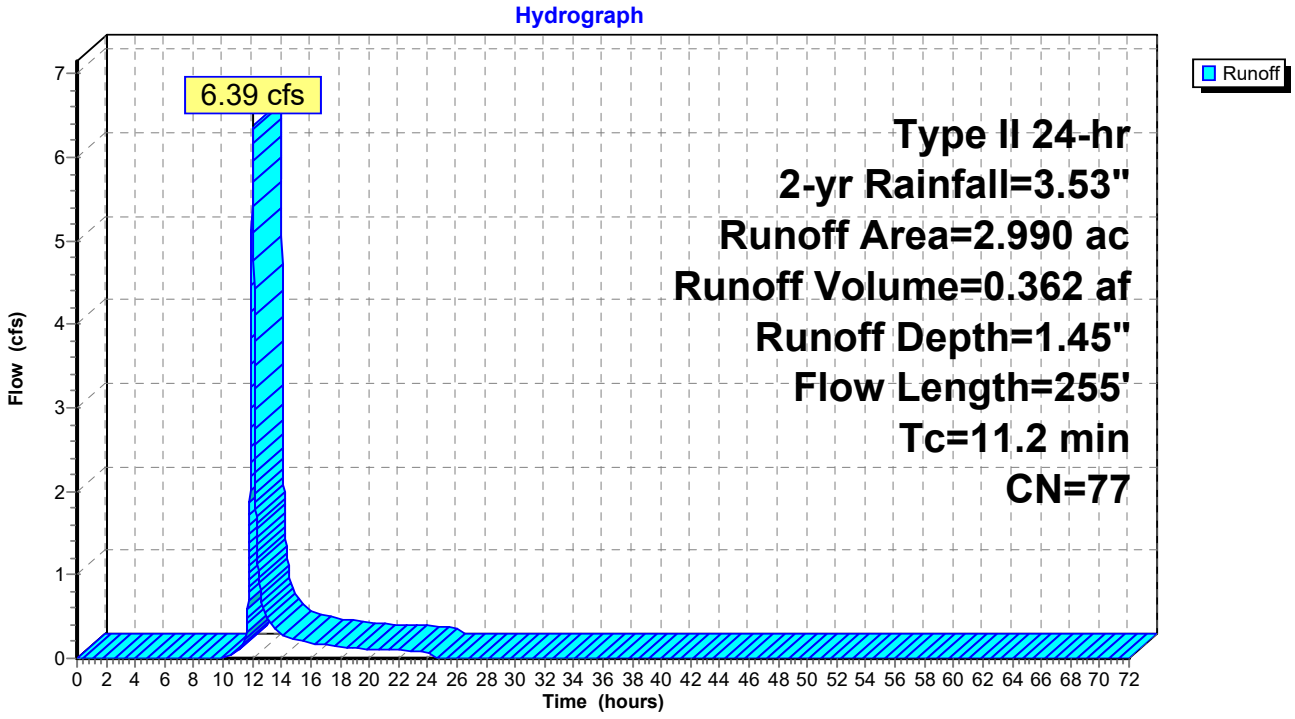
Runoff = 6.39 cfs @ 12.03 hrs, Volume= 0.362 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.53"

Area (ac)	CN	Description
2.610	77	Woods, Good, HSG D
0.380	80	>75% Grass cover, Good, HSG D
2.990	77	Weighted Average
2.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0360	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.53"
0.5	155	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.2	255	Total			

Subcatchment 3PRE: Pre-Development to POI #3



Hydrograph for Subcatchment 3PRE: Pre-Development to POI #3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.17	0.00	0.00
5.00	0.22	0.00	0.00
6.00	0.28	0.00	0.00
7.00	0.35	0.00	0.00
8.00	0.42	0.00	0.00
9.00	0.52	0.00	0.00
10.00	0.64	0.00	0.00
11.00	0.83	0.02	0.08
12.00	2.34	0.64	**5.98**
13.00	2.73	0.89	**0.49**
14.00	2.89	1.00	0.29
15.00	3.01	1.08	0.23
16.00	3.11	1.15	0.18
17.00	3.18	1.20	0.16
18.00	3.25	1.25	0.14
19.00	3.31	1.29	0.12
20.00	3.36	1.33	0.10
21.00	3.41	1.36	0.10
22.00	3.45	1.39	0.09
23.00	3.49	1.42	0.09
24.00	**3.53**	**1.45**	0.09
25.00	3.53	1.45	0.00
26.00	3.53	1.45	0.00
27.00	3.53	1.45	0.00
28.00	3.53	1.45	0.00
29.00	3.53	1.45	0.00
30.00	3.53	1.45	0.00
31.00	3.53	1.45	0.00
32.00	3.53	1.45	0.00
33.00	3.53	1.45	0.00
34.00	3.53	1.45	0.00
35.00	3.53	1.45	0.00
36.00	3.53	1.45	0.00
37.00	3.53	1.45	0.00
38.00	3.53	1.45	0.00
39.00	3.53	1.45	0.00
40.00	3.53	1.45	0.00
41.00	3.53	1.45	0.00
42.00	3.53	1.45	0.00
43.00	3.53	1.45	0.00
44.00	3.53	1.45	0.00
45.00	3.53	1.45	0.00
46.00	3.53	1.45	0.00
47.00	3.53	1.45	0.00
48.00	3.53	1.45	0.00
49.00	3.53	1.45	0.00
50.00	3.53	1.45	0.00
51.00	3.53	1.45	0.00
52.00	3.53	1.45	0.00
53.00	3.53	1.45	0.00
54.00	3.53	1.45	0.00
55.00	3.53	1.45	0.00
56.00	3.53	1.45	0.00
57.00	3.53	1.45	0.00
58.00	3.53	1.45	0.00
59.00	3.53	1.45	0.00
60.00	3.53	1.45	0.00
61.00	3.53	1.45	0.00
62.00	3.53	1.45	0.00
63.00	3.53	1.45	0.00
64.00	3.53	1.45	0.00
65.00	3.53	1.45	0.00
66.00	3.53	1.45	0.00
67.00	3.53	1.45	0.00
68.00	3.53	1.45	0.00
69.00	3.53	1.45	0.00
70.00	3.53	1.45	0.00
71.00	3.53	1.45	0.00
72.00	3.53	1.45	0.00

Summary for Subcatchment 3PST: Post-Development to POI #3

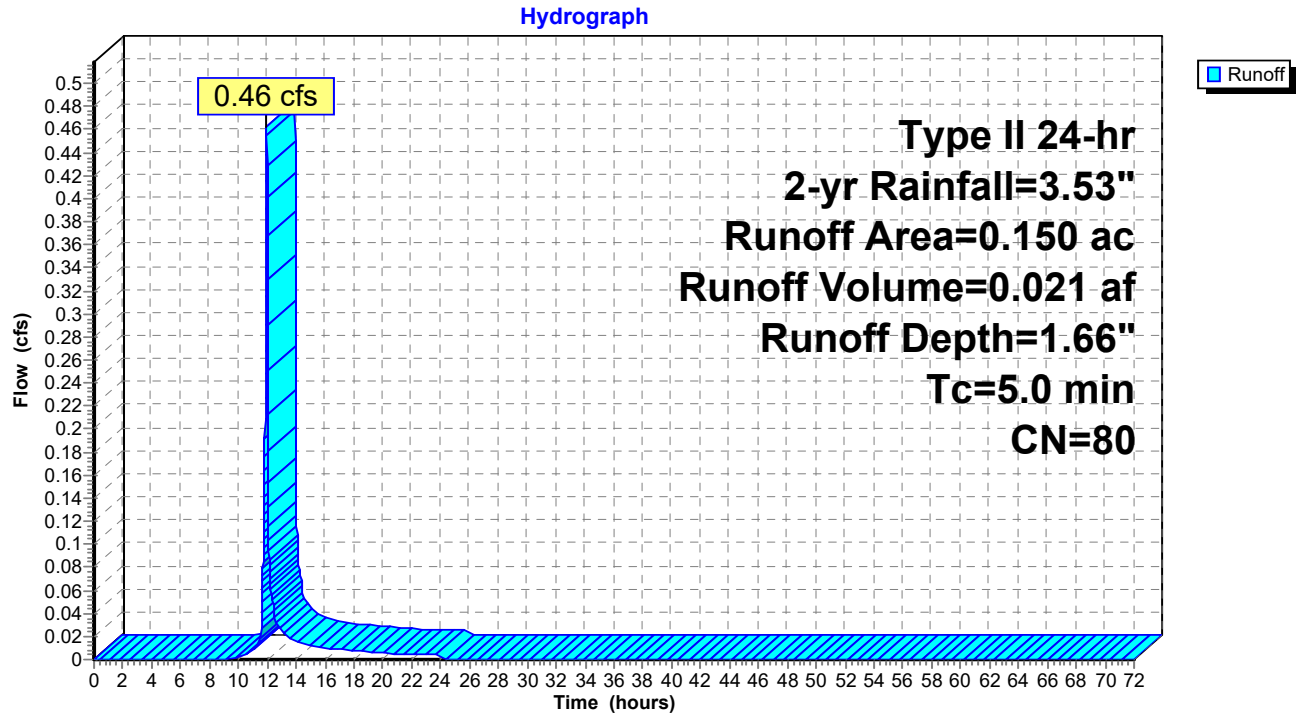
Runoff = 0.46 cfs @ 11.96 hrs, Volume= 0.021 af, Depth= 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.53"

Area (ac)	CN	Description
0.020	98	Paved roads w/curbs & sewers, HSG B
0.130	77	Woods, Good, HSG D
0.150	80	Weighted Average
0.130		86.67% Pervious Area
0.020		13.33% Impervious Area

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

Subcatchment 3PST: Post-Development to POI #3



Hydrograph for Subcatchment 3PST: Post-Development to POI #3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.17	0.00	0.00
5.00	0.22	0.00	0.00
6.00	0.28	0.00	0.00
7.00	0.35	0.00	0.00
8.00	0.42	0.00	0.00
9.00	0.52	0.00	0.00
10.00	0.64	0.01	0.00
11.00	0.83	0.04	**0.01**
12.00	2.34	0.78	**0.40**
13.00	2.73	1.05	0.02
14.00	2.89	1.17	0.02
15.00	3.01	1.26	0.01
16.00	3.11	1.33	0.01
17.00	3.18	1.39	0.01
18.00	3.25	1.44	0.01
19.00	3.31	1.49	0.01
20.00	3.36	1.53	0.01
21.00	3.41	1.56	0.01
22.00	3.45	1.60	0.01
23.00	3.49	1.63	0.00
24.00	**3.53**	**1.66**	0.00
25.00	3.53	1.66	0.00
26.00	3.53	1.66	0.00
27.00	3.53	1.66	0.00
28.00	3.53	1.66	0.00
29.00	3.53	1.66	0.00
30.00	3.53	1.66	0.00
31.00	3.53	1.66	0.00
32.00	3.53	1.66	0.00
33.00	3.53	1.66	0.00
34.00	3.53	1.66	0.00
35.00	3.53	1.66	0.00
36.00	3.53	1.66	0.00
37.00	3.53	1.66	0.00
38.00	3.53	1.66	0.00
39.00	3.53	1.66	0.00
40.00	3.53	1.66	0.00
41.00	3.53	1.66	0.00
42.00	3.53	1.66	0.00
43.00	3.53	1.66	0.00
44.00	3.53	1.66	0.00
45.00	3.53	1.66	0.00
46.00	3.53	1.66	0.00
47.00	3.53	1.66	0.00
48.00	3.53	1.66	0.00
49.00	3.53	1.66	0.00
50.00	3.53	1.66	0.00
51.00	3.53	1.66	0.00
52.00	3.53	1.66	0.00
53.00	3.53	1.66	0.00
54.00	3.53	1.66	0.00
55.00	3.53	1.66	0.00
56.00	3.53	1.66	0.00
57.00	3.53	1.66	0.00
58.00	3.53	1.66	0.00
59.00	3.53	1.66	0.00
60.00	3.53	1.66	0.00
61.00	3.53	1.66	0.00
62.00	3.53	1.66	0.00
63.00	3.53	1.66	0.00
64.00	3.53	1.66	0.00
65.00	3.53	1.66	0.00
66.00	3.53	1.66	0.00
67.00	3.53	1.66	0.00
68.00	3.53	1.66	0.00
69.00	3.53	1.66	0.00
70.00	3.53	1.66	0.00
71.00	3.53	1.66	0.00
72.00	3.53	1.66	0.00

Summary for Pond 2P: SCM #2

Inflow Area = 3.940 ac, 22.84% Impervious, Inflow Depth = 1.20" for 2-yr event
Inflow = 8.76 cfs @ 11.97 hrs, Volume= 0.394 af
Outflow = 0.08 cfs @ 24.05 hrs, Volume= 0.320 af, Atten= 99%, Lag= 725.2 min
Primary = 0.08 cfs @ 24.05 hrs, Volume= 0.320 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 715.44' @ 24.05 hrs Surf.Area= 11,088 sf Storage= 13,974 cf

Plug-Flow detention time= 1,614.9 min calculated for 0.320 af (81% of inflow)
Center-of-Mass det. time= 1,531.2 min (2,386.1 - 854.9)

Volume	Invert	Avail.Storage	Storage Description
#1	713.50'	81,212 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

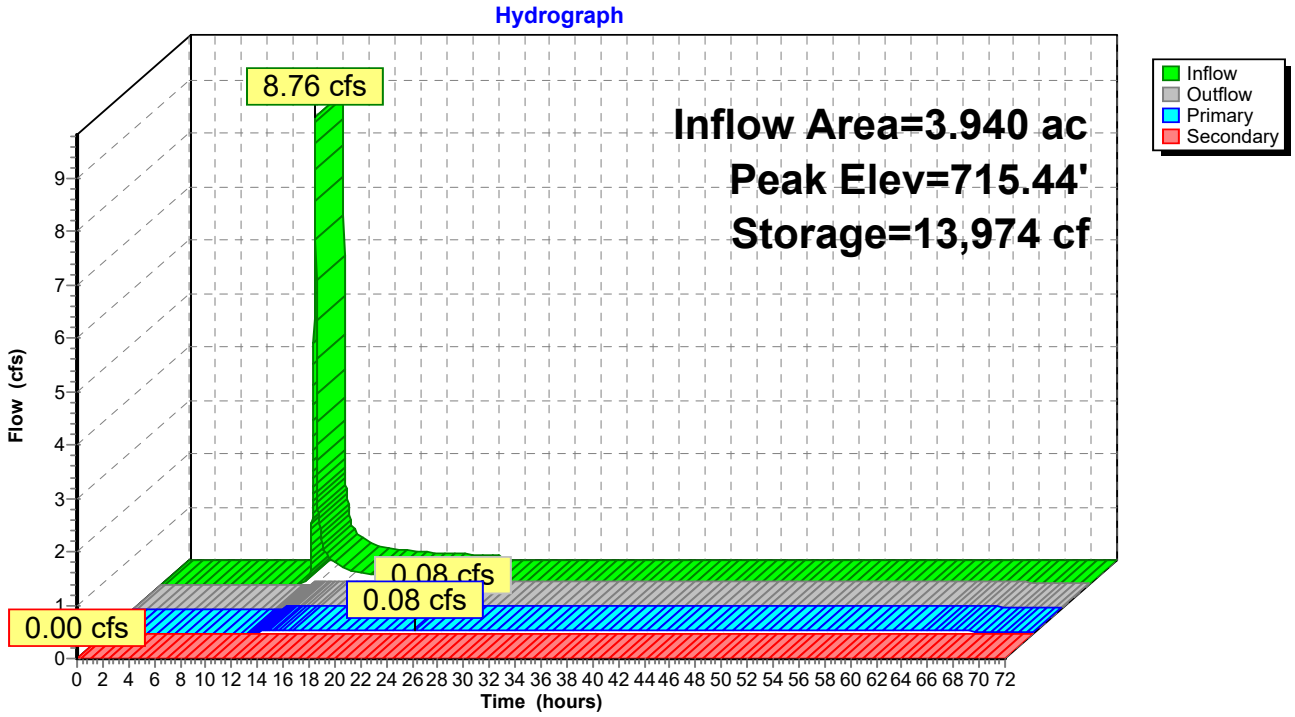
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
713.50	2,258	0	0
714.00	4,670	1,732	1,732
715.00	10,425	7,548	9,280
716.00	11,945	11,185	20,465
717.00	13,515	12,730	33,195
718.00	15,145	14,330	47,525
719.00	16,830	15,988	63,512
720.00	18,570	17,700	81,212

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**24.0" Round Outlet Pipe** L= 40.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 711.50' / 711.30' S= 0.0050 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Device 1	713.50'	**Filter Bed** Head (feet) 0.00 1.00 2.00 3.00 4.00 5.00 Disch. (cfs) 0.000 0.055 0.077 0.098 0.120 0.142
#3	Device 1	715.50'	**4.0" Vert. Orifice** C= 0.600
#4	Device 1	717.50'	**48.0" x 48.0" Horiz. Top of OCS** C= 0.600 Limited to weir flow at low heads
#5	Secondary	718.50'	**20.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

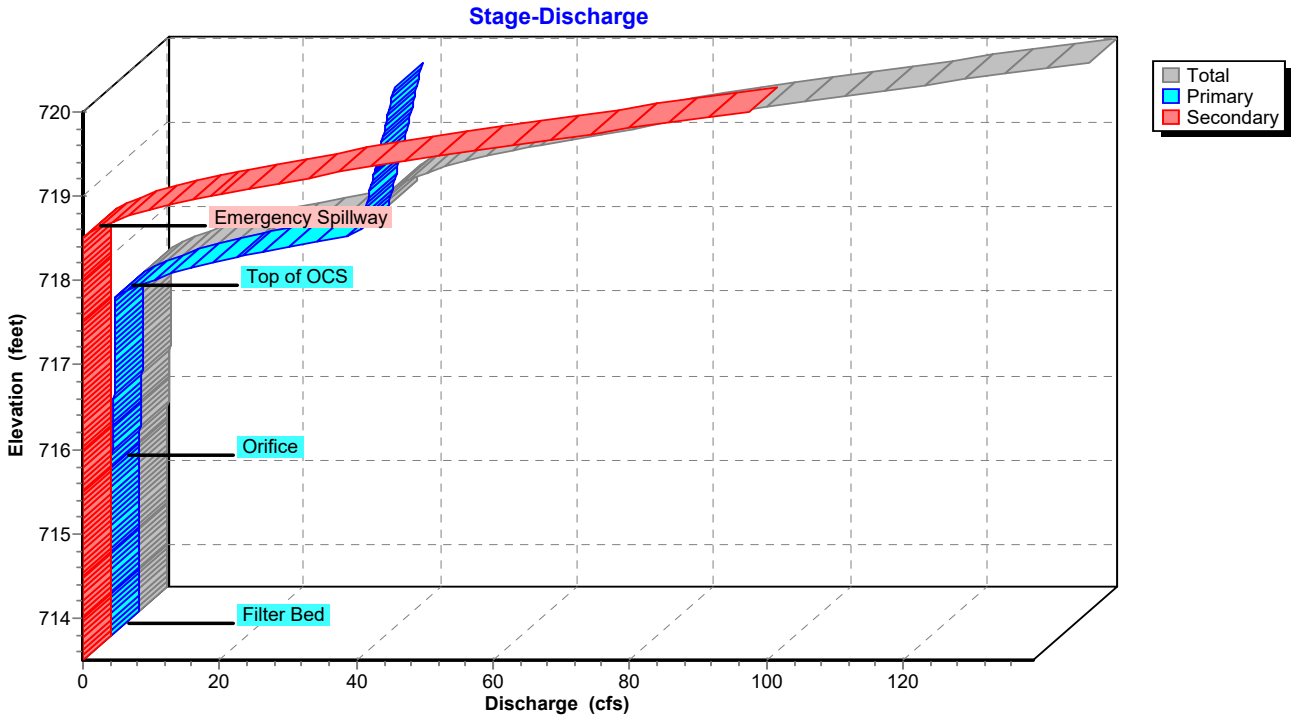
Primary OutFlow Max=0.08 cfs @ 24.05 hrs HW=715.44' (Free Discharge)
└─**1=Outlet Pipe** (Passes 0.08 cfs of 25.92 cfs potential flow)
  ├─**2=Filter Bed** (Custom Controls 0.08 cfs)
  ├─**3=Orifice** (Controls 0.00 cfs)
  └─**4=Top of OCS** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=713.50' (Free Discharge)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

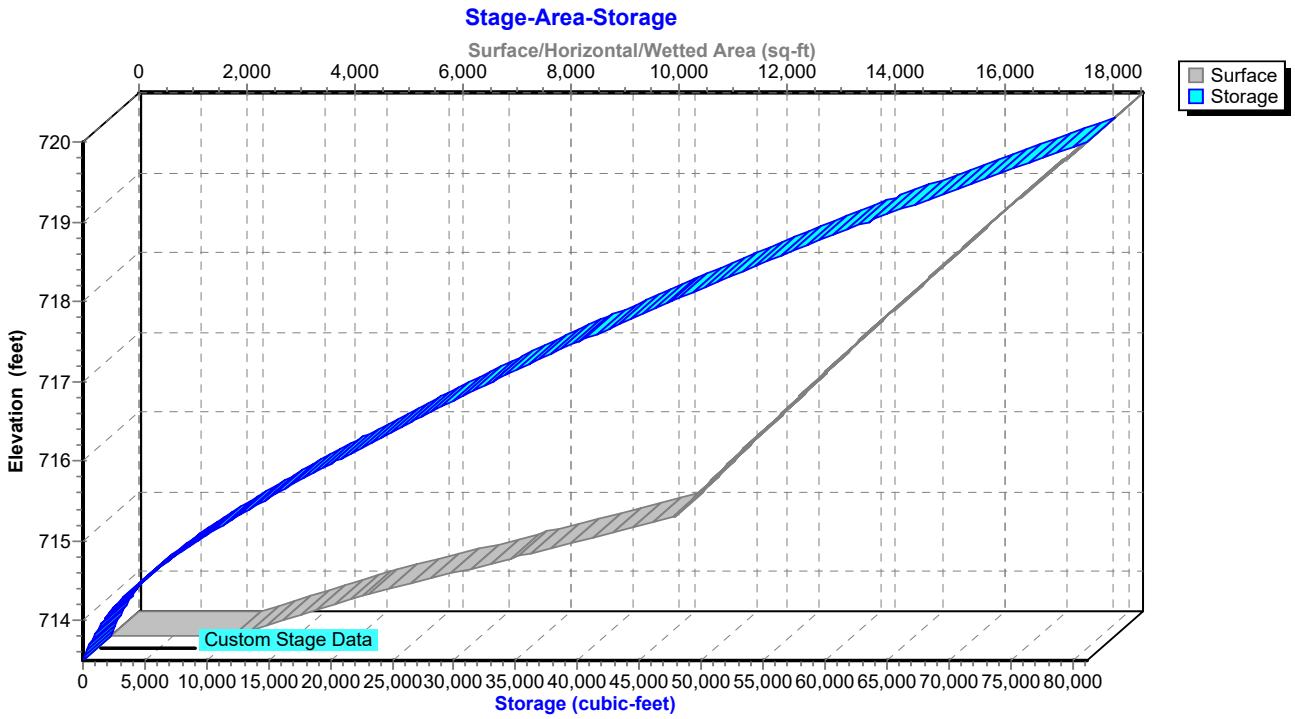
Pond 2P: SCM #2



Pond 2P: SCM #2



Pond 2P: SCM #2


Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
Surface
Storage
720
719
718
717
716
715
714
Elevation (feet)
Custom Stage Data
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
55,000
60,000
65,000
70,000
75,000
80,000
Storage (cubic-feet)

Hydrograph for Pond 2P: SCM #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	713.50	0.00	0.00	**0.00**
2.00	0.00	0	713.50	0.00	0.00	0.00
4.00	0.00	0	713.50	0.00	0.00	0.00
6.00	0.00	0	713.50	0.00	0.00	0.00
8.00	0.00	0	713.50	0.00	0.00	0.00
10.00	**0.00**	0	713.50	0.00	0.00	0.00
12.00	**7.78**	5,291	714.56	0.06	0.06	0.00
14.00	0.32	10,743	715.14	0.07	0.07	0.00
16.00	0.21	12,129	715.27	0.07	0.07	0.00
18.00	0.16	12,934	715.34	0.07	0.07	0.00
20.00	0.12	13,433	715.39	0.07	0.07	0.00
22.00	0.11	13,732	715.41	0.08	0.08	0.00
24.00	0.10	**13,971**	**715.44**	**0.08**	**0.08**	0.00
26.00	0.00	**13,459**	**715.39**	**0.07**	**0.07**	0.00
28.00	0.00	12,926	715.34	0.07	0.07	0.00
30.00	0.00	12,400	715.29	0.07	0.07	0.00
32.00	0.00	11,883	715.25	0.07	0.07	0.00
34.00	0.00	11,372	715.20	0.07	0.07	0.00
36.00	0.00	10,869	715.15	0.07	0.07	0.00
38.00	0.00	10,374	715.10	0.07	0.07	0.00
40.00	0.00	9,886	715.06	0.07	0.07	0.00
42.00	0.00	9,405	715.01	0.07	0.07	0.00
44.00	0.00	8,932	714.97	0.07	0.07	0.00
46.00	0.00	8,466	714.92	0.06	0.06	0.00
48.00	0.00	8,007	714.87	0.06	0.06	0.00
50.00	0.00	7,555	714.83	0.06	0.06	0.00
52.00	0.00	7,112	714.78	0.06	0.06	0.00
54.00	0.00	6,675	714.73	0.06	0.06	0.00
56.00	0.00	6,247	714.68	0.06	0.06	0.00
58.00	0.00	5,826	714.63	0.06	0.06	0.00
60.00	0.00	5,413	714.58	0.06	0.06	0.00
62.00	0.00	5,009	714.53	0.06	0.06	0.00
64.00	0.00	4,613	714.48	0.05	0.05	0.00
66.00	0.00	4,237	714.42	0.05	0.05	0.00
68.00	0.00	3,881	714.37	0.05	0.05	0.00
70.00	0.00	3,545	714.32	0.05	0.05	0.00
72.00	0.00	3,229	714.27	0.04	0.04	0.00

Stage-Discharge for Pond 2P: SCM #2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
713.50	0.00	0.00	0.00
713.60	0.01	0.01	0.00
713.70	0.01	0.01	0.00
713.80	0.02	0.02	0.00
713.90	0.02	0.02	0.00
714.00	0.03	0.03	0.00
714.10	0.03	0.03	0.00
714.20	0.04	0.04	0.00
714.30	0.04	0.04	0.00
714.40	0.05	0.05	0.00
714.50	0.06	0.06	0.00
714.60	0.06	0.06	0.00
714.70	0.06	0.06	0.00
714.80	0.06	0.06	0.00
714.90	0.06	0.06	0.00
715.00	0.07	0.07	0.00
715.10	0.07	0.07	0.00
715.20	0.07	0.07	0.00
715.30	0.07	0.07	0.00
715.40	0.07	0.07	0.00
715.50	0.08	0.08	0.00
715.60	0.10	0.10	0.00
715.70	0.16	0.16	0.00
715.80	0.24	0.24	0.00
715.90	0.29	0.29	0.00
716.00	0.33	0.33	0.00
716.10	0.37	0.37	0.00
716.20	0.40	0.40	0.00
716.30	0.43	0.43	0.00
716.40	0.46	0.46	0.00
716.50	0.48	0.48	0.00
716.60	0.51	0.51	0.00
716.70	0.53	0.53	0.00
716.80	0.55	0.55	0.00
716.90	0.57	0.57	0.00
717.00	0.59	0.59	0.00
717.10	0.61	0.61	0.00
717.20	0.63	0.63	0.00
717.30	0.65	0.65	0.00
717.40	0.67	0.67	0.00
717.50	0.69	0.69	0.00
717.60	2.36	2.36	0.00
717.70	5.40	5.40	0.00
717.80	9.34	9.34	0.00
717.90	13.99	13.99	0.00
718.00	19.27	19.27	0.00
718.10	25.10	25.10	0.00
718.20	31.45	31.45	0.00
718.30	36.43	36.43	0.00
718.40	36.74	36.74	0.00
718.50	37.05	37.05	0.00
718.60	38.93	37.36	1.57
718.70	42.12	37.67	4.45
718.80	46.27	37.97	8.30
718.90	51.22	38.27	12.95
719.00	57.16	38.57	18.60
719.10	63.96	38.86	25.10
719.20	70.72	39.15	31.57
719.30	77.94	39.45	38.50
719.40	85.58	39.73	45.85
719.50	93.62	40.02	53.60
719.60	102.26	40.31	61.95
719.70	111.31	40.59	70.72
719.80	120.32	40.87	79.45
719.90	129.61	41.15	88.46
720.00	**138.98**	**41.43**	**97.55**

Stage-Area-Storage for Pond 2P: SCM #2

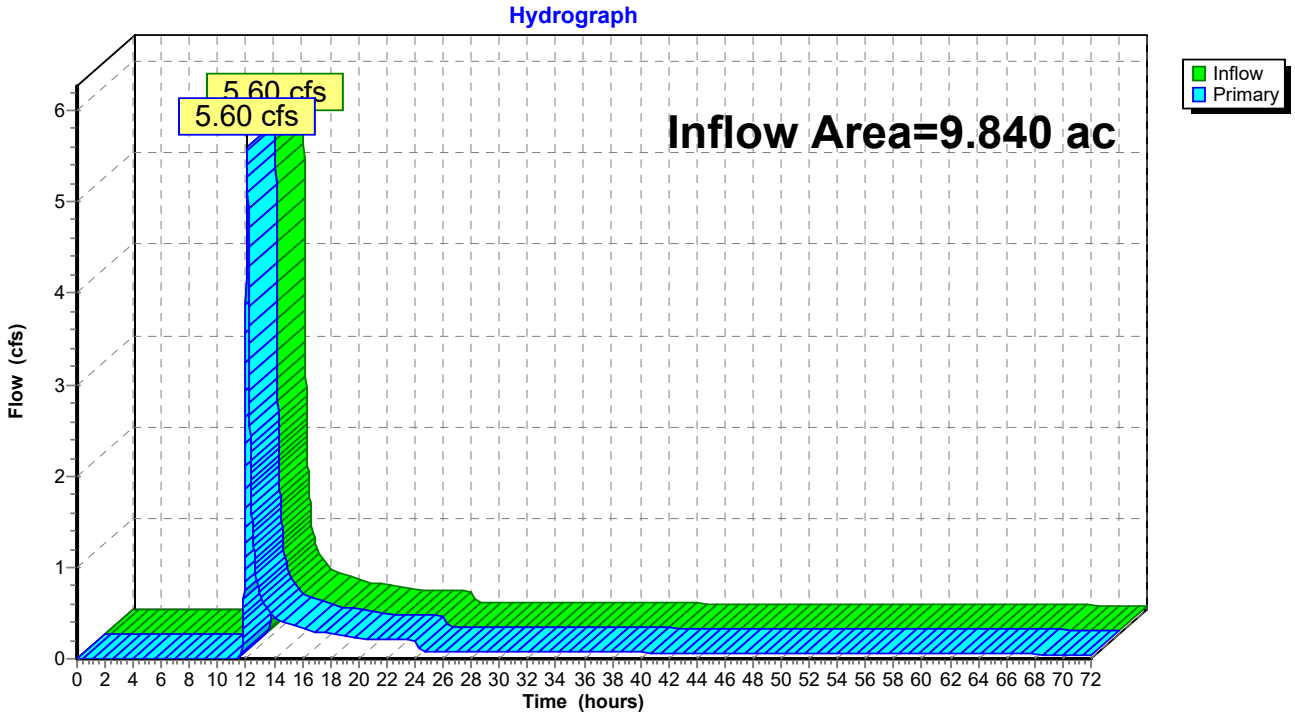
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
713.50	2,258	0
713.60	2,740	250
713.70	3,223	548
713.80	3,705	894
713.90	4,188	1,289
714.00	4,670	1,732
714.10	5,246	2,228
714.20	5,821	2,781
714.30	6,396	3,392
714.40	6,972	4,060
714.50	7,548	4,786
714.60	8,123	5,570
714.70	8,699	6,411
714.80	9,274	7,310
714.90	9,849	8,266
715.00	10,425	9,280
715.10	10,577	10,330
715.20	10,729	11,395
715.30	10,881	12,475
715.40	11,033	13,571
715.50	11,185	14,682
715.60	11,337	15,808
715.70	11,489	16,949
715.80	11,641	18,106
715.90	11,793	19,278
716.00	11,945	20,465
716.10	12,102	21,667
716.20	12,259	22,885
716.30	12,416	24,119
716.40	12,573	25,368
716.50	12,730	26,633
716.60	12,887	27,914
716.70	13,044	29,211
716.80	13,201	30,523
716.90	13,358	31,851
717.00	13,515	33,195
717.10	13,678	34,554
717.20	13,841	35,930
717.30	14,004	37,322
717.40	14,167	38,731
717.50	14,330	40,156
717.60	14,493	41,597
717.70	14,656	43,054
717.80	14,819	44,528
717.90	14,982	46,018
718.00	15,145	47,525
718.10	15,314	49,047
718.20	15,482	50,587
718.30	15,650	52,144
718.40	15,819	53,717
718.50	15,988	55,308
718.60	16,156	56,915
718.70	16,325	58,539
718.80	16,493	60,180
718.90	16,661	61,837
719.00	16,830	63,512
719.10	17,004	65,204
719.20	17,178	66,913
719.30	17,352	68,639
719.40	17,526	70,383
719.50	17,700	72,145
719.60	17,874	73,923
719.70	18,048	75,719
719.80	18,222	77,533
719.90	18,396	79,364
720.00	**18,570**	**81,212**

Summary for Link 2L: Total Post-Development to POI #2

Inflow Area = 9.840 ac, 15.75% Impervious, Inflow Depth > 0.88" for 2-yr event
Inflow = 5.60 cfs @ 12.09 hrs, Volume= 0.721 af
Primary = 5.60 cfs @ 12.09 hrs, Volume= 0.721 af, Atten= 0%, Lag= 0.0 min

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

Link 2L: Total Post-Development to POI #2



Hydrograph for Link 2L: Total Post-Development to POI #2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00
12.00	**3.88**	0.00	**3.88**
13.00	**0.72**	0.00	**0.72**
14.00	0.47	0.00	0.47
15.00	0.39	0.00	0.39
16.00	0.32	0.00	0.32
17.00	0.29	0.00	0.29
18.00	0.27	0.00	0.27
19.00	0.25	0.00	0.25
20.00	0.22	0.00	0.22
21.00	0.22	0.00	0.22
22.00	0.21	0.00	0.21
23.00	0.21	0.00	0.21
24.00	0.20	0.00	0.20
25.00	0.08	0.00	0.08
26.00	0.07	0.00	0.07
27.00	0.07	0.00	0.07
28.00	0.07	0.00	0.07
29.00	0.07	0.00	0.07
30.00	0.07	0.00	0.07
31.00	0.07	0.00	0.07
32.00	0.07	0.00	0.07
33.00	0.07	0.00	0.07
34.00	0.07	0.00	0.07
35.00	0.07	0.00	0.07
36.00	0.07	0.00	0.07
37.00	0.07	0.00	0.07
38.00	0.07	0.00	0.07
39.00	0.07	0.00	0.07
40.00	0.07	0.00	0.07
41.00	0.07	0.00	0.07
42.00	0.07	0.00	0.07
43.00	0.07	0.00	0.07
44.00	0.07	0.00	0.07
45.00	0.06	0.00	0.06
46.00	0.06	0.00	0.06
47.00	0.06	0.00	0.06
48.00	0.06	0.00	0.06
49.00	0.06	0.00	0.06
50.00	0.06	0.00	0.06
51.00	0.06	0.00	0.06
52.00	0.06	0.00	0.06
53.00	0.06	0.00	0.06
54.00	0.06	0.00	0.06
55.00	0.06	0.00	0.06
56.00	0.06	0.00	0.06
57.00	0.06	0.00	0.06
58.00	0.06	0.00	0.06
59.00	0.06	0.00	0.06
60.00	0.06	0.00	0.06
61.00	0.06	0.00	0.06
62.00	0.06	0.00	0.06
63.00	0.06	0.00	0.06
64.00	0.05	0.00	0.05
65.00	0.05	0.00	0.05
66.00	0.05	0.00	0.05
67.00	0.05	0.00	0.05
68.00	0.05	0.00	0.05
69.00	0.05	0.00	0.05
70.00	0.05	0.00	0.05
71.00	0.04	0.00	0.04
72.00	0.04	0.00	0.04

Summary for Subcatchment 2PRE: Pre-Development to POI #2

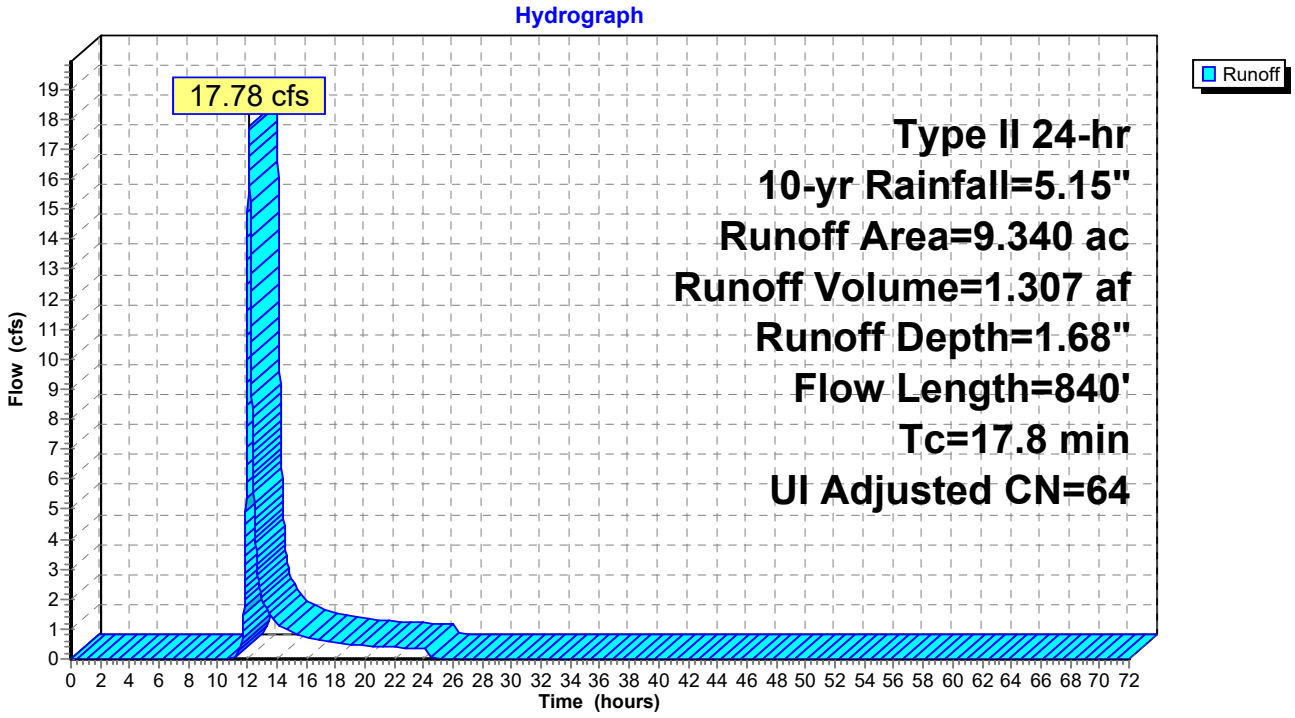
Runoff = 17.78 cfs @ 12.12 hrs, Volume= 1.307 af, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=5.15"

Area (ac)	CN	Adj	Description
0.590	55		Woods, Good, HSG B
0.700	77		Woods, Good, HSG D
0.750	98		Unconnected roofs, HSG B
0.080	80		>75% Grass cover, Good, HSG D
7.220	61		>75% Grass cover, Good, HSG B
9.340	65	64	Weighted Average, UI Adjusted
8.590			91.97% Pervious Area
0.750			8.03% Impervious Area
0.750			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0250	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.53"
5.4	740	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
17.8	840	Total			

Subcatchment 2PRE: Pre-Development to POI #2



Hydrograph for Subcatchment 2PRE: Pre-Development to POI #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.11	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.32	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.51	0.00	0.00
8.00	0.62	0.00	0.00
9.00	0.76	0.00	0.00
10.00	0.93	0.00	0.00
11.00	1.21	0.00	0.01
12.00	3.41	0.66	**11.64**
13.00	3.98	0.96	**2.04**
14.00	4.22	1.10	1.19
15.00	4.40	1.20	0.92
16.00	4.53	1.29	0.74
17.00	4.64	1.35	0.64
18.00	4.74	1.42	0.57
19.00	4.83	1.47	0.50
20.00	4.90	1.52	0.43
21.00	4.97	1.56	0.40
22.00	5.03	1.60	0.38
23.00	5.09	1.64	0.37
24.00	**5.15**	**1.68**	0.36
25.00	5.15	1.68	0.00
26.00	5.15	1.68	0.00
27.00	5.15	1.68	0.00
28.00	5.15	1.68	0.00
29.00	5.15	1.68	0.00
30.00	5.15	1.68	0.00
31.00	5.15	1.68	0.00
32.00	5.15	1.68	0.00
33.00	5.15	1.68	0.00
34.00	5.15	1.68	0.00
35.00	5.15	1.68	0.00
36.00	5.15	1.68	0.00
37.00	5.15	1.68	0.00
38.00	5.15	1.68	0.00
39.00	5.15	1.68	0.00
40.00	5.15	1.68	0.00
41.00	5.15	1.68	0.00
42.00	5.15	1.68	0.00
43.00	5.15	1.68	0.00
44.00	5.15	1.68	0.00
45.00	5.15	1.68	0.00
46.00	5.15	1.68	0.00
47.00	5.15	1.68	0.00
48.00	5.15	1.68	0.00
49.00	5.15	1.68	0.00
50.00	5.15	1.68	0.00
51.00	5.15	1.68	0.00
52.00	5.15	1.68	0.00
53.00	5.15	1.68	0.00
54.00	5.15	1.68	0.00
55.00	5.15	1.68	0.00
56.00	5.15	1.68	0.00
57.00	5.15	1.68	0.00
58.00	5.15	1.68	0.00
59.00	5.15	1.68	0.00
60.00	5.15	1.68	0.00
61.00	5.15	1.68	0.00
62.00	5.15	1.68	0.00
63.00	5.15	1.68	0.00
64.00	5.15	1.68	0.00
65.00	5.15	1.68	0.00
66.00	5.15	1.68	0.00
67.00	5.15	1.68	0.00
68.00	5.15	1.68	0.00
69.00	5.15	1.68	0.00
70.00	5.15	1.68	0.00
71.00	5.15	1.68	0.00
72.00	5.15	1.68	0.00

Summary for Subcatchment 2PST: Post-Development to SCM #2

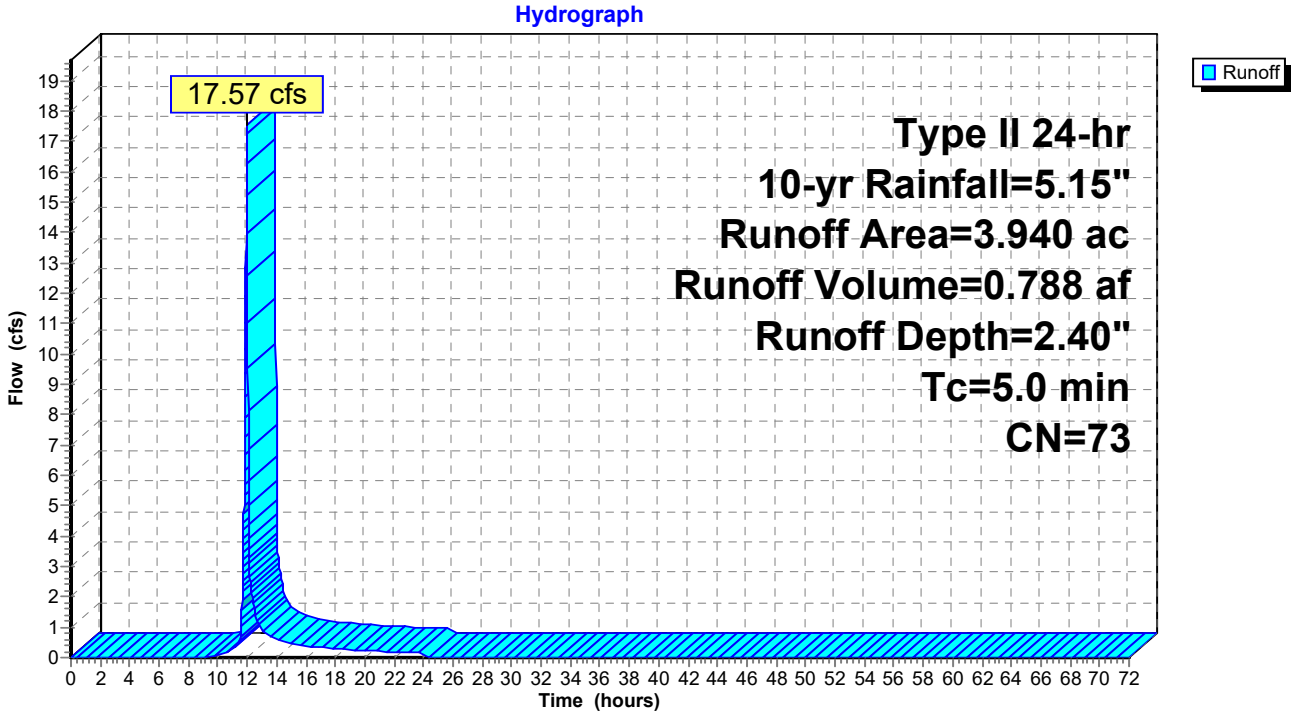
Runoff = 17.57 cfs @ 11.96 hrs, Volume= 0.788 af, Depth= 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=5.15"

	Area (ac)	CN	Description
*	0.880	98	Proposed Impervious
*	0.020	98	Existing Impervious
	2.290	61	>75% Grass cover, Good, HSG B
	0.750	80	>75% Grass cover, Good, HSG D
	3.940	73	Weighted Average
	3.040		77.16% Pervious Area
	0.900		22.84% Impervious Area

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

Subcatchment 2PST: Post-Development to SCM #2



Hydrograph for Subcatchment 2PST: Post-Development to SCM #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.11	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.32	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.51	0.00	0.00
8.00	0.62	0.00	0.00
9.00	0.76	0.00	0.00
10.00	0.93	0.01	0.07
11.00	1.21	0.05	**0.29**
12.00	3.41	1.12	**15.25**
13.00	3.98	1.51	0.95
14.00	4.22	1.69	0.58
15.00	4.40	1.82	0.47
16.00	4.53	1.92	0.36
17.00	4.64	2.00	0.32
18.00	4.74	2.08	0.29
19.00	4.83	2.15	0.25
20.00	4.90	2.20	0.21
21.00	4.97	2.26	0.20
22.00	5.03	2.31	0.19
23.00	5.09	2.35	0.19
24.00	**5.15**	**2.40**	0.18
25.00	5.15	2.40	0.00
26.00	5.15	2.40	0.00
27.00	5.15	2.40	0.00
28.00	5.15	2.40	0.00
29.00	5.15	2.40	0.00
30.00	5.15	2.40	0.00
31.00	5.15	2.40	0.00
32.00	5.15	2.40	0.00
33.00	5.15	2.40	0.00
34.00	5.15	2.40	0.00
35.00	5.15	2.40	0.00
36.00	5.15	2.40	0.00
37.00	5.15	2.40	0.00
38.00	5.15	2.40	0.00
39.00	5.15	2.40	0.00
40.00	5.15	2.40	0.00
41.00	5.15	2.40	0.00
42.00	5.15	2.40	0.00
43.00	5.15	2.40	0.00
44.00	5.15	2.40	0.00
45.00	5.15	2.40	0.00
46.00	5.15	2.40	0.00
47.00	5.15	2.40	0.00
48.00	5.15	2.40	0.00
49.00	5.15	2.40	0.00
50.00	5.15	2.40	0.00
51.00	5.15	2.40	0.00
52.00	5.15	2.40	0.00
53.00	5.15	2.40	0.00
54.00	5.15	2.40	0.00
55.00	5.15	2.40	0.00
56.00	5.15	2.40	0.00
57.00	5.15	2.40	0.00
58.00	5.15	2.40	0.00
59.00	5.15	2.40	0.00
60.00	5.15	2.40	0.00
61.00	5.15	2.40	0.00
62.00	5.15	2.40	0.00
63.00	5.15	2.40	0.00
64.00	5.15	2.40	0.00
65.00	5.15	2.40	0.00
66.00	5.15	2.40	0.00
67.00	5.15	2.40	0.00
68.00	5.15	2.40	0.00
69.00	5.15	2.40	0.00
70.00	5.15	2.40	0.00
71.00	5.15	2.40	0.00
72.00	5.15	2.40	0.00

Summary for Subcatchment 2S: Bypass to POI #2

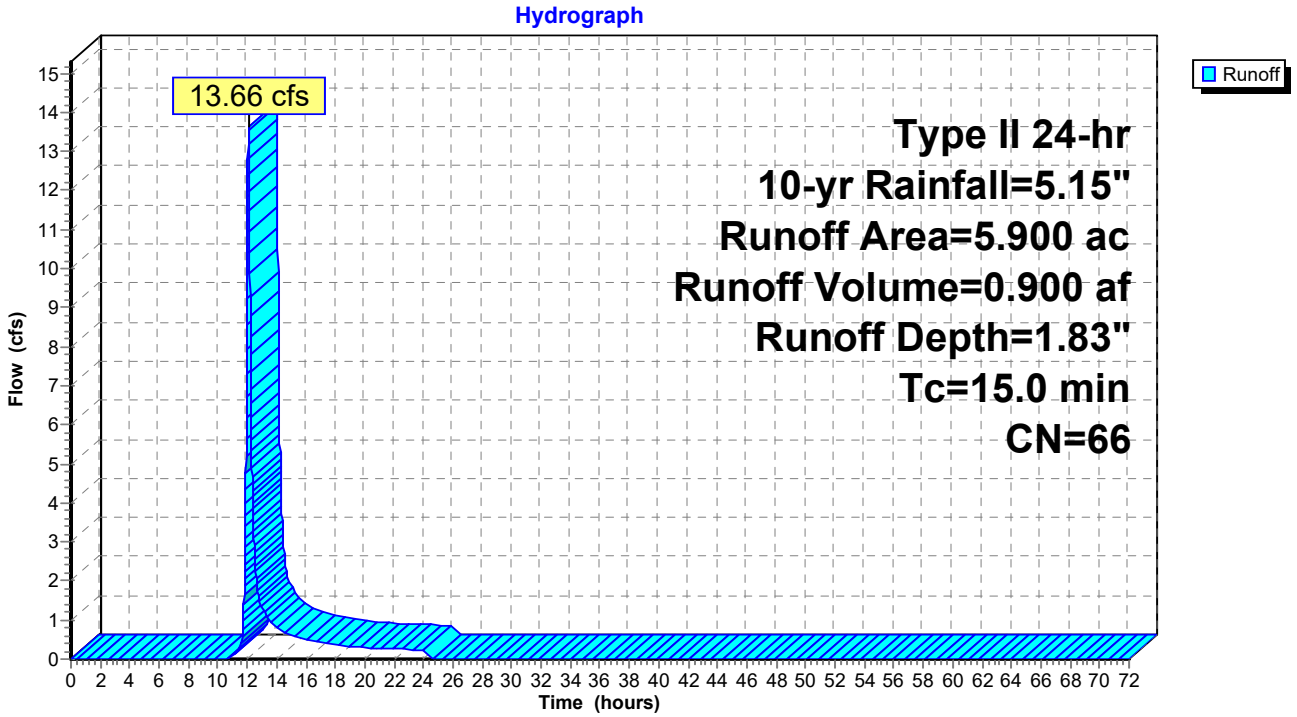
Runoff = 13.66 cfs @ 12.08 hrs, Volume= 0.900 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=5.15"

	Area (ac)	CN	Description
*	0.650	98	Existing Impervious
	4.740	61	>75% Grass cover, Good, HSG B
	0.280	80	>75% Grass cover, Good, HSG D
	0.180	55	Woods, Good, HSG B
	0.050	77	Woods, Good, HSG D
	5.900	66	Weighted Average
	5.250		88.98% Pervious Area
	0.650		11.02% Impervious Area

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

Subcatchment 2S: Bypass to POI #2



Hydrograph for Subcatchment 2S: Bypass to POI #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.11	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.32	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.51	0.00	0.00
8.00	0.62	0.00	0.00
9.00	0.76	0.00	0.00
10.00	0.93	0.00	0.00
11.00	1.21	0.01	0.07
12.00	3.41	0.75	**10.59**
13.00	3.98	1.07	**1.32**
14.00	4.22	1.22	0.78
15.00	4.40	1.33	0.61
16.00	4.53	1.42	0.48
17.00	4.64	1.49	0.42
18.00	4.74	1.56	0.38
19.00	4.83	1.61	0.33
20.00	4.90	1.66	0.28
21.00	4.97	1.71	0.26
22.00	5.03	1.75	0.25
23.00	5.09	1.79	0.24
24.00	**5.15**	**1.83**	0.23
25.00	5.15	1.83	0.00
26.00	5.15	1.83	0.00
27.00	5.15	1.83	0.00
28.00	5.15	1.83	0.00
29.00	5.15	1.83	0.00
30.00	5.15	1.83	0.00
31.00	5.15	1.83	0.00
32.00	5.15	1.83	0.00
33.00	5.15	1.83	0.00
34.00	5.15	1.83	0.00
35.00	5.15	1.83	0.00
36.00	5.15	1.83	0.00
37.00	5.15	1.83	0.00
38.00	5.15	1.83	0.00
39.00	5.15	1.83	0.00
40.00	5.15	1.83	0.00
41.00	5.15	1.83	0.00
42.00	5.15	1.83	0.00
43.00	5.15	1.83	0.00
44.00	5.15	1.83	0.00
45.00	5.15	1.83	0.00
46.00	5.15	1.83	0.00
47.00	5.15	1.83	0.00
48.00	5.15	1.83	0.00
49.00	5.15	1.83	0.00
50.00	5.15	1.83	0.00
51.00	5.15	1.83	0.00
52.00	5.15	1.83	0.00
53.00	5.15	1.83	0.00
54.00	5.15	1.83	0.00
55.00	5.15	1.83	0.00
56.00	5.15	1.83	0.00
57.00	5.15	1.83	0.00
58.00	5.15	1.83	0.00
59.00	5.15	1.83	0.00
60.00	5.15	1.83	0.00
61.00	5.15	1.83	0.00
62.00	5.15	1.83	0.00
63.00	5.15	1.83	0.00
64.00	5.15	1.83	0.00
65.00	5.15	1.83	0.00
66.00	5.15	1.83	0.00
67.00	5.15	1.83	0.00
68.00	5.15	1.83	0.00
69.00	5.15	1.83	0.00
70.00	5.15	1.83	0.00
71.00	5.15	1.83	0.00
72.00	5.15	1.83	0.00

Summary for Subcatchment 3PRE: Pre-Development to POI #3

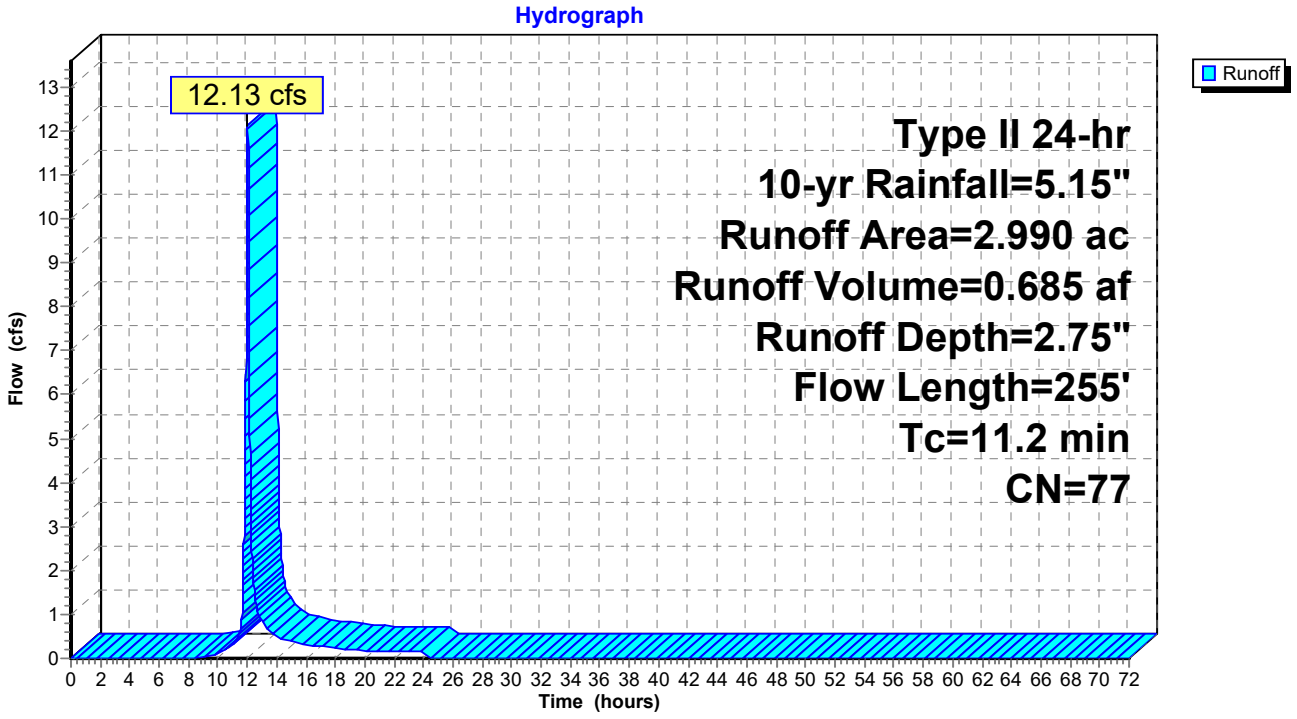
Runoff = 12.13 cfs @ 12.03 hrs, Volume= 0.685 af, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=5.15"

Area (ac)	CN	Description
2.610	77	Woods, Good, HSG D
0.380	80	>75% Grass cover, Good, HSG D
2.990	77	Weighted Average
2.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0360	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.53"
0.5	155	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.2	255	Total			

Subcatchment 3PRE: Pre-Development to POI #3



Hydrograph for Subcatchment 3PRE: Pre-Development to POI #3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.11	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.32	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.51	0.00	0.00
8.00	0.62	0.00	0.00
9.00	0.76	0.01	0.04
10.00	0.93	0.03	0.10
11.00	1.21	0.10	0.29
12.00	3.41	1.37	**11.55**
13.00	3.98	1.79	**0.84**
14.00	4.22	1.99	0.50
15.00	4.40	2.13	0.39
16.00	4.53	2.24	0.31
17.00	4.64	2.33	0.27
18.00	4.74	2.41	0.24
19.00	4.83	2.48	0.20
20.00	4.90	2.54	0.17
21.00	4.97	2.60	0.16
22.00	5.03	2.65	0.16
23.00	5.09	2.70	0.15
24.00	**5.15**	**2.75**	0.15
25.00	5.15	2.75	0.00
26.00	5.15	2.75	0.00
27.00	5.15	2.75	0.00
28.00	5.15	2.75	0.00
29.00	5.15	2.75	0.00
30.00	5.15	2.75	0.00
31.00	5.15	2.75	0.00
32.00	5.15	2.75	0.00
33.00	5.15	2.75	0.00
34.00	5.15	2.75	0.00
35.00	5.15	2.75	0.00
36.00	5.15	2.75	0.00
37.00	5.15	2.75	0.00
38.00	5.15	2.75	0.00
39.00	5.15	2.75	0.00
40.00	5.15	2.75	0.00
41.00	5.15	2.75	0.00
42.00	5.15	2.75	0.00
43.00	5.15	2.75	0.00
44.00	5.15	2.75	0.00
45.00	5.15	2.75	0.00
46.00	5.15	2.75	0.00
47.00	5.15	2.75	0.00
48.00	5.15	2.75	0.00
49.00	5.15	2.75	0.00
50.00	5.15	2.75	0.00
51.00	5.15	2.75	0.00
52.00	5.15	2.75	0.00
53.00	5.15	2.75	0.00
54.00	5.15	2.75	0.00
55.00	5.15	2.75	0.00
56.00	5.15	2.75	0.00
57.00	5.15	2.75	0.00
58.00	5.15	2.75	0.00
59.00	5.15	2.75	0.00
60.00	5.15	2.75	0.00
61.00	5.15	2.75	0.00
62.00	5.15	2.75	0.00
63.00	5.15	2.75	0.00
64.00	5.15	2.75	0.00
65.00	5.15	2.75	0.00
66.00	5.15	2.75	0.00
67.00	5.15	2.75	0.00
68.00	5.15	2.75	0.00
69.00	5.15	2.75	0.00
70.00	5.15	2.75	0.00
71.00	5.15	2.75	0.00
72.00	5.15	2.75	0.00

Summary for Subcatchment 3PST: Post-Development to POI #3

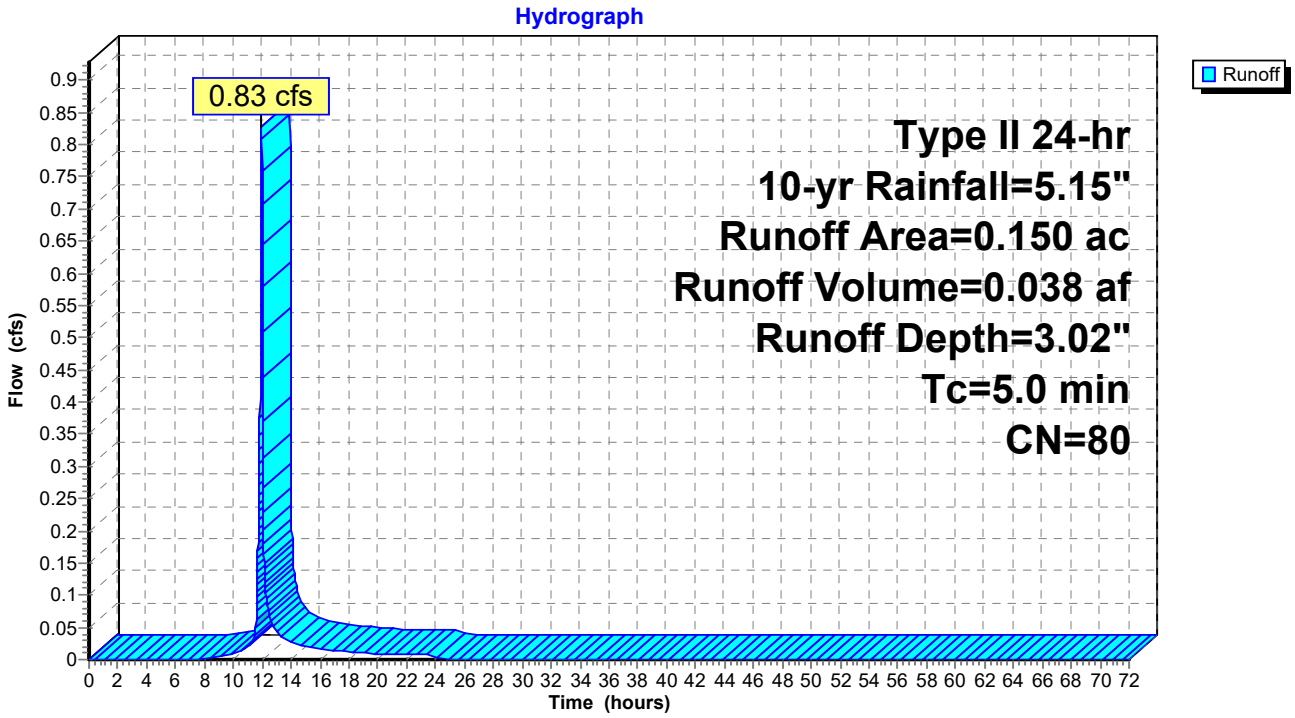
Runoff = 0.83 cfs @ 11.96 hrs, Volume= 0.038 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=5.15"

Area (ac)	CN	Description
0.020	98	Paved roads w/curbs & sewers, HSG B
0.130	77	Woods, Good, HSG D
0.150	80	Weighted Average
0.130		86.67% Pervious Area
0.020		13.33% Impervious Area

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

Subcatchment 3PST: Post-Development to POI #3



Hydrograph for Subcatchment 3PST: Post-Development to POI #3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.11	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.32	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.51	0.00	0.00
8.00	0.62	0.01	0.00
9.00	0.76	0.02	0.00
10.00	0.93	0.06	0.01
11.00	1.21	0.16	**0.02**
12.00	3.41	1.57	**0.71**
13.00	3.98	2.02	0.04
14.00	4.22	2.23	0.03
15.00	4.40	2.37	0.02
16.00	4.53	2.49	0.02
17.00	4.64	2.58	0.01
18.00	4.74	2.67	0.01
19.00	4.83	2.74	0.01
20.00	4.90	2.81	0.01
21.00	4.97	2.87	0.01
22.00	5.03	2.92	0.01
23.00	5.09	2.97	0.01
24.00	**5.15**	**3.02**	0.01
25.00	5.15	3.02	0.00
26.00	5.15	3.02	0.00
27.00	5.15	3.02	0.00
28.00	5.15	3.02	0.00
29.00	5.15	3.02	0.00
30.00	5.15	3.02	0.00
31.00	5.15	3.02	0.00
32.00	5.15	3.02	0.00
33.00	5.15	3.02	0.00
34.00	5.15	3.02	0.00
35.00	5.15	3.02	0.00
36.00	5.15	3.02	0.00
37.00	5.15	3.02	0.00
38.00	5.15	3.02	0.00
39.00	5.15	3.02	0.00
40.00	5.15	3.02	0.00
41.00	5.15	3.02	0.00
42.00	5.15	3.02	0.00
43.00	5.15	3.02	0.00
44.00	5.15	3.02	0.00
45.00	5.15	3.02	0.00
46.00	5.15	3.02	0.00
47.00	5.15	3.02	0.00
48.00	5.15	3.02	0.00
49.00	5.15	3.02	0.00
50.00	5.15	3.02	0.00
51.00	5.15	3.02	0.00
52.00	5.15	3.02	0.00
53.00	5.15	3.02	0.00
54.00	5.15	3.02	0.00
55.00	5.15	3.02	0.00
56.00	5.15	3.02	0.00
57.00	5.15	3.02	0.00
58.00	5.15	3.02	0.00
59.00	5.15	3.02	0.00
60.00	5.15	3.02	0.00
61.00	5.15	3.02	0.00
62.00	5.15	3.02	0.00
63.00	5.15	3.02	0.00
64.00	5.15	3.02	0.00
65.00	5.15	3.02	0.00
66.00	5.15	3.02	0.00
67.00	5.15	3.02	0.00
68.00	5.15	3.02	0.00
69.00	5.15	3.02	0.00
70.00	5.15	3.02	0.00
71.00	5.15	3.02	0.00
72.00	5.15	3.02	0.00

Summary for Pond 2P: SCM #2

Inflow Area = 3.940 ac, 22.84% Impervious, Inflow Depth = 2.40" for 10-yr event
Inflow = 17.57 cfs @ 11.96 hrs, Volume= 0.788 af
Outflow = 0.38 cfs @ 15.80 hrs, Volume= 0.666 af, Atten= 98%, Lag= 230.1 min
Primary = 0.38 cfs @ 15.80 hrs, Volume= 0.666 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 716.16' @ 15.80 hrs Surf.Area= 12,192 sf Storage= 22,360 cf

Plug-Flow detention time= 1,054.4 min calculated for 0.666 af (85% of inflow)
Center-of-Mass det. time= 983.1 min (1,817.5 - 834.3)

Volume	Invert	Avail.Storage	Storage Description
#1	713.50'	81,212 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

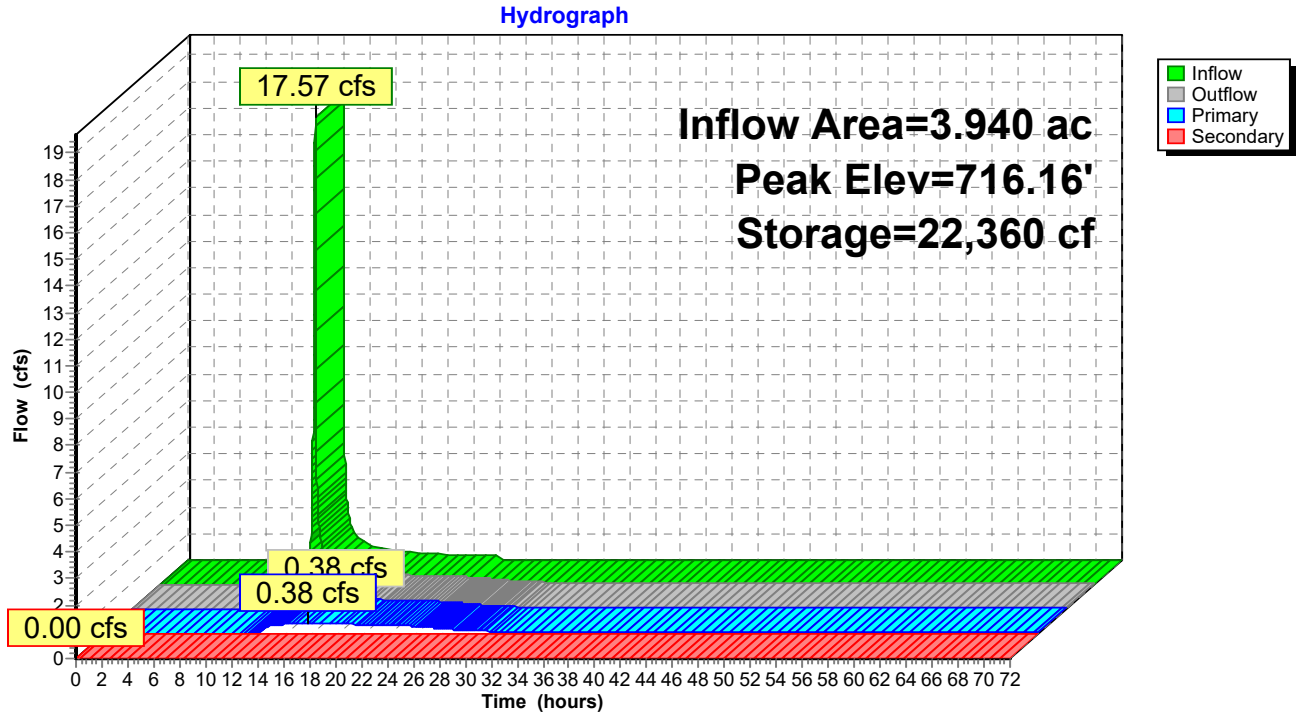
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
713.50	2,258	0	0
714.00	4,670	1,732	1,732
715.00	10,425	7,548	9,280
716.00	11,945	11,185	20,465
717.00	13,515	12,730	33,195
718.00	15,145	14,330	47,525
719.00	16,830	15,988	63,512
720.00	18,570	17,700	81,212

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**24.0" Round Outlet Pipe** L= 40.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 711.50' / 711.30' S= 0.0050 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Device 1	713.50'	**Filter Bed** Head (feet) 0.00 1.00 2.00 3.00 4.00 5.00 Disch. (cfs) 0.000 0.055 0.077 0.098 0.120 0.142
#3	Device 1	715.50'	**4.0" Vert. Orifice** C= 0.600
#4	Device 1	717.50'	**48.0" x 48.0" Horiz. Top of OCS** C= 0.600 Limited to weir flow at low heads
#5	Secondary	718.50'	**20.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

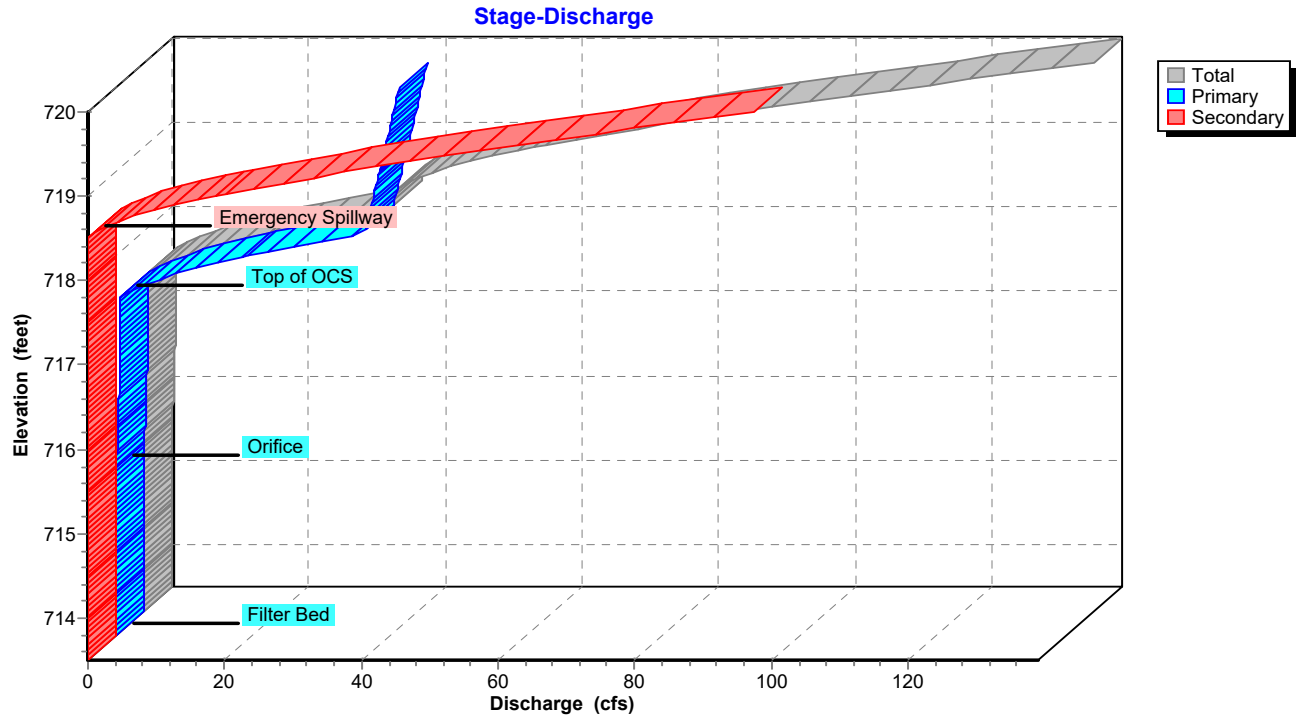
Primary OutFlow Max=0.39 cfs @ 15.80 hrs HW=716.16' (Free Discharge)
└**1=Outlet Pipe** (Passes 0.39 cfs of 28.93 cfs potential flow)
  ├**2=Filter Bed** (Custom Controls 0.09 cfs)
  ├**3=Orifice** (Orifice Controls 0.29 cfs @ 3.37 fps)
  └**4=Top of OCS** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=713.50' (Free Discharge)
└**5=Emergency Spillway** (Controls 0.00 cfs)

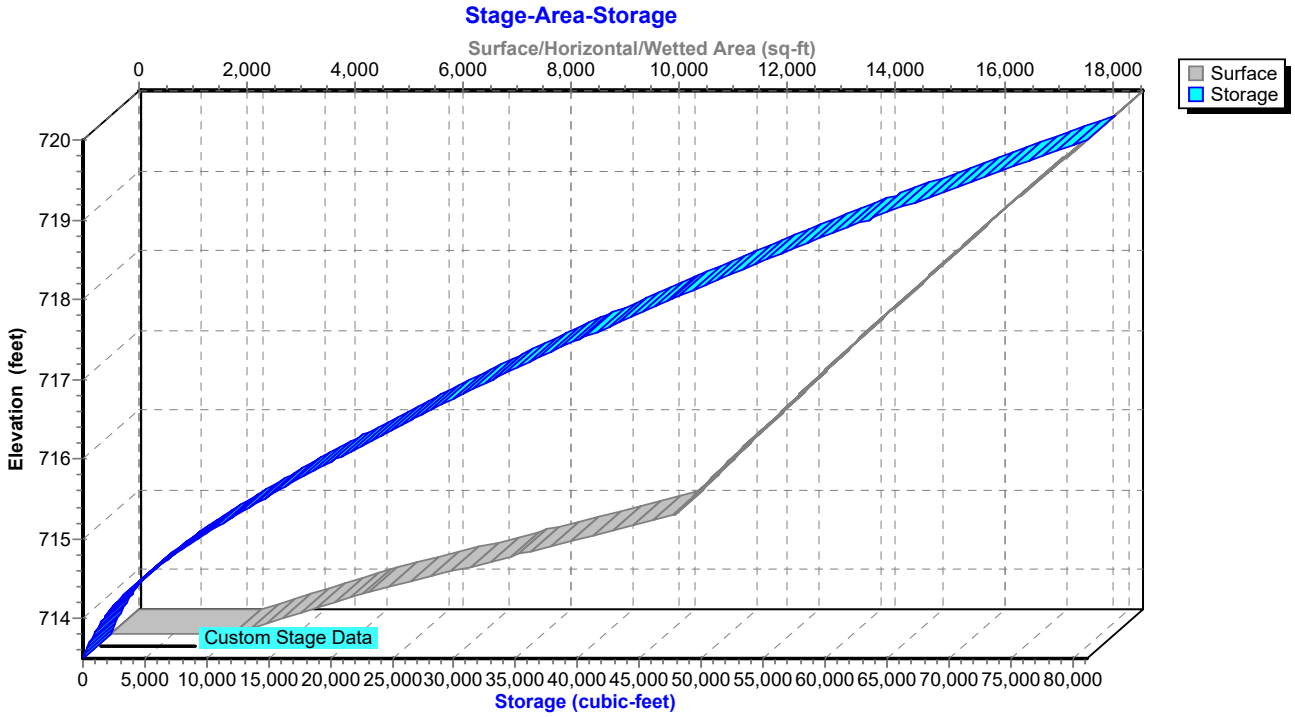
Pond 2P: SCM #2



Pond 2P: SCM #2



Pond 2P: SCM #2


Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
Surface
Storage
720
719
718
717
716
715
714
Elevation (feet)
Custom Stage Data
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
55,000
60,000
65,000
70,000
75,000
80,000
Storage (cubic-feet)

Hydrograph for Pond 2P: SCM #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	713.50	0.00	0.00	**0.00**
2.00	0.00	0	713.50	0.00	0.00	0.00
4.00	0.00	0	713.50	0.00	0.00	0.00
6.00	0.00	0	713.50	0.00	0.00	0.00
8.00	0.00	0	713.50	0.00	0.00	0.00
10.00	**0.07**	112	713.55	0.00	0.00	0.00
12.00	**15.25**	12,849	715.33	0.07	0.07	0.00
14.00	0.58	**21,734**	**716.11**	**0.37**	**0.37**	0.00
16.00	0.36	**22,353**	**716.16**	**0.38**	**0.38**	0.00
18.00	0.29	21,940	716.12	0.37	0.37	0.00
20.00	0.21	21,116	716.05	0.35	0.35	0.00
22.00	0.19	20,149	715.97	0.32	0.32	0.00
24.00	0.18	19,299	715.90	0.29	0.29	0.00
26.00	0.00	17,560	715.75	0.20	0.20	0.00
28.00	0.00	16,379	715.65	0.13	0.13	0.00
30.00	0.00	15,579	715.58	0.09	0.09	0.00
32.00	0.00	14,953	715.52	0.08	0.08	0.00
34.00	0.00	14,396	715.47	0.08	0.08	0.00
36.00	0.00	13,850	715.43	0.08	0.08	0.00
38.00	0.00	13,311	715.38	0.07	0.07	0.00
40.00	0.00	12,780	715.33	0.07	0.07	0.00
42.00	0.00	12,257	715.28	0.07	0.07	0.00
44.00	0.00	11,741	715.23	0.07	0.07	0.00
46.00	0.00	11,233	715.18	0.07	0.07	0.00
48.00	0.00	10,732	715.14	0.07	0.07	0.00
50.00	0.00	10,239	715.09	0.07	0.07	0.00
52.00	0.00	9,753	715.05	0.07	0.07	0.00
54.00	0.00	9,274	715.00	0.07	0.07	0.00
56.00	0.00	8,803	714.95	0.06	0.06	0.00
58.00	0.00	8,338	714.91	0.06	0.06	0.00
60.00	0.00	7,882	714.86	0.06	0.06	0.00
62.00	0.00	7,432	714.81	0.06	0.06	0.00
64.00	0.00	6,990	714.76	0.06	0.06	0.00
66.00	0.00	6,556	714.72	0.06	0.06	0.00
68.00	0.00	6,130	714.67	0.06	0.06	0.00
70.00	0.00	5,711	714.62	0.06	0.06	0.00
72.00	0.00	5,301	714.57	0.06	0.06	0.00

Stage-Discharge for Pond 2P: SCM #2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
713.50	0.00	0.00	0.00
713.60	0.01	0.01	0.00
713.70	0.01	0.01	0.00
713.80	0.02	0.02	0.00
713.90	0.02	0.02	0.00
714.00	0.03	0.03	0.00
714.10	0.03	0.03	0.00
714.20	0.04	0.04	0.00
714.30	0.04	0.04	0.00
714.40	0.05	0.05	0.00
714.50	0.06	0.06	0.00
714.60	0.06	0.06	0.00
714.70	0.06	0.06	0.00
714.80	0.06	0.06	0.00
714.90	0.06	0.06	0.00
715.00	0.07	0.07	0.00
715.10	0.07	0.07	0.00
715.20	0.07	0.07	0.00
715.30	0.07	0.07	0.00
715.40	0.07	0.07	0.00
715.50	0.08	0.08	0.00
715.60	0.10	0.10	0.00
715.70	0.16	0.16	0.00
715.80	0.24	0.24	0.00
715.90	0.29	0.29	0.00
716.00	0.33	0.33	0.00
716.10	0.37	0.37	0.00
716.20	0.40	0.40	0.00
716.30	0.43	0.43	0.00
716.40	0.46	0.46	0.00
716.50	0.48	0.48	0.00
716.60	0.51	0.51	0.00
716.70	0.53	0.53	0.00
716.80	0.55	0.55	0.00
716.90	0.57	0.57	0.00
717.00	0.59	0.59	0.00
717.10	0.61	0.61	0.00
717.20	0.63	0.63	0.00
717.30	0.65	0.65	0.00
717.40	0.67	0.67	0.00
717.50	0.69	0.69	0.00
717.60	2.36	2.36	0.00
717.70	5.40	5.40	0.00
717.80	9.34	9.34	0.00
717.90	13.99	13.99	0.00
718.00	19.27	19.27	0.00
718.10	25.10	25.10	0.00
718.20	31.45	31.45	0.00
718.30	36.43	36.43	0.00
718.40	36.74	36.74	0.00
718.50	37.05	37.05	0.00
718.60	38.93	37.36	1.57
718.70	42.12	37.67	4.45
718.80	46.27	37.97	8.30
718.90	51.22	38.27	12.95
719.00	57.16	38.57	18.60
719.10	63.96	38.86	25.10
719.20	70.72	39.15	31.57
719.30	77.94	39.45	38.50
719.40	85.58	39.73	45.85
719.50	93.62	40.02	53.60
719.60	102.26	40.31	61.95
719.70	111.31	40.59	70.72
719.80	120.32	40.87	79.45
719.90	129.61	41.15	88.46
720.00	**138.98**	**41.43**	**97.55**

Stage-Area-Storage for Pond 2P: SCM #2

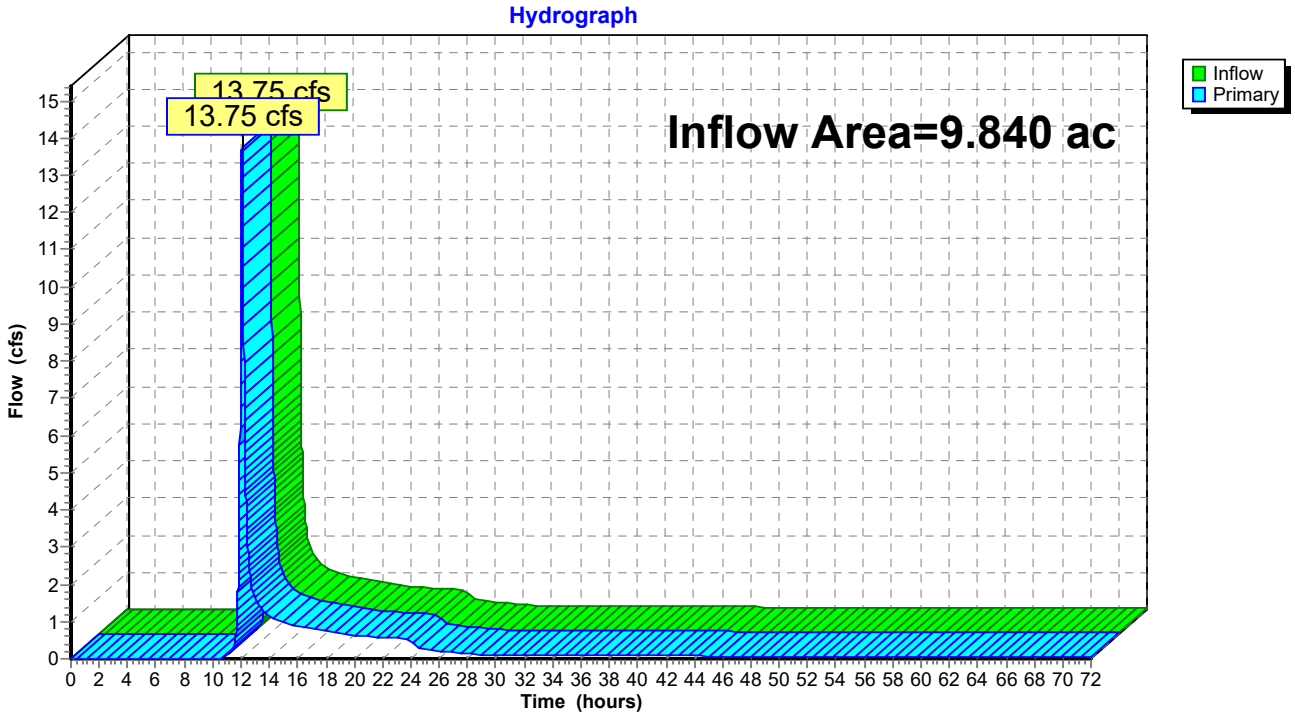
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
713.50	2,258	0
713.60	2,740	250
713.70	3,223	548
713.80	3,705	894
713.90	4,188	1,289
714.00	4,670	1,732
714.10	5,246	2,228
714.20	5,821	2,781
714.30	6,396	3,392
714.40	6,972	4,060
714.50	7,548	4,786
714.60	8,123	5,570
714.70	8,699	6,411
714.80	9,274	7,310
714.90	9,849	8,266
715.00	10,425	9,280
715.10	10,577	10,330
715.20	10,729	11,395
715.30	10,881	12,475
715.40	11,033	13,571
715.50	11,185	14,682
715.60	11,337	15,808
715.70	11,489	16,949
715.80	11,641	18,106
715.90	11,793	19,278
716.00	11,945	20,465
716.10	12,102	21,667
716.20	12,259	22,885
716.30	12,416	24,119
716.40	12,573	25,368
716.50	12,730	26,633
716.60	12,887	27,914
716.70	13,044	29,211
716.80	13,201	30,523
716.90	13,358	31,851
717.00	13,515	33,195
717.10	13,678	34,554
717.20	13,841	35,930
717.30	14,004	37,322
717.40	14,167	38,731
717.50	14,330	40,156
717.60	14,493	41,597
717.70	14,656	43,054
717.80	14,819	44,528
717.90	14,982	46,018
718.00	15,145	47,525
718.10	15,314	49,047
718.20	15,482	50,587
718.30	15,650	52,144
718.40	15,819	53,717
718.50	15,988	55,308
718.60	16,156	56,915
718.70	16,325	58,539
718.80	16,493	60,180
718.90	16,661	61,837
719.00	16,830	63,512
719.10	17,004	65,204
719.20	17,178	66,913
719.30	17,352	68,639
719.40	17,526	70,383
719.50	17,700	72,145
719.60	17,874	73,923
719.70	18,048	75,719
719.80	18,222	77,533
719.90	18,396	79,364
720.00	**18,570**	**81,212**

Summary for Link 2L: Total Post-Development to POI #2

Inflow Area = 9.840 ac, 15.75% Impervious, Inflow Depth > 1.91" for 10-yr event
Inflow = 13.75 cfs @ 12.08 hrs, Volume= 1.566 af
Primary = 13.75 cfs @ 12.08 hrs, Volume= 1.566 af, Atten= 0%, Lag= 0.0 min

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

Link 2L: Total Post-Development to POI #2



Hydrograph for Link 2L: Total Post-Development to POI #2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00
11.00	0.09	0.00	0.09
12.00	**10.66**	0.00	**10.66**
13.00	**1.65**	0.00	**1.65**
14.00	1.15	0.00	1.15
15.00	0.99	0.00	0.99
16.00	0.87	0.00	0.87
17.00	0.80	0.00	0.80
18.00	0.75	0.00	0.75
19.00	0.69	0.00	0.69
20.00	0.63	0.00	0.63
21.00	0.60	0.00	0.60
22.00	0.57	0.00	0.57
23.00	0.55	0.00	0.55
24.00	0.52	0.00	0.52
25.00	0.25	0.00	0.25
26.00	0.20	0.00	0.20
27.00	0.16	0.00	0.16
28.00	0.13	0.00	0.13
29.00	0.11	0.00	0.11
30.00	0.09	0.00	0.09
31.00	0.09	0.00	0.09
32.00	0.08	0.00	0.08
33.00	0.08	0.00	0.08
34.00	0.08	0.00	0.08
35.00	0.08	0.00	0.08
36.00	0.08	0.00	0.08
37.00	0.07	0.00	0.07
38.00	0.07	0.00	0.07
39.00	0.07	0.00	0.07
40.00	0.07	0.00	0.07
41.00	0.07	0.00	0.07
42.00	0.07	0.00	0.07
43.00	0.07	0.00	0.07
44.00	0.07	0.00	0.07
45.00	0.07	0.00	0.07
46.00	0.07	0.00	0.07
47.00	0.07	0.00	0.07
48.00	0.07	0.00	0.07
49.00	0.07	0.00	0.07
50.00	0.07	0.00	0.07
51.00	0.07	0.00	0.07
52.00	0.07	0.00	0.07
53.00	0.07	0.00	0.07
54.00	0.07	0.00	0.07
55.00	0.07	0.00	0.07
56.00	0.06	0.00	0.06
57.00	0.06	0.00	0.06
58.00	0.06	0.00	0.06
59.00	0.06	0.00	0.06
60.00	0.06	0.00	0.06
61.00	0.06	0.00	0.06
62.00	0.06	0.00	0.06
63.00	0.06	0.00	0.06
64.00	0.06	0.00	0.06
65.00	0.06	0.00	0.06
66.00	0.06	0.00	0.06
67.00	0.06	0.00	0.06
68.00	0.06	0.00	0.06
69.00	0.06	0.00	0.06
70.00	0.06	0.00	0.06
71.00	0.06	0.00	0.06
72.00	0.06	0.00	0.06

Summary for Subcatchment 2PRE: Pre-Development to POI #2

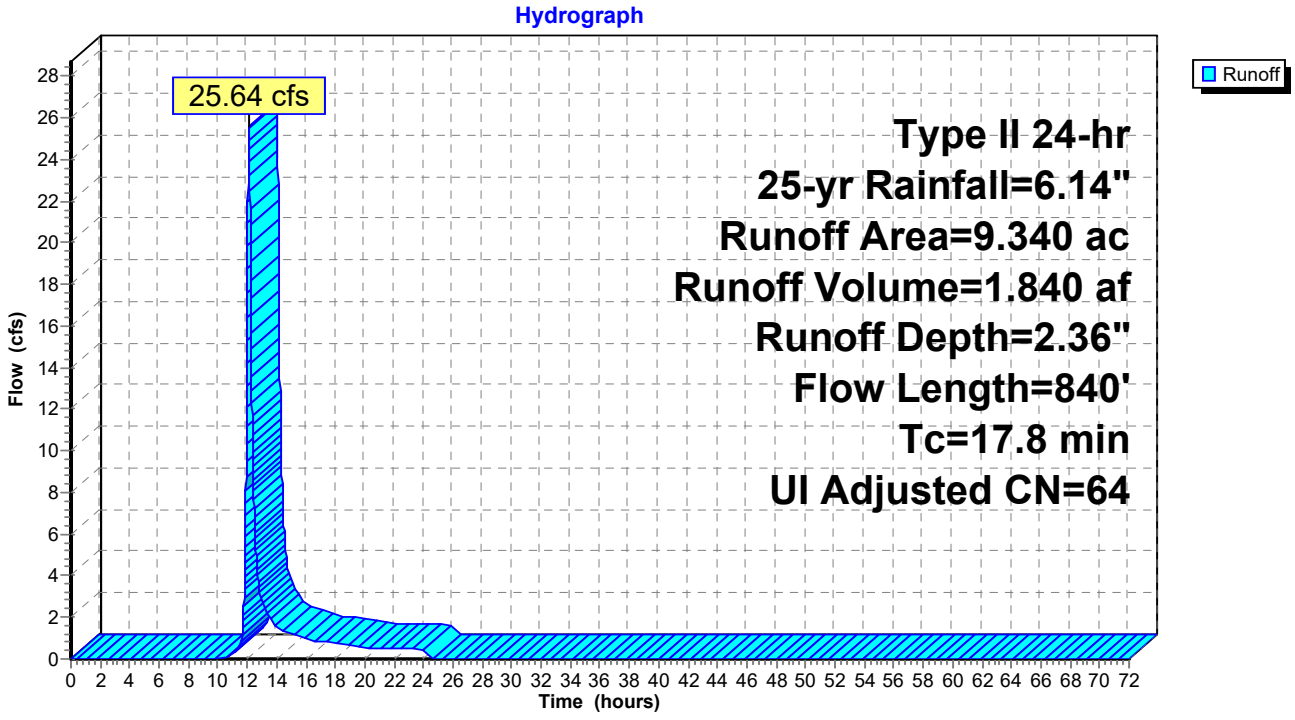
Runoff = 25.64 cfs @ 12.11 hrs, Volume= 1.840 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=6.14"

Area (ac)	CN	Adj	Description
0.590	55		Woods, Good, HSG B
0.700	77		Woods, Good, HSG D
0.750	98		Unconnected roofs, HSG B
0.080	80		>75% Grass cover, Good, HSG D
7.220	61		>75% Grass cover, Good, HSG B
9.340	65	64	Weighted Average, UI Adjusted
8.590			91.97% Pervious Area
0.750			8.03% Impervious Area
0.750			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0250	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.53"
5.4	740	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
17.8	840	Total			

Subcatchment 2PRE: Pre-Development to POI #2



Hydrograph for Subcatchment 2PRE: Pre-Development to POI #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.14	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.39	0.00	0.00
6.00	0.49	0.00	0.00
7.00	0.61	0.00	0.00
8.00	0.74	0.00	0.00
9.00	0.90	0.00	0.00
10.00	1.11	0.00	0.00
11.00	1.44	0.02	0.25
12.00	4.07	1.01	**17.60**
13.00	4.74	1.41	**2.74**
14.00	5.03	1.60	1.59
15.00	5.24	1.74	1.22
16.00	5.40	1.85	0.97
17.00	5.54	1.94	0.84
18.00	5.65	2.02	0.75
19.00	5.76	2.09	0.65
20.00	5.85	2.15	0.56
21.00	5.92	2.21	0.52
22.00	6.00	2.26	0.50
23.00	6.07	2.31	0.48
24.00	**6.14**	**2.36**	0.46
25.00	6.14	2.36	0.00
26.00	6.14	2.36	0.00
27.00	6.14	2.36	0.00
28.00	6.14	2.36	0.00
29.00	6.14	2.36	0.00
30.00	6.14	2.36	0.00
31.00	6.14	2.36	0.00
32.00	6.14	2.36	0.00
33.00	6.14	2.36	0.00
34.00	6.14	2.36	0.00
35.00	6.14	2.36	0.00
36.00	6.14	2.36	0.00
37.00	6.14	2.36	0.00
38.00	6.14	2.36	0.00
39.00	6.14	2.36	0.00
40.00	6.14	2.36	0.00
41.00	6.14	2.36	0.00
42.00	6.14	2.36	0.00
43.00	6.14	2.36	0.00
44.00	6.14	2.36	0.00
45.00	6.14	2.36	0.00
46.00	6.14	2.36	0.00
47.00	6.14	2.36	0.00
48.00	6.14	2.36	0.00
49.00	6.14	2.36	0.00
50.00	6.14	2.36	0.00
51.00	6.14	2.36	0.00
52.00	6.14	2.36	0.00
53.00	6.14	2.36	0.00
54.00	6.14	2.36	0.00
55.00	6.14	2.36	0.00
56.00	6.14	2.36	0.00
57.00	6.14	2.36	0.00
58.00	6.14	2.36	0.00
59.00	6.14	2.36	0.00
60.00	6.14	2.36	0.00
61.00	6.14	2.36	0.00
62.00	6.14	2.36	0.00
63.00	6.14	2.36	0.00
64.00	6.14	2.36	0.00
65.00	6.14	2.36	0.00
66.00	6.14	2.36	0.00
67.00	6.14	2.36	0.00
68.00	6.14	2.36	0.00
69.00	6.14	2.36	0.00
70.00	6.14	2.36	0.00
71.00	6.14	2.36	0.00
72.00	6.14	2.36	0.00

Summary for Subcatchment 2PST: Post-Development to SCM #2

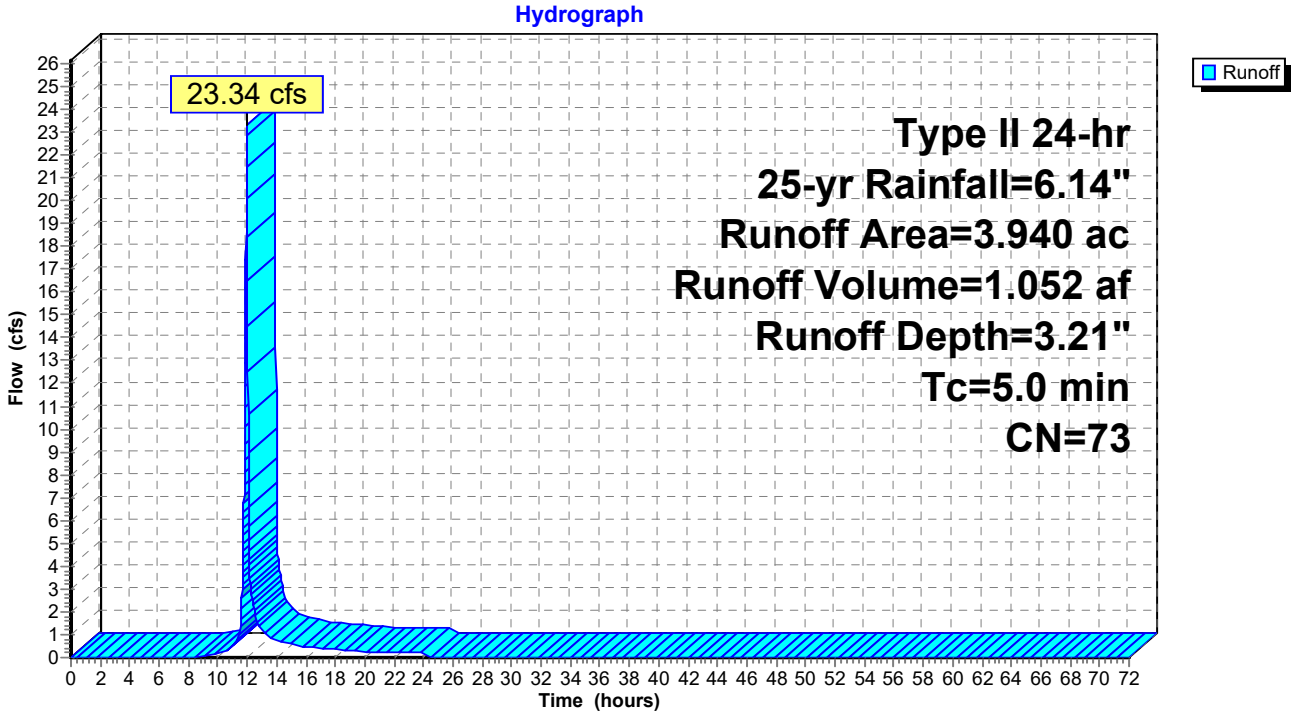
Runoff = 23.34 cfs @ 11.96 hrs, Volume= 1.052 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=6.14"

	Area (ac)	CN	Description
*	0.880	98	Proposed Impervious
*	0.020	98	Existing Impervious
	2.290	61	>75% Grass cover, Good, HSG B
	0.750	80	>75% Grass cover, Good, HSG D
	3.940	73	Weighted Average
	3.040		77.16% Pervious Area
	0.900		22.84% Impervious Area

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

Subcatchment 2PST: Post-Development to SCM #2



Hydrograph for Subcatchment 2PST: Post-Development to SCM #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.14	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.39	0.00	0.00
6.00	0.49	0.00	0.00
7.00	0.61	0.00	0.00
8.00	0.74	0.00	0.00
9.00	0.90	0.01	0.06
10.00	1.11	0.03	0.16
11.00	1.44	0.11	**0.48**
12.00	4.07	1.58	**20.08**
13.00	4.74	2.08	1.22
14.00	5.03	2.31	0.74
15.00	5.24	2.47	0.59
16.00	5.40	2.60	0.46
17.00	5.54	2.71	0.41
18.00	5.65	2.80	0.36
19.00	5.76	2.89	0.31
20.00	5.85	2.96	0.26
21.00	5.92	3.03	0.25
22.00	6.00	3.09	0.24
23.00	6.07	3.15	0.23
24.00	**6.14**	**3.21**	0.22
25.00	6.14	3.21	0.00
26.00	6.14	3.21	0.00
27.00	6.14	3.21	0.00
28.00	6.14	3.21	0.00
29.00	6.14	3.21	0.00
30.00	6.14	3.21	0.00
31.00	6.14	3.21	0.00
32.00	6.14	3.21	0.00
33.00	6.14	3.21	0.00
34.00	6.14	3.21	0.00
35.00	6.14	3.21	0.00
36.00	6.14	3.21	0.00
37.00	6.14	3.21	0.00
38.00	6.14	3.21	0.00
39.00	6.14	3.21	0.00
40.00	6.14	3.21	0.00
41.00	6.14	3.21	0.00
42.00	6.14	3.21	0.00
43.00	6.14	3.21	0.00
44.00	6.14	3.21	0.00
45.00	6.14	3.21	0.00
46.00	6.14	3.21	0.00
47.00	6.14	3.21	0.00
48.00	6.14	3.21	0.00
49.00	6.14	3.21	0.00
50.00	6.14	3.21	0.00
51.00	6.14	3.21	0.00
52.00	6.14	3.21	0.00
53.00	6.14	3.21	0.00
54.00	6.14	3.21	0.00
55.00	6.14	3.21	0.00
56.00	6.14	3.21	0.00
57.00	6.14	3.21	0.00
58.00	6.14	3.21	0.00
59.00	6.14	3.21	0.00
60.00	6.14	3.21	0.00
61.00	6.14	3.21	0.00
62.00	6.14	3.21	0.00
63.00	6.14	3.21	0.00
64.00	6.14	3.21	0.00
65.00	6.14	3.21	0.00
66.00	6.14	3.21	0.00
67.00	6.14	3.21	0.00
68.00	6.14	3.21	0.00
69.00	6.14	3.21	0.00
70.00	6.14	3.21	0.00
71.00	6.14	3.21	0.00
72.00	6.14	3.21	0.00

Summary for Subcatchment 2S: Bypass to POI #2

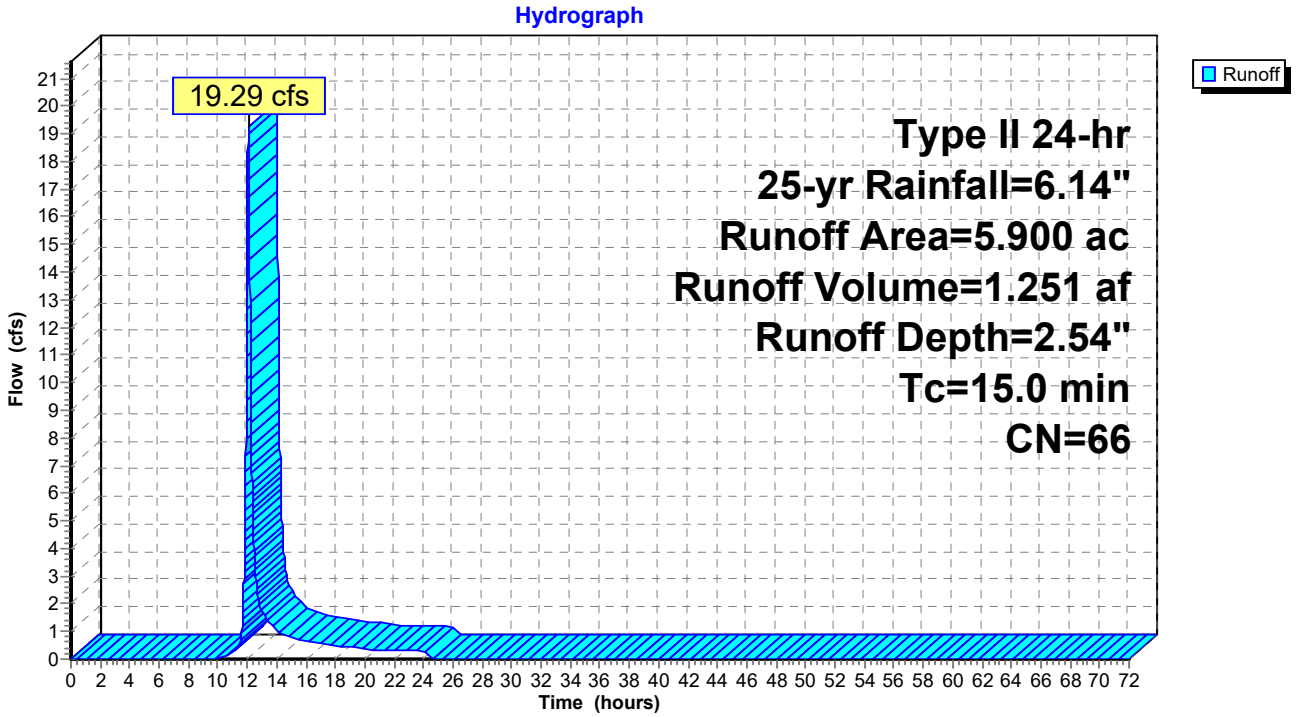
Runoff = 19.29 cfs @ 12.08 hrs, Volume= 1.251 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=6.14"

	Area (ac)	CN	Description
*	0.650	98	Existing Impervious
	4.740	61	>75% Grass cover, Good, HSG B
	0.280	80	>75% Grass cover, Good, HSG D
	0.180	55	Woods, Good, HSG B
	0.050	77	Woods, Good, HSG D
	5.900	66	Weighted Average
	5.250		88.98% Pervious Area
	0.650		11.02% Impervious Area

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

Subcatchment 2S: Bypass to POI #2



Hydrograph for Subcatchment 2S: Bypass to POI #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.14	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.39	0.00	0.00
6.00	0.49	0.00	0.00
7.00	0.61	0.00	0.00
8.00	0.74	0.00	0.00
9.00	0.90	0.00	0.00
10.00	1.11	0.00	0.02
11.00	1.44	0.03	0.26
12.00	4.07	1.13	**15.38**
13.00	4.74	1.55	**1.75**
14.00	5.03	1.75	1.03
15.00	5.24	1.89	0.80
16.00	5.40	2.01	0.63
17.00	5.54	2.10	0.55
18.00	5.65	2.19	0.49
19.00	5.76	2.26	0.43
20.00	5.85	2.33	0.36
21.00	5.92	2.38	0.34
22.00	6.00	2.44	0.33
23.00	6.07	2.49	0.32
24.00	**6.14**	**2.54**	0.30
25.00	6.14	2.54	0.00
26.00	6.14	2.54	0.00
27.00	6.14	2.54	0.00
28.00	6.14	2.54	0.00
29.00	6.14	2.54	0.00
30.00	6.14	2.54	0.00
31.00	6.14	2.54	0.00
32.00	6.14	2.54	0.00
33.00	6.14	2.54	0.00
34.00	6.14	2.54	0.00
35.00	6.14	2.54	0.00
36.00	6.14	2.54	0.00
37.00	6.14	2.54	0.00
38.00	6.14	2.54	0.00
39.00	6.14	2.54	0.00
40.00	6.14	2.54	0.00
41.00	6.14	2.54	0.00
42.00	6.14	2.54	0.00
43.00	6.14	2.54	0.00
44.00	6.14	2.54	0.00
45.00	6.14	2.54	0.00
46.00	6.14	2.54	0.00
47.00	6.14	2.54	0.00
48.00	6.14	2.54	0.00
49.00	6.14	2.54	0.00
50.00	6.14	2.54	0.00
51.00	6.14	2.54	0.00
52.00	6.14	2.54	0.00
53.00	6.14	2.54	0.00
54.00	6.14	2.54	0.00
55.00	6.14	2.54	0.00
56.00	6.14	2.54	0.00
57.00	6.14	2.54	0.00
58.00	6.14	2.54	0.00
59.00	6.14	2.54	0.00
60.00	6.14	2.54	0.00
61.00	6.14	2.54	0.00
62.00	6.14	2.54	0.00
63.00	6.14	2.54	0.00
64.00	6.14	2.54	0.00
65.00	6.14	2.54	0.00
66.00	6.14	2.54	0.00
67.00	6.14	2.54	0.00
68.00	6.14	2.54	0.00
69.00	6.14	2.54	0.00
70.00	6.14	2.54	0.00
71.00	6.14	2.54	0.00
72.00	6.14	2.54	0.00

Summary for Subcatchment 3PRE: Pre-Development to POI #3

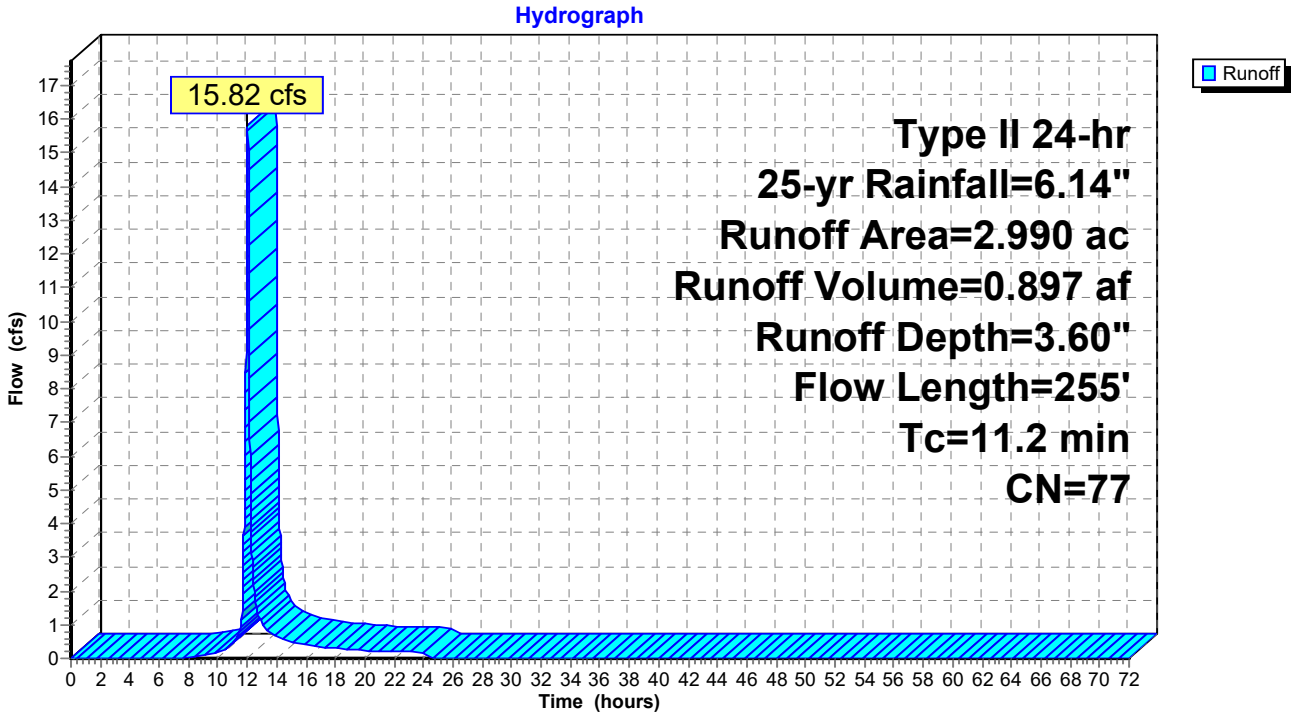
Runoff = 15.82 cfs @ 12.03 hrs, Volume= 0.897 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=6.14"

Area (ac)	CN	Description
2.610	77	Woods, Good, HSG D
0.380	80	>75% Grass cover, Good, HSG D
2.990	77	Weighted Average
2.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0360	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.53"
0.5	155	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.2	255	Total			

Subcatchment 3PRE: Pre-Development to POI #3



Hydrograph for Subcatchment 3PRE: Pre-Development to POI #3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.14	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.39	0.00	0.00
6.00	0.49	0.00	0.00
7.00	0.61	0.00	0.00
8.00	0.74	0.01	0.03
9.00	0.90	0.03	0.09
10.00	1.11	0.08	0.18
11.00	1.44	0.19	0.44
12.00	4.07	1.87	**15.14**
13.00	4.74	2.41	**1.06**
14.00	5.03	2.65	0.63
15.00	5.24	2.83	0.49
16.00	5.40	2.96	0.38
17.00	5.54	3.08	0.33
18.00	5.65	3.18	0.29
19.00	5.76	3.27	0.26
20.00	5.85	3.34	0.22
21.00	5.92	3.41	0.20
22.00	6.00	3.48	0.20
23.00	6.07	3.54	0.19
24.00	**6.14**	**3.60**	0.18
25.00	6.14	3.60	0.00
26.00	6.14	3.60	0.00
27.00	6.14	3.60	0.00
28.00	6.14	3.60	0.00
29.00	6.14	3.60	0.00
30.00	6.14	3.60	0.00
31.00	6.14	3.60	0.00
32.00	6.14	3.60	0.00
33.00	6.14	3.60	0.00
34.00	6.14	3.60	0.00
35.00	6.14	3.60	0.00
36.00	6.14	3.60	0.00
37.00	6.14	3.60	0.00
38.00	6.14	3.60	0.00
39.00	6.14	3.60	0.00
40.00	6.14	3.60	0.00
41.00	6.14	3.60	0.00
42.00	6.14	3.60	0.00
43.00	6.14	3.60	0.00
44.00	6.14	3.60	0.00
45.00	6.14	3.60	0.00
46.00	6.14	3.60	0.00
47.00	6.14	3.60	0.00
48.00	6.14	3.60	0.00
49.00	6.14	3.60	0.00
50.00	6.14	3.60	0.00
51.00	6.14	3.60	0.00
52.00	6.14	3.60	0.00
53.00	6.14	3.60	0.00
54.00	6.14	3.60	0.00
55.00	6.14	3.60	0.00
56.00	6.14	3.60	0.00
57.00	6.14	3.60	0.00
58.00	6.14	3.60	0.00
59.00	6.14	3.60	0.00
60.00	6.14	3.60	0.00
61.00	6.14	3.60	0.00
62.00	6.14	3.60	0.00
63.00	6.14	3.60	0.00
64.00	6.14	3.60	0.00
65.00	6.14	3.60	0.00
66.00	6.14	3.60	0.00
67.00	6.14	3.60	0.00
68.00	6.14	3.60	0.00
69.00	6.14	3.60	0.00
70.00	6.14	3.60	0.00
71.00	6.14	3.60	0.00
72.00	6.14	3.60	0.00

Summary for Subcatchment 3PST: Post-Development to POI #3

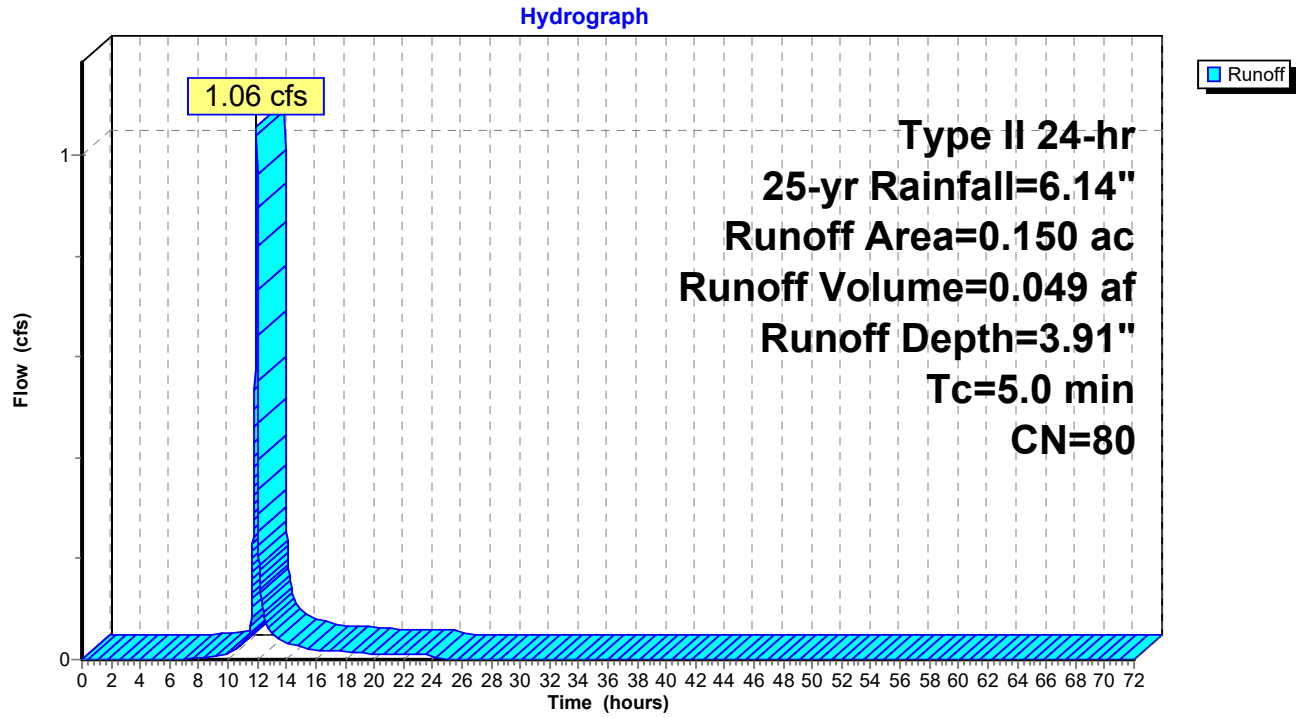
Runoff = 1.06 cfs @ 11.96 hrs, Volume= 0.049 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=6.14"

Area (ac)	CN	Description
0.020	98	Paved roads w/curbs & sewers, HSG B
0.130	77	Woods, Good, HSG D
0.150	80	Weighted Average
0.130		86.67% Pervious Area
0.020		13.33% Impervious Area

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

Subcatchment 3PST: Post-Development to POI #3



Hydrograph for Subcatchment 3PST: Post-Development to POI #3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.14	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.39	0.00	0.00
6.00	0.49	0.00	0.00
7.00	0.61	0.00	0.00
8.00	0.74	0.02	0.00
9.00	0.90	0.06	0.01
10.00	1.11	0.12	0.01
11.00	1.44	0.26	**0.03**
12.00	4.07	2.10	**0.90**
13.00	4.74	2.67	0.05
14.00	5.03	2.92	0.03
15.00	5.24	3.10	0.02
16.00	5.40	3.25	0.02
17.00	5.54	3.37	0.02
18.00	5.65	3.47	0.02
19.00	5.76	3.56	0.01
20.00	5.85	3.64	0.01
21.00	5.92	3.71	0.01
22.00	6.00	3.78	0.01
23.00	6.07	3.85	0.01
24.00	**6.14**	**3.91**	0.01
25.00	6.14	3.91	0.00
26.00	6.14	3.91	0.00
27.00	6.14	3.91	0.00
28.00	6.14	3.91	0.00
29.00	6.14	3.91	0.00
30.00	6.14	3.91	0.00
31.00	6.14	3.91	0.00
32.00	6.14	3.91	0.00
33.00	6.14	3.91	0.00
34.00	6.14	3.91	0.00
35.00	6.14	3.91	0.00
36.00	6.14	3.91	0.00
37.00	6.14	3.91	0.00
38.00	6.14	3.91	0.00
39.00	6.14	3.91	0.00
40.00	6.14	3.91	0.00
41.00	6.14	3.91	0.00
42.00	6.14	3.91	0.00
43.00	6.14	3.91	0.00
44.00	6.14	3.91	0.00
45.00	6.14	3.91	0.00
46.00	6.14	3.91	0.00
47.00	6.14	3.91	0.00
48.00	6.14	3.91	0.00
49.00	6.14	3.91	0.00
50.00	6.14	3.91	0.00
51.00	6.14	3.91	0.00
52.00	6.14	3.91	0.00
53.00	6.14	3.91	0.00
54.00	6.14	3.91	0.00
55.00	6.14	3.91	0.00
56.00	6.14	3.91	0.00
57.00	6.14	3.91	0.00
58.00	6.14	3.91	0.00
59.00	6.14	3.91	0.00
60.00	6.14	3.91	0.00
61.00	6.14	3.91	0.00
62.00	6.14	3.91	0.00
63.00	6.14	3.91	0.00
64.00	6.14	3.91	0.00
65.00	6.14	3.91	0.00
66.00	6.14	3.91	0.00
67.00	6.14	3.91	0.00
68.00	6.14	3.91	0.00
69.00	6.14	3.91	0.00
70.00	6.14	3.91	0.00
71.00	6.14	3.91	0.00
72.00	6.14	3.91	0.00

Summary for Pond 2P: SCM #2

Inflow Area = 3.940 ac, 22.84% Impervious, Inflow Depth = 3.21" for 25-yr event
Inflow = 23.34 cfs @ 11.96 hrs, Volume= 1.052 af
Outflow = 0.54 cfs @ 15.44 hrs, Volume= 0.913 af, Atten= 98%, Lag= 208.5 min
Primary = 0.54 cfs @ 15.44 hrs, Volume= 0.913 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 716.73' @ 15.44 hrs Surf.Area= 13,089 sf Storage= 29,589 cf

Plug-Flow detention time= 921.5 min calculated for 0.913 af (87% of inflow)
Center-of-Mass det. time= 858.1 min (1,684.1 - 826.0)

Volume	Invert	Avail.Storage	Storage Description
#1	713.50'	81,212 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

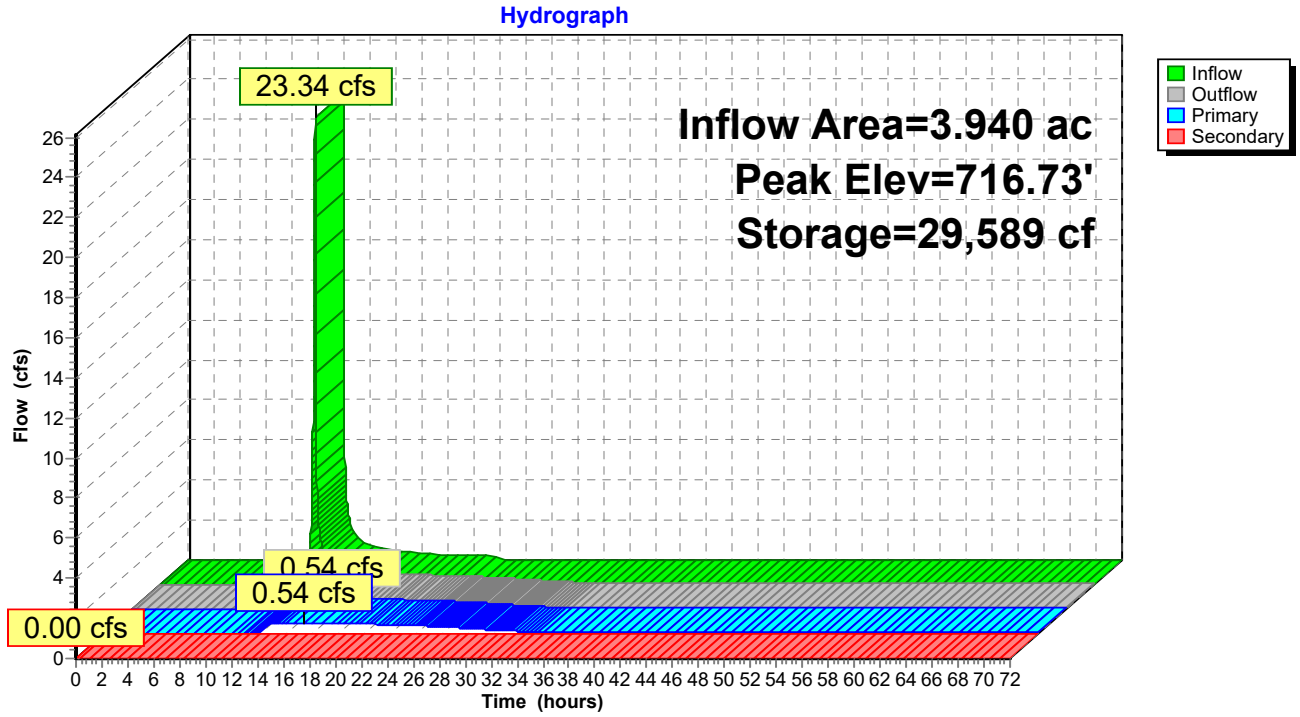
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
713.50	2,258	0	0
714.00	4,670	1,732	1,732
715.00	10,425	7,548	9,280
716.00	11,945	11,185	20,465
717.00	13,515	12,730	33,195
718.00	15,145	14,330	47,525
719.00	16,830	15,988	63,512
720.00	18,570	17,700	81,212

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**24.0" Round Outlet Pipe** L= 40.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 711.50' / 711.30' S= 0.0050 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Device 1	713.50'	**Filter Bed** Head (feet) 0.00 1.00 2.00 3.00 4.00 5.00 Disch. (cfs) 0.000 0.055 0.077 0.098 0.120 0.142
#3	Device 1	715.50'	**4.0" Vert. Orifice** C= 0.600
#4	Device 1	717.50'	**48.0" x 48.0" Horiz. Top of OCS** C= 0.600 Limited to weir flow at low heads
#5	Secondary	718.50'	**20.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

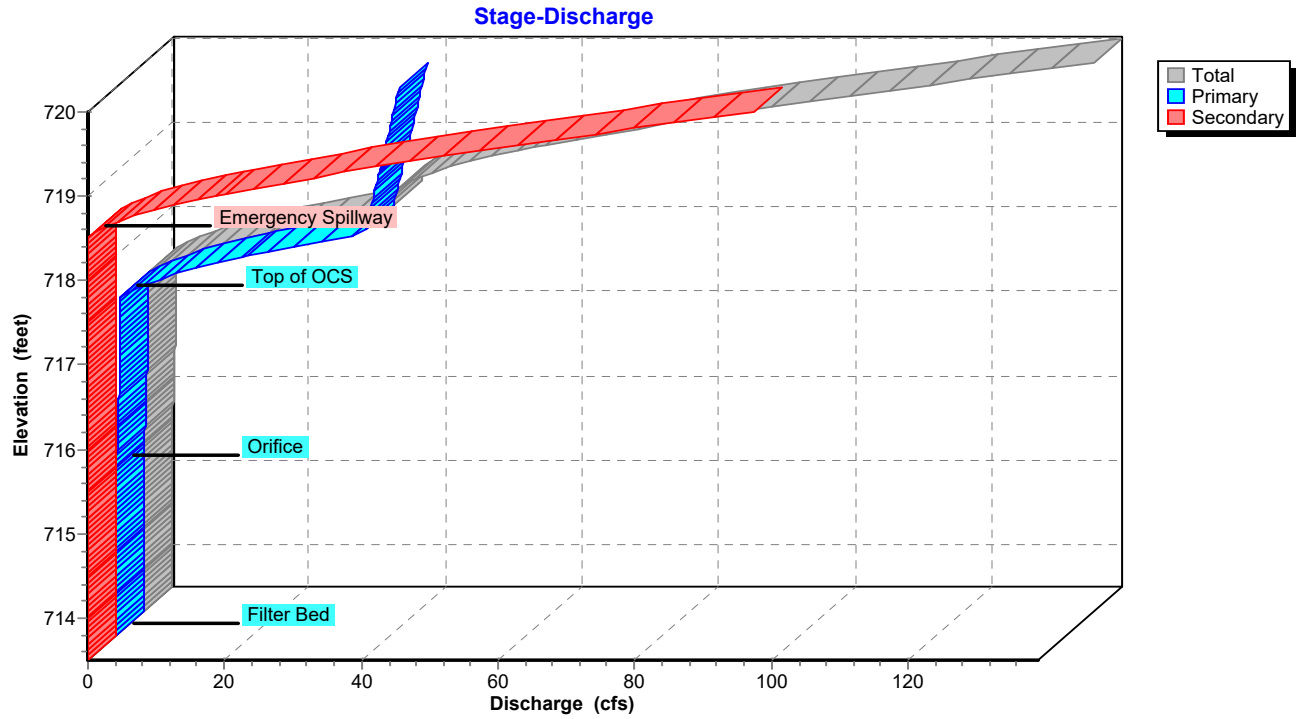
Primary OutFlow Max=0.54 cfs @ 15.44 hrs HW=716.73' (Free Discharge)
└**1=Outlet Pipe** (Passes 0.54 cfs of 31.11 cfs potential flow)
  ├**2=Filter Bed** (Custom Controls 0.10 cfs)
  ├**3=Orifice** (Orifice Controls 0.43 cfs @ 4.96 fps)
  └**4=Top of OCS** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=713.50' (Free Discharge)
└**5=Emergency Spillway** (Controls 0.00 cfs)

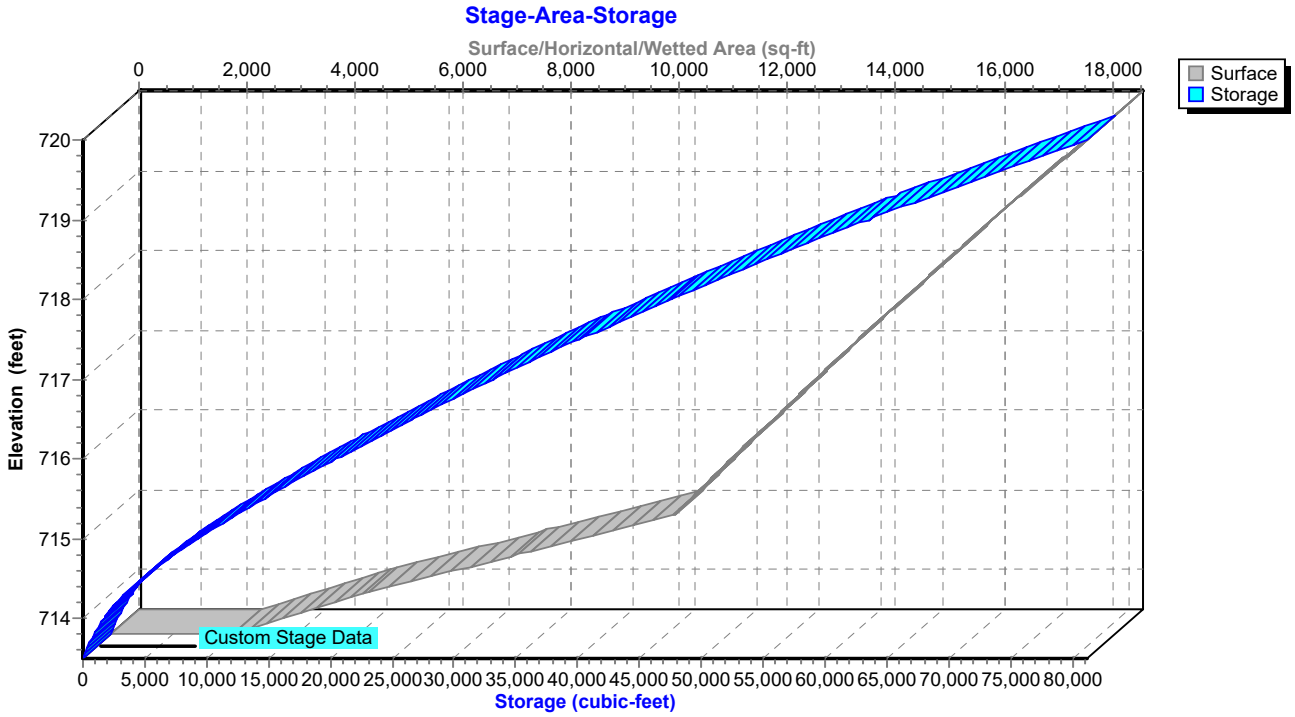
Pond 2P: SCM #2



Pond 2P: SCM #2



Pond 2P: SCM #2


Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
Surface
Storage
720
719
718
717
716
715
714
Elevation (feet)
Custom Stage Data
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
55,000
60,000
65,000
70,000
75,000
80,000
Storage (cubic-feet)

Hydrograph for Pond 2P: SCM #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	713.50	0.00	0.00	**0.00**
2.00	0.00	0	713.50	0.00	0.00	0.00
4.00	0.00	0	713.50	0.00	0.00	0.00
6.00	0.00	0	713.50	0.00	0.00	0.00
8.00	0.00	0	713.50	0.00	0.00	0.00
10.00	**0.16**	421	713.66	0.01	0.01	0.00
12.00	**20.08**	18,314	715.82	0.25	0.25	0.00
14.00	0.74	**29,094**	**716.69**	**0.53**	**0.53**	0.00
16.00	0.46	**29,515**	**716.72**	**0.53**	**0.53**	0.00
18.00	0.36	28,656	716.66	0.52	0.52	0.00
20.00	0.26	27,260	716.55	0.49	0.49	0.00
22.00	0.24	25,641	716.42	0.46	0.46	0.00
24.00	0.22	24,124	716.30	0.43	0.43	0.00
26.00	0.00	21,352	716.07	0.36	0.36	0.00
28.00	0.00	19,057	715.88	0.28	0.28	0.00
30.00	0.00	17,357	715.74	0.19	0.19	0.00
32.00	0.00	16,249	715.64	0.12	0.12	0.00
34.00	0.00	15,484	715.57	0.09	0.09	0.00
36.00	0.00	14,872	715.52	0.08	0.08	0.00
38.00	0.00	14,318	715.47	0.08	0.08	0.00
40.00	0.00	13,773	715.42	0.08	0.08	0.00
42.00	0.00	13,235	715.37	0.07	0.07	0.00
44.00	0.00	12,705	715.32	0.07	0.07	0.00
46.00	0.00	12,183	715.27	0.07	0.07	0.00
48.00	0.00	11,668	715.23	0.07	0.07	0.00
50.00	0.00	11,161	715.18	0.07	0.07	0.00
52.00	0.00	10,661	715.13	0.07	0.07	0.00
54.00	0.00	10,169	715.08	0.07	0.07	0.00
56.00	0.00	9,684	715.04	0.07	0.07	0.00
58.00	0.00	9,206	714.99	0.07	0.07	0.00
60.00	0.00	8,736	714.95	0.06	0.06	0.00
62.00	0.00	8,273	714.90	0.06	0.06	0.00
64.00	0.00	7,817	714.85	0.06	0.06	0.00
66.00	0.00	7,369	714.81	0.06	0.06	0.00
68.00	0.00	6,928	714.76	0.06	0.06	0.00
70.00	0.00	6,495	714.71	0.06	0.06	0.00
72.00	0.00	6,070	714.66	0.06	0.06	0.00

Stage-Discharge for Pond 2P: SCM #2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
713.50	0.00	0.00	0.00
713.60	0.01	0.01	0.00
713.70	0.01	0.01	0.00
713.80	0.02	0.02	0.00
713.90	0.02	0.02	0.00
714.00	0.03	0.03	0.00
714.10	0.03	0.03	0.00
714.20	0.04	0.04	0.00
714.30	0.04	0.04	0.00
714.40	0.05	0.05	0.00
714.50	0.06	0.06	0.00
714.60	0.06	0.06	0.00
714.70	0.06	0.06	0.00
714.80	0.06	0.06	0.00
714.90	0.06	0.06	0.00
715.00	0.07	0.07	0.00
715.10	0.07	0.07	0.00
715.20	0.07	0.07	0.00
715.30	0.07	0.07	0.00
715.40	0.07	0.07	0.00
715.50	0.08	0.08	0.00
715.60	0.10	0.10	0.00
715.70	0.16	0.16	0.00
715.80	0.24	0.24	0.00
715.90	0.29	0.29	0.00
716.00	0.33	0.33	0.00
716.10	0.37	0.37	0.00
716.20	0.40	0.40	0.00
716.30	0.43	0.43	0.00
716.40	0.46	0.46	0.00
716.50	0.48	0.48	0.00
716.60	0.51	0.51	0.00
716.70	0.53	0.53	0.00
716.80	0.55	0.55	0.00
716.90	0.57	0.57	0.00
717.00	0.59	0.59	0.00
717.10	0.61	0.61	0.00
717.20	0.63	0.63	0.00
717.30	0.65	0.65	0.00
717.40	0.67	0.67	0.00
717.50	0.69	0.69	0.00
717.60	2.36	2.36	0.00
717.70	5.40	5.40	0.00
717.80	9.34	9.34	0.00
717.90	13.99	13.99	0.00
718.00	19.27	19.27	0.00
718.10	25.10	25.10	0.00
718.20	31.45	31.45	0.00
718.30	36.43	36.43	0.00
718.40	36.74	36.74	0.00
718.50	37.05	37.05	0.00
718.60	38.93	37.36	1.57
718.70	42.12	37.67	4.45
718.80	46.27	37.97	8.30
718.90	51.22	38.27	12.95
719.00	57.16	38.57	18.60
719.10	63.96	38.86	25.10
719.20	70.72	39.15	31.57
719.30	77.94	39.45	38.50
719.40	85.58	39.73	45.85
719.50	93.62	40.02	53.60
719.60	102.26	40.31	61.95
719.70	111.31	40.59	70.72
719.80	120.32	40.87	79.45
719.90	129.61	41.15	88.46
720.00	**138.98**	**41.43**	**97.55**

Stage-Area-Storage for Pond 2P: SCM #2

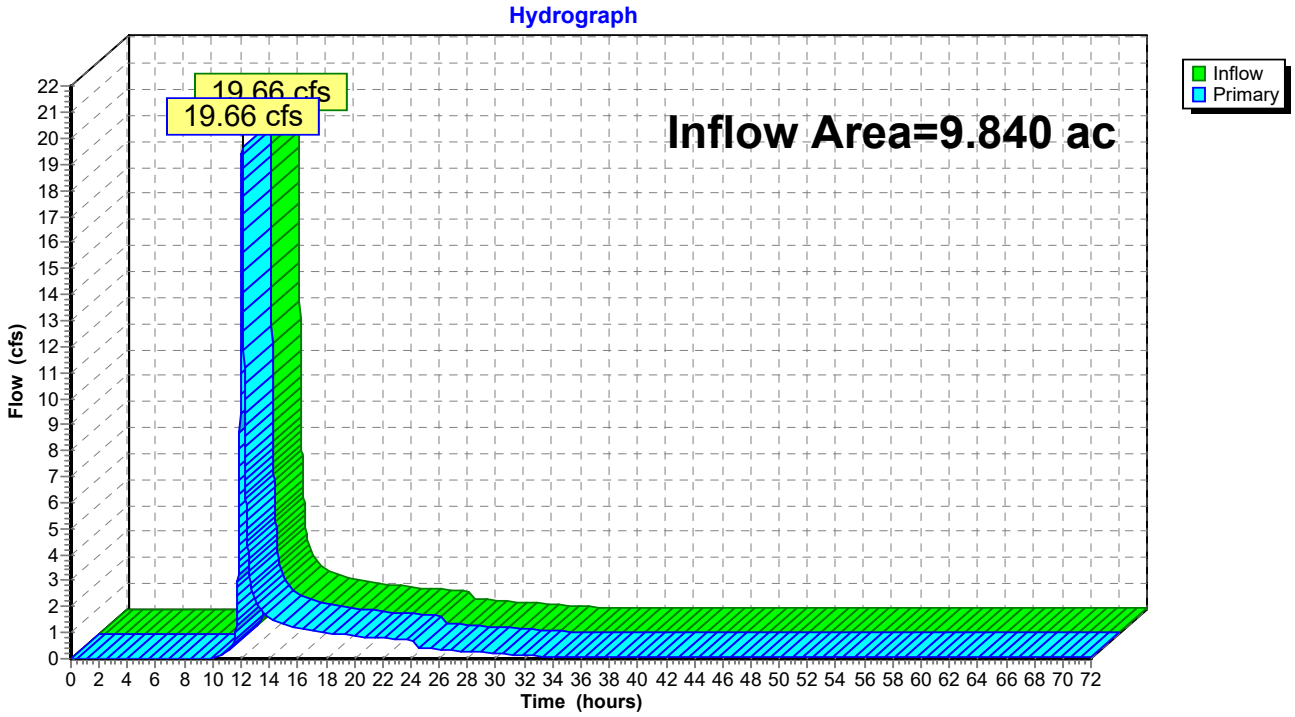
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
713.50	2,258	0
713.60	2,740	250
713.70	3,223	548
713.80	3,705	894
713.90	4,188	1,289
714.00	4,670	1,732
714.10	5,246	2,228
714.20	5,821	2,781
714.30	6,396	3,392
714.40	6,972	4,060
714.50	7,548	4,786
714.60	8,123	5,570
714.70	8,699	6,411
714.80	9,274	7,310
714.90	9,849	8,266
715.00	10,425	9,280
715.10	10,577	10,330
715.20	10,729	11,395
715.30	10,881	12,475
715.40	11,033	13,571
715.50	11,185	14,682
715.60	11,337	15,808
715.70	11,489	16,949
715.80	11,641	18,106
715.90	11,793	19,278
716.00	11,945	20,465
716.10	12,102	21,667
716.20	12,259	22,885
716.30	12,416	24,119
716.40	12,573	25,368
716.50	12,730	26,633
716.60	12,887	27,914
716.70	13,044	29,211
716.80	13,201	30,523
716.90	13,358	31,851
717.00	13,515	33,195
717.10	13,678	34,554
717.20	13,841	35,930
717.30	14,004	37,322
717.40	14,167	38,731
717.50	14,330	40,156
717.60	14,493	41,597
717.70	14,656	43,054
717.80	14,819	44,528
717.90	14,982	46,018
718.00	15,145	47,525
718.10	15,314	49,047
718.20	15,482	50,587
718.30	15,650	52,144
718.40	15,819	53,717
718.50	15,988	55,308
718.60	16,156	56,915
718.70	16,325	58,539
718.80	16,493	60,180
718.90	16,661	61,837
719.00	16,830	63,512
719.10	17,004	65,204
719.20	17,178	66,913
719.30	17,352	68,639
719.40	17,526	70,383
719.50	17,700	72,145
719.60	17,874	73,923
719.70	18,048	75,719
719.80	18,222	77,533
719.90	18,396	79,364
720.00	**18,570**	**81,212**

Summary for Link 2L: Total Post-Development to POI #2

Inflow Area = 9.840 ac, 15.75% Impervious, Inflow Depth > 2.64" for 25-yr event
Inflow = 19.66 cfs @ 12.08 hrs, Volume= 2.164 af
Primary = 19.66 cfs @ 12.08 hrs, Volume= 2.164 af, Atten= 0%, Lag= 0.0 min

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

Link 2L: Total Post-Development to POI #2



Hydrograph for Link 2L: Total Post-Development to POI #2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00
10.00	0.02	0.00	0.02
11.00	0.28	0.00	0.28
12.00	**15.62**	0.00	**15.62**
13.00	**2.25**	0.00	**2.25**
14.00	1.56	0.00	1.56
15.00	1.34	0.00	1.34
16.00	1.17	0.00	1.17
17.00	1.08	0.00	1.08
18.00	1.01	0.00	1.01
19.00	0.93	0.00	0.93
20.00	0.86	0.00	0.86
21.00	0.82	0.00	0.82
22.00	0.79	0.00	0.79
23.00	0.76	0.00	0.76
24.00	0.73	0.00	0.73
25.00	0.39	0.00	0.39
26.00	0.36	0.00	0.36
27.00	0.32	0.00	0.32
28.00	0.28	0.00	0.28
29.00	0.24	0.00	0.24
30.00	0.19	0.00	0.19
31.00	0.15	0.00	0.15
32.00	0.12	0.00	0.12
33.00	0.11	0.00	0.11
34.00	0.09	0.00	0.09
35.00	0.08	0.00	0.08
36.00	0.08	0.00	0.08
37.00	0.08	0.00	0.08
38.00	0.08	0.00	0.08
39.00	0.08	0.00	0.08
40.00	0.08	0.00	0.08
41.00	0.07	0.00	0.07
42.00	0.07	0.00	0.07
43.00	0.07	0.00	0.07
44.00	0.07	0.00	0.07
45.00	0.07	0.00	0.07
46.00	0.07	0.00	0.07
47.00	0.07	0.00	0.07
48.00	0.07	0.00	0.07
49.00	0.07	0.00	0.07
50.00	0.07	0.00	0.07
51.00	0.07	0.00	0.07
52.00	0.07	0.00	0.07
53.00	0.07	0.00	0.07
54.00	0.07	0.00	0.07
55.00	0.07	0.00	0.07
56.00	0.07	0.00	0.07
57.00	0.07	0.00	0.07
58.00	0.07	0.00	0.07
59.00	0.07	0.00	0.07
60.00	0.06	0.00	0.06
61.00	0.06	0.00	0.06
62.00	0.06	0.00	0.06
63.00	0.06	0.00	0.06
64.00	0.06	0.00	0.06
65.00	0.06	0.00	0.06
66.00	0.06	0.00	0.06
67.00	0.06	0.00	0.06
68.00	0.06	0.00	0.06
69.00	0.06	0.00	0.06
70.00	0.06	0.00	0.06
71.00	0.06	0.00	0.06
72.00	0.06	0.00	0.06

Summary for Subcatchment 2PRE: Pre-Development to POI #2

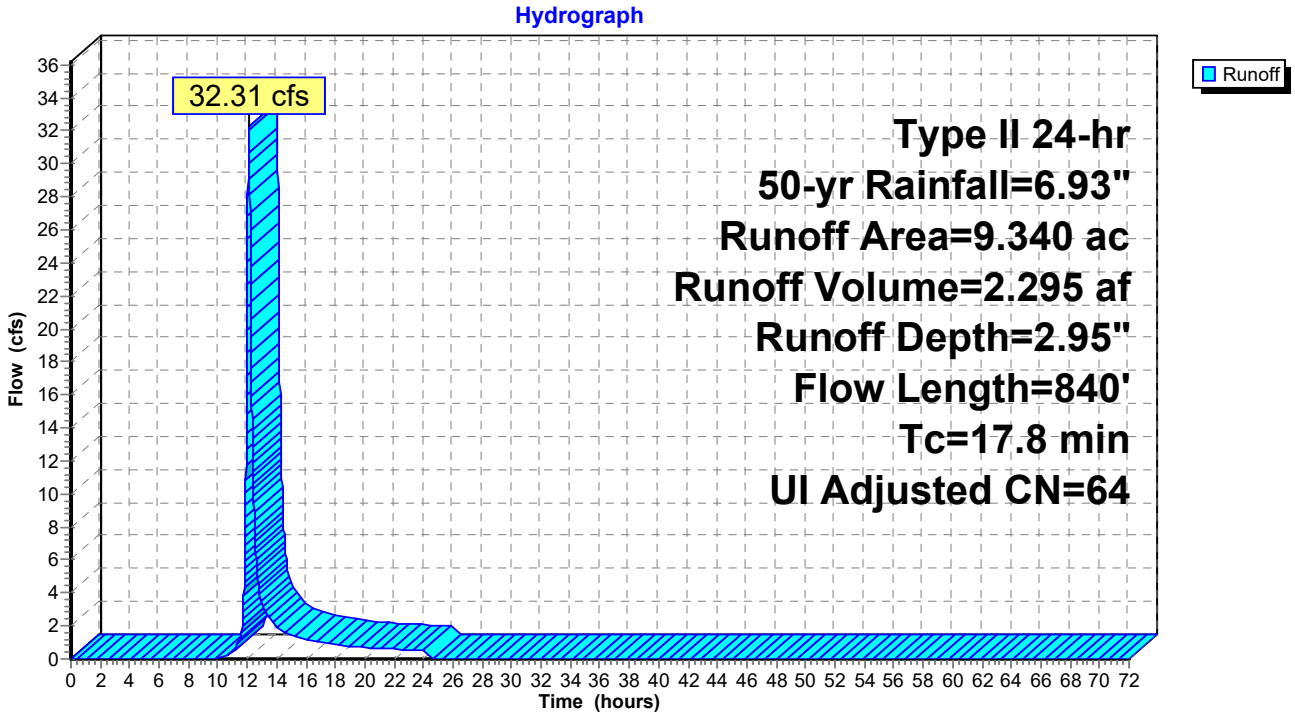
Runoff = 32.31 cfs @ 12.11 hrs, Volume= 2.295 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.93"

Area (ac)	CN	Adj	Description
0.590	55		Woods, Good, HSG B
0.700	77		Woods, Good, HSG D
0.750	98		Unconnected roofs, HSG B
0.080	80		>75% Grass cover, Good, HSG D
7.220	61		>75% Grass cover, Good, HSG B
9.340	65	64	Weighted Average, UI Adjusted
8.590			91.97% Pervious Area
0.750			8.03% Impervious Area
0.750			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0250	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.53"
5.4	740	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
17.8	840	Total			

Subcatchment 2PRE: Pre-Development to POI #2



Hydrograph for Subcatchment 2PRE: Pre-Development to POI #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.07	0.00	0.00
2.00	0.15	0.00	0.00
3.00	0.24	0.00	0.00
4.00	0.33	0.00	0.00
5.00	0.44	0.00	0.00
6.00	0.55	0.00	0.00
7.00	0.69	0.00	0.00
8.00	0.83	0.00	0.00
9.00	1.02	0.00	0.00
10.00	1.25	0.00	0.05
11.00	1.63	0.04	0.49
12.00	4.59	1.32	**22.72**
13.00	5.35	1.81	**3.32**
14.00	5.68	2.04	1.92
15.00	5.91	2.20	1.47
16.00	6.10	2.33	1.17
17.00	6.25	2.44	1.00
18.00	6.38	2.54	0.89
19.00	6.50	2.63	0.78
20.00	6.60	2.70	0.66
21.00	6.69	2.76	0.62
22.00	6.77	2.83	0.59
23.00	6.85	2.89	0.57
24.00	**6.93**	**2.95**	0.55
25.00	6.93	2.95	0.00
26.00	6.93	2.95	0.00
27.00	6.93	2.95	0.00
28.00	6.93	2.95	0.00
29.00	6.93	2.95	0.00
30.00	6.93	2.95	0.00
31.00	6.93	2.95	0.00
32.00	6.93	2.95	0.00
33.00	6.93	2.95	0.00
34.00	6.93	2.95	0.00
35.00	6.93	2.95	0.00
36.00	6.93	2.95	0.00
37.00	6.93	2.95	0.00
38.00	6.93	2.95	0.00
39.00	6.93	2.95	0.00
40.00	6.93	2.95	0.00
41.00	6.93	2.95	0.00
42.00	6.93	2.95	0.00
43.00	6.93	2.95	0.00
44.00	6.93	2.95	0.00
45.00	6.93	2.95	0.00
46.00	6.93	2.95	0.00
47.00	6.93	2.95	0.00
48.00	6.93	2.95	0.00
49.00	6.93	2.95	0.00
50.00	6.93	2.95	0.00
51.00	6.93	2.95	0.00
52.00	6.93	2.95	0.00
53.00	6.93	2.95	0.00
54.00	6.93	2.95	0.00
55.00	6.93	2.95	0.00
56.00	6.93	2.95	0.00
57.00	6.93	2.95	0.00
58.00	6.93	2.95	0.00
59.00	6.93	2.95	0.00
60.00	6.93	2.95	0.00
61.00	6.93	2.95	0.00
62.00	6.93	2.95	0.00
63.00	6.93	2.95	0.00
64.00	6.93	2.95	0.00
65.00	6.93	2.95	0.00
66.00	6.93	2.95	0.00
67.00	6.93	2.95	0.00
68.00	6.93	2.95	0.00
69.00	6.93	2.95	0.00
70.00	6.93	2.95	0.00
71.00	6.93	2.95	0.00
72.00	6.93	2.95	0.00

Summary for Subcatchment 2PST: Post-Development to SCM #2

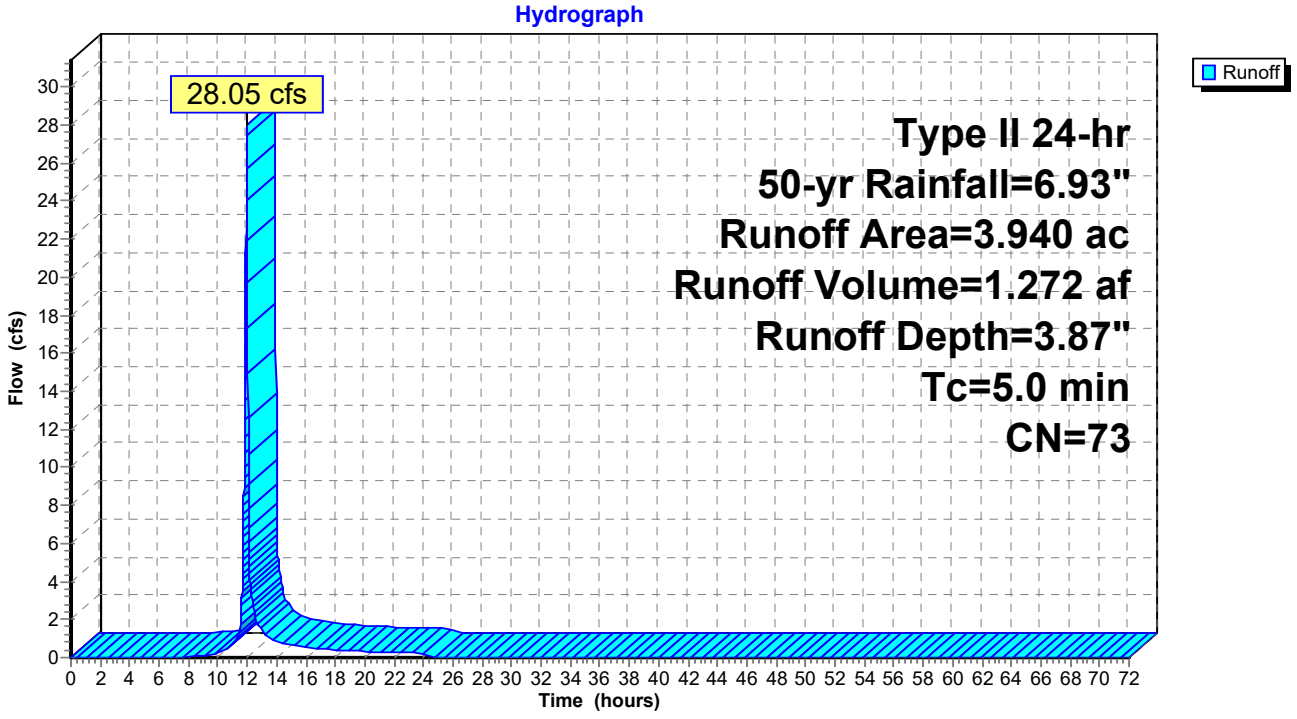
Runoff = 28.05 cfs @ 11.96 hrs, Volume= 1.272 af, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.93"

	Area (ac)	CN	Description
*	0.880	98	Proposed Impervious
*	0.020	98	Existing Impervious
	2.290	61	>75% Grass cover, Good, HSG B
	0.750	80	>75% Grass cover, Good, HSG D
	3.940	73	Weighted Average
	3.040		77.16% Pervious Area
	0.900		22.84% Impervious Area

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

Subcatchment 2PST: Post-Development to SCM #2



Hydrograph for Subcatchment 2PST: Post-Development to SCM #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.07	0.00	0.00
2.00	0.15	0.00	0.00
3.00	0.24	0.00	0.00
4.00	0.33	0.00	0.00
5.00	0.44	0.00	0.00
6.00	0.55	0.00	0.00
7.00	0.69	0.00	0.00
8.00	0.83	0.00	0.03
9.00	1.02	0.02	0.11
10.00	1.25	0.06	0.24
11.00	1.63	0.17	**0.64**
12.00	4.59	1.97	**24.01**
13.00	5.35	2.56	1.43
14.00	5.68	2.83	0.87
15.00	5.91	3.02	0.69
16.00	6.10	3.17	0.54
17.00	6.25	3.30	0.48
18.00	6.38	3.41	0.42
19.00	6.50	3.51	0.37
20.00	6.60	3.59	0.31
21.00	6.69	3.67	0.29
22.00	6.77	3.74	0.28
23.00	6.85	3.81	0.27
24.00	**6.93**	**3.87**	0.26
25.00	6.93	3.87	0.00
26.00	6.93	3.87	0.00
27.00	6.93	3.87	0.00
28.00	6.93	3.87	0.00
29.00	6.93	3.87	0.00
30.00	6.93	3.87	0.00
31.00	6.93	3.87	0.00
32.00	6.93	3.87	0.00
33.00	6.93	3.87	0.00
34.00	6.93	3.87	0.00
35.00	6.93	3.87	0.00
36.00	6.93	3.87	0.00
37.00	6.93	3.87	0.00
38.00	6.93	3.87	0.00
39.00	6.93	3.87	0.00
40.00	6.93	3.87	0.00
41.00	6.93	3.87	0.00
42.00	6.93	3.87	0.00
43.00	6.93	3.87	0.00
44.00	6.93	3.87	0.00
45.00	6.93	3.87	0.00
46.00	6.93	3.87	0.00
47.00	6.93	3.87	0.00
48.00	6.93	3.87	0.00
49.00	6.93	3.87	0.00
50.00	6.93	3.87	0.00
51.00	6.93	3.87	0.00
52.00	6.93	3.87	0.00
53.00	6.93	3.87	0.00
54.00	6.93	3.87	0.00
55.00	6.93	3.87	0.00
56.00	6.93	3.87	0.00
57.00	6.93	3.87	0.00
58.00	6.93	3.87	0.00
59.00	6.93	3.87	0.00
60.00	6.93	3.87	0.00
61.00	6.93	3.87	0.00
62.00	6.93	3.87	0.00
63.00	6.93	3.87	0.00
64.00	6.93	3.87	0.00
65.00	6.93	3.87	0.00
66.00	6.93	3.87	0.00
67.00	6.93	3.87	0.00
68.00	6.93	3.87	0.00
69.00	6.93	3.87	0.00
70.00	6.93	3.87	0.00
71.00	6.93	3.87	0.00
72.00	6.93	3.87	0.00

Summary for Subcatchment 2S: Bypass to POI #2

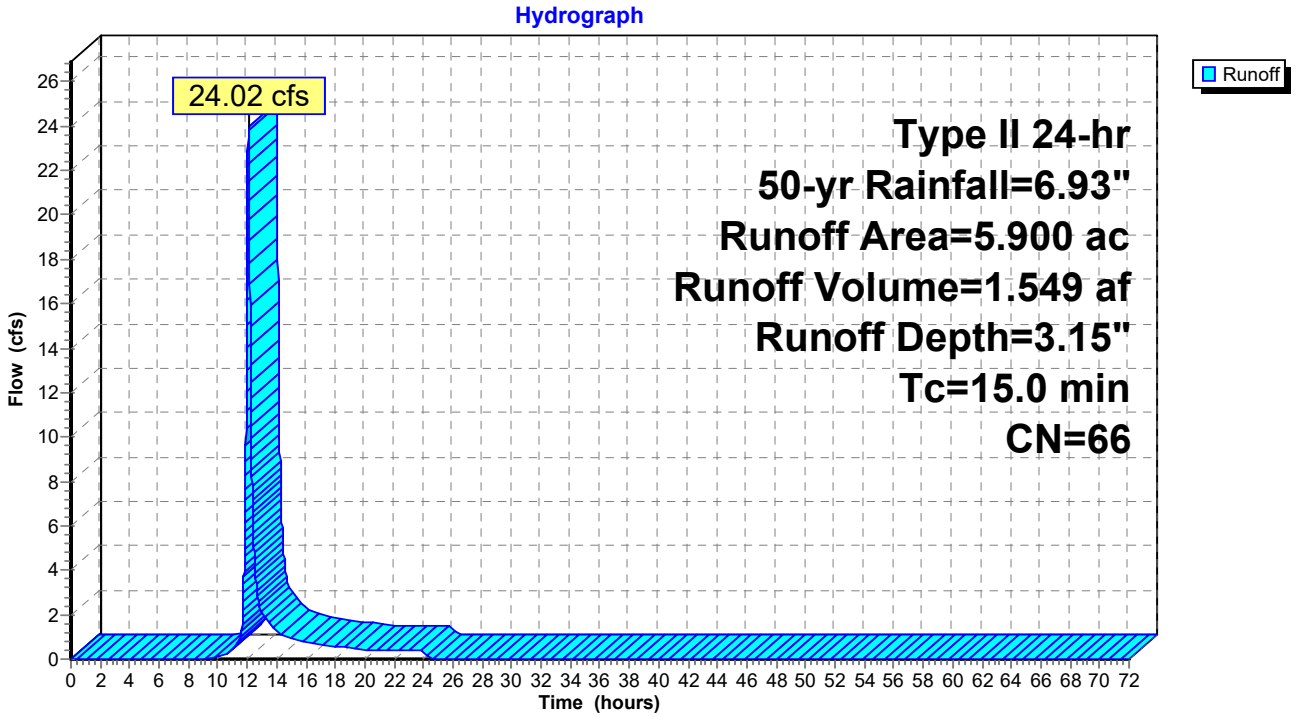
Runoff = 24.02 cfs @ 12.08 hrs, Volume= 1.549 af, Depth= 3.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.93"

	Area (ac)	CN	Description
*	0.650	98	Existing Impervious
	4.740	61	>75% Grass cover, Good, HSG B
	0.280	80	>75% Grass cover, Good, HSG D
	0.180	55	Woods, Good, HSG B
	0.050	77	Woods, Good, HSG D
	5.900	66	Weighted Average
	5.250		88.98% Pervious Area
	0.650		11.02% Impervious Area

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

Subcatchment 2S: Bypass to POI #2



Hydrograph for Subcatchment 2S: Bypass to POI #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.07	0.00	0.00
2.00	0.15	0.00	0.00
3.00	0.24	0.00	0.00
4.00	0.33	0.00	0.00
5.00	0.44	0.00	0.00
6.00	0.55	0.00	0.00
7.00	0.69	0.00	0.00
8.00	0.83	0.00	0.00
9.00	1.02	0.00	0.00
10.00	1.25	0.01	0.09
11.00	1.63	0.06	0.43
12.00	4.59	1.46	**19.43**
13.00	5.35	1.97	**2.11**
14.00	5.68	2.21	1.24
15.00	5.91	2.38	0.96
16.00	6.10	2.51	0.75
17.00	6.25	2.63	0.65
18.00	6.38	2.73	0.58
19.00	6.50	2.82	0.51
20.00	6.60	2.89	0.43
21.00	6.69	2.96	0.40
22.00	6.77	3.03	0.39
23.00	6.85	3.09	0.37
24.00	**6.93**	**3.15**	0.36
25.00	6.93	3.15	0.00
26.00	6.93	3.15	0.00
27.00	6.93	3.15	0.00
28.00	6.93	3.15	0.00
29.00	6.93	3.15	0.00
30.00	6.93	3.15	0.00
31.00	6.93	3.15	0.00
32.00	6.93	3.15	0.00
33.00	6.93	3.15	0.00
34.00	6.93	3.15	0.00
35.00	6.93	3.15	0.00
36.00	6.93	3.15	0.00
37.00	6.93	3.15	0.00
38.00	6.93	3.15	0.00
39.00	6.93	3.15	0.00
40.00	6.93	3.15	0.00
41.00	6.93	3.15	0.00
42.00	6.93	3.15	0.00
43.00	6.93	3.15	0.00
44.00	6.93	3.15	0.00
45.00	6.93	3.15	0.00
46.00	6.93	3.15	0.00
47.00	6.93	3.15	0.00
48.00	6.93	3.15	0.00
49.00	6.93	3.15	0.00
50.00	6.93	3.15	0.00
51.00	6.93	3.15	0.00
52.00	6.93	3.15	0.00
53.00	6.93	3.15	0.00
54.00	6.93	3.15	0.00
55.00	6.93	3.15	0.00
56.00	6.93	3.15	0.00
57.00	6.93	3.15	0.00
58.00	6.93	3.15	0.00
59.00	6.93	3.15	0.00
60.00	6.93	3.15	0.00
61.00	6.93	3.15	0.00
62.00	6.93	3.15	0.00
63.00	6.93	3.15	0.00
64.00	6.93	3.15	0.00
65.00	6.93	3.15	0.00
66.00	6.93	3.15	0.00
67.00	6.93	3.15	0.00
68.00	6.93	3.15	0.00
69.00	6.93	3.15	0.00
70.00	6.93	3.15	0.00
71.00	6.93	3.15	0.00
72.00	6.93	3.15	0.00

Summary for Subcatchment 3PRE: Pre-Development to POI #3

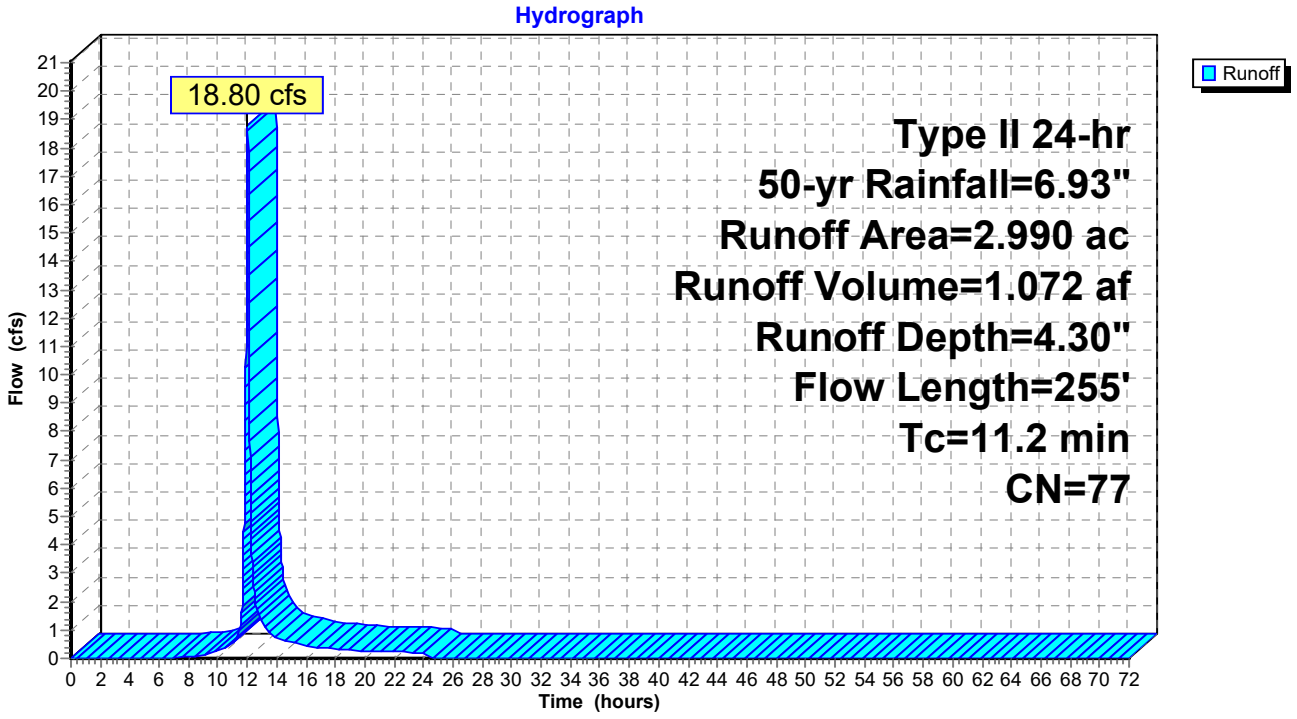
Runoff = 18.80 cfs @ 12.03 hrs, Volume= 1.072 af, Depth= 4.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.93"

Area (ac)	CN	Description
2.610	77	Woods, Good, HSG D
0.380	80	>75% Grass cover, Good, HSG D
2.990	77	Weighted Average
2.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0360	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.53"
0.5	155	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.2	255	Total			

Subcatchment 3PRE: Pre-Development to POI #3



Hydrograph for Subcatchment 3PRE: Pre-Development to POI #3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.07	0.00	0.00
2.00	0.15	0.00	0.00
3.00	0.24	0.00	0.00
4.00	0.33	0.00	0.00
5.00	0.44	0.00	0.00
6.00	0.55	0.00	0.00
7.00	0.69	0.00	0.02
8.00	0.83	0.02	0.06
9.00	1.02	0.05	0.14
10.00	1.25	0.12	0.24
11.00	1.63	0.26	0.58
12.00	4.59	2.29	**18.05**
13.00	5.35	2.92	**1.24**
14.00	5.68	3.20	0.73
15.00	5.91	3.40	0.57
16.00	6.10	3.57	0.44
17.00	6.25	3.70	0.38
18.00	6.38	3.82	0.34
19.00	6.50	3.92	0.30
20.00	6.60	4.01	0.25
21.00	6.69	4.08	0.23
22.00	6.77	4.16	0.23
23.00	6.85	4.23	0.22
24.00	**6.93**	**4.30**	0.21
25.00	6.93	4.30	0.00
26.00	6.93	4.30	0.00
27.00	6.93	4.30	0.00
28.00	6.93	4.30	0.00
29.00	6.93	4.30	0.00
30.00	6.93	4.30	0.00
31.00	6.93	4.30	0.00
32.00	6.93	4.30	0.00
33.00	6.93	4.30	0.00
34.00	6.93	4.30	0.00
35.00	6.93	4.30	0.00
36.00	6.93	4.30	0.00
37.00	6.93	4.30	0.00
38.00	6.93	4.30	0.00
39.00	6.93	4.30	0.00
40.00	6.93	4.30	0.00
41.00	6.93	4.30	0.00
42.00	6.93	4.30	0.00
43.00	6.93	4.30	0.00
44.00	6.93	4.30	0.00
45.00	6.93	4.30	0.00
46.00	6.93	4.30	0.00
47.00	6.93	4.30	0.00
48.00	6.93	4.30	0.00
49.00	6.93	4.30	0.00
50.00	6.93	4.30	0.00
51.00	6.93	4.30	0.00
52.00	6.93	4.30	0.00
53.00	6.93	4.30	0.00
54.00	6.93	4.30	0.00
55.00	6.93	4.30	0.00
56.00	6.93	4.30	0.00
57.00	6.93	4.30	0.00
58.00	6.93	4.30	0.00
59.00	6.93	4.30	0.00
60.00	6.93	4.30	0.00
61.00	6.93	4.30	0.00
62.00	6.93	4.30	0.00
63.00	6.93	4.30	0.00
64.00	6.93	4.30	0.00
65.00	6.93	4.30	0.00
66.00	6.93	4.30	0.00
67.00	6.93	4.30	0.00
68.00	6.93	4.30	0.00
69.00	6.93	4.30	0.00
70.00	6.93	4.30	0.00
71.00	6.93	4.30	0.00
72.00	6.93	4.30	0.00

Summary for Subcatchment 3PST: Post-Development to POI #3

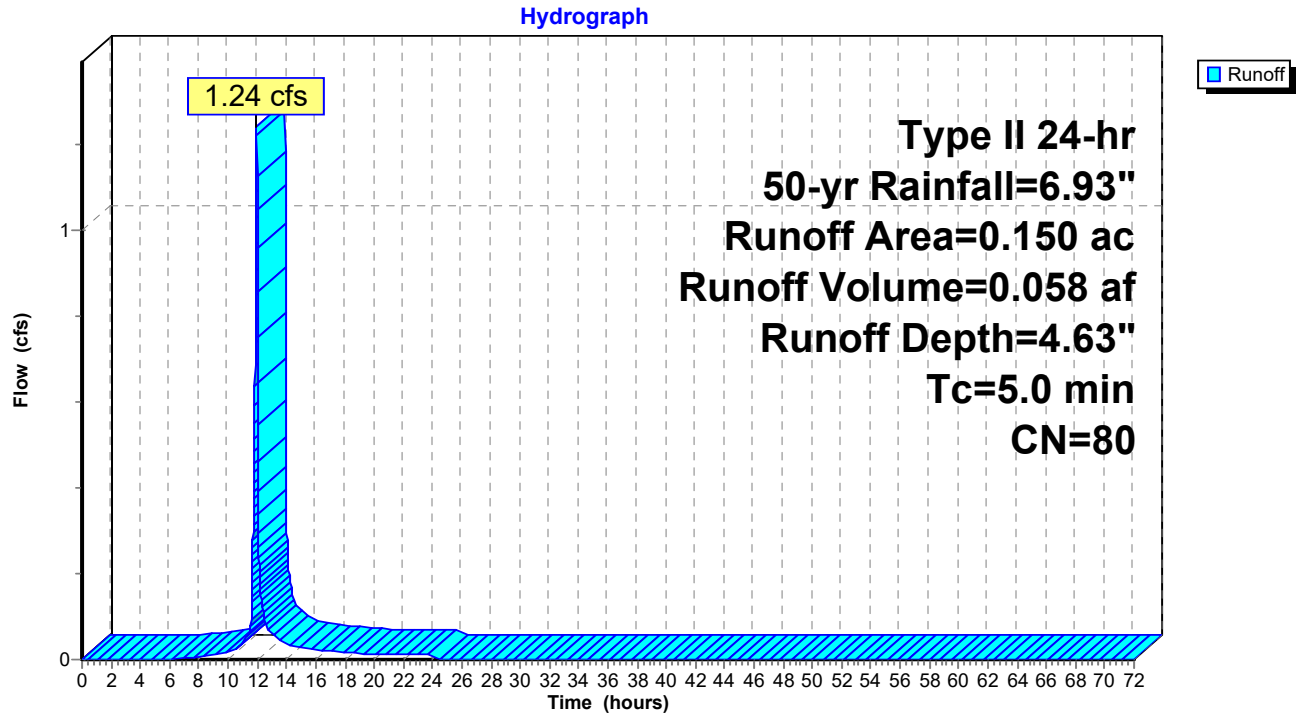
Runoff = 1.24 cfs @ 11.96 hrs, Volume= 0.058 af, Depth= 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.93"

Area (ac)	CN	Description
0.020	98	Paved roads w/curbs & sewers, HSG B
0.130	77	Woods, Good, HSG D
0.150	80	Weighted Average
0.130		86.67% Pervious Area
0.020		13.33% Impervious Area

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

Subcatchment 3PST: Post-Development to POI #3



Hydrograph for Subcatchment 3PST: Post-Development to POI #3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.07	0.00	0.00
2.00	0.15	0.00	0.00
3.00	0.24	0.00	0.00
4.00	0.33	0.00	0.00
5.00	0.44	0.00	0.00
6.00	0.55	0.00	0.00
7.00	0.69	0.01	0.00
8.00	0.83	0.04	0.00
9.00	1.02	0.09	0.01
10.00	1.25	0.17	0.02
11.00	1.63	0.35	**0.04**
12.00	4.59	2.54	**1.05**
13.00	5.35	3.20	0.06
14.00	5.68	3.50	0.04
15.00	5.91	3.70	0.03
16.00	6.10	3.87	0.02
17.00	6.25	4.01	0.02
18.00	6.38	4.13	0.02
19.00	6.50	4.23	0.02
20.00	6.60	4.32	0.01
21.00	6.69	4.41	0.01
22.00	6.77	4.48	0.01
23.00	6.85	4.56	0.01
24.00	**6.93**	**4.63**	0.01
25.00	6.93	4.63	0.00
26.00	6.93	4.63	0.00
27.00	6.93	4.63	0.00
28.00	6.93	4.63	0.00
29.00	6.93	4.63	0.00
30.00	6.93	4.63	0.00
31.00	6.93	4.63	0.00
32.00	6.93	4.63	0.00
33.00	6.93	4.63	0.00
34.00	6.93	4.63	0.00
35.00	6.93	4.63	0.00
36.00	6.93	4.63	0.00
37.00	6.93	4.63	0.00
38.00	6.93	4.63	0.00
39.00	6.93	4.63	0.00
40.00	6.93	4.63	0.00
41.00	6.93	4.63	0.00
42.00	6.93	4.63	0.00
43.00	6.93	4.63	0.00
44.00	6.93	4.63	0.00
45.00	6.93	4.63	0.00
46.00	6.93	4.63	0.00
47.00	6.93	4.63	0.00
48.00	6.93	4.63	0.00
49.00	6.93	4.63	0.00
50.00	6.93	4.63	0.00
51.00	6.93	4.63	0.00
52.00	6.93	4.63	0.00
53.00	6.93	4.63	0.00
54.00	6.93	4.63	0.00
55.00	6.93	4.63	0.00
56.00	6.93	4.63	0.00
57.00	6.93	4.63	0.00
58.00	6.93	4.63	0.00
59.00	6.93	4.63	0.00
60.00	6.93	4.63	0.00
61.00	6.93	4.63	0.00
62.00	6.93	4.63	0.00
63.00	6.93	4.63	0.00
64.00	6.93	4.63	0.00
65.00	6.93	4.63	0.00
66.00	6.93	4.63	0.00
67.00	6.93	4.63	0.00
68.00	6.93	4.63	0.00
69.00	6.93	4.63	0.00
70.00	6.93	4.63	0.00
71.00	6.93	4.63	0.00
72.00	6.93	4.63	0.00

Summary for Pond 2P: SCM #2

Inflow Area = 3.940 ac, 22.84% Impervious, Inflow Depth = 3.87" for 50-yr event
Inflow = 28.05 cfs @ 11.96 hrs, Volume= 1.272 af
Outflow = 0.64 cfs @ 15.38 hrs, Volume= 1.119 af, Atten= 98%, Lag= 205.0 min
Primary = 0.64 cfs @ 15.38 hrs, Volume= 1.119 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 717.21' @ 15.38 hrs Surf.Area= 13,865 sf Storage= 36,130 cf

Plug-Flow detention time= 878.9 min calculated for 1.118 af (88% of inflow)
Center-of-Mass det. time= 820.1 min (1,640.7 - 820.6)

Volume	Invert	Avail.Storage	Storage Description
#1	713.50'	81,212 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

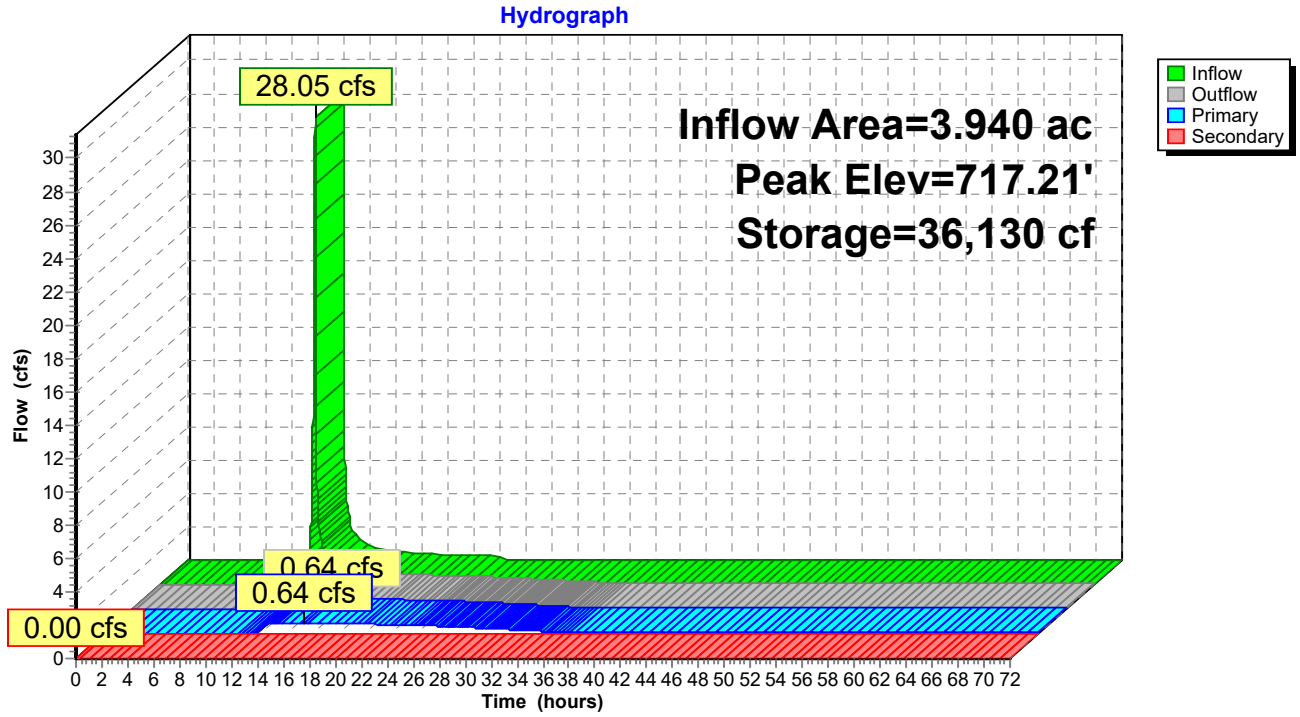
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
713.50	2,258	0	0
714.00	4,670	1,732	1,732
715.00	10,425	7,548	9,280
716.00	11,945	11,185	20,465
717.00	13,515	12,730	33,195
718.00	15,145	14,330	47,525
719.00	16,830	15,988	63,512
720.00	18,570	17,700	81,212

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**24.0" Round Outlet Pipe** L= 40.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 711.50' / 711.30' S= 0.0050 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Device 1	713.50'	**Filter Bed** Head (feet) 0.00 1.00 2.00 3.00 4.00 5.00 Disch. (cfs) 0.000 0.055 0.077 0.098 0.120 0.142
#3	Device 1	715.50'	**4.0" Vert. Orifice** C= 0.600
#4	Device 1	717.50'	**48.0" x 48.0" Horiz. Top of OCS** C= 0.600 Limited to weir flow at low heads
#5	Secondary	718.50'	**20.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

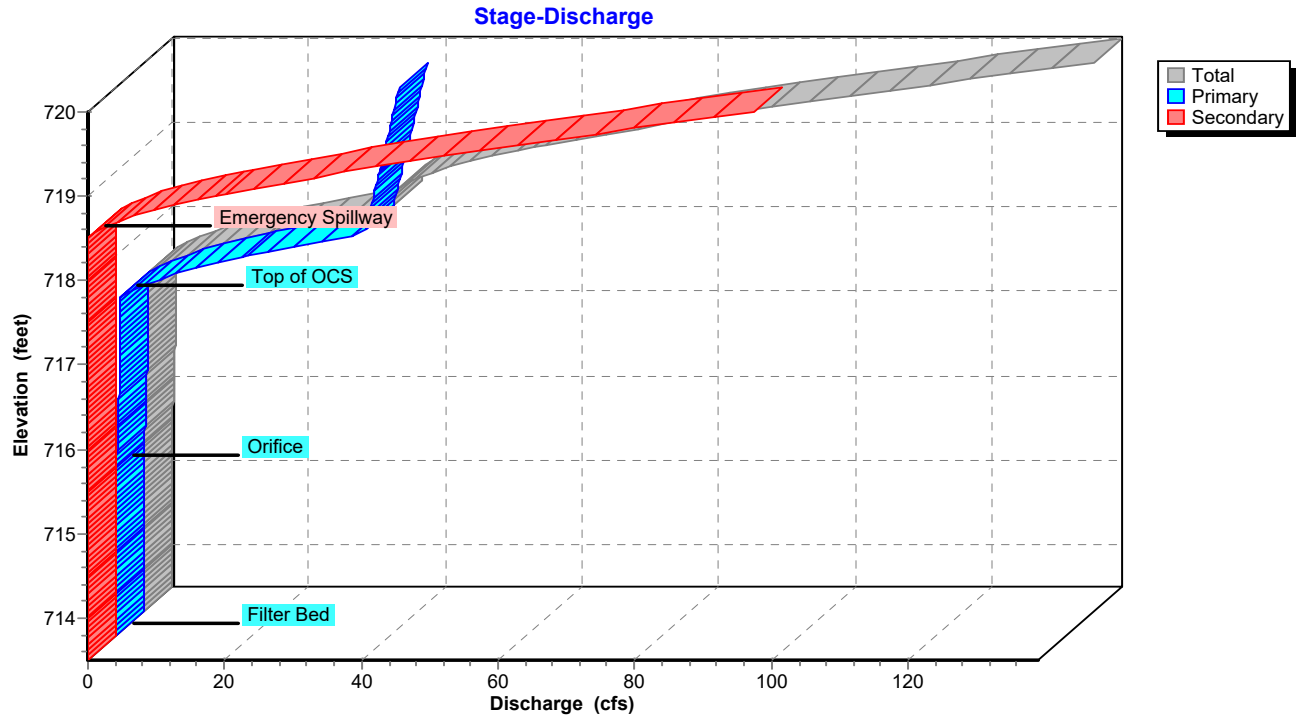
Primary OutFlow Max=0.64 cfs @ 15.38 hrs HW=717.21' (Free Discharge)
└─**1=Outlet Pipe** (Passes 0.64 cfs of 32.84 cfs potential flow)
  ├─**2=Filter Bed** (Custom Controls 0.11 cfs)
  ├─**3=Orifice** (Orifice Controls 0.52 cfs @ 5.99 fps)
  └─**4=Top of OCS** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=713.50' (Free Discharge)
└─**5=Emergency Spillway** (Controls 0.00 cfs)

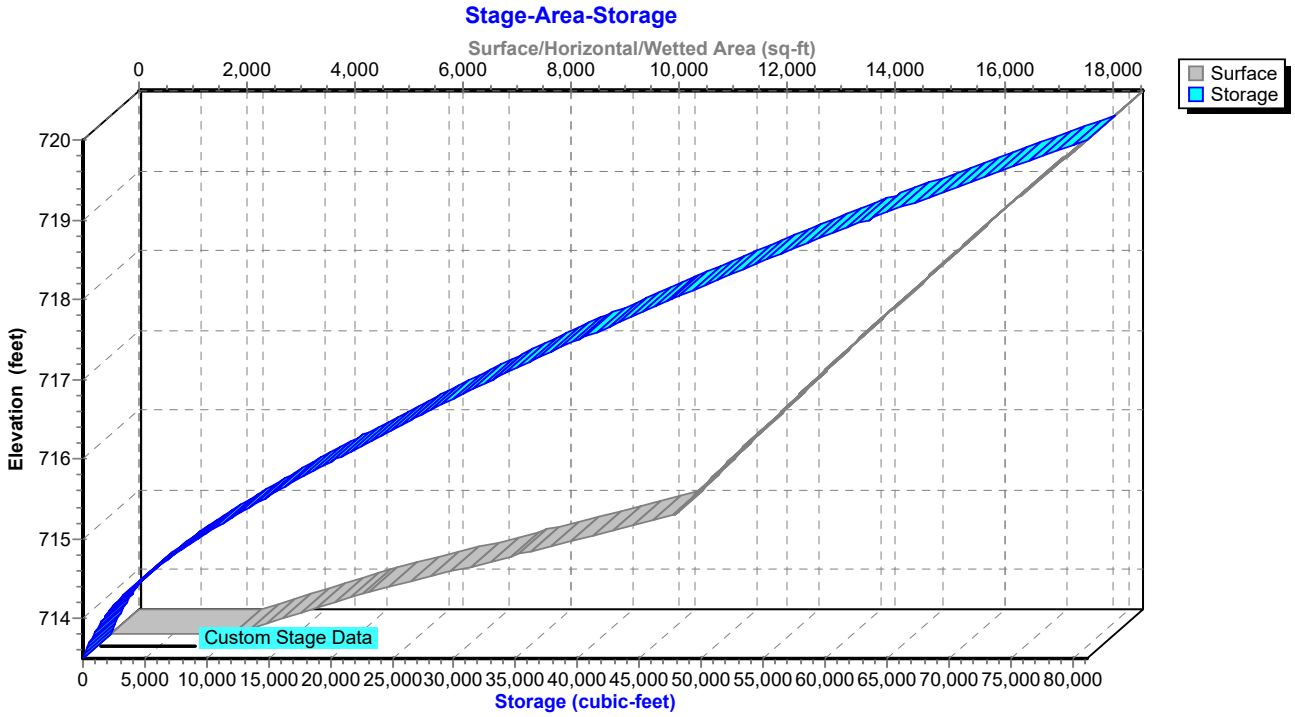
Pond 2P: SCM #2



Pond 2P: SCM #2



Pond 2P: SCM #2


Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
Surface
Storage
720
719
718
717
716
715
714
Elevation (feet)
Custom Stage Data
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
55,000
60,000
65,000
70,000
75,000
80,000
Storage (cubic-feet)

Hydrograph for Pond 2P: SCM #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	713.50	0.00	0.00	**0.00**
2.00	0.00	0	713.50	0.00	0.00	0.00
4.00	0.00	0	713.50	0.00	0.00	0.00
6.00	0.00	0	713.50	0.00	0.00	0.00
8.00	0.03	24	713.51	0.00	0.00	0.00
10.00	**0.24**	787	713.77	0.01	0.01	0.00
12.00	**24.01**	22,977	716.21	0.40	0.40	0.00
14.00	0.87	**35,597**	**717.18**	**0.63**	**0.63**	0.00
16.00	0.54	**36,024**	**717.21**	**0.64**	**0.64**	0.00
18.00	0.42	34,939	717.13	0.62	0.62	0.00
20.00	0.31	33,196	717.00	0.59	0.59	0.00
22.00	0.28	31,152	716.85	0.56	0.56	0.00
24.00	0.26	29,185	716.70	0.53	0.53	0.00
26.00	0.00	25,683	716.42	0.46	0.46	0.00
28.00	0.00	22,608	716.18	0.39	0.39	0.00
30.00	0.00	20,056	715.97	0.32	0.32	0.00
32.00	0.00	18,070	715.80	0.23	0.23	0.00
34.00	0.00	16,706	715.68	0.15	0.15	0.00
36.00	0.00	15,810	715.60	0.10	0.10	0.00
38.00	0.00	15,145	715.54	0.08	0.08	0.00
40.00	0.00	14,575	715.49	0.08	0.08	0.00
42.00	0.00	14,026	715.44	0.08	0.08	0.00
44.00	0.00	13,484	715.39	0.07	0.07	0.00
46.00	0.00	12,951	715.34	0.07	0.07	0.00
48.00	0.00	12,425	715.30	0.07	0.07	0.00
50.00	0.00	11,907	715.25	0.07	0.07	0.00
52.00	0.00	11,396	715.20	0.07	0.07	0.00
54.00	0.00	10,893	715.15	0.07	0.07	0.00
56.00	0.00	10,397	715.11	0.07	0.07	0.00
58.00	0.00	9,909	715.06	0.07	0.07	0.00
60.00	0.00	9,428	715.01	0.07	0.07	0.00
62.00	0.00	8,954	714.97	0.07	0.07	0.00
64.00	0.00	8,488	714.92	0.06	0.06	0.00
66.00	0.00	8,029	714.88	0.06	0.06	0.00
68.00	0.00	7,577	714.83	0.06	0.06	0.00
70.00	0.00	7,133	714.78	0.06	0.06	0.00
72.00	0.00	6,696	714.73	0.06	0.06	0.00

Stage-Discharge for Pond 2P: SCM #2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
713.50	0.00	0.00	0.00
713.60	0.01	0.01	0.00
713.70	0.01	0.01	0.00
713.80	0.02	0.02	0.00
713.90	0.02	0.02	0.00
714.00	0.03	0.03	0.00
714.10	0.03	0.03	0.00
714.20	0.04	0.04	0.00
714.30	0.04	0.04	0.00
714.40	0.05	0.05	0.00
714.50	0.06	0.06	0.00
714.60	0.06	0.06	0.00
714.70	0.06	0.06	0.00
714.80	0.06	0.06	0.00
714.90	0.06	0.06	0.00
715.00	0.07	0.07	0.00
715.10	0.07	0.07	0.00
715.20	0.07	0.07	0.00
715.30	0.07	0.07	0.00
715.40	0.07	0.07	0.00
715.50	0.08	0.08	0.00
715.60	0.10	0.10	0.00
715.70	0.16	0.16	0.00
715.80	0.24	0.24	0.00
715.90	0.29	0.29	0.00
716.00	0.33	0.33	0.00
716.10	0.37	0.37	0.00
716.20	0.40	0.40	0.00
716.30	0.43	0.43	0.00
716.40	0.46	0.46	0.00
716.50	0.48	0.48	0.00
716.60	0.51	0.51	0.00
716.70	0.53	0.53	0.00
716.80	0.55	0.55	0.00
716.90	0.57	0.57	0.00
717.00	0.59	0.59	0.00
717.10	0.61	0.61	0.00
717.20	0.63	0.63	0.00
717.30	0.65	0.65	0.00
717.40	0.67	0.67	0.00
717.50	0.69	0.69	0.00
717.60	2.36	2.36	0.00
717.70	5.40	5.40	0.00
717.80	9.34	9.34	0.00
717.90	13.99	13.99	0.00
718.00	19.27	19.27	0.00
718.10	25.10	25.10	0.00
718.20	31.45	31.45	0.00
718.30	36.43	36.43	0.00
718.40	36.74	36.74	0.00
718.50	37.05	37.05	0.00
718.60	38.93	37.36	1.57
718.70	42.12	37.67	4.45
718.80	46.27	37.97	8.30
718.90	51.22	38.27	12.95
719.00	57.16	38.57	18.60
719.10	63.96	38.86	25.10
719.20	70.72	39.15	31.57
719.30	77.94	39.45	38.50
719.40	85.58	39.73	45.85
719.50	93.62	40.02	53.60
719.60	102.26	40.31	61.95
719.70	111.31	40.59	70.72
719.80	120.32	40.87	79.45
719.90	129.61	41.15	88.46
720.00	**138.98**	**41.43**	**97.55**

Stage-Area-Storage for Pond 2P: SCM #2

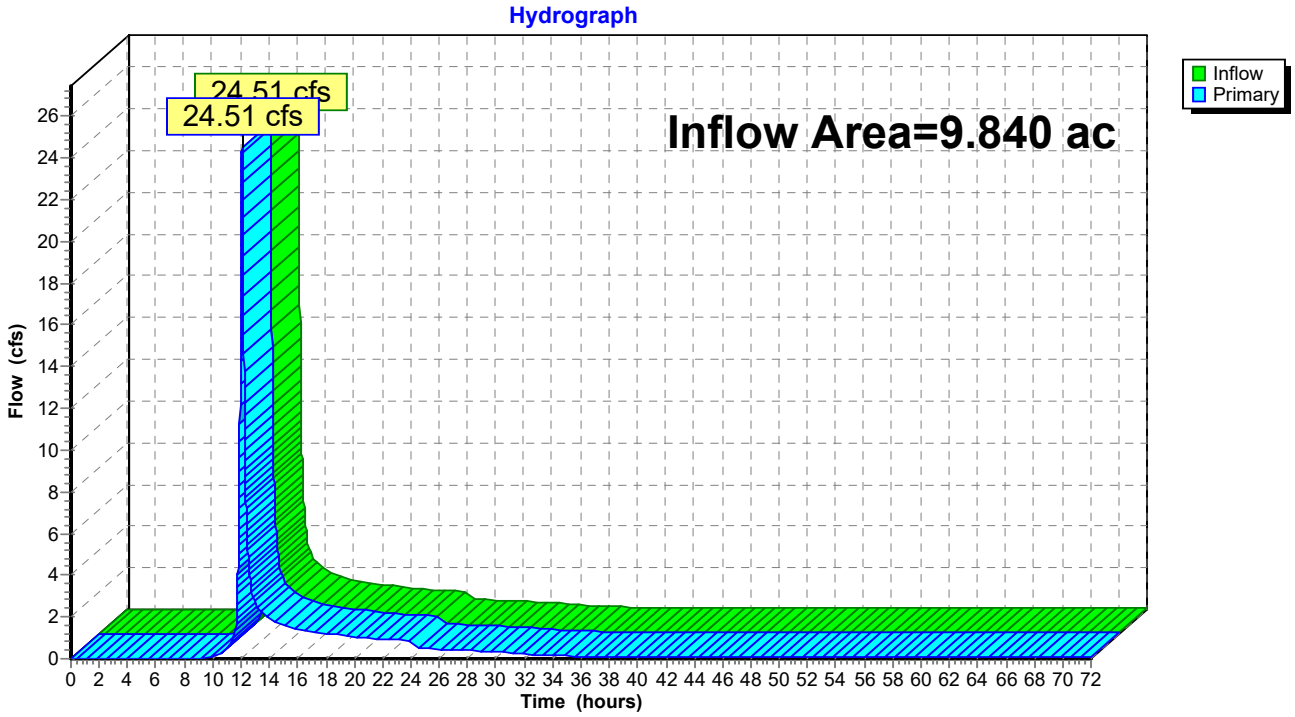
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
713.50	2,258	0
713.60	2,740	250
713.70	3,223	548
713.80	3,705	894
713.90	4,188	1,289
714.00	4,670	1,732
714.10	5,246	2,228
714.20	5,821	2,781
714.30	6,396	3,392
714.40	6,972	4,060
714.50	7,548	4,786
714.60	8,123	5,570
714.70	8,699	6,411
714.80	9,274	7,310
714.90	9,849	8,266
715.00	10,425	9,280
715.10	10,577	10,330
715.20	10,729	11,395
715.30	10,881	12,475
715.40	11,033	13,571
715.50	11,185	14,682
715.60	11,337	15,808
715.70	11,489	16,949
715.80	11,641	18,106
715.90	11,793	19,278
716.00	11,945	20,465
716.10	12,102	21,667
716.20	12,259	22,885
716.30	12,416	24,119
716.40	12,573	25,368
716.50	12,730	26,633
716.60	12,887	27,914
716.70	13,044	29,211
716.80	13,201	30,523
716.90	13,358	31,851
717.00	13,515	33,195
717.10	13,678	34,554
717.20	13,841	35,930
717.30	14,004	37,322
717.40	14,167	38,731
717.50	14,330	40,156
717.60	14,493	41,597
717.70	14,656	43,054
717.80	14,819	44,528
717.90	14,982	46,018
718.00	15,145	47,525
718.10	15,314	49,047
718.20	15,482	50,587
718.30	15,650	52,144
718.40	15,819	53,717
718.50	15,988	55,308
718.60	16,156	56,915
718.70	16,325	58,539
718.80	16,493	60,180
718.90	16,661	61,837
719.00	16,830	63,512
719.10	17,004	65,204
719.20	17,178	66,913
719.30	17,352	68,639
719.40	17,526	70,383
719.50	17,700	72,145
719.60	17,874	73,923
719.70	18,048	75,719
719.80	18,222	77,533
719.90	18,396	79,364
720.00	**18,570**	**81,212**

Summary for Link 2L: Total Post-Development to POI #2

Inflow Area = 9.840 ac, 15.75% Impervious, Inflow Depth > 3.25" for 50-yr event
Inflow = 24.51 cfs @ 12.08 hrs, Volume= 2.667 af
Primary = 24.51 cfs @ 12.08 hrs, Volume= 2.667 af, Atten= 0%, Lag= 0.0 min

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

Link 2L: Total Post-Development to POI #2



Hydrograph for Link 2L: Total Post-Development to POI #2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01
10.00	0.11	0.00	0.11
11.00	0.47	0.00	0.47
12.00	**19.83**	0.00	**19.83**
13.00	**2.71**	0.00	**2.71**
14.00	1.87	0.00	1.87
15.00	1.59	0.00	1.59
16.00	1.39	0.00	1.39
17.00	1.28	0.00	1.28
18.00	1.20	0.00	1.20
19.00	1.11	0.00	1.11
20.00	1.02	0.00	1.02
21.00	0.98	0.00	0.98
22.00	0.95	0.00	0.95
23.00	0.92	0.00	0.92
24.00	0.89	0.00	0.89
25.00	0.50	0.00	0.50
26.00	0.46	0.00	0.46
27.00	0.43	0.00	0.43
28.00	0.39	0.00	0.39
29.00	0.35	0.00	0.35
30.00	0.32	0.00	0.32
31.00	0.28	0.00	0.28
32.00	0.23	0.00	0.23
33.00	0.19	0.00	0.19
34.00	0.15	0.00	0.15
35.00	0.12	0.00	0.12
36.00	0.10	0.00	0.10
37.00	0.09	0.00	0.09
38.00	0.08	0.00	0.08
39.00	0.08	0.00	0.08
40.00	0.08	0.00	0.08
41.00	0.08	0.00	0.08
42.00	0.08	0.00	0.08
43.00	0.08	0.00	0.08
44.00	0.07	0.00	0.07
45.00	0.07	0.00	0.07
46.00	0.07	0.00	0.07
47.00	0.07	0.00	0.07
48.00	0.07	0.00	0.07
49.00	0.07	0.00	0.07
50.00	0.07	0.00	0.07
51.00	0.07	0.00	0.07
52.00	0.07	0.00	0.07
53.00	0.07	0.00	0.07
54.00	0.07	0.00	0.07
55.00	0.07	0.00	0.07
56.00	0.07	0.00	0.07
57.00	0.07	0.00	0.07
58.00	0.07	0.00	0.07
59.00	0.07	0.00	0.07
60.00	0.07	0.00	0.07
61.00	0.07	0.00	0.07
62.00	0.07	0.00	0.07
63.00	0.06	0.00	0.06
64.00	0.06	0.00	0.06
65.00	0.06	0.00	0.06
66.00	0.06	0.00	0.06
67.00	0.06	0.00	0.06
68.00	0.06	0.00	0.06
69.00	0.06	0.00	0.06
70.00	0.06	0.00	0.06
71.00	0.06	0.00	0.06
72.00	0.06	0.00	0.06

Summary for Subcatchment 2PRE: Pre-Development to POI #2

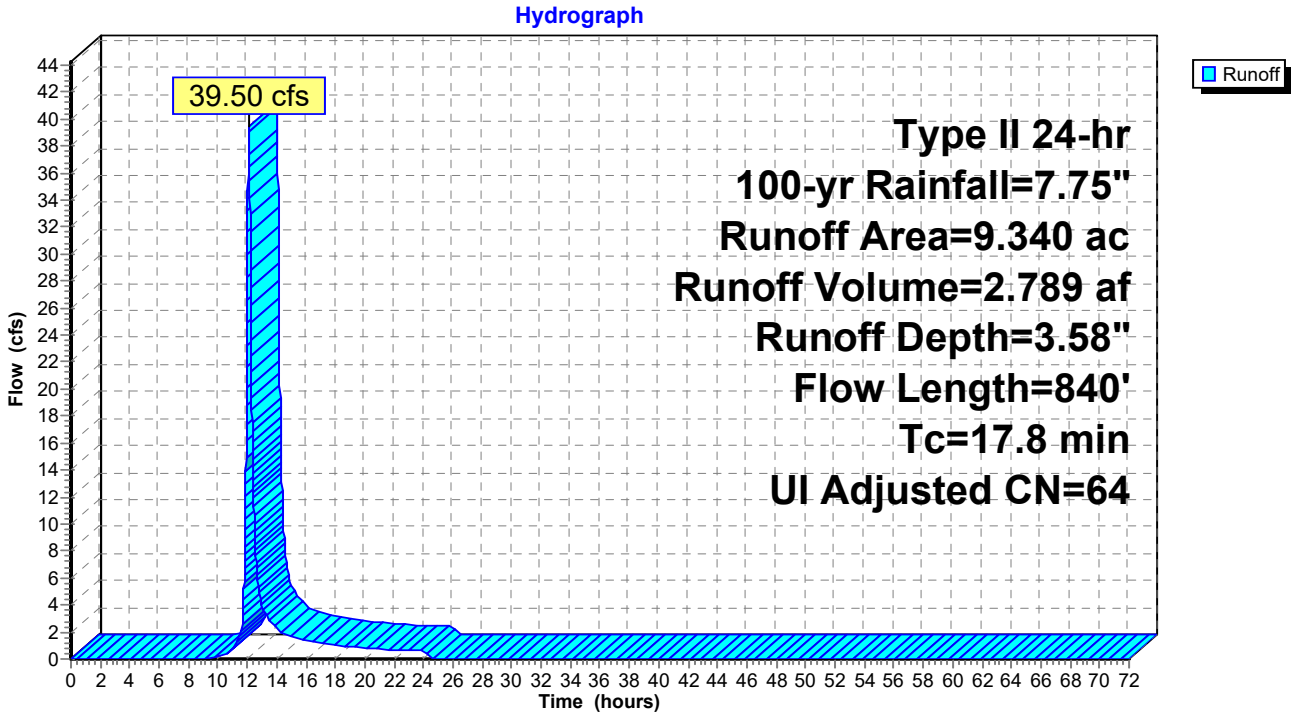
Runoff = 39.50 cfs @ 12.11 hrs, Volume= 2.789 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.75"

Area (ac)	CN	Adj	Description
0.590	55		Woods, Good, HSG B
0.700	77		Woods, Good, HSG D
0.750	98		Unconnected roofs, HSG B
0.080	80		>75% Grass cover, Good, HSG D
7.220	61		>75% Grass cover, Good, HSG B
9.340	65	64	Weighted Average, UI Adjusted
8.590			91.97% Pervious Area
0.750			8.03% Impervious Area
0.750			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0250	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.53"
5.4	740	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
17.8	840	Total			

Subcatchment 2PRE: Pre-Development to POI #2



Hydrograph for Subcatchment 2PRE: Pre-Development to POI #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.08	0.00	0.00
2.00	0.17	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.37	0.00	0.00
5.00	0.49	0.00	0.00
6.00	0.62	0.00	0.00
7.00	0.77	0.00	0.00
8.00	0.93	0.00	0.00
9.00	1.14	0.00	0.00
10.00	1.40	0.01	0.18
11.00	1.82	0.08	0.77
12.00	5.14	1.67	**28.29**
13.00	5.98	2.25	**3.93**
14.00	6.36	2.52	2.26
15.00	6.61	2.71	1.73
16.00	6.82	2.87	1.37
17.00	6.99	2.99	1.17
18.00	7.14	3.11	1.04
19.00	7.27	3.21	0.91
20.00	7.38	3.29	0.77
21.00	7.48	3.37	0.72
22.00	7.57	3.44	0.69
23.00	7.66	3.51	0.67
24.00	**7.75**	**3.58**	0.64
25.00	7.75	3.58	0.00
26.00	7.75	3.58	0.00
27.00	7.75	3.58	0.00
28.00	7.75	3.58	0.00
29.00	7.75	3.58	0.00
30.00	7.75	3.58	0.00
31.00	7.75	3.58	0.00
32.00	7.75	3.58	0.00
33.00	7.75	3.58	0.00
34.00	7.75	3.58	0.00
35.00	7.75	3.58	0.00
36.00	7.75	3.58	0.00
37.00	7.75	3.58	0.00
38.00	7.75	3.58	0.00
39.00	7.75	3.58	0.00
40.00	7.75	3.58	0.00
41.00	7.75	3.58	0.00
42.00	7.75	3.58	0.00
43.00	7.75	3.58	0.00
44.00	7.75	3.58	0.00
45.00	7.75	3.58	0.00
46.00	7.75	3.58	0.00
47.00	7.75	3.58	0.00
48.00	7.75	3.58	0.00
49.00	7.75	3.58	0.00
50.00	7.75	3.58	0.00
51.00	7.75	3.58	0.00
52.00	7.75	3.58	0.00
53.00	7.75	3.58	0.00
54.00	7.75	3.58	0.00
55.00	7.75	3.58	0.00
56.00	7.75	3.58	0.00
57.00	7.75	3.58	0.00
58.00	7.75	3.58	0.00
59.00	7.75	3.58	0.00
60.00	7.75	3.58	0.00
61.00	7.75	3.58	0.00
62.00	7.75	3.58	0.00
63.00	7.75	3.58	0.00
64.00	7.75	3.58	0.00
65.00	7.75	3.58	0.00
66.00	7.75	3.58	0.00
67.00	7.75	3.58	0.00
68.00	7.75	3.58	0.00
69.00	7.75	3.58	0.00
70.00	7.75	3.58	0.00
71.00	7.75	3.58	0.00
72.00	7.75	3.58	0.00

Summary for Subcatchment 2PST: Post-Development to SCM #2

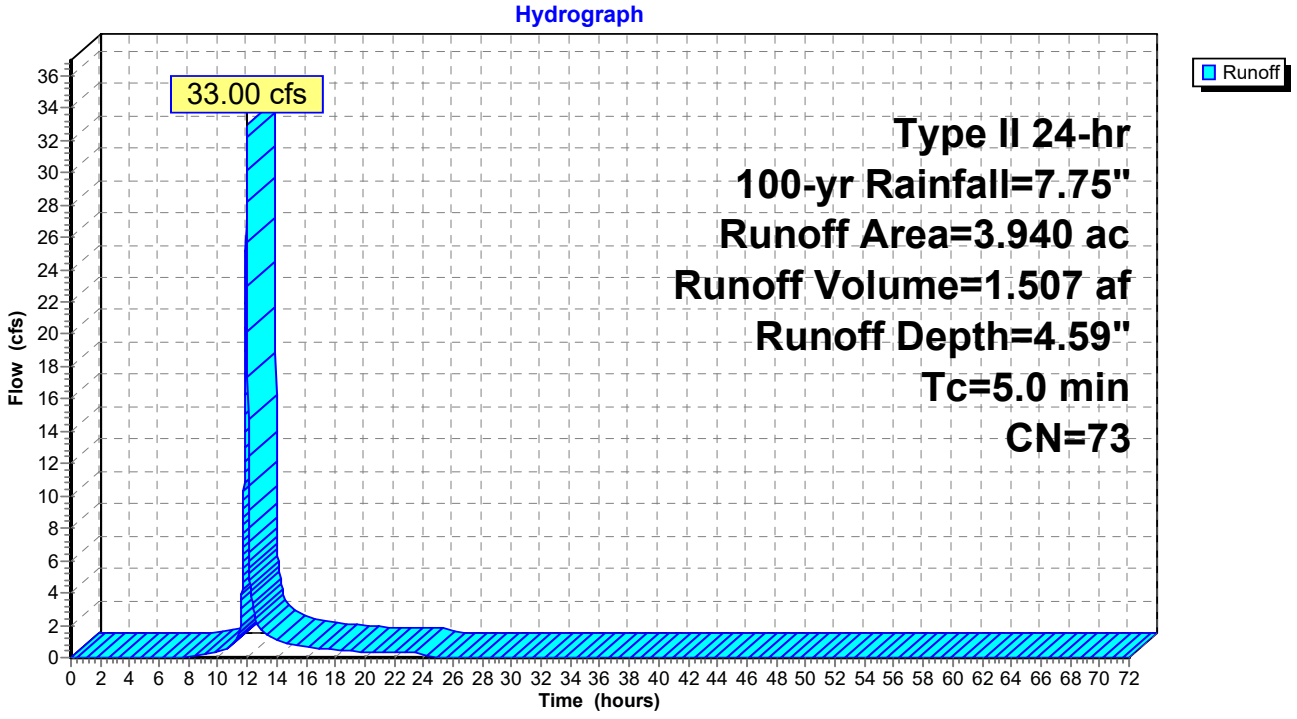
Runoff = 33.00 cfs @ 11.96 hrs, Volume= 1.507 af, Depth= 4.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.75"

	Area (ac)	CN	Description
*	0.880	98	Proposed Impervious
*	0.020	98	Existing Impervious
	2.290	61	>75% Grass cover, Good, HSG B
	0.750	80	>75% Grass cover, Good, HSG D
	3.940	73	Weighted Average
	3.040		77.16% Pervious Area
	0.900		22.84% Impervious Area

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

Subcatchment 2PST: Post-Development to SCM #2



Hydrograph for Subcatchment 2PST: Post-Development to SCM #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.08	0.00	0.00
2.00	0.17	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.37	0.00	0.00
5.00	0.49	0.00	0.00
6.00	0.62	0.00	0.00
7.00	0.77	0.00	0.01
8.00	0.93	0.01	0.06
9.00	1.14	0.04	0.17
10.00	1.40	0.10	0.33
11.00	1.82	0.24	**0.83**
12.00	5.14	2.39	**28.13**
13.00	5.98	3.07	1.66
14.00	6.36	3.39	1.00
15.00	6.61	3.61	0.80
16.00	6.82	3.78	0.62
17.00	6.99	3.93	0.55
18.00	7.14	4.05	0.48
19.00	7.27	4.17	0.42
20.00	7.38	4.26	0.35
21.00	7.48	4.35	0.34
22.00	7.57	4.43	0.32
23.00	7.66	4.51	0.31
24.00	**7.75**	**4.59**	0.30
25.00	7.75	4.59	0.00
26.00	7.75	4.59	0.00
27.00	7.75	4.59	0.00
28.00	7.75	4.59	0.00
29.00	7.75	4.59	0.00
30.00	7.75	4.59	0.00
31.00	7.75	4.59	0.00
32.00	7.75	4.59	0.00
33.00	7.75	4.59	0.00
34.00	7.75	4.59	0.00
35.00	7.75	4.59	0.00
36.00	7.75	4.59	0.00
37.00	7.75	4.59	0.00
38.00	7.75	4.59	0.00
39.00	7.75	4.59	0.00
40.00	7.75	4.59	0.00
41.00	7.75	4.59	0.00
42.00	7.75	4.59	0.00
43.00	7.75	4.59	0.00
44.00	7.75	4.59	0.00
45.00	7.75	4.59	0.00
46.00	7.75	4.59	0.00
47.00	7.75	4.59	0.00
48.00	7.75	4.59	0.00
49.00	7.75	4.59	0.00
50.00	7.75	4.59	0.00
51.00	7.75	4.59	0.00
52.00	7.75	4.59	0.00
53.00	7.75	4.59	0.00
54.00	7.75	4.59	0.00
55.00	7.75	4.59	0.00
56.00	7.75	4.59	0.00
57.00	7.75	4.59	0.00
58.00	7.75	4.59	0.00
59.00	7.75	4.59	0.00
60.00	7.75	4.59	0.00
61.00	7.75	4.59	0.00
62.00	7.75	4.59	0.00
63.00	7.75	4.59	0.00
64.00	7.75	4.59	0.00
65.00	7.75	4.59	0.00
66.00	7.75	4.59	0.00
67.00	7.75	4.59	0.00
68.00	7.75	4.59	0.00
69.00	7.75	4.59	0.00
70.00	7.75	4.59	0.00
71.00	7.75	4.59	0.00
72.00	7.75	4.59	0.00

Summary for Subcatchment 2S: Bypass to POI #2

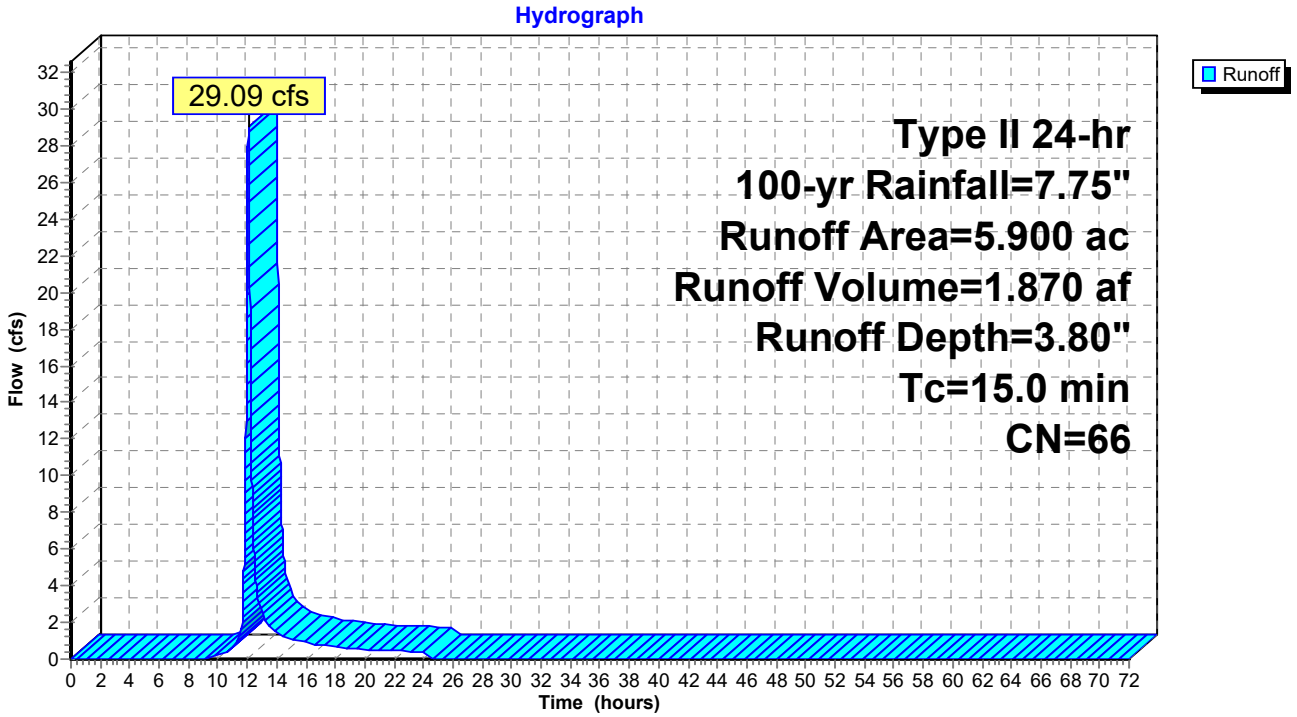
Runoff = 29.09 cfs @ 12.08 hrs, Volume= 1.870 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.75"

	Area (ac)	CN	Description
*	0.650	98	Existing Impervious
	4.740	61	>75% Grass cover, Good, HSG B
	0.280	80	>75% Grass cover, Good, HSG D
	0.180	55	Woods, Good, HSG B
	0.050	77	Woods, Good, HSG D
	5.900	66	Weighted Average
	5.250		88.98% Pervious Area
	0.650		11.02% Impervious Area

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

Subcatchment 2S: Bypass to POI #2



Hydrograph for Subcatchment 2S: Bypass to POI #2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.08	0.00	0.00
2.00	0.17	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.37	0.00	0.00
5.00	0.49	0.00	0.00
6.00	0.62	0.00	0.00
7.00	0.77	0.00	0.00
8.00	0.93	0.00	0.00
9.00	1.14	0.00	0.03
10.00	1.40	0.03	0.18
11.00	1.82	0.11	0.63
12.00	5.14	1.82	**23.80**
13.00	5.98	2.43	**2.48**
14.00	6.36	2.71	1.45
15.00	6.61	2.90	1.12
16.00	6.82	3.06	0.88
17.00	6.99	3.20	0.76
18.00	7.14	3.31	0.68
19.00	7.27	3.42	0.59
20.00	7.38	3.50	0.50
21.00	7.48	3.58	0.47
22.00	7.57	3.66	0.45
23.00	7.66	3.73	0.43
24.00	**7.75**	**3.80**	0.42
25.00	7.75	3.80	0.00
26.00	7.75	3.80	0.00
27.00	7.75	3.80	0.00
28.00	7.75	3.80	0.00
29.00	7.75	3.80	0.00
30.00	7.75	3.80	0.00
31.00	7.75	3.80	0.00
32.00	7.75	3.80	0.00
33.00	7.75	3.80	0.00
34.00	7.75	3.80	0.00
35.00	7.75	3.80	0.00
36.00	7.75	3.80	0.00
37.00	7.75	3.80	0.00
38.00	7.75	3.80	0.00
39.00	7.75	3.80	0.00
40.00	7.75	3.80	0.00
41.00	7.75	3.80	0.00
42.00	7.75	3.80	0.00
43.00	7.75	3.80	0.00
44.00	7.75	3.80	0.00
45.00	7.75	3.80	0.00
46.00	7.75	3.80	0.00
47.00	7.75	3.80	0.00
48.00	7.75	3.80	0.00
49.00	7.75	3.80	0.00
50.00	7.75	3.80	0.00
51.00	7.75	3.80	0.00
52.00	7.75	3.80	0.00
53.00	7.75	3.80	0.00
54.00	7.75	3.80	0.00
55.00	7.75	3.80	0.00
56.00	7.75	3.80	0.00
57.00	7.75	3.80	0.00
58.00	7.75	3.80	0.00
59.00	7.75	3.80	0.00
60.00	7.75	3.80	0.00
61.00	7.75	3.80	0.00
62.00	7.75	3.80	0.00
63.00	7.75	3.80	0.00
64.00	7.75	3.80	0.00
65.00	7.75	3.80	0.00
66.00	7.75	3.80	0.00
67.00	7.75	3.80	0.00
68.00	7.75	3.80	0.00
69.00	7.75	3.80	0.00
70.00	7.75	3.80	0.00
71.00	7.75	3.80	0.00
72.00	7.75	3.80	0.00

Summary for Subcatchment 3PRE: Pre-Development to POI #3

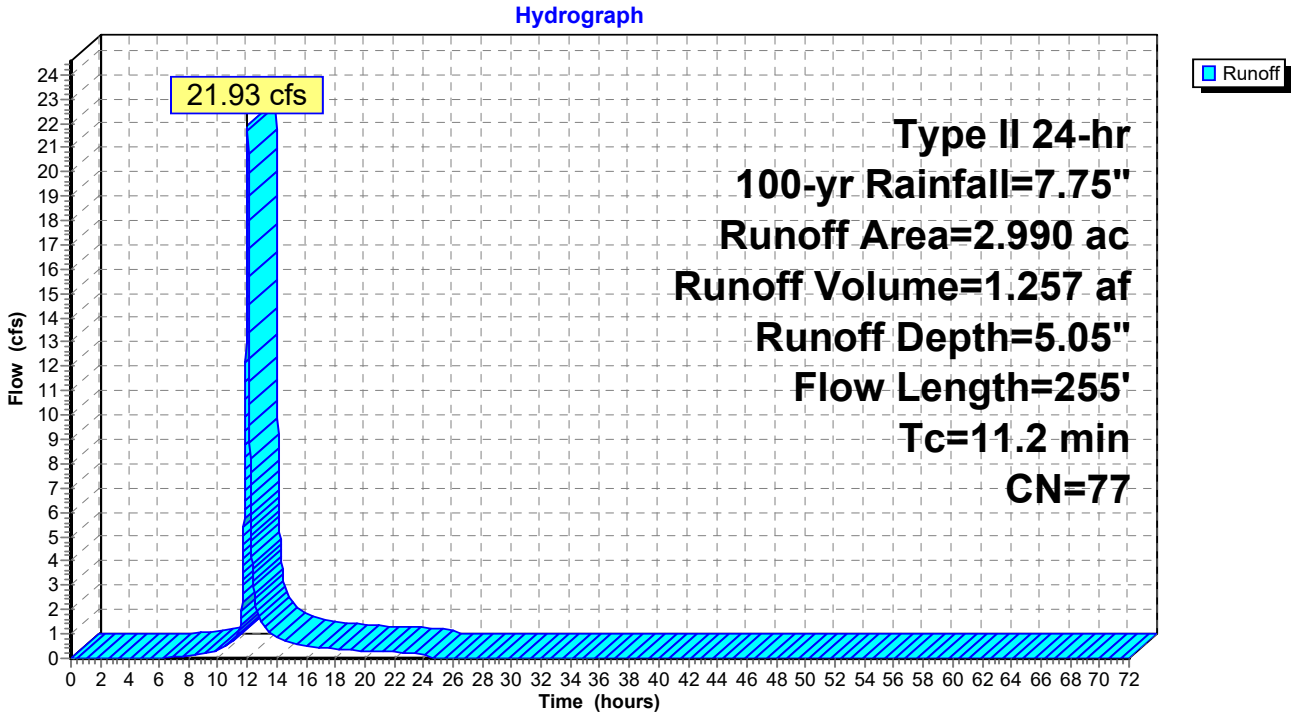
Runoff = 21.93 cfs @ 12.03 hrs, Volume= 1.257 af, Depth= 5.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.75"

Area (ac)	CN	Description
2.610	77	Woods, Good, HSG D
0.380	80	>75% Grass cover, Good, HSG D
2.990	77	Weighted Average
2.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0360	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.53"
0.5	155	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.2	255	Total			

Subcatchment 3PRE: Pre-Development to POI #3



Hydrograph for Subcatchment 3PRE: Pre-Development to POI #3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.08	0.00	0.00
2.00	0.17	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.37	0.00	0.00
5.00	0.49	0.00	0.00
6.00	0.62	0.00	0.00
7.00	0.77	0.01	0.04
8.00	0.93	0.03	0.09
9.00	1.14	0.08	0.19
10.00	1.40	0.17	0.32
11.00	1.82	0.36	0.72
12.00	5.14	2.74	**21.10**
13.00	5.98	3.46	**1.42**
14.00	6.36	3.79	0.83
15.00	6.61	4.02	0.65
16.00	6.82	4.20	0.51
17.00	6.99	4.36	0.44
18.00	7.14	4.49	0.39
19.00	7.27	4.61	0.34
20.00	7.38	4.71	0.28
21.00	7.48	4.80	0.27
22.00	7.57	4.88	0.26
23.00	7.66	4.97	0.25
24.00	**7.75**	**5.05**	0.24
25.00	7.75	5.05	0.00
26.00	7.75	5.05	0.00
27.00	7.75	5.05	0.00
28.00	7.75	5.05	0.00
29.00	7.75	5.05	0.00
30.00	7.75	5.05	0.00
31.00	7.75	5.05	0.00
32.00	7.75	5.05	0.00
33.00	7.75	5.05	0.00
34.00	7.75	5.05	0.00
35.00	7.75	5.05	0.00
36.00	7.75	5.05	0.00
37.00	7.75	5.05	0.00
38.00	7.75	5.05	0.00
39.00	7.75	5.05	0.00
40.00	7.75	5.05	0.00
41.00	7.75	5.05	0.00
42.00	7.75	5.05	0.00
43.00	7.75	5.05	0.00
44.00	7.75	5.05	0.00
45.00	7.75	5.05	0.00
46.00	7.75	5.05	0.00
47.00	7.75	5.05	0.00
48.00	7.75	5.05	0.00
49.00	7.75	5.05	0.00
50.00	7.75	5.05	0.00
51.00	7.75	5.05	0.00
52.00	7.75	5.05	0.00
53.00	7.75	5.05	0.00
54.00	7.75	5.05	0.00
55.00	7.75	5.05	0.00
56.00	7.75	5.05	0.00
57.00	7.75	5.05	0.00
58.00	7.75	5.05	0.00
59.00	7.75	5.05	0.00
60.00	7.75	5.05	0.00
61.00	7.75	5.05	0.00
62.00	7.75	5.05	0.00
63.00	7.75	5.05	0.00
64.00	7.75	5.05	0.00
65.00	7.75	5.05	0.00
66.00	7.75	5.05	0.00
67.00	7.75	5.05	0.00
68.00	7.75	5.05	0.00
69.00	7.75	5.05	0.00
70.00	7.75	5.05	0.00
71.00	7.75	5.05	0.00
72.00	7.75	5.05	0.00

Summary for Subcatchment 3PST: Post-Development to POI #3

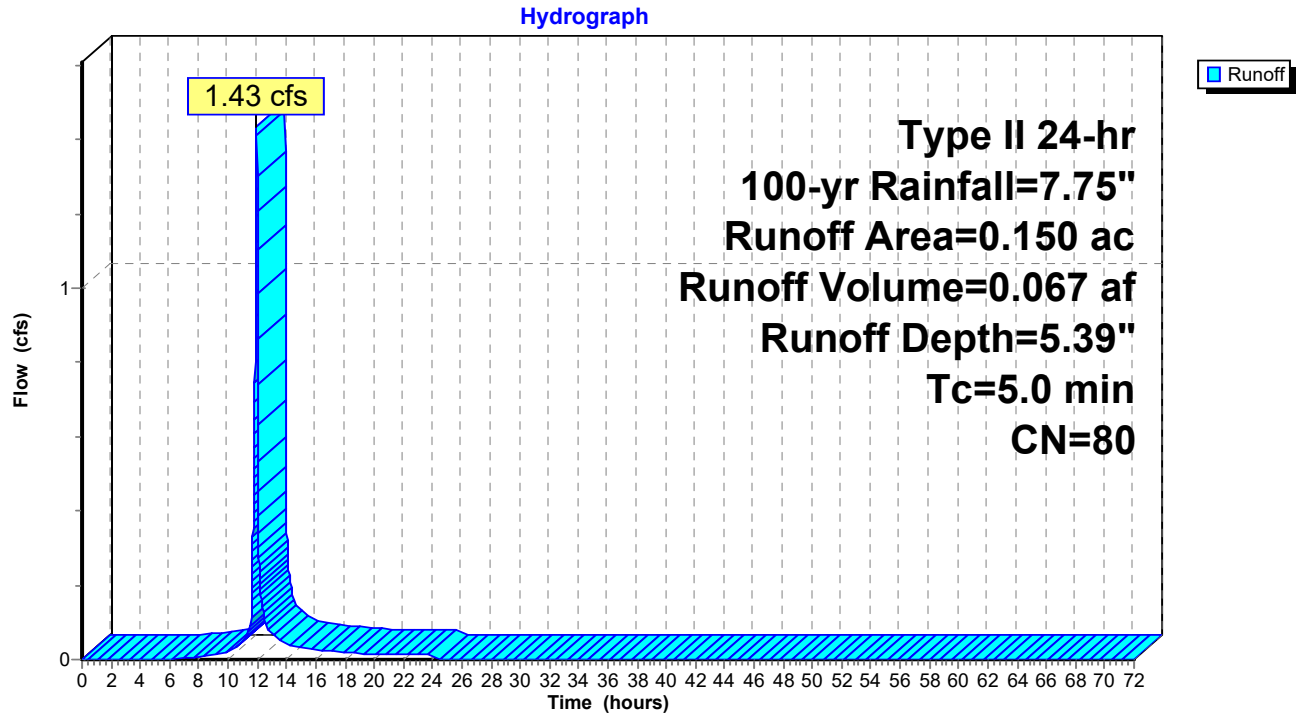
Runoff = 1.43 cfs @ 11.96 hrs, Volume= 0.067 af, Depth= 5.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.75"

Area (ac)	CN	Description
0.020	98	Paved roads w/curbs & sewers, HSG B
0.130	77	Woods, Good, HSG D
0.150	80	Weighted Average
0.130		86.67% Pervious Area
0.020		13.33% Impervious Area

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

Subcatchment 3PST: Post-Development to POI #3



Hydrograph for Subcatchment 3PST: Post-Development to POI #3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.08	0.00	0.00
2.00	0.17	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.37	0.00	0.00
5.00	0.49	0.00	0.00
6.00	0.62	0.01	0.00
7.00	0.77	0.03	0.00
8.00	0.93	0.06	0.01
9.00	1.14	0.13	0.01
10.00	1.40	0.24	0.02
11.00	1.82	0.46	**0.05**
12.00	5.14	3.01	**1.21**
13.00	5.98	3.77	0.07
14.00	6.36	4.10	0.04
15.00	6.61	4.34	0.03
16.00	6.82	4.53	0.03
17.00	6.99	4.68	0.02
18.00	7.14	4.82	0.02
19.00	7.27	4.94	0.02
20.00	7.38	5.04	0.01
21.00	7.48	5.14	0.01
22.00	7.57	5.22	0.01
23.00	7.66	5.31	0.01
24.00	**7.75**	**5.39**	0.01
25.00	7.75	5.39	0.00
26.00	7.75	5.39	0.00
27.00	7.75	5.39	0.00
28.00	7.75	5.39	0.00
29.00	7.75	5.39	0.00
30.00	7.75	5.39	0.00
31.00	7.75	5.39	0.00
32.00	7.75	5.39	0.00
33.00	7.75	5.39	0.00
34.00	7.75	5.39	0.00
35.00	7.75	5.39	0.00
36.00	7.75	5.39	0.00
37.00	7.75	5.39	0.00
38.00	7.75	5.39	0.00
39.00	7.75	5.39	0.00
40.00	7.75	5.39	0.00
41.00	7.75	5.39	0.00
42.00	7.75	5.39	0.00
43.00	7.75	5.39	0.00
44.00	7.75	5.39	0.00
45.00	7.75	5.39	0.00
46.00	7.75	5.39	0.00
47.00	7.75	5.39	0.00
48.00	7.75	5.39	0.00
49.00	7.75	5.39	0.00
50.00	7.75	5.39	0.00
51.00	7.75	5.39	0.00
52.00	7.75	5.39	0.00
53.00	7.75	5.39	0.00
54.00	7.75	5.39	0.00
55.00	7.75	5.39	0.00
56.00	7.75	5.39	0.00
57.00	7.75	5.39	0.00
58.00	7.75	5.39	0.00
59.00	7.75	5.39	0.00
60.00	7.75	5.39	0.00
61.00	7.75	5.39	0.00
62.00	7.75	5.39	0.00
63.00	7.75	5.39	0.00
64.00	7.75	5.39	0.00
65.00	7.75	5.39	0.00
66.00	7.75	5.39	0.00
67.00	7.75	5.39	0.00
68.00	7.75	5.39	0.00
69.00	7.75	5.39	0.00
70.00	7.75	5.39	0.00
71.00	7.75	5.39	0.00
72.00	7.75	5.39	0.00

Summary for Pond 2P: SCM #2

Inflow Area = 3.940 ac, 22.84% Impervious, Inflow Depth = 4.59" for 100-yr event
Inflow = 33.00 cfs @ 11.96 hrs, Volume= 1.507 af
Outflow = 1.37 cfs @ 13.35 hrs, Volume= 1.343 af, Atten= 96%, Lag= 83.2 min
Primary = 1.37 cfs @ 13.35 hrs, Volume= 1.343 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 717.55' @ 13.35 hrs Surf.Area= 14,413 sf Storage= 40,885 cf

Plug-Flow detention time= 818.7 min calculated for 1.343 af (89% of inflow)
Center-of-Mass det. time= 764.3 min (1,580.1 - 815.8)

Volume	Invert	Avail.Storage	Storage Description
#1	713.50'	81,212 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

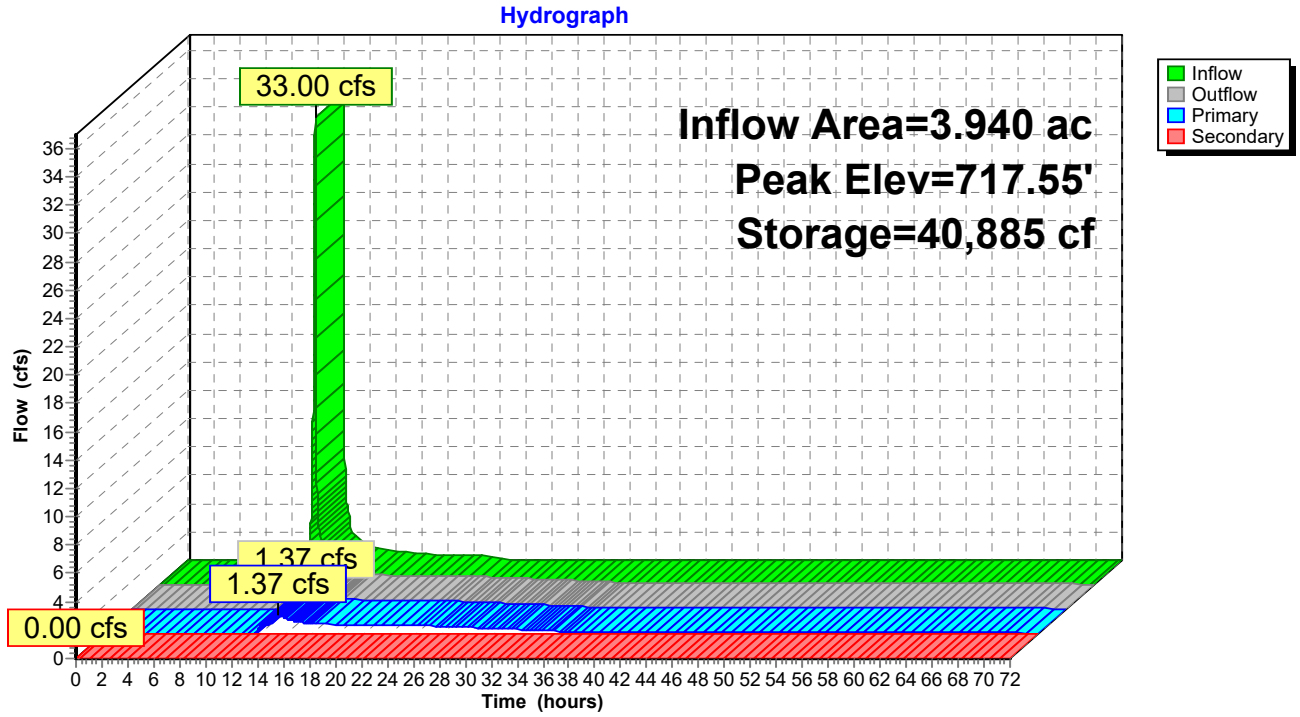
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
713.50	2,258	0	0
714.00	4,670	1,732	1,732
715.00	10,425	7,548	9,280
716.00	11,945	11,185	20,465
717.00	13,515	12,730	33,195
718.00	15,145	14,330	47,525
719.00	16,830	15,988	63,512
720.00	18,570	17,700	81,212

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**24.0" Round Outlet Pipe** L= 40.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 711.50' / 711.30' S= 0.0050 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Device 1	713.50'	**Filter Bed** Head (feet) 0.00 1.00 2.00 3.00 4.00 5.00 Disch. (cfs) 0.000 0.055 0.077 0.098 0.120 0.142
#3	Device 1	715.50'	**4.0" Vert. Orifice** C= 0.600
#4	Device 1	717.50'	**48.0" x 48.0" Horiz. Top of OCS** C= 0.600 Limited to weir flow at low heads
#5	Secondary	718.50'	**20.0' long x 10.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

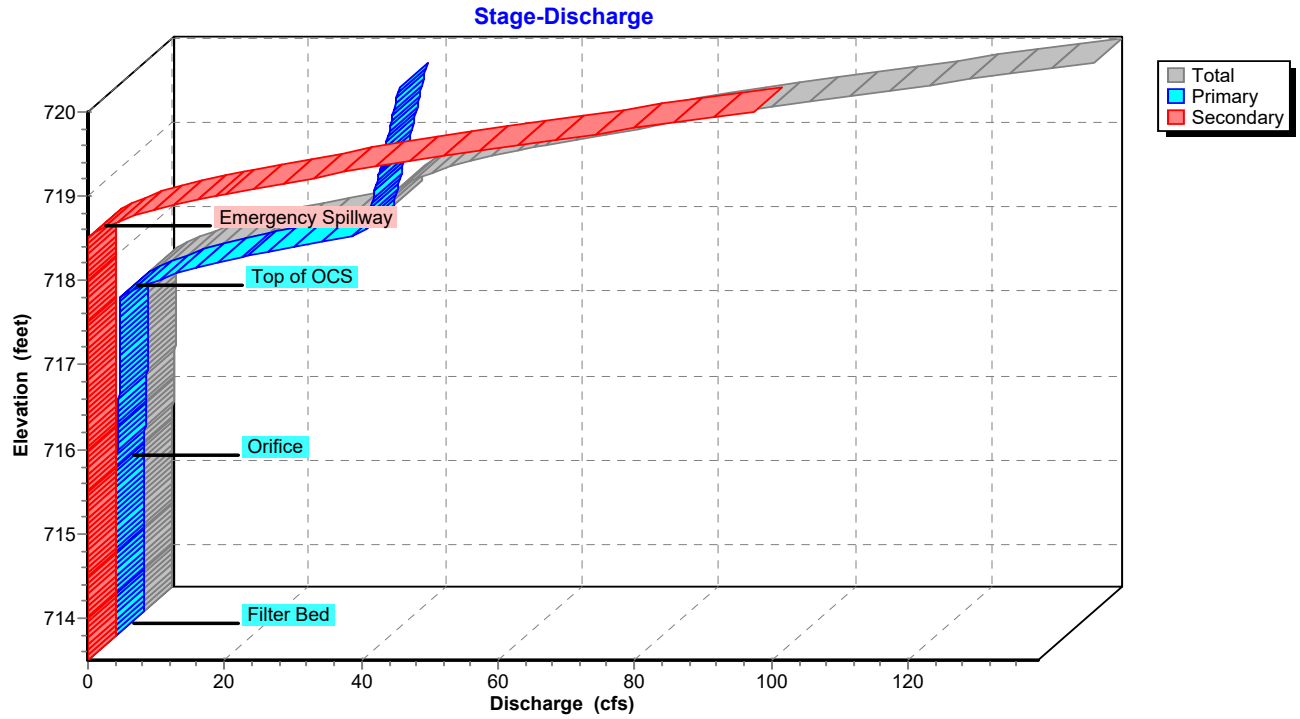
Primary OutFlow Max=1.30 cfs @ 13.35 hrs HW=717.55' (Free Discharge)
└**1=Outlet Pipe** (Passes 1.30 cfs of 34.00 cfs potential flow)
  ├**2=Filter Bed** (Custom Controls 0.12 cfs)
  ├**3=Orifice** (Orifice Controls 0.58 cfs @ 6.61 fps)
  └**4=Top of OCS** (Weir Controls 0.60 cfs @ 0.74 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=713.50' (Free Discharge)
└**5=Emergency Spillway** (Controls 0.00 cfs)

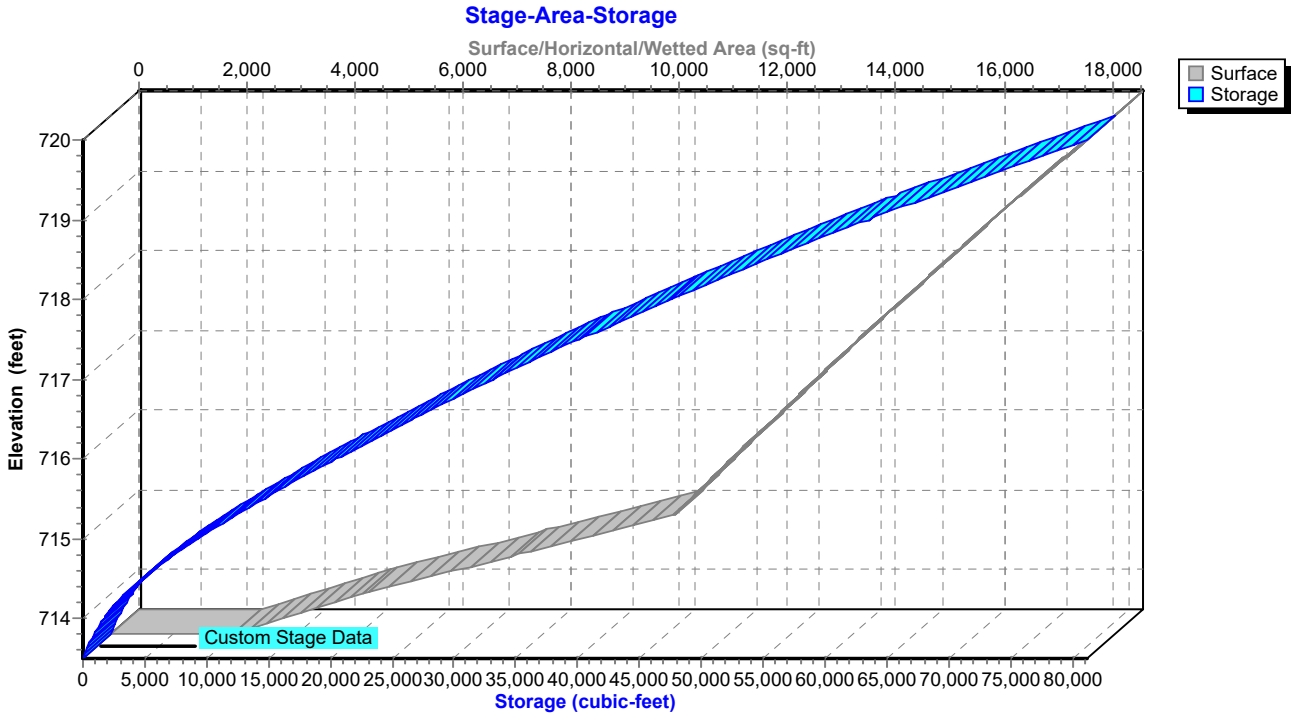
Pond 2P: SCM #2



Pond 2P: SCM #2



Pond 2P: SCM #2


Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
Surface
Storage
720
719
718
717
716
715
714
Elevation (feet)
Custom Stage Data
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
55,000
60,000
65,000
70,000
75,000
80,000
Storage (cubic-feet)

Hydrograph for Pond 2P: SCM #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	713.50	0.00	0.00	**0.00**
2.00	0.00	0	713.50	0.00	0.00	0.00
4.00	0.00	0	713.50	0.00	0.00	0.00
6.00	0.00	0	713.50	0.00	0.00	0.00
8.00	0.06	113	713.55	0.00	0.00	0.00
10.00	**0.33**	1,269	713.89	0.02	0.02	0.00
12.00	**28.13**	**28,055**	**716.61**	**0.51**	**0.51**	0.00
14.00	1.00	**40,686**	**717.54**	**1.10**	**1.10**	0.00
16.00	0.62	40,169	717.50	0.70	0.70	0.00
18.00	0.48	39,196	717.43	0.68	0.68	0.00
20.00	0.35	37,421	717.31	0.65	0.65	0.00
22.00	0.32	35,249	717.15	0.62	0.62	0.00
24.00	0.30	33,114	716.99	0.59	0.59	0.00
26.00	0.00	29,154	716.70	0.53	0.53	0.00
28.00	0.00	25,593	716.42	0.46	0.46	0.00
30.00	0.00	22,532	716.17	0.39	0.39	0.00
32.00	0.00	19,995	715.96	0.31	0.31	0.00
34.00	0.00	18,024	715.79	0.23	0.23	0.00
36.00	0.00	16,677	715.68	0.15	0.15	0.00
38.00	0.00	15,790	715.60	0.10	0.10	0.00
40.00	0.00	15,128	715.54	0.08	0.08	0.00
42.00	0.00	14,560	715.49	0.08	0.08	0.00
44.00	0.00	14,011	715.44	0.08	0.08	0.00
46.00	0.00	13,470	715.39	0.07	0.07	0.00
48.00	0.00	12,937	715.34	0.07	0.07	0.00
50.00	0.00	12,411	715.29	0.07	0.07	0.00
52.00	0.00	11,893	715.25	0.07	0.07	0.00
54.00	0.00	11,383	715.20	0.07	0.07	0.00
56.00	0.00	10,880	715.15	0.07	0.07	0.00
58.00	0.00	10,384	715.11	0.07	0.07	0.00
60.00	0.00	9,896	715.06	0.07	0.07	0.00
62.00	0.00	9,415	715.01	0.07	0.07	0.00
64.00	0.00	8,942	714.97	0.07	0.07	0.00
66.00	0.00	8,475	714.92	0.06	0.06	0.00
68.00	0.00	8,016	714.87	0.06	0.06	0.00
70.00	0.00	7,565	714.83	0.06	0.06	0.00
72.00	0.00	7,121	714.78	0.06	0.06	0.00

Stage-Discharge for Pond 2P: SCM #2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
713.50	0.00	0.00	0.00
713.60	0.01	0.01	0.00
713.70	0.01	0.01	0.00
713.80	0.02	0.02	0.00
713.90	0.02	0.02	0.00
714.00	0.03	0.03	0.00
714.10	0.03	0.03	0.00
714.20	0.04	0.04	0.00
714.30	0.04	0.04	0.00
714.40	0.05	0.05	0.00
714.50	0.06	0.06	0.00
714.60	0.06	0.06	0.00
714.70	0.06	0.06	0.00
714.80	0.06	0.06	0.00
714.90	0.06	0.06	0.00
715.00	0.07	0.07	0.00
715.10	0.07	0.07	0.00
715.20	0.07	0.07	0.00
715.30	0.07	0.07	0.00
715.40	0.07	0.07	0.00
715.50	0.08	0.08	0.00
715.60	0.10	0.10	0.00
715.70	0.16	0.16	0.00
715.80	0.24	0.24	0.00
715.90	0.29	0.29	0.00
716.00	0.33	0.33	0.00
716.10	0.37	0.37	0.00
716.20	0.40	0.40	0.00
716.30	0.43	0.43	0.00
716.40	0.46	0.46	0.00
716.50	0.48	0.48	0.00
716.60	0.51	0.51	0.00
716.70	0.53	0.53	0.00
716.80	0.55	0.55	0.00
716.90	0.57	0.57	0.00
717.00	0.59	0.59	0.00
717.10	0.61	0.61	0.00
717.20	0.63	0.63	0.00
717.30	0.65	0.65	0.00
717.40	0.67	0.67	0.00
717.50	0.69	0.69	0.00
717.60	2.36	2.36	0.00
717.70	5.40	5.40	0.00
717.80	9.34	9.34	0.00
717.90	13.99	13.99	0.00
718.00	19.27	19.27	0.00
718.10	25.10	25.10	0.00
718.20	31.45	31.45	0.00
718.30	36.43	36.43	0.00
718.40	36.74	36.74	0.00
718.50	37.05	37.05	0.00
718.60	38.93	37.36	1.57
718.70	42.12	37.67	4.45
718.80	46.27	37.97	8.30
718.90	51.22	38.27	12.95
719.00	57.16	38.57	18.60
719.10	63.96	38.86	25.10
719.20	70.72	39.15	31.57
719.30	77.94	39.45	38.50
719.40	85.58	39.73	45.85
719.50	93.62	40.02	53.60
719.60	102.26	40.31	61.95
719.70	111.31	40.59	70.72
719.80	120.32	40.87	79.45
719.90	129.61	41.15	88.46
720.00	**138.98**	**41.43**	**97.55**

Stage-Area-Storage for Pond 2P: SCM #2

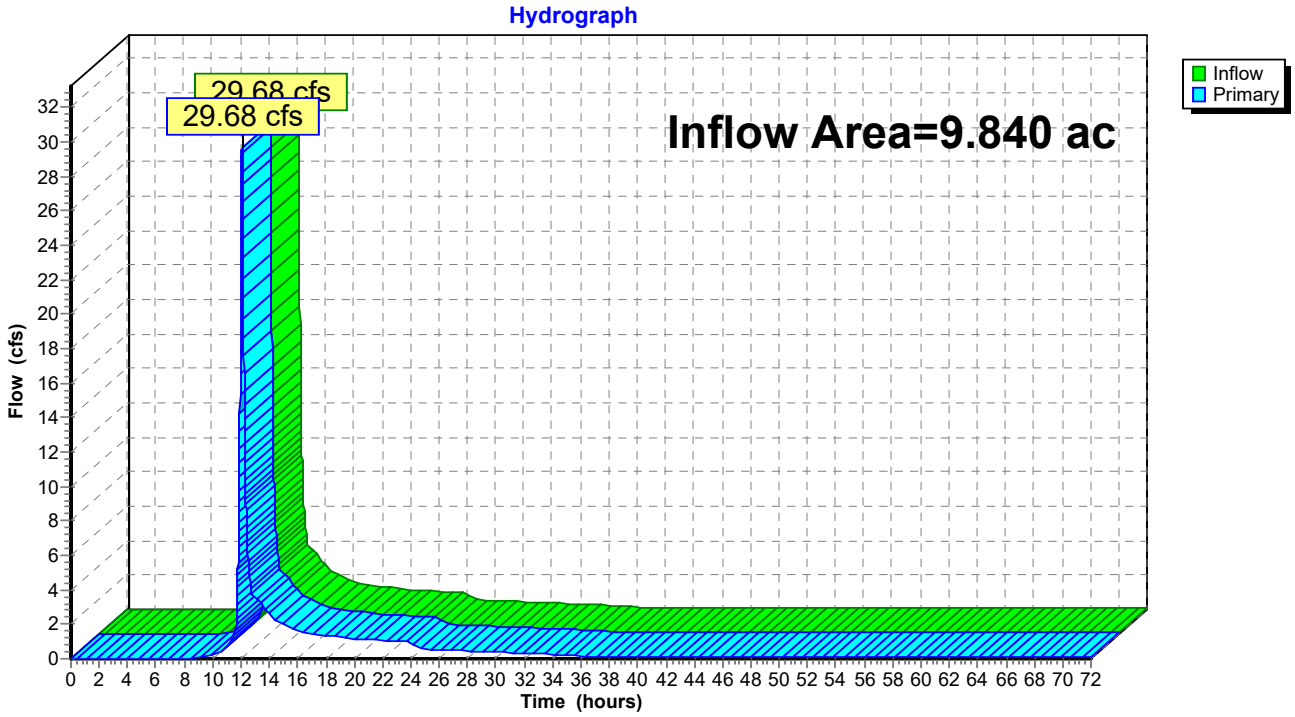
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
713.50	2,258	0
713.60	2,740	250
713.70	3,223	548
713.80	3,705	894
713.90	4,188	1,289
714.00	4,670	1,732
714.10	5,246	2,228
714.20	5,821	2,781
714.30	6,396	3,392
714.40	6,972	4,060
714.50	7,548	4,786
714.60	8,123	5,570
714.70	8,699	6,411
714.80	9,274	7,310
714.90	9,849	8,266
715.00	10,425	9,280
715.10	10,577	10,330
715.20	10,729	11,395
715.30	10,881	12,475
715.40	11,033	13,571
715.50	11,185	14,682
715.60	11,337	15,808
715.70	11,489	16,949
715.80	11,641	18,106
715.90	11,793	19,278
716.00	11,945	20,465
716.10	12,102	21,667
716.20	12,259	22,885
716.30	12,416	24,119
716.40	12,573	25,368
716.50	12,730	26,633
716.60	12,887	27,914
716.70	13,044	29,211
716.80	13,201	30,523
716.90	13,358	31,851
717.00	13,515	33,195
717.10	13,678	34,554
717.20	13,841	35,930
717.30	14,004	37,322
717.40	14,167	38,731
717.50	14,330	40,156
717.60	14,493	41,597
717.70	14,656	43,054
717.80	14,819	44,528
717.90	14,982	46,018
718.00	15,145	47,525
718.10	15,314	49,047
718.20	15,482	50,587
718.30	15,650	52,144
718.40	15,819	53,717
718.50	15,988	55,308
718.60	16,156	56,915
718.70	16,325	58,539
718.80	16,493	60,180
718.90	16,661	61,837
719.00	16,830	63,512
719.10	17,004	65,204
719.20	17,178	66,913
719.30	17,352	68,639
719.40	17,526	70,383
719.50	17,700	72,145
719.60	17,874	73,923
719.70	18,048	75,719
719.80	18,222	77,533
719.90	18,396	79,364
720.00	**18,570**	**81,212**

Summary for Link 2L: Total Post-Development to POI #2

Inflow Area = 9.840 ac, 15.75% Impervious, Inflow Depth > 3.92" for 100-yr event
Inflow = 29.68 cfs @ 12.08 hrs, Volume= 3.213 af
Primary = 29.68 cfs @ 12.08 hrs, Volume= 3.213 af, Atten= 0%, Lag= 0.0 min

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

Link 2L: Total Post-Development to POI #2



Hydrograph for Link 2L: Total Post-Development to POI #2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00
9.00	0.04	0.00	0.04
10.00	0.20	0.00	0.20
11.00	0.67	0.00	0.67
12.00	**24.31**	0.00	**24.31**
13.00	**3.46**	0.00	**3.46**
14.00	2.55	0.00	2.55
15.00	1.99	0.00	1.99
16.00	1.58	0.00	1.58
17.00	1.45	0.00	1.45
18.00	1.35	0.00	1.35
19.00	1.26	0.00	1.26
20.00	1.15	0.00	1.15
21.00	1.11	0.00	1.11
22.00	1.07	0.00	1.07
23.00	1.04	0.00	1.04
24.00	1.01	0.00	1.01
25.00	0.56	0.00	0.56
26.00	0.53	0.00	0.53
27.00	0.49	0.00	0.49
28.00	0.46	0.00	0.46
29.00	0.43	0.00	0.43
30.00	0.39	0.00	0.39
31.00	0.35	0.00	0.35
32.00	0.31	0.00	0.31
33.00	0.27	0.00	0.27
34.00	0.23	0.00	0.23
35.00	0.19	0.00	0.19
36.00	0.15	0.00	0.15
37.00	0.12	0.00	0.12
38.00	0.10	0.00	0.10
39.00	0.09	0.00	0.09
40.00	0.08	0.00	0.08
41.00	0.08	0.00	0.08
42.00	0.08	0.00	0.08
43.00	0.08	0.00	0.08
44.00	0.08	0.00	0.08
45.00	0.08	0.00	0.08
46.00	0.07	0.00	0.07
47.00	0.07	0.00	0.07
48.00	0.07	0.00	0.07
49.00	0.07	0.00	0.07
50.00	0.07	0.00	0.07
51.00	0.07	0.00	0.07
52.00	0.07	0.00	0.07
53.00	0.07	0.00	0.07
54.00	0.07	0.00	0.07
55.00	0.07	0.00	0.07
56.00	0.07	0.00	0.07
57.00	0.07	0.00	0.07
58.00	0.07	0.00	0.07
59.00	0.07	0.00	0.07
60.00	0.07	0.00	0.07
61.00	0.07	0.00	0.07
62.00	0.07	0.00	0.07
63.00	0.07	0.00	0.07
64.00	0.07	0.00	0.07
65.00	0.06	0.00	0.06
66.00	0.06	0.00	0.06
67.00	0.06	0.00	0.06
68.00	0.06	0.00	0.06
69.00	0.06	0.00	0.06
70.00	0.06	0.00	0.06
71.00	0.06	0.00	0.06
72.00	0.06	0.00	0.06

APPENDIX E

P:\PACE\COXROAD-DELANEY-BARD-062105\CONSTRUCTION\DRAINAGE.dwg, 6/21/2006 12:14:23 PM, DavidC

LEGEND

- CB - CATCH BASIN
- DCB - DOUBLE CATCH BASIN
- DI - DROP INLET
- DDI - DOUBLE DROP INLET
- MH - MANHOLE
- FES - FLARED END SECTION
- INV - INVERT
- TC- TOP OF CURB
- L-HW - L SHAPED HEADWALL
- SDE - STORM DRAINAGE EASEMENT
- (XXX.X AC.) DRAINAGE BASIN TO EACH STRUCTURE
- SPE - 100 YR. + 1 STORM WATER PROTECTION ELEVATION
- S.W.E.L. - 100 YR STORM WATER ELEVATION LINE

NOTE:

HEADWALLS 6 AND 7 ARE TO BE DESIGNED BY A PROFESSIONAL ENGINEER. DESIGN IS TO BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.

THIS PLAN IS A ***FINAL DESIGN-NOT RELEASED FOR CONSTRUCTION***
UNLESS INITIALLED/DATED AS APPROVED:
APPROVED: ________ / ________
INITIALS DATE

MARC ANTHONY HOULE
6/21/06

NO.	DATE	REVISION	BY
1	06/20/06	PER TOWN OF WEDDINGTON REDLINES	RAS

SHEET TITLE
DRAINAGE PLAN #1

PROJECT
BROMLEY
TOWN OF WEDDINGTON, UNION COUNTY, NC
FOR: PACE/DOWD PROPERTIES LTD.

PROJECT NO.
SCALE 1"=100'
DATE 05/26/06
DRAWN BY RAS
CHECKED BY MAH
DRAWING NO. 184-56
SHT 5 OF 33 SHTS

YARBROUGH-WILLIAMS & HOULE, INC.
Planning ∘ Surveying ∘ Engineering
730 Windsor Oak Court (28273) P.O. Box 7007 (28241)
Charlotte, North Carolina
704.556.1990 704.556.0505(fax)

NOW OR FORMERLY
JAMES SCOTT MUNDORF &
NANCY BUSH
TAX #06147015
DEED:375-766

NOW OR FORMERLY
RICKY LEE HELMS
TAX #06129038
DEED:1379-493

NOW OR FORMERLY
HERMAN LEO HEMBY HEIRS
% OLHE H. MANUS
TAX #06129003
DEED:186-562

NOW OR FORMERLY
LUDY PAYE H. HATFIELD
TAX #06123012
DEED:3631-529

NOW OR FORMERLY
FRANCES M. DOW
TAX #06142005
DEED:483-727

SEE DRAINAGE PLAN #1
SHEET 5 OF 33

SEE DRAINAGE PLAN #3
SHEET 7 OF 33

SEE DRAINAGE PLAN #3
SHEET 7 OF 33

APPROXIMATE LOCATION DUKE POWER CO R/W

FERNHURST TERRACE

BROMLEY DRIVE

PONDMEADE LANE

ROSCOMMON DRIVE

DELANEY DRIVE

REACH #1

POND

CB 34 2.38 AC.
TC. 668.10
INV IN 663.50
INV OUT 663.30

CB 33 1.80 AC.
TC. 672.99
INV IN 667.80
INV OUT 667.60

CB 32 0.99 AC.
TC. 679.10
INV 674.80

CB 27 0.82 AC.
TC. 678.30
INV 674.00

CB 35 2.93 AC.
TC. 665.4
INV IN 660.00
INV OUT 659.80

DCB 38 3.67 AC.
TC. 659.60
INV IN 653.79
INV OUT 653.59

HW 39
INV(78") 646.63
INV IN(15") 652.48
INV IN(18") 652.23
V=13.3
65'L=32.5'W APRON
23" DIA. RIP RAP
30" MIN. DEPTH
DISCHARGE
@ GRADE

CB 37 3.36 AC.
TC. 659.60
INV IN(15") 654.56
INV OUT(18") 654.31

L-HW 36 247.77 AC.
TOP OF HW = 659.00
INV 647.25
RIP RAP FOR
INLET PROTECTION

CB 43 2.61 AC.
TC. 663.60
INV IN 657.22
INV OUT 657.02

CB 42 2.29 AC.
TC. 662.50
INV IN 657.86
INV OUT 657.66

CB 41 1.44 AC.
TC. 663.20
INV IN 658.60
INV OUT 658.40

CB 40 0.86 AC.
TC. 672.70
INV 666.80

DCB 28 141.75 AC.
TC. 678.00
INV IN(15") 673.00
INV IN(78") 659.96
INV OUT 659.66

CB 29 142.08 AC.
TC. 678.00
INV IN 659.73
INV OUT 659.53

DI 30 143.47 AC.
UP 668.00
INV IN 658.82
INV OUT 658.72
GRATE TYPE
SEE SHEET 16 OF 33
FOR DETAIL

FES 31
INV 658.68
V= 13.3
65'L=32.5'W APRON
23" DIA. RIP RAP
30" MIN. DEPTH
DISCHARGE
@ GRADE

HW 17
INV 665.00
V= 12.6
65'L=28.5'W APRON
23" DIA. RIP RAP
30" MIN. DEPTH
DISCHARGE
@ GRADE

CB 15 49.58 AC.
TC. 678.00
INV IN 667.35
INV OUT 667.15

CB 16 49.87 AC.
TC. 681.00
INV IN 666.36
INV OUT 666.16

CB 25 139.95 AC.
TC. 676.90
INV IN 661.16
INV OUT 661.06

CB 26 139.31 AC.
TC. 675.60
INV IN(15") 667.16
INV IN(78") 661.91
INV OUT 661.81

CB 11 137.50 AC.
TC. 674.60
INV IN(24") 666.55
INV IN(78") 662.70
INV OUT(24") 662.50

HW 10 131.64 AC.
TOP OF HW = 672.6
INV(78") 663.60
RIP RAP FOR
INLET PROTECTION

ARMOR ROAD
FILL WITH
RIP RAP

CB 24 0.34 AC.
TC. 674.90
INV 670.60

CB 12 5.02 AC.
TC. 674.60
INV IN 666.81
INV OUT 666.61

CB 13A 1.22 AC.
TC. 673.30
INV IN 668.74
INV OUT 668.54

CB 13 0.50 AC.
TC. 673.30
INV 669.00

CB 14 49.40 AC.
TC. 678.00
INV IN 668.07
INV OUT 667.87

HW 18 48.65 AC.
TOP OF HW = 676.50
INV 668.00
RIP RAP FOR
INLET PROTECTION

DCB 21 4.48 AC.
TC. 674.60
INV IN(15") 669.88
INV IN(18") 669.63
INV OUT(24") 669.13

DI 19 1.55 AC.
UP 684.00
INV 680.00
GRATE TYPE
SEE SHEET
16 OF 33
FOR DETAIL

CB 20 2.94 AC.
TC. 681.40
INV IN(15") 675.40
INV OUT(18") 675.15

CB 22 0.65 AC.
TC. 691.50
INV 686.80

CB 23 1.05 AC.
TC. 691.50
INV IN 686.28
INV OUT 686.08

SPE 663.90
SPE 661.60
SPE 662.3
SPE 664.3
SPE 665.0
SPE 676.60
SPE 680.00
SPE 683.20

50' S.D.E.
30' S.D.E.
15' S.D.E.
C. DITCH

LEGEND

CB – CATCH BASIN
DCB – DOUBLE CATCH BASIN
DI – DROP INLET
DDI – DOUBLE DROP INLET
MH – MANHOLE
FES – FLARED END SECTION
INV – INVERT
TC– TOP OF CURB
L–HW – L SHAPED HEADWALL
SDE – STORM DRAINAGE EASEMENT
(XXX.X AC.) DRAINAGE BASIN TO EACH STRUCTURE
SPE – 100 YR. + 1 STORM WATER PROTECTION ELEVATION
S.W.E.L. – 100 YR STORM WATER ELEVATION LINE

NOTE:

HEADWALLS 36 AND 39 ARE TO BE DESIGNED BY A PROFESSIONAL ENGINEER. DESIGN IS TO BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.

THIS PLAN IS A FINAL DESIGN–NOT RELEASED FOR CONSTRUCTION
UNLESS INITIALLED/DATED AS APPROVED:
APPROVED: _____ / _____
INITIALS DATE

NO.	DATE	REVISION	BY
1	08/30/06	PER TOWN OF WEDDINGTON REDLINES	RAS

SHEET TITLE
DRAINAGE PLAN #2

PROJECT
BROMLEY
TOWN OF WEDDINGTON, UNION COUNTY, NC
FOR: PACE/DOWD PROPERTIES LTD.

PROJECT NO.
SCALE 1"=100'
DATE 05/26/06
DRAWN BY RAS
CHECKED BY MAH
DRAWING NO. 184–55
SHT 6 OF 33 SHTS

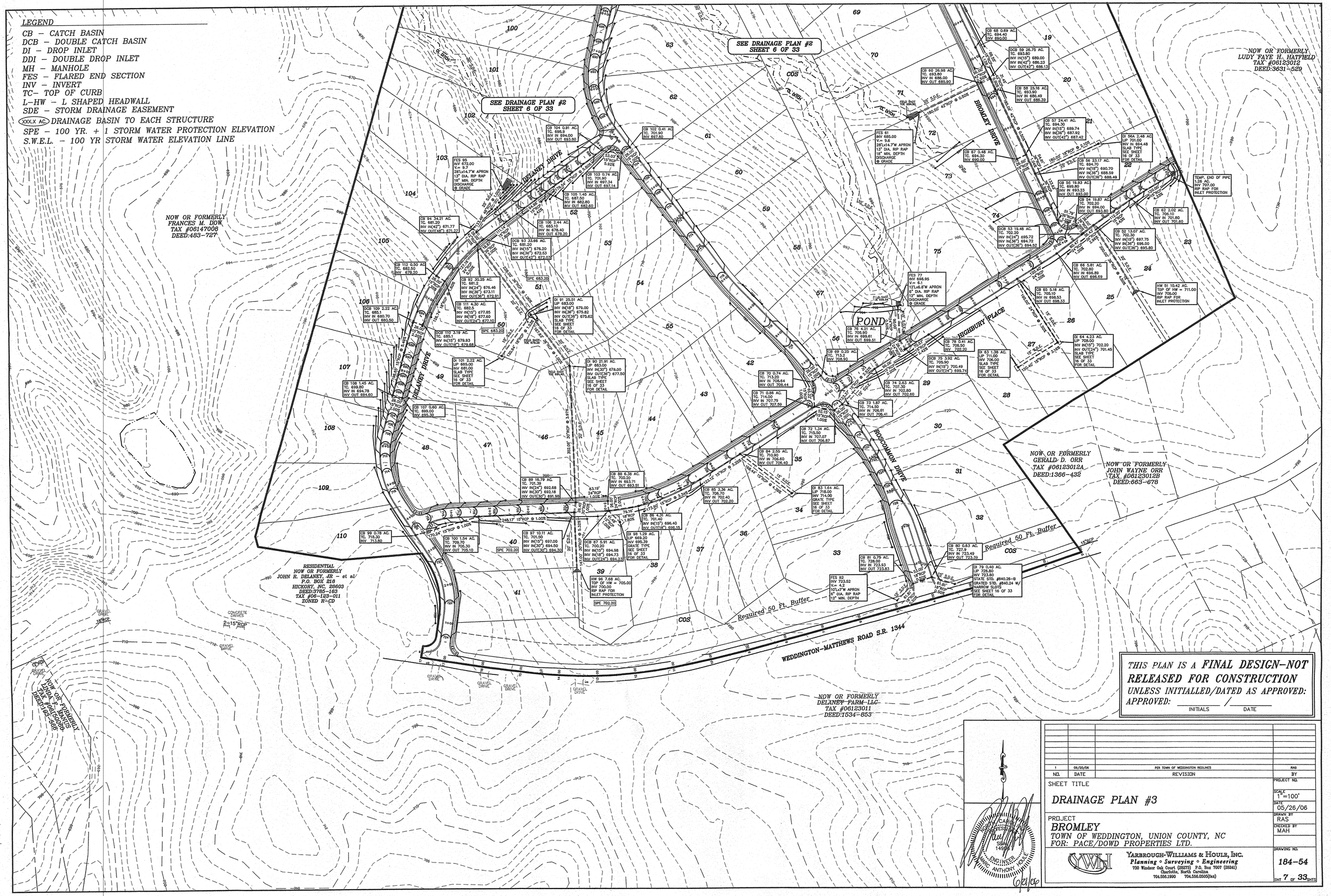
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17306 ANTHONY HALE
6/21/06

YARBROUGH-WILLIAMS & HOULE, INC.
Planning ○ Surveying ○ Engineering
730 Windsor Oak Court (28273) P.O. Box 7007 (28241)
Charlotte, North Carolina
704.556.1990 704.556.0505(fax)

P:\PACE\COXROAD-DELANEY-BARD-06210S\CONSTRUCTION\DRAINAGE.dwg, 6/21/2006 12:14:15 PM, DavidC

LEGEND

CB – CATCH BASIN
DCB – DOUBLE CATCH BASIN
DI – DROP INLET
DDI – DOUBLE DROP INLET
MH – MANHOLE
FES – FLARED END SECTION
INV – INVERT
TC– TOP OF CURB
L–HW – L SHAPED HEADWALL
SDE – STORM DRAINAGE EASEMENT
(XXX.X AC.) DRAINAGE BASIN TO EACH STRUCTURE
SPE – 100 YR. + 1 STORM WATER PROTECTION ELEVATION
S.W.E.L. – 100 YR STORM WATER ELEVATION LINE



*THIS PLAN IS A **FINAL DESIGN–NOT RELEASED FOR CONSTRUCTION** UNLESS INITIALLED/DATED AS APPROVED:*
APPROVED: _____ / _____
INITIALS DATE

NO.	DATE	REVISION	BY
1	06/20/06	PER TOWN OF WEDDINGTON REDLINES	RAS

SHEET TITLE
DRAINAGE PLAN #3

PROJECT
BROMLEY
TOWN OF WEDDINGTON, UNION COUNTY, NC
FOR: PACE/DOWD PROPERTIES LTD.

PROJECT NO.
SCALE 1"=100'
DATE 05/26/06
DRAWN BY RAS
CHECKED BY MAH
DRAWING NO. 184–54
SHT 7 OF 33 SHTS

YARBROUGH–WILLIAMS & HOULE, INC.
Planning ○ Surveying ○ Engineering
730 Windsor Oak Court (28270) P.O. Box 7007 (28241)
Charlotte, North Carolina
704.556.1990 704.556.0505(fax)

P:\PACE\COXROAD-DELANEY-BARD-062105\CONSTRUCTION\DRAINAGE.dwg, 6/21/2006 12:14:03 PM, DavidC

LEGEND

CB – CATCH BASIN
DCB – DOUBLE CATCH BASIN
DI – DROP INLET
DDI – DOUBLE DROP INLET
MH – MANHOLE
FES – FLARED END SECTION
INV – INVERT
TC– TOP OF CURB
L–HW – L SHAPED HEADWALL
SDE – STORM DRAINAGE EASEMENT
(XXX.X AC) DRAINAGE BASIN TO EACH STRUCTURE

NOW OR FORMERLY
MARY LEE BARD
FAMILY LIMITED PARTNERSHIP
TAX #06147004A
DEED:NONE SHOWN

NOW OR FORMERLY
MARY LEE BARD
FAMILY LIMITED PARTNERSHIP
TAX #06147004B
DEED:653–251
"CHURCH PROPERTY"

NOW OR FORMERLY
CHARLES ARCHIE WALTON &
LAURIE M. WALTON
TAX #06147014
DEED:381–606

NOW OR FORMERLY
JAMES SCOTT MUNDORF &
NANCY BUSH
TAX #06147015
DEED:375–766

NOW OR FORMERLY
WEDDINGTON ON
PROVIDENCE DEVELOPERS, LLC
TAX #06147001
DEED:1429–596

PROPOSED PROVIDENCE FOREST ESTATES
PARKER–ORLEANS HOMEBUILDERS

PINEWOOD COURT
WOODVILLE LANE
VEMBY ROAD S.R.#1346
BROMLEY DRIVE
PERIWINKLE TERRACE
15' PRIVATE COMMON DRIVE
PROPOSED NCDOT RIGHT–OF–WAY
APPROXIMATE LOCATION DUKE POWER CO. R/W
Required 50 ft. Buffer
EXISTING LAKE
COS
Common Open Space - 1.45 Ac.
SEE DRAINAGE AREA PLAN #2 SHEET 9 OF 33

NOW OR FORMERLY
DELANEY FARM LLC
TAX #06147010
DEED:1534–853

NOW OR FORMERLY
DONALD M. PATTERSON
TAX #06147009
DEED:665–660

NOW OR FORMERLY
FRANCES M. DOW
TAX #06147008
DEED:483–727

THIS PLAN IS A **FINAL DESIGN–NOT RELEASED FOR CONSTRUCTION**
UNLESS INITIALLED/DATED AS APPROVED:
APPROVED: _____ / _____
INITIALS DATE

NO.	DATE	REVISION	BY
1	06/20/06	PER TOWN OF WEDDINGTON REDLINES	RAS

SHEET TITLE
DRAINAGE AREA PLAN #1

PROJECT
BROMLEY
TOWN OF WEDDINGTON, UNION COUNTY, NC
FOR: PACE/DOWD PROPERTIES LTD.

PROJECT NO.
SCALE 1"=100'
DATE 05/26/06
DRAWN BY RAS
CHECKED BY MAH
DRAWING NO. 184–53
SHT 8 OF 33 SHTS

YARBROUGH-WILLIAMS & HOULE, INC.
Planning ○ Surveying ○ Engineering
700 Windsor Oak Court Charlotte NC 28270
704.556.1990 704.556.0505(fax)

SEAL 019706 ENGINEER MARC ANTHONY DOYLE NORTH CAROLINA
6/21/06

P:\PACE\COXROAD-DELANEY-BARD-062105\CONSTRUCTION\DRAINAGEAREA.dwg, 6/20/2006 16:17:46, TonyS


LEGEND
CB – CATCH BASIN
DCB – DOUBLE CATCH BASIN
DI – DROP INLET
DDI – DOUBLE DROP INLET
MH – MANHOLE
FES – FLARED END SECTION
INV – INVERT
TC– TOP OF CURB
L-HW – L SHAPED HEADWALL
SDE – STORM DRAINAGE EASEMENT
XXX.X AC. DRAINAGE BASIN TO EACH STRUCTURE
FPE – FLOOD PROTECTION ELEVATION
NOW OR FORMERLY JAMES SCOTT MUNDORF & NANCY BUSH TAX #06147015 DEED:375-766
NOW OR FORMERLY RICKY LEE HELMS TAX #06120038 DEED:1379-493
NOW OR FORMERLY HERMAN LEO HEMBY HEIRS % OLLIE H. MANUS TAX #06120003 DEED:186-562
NOW OR FORMERLY FRANCES M. DOW TAX #06147008 DEED:483-727
NOW OR FORMERLY LUDY FAYE H. HATFIELD TAX #06123012 DEED:3631-529
APPROXIMATE LOCATION DUKE POWER CO R/W
SEE DRAINAGE AREA PLAN #1 SHEET 8 OF 33
SEE DRAINAGE AREA PLAN #3 SHEET 10 OF 33
SEE DRAINAGE AREA PLAN #3 SHEET 10 OF 33
BROMLEY DRIVE
ROSCOMMON DRIVE
DELANEY DRIVE
POND
THIS PLAN IS A FINAL DESIGN–NOT RELEASED FOR CONSTRUCTION UNLESS INITIALED/DATED AS APPROVED:
APPROVED: INITIALS / DATE
1 06/20/06 PER TOWN OF WEDDINGTON REDLINES RAS
NO. DATE REVISION BY
SHEET TITLE
DRAINAGE AREA PLAN #2
PROJECT
BROMLEY
TOWN OF WEDDINGTON, UNION COUNTY, NC
FOR: PACE/DOWD PROPERTIES LTD.
YARBROUGH-WILLIAMS & HOULE, INC.
Planning ◦ Surveying ◦ Engineering
SCALE 1"=100'
DATE 05/26/06
DRAWN BY RAS
CHECKED BY MAH
DRAWING NO. 184-52
SHT 9 OF 33 SHTS


NOW OR FORMERLY FRANCES M. DOW TAX #06147006 DEED:483-727
SEE DRAINAGE AREA PLAN #2 SHEET 9 OF 33
SEE DRAINAGE AREA PLAN #2 SHEET 9 OF 33
NOW OR FORMERLY LUDY FAYE H. HATFIELD TAX #06123012 DEED:3631-529
BROMLEY DRIVE
HIGHBURY PLACE
DELANEY DRIVE
ROSCOMMON DRIVE
POND
NOW OR FORMERLY GERALD D. ORR TAX #06123012A DEED:1366-432
NOW OR FORMERLY JOHN WAYNE ORR TAX #06123012B DEED:663-678
RESIDENTIAL NOW OR FORMERLY JOHN R. DELANEY, JR - et al P.O. BOX 216 HICKORY, NC, 28603 DEED:3785-163 TAX #06-123-011 ZONED R-CD
Required 50 Ft. Buffer
Required 50 Ft. Buffer
MATTHEWS-WEDDINGTON ROAD S.R. 1344
NOW OR FORMERLY DELANEY FARM LLC TAX #06123011 DEED:1534-853
THIS PLAN IS A FINAL DESIGN-NOT RELEASED FOR CONSTRUCTION UNLESS INITIALLED/DATED AS APPROVED:
APPROVED: ______ / ______
INITIALS DATE
LEGEND
CB - CATCH BASIN
DCB - DOUBLE CATCH BASIN
DI - DROP INLET
DDI - DOUBLE DROP INLET
MH - MANHOLE
FES - FLARED END SECTION
INV - INVERT
TC- TOP OF CURB
L-HW - L SHAPED HEADWALL
SDE - STORM DRAINAGE EASEMENT
XXX.X AC. DRAINAGE BASIN TO EACH STRUCTURE
FPE - FLOOD PROTECTION ELEVATION
1 06/20/06 PER TOWN OF WEDDINGTON REDLINES RAS
NO. DATE REVISION BY
SHEET TITLE
DRAINAGE AREA PLAN #3
PROJECT NO.
SCALE 1"=100'
DATE 05/26/06
DRAWN BY RAS
CHECKED BY MAH
PROJECT
BROMLEY
TOWN OF WEDDINGTON, UNION COUNTY, NC
FOR: PACE/DOWD PROPERTIES LTD.
YARBROUGH-WILLIAMS & HOULE, INC.
Planning ◦ Surveying ◦ Engineering
730 Windsor Oak Court Charlotte NC 28273
704.556.1990 704.556.0505(fax)
DRAWING NO. 184-51
SHT 10 OF 33 SHTS
MARC ANTHONY HOULE ENGINEER SEAL 14996
6/21/06

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THIS PLAN IS A **FINAL DESIGN-NOT RELEASED FOR CONSTRUCTION**
UNLESS INITIALLED/DATED AS APPROVED:
APPROVED: ______ / ______
INITIALS DATE

NO.	DATE	REVISION	BY

SHEET TITLE

OFF-SITE DRAINAGE PLAN

PROJECT
BROMLEY
TOWN OF WEDDINGTON, UNION COUNTY, NC
FOR: PACE/DOWD PROPERTIES LTD.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14906 MARC ANTHONY HOULE
5/26/06

YWH
YARBROUGH-WILLIAMS & HOULE, INC.
Planning ◦ Surveying ◦ Engineering
730 Windsor Oak Court Charlotte NC 28273
704.556.1990 704.556.0505(fax)

PROJECT NO.
SCALE 1"=300'
DATE 05/26/06
DRAWN BY RAS
CHECKED BY MAH
DRAWING NO. 184-50
SHT 11 OF 33 SHTS