Section 12

Stormwater Management Report

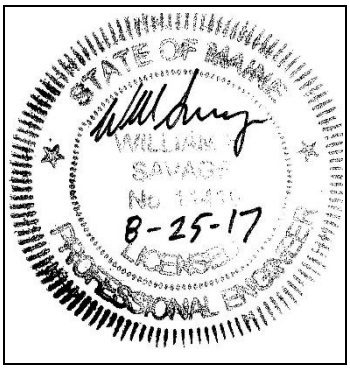
12. STORMWATER MANAGEMENT REPORT

Prepared For:

Stroudwater Development Partners, LLC
Kennebunk, Maine 04043

Prepared By:

Acorn Engineering, Inc.
PO Box 3372
Portland, Maine 04104



August 2017

INTRODUCTION

Acorn Engineering, Inc. has been retained by Stroudwater Development Partners, LLC to provide civil engineering services for the proposed single-family and townhouse development. The project is at 1700 Westbrook Street.

A stormwater analysis will be prepared to demonstrate that the project will meet the following requirements of the City of Portland (the City):

- City of Portland Land Use Ordinance Chapter 14, Article V. Site Plan Section 14-523. Required Approvals and Applicability (E) Level III Site Plan Review.
- City of Portland City Code Chapter 32 Stormwater
- City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards, Section 12 – Site Location of Development Review, and Maine DEP Chapter 500 Stormwater Management Amended January 11, 2015.

The property consists of approximately 55.3 acres of land in Portland, Maine. A new roadway and sidewalk meeting the City of Portland Technical requirements will be developed to provide frontage for all new lots. Stroudwater Development Partners, LLC will construct the roadway, stormwater best management practices (BMPs) and associated utility infrastructure. Development of the roadway will result in approximately 33.1 acres of developed land, including 4.2 acres of impervious surfaces. Stroudwater Development Partners, LLC will sell lots upon completion of the roadway.

A Maine DEP Site Location of Development (Site Law) permit application is being submitted because the project will involve the creation of 15 or more lots on a parcel of land greater than 30 acres. The proposed development anticipates altering between 15,000 to 20,000 SF of freshwater wetland and therefore qualifies for a Tier 2 Natural Resources Protection Act Permit (NRPA). Additionally, the project qualifies for a Chapter 305 - Permit by Rule application (PBR) for Section 2 - Activities adjacent to protected natural resources and Section 7 - Outfall pipes.

The City of Portland Technical Standards Section 5 Stormwater Standards for new development requires complains with the MaineDEP Chapter 500 Rules. According to the Maine DEP ground cover changes associated with the development of single family driveways, buildings, and lawns within the proposed lots are considered exempt from water quality treatment according to Title 38, Chapter 3, Section 420-D (Storm water management), Subsection 7E of the Maine Revised Statutes, which reads, ”Impervious and disturbed areas associated with construction or expansion of a single-family, detached residence on a parcel do not require review pursuant to this section.”

“Parcel” is defined in Chapter 500, Section 3(W) to be the same as “parcel of land” under Site Location of Development rules, which is Chapter 371(1)(L). The stormwater management standard under the Site Law is found at 38 M.R.S. § 484-D(4-A). Lots reviewed under a Site Law permit and in a lake watershed included in the list adopted pursuant to section 420-D would need to meet the quality standards, however the Subdivision is in stream watershed so quality standards do not apply. Lots will be offered for sale to general public. Upon sale of the lots, owners will have their choice of builder. Stroudwater Development Partners, LLC may be the designated as the preferred builder.

The current course of action is to provide primary water quality and quantity control through a Best Management Practice (BMP) approved by the Maine Department of Environmental Protection (MDEP). The majority of the roadway will be directed towards proprietary high-performance filter BMPs before being redirected towards detention basins to provide channel protection and quantity control. The development will provide water quality treatment for no less than 75% of the new roadway impervious area and no less than 50% of the roadway developed area. Although not required the stormwater BMPs within the roadway will be oversized to provide water quality treatment for the upgradient house lots. Channel protection volume is not required or nor will it be provided for the house lots tributary to the detention basin. Water quantity will be provided for the roadways and although not specifically required provided for the single-family house lots.

The planned unit residential (PRUD) development (excluding the access road) will provide water quality treatment for no less than 95% of the new impervious area (parking lot and buildings) and no less than 80% of the developed area. The PRUD will be directed towards a vegetated underdrain soil filter (VUSF) BMP. Channel Protection Volume and water quantity will be provided by the VUSF.

EXISTING CONDITIONS

The proposed redevelopment project is located in between the Maine Turnpike to the West, the Stroudwater River and Unum to the South, a Subdivision and Stroudwater Christian Church to the East, and a Subdivision and Portland Technology Park to the North. A boundary plan has been prepared by Titcomb Associates of Falmouth, Maine dated December 16, 2016.

The property is in the R-3 Residential Zone. Abutting Uses include:

- North R1, OP & ROS Zone – Residential & Office Park
- West R1 & R2 Zone – Single Family Residential & Religious Institution
- South OP Zone – Office Park
- East I-L Zone – Industrial Land & Maine Turnpike

The exiting property is generally flat in areas closer to Westbrook Street. In the north direction, the property gradually transitions into hills. The terrain becomes steeper, closer to the river. A topographic map of the proposed project location can be found in Section 1. The majority of stormwater runoff from the subject site drains to Stroudwater River. The runoff flows south-east down multiple hills towards Stroudwater River. The river continues to flow approximately 1 mile east before it reaches Fore River. The water is later discharged into Casco Bay. The site is not within a watershed classified as an Urban Impaired Stream as defined by the Maine DEP Chapter 502.

PROPOSED DEVELOPMENT

The proposed development includes 100 lots of which 98 are single family house lots, one planned unit residential lot (PRUD) and one open space lot. The PRUD will include 25 units within 5 multi-family buildings. The includes roadways, sidewalks and infrastructure to serve the proposed residential development.

New impervious surfaces comprise of pavement and gravel associated with the proposed roadway, as well as single family homes, multi-families and associated driveways and parking for lot

development. The roadway will be built in accordance with the City of Portland Local Street Standards and will be twenty-eight feet wide to accommodate two-way traffic and parallel parking on wide side of the street. The roadway will be curbed on both sides of the street with a six-foot esplanade and one five foot sidewalk. The project is requesting a waiver to reduce the requirement for two sidewalks on either side of the street to reduce the overall impervious area. The private driveway associated with the Planned Unit Residential Development (PRUD) will be twenty-feet wide with an esplanade at non-wetland crossing areas and a five foot wide sidewalk. The PRUD driveway wetland crossing culvert will be embedded a minimum six inches to support connectivity and minimize impact.

The development will be served by the Portland Water District, Central Maine Power, Communications, Unitil and the municipal sewer and storm systems. Solid waste and recycling will be through the municipal curb pick-up.

The majority of the roadway will be directed towards proprietary high-performance filter BMPs before being redirected towards detention basins to meet the General and Flooding Standards. The stormwater management plan was designed so that existing drainage patterns are not significantly altered.

GENERAL STANDARDS - WATER QUALITY

According to Section 3 (c) of the Chapter 500, General Standard rules, "For a linear portion of a project, runoff volume control may be reduced to no less than 75% of the volume from the impervious area and no less than 50% of the developed area that is impervious or landscaped." The development will exceed the minimum water quality treatment for no less than 75% of the new roadway impervious area and no less than 50% of the roadway developed area. Although not required, the stormwater BMPs within the roadway will be oversized to provide water quality treatment for the upgradient house lots. Channel protection volume is not required or nor will it be provided for the single-family house lots tributary to the detention basin. Chanel protection volume has been provided for the roadway impervious and developed area. The project includes the redevelopment of existing impervious area including rooftops, asphalt and gravel driveways and parking.

The planned unit residential (PRUD) development (excluding the access road) will provide water quality treatment for no less than 95% of the new impervious area (parking lot and buildings) and no less than 80% of the developed area.

Treatment Area

At this time, the roadway associated with the single-family house lots, anticipates treatment through the use of the Filterra, a proprietary high-performance filtration BMP. The Filterra will designed to be in accordance with the Maine Stormwater Best Management Practice Manual, Appendix B Proprietary System requirements specified within the MaineDEP February 2, 2017 approval letter. Channel Protection Volume will be provided by the down gradient detention basin.

Treatment for the PRUD buildings is anticipated through the use of Vegetated Underdrained Soil Filter BMP (VUSF) sized to meet or exceed the requirements set forth within the MDEP Volume III: BMPs Technical Design Manual Section 7.1. Filtration BMPs have been shown to be very effective at removing a wide range of pollutants from stormwater runoff.

The treatment of the impervious and developed surfaces by the Stormwater BMPs is summarized in Table 1.

	Table 1: New Impervious Area Treatment					
	Existing Impervious Area (SF)	Proposed Total Impervious Area (SF)	Net change in Impervious Area (SF)	Proposed Impervious Area with Treatment (SF)	% Overall New Imp. Area Treated	MDEP Req.
Linear	25,787	184,168	144,646	145,988	101%	75%
PRUD*	0	35,921	35,921	34,239	95%	95%
House Lots	8,928	147,000	138,072	105,750	77%	0%

*Area excludes linear driveway to the PRUD.

As shown in Table 1, the project significantly exceeds the required treatment for new impervious surfaces.

Furthermore, the MDEP defines developed area as "Disturbed area" excluding area that within one calendar year of being disturbed is returned to a condition with the same drainage pattern that existed prior to the disturbance and is revegetated, provided the area is not mowed more than once per year.

Based upon this definition, Table 2 summarizes the proposed disturbance and treatment areas.

Table 2: Developed Area Treatment				
	Proposed Total Developed Area (SF)	Proposed Developed Area with Treatment (SF)	% Overall Developed Area Treated	MDEP Requirement
Linear	207,483	190,455	92%	50%
PRUD	139,036	110,572	80%	80%
House Lots	826,346	665,109	80%	0%

As shown in Table 2, the project anticipates exceeding the required treatment for the total developed area.

Filter Area Size

Per the requirements for an vegetated underdrain sand filter (VUSF) as defined in Volume III BMPs Technical Design Manual, Chapter 7.1, the surface area of the filter shall be no less than the sum of 5% of the tributary impervious area and 2% of the tributary landscaped area.

The filter area is calculated by the following formula:

$$Filter\ Area\ (sf) = (Imperivous\ Area \times 0.05) + (Landscaped\ Area \times 0.02)$$

Table 3 – Total Filter Surface Area, displays the proposed sand filter sizing requirements and the actual size. Tributary impervious areas include linear (roadway) and non-linear (parking and buildings) to the VUSF.

Table 3 –Total Filter Surface Area				
	Tributary Landscaped Area (SF)	Tributary Impervious Area (SF)	Filter Area Required (SF)	Filter Area Provided (SF)
VUSF (Pond 3)	72,000	43,080	3,594	3,610

The outflow from the sand filter structure is then tributary to the outlet control structure before outletting to the level lip spreader. As shown, the size of the soil filter area will meet and exceed the surface area requirements. Please note the design for the PRUD and associated grading and drainage area is still being developed. It is anticipated that tributary and landscape area will change as the plans evolve, however the minimum requirements will be met.

Buffers

Stormwater quality and quantity will be provided by the open space meadow buffers. Stormwater detention is provided within the micro-topography of the existing buffers and wetlands. The water quality and quantity benefits of the open space meadow buffers have not been quantified at this time.

Water Quality Volume (Channel Protection Volume)

In accordance with the Volume III: BMPs Technical Design Manual, a water quality volume of 1.0-inch times the tributary roadway and PRUD impervious area plus 0.4-inch times the roadway and PRUD tributary landscaped developed area is required to be treated by the Underdrained Subsurface Sand Filter. The water quality volume is calculated by the following formula:

$$Treatment\ Volume\ (cf) = \frac{\left((Impervious\ Area \times 1.0") + (\text{Disturbed Area} \times 0.4")\right)}{(12"/1')}$$

A summary of the proposed water quality volume is as follows:

Table 4 – Water Quality Volume Table, displays the tributary landscaped area, tributary impervious area, treatment volume required, and treatment volume provided.

Table 4 - Water Quality Volume Table (CPV)				
	Tributary Landscaped Area (SF)	Tributary Impervious Area (SF)	Treatment Volume Required (CF)	Treatment Volume Provided
Pond 1*	27,417	55,881	**5,570**	**5,690**
Pond 2*	38,659	83,387	**8,237**	**8,237**
Pond 3	72,000	43,080	**5,990**	**8,457**

*Excludes single family house lots

As shown, the size of the combined water quality volume will meet and exceed the treatment volume requirements. The treatment volumes provided are based upon the artificial rainfall and associated storage provided within the Pond, further discussed below. The HydroCAD reports may be provided

for each individual pond water quality volume, if requested.

HydroCAD Adjustments

Given that the water quality volumetric infiltration rates through the soil filter vary, a water quality outlet is modeled to provide the required minimum 24-hour release time. This is completed by adjusting the artificial rainfall amount in HydroCAD until the inflow volume is equal to or greater than the water quality volume (CPV). The storm events are modeled as type III, 24-hour storm events in HydroCAD.

A vertical orifice is modeled in HydroCAD at the outlet structures of the Pond 1 and 2 and VUSF 1 (Pond 3). The orifice diameter is sized to detain the stormwater for an approximate period of 24 hours. The orifice for the water quantity volume is then set above the peak elevation determined for the water quality volume.

FLOODING STANDARD – WATER QUANTITY

To evaluate the project with respect to the Flooding Standard, the proposed development was modeled using HydroCAD to verify that the post-development conditions do not exceed the pre-development conditions. A 24-hour SCS Type III storm distribution for the 2, 10, and 25-year storm events were used. The corresponding rainfall amounts for these storms are 3.1", 4.6", 5.8", respectively. Rainfall amounts are sourced from the Northeast Regional Climate Center website (http://precip.eas.cornell.edu), Extreme Precipitation Tables.

Due to the numerous variables, and inherent inaccuracies with the modeling program used to calculate stormwater runoff it is custom at Acorn Engineering, Inc. for a project of this land area to round to the nearest whole number, of a cubic foot per second (cfs).

Modeling Assumptions

Time of Concentration (Tc)

The times of concentration for subcatchments in both the pre and post conditions were calculated by entering the flow path with the associated ground cover and slopes. HydroCAD then calculated the Tc's and incorporated the total Tc for each subcatchment into the model. The Tc's were derived as outlined in Post-development Calculations section. HydroCAD recommends a sheet flow length not to exceed 100 feet.

Curve Number (CN)

In both the pre and post conditions, curve numbers were chosen conservatively. The following curve numbers were used in both conditions:

- Paved parking: 98
- Roofs: 98
- Gravel Surface: 96
- <50% Grass cover, Poor, HSG D: 89
- <50% Grass cover, Poor, HSG C: 86
- 50-75% Grass cover, Fair, HSG D: 84

- 50-75% Grass cover, Fair, HSG C: 79
- >75% Grass cover, Good, HSG D: 80
- >75% Grass cover, Good, HSG C: 74
- Woods/grass comb., Poor, HSG D: 86
- Woods/grass comb., Poor, HSG C: 82
- Woods/grass comb., Fair, HSG D: 82
- Woods/grass comb., Fair, HSG C: 76
- Woods/grass comb., Good, HSG D: 79
- Woods/grass comb., Good, HSG C: 72

The areas assumed to be "<50% Grass cover, Poor" were areas that contained a large amount of gravel, however there was some grass present. Alternatively, these areas could have been labeled "Pasture, grassland or range, Poor", however the CN values for both conditions are identical.

The areas assumed to be "50-75% Grass cover, Fair", were located in one of the following locations:

- Within the pasture, where cow paths were evident.
- On residential lawns, where approximately half of the grass was dead.

Alternatively, these areas could have been labeled "Pasture, grassland or range, Fair", however the CN values for both conditions are identical.

The majority of the areas assumed to be "Woods/grass comb., Poor" were found on existing residential properties. These areas were most likely man made, either by planting minimal trees or by cutting down a large majority of trees in a specific area.

The areas assumed to be "Woods/grass comb., Fair" were areas that contained approximately 50-75% trees and the remaining area was grass.

Additionally, conservative wetland curve number runoff was used within the subcatchments, as follows:

- Wetlands: 90

A curve number of 90 was used for all wetlands. This was based upon recommendations provided on the online hydroCAD index, in the swamp modeling section.

Wetlands

Flow traveling through a wetland was modeled using assumptions based off information found in the Swamp Modeling Section of the HydroCAD Manual. The manual states that flow through a swamp or wetland, without a specific outlet control, should be modeled as a standard reach routing. The reach might be a vee or trapezoidal shape, typically with low side-slopes (high Z-value). Additionally, the wetlands should be modeled using a high Manning's value (up to 0.15) to represent the extreme "roughness" of flow through weeds, brush, or woods. The flow depth was assumed to be 2 feet. The bottom width of the channel was estimated by measuring the width of the wetland on the survey drawing.

Pre-development Calculations

The pre-development condition was modeled as six subcatchments including:

- Subcatchment 1: Tributary to Partridge Circle
- Subcatchment 2A: Tributary to Westbrook Street
- Subcatchment 2B: Tributary to Westbrook Street
- Subcatchment 3: Tributary to the Stroudwater River
- Subcatchment 4: Tributary to the Stroudwater River
- Subcatchment 5: Tributary to the Stroudwater River

A full copy of the HydroCAD calculations is included within Attachment C of this report.

A Pre-development Watershed Map developed for this project showing the subcatchments is included as Attachment A.

The peak flow rates for the 2, 10, and 25-year storm events at POI #1 Partridge Subdivision, POI#2 Westbrook St and POI#99 Stroudwater River. are presented in Table 3 below, and a full copy of the HydroCAD calculations is included within Attachment C of this report.

Table 3: Pre - Development Peak Stormwater Flows

Drainage Area	2-yr Storm (CFS)	10-yr Storm (CFS)	25-yr Storm (CFS)
POI #1 (Partridge)	2	4	5
POI #2 (Westbrook St)	11	17	20
POI #99 (Stroudwater)	36	70	98

Post-development Calculations

Nomenclature for subcatchment labeling is consistent with the pre-development drainage model, however, the names of subcatchments that have been further divided continue with a decimal followed by a new numeric identification, starting with "1". For example, what was subcatchment 3 in the pre-development model has been divided into subcatchment 3.1 and subcatchment 3.2 in the post-development model. The sum of the area of subcatchments in the post-development model is equal to the area of subcatchments in the pre-development model.

Ground cover changes associated with the development of driveways, buildings, and lawns within the proposed single-family lots were included in the stormwater model for analysis of the MaineDEP and City flooding standards. These ground cover changes were based upon the assumption that each of the ninety-eight (98) lots would be developed to include a total developed area that is the size of the lot, 600 (50'X12') square feet being driveway, 900 (25'X36') square feet being rooftop, and the remainder being lawn or landscaped area. Existing drainage patterns will be generally maintained with the proposed stormwater management design.

The post-development condition was modeled as thirty-seven subcatchments including:

- Subcatchment 1: Tributary to Partridge Circle

- Subcatchment 2A: Tributary to Westbrook Street
- Subcatchment 2B: Tributary to Westbrook Street
- Subcatchment 3: Tributary to the Stroudwater River
    - 3.2-11: Tributary to Filterra Water Quality Units then to Pond 1 before outletting to the Stroudwater River. Excluding subcat, 3.1, 3.12, 3.13, 3.14 tributary to Pond 1 only.
    - 3.20: Tributary to Pond 1 before outletting to the Stroudwater River
        - The Filterra Water Quality Units utilize a relative elevation of 100.
- Subcatchment 4: Tributary to the Stroudwater River
- Subcatchment 5: Tributary to the PRUD culvert before outletting in the Stroudwater River
    - 5.1-5.15 Tributary to Filterra Water Quality Units then to Pond 2 before outletting to the Stroudwater River. Excluding subcat, 5.2,5.3,5.6,5.7 tributary to Pond 2 Only.
        - The Filterra Water Quality Units utilize a relative elevation of 100.
    - 5.20: Tributary to Pond 2 before outletting to the Stroudwater River.
    - 5.22, 5.30: Tributary to the VUSF 1 (Pond 3) before outletting to the Stroudwater River.
    - 5.20: Tributary to the Stroudwater River

A post-development Watershed Map for this project showing the subcatchments is included as Attachment B.

Post-development peak flow rates for the 2, 10, and 25 storm events are summarized below for each of the subcatchments. The HydroCAD calculations are included within Attachment C.

Table 4: Post - Development Peak Stormwater Flows			
Drainage Area	**2-yr Storm (CFS)**	**10-yr Storm (CFS)**	**25-yr Storm (CFS)**
POI #1 (Partridge)	1	3	4
POI #2 (Westbrook St)	6	13	17
POI #99 (Stroudwater)	36	69	96

The post-development flowrates are then compared to the pre-development flowrates in the table below.

Table 5: Pre & Post - Development Comparison						
Drainage Area	**2–yr Storm Event (CFS)**		**10–yr Storm Event (CFS)**		**25–yr Storm Event (CFS)**	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**
POI #1	2	1	4	3	5	4
POI #2	11	6	17	13	20	17
POI #99	36	36	70	69	98	96

As shown in Table 5, the post-development peak flows from the property are well below the pre-development levels. A Post-Development Watershed Map developed for this project is included as Attachment B.

INSPECTIONS & MAINTENANCE

Provisions for periodic inspection and maintenance of the stormwater BMPs are included in the Post Construction – Stormwater Inspection & Maintenance Plan to be developed under separate cover. The agreement outlines the maintenance and inspection requirements for the site BMPs including providing inspection logs and information on qualified inspectors as well as required maintenance activities and related inspection and maintenance frequencies. The Plan will outline the various responsible parties and be recorded with the Cumberland County Registry of Deeds.

SOILS

Onsite soil information includes the following:

- Class B High Intensity Soil Survey performed by Mark Hampton Associates.

Please refer to Document 11 for the report and explorations that accompany the attached Soil Map.

The site is comprised of primarily Lamoine and Buxton soils which are classified as types C and D hydrologic soils, respectively. The areas where Lamoine has been identified, have been classified as somewhat poorly drained. The areas where Buxton has been identified, have been classified as moderately well drained.

Small parts of the site are comprised of Podunk soils which is characterized by moderately well drained soils. Permeability is moderately rapid to rapid.

Lastly, eight wetlands with scantic soils exist on site which are poorly drained and has a saturated hydraulic conductivity of the surface and subsurface horizons that are moderately high or high and low or moderately low in the subsoil and substratum.

An impermeable liner will be placed across the entire bottom and sideslopes to the top of the channel protection volume so that stormwater runoff does from the development does not mix directly with the groundwater.

These existing soils were modeled in their respective hydrologic groups in both the pre and post conditions.

The area within and surrounding the project includes soils types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.

Table 1 - "K" Value		
Soils Type	**Subsurface**	**Substratum**
Lamoine	0.37	0.37
Buxton	0.49	0.49
Podunk	0.37	0.37
Scantic	0.49	0.49

The soil "K" values for the soils, listed above, indicate a moderate susceptibility to erosion. The site's

susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County and the USDA Soil Survey.

CONCLUSION

The proposed development was designed to meet the requirements implemented by the MDEP under the Stormwater Management Statute (38 M.R.S.A. § 420-D) as well as the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards. The design does not anticipate to create erosion, drainage, or runoff problems for the development, the city, or abutting properties.

ATTACHMENTS

Attachment A: Pre – Development Watershed Map
Attachment B: Post – Development Watershed Map
Attachment C: HydroCAD Calculations

LEGEND	
HATCH STYLE	ASSOCIATED AREAS
	HYDROLOGIC SOIL GROUP (HSG), TYPE C
	HYDROLOGIC SOIL GROUP (HSG), TYPE D
	ROOFS
	PAVED PARKING
	>75% GRASS COVER, GOOD
	50–75% GRASS COVER, FAIR
	<50% GRASS COVER, POOR

	WOODS/GRASS COMB., GOOD
	WOODS/GRASS COMB., FAIR
	WOODS/GRASS COMB., POOR
	GRAVEL SURFACE
	WETLAND

SUBCATCHMENT BOUNDARY

TIME OF CONCENTRATION PATH

TEST PIT LOCATION

POI–1 POINT OF INTEREST

1P POND

1R REACH

1S SUBCATCHMENT NUMBER

PRELIMINARY SUBMISSION

ISSUED FOR	BY DATE
PRELIMINARY	WHS 8/23/17

REVISION	REV. DATE

DRAWING NAME: POST–DEVELOPMENT WATERSHED MAP

PROJECT NAME: STROUDWATER PRESERVE

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, ME 04043

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(207) 775–2655

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JN:	1079
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DESIGNED BY:	WHS
DRAWN BY:	ADG
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11818
8-28-17
LICENSED PROFESSIONAL ENGINEER

DRAWING NO.
PRE

LEGEND

HATCH STYLE	ASSOCIATED AREAS
	HYDROLOGIC SOIL GROUP (HSG), TYPE C
	HYDROLOGIC SOIL GROUP (HSG), TYPE D
	ROOFS
	PAVED PARKING
	>75% GRASS COVER, GOOD
	50–75% GRASS COVER, FAIR
	<50% GRASS COVER, POOR

	WOODS/GRASS COMB., GOOD
	WOODS/GRASS COMB., FAIR
	WOODS/GRASS COMBO., POOR
	GRAVEL SURFACE
	WETLAND

SUBCATCHMENT BOUNDARY

TIME OF CONCENTRATION PATH

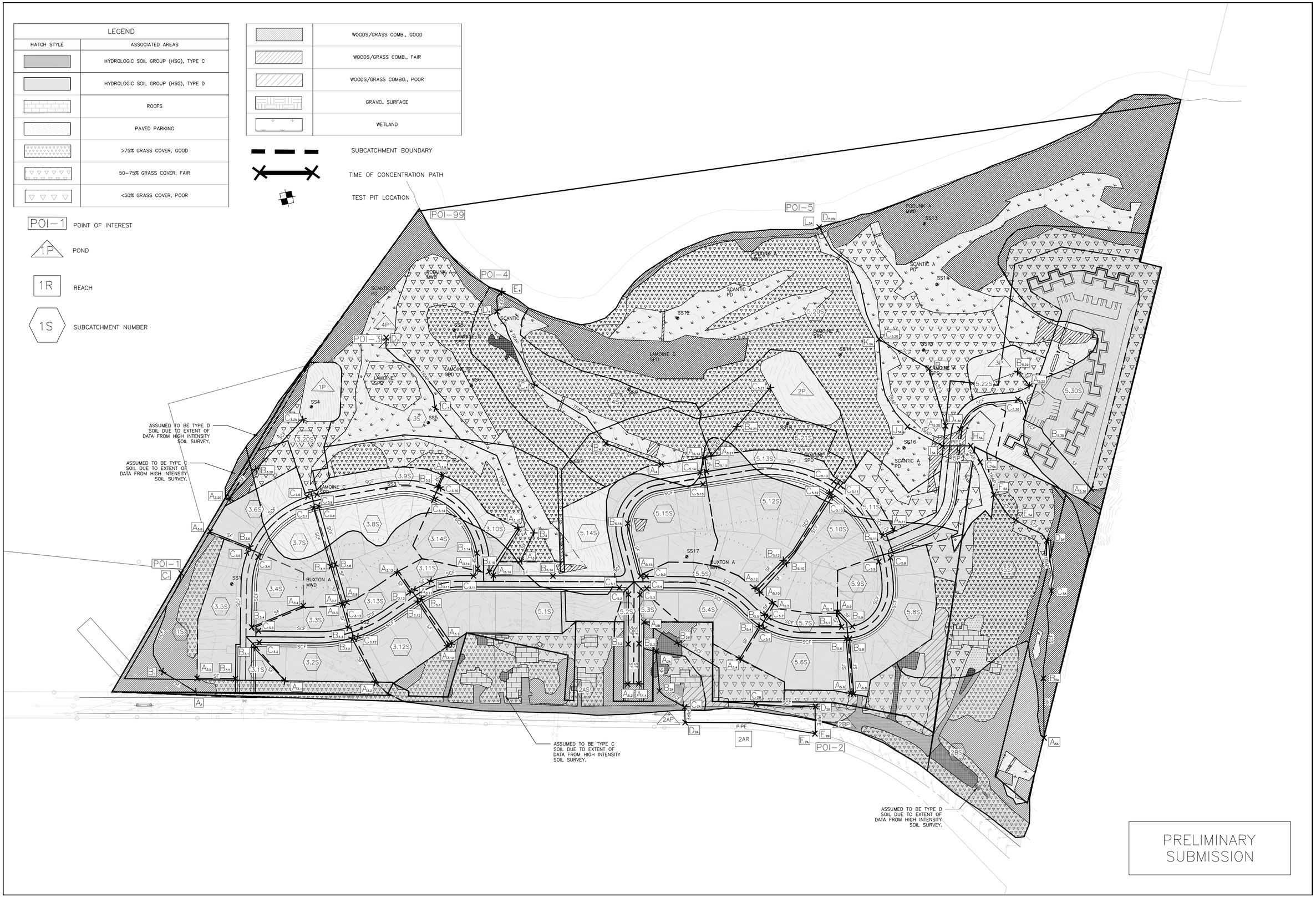
TEST PIT LOCATION

POI–1 POINT OF INTEREST

1P POND

1R REACH

1S SUBCATCHMENT NUMBER



PRELIMINARY SUBMISSION

ISSUED FOR	BY / DATE
PRELIMINARY	WHS 8/23/17

REVISION	REV. DATE

DRAWING NAME: **POST–DEVELOPMENT WATERSHED MAP**

PROJECT NAME: **STROUDWATER PRESERVE**

CLIENT: STROUDWATER DEVELOPMENT PARTNERS, LLC
KENNEBUNK, ME 04043

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(207) 775-2563

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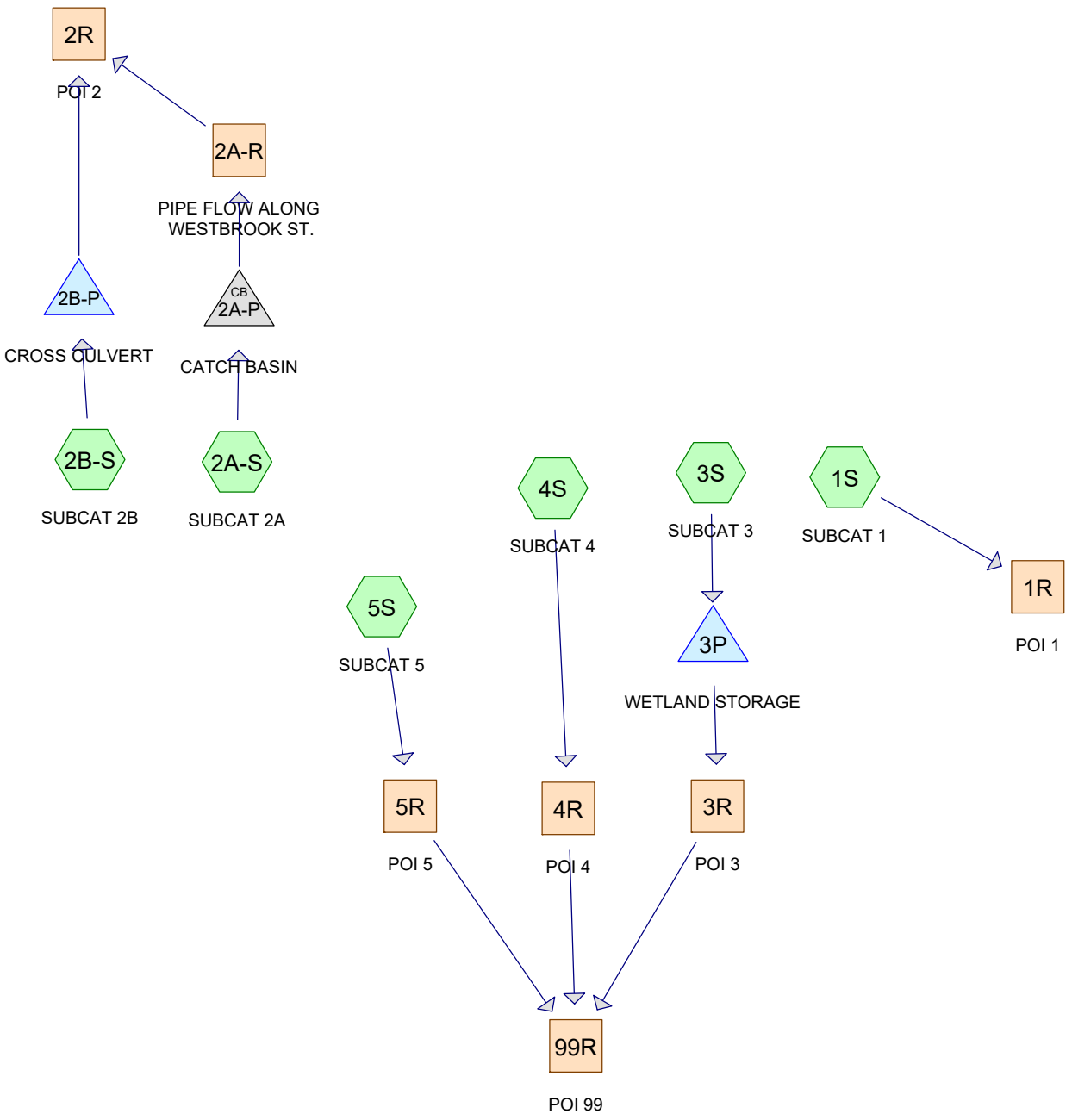
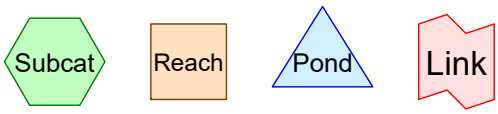
STATE OF MAINE WILLIAM H. SAVAGE NO. 11419 8-28-17 LICENSED PROFESSIONAL ENGINEER

DRAWING NO.

POST





Drainage Diagram for Pre-development_8-24-17
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.566	72	Woods/grass comb., Good, HSG C (1S, 2A-S, 2B-S, 3S, 5S)
12.272	74	>75% Grass cover, Good, HSG C (1S, 2A-S, 2B-S, 3S, 4S, 5S)
9.461	79	50-75% Grass cover, Fair, HSG C (2A-S, 2B-S, 3S, 4S, 5S)
7.244	79	Woods/grass comb., Good, HSG D (2B-S, 3S, 4S, 5S)
11.880	80	>75% Grass cover, Good, HSG D (3S, 4S, 5S)
1.128	82	Woods/grass comb., Poor, HSG C (2A-S, 2B-S, 3S, 5S)
7.546	84	50-75% Grass cover, Fair, HSG D (3S, 5S)
0.728	86	<50% Grass cover, Poor, HSG C (2B-S, 5S)
0.417	89	<50% Grass cover, Poor, HSG D (5S)
6.689	90	Wetland, HSG D (2B-S, 3S, 4S, 5S)
0.546	96	Gravel surface, HSG C (2A-S, 2B-S, 5S)
0.047	96	Gravel surface, HSG D (4S)
1.124	98	Paved parking, HSG C (2A-S, 2B-S, 5S)
0.536	98	Roofs, HSG C (2A-S, 4S, 5S)
0.083	98	Roofs, HSG D (2B-S, 3S)
63.267		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
29.361	HSG C	1S, 2A-S, 2B-S, 3S, 4S, 5S
33.906	HSG D	2B-S, 3S, 4S, 5S
0.000	Other	
63.267		**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Fill (inches)
1	2A-P	56.54	56.26	25.4	0.0110	0.011	12.0	0.0	0.0
2	2B-P	58.96	57.71	63.0	0.0198	0.012	18.0	0.0	0.0

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCAT 1 Runoff Area=144,495 sf 0.00% Impervious Runoff Depth=0.92"
Flow Length=771' Tc=44.5 min CN=73 Runoff=1.54 cfs 0.254 af

Subcatchment 2A-S: SUBCAT 2A Runoff Area=110,484 sf 27.91% Impervious Runoff Depth=1.39"
Flow Length=208' Tc=11.3 min CN=81 Runoff=3.43 cfs 0.294 af

Subcatchment 2B-S: SUBCAT 2B Runoff Area=273,265 sf 8.10% Impervious Runoff Depth=1.39"
Flow Length=295' Tc=12.6 min CN=81 Runoff=8.16 cfs 0.727 af

Subcatchment 3S: SUBCAT 3 Runoff Area=740,582 sf 0.40% Impervious Runoff Depth=1.33"
Flow Length=1,124' Tc=37.1 min CN=80 Runoff=13.29 cfs 1.878 af

Subcatchment 4S: SUBCAT 4 Runoff Area=222,926 sf 1.07% Impervious Runoff Depth=1.33"
Flow Length=1,311' Tc=24.3 min CN=80 Runoff=4.86 cfs 0.565 af

Subcatchment 5S: SUBCAT 5 Runoff Area=1,264,164 sf 1.40% Impervious Runoff Depth=1.39"
Flow Length=1,562' Tc=50.3 min CN=81 Runoff=20.41 cfs 3.364 af

Reach 1R: POI 1 Inflow=1.54 cfs 0.254 af
Outflow=1.54 cfs 0.254 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=3.43 cfs 0.294 af
Outflow=3.43 cfs 0.294 af

Reach 2R: POI 2 Inflow=10.66 cfs 1.021 af
Outflow=10.66 cfs 1.021 af

Reach 3R: POI 3 Inflow=13.28 cfs 1.878 af
Outflow=13.28 cfs 1.878 af

Reach 4R: POI 4 Inflow=4.86 cfs 0.565 af
Outflow=4.86 cfs 0.565 af

Reach 5R: POI 5 Inflow=20.41 cfs 3.364 af
Outflow=20.41 cfs 3.364 af

Reach 99R: POI 99 Inflow=36.03 cfs 5.807 af
Outflow=36.03 cfs 5.807 af

Pond 2A-P: CATCH BASIN Peak Elev=57.67' Inflow=3.43 cfs 0.294 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=3.43 cfs 0.294 af

Pond 2B-P: CROSS CULVERT Peak Elev=60.49' Storage=898 cf Inflow=8.16 cfs 0.727 af
Outflow=7.52 cfs 0.727 af

Pond 3P: WETLAND STORAGE Peak Elev=22.13' Storage=290 cf Inflow=13.29 cfs 1.878 af
Outflow=13.28 cfs 1.878 af

Total Runoff Area = 63.267 ac Runoff Volume = 7.082 af Average Runoff Depth = 1.34"
97.24% Pervious = 61.524 ac 2.76% Impervious = 1.744 ac

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCAT 1 Runoff Area=144,495 sf 0.00% Impervious Runoff Depth=1.97"
Flow Length=771' Tc=44.5 min CN=73 Runoff=3.52 cfs 0.545 af

Subcatchment 2A-S: SUBCAT 2A Runoff Area=110,484 sf 27.91% Impervious Runoff Depth=2.63"
Flow Length=208' Tc=11.3 min CN=81 Runoff=6.57 cfs 0.557 af

Subcatchment 2B-S: SUBCAT 2B Runoff Area=273,265 sf 8.10% Impervious Runoff Depth=2.63"
Flow Length=295' Tc=12.6 min CN=81 Runoff=15.66 cfs 1.377 af

Subcatchment 3S: SUBCAT 3 Runoff Area=740,582 sf 0.40% Impervious Runoff Depth=2.55"
Flow Length=1,124' Tc=37.1 min CN=80 Runoff=25.94 cfs 3.609 af

Subcatchment 4S: SUBCAT 4 Runoff Area=222,926 sf 1.07% Impervious Runoff Depth=2.55"
Flow Length=1,311' Tc=24.3 min CN=80 Runoff=9.50 cfs 1.086 af

Subcatchment 5S: SUBCAT 5 Runoff Area=1,264,164 sf 1.40% Impervious Runoff Depth=2.63"
Flow Length=1,562' Tc=50.3 min CN=81 Runoff=39.19 cfs 6.372 af

Reach 1R: POI 1 Inflow=3.52 cfs 0.545 af
Outflow=3.52 cfs 0.545 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=6.57 cfs 0.557 af
Outflow=6.57 cfs 0.557 af

Reach 2R: POI 2 Inflow=16.70 cfs 1.934 af
Outflow=16.70 cfs 1.934 af

Reach 3R: POI 3 Inflow=25.93 cfs 3.609 af
Outflow=25.93 cfs 3.609 af

Reach 4R: POI 4 Inflow=9.50 cfs 1.086 af
Outflow=9.50 cfs 1.086 af

Reach 5R: POI 5 Inflow=39.19 cfs 6.372 af
Outflow=39.19 cfs 6.372 af

Reach 99R: POI 99 Inflow=69.82 cfs 11.067 af
Outflow=69.82 cfs 11.067 af

Pond 2A-P: CATCH BASIN Peak Elev=59.08' Inflow=6.57 cfs 0.557 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=6.57 cfs 0.557 af

Pond 2B-P: CROSS CULVERT Peak Elev=61.28' Storage=4,304 cf Inflow=15.66 cfs 1.377 af
Outflow=10.68 cfs 1.377 af

Pond 3P: WETLAND STORAGE Peak Elev=22.21' Storage=497 cf Inflow=25.94 cfs 3.609 af
Outflow=25.93 cfs 3.609 af

Total Runoff Area = 63.267 ac Runoff Volume = 13.546 af Average Runoff Depth = 2.57"
97.24% Pervious = 61.524 ac 2.76% Impervious = 1.744 ac

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SUBCAT 1 Runoff Area=144,495 sf 0.00% Impervious Runoff Depth=2.92"
Flow Length=771' Tc=44.5 min CN=73 Runoff=5.29 cfs 0.808 af

Subcatchment 2A-S: SUBCAT 2A Runoff Area=110,484 sf 27.91% Impervious Runoff Depth=3.70"
Flow Length=208' Tc=11.3 min CN=81 Runoff=9.20 cfs 0.782 af

Subcatchment 2B-S: SUBCAT 2B Runoff Area=273,265 sf 8.10% Impervious Runoff Depth=3.70"
Flow Length=295' Tc=12.6 min CN=81 Runoff=21.93 cfs 1.935 af

Subcatchment 3S: SUBCAT 3 Runoff Area=740,582 sf 0.40% Impervious Runoff Depth=3.60"
Flow Length=1,124' Tc=37.1 min CN=80 Runoff=36.69 cfs 5.102 af

Subcatchment 4S: SUBCAT 4 Runoff Area=222,926 sf 1.07% Impervious Runoff Depth=3.60"
Flow Length=1,311' Tc=24.3 min CN=80 Runoff=13.42 cfs 1.536 af

Subcatchment 5S: SUBCAT 5 Runoff Area=1,264,164 sf 1.40% Impervious Runoff Depth=3.70"
Flow Length=1,562' Tc=50.3 min CN=81 Runoff=54.94 cfs 8.953 af

Reach 1R: POI 1 Inflow=5.29 cfs 0.808 af
Outflow=5.29 cfs 0.808 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=9.20 cfs 0.782 af
Outflow=9.20 cfs 0.782 af

Reach 2R: POI 2 Inflow=20.00 cfs 2.718 af
Outflow=20.00 cfs 2.718 af

Reach 3R: POI 3 Inflow=36.67 cfs 5.102 af
Outflow=36.67 cfs 5.102 af

Reach 4R: POI 4 Inflow=13.42 cfs 1.536 af
Outflow=13.42 cfs 1.536 af

Reach 5R: POI 5 Inflow=54.94 cfs 8.953 af
Outflow=54.94 cfs 8.953 af

Reach 99R: POI 99 Inflow=98.23 cfs 15.591 af
Outflow=98.23 cfs 15.591 af

Pond 2A-P: CATCH BASIN Peak Elev=60.82' Inflow=9.20 cfs 0.782 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=9.20 cfs 0.782 af

Pond 2B-P: CROSS CULVERT Peak Elev=61.56' Storage=9,901 cf Inflow=21.93 cfs 1.935 af
Outflow=11.57 cfs 1.935 af

Pond 3P: WETLAND STORAGE Peak Elev=22.27' Storage=665 cf Inflow=36.69 cfs 5.102 af
Outflow=36.67 cfs 5.102 af

Total Runoff Area = 63.267 ac Runoff Volume = 19.117 af Average Runoff Depth = 3.63"
97.24% Pervious = 61.524 ac 2.76% Impervious = 1.744 ac

Summary for Subcatchment 1S: SUBCAT 1

Runoff = 5.29 cfs @ 12.61 hrs, Volume= 0.808 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
43,973	72	Woods/grass comb., Good, HSG C
100,522	74	>75% Grass cover, Good, HSG C
144,495	73	Weighted Average
144,495		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	100	0.0013	0.06		**Sheet Flow, A to B** Range n= 0.130 P2= 3.10"
13.5	402	0.0050	0.49		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.3	58	0.0071	0.42		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
1.6	173	0.0658	1.80		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.6	38	0.0429	1.04		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
44.5	771	Total			

Summary for Subcatchment 2A-S: SUBCAT 2A

Runoff = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
19,972	98	Paved parking, HSG C
10,861	98	Roofs, HSG C
2,798	82	Woods/grass comb., Poor, HSG C
28,926	72	Woods/grass comb., Good, HSG C
8,096	79	50-75% Grass cover, Fair, HSG C
36,064	74	>75% Grass cover, Good, HSG C
3,767	96	Gravel surface, HSG C
110,484	81	Weighted Average
79,651		72.09% Pervious Area
30,833		27.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0232	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.9	108	0.0355	0.94		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
11.3	208	Total			

Summary for Subcatchment 2B-S: SUBCAT 2B

Runoff = 21.93 cfs @ 12.17 hrs, Volume= 1.935 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	21,440	98	Paved parking, HSG C
	698	98	Roofs, HSG D
	16,430	82	Woods/grass comb., Poor, HSG C
	20,162	72	Woods/grass comb., Good, HSG C
	26,628	79	Woods/grass comb., Good, HSG D
	1,155	86	<50% Grass cover, Poor, HSG C
	127,949	79	50-75% Grass cover, Fair, HSG C
	40,537	74	>75% Grass cover, Good, HSG C
	13,579	96	Gravel surface, HSG C
*	4,687	90	Wetland, HSG D
	273,265	81	Weighted Average
	251,127		91.90% Pervious Area
	22,138		8.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0185	0.18		**Sheet Flow, A-B** Range n= 0.130 P2= 3.10"
3.4	195	0.0186	0.95		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
12.6	295	Total			

Summary for Subcatchment 3S: SUBCAT 3

Runoff = 36.69 cfs @ 12.49 hrs, Volume= 5.102 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	2,937	98	Roofs, HSG D
	4,329	82	Woods/grass comb., Poor, HSG C
	43,145	79	Woods/grass comb., Good, HSG D
	42,073	72	Woods/grass comb., Good, HSG C
	169,626	84	50-75% Grass cover, Fair, HSG D
	96,244	79	50-75% Grass cover, Fair, HSG C
	150,700	80	>75% Grass cover, Good, HSG D
	151,466	74	>75% Grass cover, Good, HSG C
*	80,062	90	Wetland, HSG D
	740,582	80	Weighted Average
	737,645		99.60% Pervious Area
	2,937		0.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	100	0.0011	0.06		**Sheet Flow, A-B** Range n= 0.130 P2= 3.10"
4.2	274	0.0238	1.08		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.6	332	0.0547	3.51		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
1.6	257	0.0459	2.61	224.14	**Trap/Vee/Rect Channel Flow, D-E, WETLAND** Bot.W=23.00' D=2.00' Z= 10.0 '/' Top.W=63.00' n= 0.150
1.4	161	0.0281	1.97	145.91	**Trap/Vee/Rect Channel Flow, E-F, WETLAND** Bot.W=17.00' D=2.00' Z= 10.0 '/' Top.W=57.00' n= 0.150
37.1	1,124	Total			

Summary for Subcatchment 4S: SUBCAT 4

Runoff = 13.42 cfs @ 12.34 hrs, Volume= 1.536 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	2,391	98	Roofs, HSG C
	4,174	79	Woods/grass comb., Good, HSG D
	24,054	79	50-75% Grass cover, Fair, HSG C
	66,075	74	>75% Grass cover, Good, HSG C
	99,065	80	>75% Grass cover, Good, HSG D
	2,029	96	Gravel surface, HSG D
*	25,138	90	Wetland, HSG D
	222,926	80	Weighted Average
	220,535		98.93% Pervious Area
	2,391		1.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0147	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
5.3	216	0.0094	0.68		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.3	97	0.0340	1.29		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
0.6	123	0.0500	3.35		**Shallow Concentrated Flow, D-E** Grassed Waterway Kv= 15.0 fps
2.6	430	0.0410	2.71	401.23	**Trap/Vee/Rect Channel Flow, E-F, WETLAND** Bot.W=54.00' D=2.00' Z= 10.0 '/' Top.W=94.00' n= 0.150
2.2	290	0.0340	2.17	160.49	**Trap/Vee/Rect Channel Flow, F-G, WETLAND** Bot.W=17.00' D=2.00' Z= 10.0 '/' Top.W=57.00' n= 0.150
1.0	55	0.0330	0.91		**Shallow Concentrated Flow, G-H** Woodland Kv= 5.0 fps
24.3	1,311	Total			

Summary for Subcatchment 5S: SUBCAT 5

Runoff = 54.94 cfs @ 12.69 hrs, Volume= 8.953 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	7,567	98	Paved parking, HSG C
	10,086	98	Roofs, HSG C
	25,596	82	Woods/grass comb., Poor, HSG C
	20,197	72	Woods/grass comb., Good, HSG C
	241,580	79	Woods/grass comb., Good, HSG D
	18,185	89	<50% Grass cover, Poor, HSG D
	30,567	86	<50% Grass cover, Poor, HSG C
	155,775	79	50-75% Grass cover, Fair, HSG C
	159,085	84	50-75% Grass cover, Fair, HSG D
	267,724	80	>75% Grass cover, Good, HSG D
	139,890	74	>75% Grass cover, Good, HSG C
	6,434	96	Gravel surface, HSG C
*	181,478	90	Wetland, HSG D
	1,264,164	81	Weighted Average
	1,246,511		98.60% Pervious Area
	17,653		1.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
8.5	273	0.0115	0.54		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.5	130	0.0165	1.45	89.64	**Trap/Vee/Rect Channel Flow, C-D, WETLAND** Bot.W=11.00' D=2.00' Z= 10.0 '/' Top.W=51.00' n= 0.150
1.1	95	0.0456	1.49		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1121	2.34		**Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps
0.3	88	0.1143	4.22	413.93	**Trap/Vee/Rect Channel Flow, F-G, WETLAND** Bot.W=29.00' D=2.00' Z= 10.0 '/' Top.W=69.00' n= 0.150
3.3	463	0.0325	2.34	280.36	**Trap/Vee/Rect Channel Flow, G-H, WETLAND** Bot.W=40.00' D=2.00' Z= 10.0 '/' Top.W=80.00' n= 0.150
6.2	327	0.0044	0.88	117.26	**Trap/Vee/Rect Channel Flow, H-I, WETLAND** Bot.W=47.00' D=2.00' Z= 10.0 '/' Top.W=87.00' n= 0.150
50.3	1,562	Total			

Summary for Reach 1R: POI 1

Inflow Area = 3.317 ac, 0.00% Impervious, Inflow Depth = 2.92" for 25-year event
Inflow = 5.29 cfs @ 12.61 hrs, Volume= 0.808 af
Outflow = 5.29 cfs @ 12.61 hrs, Volume= 0.808 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST.

Inflow Area = 2.536 ac, 27.91% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af
Outflow = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 2R: POI 2

Inflow Area = 8.810 ac, 13.80% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 20.00 cfs @ 12.17 hrs, Volume= 2.718 af
Outflow = 20.00 cfs @ 12.17 hrs, Volume= 2.718 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 3R: POI 3

Inflow Area = 17.001 ac, 0.40% Impervious, Inflow Depth = 3.60" for 25-year event
Inflow = 36.67 cfs @ 12.50 hrs, Volume= 5.102 af
Outflow = 36.67 cfs @ 12.50 hrs, Volume= 5.102 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 4R: POI 4

Inflow Area = 5.118 ac, 1.07% Impervious, Inflow Depth = 3.60" for 25-year event
Inflow = 13.42 cfs @ 12.34 hrs, Volume= 1.536 af
Outflow = 13.42 cfs @ 12.34 hrs, Volume= 1.536 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 5R: POI 5

Inflow Area =	29.021 ac,	1.40% Impervious,	Inflow Depth =	3.70"	for 25-year event
Inflow =	54.94 cfs @	12.69 hrs,	Volume=	8.953 af	
Outflow =	54.94 cfs @	12.69 hrs,	Volume=	8.953 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 99R: POI 99

Inflow Area = 51.140 ac, 1.03% Impervious, Inflow Depth = 3.66" for 25-year event
Inflow = 98.23 cfs @ 12.57 hrs, Volume= 15.591 af
Outflow = 98.23 cfs @ 12.57 hrs, Volume= 15.591 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Pond 2A-P: CATCH BASIN

Inflow Area = 2.536 ac, 27.91% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af
Outflow = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af, Atten= 0%, Lag= 0.0 min
Primary = 9.20 cfs @ 12.15 hrs, Volume= 0.782 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 60.82' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	56.54'	**12.0" Round Culvert** L= 25.4' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 56.54' / 56.26' S= 0.0110 '/' Cc= 0.900 n= 0.011

Primary OutFlow Max=9.19 cfs @ 12.15 hrs HW=60.81' (Free Discharge)
└─**1=Culvert** (Barrel Controls 9.19 cfs @ 11.70 fps)

Summary for Pond 2B-P: CROSS CULVERT

Inflow Area = 6.273 ac, 8.10% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 21.93 cfs @ 12.17 hrs, Volume= 1.935 af
Outflow = 11.57 cfs @ 12.41 hrs, Volume= 1.935 af, Atten= 47%, Lag= 14.6 min
Primary = 11.57 cfs @ 12.41 hrs, Volume= 1.935 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 61.56' @ 12.41 hrs Surf.Area= 26,312 sf Storage= 9,901 cf

Plug-Flow detention time= 5.0 min calculated for 1.935 af (100% of inflow)
Center-of-Mass det. time= 5.0 min (824.0 - 819.0)

Volume	Invert	Avail.Storage	Storage Description
#1	58.96'	30,434 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.96	100	0	0
60.00	624	376	376
61.00	2,395	1,510	1,886
62.10	49,511	28,548	30,434

Device	Routing	Invert	Outlet Devices
#1	Primary	58.96'	**18.0" Round 18" Ex. Culvert** L= 63.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.96' / 57.71' S= 0.0198 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished
#2	Primary	62.00'	**50.0' long x 16.0' breadth Westbrook Street** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=11.57 cfs @ 12.41 hrs HW=61.56' (Free Discharge)
└─**1=18" Ex. Culvert** (Inlet Controls 11.57 cfs @ 6.55 fps)
└─**2=Westbrook Street** (Controls 0.00 cfs)

Summary for Pond 3P: WETLAND STORAGE

Inflow Area = 17.001 ac, 0.40% Impervious, Inflow Depth = 3.60" for 25-year event
Inflow = 36.69 cfs @ 12.49 hrs, Volume= 5.102 af
Outflow = 36.67 cfs @ 12.50 hrs, Volume= 5.102 af, Atten= 0%, Lag= 0.4 min
Primary = 36.67 cfs @ 12.50 hrs, Volume= 5.102 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 22.27' @ 12.50 hrs Surf.Area= 3,240 sf Storage= 665 cf

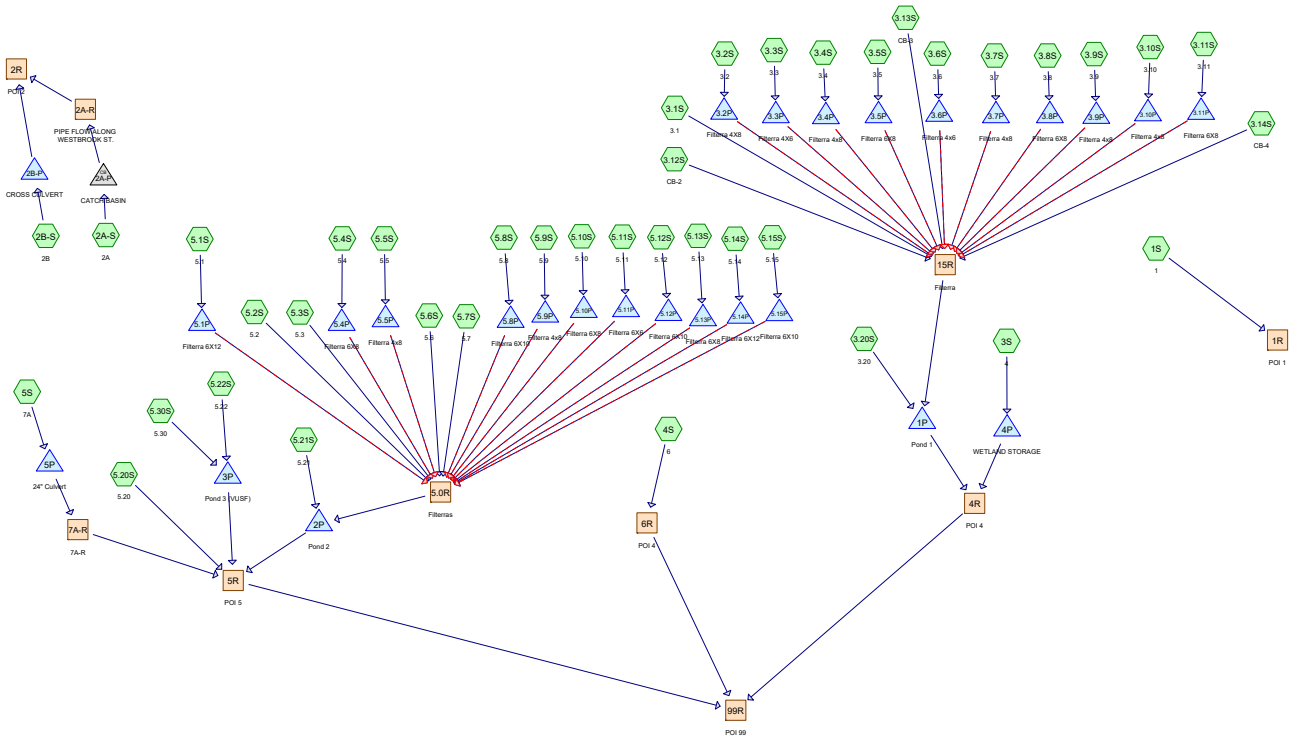
Plug-Flow detention time= 0.4 min calculated for 5.101 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (844.8 - 844.4)

Volume	Invert	Avail.Storage	Storage Description
#1	22.00'	15,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
22.00	1,777	0	0
23.00	7,298	4,538	4,538
24.00	15,446	11,372	15,910

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	**100.0' long x 98.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=36.65 cfs @ 12.50 hrs HW=22.27' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 36.65 cfs @ 1.38 fps)



Subcat Reach Pond Link

Routing Diagram for Post-development_8-28-17
Prepared by Acorn Engineering, Inc, Printed 8/29/2017
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.857	79	50-75% Grass cover, Fair, HSG C (2A-S, 2B-S, 5.20S, 5S)
4.599	84	50-75% Grass cover, Fair, HSG D (3.20S, 3S, 5.20S, 5.22S)
0.331	86	<50% Grass cover, Poor, HSG C (5S)
0.502	89	<50% Grass cover, Poor, HSG D (5.20S, 5S)
15.294	74	>75% Grass cover, Good, HSG C (1S, 2A-S, 2B-S, 3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.2S, 5.30S, 5.3S, 5.4S, 5.5S, 5.6S, 5.7S, 5.8S, 5.9S, 5S)
12.010	80	>75% Grass cover, Good, HSG D (3.10S, 3.14S, 3.6S, 3.7S, 3.8S, 3.9S, 3S, 4S, 5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.20S, 5.21S, 5.30S)
0.325	96	Gravel surface, HSG C (2A-S, 2B-S)
0.093	96	Gravel surface, HSG D (4S, 5S)
0.825	98	Paved parking, HSG D (2A-S, 2B-S, 5S)
3.881	98	Paved roads w/curbs & sewers, HSG D (3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 3.9S, 5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.2S, 5.30S, 5.3S, 5.4S, 5.5S, 5.6S, 5.7S, 5.8S, 5.9S)
0.495	98	Roofs, HSG D (2A-S, 2B-S, 5S)
3.111	98	Unconnected roofs, HSG D (3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 3.9S, 5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.30S, 5.3S, 5.4S, 5.5S, 5.6S, 5.7S, 5.8S, 5.9S)
1.038	98	Water Surface, HSG D (3.20S, 5.21S, 5.22S)
6.470	90	Wetland, HSG D (2B-S, 3.20S, 3S, 4S, 5.20S, 5S)
3.165	72	Woods/grass comb., Good, HSG C (1S, 2A-S, 2B-S, 3.20S, 5.20S, 5S)
6.646	79	Woods/grass comb., Good, HSG D (3S, 4S, 5.20S, 5S)
0.522	82	Woods/grass comb., Poor, HSG C (2A-S, 2B-S, 5S)
0.102	86	Woods/grass comb., Poor, HSG D (3.20S)
63.267	**82**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
23.495	HSG C	1S, 2A-S, 2B-S, 3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.1S, 3.20S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.20S, 5.2S, 5.30S, 5.3S, 5.4S, 5.5S, 5.6S, 5.7S, 5.8S, 5.9S, 5S
39.772	HSG D	2A-S, 2B-S, 3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.1S, 3.20S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 3.9S, 3S, 4S, 5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S, 5.20S, 5.21S, 5.22S, 5.2S, 5.30S, 5.3S, 5.4S, 5.5S, 5.6S, 5.7S, 5.8S, 5.9S, 5S
0.000	Other	
63.267		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	3.857	4.599	0.000	8.457	50-75% Grass cover, Fair	2A-S, 2B-S, 3.20S, 3S, 5.20S, 5.22S, 5S
0.000	0.000	0.331	0.502	0.000	0.832	<50% Grass cover, Poor	5.20S, 5S
0.000	0.000	15.294	12.010	0.000	27.304	>75% Grass cover, Good	1S, 2A-S, 2B-S, 3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S,

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.325	0.093	0.000	0.418	Gravel surface	2A-S, 2B-S, 4S, 5S
0.000	0.000	0.000	0.825	0.000	0.825	Paved parking	2A-S, 2B-S, 5S
0.000	0.000	0.000	3.881	0.000	3.881	Paved roads w/curbs & sewers	3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 3.9S, 5.10S, 5.11S, 5.12S, 5.13

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.495	0.000	0.495	Roofs	2A-S, 2B-S, 5S
0.000	0.000	0.000	3.111	0.000	3.111	Unconnected roofs	3.10S, 3.11S, 3.12S, 3.13S, 3.14S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 3.9S, 5.10S, 5.11S, 5.12S, 5.13S, 5.14S, 5.15S, 5.1S

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	1.038	0.000	1.038	Water Surface	3.20S, 5.21S, 5.22S
0.000	0.000	0.000	6.470	0.000	6.470	Wetland	2B-S, 3.20S, 3S, 4S, 5.20S, 5S
0.000	0.000	3.165	6.646	0.000	9.812	Woods/grass comb., Good	1S, 2A-S, 2B-S, 3.20S, 3S, 4S, 5.20S, 5S
0.000	0.000	0.522	0.102	0.000	0.624	Woods/grass comb., Poor	2A-S, 2B-S, 3.20S, 5S
0.000	**0.000**	**23.495**	**39.772**	**0.000**	**63.267**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	32.90	31.00	60.0	0.0317	0.013	12.0	0.0	0.0
2	2A-P	56.54	56.26	25.4	0.0110	0.011	12.0	0.0	0.0
3	2B-P	58.96	57.71	63.0	0.0198	0.012	18.0	0.0	0.0
4	2P	27.90	27.65	25.0	0.0100	0.013	15.0	0.0	0.0
5	3P	23.90	23.00	170.0	0.0053	0.013	12.0	0.0	0.0
6	5P	31.20	28.50	72.0	0.0375	0.013	24.0	0.0	12.0

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: 1 Runoff Area=69,758 sf 0.00% Impervious Runoff Depth=0.92"
Flow Length=368' Tc=15.0 min CN=73 Runoff=1.20 cfs 0.123 af

Subcatchment2A-S: 2A Runoff Area=129,920 sf 25.77% Impervious Runoff Depth=1.46"
Flow Length=208' Tc=11.3 min CN=82 Runoff=4.25 cfs 0.362 af

Subcatchment2B-S: 2B Runoff Area=185,601 sf 8.37% Impervious Runoff Depth=1.26"
Flow Length=579' Tc=25.7 min CN=79 Runoff=3.74 cfs 0.448 af

Subcatchment3.10S: 3.10 Runoff Area=16,463 sf 41.35% Impervious Runoff Depth=1.75"
Flow Length=255' Tc=7.0 min CN=86 Runoff=0.75 cfs 0.055 af

Subcatchment3.11S: 3.11 Runoff Area=22,818 sf 38.20% Impervious Runoff Depth=1.53"
Flow Length=160' Tc=1.4 min CN=83 Runoff=1.11 cfs 0.067 af

Subcatchment3.12S: CB-2 Runoff Area=29,503 sf 24.70% Impervious Runoff Depth=1.20"
Flow Length=313' Tc=14.2 min UI Adjusted CN=78 Runoff=0.72 cfs 0.068 af

Subcatchment3.13S: CB-3 Runoff Area=13,062 sf 36.99% Impervious Runoff Depth=1.53"
Flow Length=225' Tc=8.0 min CN=83 Runoff=0.50 cfs 0.038 af

Subcatchment3.14S: CB-4 Runoff Area=9,436 sf 34.58% Impervious Runoff Depth=1.60"
Flow Length=230' Slope=0.0300 '/' Tc=1.5 min CN=84 Runoff=0.48 cfs 0.029 af

Subcatchment3.1S: 3.1 Runoff Area=5,704 sf 48.54% Impervious Runoff Depth=1.75"
Flow Length=115' Slope=0.0200 '/' Tc=11.1 min CN=86 Runoff=0.23 cfs 0.019 af

Subcatchment3.20S: 3.20 Runoff Area=46,483 sf 29.22% Impervious Runoff Depth=1.91"
Flow Length=272' Tc=10.0 min CN=88 Runoff=2.08 cfs 0.170 af

Subcatchment3.2S: 3.2 Runoff Area=28,301 sf 29.96% Impervious Runoff Depth=1.33"
Flow Length=360' Tc=13.8 min UI Adjusted CN=80 Runoff=0.78 cfs 0.072 af

Subcatchment3.3S: 3.3 Runoff Area=14,630 sf 33.63% Impervious Runoff Depth=1.46"
Flow Length=289' Tc=8.6 min CN=82 Runoff=0.52 cfs 0.041 af

Subcatchment3.4S: 3.4 Runoff Area=21,170 sf 33.11% Impervious Runoff Depth=1.46"
Flow Length=362' Tc=14.7 min CN=82 Runoff=0.63 cfs 0.059 af

Subcatchment3.5S: 3.5 Runoff Area=36,887 sf 30.24% Impervious Runoff Depth=1.39"
Flow Length=432' Tc=13.3 min CN=81 Runoff=1.08 cfs 0.098 af

Subcatchment3.6S: 3.6 Runoff Area=24,469 sf 26.85% Impervious Runoff Depth=1.39"
Flow Length=311' Tc=11.6 min UI Adjusted CN=81 Runoff=0.75 cfs 0.065 af

Subcatchment3.7S: 3.7 Runoff Area=29,265 sf 22.99% Impervious Runoff Depth=1.39"
Flow Length=255' Tc=7.0 min UI Adjusted CN=81 Runoff=1.05 cfs 0.078 af

Subcatchment 3.8S: 3.8 Runoff Area=57,330 sf 22.10% Impervious Runoff Depth=1.39"
Flow Length=255' Tc=7.0 min UI Adjusted CN=81 Runoff=2.05 cfs 0.153 af

Subcatchment 3.9S: 3.9 Runoff Area=15,285 sf 53.44% Impervious Runoff Depth=2.08"
Flow Length=342' Tc=6.1 min CN=90 Runoff=0.84 cfs 0.061 af

Subcatchment 3S: 4 Runoff Area=285,246 sf 0.00% Impervious Runoff Depth=1.60"
Flow Length=732' Tc=9.7 min CN=84 Runoff=10.81 cfs 0.873 af

Subcatchment 4S: 6 Runoff Area=123,011 sf 0.00% Impervious Runoff Depth=1.46"
Flow Length=649' Tc=13.3 min CN=82 Runoff=3.80 cfs 0.343 af

Subcatchment 5.10S: 5.10 Runoff Area=47,324 sf 23.69% Impervious Runoff Depth=1.20"
Flow Length=304' Tc=9.5 min UI Adjusted CN=78 Runoff=1.32 cfs 0.109 af

Subcatchment 5.11S: 5.11 Runoff Area=9,602 sf 88.19% Impervious Runoff Depth=2.65"
Flow Length=200' Tc=4.7 min CN=96 Runoff=0.67 cfs 0.049 af

Subcatchment 5.12S: 5.12 Runoff Area=64,167 sf 23.84% Impervious Runoff Depth=1.20"
Flow Length=308' Tc=7.3 min UI Adjusted CN=78 Runoff=1.93 cfs 0.147 af

Subcatchment 5.13S: 5.13 Runoff Area=16,127 sf 75.66% Impervious Runoff Depth=2.35"
Flow Length=373' Slope=0.0200 '/' Tc=6.4 min CN=93 Runoff=0.98 cfs 0.072 af

Subcatchment 5.14S: 5.14 Runoff Area=54,863 sf 30.59% Impervious Runoff Depth=1.60"
Flow Length=733' Slope=0.0100 '/' Tc=7.0 min CN=84 Runoff=2.28 cfs 0.168 af

Subcatchment 5.15S: 5.15 Runoff Area=45,229 sf 32.57% Impervious Runoff Depth=1.46"
Flow Length=369' Slope=0.0100 '/' Tc=4.0 min CN=82 Runoff=1.90 cfs 0.126 af

Subcatchment 5.1S: 5.1 Runoff Area=60,576 sf 30.85% Impervious Runoff Depth=1.46"
Flow Length=643' Tc=16.9 min CN=82 Runoff=1.70 cfs 0.169 af

Subcatchment 5.20S: 5.20 Runoff Area=691,370 sf 0.00% Impervious Runoff Depth=1.53"
Flow Length=621' Tc=17.5 min CN=83 Runoff=20.13 cfs 2.020 af

Subcatchment 5.21S: 5.21 Runoff Area=75,046 sf 29.67% Impervious Runoff Depth=1.67"
Flow Length=98' Tc=5.3 min CN=85 Runoff=3.47 cfs 0.240 af

Subcatchment 5.22S: 5.22 Runoff Area=18,481 sf 50.68% Impervious Runoff Depth=2.16"
Flow Length=228' Tc=6.6 min CN=91 Runoff=1.04 cfs 0.077 af

Subcatchment 5.2S: 5.2 Runoff Area=7,018 sf 68.04% Impervious Runoff Depth=2.08"
Flow Length=226' Slope=0.0150 '/' Tc=2.2 min CN=90 Runoff=0.45 cfs 0.028 af

Subcatchment 5.30S: 5.30 Runoff Area=138,171 sf 31.18% Impervious Runoff Depth=1.53"
Flow Length=484' Tc=8.6 min CN=83 Runoff=5.18 cfs 0.404 af

Subcatchment 5.3S: 5.3 Runoff Area=9,428 sf 58.60% Impervious Runoff Depth=1.91"
Flow Length=224' Slope=0.0150 '/' Tc=2.2 min CN=88 Runoff=0.55 cfs 0.034 af

Subcatchment 5.4S: 5.4 Runoff Area=28,885 sf 40.00% Impervious Runoff Depth=1.60"
Flow Length=412' Tc=12.4 min CN=84 Runoff=1.01 cfs 0.088 af

Subcatchment 5.5S: 5.5 Runoff Area=16,333 sf 47.08% Impervious Runoff Depth=1.67"
Flow Length=367' Tc=7.0 min CN=85 Runoff=0.71 cfs 0.052 af

Subcatchment 5.6S: 5.6 Runoff Area=34,516 sf 29.47% Impervious Runoff Depth=1.26"
Flow Length=352' Tc=14.7 min UI Adjusted CN=79 Runoff=0.87 cfs 0.083 af

Subcatchment 5.7S: 5.7 Runoff Area=9,723 sf 54.22% Impervious Runoff Depth=1.83"
Flow Length=225' Tc=6.0 min CN=87 Runoff=0.48 cfs 0.034 af

Subcatchment 5.8S: 5.8 Runoff Area=45,544 sf 29.07% Impervious Runoff Depth=1.26"
Flow Length=402' Tc=15.2 min UI Adjusted CN=79 Runoff=1.14 cfs 0.110 af

Subcatchment 5.9S: 5.9 Runoff Area=18,933 sf 34.48% Impervious Runoff Depth=1.46"
Flow Length=249' Tc=6.4 min CN=82 Runoff=0.73 cfs 0.053 af

Subcatchment 5S: 7A Runoff Area=200,238 sf 4.24% Impervious Runoff Depth=1.33"
Flow Length=820' Tc=41.8 min CN=80 Runoff=3.39 cfs 0.508 af

Reach 1R: POI 1 Inflow=1.20 cfs 0.123 af
Outflow=1.20 cfs 0.123 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=4.25 cfs 0.362 af
Outflow=4.25 cfs 0.362 af

Reach 2R: POI 2 Inflow=6.46 cfs 0.811 af
Outflow=6.46 cfs 0.811 af

Reach 4R: POI 4 Inflow=11.66 cfs 1.854 af
Outflow=11.66 cfs 1.854 af

Reach 5.0R: Filterras Inflow=14.58 cfs 1.323 af
Outflow=14.58 cfs 1.323 af

Reach 5R: POI 5 Inflow=22.63 cfs 4.313 af
Outflow=22.63 cfs 4.313 af

Reach 6R: POI 4 Inflow=3.80 cfs 0.343 af
Outflow=3.80 cfs 0.343 af

Reach 7A-R: 7A-R Inflow=3.11 cfs 0.508 af
Outflow=3.11 cfs 0.508 af

Reach 15R: Filterra Inflow=9.91 cfs 0.902 af
Outflow=9.91 cfs 0.902 af

Reach 99R: POI 99 Inflow=35.85 cfs 6.511 af
Outflow=35.85 cfs 6.511 af

Pond 1P: Pond 1 Peak Elev=36.17' Storage=22,768 cf Inflow=11.97 cfs 1.071 af
Outflow=1.46 cfs 0.982 af

Pond 2A-P: CATCH BASIN Peak Elev=58.02' Inflow=4.25 cfs 0.362 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=4.25 cfs 0.362 af

Pond 2B-P: CROSS CULVERT Peak Elev=59.88' Storage=306 cf Inflow=3.74 cfs 0.448 af
Outflow=3.72 cfs 0.448 af

Pond 2P: Pond 2 Peak Elev=30.73' Storage=35,874 cf Inflow=17.90 cfs 1.563 af
Outflow=1.63 cfs 1.411 af

Pond 3.10P: Filterra 4x8 Peak Elev=103.11' Storage=43 cf Inflow=0.75 cfs 0.055 af
Primary=0.21 cfs 0.045 af Secondary=0.54 cfs 0.010 af Outflow=0.75 cfs 0.055 af

Pond 3.11P: Filterra 6X8 Peak Elev=103.16' Storage=34 cf Inflow=1.11 cfs 0.067 af
Primary=0.16 cfs 0.048 af Secondary=0.95 cfs 0.018 af Outflow=1.10 cfs 0.067 af

Pond 3.2P: Filterra 4X8 Peak Elev=103.11' Storage=44 cf Inflow=0.78 cfs 0.072 af
Primary=0.21 cfs 0.056 af Secondary=0.57 cfs 0.016 af Outflow=0.78 cfs 0.072 af

Pond 3.3P: Filterra 4X6 Peak Elev=103.08' Storage=32 cf Inflow=0.52 cfs 0.041 af
Primary=0.16 cfs 0.034 af Secondary=0.37 cfs 0.007 af Outflow=0.52 cfs 0.041 af

Pond 3.4P: Filterra 4x8 Peak Elev=103.09' Storage=43 cf Inflow=0.63 cfs 0.059 af
Primary=0.21 cfs 0.048 af Secondary=0.42 cfs 0.011 af Outflow=0.63 cfs 0.059 af

Pond 3.5P: Filterra 6X8 Peak Elev=103.14' Storage=66 cf Inflow=1.08 cfs 0.098 af
Primary=0.31 cfs 0.078 af Secondary=0.77 cfs 0.020 af Outflow=1.08 cfs 0.098 af

Pond 3.6P: Filterra 4x6 Peak Elev=103.11' Storage=33 cf Inflow=0.75 cfs 0.065 af
Primary=0.16 cfs 0.048 af Secondary=0.60 cfs 0.017 af Outflow=0.75 cfs 0.065 af

Pond 3.7P: Filterra 4x8 Peak Elev=103.14' Storage=45 cf Inflow=1.05 cfs 0.078 af
Primary=0.22 cfs 0.059 af Secondary=0.84 cfs 0.019 af Outflow=1.05 cfs 0.078 af

Pond 3.8P: Filterra 6X8 Peak Elev=103.23' Storage=71 cf Inflow=2.05 cfs 0.153 af
Primary=0.31 cfs 0.108 af Secondary=1.74 cfs 0.045 af Outflow=2.05 cfs 0.153 af

Pond 3.9P: Filterra 4x8 Peak Elev=103.12' Storage=44 cf Inflow=0.84 cfs 0.061 af
Primary=0.21 cfs 0.049 af Secondary=0.63 cfs 0.012 af Outflow=0.84 cfs 0.061 af

Pond 3P: Pond 3 (VUSF) Peak Elev=29.34' Storage=10,589 cf Inflow=6.17 cfs 0.480 af
Outflow=0.84 cfs 0.375 af

Pond 4P: WETLAND STORAGE Peak Elev=22.12' Storage=247 cf Inflow=10.81 cfs 0.873 af
Outflow=10.80 cfs 0.873 af

Pond 5.10P: Filterra 6X8 Peak Elev=103.16' Storage=68 cf Inflow=1.32 cfs 0.109 af
Primary=0.31 cfs 0.084 af Secondary=1.01 cfs 0.025 af Outflow=1.32 cfs 0.109 af

Pond 5.11P: Filterra 6X6 Peak Elev=103.09' Storage=48 cf Inflow=0.67 cfs 0.049 af
Primary=0.24 cfs 0.043 af Secondary=0.43 cfs 0.005 af Outflow=0.67 cfs 0.049 af

Pond 5.12P: Filterra 6X10 Peak Elev=103.22' Storage=88 cf Inflow=1.93 cfs 0.147 af
Primary=0.39 cfs 0.111 af Secondary=1.54 cfs 0.036 af Outflow=1.93 cfs 0.147 af

Pond 5.13P: Filterra 6X8 Peak Elev=103.12' Storage=66 cf Inflow=0.98 cfs 0.072 af
Primary=0.31 cfs 0.062 af Secondary=0.66 cfs 0.010 af Outflow=0.97 cfs 0.072 af

Pond 5.14P: Filterra 6X12 Peak Elev=103.25' Storage=90 cf Inflow=2.28 cfs 0.168 af
Primary=0.39 cfs 0.121 af Secondary=1.89 cfs 0.046 af Outflow=2.28 cfs 0.168 af

Pond 5.15P: Filterra 6X10 Peak Elev=103.21' Storage=88 cf Inflow=1.90 cfs 0.126 af
Primary=0.39 cfs 0.098 af Secondary=1.51 cfs 0.028 af Outflow=1.90 cfs 0.126 af

Pond 5.1P: Filterra 6X12 Peak Elev=103.19' Storage=103 cf Inflow=1.70 cfs 0.169 af
Primary=0.47 cfs 0.130 af Secondary=1.24 cfs 0.039 af Outflow=1.70 cfs 0.169 af

Pond 5.4P: Filterra 6X8 Peak Elev=103.13' Storage=66 cf Inflow=1.01 cfs 0.088 af
Primary=0.31 cfs 0.072 af Secondary=0.70 cfs 0.017 af Outflow=1.01 cfs 0.088 af

Pond 5.5P: Filterra 4x8 Peak Elev=103.10' Storage=43 cf Inflow=0.71 cfs 0.052 af
Primary=0.21 cfs 0.043 af Secondary=0.50 cfs 0.009 af Outflow=0.71 cfs 0.052 af

Pond 5.8P: Filterra 6X10 Peak Elev=103.13' Storage=83 cf Inflow=1.14 cfs 0.110 af
Primary=0.40 cfs 0.090 af Secondary=0.75 cfs 0.020 af Outflow=1.14 cfs 0.110 af

Pond 5.9P: Filterra 4x8 Peak Elev=103.10' Storage=43 cf Inflow=0.73 cfs 0.053 af
Primary=0.21 cfs 0.044 af Secondary=0.52 cfs 0.009 af Outflow=0.73 cfs 0.053 af

Pond 5P: 24" Culvert Peak Elev=32.96' Storage=1,358 cf Inflow=3.39 cfs 0.508 af
24.0" Round Culvert w/ 12.0" inside fill n=0.013 L=72.0' S=0.0375 '/' Outflow=3.11 cfs 0.508 af

Total Runoff Area = 63.267 ac Runoff Volume = 7.792 af Average Runoff Depth = 1.48"
85.22% Pervious = 53.916 ac 14.78% Impervious = 9.351 ac

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: 1 Runoff Area=69,758 sf 0.00% Impervious Runoff Depth=1.97"
Flow Length=368' Tc=15.0 min CN=73 Runoff=2.75 cfs 0.263 af

Subcatchment2A-S: 2A Runoff Area=129,920 sf 25.77% Impervious Runoff Depth=2.72"
Flow Length=208' Tc=11.3 min CN=82 Runoff=7.99 cfs 0.677 af

Subcatchment2B-S: 2B Runoff Area=185,601 sf 8.37% Impervious Runoff Depth=2.46"
Flow Length=579' Tc=25.7 min CN=79 Runoff=7.45 cfs 0.874 af

Subcatchment3.10S: 3.10 Runoff Area=16,463 sf 41.35% Impervious Runoff Depth=3.10"
Flow Length=255' Tc=7.0 min CN=86 Runoff=1.31 cfs 0.097 af

Subcatchment3.11S: 3.11 Runoff Area=22,818 sf 38.20% Impervious Runoff Depth=2.81"
Flow Length=160' Tc=1.4 min CN=83 Runoff=2.04 cfs 0.123 af

Subcatchment3.12S: CB-2 Runoff Area=29,503 sf 24.70% Impervious Runoff Depth=2.38"
Flow Length=313' Tc=14.2 min UI Adjusted CN=78 Runoff=1.46 cfs 0.134 af

Subcatchment3.13S: CB-3 Runoff Area=13,062 sf 36.99% Impervious Runoff Depth=2.81"
Flow Length=225' Tc=8.0 min CN=83 Runoff=0.92 cfs 0.070 af

Subcatchment3.14S: CB-4 Runoff Area=9,436 sf 34.58% Impervious Runoff Depth=2.91"
Flow Length=230' Slope=0.0300 '/' Tc=1.5 min CN=84 Runoff=0.87 cfs 0.052 af

Subcatchment3.1S: 3.1 Runoff Area=5,704 sf 48.54% Impervious Runoff Depth=3.10"
Flow Length=115' Slope=0.0200 '/' Tc=11.1 min CN=86 Runoff=0.40 cfs 0.034 af

Subcatchment3.20S: 3.20 Runoff Area=46,483 sf 29.22% Impervious Runoff Depth=3.29"
Flow Length=272' Tc=10.0 min CN=88 Runoff=3.54 cfs 0.293 af

Subcatchment3.2S: 3.2 Runoff Area=28,301 sf 29.96% Impervious Runoff Depth=2.55"
Flow Length=360' Tc=13.8 min UI Adjusted CN=80 Runoff=1.52 cfs 0.138 af

Subcatchment3.3S: 3.3 Runoff Area=14,630 sf 33.63% Impervious Runoff Depth=2.72"
Flow Length=289' Tc=8.6 min CN=82 Runoff=0.98 cfs 0.076 af

Subcatchment3.4S: 3.4 Runoff Area=21,170 sf 33.11% Impervious Runoff Depth=2.72"
Flow Length=362' Tc=14.7 min CN=82 Runoff=1.19 cfs 0.110 af

Subcatchment3.5S: 3.5 Runoff Area=36,887 sf 30.24% Impervious Runoff Depth=2.63"
Flow Length=432' Tc=13.3 min CN=81 Runoff=2.07 cfs 0.186 af

Subcatchment3.6S: 3.6 Runoff Area=24,469 sf 26.85% Impervious Runoff Depth=2.63"
Flow Length=311' Tc=11.6 min UI Adjusted CN=81 Runoff=1.44 cfs 0.123 af

Subcatchment3.7S: 3.7 Runoff Area=29,265 sf 22.99% Impervious Runoff Depth=2.63"
Flow Length=255' Tc=7.0 min UI Adjusted CN=81 Runoff=2.00 cfs 0.148 af

Subcatchment 3.8S: 3.8 Runoff Area=57,330 sf 22.10% Impervious Runoff Depth=2.63"
Flow Length=255' Tc=7.0 min UI Adjusted CN=81 Runoff=3.93 cfs 0.289 af

Subcatchment 3.9S: 3.9 Runoff Area=15,285 sf 53.44% Impervious Runoff Depth=3.49"
Flow Length=342' Tc=6.1 min CN=90 Runoff=1.39 cfs 0.102 af

Subcatchment 3S: 4 Runoff Area=285,246 sf 0.00% Impervious Runoff Depth=2.91"
Flow Length=732' Tc=9.7 min CN=84 Runoff=19.62 cfs 1.586 af

Subcatchment 4S: 6 Runoff Area=123,011 sf 0.00% Impervious Runoff Depth=2.72"
Flow Length=649' Tc=13.3 min CN=82 Runoff=7.14 cfs 0.641 af

Subcatchment 5.10S: 5.10 Runoff Area=47,324 sf 23.69% Impervious Runoff Depth=2.38"
Flow Length=304' Tc=9.5 min UI Adjusted CN=78 Runoff=2.68 cfs 0.215 af

Subcatchment 5.11S: 5.11 Runoff Area=9,602 sf 88.19% Impervious Runoff Depth=4.14"
Flow Length=200' Tc=4.7 min CN=96 Runoff=1.02 cfs 0.076 af

Subcatchment 5.12S: 5.12 Runoff Area=64,167 sf 23.84% Impervious Runoff Depth=2.38"
Flow Length=308' Tc=7.3 min UI Adjusted CN=78 Runoff=3.92 cfs 0.292 af

Subcatchment 5.13S: 5.13 Runoff Area=16,127 sf 75.66% Impervious Runoff Depth=3.81"
Flow Length=373' Slope=0.0200 '/' Tc=6.4 min CN=93 Runoff=1.54 cfs 0.117 af

Subcatchment 5.14S: 5.14 Runoff Area=54,863 sf 30.59% Impervious Runoff Depth=2.91"
Flow Length=733' Slope=0.0100 '/' Tc=7.0 min CN=84 Runoff=4.13 cfs 0.305 af

Subcatchment 5.15S: 5.15 Runoff Area=45,229 sf 32.57% Impervious Runoff Depth=2.72"
Flow Length=369' Slope=0.0100 '/' Tc=4.0 min CN=82 Runoff=3.56 cfs 0.236 af

Subcatchment 5.1S: 5.1 Runoff Area=60,576 sf 30.85% Impervious Runoff Depth=2.72"
Flow Length=643' Tc=16.9 min CN=82 Runoff=3.21 cfs 0.316 af

Subcatchment 5.20S: 5.20 Runoff Area=691,370 sf 0.00% Impervious Runoff Depth=2.81"
Flow Length=621' Tc=17.5 min CN=83 Runoff=37.31 cfs 3.723 af

Subcatchment 5.21S: 5.21 Runoff Area=75,046 sf 29.67% Impervious Runoff Depth=3.00"
Flow Length=98' Tc=5.3 min CN=85 Runoff=6.17 cfs 0.431 af

Subcatchment 5.22S: 5.22 Runoff Area=18,481 sf 50.68% Impervious Runoff Depth=3.59"
Flow Length=228' Tc=6.6 min CN=91 Runoff=1.69 cfs 0.127 af

Subcatchment 5.2S: 5.2 Runoff Area=7,018 sf 68.04% Impervious Runoff Depth=3.49"
Flow Length=226' Slope=0.0150 '/' Tc=2.2 min CN=90 Runoff=0.73 cfs 0.047 af

Subcatchment 5.30S: 5.30 Runoff Area=138,171 sf 31.18% Impervious Runoff Depth=2.81"
Flow Length=484' Tc=8.6 min CN=83 Runoff=9.55 cfs 0.744 af

Subcatchment 5.3S: 5.3 Runoff Area=9,428 sf 58.60% Impervious Runoff Depth=3.29"
Flow Length=224' Slope=0.0150 '/' Tc=2.2 min CN=88 Runoff=0.94 cfs 0.059 af

Subcatchment 5.4S: 5.4 Runoff Area=28,885 sf 40.00% Impervious Runoff Depth=2.91"
Flow Length=412' Tc=12.4 min CN=84 Runoff=1.83 cfs 0.161 af

Subcatchment 5.5S: 5.5 Runoff Area=16,333 sf 47.08% Impervious Runoff Depth=3.00"
Flow Length=367' Tc=7.0 min CN=85 Runoff=1.27 cfs 0.094 af

Subcatchment 5.6S: 5.6 Runoff Area=34,516 sf 29.47% Impervious Runoff Depth=2.46"
Flow Length=352' Tc=14.7 min UI Adjusted CN=79 Runoff=1.74 cfs 0.162 af

Subcatchment 5.7S: 5.7 Runoff Area=9,723 sf 54.22% Impervious Runoff Depth=3.19"
Flow Length=225' Tc=6.0 min CN=87 Runoff=0.82 cfs 0.059 af

Subcatchment 5.8S: 5.8 Runoff Area=45,544 sf 29.07% Impervious Runoff Depth=2.46"
Flow Length=402' Tc=15.2 min UI Adjusted CN=79 Runoff=2.27 cfs 0.214 af

Subcatchment 5.9S: 5.9 Runoff Area=18,933 sf 34.48% Impervious Runoff Depth=2.72"
Flow Length=249' Tc=6.4 min CN=82 Runoff=1.37 cfs 0.099 af

Subcatchment 5S: 7A Runoff Area=200,238 sf 4.24% Impervious Runoff Depth=2.55"
Flow Length=820' Tc=41.8 min CN=80 Runoff=6.62 cfs 0.976 af

Reach 1R: POI 1 Inflow=2.75 cfs 0.263 af
Outflow=2.75 cfs 0.263 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=7.99 cfs 0.677 af
Outflow=7.99 cfs 0.677 af

Reach 2R: POI 2 Inflow=12.55 cfs 1.551 af
Outflow=12.55 cfs 1.551 af

Reach 4R: POI 4 Inflow=21.50 cfs 3.467 af
Outflow=21.50 cfs 3.467 af

Reach 5.0R: Filterras Inflow=27.29 cfs 2.453 af
Outflow=27.29 cfs 2.453 af

Reach 5R: POI 5 Inflow=43.81 cfs 8.153 af
Outflow=43.81 cfs 8.153 af

Reach 6R: POI 4 Inflow=7.14 cfs 0.641 af
Outflow=7.14 cfs 0.641 af

Reach 7A-R: 7A-R Inflow=5.52 cfs 0.976 af
Outflow=5.52 cfs 0.976 af

Reach 15R: Filterra Inflow=18.65 cfs 1.683 af
Outflow=18.65 cfs 1.683 af

Reach 99R: POI 99 Inflow=69.14 cfs 12.261 af
Outflow=69.14 cfs 12.261 af

Pond 1P: Pond 1 Peak Elev=37.88' Storage=39,690 cf Inflow=22.15 cfs 1.976 af
Outflow=4.46 cfs 1.881 af

Pond 2A-P: CATCH BASIN Peak Elev=59.94' Inflow=7.99 cfs 0.677 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=7.99 cfs 0.677 af

Pond 2B-P: CROSS CULVERT Peak Elev=60.42' Storage=797 cf Inflow=7.45 cfs 0.874 af
Outflow=7.22 cfs 0.874 af

Pond 2P: Pond 2 Peak Elev=32.87' Storage=72,026 cf Inflow=33.17 cfs 2.884 af
Outflow=2.40 cfs 2.695 af

Pond 3.10P: Filterra 4x8 Peak Elev=103.17' Storage=46 cf Inflow=1.31 cfs 0.097 af
Primary=0.21 cfs 0.069 af Secondary=1.10 cfs 0.028 af Outflow=1.31 cfs 0.097 af

Pond 3.11P: Filterra 6X8 Peak Elev=103.25' Storage=36 cf Inflow=2.04 cfs 0.123 af
Primary=0.16 cfs 0.077 af Secondary=1.88 cfs 0.046 af Outflow=2.03 cfs 0.123 af

Pond 3.2P: Filterra 4X8 Peak Elev=103.19' Storage=46 cf Inflow=1.52 cfs 0.138 af
Primary=0.21 cfs 0.090 af Secondary=1.31 cfs 0.048 af Outflow=1.52 cfs 0.138 af

Pond 3.3P: Filterra 4X6 Peak Elev=103.14' Storage=33 cf Inflow=0.98 cfs 0.076 af
Primary=0.16 cfs 0.054 af Secondary=0.82 cfs 0.023 af Outflow=0.98 cfs 0.076 af

Pond 3.4P: Filterra 4x8 Peak Elev=103.16' Storage=45 cf Inflow=1.19 cfs 0.110 af
Primary=0.21 cfs 0.076 af Secondary=0.98 cfs 0.034 af Outflow=1.18 cfs 0.110 af

Pond 3.5P: Filterra 6X8 Peak Elev=103.24' Storage=71 cf Inflow=2.07 cfs 0.186 af
Primary=0.31 cfs 0.125 af Secondary=1.76 cfs 0.061 af Outflow=2.07 cfs 0.186 af

Pond 3.6P: Filterra 4x6 Peak Elev=103.19' Storage=35 cf Inflow=1.44 cfs 0.123 af
Primary=0.16 cfs 0.077 af Secondary=1.29 cfs 0.046 af Outflow=1.44 cfs 0.123 af

Pond 3.7P: Filterra 4x8 Peak Elev=103.24' Storage=48 cf Inflow=2.00 cfs 0.148 af
Primary=0.21 cfs 0.094 af Secondary=1.79 cfs 0.053 af Outflow=2.00 cfs 0.147 af

Pond 3.8P: Filterra 6X8 Peak Elev=103.38' Storage=83 cf Inflow=3.93 cfs 0.289 af
Primary=0.31 cfs 0.172 af Secondary=3.61 cfs 0.117 af Outflow=3.92 cfs 0.289 af

Pond 3.9P: Filterra 4x8 Peak Elev=103.18' Storage=46 cf Inflow=1.39 cfs 0.102 af
Primary=0.21 cfs 0.073 af Secondary=1.18 cfs 0.029 af Outflow=1.39 cfs 0.102 af

Pond 3P: Pond 3 (VUSF) Peak Elev=30.61' Storage=17,213 cf Inflow=11.16 cfs 0.871 af
Outflow=2.62 cfs 0.760 af

Pond 4P: WETLAND STORAGE Peak Elev=22.17' Storage=395 cf Inflow=19.62 cfs 1.586 af
Outflow=19.60 cfs 1.586 af

Pond 5.10P: Filterra 6X8 Peak Elev=103.29' Storage=74 cf Inflow=2.68 cfs 0.215 af
Primary=0.31 cfs 0.139 af Secondary=2.37 cfs 0.076 af Outflow=2.68 cfs 0.215 af

Pond 5.11P: Filterra 6X6 Peak Elev=103.14' Storage=50 cf Inflow=1.02 cfs 0.076 af
Primary=0.23 cfs 0.062 af Secondary=0.78 cfs 0.014 af Outflow=1.02 cfs 0.076 af

Pond 5.12P: Filterra 6X10 Peak Elev=103.37' Storage=102 cf Inflow=3.92 cfs 0.292 af
Primary=0.39 cfs 0.184 af Secondary=3.52 cfs 0.108 af Outflow=3.91 cfs 0.292 af

Pond 5.13P: Filterra 6X8 Peak Elev=103.19' Storage=69 cf Inflow=1.54 cfs 0.117 af
Primary=0.31 cfs 0.090 af Secondary=1.23 cfs 0.027 af Outflow=1.54 cfs 0.118 af

Pond 5.14P: Filterra 6X12 Peak Elev=103.39' Storage=104 cf Inflow=4.13 cfs 0.305 af
Primary=0.39 cfs 0.191 af Secondary=3.73 cfs 0.114 af Outflow=4.12 cfs 0.305 af

Pond 5.15P: Filterra 6X10 Peak Elev=103.35' Storage=99 cf Inflow=3.56 cfs 0.236 af
Primary=0.39 cfs 0.157 af Secondary=3.17 cfs 0.079 af Outflow=3.56 cfs 0.235 af

Pond 5.1P: Filterra 6X12 Peak Elev=103.32' Storage=114 cf Inflow=3.21 cfs 0.316 af
Primary=0.47 cfs 0.206 af Secondary=2.74 cfs 0.110 af Outflow=3.21 cfs 0.316 af

Pond 5.4P: Filterra 6X8 Peak Elev=103.21' Storage=70 cf Inflow=1.83 cfs 0.161 af
Primary=0.31 cfs 0.112 af Secondary=1.52 cfs 0.049 af Outflow=1.83 cfs 0.161 af

Pond 5.5P: Filterra 4x8 Peak Elev=103.17' Storage=45 cf Inflow=1.27 cfs 0.094 af
Primary=0.22 cfs 0.067 af Secondary=1.06 cfs 0.026 af Outflow=1.26 cfs 0.094 af

Pond 5.8P: Filterra 6X10 Peak Elev=103.25' Storage=90 cf Inflow=2.27 cfs 0.214 af
Primary=0.41 cfs 0.148 af Secondary=1.88 cfs 0.067 af Outflow=2.27 cfs 0.215 af

Pond 5.9P: Filterra 4x8 Peak Elev=103.18' Storage=46 cf Inflow=1.37 cfs 0.099 af
Primary=0.21 cfs 0.070 af Secondary=1.16 cfs 0.029 af Outflow=1.37 cfs 0.099 af

Pond 5P: 24" Culvert Peak Elev=33.50' Storage=3,680 cf Inflow=6.62 cfs 0.976 af
24.0" Round Culvert w/ 12.0" inside fill n=0.013 L=72.0' S=0.0375 '/' Outflow=5.52 cfs 0.976 af

Total Runoff Area = 63.267 ac Runoff Volume = 14.469 af Average Runoff Depth = 2.74"
85.22% Pervious = 53.916 ac 14.78% Impervious = 9.351 ac

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: 1 Runoff Area=69,758 sf 0.00% Impervious Runoff Depth=2.92"
Flow Length=368' Tc=15.0 min CN=73 Runoff=4.14 cfs 0.390 af

Subcatchment2A-S: 2A Runoff Area=129,920 sf 25.77% Impervious Runoff Depth=3.80"
Flow Length=208' Tc=11.3 min CN=82 Runoff=11.09 cfs 0.945 af

Subcatchment2B-S: 2B Runoff Area=185,601 sf 8.37% Impervious Runoff Depth=3.50"
Flow Length=579' Tc=25.7 min CN=79 Runoff=10.60 cfs 1.243 af

Subcatchment3.10S: 3.10 Runoff Area=16,463 sf 41.35% Impervious Runoff Depth=4.22"
Flow Length=255' Tc=7.0 min CN=86 Runoff=1.77 cfs 0.133 af

Subcatchment3.11S: 3.11 Runoff Area=22,818 sf 38.20% Impervious Runoff Depth=3.91"
Flow Length=160' Tc=1.4 min CN=83 Runoff=2.80 cfs 0.171 af

Subcatchment3.12S: CB-2 Runoff Area=29,503 sf 24.70% Impervious Runoff Depth=3.40"
Flow Length=313' Tc=14.2 min UI Adjusted CN=78 Runoff=2.09 cfs 0.192 af

Subcatchment3.13S: CB-3 Runoff Area=13,062 sf 36.99% Impervious Runoff Depth=3.91"
Flow Length=225' Tc=8.0 min CN=83 Runoff=1.27 cfs 0.098 af

Subcatchment3.14S: CB-4 Runoff Area=9,436 sf 34.58% Impervious Runoff Depth=4.01"
Flow Length=230' Slope=0.0300 '/' Tc=1.5 min CN=84 Runoff=1.18 cfs 0.072 af

Subcatchment3.1S: 3.1 Runoff Area=5,704 sf 48.54% Impervious Runoff Depth=4.22"
Flow Length=115' Slope=0.0200 '/' Tc=11.1 min CN=86 Runoff=0.54 cfs 0.046 af

Subcatchment3.20S: 3.20 Runoff Area=46,483 sf 29.22% Impervious Runoff Depth=4.43"
Flow Length=272' Tc=10.0 min CN=88 Runoff=4.70 cfs 0.394 af

Subcatchment3.2S: 3.2 Runoff Area=28,301 sf 29.96% Impervious Runoff Depth=3.60"
Flow Length=360' Tc=13.8 min UI Adjusted CN=80 Runoff=2.14 cfs 0.195 af

Subcatchment3.3S: 3.3 Runoff Area=14,630 sf 33.63% Impervious Runoff Depth=3.80"
Flow Length=289' Tc=8.6 min CN=82 Runoff=1.36 cfs 0.106 af

Subcatchment3.4S: 3.4 Runoff Area=21,170 sf 33.11% Impervious Runoff Depth=3.80"
Flow Length=362' Tc=14.7 min CN=82 Runoff=1.65 cfs 0.154 af

Subcatchment3.5S: 3.5 Runoff Area=36,887 sf 30.24% Impervious Runoff Depth=3.70"
Flow Length=432' Tc=13.3 min CN=81 Runoff=2.90 cfs 0.261 af

Subcatchment3.6S: 3.6 Runoff Area=24,469 sf 26.85% Impervious Runoff Depth=3.70"
Flow Length=311' Tc=11.6 min UI Adjusted CN=81 Runoff=2.02 cfs 0.173 af

Subcatchment3.7S: 3.7 Runoff Area=29,265 sf 22.99% Impervious Runoff Depth=3.70"
Flow Length=255' Tc=7.0 min UI Adjusted CN=81 Runoff=2.80 cfs 0.207 af

Subcatchment 3.8S: 3.8 Runoff Area=57,330 sf 22.10% Impervious Runoff Depth=3.70"
Flow Length=255' Tc=7.0 min UI Adjusted CN=81 Runoff=5.49 cfs 0.406 af

Subcatchment 3.9S: 3.9 Runoff Area=15,285 sf 53.44% Impervious Runoff Depth=4.65"
Flow Length=342' Tc=6.1 min CN=90 Runoff=1.82 cfs 0.136 af

Subcatchment 3S: 4 Runoff Area=285,246 sf 0.00% Impervious Runoff Depth=4.01"
Flow Length=732' Tc=9.7 min CN=84 Runoff=26.83 cfs 2.188 af

Subcatchment 4S: 6 Runoff Area=123,011 sf 0.00% Impervious Runoff Depth=3.80"
Flow Length=649' Tc=13.3 min CN=82 Runoff=9.92 cfs 0.895 af

Subcatchment 5.10S: 5.10 Runoff Area=47,324 sf 23.69% Impervious Runoff Depth=3.40"
Flow Length=304' Tc=9.5 min UI Adjusted CN=78 Runoff=3.85 cfs 0.308 af

Subcatchment 5.11S: 5.11 Runoff Area=9,602 sf 88.19% Impervious Runoff Depth=5.33"
Flow Length=200' Tc=4.7 min CN=96 Runoff=1.30 cfs 0.098 af

Subcatchment 5.12S: 5.12 Runoff Area=64,167 sf 23.84% Impervious Runoff Depth=3.40"
Flow Length=308' Tc=7.3 min UI Adjusted CN=78 Runoff=5.61 cfs 0.418 af

Subcatchment 5.13S: 5.13 Runoff Area=16,127 sf 75.66% Impervious Runoff Depth=4.99"
Flow Length=373' Slope=0.0200 '/' Tc=6.4 min CN=93 Runoff=1.99 cfs 0.154 af

Subcatchment 5.14S: 5.14 Runoff Area=54,863 sf 30.59% Impervious Runoff Depth=4.01"
Flow Length=733' Slope=0.0100 '/' Tc=7.0 min CN=84 Runoff=5.64 cfs 0.421 af

Subcatchment 5.15S: 5.15 Runoff Area=45,229 sf 32.57% Impervious Runoff Depth=3.80"
Flow Length=369' Slope=0.0100 '/' Tc=4.0 min CN=82 Runoff=4.94 cfs 0.329 af

Subcatchment 5.1S: 5.1 Runoff Area=60,576 sf 30.85% Impervious Runoff Depth=3.80"
Flow Length=643' Tc=16.9 min CN=82 Runoff=4.46 cfs 0.441 af

Subcatchment 5.20S: 5.20 Runoff Area=691,370 sf 0.00% Impervious Runoff Depth=3.91"
Flow Length=621' Tc=17.5 min CN=83 Runoff=51.48 cfs 5.166 af

Subcatchment 5.21S: 5.21 Runoff Area=75,046 sf 29.67% Impervious Runoff Depth=4.11"
Flow Length=98' Tc=5.3 min CN=85 Runoff=8.37 cfs 0.591 af

Subcatchment 5.22S: 5.22 Runoff Area=18,481 sf 50.68% Impervious Runoff Depth=4.76"
Flow Length=228' Tc=6.6 min CN=91 Runoff=2.20 cfs 0.168 af

Subcatchment 5.2S: 5.2 Runoff Area=7,018 sf 68.04% Impervious Runoff Depth=4.65"
Flow Length=226' Slope=0.0150 '/' Tc=2.2 min CN=90 Runoff=0.96 cfs 0.062 af

Subcatchment 5.30S: 5.30 Runoff Area=138,171 sf 31.18% Impervious Runoff Depth=3.91"
Flow Length=484' Tc=8.6 min CN=83 Runoff=13.16 cfs 1.033 af

Subcatchment 5.3S: 5.3 Runoff Area=9,428 sf 58.60% Impervious Runoff Depth=4.43"
Flow Length=224' Slope=0.0150 '/' Tc=2.2 min CN=88 Runoff=1.25 cfs 0.080 af

Subcatchment 5.4S: 5.4 Runoff Area=28,885 sf 40.00% Impervious Runoff Depth=4.01"
Flow Length=412' Tc=12.4 min CN=84 Runoff=2.51 cfs 0.222 af

Subcatchment 5.5S: 5.5 Runoff Area=16,333 sf 47.08% Impervious Runoff Depth=4.11"
Flow Length=367' Tc=7.0 min CN=85 Runoff=1.72 cfs 0.129 af

Subcatchment 5.6S: 5.6 Runoff Area=34,516 sf 29.47% Impervious Runoff Depth=3.50"
Flow Length=352' Tc=14.7 min UI Adjusted CN=79 Runoff=2.48 cfs 0.231 af

Subcatchment 5.7S: 5.7 Runoff Area=9,723 sf 54.22% Impervious Runoff Depth=4.33"
Flow Length=225' Tc=6.0 min CN=87 Runoff=1.10 cfs 0.080 af

Subcatchment 5.8S: 5.8 Runoff Area=45,544 sf 29.07% Impervious Runoff Depth=3.50"
Flow Length=402' Tc=15.2 min UI Adjusted CN=79 Runoff=3.23 cfs 0.305 af

Subcatchment 5.9S: 5.9 Runoff Area=18,933 sf 34.48% Impervious Runoff Depth=3.80"
Flow Length=249' Tc=6.4 min CN=82 Runoff=1.90 cfs 0.138 af

Subcatchment 5S: 7A Runoff Area=200,238 sf 4.24% Impervious Runoff Depth=3.60"
Flow Length=820' Tc=41.8 min CN=80 Runoff=9.35 cfs 1.380 af

Reach 1R: POI 1 Inflow=4.14 cfs 0.390 af
Outflow=4.14 cfs 0.390 af

Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST. Inflow=11.09 cfs 0.945 af
Outflow=11.09 cfs 0.945 af

Reach 2R: POI 2 Inflow=17.31 cfs 2.189 af
Outflow=17.31 cfs 2.189 af

Reach 4R: POI 4 Inflow=30.83 cfs 4.834 af
Outflow=30.83 cfs 4.834 af

Reach 5.0R: Filterras Inflow=37.87 cfs 3.416 af
Outflow=37.87 cfs 3.416 af

Reach 5R: POI 5 Inflow=60.17 cfs 11.413 af
Outflow=60.17 cfs 11.413 af

Reach 6R: POI 4 Inflow=9.92 cfs 0.895 af
Outflow=9.92 cfs 0.895 af

Reach 7A-R: 7A-R Inflow=7.04 cfs 1.380 af
Outflow=7.04 cfs 1.380 af

Reach 15R: Filterra Inflow=25.94 cfs 2.351 af
Outflow=25.94 cfs 2.351 af

Reach 99R: POI 99 Inflow=95.87 cfs 17.142 af
Outflow=95.87 cfs 17.142 af

Pond 1P: Pond 1 Peak Elev=39.24' Storage=55,608 cf Inflow=30.59 cfs 2.745 af
Outflow=5.81 cfs 2.646 af

Pond 2A-P: CATCH BASIN Peak Elev=62.43' Inflow=11.09 cfs 0.945 af
12.0" Round Culvert n=0.011 L=25.4' S=0.0110 '/' Outflow=11.09 cfs 0.945 af

Pond 2B-P: CROSS CULVERT Peak Elev=61.00' Storage=1,896 cf Inflow=10.60 cfs 1.243 af
Outflow=9.68 cfs 1.243 af

Pond 2P: Pond 2 Peak Elev=34.49' Storage=104,453 cf Inflow=45.85 cfs 4.006 af
Outflow=2.85 cfs 3.779 af

Pond 3.10P: Filterra 4x8 Peak Elev=103.22' Storage=47 cf Inflow=1.77 cfs 0.133 af
Primary=0.21 cfs 0.089 af Secondary=1.56 cfs 0.044 af Outflow=1.77 cfs 0.133 af

Pond 3.11P: Filterra 6X8 Peak Elev=103.31' Storage=39 cf Inflow=2.80 cfs 0.171 af
Primary=0.16 cfs 0.097 af Secondary=2.64 cfs 0.073 af Outflow=2.79 cfs 0.170 af

Pond 3.2P: Filterra 4X8 Peak Elev=103.25' Storage=48 cf Inflow=2.14 cfs 0.195 af
Primary=0.21 cfs 0.116 af Secondary=1.93 cfs 0.079 af Outflow=2.14 cfs 0.195 af

Pond 3.3P: Filterra 4X6 Peak Elev=103.18' Storage=34 cf Inflow=1.36 cfs 0.106 af
Primary=0.16 cfs 0.069 af Secondary=1.20 cfs 0.037 af Outflow=1.36 cfs 0.107 af

Pond 3.4P: Filterra 4x8 Peak Elev=103.21' Storage=47 cf Inflow=1.65 cfs 0.154 af
Primary=0.21 cfs 0.098 af Secondary=1.44 cfs 0.056 af Outflow=1.65 cfs 0.154 af

Pond 3.5P: Filterra 6X8 Peak Elev=103.30' Storage=75 cf Inflow=2.90 cfs 0.261 af
Primary=0.31 cfs 0.161 af Secondary=2.59 cfs 0.100 af Outflow=2.90 cfs 0.261 af

Pond 3.6P: Filterra 4x6 Peak Elev=103.24' Storage=36 cf Inflow=2.02 cfs 0.173 af
Primary=0.16 cfs 0.098 af Secondary=1.86 cfs 0.075 af Outflow=2.02 cfs 0.173 af

Pond 3.7P: Filterra 4x8 Peak Elev=103.30' Storage=51 cf Inflow=2.80 cfs 0.207 af
Primary=0.21 cfs 0.121 af Secondary=2.59 cfs 0.086 af Outflow=2.80 cfs 0.207 af

Pond 3.8P: Filterra 6X8 Peak Elev=103.48' Storage=99 cf Inflow=5.49 cfs 0.406 af
Primary=0.31 cfs 0.217 af Secondary=5.17 cfs 0.189 af Outflow=5.48 cfs 0.406 af

Pond 3.9P: Filterra 4x8 Peak Elev=103.22' Storage=47 cf Inflow=1.82 cfs 0.136 af
Primary=0.21 cfs 0.092 af Secondary=1.61 cfs 0.044 af Outflow=1.82 cfs 0.136 af

Pond 3P: Pond 3 (VUSF) Peak Elev=31.65' Storage=23,806 cf Inflow=15.27 cfs 1.201 af
Outflow=3.45 cfs 1.088 af

Pond 4P: WETLAND STORAGE Peak Elev=22.22' Storage=511 cf Inflow=26.83 cfs 2.188 af
Outflow=26.80 cfs 2.188 af

Pond 5.10P: Filterra 6X8 Peak Elev=103.37' Storage=82 cf Inflow=3.85 cfs 0.308 af
Primary=0.31 cfs 0.180 af Secondary=3.53 cfs 0.128 af Outflow=3.84 cfs 0.308 af

Pond 5.11P: Filterra 6X6 Peak Elev=103.17' Storage=51 cf Inflow=1.30 cfs 0.098 af
Primary=0.23 cfs 0.075 af Secondary=1.06 cfs 0.023 af Outflow=1.29 cfs 0.098 af

Pond 5.12P: Filterra 6X10 Peak Elev=103.49' Storage=120 cf Inflow=5.61 cfs 0.418 af
Primary=0.39 cfs 0.237 af Secondary=5.22 cfs 0.180 af Outflow=5.61 cfs 0.418 af

Pond 5.13P: Filterra 6X8 Peak Elev=103.23' Storage=71 cf Inflow=1.99 cfs 0.154 af
Primary=0.31 cfs 0.112 af Secondary=1.67 cfs 0.042 af Outflow=1.98 cfs 0.154 af

Pond 5.14P: Filterra 6X12 Peak Elev=103.49' Storage=120 cf Inflow=5.64 cfs 0.421 af
Primary=0.39 cfs 0.242 af Secondary=5.24 cfs 0.178 af Outflow=5.63 cfs 0.421 af

Pond 5.15P: Filterra 6X10 Peak Elev=103.44' Storage=112 cf Inflow=4.94 cfs 0.329 af
Primary=0.39 cfs 0.203 af Secondary=4.54 cfs 0.126 af Outflow=4.93 cfs 0.329 af

Pond 5.1P: Filterra 6X12 Peak Elev=103.41' Storage=126 cf Inflow=4.46 cfs 0.441 af
Primary=0.47 cfs 0.264 af Secondary=3.99 cfs 0.177 af Outflow=4.46 cfs 0.441 af

Pond 5.4P: Filterra 6X8 Peak Elev=103.27' Storage=73 cf Inflow=2.51 cfs 0.222 af
Primary=0.31 cfs 0.144 af Secondary=2.19 cfs 0.078 af Outflow=2.51 cfs 0.222 af

Pond 5.5P: Filterra 4x8 Peak Elev=103.21' Storage=47 cf Inflow=1.72 cfs 0.129 af
Primary=0.21 cfs 0.086 af Secondary=1.51 cfs 0.042 af Outflow=1.72 cfs 0.129 af

Pond 5.8P: Filterra 6X10 Peak Elev=103.32' Storage=96 cf Inflow=3.23 cfs 0.305 af
Primary=0.39 cfs 0.191 af Secondary=2.84 cfs 0.114 af Outflow=3.23 cfs 0.305 af

Pond 5.9P: Filterra 4x8 Peak Elev=103.23' Storage=47 cf Inflow=1.90 cfs 0.138 af
Primary=0.21 cfs 0.090 af Secondary=1.69 cfs 0.047 af Outflow=1.90 cfs 0.138 af

Pond 5P: 24" Culvert Peak Elev=34.03' Storage=6,686 cf Inflow=9.35 cfs 1.380 af
24.0" Round Culvert w/ 12.0" inside fill n=0.013 L=72.0' S=0.0375 '/' Outflow=7.04 cfs 1.380 af

Total Runoff Area = 63.267 ac Runoff Volume = 20.160 af Average Runoff Depth = 3.82"
85.22% Pervious = 53.916 ac 14.78% Impervious = 9.351 ac

Summary for Subcatchment 1S: 1

Runoff = 4.14 cfs @ 12.21 hrs, Volume= 0.390 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
37,862	72	Woods/grass comb., Good, HSG C
31,896	74	>75% Grass cover, Good, HSG C
69,758	73	Weighted Average
69,758		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0166	0.16		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
4.3	268	0.0440	1.05		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
15.0	368	Total			

Summary for Subcatchment 2A-S: 2A

Runoff = 11.09 cfs @ 12.15 hrs, Volume= 0.945 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
19,676	98	Paved parking, HSG D
13,805	98	Roofs, HSG D
2,799	82	Woods/grass comb., Poor, HSG C
27,402	72	Woods/grass comb., Good, HSG C
24,494	79	50-75% Grass cover, Fair, HSG C
37,967	74	>75% Grass cover, Good, HSG C
3,777	96	Gravel surface, HSG C
129,920	82	Weighted Average
96,439		74.23% Pervious Area
33,481		25.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0232	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.9	108	0.0355	0.94		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
11.3	208	Total			

Summary for Subcatchment 2B-S: 2B

Runoff = 10.60 cfs @ 12.36 hrs, Volume= 1.243 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	14,844	98	Paved parking, HSG D
	697	98	Roofs, HSG D
	10,901	82	Woods/grass comb., Poor, HSG C
	49,690	72	Woods/grass comb., Good, HSG C
	56,075	79	50-75% Grass cover, Fair, HSG C
	38,333	74	>75% Grass cover, Good, HSG C
	10,379	96	Gravel surface, HSG C
*	4,682	90	Wetland, HSG D
	185,601	79	Weighted Average
	170,060		91.63% Pervious Area
	15,541		8.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	100	0.0082	0.12		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
10.1	300	0.0011	0.50		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
1.4	179	0.0194	2.09		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
25.7	579	Total			

Summary for Subcatchment 3.10S: 3.10

Runoff = 1.77 cfs @ 12.10 hrs, Volume= 0.133 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,807	98	Paved roads w/curbs & sewers, HSG D
3,000	98	Unconnected roofs, HSG D
3,090	74	>75% Grass cover, Good, HSG C
6,566	80	>75% Grass cover, Good, HSG D
16,463	86	Weighted Average
9,656		58.65% Pervious Area
6,807		41.35% Impervious Area
3,000		44.07% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0667	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
0.9	155	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.0	255	Total			

Summary for Subcatchment 3.11S: 3.11

Runoff = 2.80 cfs @ 12.02 hrs, Volume= 0.171 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
4,967	98	Paved roads w/curbs & sewers, HSG D
3,750	98	Unconnected roofs, HSG D
14,101	74	>75% Grass cover, Good, HSG C
22,818	83	Weighted Average
14,101		61.80% Pervious Area
8,717		38.20% Impervious Area
3,750		43.02% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.89		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.5	110	0.0300	3.52		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.4	160	Total			

Summary for Subcatchment 3.12S: CB-2

Runoff = 2.09 cfs @ 12.20 hrs, Volume= 0.192 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
3,537	98		Paved roads w/curbs & sewers, HSG D
3,750	98		Unconnected roofs, HSG D
22,216	74		>75% Grass cover, Good, HSG C
29,503	80	78	Weighted Average, UI Adjusted
22,216			75.30% Pervious Area
7,287			24.70% Impervious Area
3,750			51.46% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	137	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.4	176	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
14.2	313	Total			

Summary for Subcatchment 3.13S: CB-3

Runoff = 1.27 cfs @ 12.11 hrs, Volume= 0.098 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
2,581	98	Paved roads w/curbs & sewers, HSG D
2,250	98	Unconnected roofs, HSG D
8,231	74	>75% Grass cover, Good, HSG C
13,062	83	Weighted Average
8,231		63.01% Pervious Area
4,831		36.99% Impervious Area
2,250		46.57% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	61	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.3	164	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
8.0	225	Total			

Summary for Subcatchment 3.14S: CB-4

Runoff = 1.18 cfs @ 12.02 hrs, Volume= 0.072 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
2,513	98	Paved roads w/curbs & sewers, HSG D
750	98	Unconnected roofs, HSG D
2,843	74	>75% Grass cover, Good, HSG C
3,330	80	>75% Grass cover, Good, HSG D
9,436	84	Weighted Average
6,173		65.42% Pervious Area
3,263		34.58% Impervious Area
750		22.98% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.39		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.9	180	0.0300	3.52		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.5	230	Total			

Summary for Subcatchment 3.1S: 3.1

Runoff = 0.54 cfs @ 12.15 hrs, Volume= 0.046 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
2,019	98	Paved roads w/curbs & sewers, HSG D
750	98	Unconnected roofs, HSG D
2,935	74	>75% Grass cover, Good, HSG C
5,704	86	Weighted Average
2,935		51.46% Pervious Area
2,769		48.54% Impervious Area
750		27.09% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	115	0.0200	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"

Summary for Subcatchment 3.20S: 3.20

Runoff = 4.70 cfs @ 12.14 hrs, Volume= 0.394 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	13,582	98	Water Surface, HSG D
	3,663	72	Woods/grass comb., Good, HSG C
	4,432	86	Woods/grass comb., Poor, HSG D
*	1,340	90	Wetland, HSG D
	23,466	84	50-75% Grass cover, Fair, HSG D
	46,483	88	Weighted Average
	32,901		70.78% Pervious Area
	13,582		29.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0667	0.19		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
1.0	172	0.3300	2.87		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
10.0	272	Total			

Summary for Subcatchment 3.2S: 3.2

Runoff = 2.14 cfs @ 12.19 hrs, Volume= 0.195 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
4,730	98		Paved roads w/curbs & sewers, HSG D
3,750	98		Unconnected roofs, HSG D
19,821	74		>75% Grass cover, Good, HSG C
28,301	81	80	Weighted Average, UI Adjusted
19,821			70.04% Pervious Area
8,480			29.96% Impervious Area
3,750			44.22% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	125	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.9	235	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
13.8	360	Total			

Summary for Subcatchment 3.3S: 3.3

Runoff = 1.36 cfs @ 12.12 hrs, Volume= 0.106 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,420	98	Paved roads w/curbs & sewers, HSG D
1,500	98	Unconnected roofs, HSG D
9,710	74	>75% Grass cover, Good, HSG C
14,630	82	Weighted Average
9,710		66.37% Pervious Area
4,920		33.63% Impervious Area
1,500		30.49% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	61	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.9	228	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
8.6	289	Total			

Summary for Subcatchment 3.4S: 3.4

Runoff = 1.65 cfs @ 12.20 hrs, Volume= 0.154 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
4,010	98	Paved roads w/curbs & sewers, HSG D
3,000	98	Unconnected roofs, HSG D
14,160	74	>75% Grass cover, Good, HSG C
21,170	82	Weighted Average
14,160		66.89% Pervious Area
7,010		33.11% Impervious Area
3,000		42.80% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	138	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.8	224	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
14.7	362	Total			

Summary for Subcatchment 3.5S: 3.5

Runoff = 2.90 cfs @ 12.18 hrs, Volume= 0.261 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
7,405	98	Paved roads w/curbs & sewers, HSG D
3,750	98	Unconnected roofs, HSG D
25,732	74	>75% Grass cover, Good, HSG C
36,887	81	Weighted Average
25,732		69.76% Pervious Area
11,155		30.24% Impervious Area
3,750		33.62% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	108	0.0200	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.7	324	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
13.3	432	Total			

Summary for Subcatchment 3.6S: 3.6

Runoff = 2.02 cfs @ 12.16 hrs, Volume= 0.173 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
2,820	98		Paved roads w/curbs & sewers, HSG D
3,750	98		Unconnected roofs, HSG D
9,265	74		>75% Grass cover, Good, HSG C
8,634	80		>75% Grass cover, Good, HSG D
24,469	83	81	Weighted Average, UI Adjusted
17,899			73.15% Pervious Area
6,570			26.85% Impervious Area
3,750			57.08% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	108	0.0200	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.0	203	0.0275	3.37		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.6	311	Total			

Summary for Subcatchment 3.7S: 3.7

Runoff = 2.80 cfs @ 12.10 hrs, Volume= 0.207 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
3,727	98		Paved roads w/curbs & sewers, HSG D
3,000	98		Unconnected roofs, HSG D
11,269	74		>75% Grass cover, Good, HSG C
11,269	80		>75% Grass cover, Good, HSG D
29,265	82	81	Weighted Average, UI Adjusted
22,538			77.01% Pervious Area
6,727			22.99% Impervious Area
3,000			44.60% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0667	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
0.9	155	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.0	255	Total			

Summary for Subcatchment 3.8S: 3.8

Runoff = 5.49 cfs @ 12.10 hrs, Volume= 0.406 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
5,921	98		Paved roads w/curbs & sewers, HSG D
6,750	98		Unconnected roofs, HSG D
21,436	74		>75% Grass cover, Good, HSG C
23,223	80		>75% Grass cover, Good, HSG D
57,330	82	81	Weighted Average, UI Adjusted
44,659			77.90% Pervious Area
12,671			22.10% Impervious Area
6,750			53.27% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0667	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
0.9	155	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.0	255	Total			

Summary for Subcatchment 3.9S: 3.9

Runoff = 1.82 cfs @ 12.09 hrs, Volume= 0.136 af, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
4,419	98	Paved roads w/curbs & sewers, HSG D
3,750	98	Unconnected roofs, HSG D
7,116	80	>75% Grass cover, Good, HSG D
15,285	90	Weighted Average
7,116		46.56% Pervious Area
8,169		53.44% Impervious Area
3,750		45.91% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	32	0.0200	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.1	310	0.0150	2.49		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
6.1	342	Total			

Summary for Subcatchment 3S: 4

Runoff = 26.83 cfs @ 12.13 hrs, Volume= 2.188 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	37,374	79	Woods/grass comb., Good, HSG D
	3,209	79	Woods/grass comb., Good, HSG D
	83,760	84	50-75% Grass cover, Fair, HSG D
*	75,213	90	Wetland, HSG D
	85,690	80	>75% Grass cover, Good, HSG D
	285,246	84	Weighted Average
	285,246		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	80	0.0950	0.30		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.9	418	0.0330	2.42	343.30	**Trap/Vee/Rect Channel Flow, B-C, WETLAND** Bot.W=51.00' D=2.00' Z= 10.0 '/' Top.W=91.00' n= 0.150
2.3	234	0.0201	1.67	123.40	**Trap/Vee/Rect Channel Flow, C-D, WETLAND** Bot.W=17.00' D=2.00' Z= 10.0 '/' Top.W=57.00' n= 0.150
9.7	732	Total			

Summary for Subcatchment 4S: 6

Runoff = 9.92 cfs @ 12.18 hrs, Volume= 0.895 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	4,174	79	Woods/grass comb., Good, HSG D
	92,734	80	>75% Grass cover, Good, HSG D
*	24,074	90	Wetland, HSG D
*	2,029	96	Gravel surface, HSG D
	123,011	82	Weighted Average
	123,011		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	150	0.0370	0.26		**Sheet Flow, A-B** Range n= 0.130 P2= 3.10"
1.4	238	0.0462	2.82	366.88	**Trap/Vee/Rect Channel Flow, B-C, WETLAND** Bot.W=45.00' D=2.00' Z= 10.0 '/' Top.W=85.00' n= 0.150
1.3	206	0.0470	2.55	188.70	**Trap/Vee/Rect Channel Flow, C-D, WETLAND** Bot.W=17.00' D=2.00' Z= 10.0 '/' Top.W=57.00' n= 0.150
1.0	55	0.0330	0.91		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
13.3	649	Total			

Summary for Subcatchment 5.10S: 5.10

Runoff = 3.85 cfs @ 12.13 hrs, Volume= 0.308 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
2,960	98		Paved roads w/curbs & sewers, HSG D
8,250	98		Unconnected roofs, HSG D
33,947	74		>75% Grass cover, Good, HSG C
2,167	80		>75% Grass cover, Good, HSG D
47,324	80	78	Weighted Average, UI Adjusted
36,114			76.31% Pervious Area
11,210			23.69% Impervious Area
8,250			73.60% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0667	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
3.4	204	0.0200	0.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.5	304	Total			

Summary for Subcatchment 5.11S: 5.11

Runoff = 1.30 cfs @ 12.07 hrs, Volume= 0.098 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,968	98	Paved roads w/curbs & sewers, HSG D
4,500	98	Unconnected roofs, HSG D
374	74	>75% Grass cover, Good, HSG C
760	80	>75% Grass cover, Good, HSG D
9,602	96	Weighted Average
1,134		11.81% Pervious Area
8,468		88.19% Impervious Area
4,500		53.14% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	33	0.0200	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
0.6	167	0.0500	4.54		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
4.7	200	Total			

Summary for Subcatchment 5.12S: 5.12

Runoff = 5.61 cfs @ 12.11 hrs, Volume= 0.418 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
6,296	98		Paved roads w/curbs & sewers, HSG D
9,000	98		Unconnected roofs, HSG D
44,473	74		>75% Grass cover, Good, HSG C
4,398	80		>75% Grass cover, Good, HSG D
64,167	80	78	Weighted Average, UI Adjusted
48,871			76.16% Pervious Area
15,296			23.84% Impervious Area
9,000			58.84% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0667	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.2	208	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.3	308	Total			

Summary for Subcatchment 5.13S: 5.13

Runoff = 1.99 cfs @ 12.09 hrs, Volume= 0.154 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
4,701	98	Paved roads w/curbs & sewers, HSG D
7,500	98	Unconnected roofs, HSG D
1,374	74	>75% Grass cover, Good, HSG C
2,552	80	>75% Grass cover, Good, HSG D
16,127	93	Weighted Average
3,926		24.34% Pervious Area
12,201		75.66% Impervious Area
7,500		61.47% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	36	0.0200	0.14		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.0	337	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
6.4	373	Total			

Summary for Subcatchment 5.14S: 5.14

Runoff = 5.64 cfs @ 12.10 hrs, Volume= 0.421 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
10,782	98	Paved roads w/curbs & sewers, HSG D
6,000	98	Unconnected roofs, HSG D
12,319	74	>75% Grass cover, Good, HSG C
25,762	80	>75% Grass cover, Good, HSG D
54,863	84	Weighted Average
38,081		69.41% Pervious Area
16,782		30.59% Impervious Area
6,000		35.75% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	150	0.0100	1.11		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
4.8	583	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.0	733	Total			

Summary for Subcatchment 5.15S: 5.15

Runoff = 4.94 cfs @ 12.06 hrs, Volume= 0.329 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
7,980	98	Paved roads w/curbs & sewers, HSG D
6,750	98	Unconnected roofs, HSG D
30,195	74	>75% Grass cover, Good, HSG C
304	80	>75% Grass cover, Good, HSG D
45,229	82	Weighted Average
30,499		67.43% Pervious Area
14,730		32.57% Impervious Area
6,750		45.82% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	135	0.0100	1.09		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
1.9	234	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
4.0	369	Total			

Summary for Subcatchment 5.1S: 5.1

Runoff = 4.46 cfs @ 12.23 hrs, Volume= 0.441 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
10,438	98	Paved roads w/curbs & sewers, HSG D
8,250	98	Unconnected roofs, HSG D
38,537	74	>75% Grass cover, Good, HSG C
3,351	80	>75% Grass cover, Good, HSG D
60,576	82	Weighted Average
41,888		69.15% Pervious Area
18,688		30.85% Impervious Area
8,250		44.15% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	136	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
4.2	507	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
16.9	643	Total			

Summary for Subcatchment 5.20S: 5.20

Runoff = 51.48 cfs @ 12.23 hrs, Volume= 5.166 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	2,115	72	Woods/grass comb., Good, HSG C
	204,937	79	Woods/grass comb., Good, HSG D
*	158,830	90	Wetland, HSG D
	83,996	84	50-75% Grass cover, Fair, HSG D
	61,544	79	50-75% Grass cover, Fair, HSG C
	15,969	89	<50% Grass cover, Poor, HSG D
	163,979	80	>75% Grass cover, Good, HSG D
	691,370	83	Weighted Average
	691,370		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	150	0.0330	0.25		**Sheet Flow, A-B** Range n= 0.130 P2= 3.10"
1.3	146	0.0710	1.87		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.1	325	0.0044	0.88	127.38	**Trap/Vee/Rect Channel Flow, C-D, Wetland** Bot.W=52.00' D=2.00' Z= 10.0 '/' Top.W=92.00' n= 0.150
17.5	621	Total			

Summary for Subcatchment 5.21S: 5.21

Runoff = 8.37 cfs @ 12.08 hrs, Volume= 0.591 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
52,777	80	>75% Grass cover, Good, HSG D
22,269	98	Water Surface, HSG D
75,046	85	Weighted Average
52,777		70.33% Pervious Area
22,269		29.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	50	0.1000	0.31		**Sheet Flow, A-B** Range n= 0.130 P2= 3.10"
2.6	48	0.3300	0.30		**Sheet Flow, B-C** Grass: Dense n= 0.240 P2= 3.10"
5.3	98	Total			

Summary for Subcatchment 5.22S: 5.22

Runoff = 2.20 cfs @ 12.09 hrs, Volume= 0.168 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
9,366	98	Water Surface, HSG D
9,115	84	50-75% Grass cover, Fair, HSG D
18,481	91	Weighted Average
9,115		49.32% Pervious Area
9,366		50.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0667	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
0.5	128	0.3300	4.02		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.6	228	Total			

Summary for Subcatchment 5.2S: 5.2

Runoff = 0.96 cfs @ 12.03 hrs, Volume= 0.062 af, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
4,775	98	Paved roads w/curbs & sewers, HSG D
0	98	Unconnected roofs, HSG D
2,243	74	>75% Grass cover, Good, HSG C
7,018	90	Weighted Average
2,243		31.96% Pervious Area
4,775		68.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0150	1.21		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.8	126	0.0150	2.49		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
2.2	226	Total			

Summary for Subcatchment 5.30S: 5.30

Runoff = 13.16 cfs @ 12.12 hrs, Volume= 1.033 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
29,805	98	Paved roads w/curbs & sewers, HSG D
13,275	98	Unconnected roofs, HSG D
28,527	80	>75% Grass cover, Good, HSG D
66,564	74	>75% Grass cover, Good, HSG C
138,171	83	Weighted Average
95,091		68.82% Pervious Area
43,080		31.18% Impervious Area
13,275		30.81% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	150	0.1229	0.38		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
0.5	158	0.0571	4.85		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
1.4	176	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
8.6	484	Total			

Summary for Subcatchment 5.3S: 5.3

Runoff = 1.25 cfs @ 12.03 hrs, Volume= 0.080 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
4,775	98	Paved roads w/curbs & sewers, HSG D
750	98	Unconnected roofs, HSG D
3,903	74	>75% Grass cover, Good, HSG C
9,428	88	Weighted Average
3,903		41.40% Pervious Area
5,525		58.60% Impervious Area
750		13.57% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0150	1.21		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.8	124	0.0150	2.49		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
2.2	224	Total			

Summary for Subcatchment 5.4S: 5.4

Runoff = 2.51 cfs @ 12.17 hrs, Volume= 0.222 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
6,305	98	Paved roads w/curbs & sewers, HSG D
5,250	98	Unconnected roofs, HSG D
17,330	74	>75% Grass cover, Good, HSG C
28,885	84	Weighted Average
17,330		60.00% Pervious Area
11,555		40.00% Impervious Area
5,250		45.43% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	98	0.0200	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.6	314	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
12.4	412	Total			

Summary for Subcatchment 5.5S: 5.5

Runoff = 1.72 cfs @ 12.10 hrs, Volume= 0.129 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
4,690	98	Paved roads w/curbs & sewers, HSG D
3,000	98	Unconnected roofs, HSG D
8,643	74	>75% Grass cover, Good, HSG C
16,333	85	Weighted Average
8,643		52.92% Pervious Area
7,690		47.08% Impervious Area
3,000		39.01% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	35	0.0200	0.14		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.7	332	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.0	367	Total			

Summary for Subcatchment 5.6S: 5.6

Runoff = 2.48 cfs @ 12.20 hrs, Volume= 0.231 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
4,171	98		Paved roads w/curbs & sewers, HSG D
6,000	98		Unconnected roofs, HSG D
24,345	74		>75% Grass cover, Good, HSG C
34,516	81	79	Weighted Average, UI Adjusted
24,345			70.53% Pervious Area
10,171			29.47% Impervious Area
6,000			58.99% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	140	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.7	212	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
14.7	352	Total			

Summary for Subcatchment 5.7S: 5.7

Runoff = 1.10 cfs @ 12.09 hrs, Volume= 0.080 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,022	98	Paved roads w/curbs & sewers, HSG D
2,250	98	Unconnected roofs, HSG D
4,451	74	>75% Grass cover, Good, HSG C
9,723	87	Weighted Average
4,451		45.78% Pervious Area
5,272		54.22% Impervious Area
2,250		42.68% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	37	0.0200	0.14		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.5	188	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
6.0	225	Total			

Summary for Subcatchment 5.8S: 5.8

Runoff = 3.23 cfs @ 12.21 hrs, Volume= 0.305 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
4,990	98		Paved roads w/curbs & sewers, HSG D
8,250	98		Unconnected roofs, HSG D
32,304	74		>75% Grass cover, Good, HSG C
45,544	81	79	Weighted Average, UI Adjusted
32,304			70.93% Pervious Area
13,240			29.07% Impervious Area
8,250			62.31% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	140	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
2.2	262	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
15.2	402	Total			

Summary for Subcatchment 5.9S: 5.9

Runoff = 1.90 cfs @ 12.09 hrs, Volume= 0.138 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
3,529	98	Paved roads w/curbs & sewers, HSG D
3,000	98	Unconnected roofs, HSG D
12,404	74	>75% Grass cover, Good, HSG C
18,933	82	Weighted Average
12,404		65.52% Pervious Area
6,529		34.48% Impervious Area
3,000		45.95% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
0.7	199	0.0500	4.54		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
6.4	249	Total			

Summary for Subcatchment 5S: 7A

Runoff = 9.35 cfs @ 12.58 hrs, Volume= 1.380 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	1,436	98	Paved parking, HSG D
	7,057	98	Roofs, HSG D
	9,042	82	Woods/grass comb., Poor, HSG C
	17,153	72	Woods/grass comb., Good, HSG C
	39,818	79	Woods/grass comb., Good, HSG D
	5,895	89	<50% Grass cover, Poor, HSG D
	14,399	86	<50% Grass cover, Poor, HSG C
	25,916	79	50-75% Grass cover, Fair, HSG C
	59,810	74	>75% Grass cover, Good, HSG C
*	2,024	96	Gravel surface, HSG D
*	17,688	90	Wetland, HSG D
	200,238	80	Weighted Average
	191,745		95.76% Pervious Area
	8,493		4.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
8.5	273	0.0115	0.54		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.5	130	0.0165	1.45	89.64	**Trap/Vee/Rect Channel Flow, C-D, WETLAND** Bot.W=11.00' D=2.00' Z= 10.0 '/' Top.W=51.00' n= 0.150
1.5	95	0.0456	1.07		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
0.9	86	0.1121	1.67		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
0.3	88	0.1143	4.22	413.93	**Trap/Vee/Rect Channel Flow, F-G, WETLAND** Bot.W=29.00' D=2.00' Z= 10.0 '/' Top.W=69.00' n= 0.150
0.3	48	0.0558	3.11	410.39	**Trap/Vee/Rect Channel Flow, G-H, WETLAND** Bot.W=46.00' D=2.00' Z= 10.0 '/' Top.W=86.00' n= 0.150
41.8	820	Total			

Summary for Reach 1R: POI 1

Inflow Area = 1.601 ac, 0.00% Impervious, Inflow Depth = 2.92" for 25-year event
Inflow = 4.14 cfs @ 12.21 hrs, Volume= 0.390 af
Outflow = 4.14 cfs @ 12.21 hrs, Volume= 0.390 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 2A-R: PIPE FLOW ALONG WESTBROOK ST.

Inflow Area = 2.983 ac, 25.77% Impervious, Inflow Depth = 3.80" for 25-year event
Inflow = 11.09 cfs @ 12.15 hrs, Volume= 0.945 af
Outflow = 11.09 cfs @ 12.15 hrs, Volume= 0.945 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 2R: POI 2

Inflow Area = 7.243 ac, 15.54% Impervious, Inflow Depth = 3.63" for 25-year event
Inflow = 17.31 cfs @ 12.19 hrs, Volume= 2.189 af
Outflow = 17.31 cfs @ 12.19 hrs, Volume= 2.189 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 4R: POI 4

Inflow Area = 15.061 ac, 17.22% Impervious, Inflow Depth > 3.85" for 25-year event
Inflow = 30.83 cfs @ 12.14 hrs, Volume= 4.834 af
Outflow = 30.83 cfs @ 12.14 hrs, Volume= 4.834 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 5.0R: Filterras

Inflow Area = 10.750 ac, 34.62% Impervious, Inflow Depth = 3.81" for 25-year event
Inflow = 37.87 cfs @ 12.11 hrs, Volume= 3.416 af
Outflow = 37.87 cfs @ 12.11 hrs, Volume= 3.416 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 5R: POI 5

Inflow Area = 36.538 ac, 15.41% Impervious, Inflow Depth > 3.75" for 25-year event
Inflow = 60.17 cfs @ 12.24 hrs, Volume= 11.413 af
Outflow = 60.17 cfs @ 12.24 hrs, Volume= 11.413 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 6R: POI 4

Inflow Area =	2.824 ac,	0.00% Impervious,	Inflow Depth =	3.80"	for 25-year event
Inflow =	9.92 cfs @	12.18 hrs,	Volume=	0.895 af	
Outflow =	9.92 cfs @	12.18 hrs,	Volume=	0.895 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 7A-R: 7A-R

Inflow Area = 4.597 ac, 4.24% Impervious, Inflow Depth = 3.60" for 25-year event
Inflow = 7.04 cfs @ 12.85 hrs, Volume= 1.380 af
Outflow = 7.04 cfs @ 12.85 hrs, Volume= 1.380 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 15R: Filterra

Inflow Area = 7.445 ac, 30.64% Impervious, Inflow Depth = 3.79" for 25-year event
Inflow = 25.94 cfs @ 12.12 hrs, Volume= 2.351 af
Outflow = 25.94 cfs @ 12.12 hrs, Volume= 2.351 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Reach 99R: POI 99

Inflow Area = 54.422 ac, 15.11% Impervious, Inflow Depth > 3.78" for 25-year event
Inflow = 95.87 cfs @ 12.19 hrs, Volume= 17.142 af
Outflow = 95.87 cfs @ 12.19 hrs, Volume= 17.142 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Summary for Pond 1P: Pond 1

Inflow Area = 8.513 ac, 30.46% Impervious, Inflow Depth = 3.87" for 25-year event
Inflow = 30.59 cfs @ 12.12 hrs, Volume= 2.745 af
Outflow = 5.81 cfs @ 12.68 hrs, Volume= 2.646 af, Atten= 81%, Lag= 33.6 min
Primary = 5.81 cfs @ 12.68 hrs, Volume= 2.646 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 39.24' @ 12.68 hrs Surf.Area= 12,585 sf Storage= 55,608 cf

Plug-Flow detention time= 186.6 min calculated for 2.646 af (96% of inflow)
Center-of-Mass det. time= 165.9 min (977.2 - 811.3)

Volume	Invert	Avail.Storage	Storage Description
#1	33.00'	65,572 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.00	5,606	0	0
33.75	6,330	4,476	4,476
34.00	6,575	1,613	6,089
35.00	7,600	7,088	13,177
36.00	8,685	8,143	21,319
37.00	9,825	9,255	30,574
38.00	11,021	10,423	40,997
39.00	12,273	11,647	52,644
40.00	13,582	12,928	65,572

Device	Routing	Invert	Outlet Devices
#1	Primary	32.90'	**12.0" Round 12" Culvert** L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.90' / 31.00' S= 0.0317 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	33.00'	**1.7" Vert. WQ Orifice** C= 0.600
#3	Device 1	33.95'	**6.0" Vert. 2- YR Quantity Orifice** C= 0.600
#4	Device 1	36.15'	**9.0" Vert. 10/25 - YR Quantity Orifice** C= 0.600
#5	Primary	39.25'	**15.0' long x 6.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=5.81 cfs @ 12.68 hrs HW=39.24' (Free Discharge)
- **1=12" Culvert** (Passes 5.81 cfs of 7.21 cfs potential flow)
  - **2=WQ Orifice** (Orifice Controls 0.19 cfs @ 11.96 fps)
  - **3=2- YR Quantity Orifice** (Orifice Controls 2.12 cfs @ 10.81 fps)
  - **4=10/25 - YR Quantity Orifice** (Orifice Controls 3.50 cfs @ 7.93 fps)
- **5=Emergency Spillway** (Controls 0.00 cfs)

Summary for Pond 2A-P: CATCH BASIN

Inflow Area = 2.983 ac, 25.77% Impervious, Inflow Depth = 3.80" for 25-year event
Inflow = 11.09 cfs @ 12.15 hrs, Volume= 0.945 af
Outflow = 11.09 cfs @ 12.15 hrs, Volume= 0.945 af, Atten= 0%, Lag= 0.0 min
Primary = 11.09 cfs @ 12.15 hrs, Volume= 0.945 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 62.43' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	56.54'	**12.0" Round Culvert** L= 25.4' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 56.54' / 56.26' S= 0.0110 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=11.08 cfs @ 12.15 hrs HW=62.43' (Free Discharge)
└─**1=Culvert** (Barrel Controls 11.08 cfs @ 14.11 fps)

Summary for Pond 2B-P: CROSS CULVERT

Inflow Area = 4.261 ac, 8.37% Impervious, Inflow Depth = 3.50" for 25-year event
Inflow = 10.60 cfs @ 12.36 hrs, Volume= 1.243 af
Outflow = 9.68 cfs @ 12.46 hrs, Volume= 1.243 af, Atten= 9%, Lag= 6.2 min
Primary = 9.68 cfs @ 12.46 hrs, Volume= 1.243 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 61.00 @ 12.46 hrs Surf.Area= 2,584 sf Storage= 1,896 cf

Plug-Flow detention time= 2.0 min calculated for 1.243 af (100% of inflow)
Center-of-Mass det. time= 2.0 min (838.4 - 836.4)

Volume	Invert	Avail.Storage	Storage Description
#1	58.96'	27,839 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.96	100	0	0
60.00	624	376	376
61.00	2,395	1,510	1,886
62.00	49,511	25,953	27,839

Device	Routing	Invert	Outlet Devices
#1	Primary	58.96'	**18.0" Round Culvert** L= 63.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.96' / 57.71' S= 0.0198 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf
#2	Primary	62.00'	**50.0' long x 16.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=9.68 cfs @ 12.46 hrs HW=61.00' (Free Discharge)
└─**1=Culvert** (Inlet Controls 9.68 cfs @ 5.48 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Pond 2

Inflow Area = 12.473 ac, 33.94% Impervious, Inflow Depth = 3.85" for 25-year event
Inflow = 45.85 cfs @ 12.10 hrs, Volume= 4.006 af
Outflow = 2.85 cfs @ 14.59 hrs, Volume= 3.779 af, Atten= 94%, Lag= 149.5 min
Primary = 2.85 cfs @ 14.59 hrs, Volume= 3.779 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 34.49' @ 14.59 hrs Surf.Area= 21,379 sf Storage= 104,453 cf

Plug-Flow detention time= 454.1 min calculated for 3.778 af (94% of inflow)
Center-of-Mass det. time= 423.3 min (1,233.9 - 810.5)

Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	115,544 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	11,200	0	0
29.00	12,610	11,905	11,905
29.75	13,705	9,868	21,773
30.00	14,078	3,473	25,246
31.00	15,600	14,839	40,085
32.00	17,185	16,393	56,478
33.00	18,822	18,004	74,481
34.00	20,517	19,670	94,151
35.00	22,269	21,393	115,544

Device	Routing	Invert	Outlet Devices
#1	Primary	27.90'	**15.0" Round 15" Culvert** L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 27.90' / 27.65' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	28.00'	**2.2" Vert. WQ Orifice** C= 0.600
#3	Device 1	28.70'	**6.4" Vert. Quantity Orifice** C= 0.600
#4	Primary	34.50'	**15.0' 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=2.85 cfs @ 14.59 hrs HW=34.49' (Free Discharge)
- **1=15" Culvert** (Passes 2.85 cfs of 11.39 cfs potential flow)
  - **2=WQ Orifice** (Orifice Controls 0.32 cfs @ 12.18 fps)
  - **3=Quantity Orifice** (Orifice Controls 2.53 cfs @ 11.32 fps)
- **4=Emergency Spillway** (Controls 0.00 cfs)

Summary for Pond 3.10P: Filterra 4x8

Inflow Area =	0.378 ac, 41.35% Impervious, Inflow Depth = 4.22" for 25-year event				
Inflow =	1.77 cfs @	12.10 hrs,	Volume=	0.133 af	
Outflow =	1.77 cfs @	12.10 hrs,	Volume=	0.133 af,	Atten= 0%, Lag= 0.1 min
Primary =	0.21 cfs @	11.61 hrs,	Volume=	0.089 af	
Secondary =	1.56 cfs @	12.10 hrs,	Volume=	0.044 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.22' @ 12.10 hrs Surf.Area= 64 sf Storage= 47 cf

Plug-Flow detention time= 1.1 min calculated for 0.133 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (800.7 - 799.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	16 cf	**4.00'W x 8.00'L x 2.50'H Media/Stone** 80 cf Overall x 20.0% Voids
#2	102.25'	32 cf	**4.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		77 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 11.61 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=1.56 cfs @ 12.10 hrs HW=103.22' (Free Discharge)
└**2=CB** (Weir Controls 1.56 cfs @ 1.52 fps)

Summary for Pond 3.11P: Filterra 6X8

Inflow Area = 0.524 ac, 38.20% Impervious, Inflow Depth = 3.91" for 25-year event
Inflow = 2.80 cfs @ 12.02 hrs, Volume= 0.171 af
Outflow = 2.79 cfs @ 12.02 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.1 min
Primary = 0.16 cfs @ 11.18 hrs, Volume= 0.097 af
Secondary = 2.64 cfs @ 12.02 hrs, Volume= 0.073 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.31' @ 12.02 hrs Surf.Area= 48 sf Storage= 39 cf

Plug-Flow detention time= 1.1 min calculated for 0.170 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (804.2 - 803.3)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	12 cf	**4.00'W x 6.00'L x 2.50'H Media/Stone** 60 cf Overall x 20.0% Voids
#2	102.25'	24 cf	**4.00'W x 6.00'L x 1.00'H Prismatoid**
#3	103.25'	28 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		64 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	24	0	0
103.50	200	28	28

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.16 cfs @ 11.18 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.16 cfs)

Secondary OutFlow Max=2.62 cfs @ 12.02 hrs HW=103.31' (Free Discharge)
└**2=CB** (Weir Controls 2.62 cfs @ 1.81 fps)

Summary for Pond 3.2P: Filterra 4X8

Inflow Area =	0.650 ac, 29.96% Impervious, Inflow Depth = 3.60" for 25-year event				
Inflow =	2.14 cfs @	12.19 hrs,	Volume=	0.195 af	
Outflow =	2.14 cfs @	12.19 hrs,	Volume=	0.195 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.21 cfs @	11.55 hrs,	Volume=	0.116 af	
Secondary =	1.93 cfs @	12.19 hrs,	Volume=	0.079 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.25' @ 12.19 hrs Surf.Area= 64 sf Storage= 48 cf

Plug-Flow detention time= 1.0 min calculated for 0.195 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (823.7 - 822.8)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	16 cf	**4.00'W x 8.00'L x 2.50'H Media/Stone** 80 cf Overall x 20.0% Voids
#2	102.25'	32 cf	**4.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		77 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 11.55 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=1.93 cfs @ 12.19 hrs HW=103.25' (Free Discharge)
└**2=CB** (Weir Controls 1.93 cfs @ 1.64 fps)

Summary for Pond 3.3P: Filterra 4X6

Inflow Area = 0.336 ac, 33.63% Impervious, Inflow Depth = 3.80" for 25-year event
Inflow = 1.36 cfs @ 12.12 hrs, Volume= 0.106 af
Outflow = 1.36 cfs @ 12.12 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 11.63 hrs, Volume= 0.069 af
Secondary = 1.20 cfs @ 12.12 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.18' @ 12.12 hrs Surf.Area= 48 sf Storage= 34 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.9 min (813.6 - 812.7)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	12 cf	**4.00'W x 6.00'L x 2.50'H Media/Stone** 60 cf Overall x 20.0% Voids
#2	102.25'	24 cf	**4.00'W x 6.00'L x 1.00'H Prismatoid**
#3	103.25'	28 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		64 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	24	0	0
103.50	200	28	28

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.16 cfs @ 11.63 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.16 cfs)

Secondary OutFlow Max=1.20 cfs @ 12.12 hrs HW=103.18' (Free Discharge)
└**2=CB** (Weir Controls 1.20 cfs @ 1.40 fps)

Summary for Pond 3.4P: Filterra 4x8

Inflow Area =	0.486 ac, 33.11% Impervious, Inflow Depth = 3.80" for 25-year event				
Inflow =	1.65 cfs @	12.20 hrs,	Volume=	0.154 af	
Outflow =	1.65 cfs @	12.20 hrs,	Volume=	0.154 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.21 cfs @	11.67 hrs,	Volume=	0.098 af	
Secondary =	1.44 cfs @	12.20 hrs,	Volume=	0.056 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.21' @ 12.20 hrs Surf.Area= 64 sf Storage= 47 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.9 min (819.2 - 818.3)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	16 cf	**4.00'W x 8.00'L x 2.50'H Media/Stone** 80 cf Overall x 20.0% Voids
#2	102.25'	32 cf	**4.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		77 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 11.67 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=1.43 cfs @ 12.20 hrs HW=103.21' (Free Discharge)
└**2=CB** (Weir Controls 1.43 cfs @ 1.48 fps)

Summary for Pond 3.5P: Filterra 6X8

Inflow Area =	0.847 ac, 30.24% Impervious, Inflow Depth = 3.70" for 25-year event				
Inflow =	2.90 cfs @	12.18 hrs,	Volume=	0.261 af	
Outflow =	2.90 cfs @	12.18 hrs,	Volume=	0.261 af,	Atten= 0%, Lag= 0.1 min
Primary =	0.31 cfs @	11.61 hrs,	Volume=	0.161 af	
Secondary =	2.59 cfs @	12.18 hrs,	Volume=	0.100 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.30' @ 12.18 hrs Surf.Area= 96 sf Storage= 75 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.0 min (820.7 - 819.7)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	24 cf	**6.00'W x 8.00'L x 2.50'H Media/Stone** 120 cf Overall x 20.0% Voids
#2	102.25'	48 cf	**6.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	30 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		102 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	42	0	0
103.50	200	30	30

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.31 cfs @ 11.61 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.31 cfs)

Secondary OutFlow Max=2.58 cfs @ 12.18 hrs HW=103.30' (Free Discharge)
└**2=CB** (Weir Controls 2.58 cfs @ 1.80 fps)

Summary for Pond 3.6P: Filterra 4x6

Inflow Area = 0.562 ac, 26.85% Impervious, Inflow Depth = 3.70" for 25-year event
Inflow = 2.02 cfs @ 12.16 hrs, Volume= 0.173 af
Outflow = 2.02 cfs @ 12.16 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 11.36 hrs, Volume= 0.098 af
Secondary = 1.86 cfs @ 12.16 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.24' @ 12.16 hrs Surf.Area= 48 sf Storage= 36 cf

Plug-Flow detention time= 1.0 min calculated for 0.173 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (819.0 - 818.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	12 cf	**4.00'W x 6.00'L x 2.50'H Media/Stone** 60 cf Overall x 20.0% Voids
#2	102.25'	24 cf	**4.00'W x 6.00'L x 1.00'H Prismatoid**
#3	103.25'	28 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		64 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	24	0	0
103.50	200	28	28

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.16 cfs @ 11.36 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.16 cfs)

Secondary OutFlow Max=1.86 cfs @ 12.16 hrs HW=103.24' (Free Discharge)
└**2=CB** (Weir Controls 1.86 cfs @ 1.62 fps)

Summary for Pond 3.7P: Filterra 4x8

Inflow Area =	0.672 ac, 22.99% Impervious, Inflow Depth = 3.70" for 25-year event				
Inflow =	2.80 cfs @	12.10 hrs,	Volume=	0.207 af	
Outflow =	2.80 cfs @	12.10 hrs,	Volume=	0.207 af,	Atten= 0%, Lag= 0.1 min
Primary =	0.21 cfs @	11.38 hrs,	Volume=	0.121 af	
Secondary =	2.59 cfs @	12.10 hrs,	Volume=	0.086 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.30' @ 12.10 hrs Surf.Area= 64 sf Storage= 51 cf

Plug-Flow detention time= 1.0 min calculated for 0.207 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (814.8 - 813.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	16 cf	**4.00'W x 8.00'L x 2.50'H Media/Stone** 80 cf Overall x 20.0% Voids
#2	102.25'	32 cf	**4.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		77 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 11.38 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=2.59 cfs @ 12.10 hrs HW=103.30' (Free Discharge)
└**2=CB** (Weir Controls 2.59 cfs @ 1.80 fps)

Summary for Pond 3.8P: Filterra 6X8

Inflow Area =	1.316 ac, 22.10% Impervious, Inflow Depth = 3.70" for 25-year event				
Inflow =	5.49 cfs @	12.10 hrs,	Volume=	0.406 af	
Outflow =	5.48 cfs @	12.10 hrs,	Volume=	0.406 af,	Atten= 0%, Lag= 0.2 min
Primary =	0.31 cfs @	11.18 hrs,	Volume=	0.217 af	
Secondary =	5.17 cfs @	12.10 hrs,	Volume=	0.189 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.48' @ 12.10 hrs Surf.Area= 96 sf Storage= 99 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.1 min (814.9 - 813.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	24 cf	**6.00'W x 8.00'L x 2.50'H Media/Stone** 120 cf Overall x 20.0% Voids
#2	102.25'	48 cf	**6.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	30 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		102 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	42	0	0
103.50	200	30	30

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.31 cfs @ 11.18 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.31 cfs)

Secondary OutFlow Max=5.16 cfs @ 12.10 hrs HW=103.48' (Free Discharge)
└**2=CB** (Weir Controls 5.16 cfs @ 2.27 fps)

Summary for Pond 3.9P: Filterra 4x8

Inflow Area =	0.351 ac, 53.44% Impervious, Inflow Depth = 4.65" for 25-year event				
Inflow =	1.82 cfs @	12.09 hrs,	Volume=	0.136 af	
Outflow =	1.82 cfs @	12.09 hrs,	Volume=	0.136 af, Atten= 0%, Lag= 0.0 min	
Primary =	0.21 cfs @	11.58 hrs,	Volume=	0.092 af	
Secondary =	1.61 cfs @	12.09 hrs,	Volume=	0.044 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.22' @ 12.09 hrs Surf.Area= 64 sf Storage= 47 cf

Plug-Flow detention time= 1.6 min calculated for 0.136 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (786.8 - 785.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	16 cf	**4.00'W x 8.00'L x 2.50'H Media/Stone** 80 cf Overall x 20.0% Voids
#2	102.25'	32 cf	**4.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		77 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 11.58 hrs HW=102.25' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=1.61 cfs @ 12.09 hrs HW=103.22' (Free Discharge)
└─**2=CB** (Weir Controls 1.61 cfs @ 1.54 fps)

Summary for Pond 3P: Pond 3 (VUSF)

Inflow Area = 3.596 ac, 33.48% Impervious, Inflow Depth = 4.01" for 25-year event
Inflow = 15.27 cfs @ 12.11 hrs, Volume= 1.201 af
Outflow = 3.45 cfs @ 12.55 hrs, Volume= 1.088 af, Atten= 77%, Lag= 26.3 min
Primary = 3.45 cfs @ 12.55 hrs, Volume= 1.088 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 31.65' @ 12.55 hrs Surf.Area= 12,841 sf Storage= 23,806 cf

Plug-Flow detention time= 204.4 min calculated for 1.087 af (91% of inflow)
Center-of-Mass det. time= 158.1 min (964.2 - 806.1)

Volume	Invert	Avail.Storage	Storage Description
#1	23.85'	1,800 cf	**3/4" Stone Storage (Prismatic)**Listed below (Recalc) 4,500 cf Overall x 40.0% Voids
#2	25.35'	1,200 cf	**Filter Storage (Prismatic)**Listed below (Recalc) 6,000 cf Overall x 20.0% Voids
#3	27.35'	23,242 cf	**CPV/DETENTION (Prismatic)**Listed below (Recalc)
		26,242 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
23.85	3,000	0	0
25.35	3,000	4,500	4,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
25.35	3,000	0	0
27.35	3,000	6,000	6,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
27.35	3,000	0	0
28.00	3,515	2,117	2,117
28.85	4,220	3,287	5,405
29.00	4,350	643	6,047
30.00	5,240	4,795	10,842
31.00	6,185	5,713	16,555
32.00	7,190	6,688	23,242

Device	Routing	Invert	Outlet Devices
#1	Primary	23.90'	**12.0" Round 12"Culvert** L= 170.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 23.90' / 23.00' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	24.00'	**1.3" Vert. WQ Orifice** C= 0.600
#3	Device 1	28.85'	**9.0" Vert. Quantity Orifice** C= 0.600
#4	Primary	31.65'	**10.0' long x 6.0' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65
2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=3.44 cfs @ 12.55 hrs HW=31.65' (Free Discharge)
- **1=12"Culvert** (Passes 3.44 cfs of 6.48 cfs potential flow)
  - **2=WQ Orifice** (Orifice Controls 0.12 cfs @ 13.27 fps)
  - **3=Quantity Orifice** (Orifice Controls 3.31 cfs @ 7.50 fps)
- **4=Emergency Spillway** (Weir Controls 0.00 cfs @ 0.12 fps)

Summary for Pond 4P: WETLAND STORAGE

Inflow Area = 6.548 ac, 0.00% Impervious, Inflow Depth = 4.01" for 25-year event
Inflow = 26.83 cfs @ 12.13 hrs, Volume= 2.188 af
Outflow = 26.80 cfs @ 12.14 hrs, Volume= 2.188 af, Atten= 0%, Lag= 0.3 min
Primary = 26.80 cfs @ 12.14 hrs, Volume= 2.188 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 22.22' @ 12.14 hrs Surf.Area= 2,966 sf Storage= 511 cf

Plug-Flow detention time= 0.5 min calculated for 2.187 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (808.7 - 808.2)

Volume	Invert	Avail.Storage	Storage Description
#1	22.00'	15,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
22.00	1,777	0	0
23.00	7,298	4,538	4,538
24.00	15,446	11,372	15,910

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	**100.0' long x 98.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=26.76 cfs @ 12.14 hrs HW=22.22' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 26.76 cfs @ 1.24 fps)

Summary for Pond 5.10P: Filterra 6X8

Inflow Area =	1.086 ac, 23.69% Impervious, Inflow Depth = 3.40" for 25-year event				
Inflow =	3.85 cfs @	12.13 hrs,	Volume=	0.308 af	
Outflow =	3.84 cfs @	12.13 hrs,	Volume=	0.308 af,	Atten= 0%, Lag= 0.1 min
Primary =	0.31 cfs @	11.49 hrs,	Volume=	0.180 af	
Secondary =	3.53 cfs @	12.13 hrs,	Volume=	0.128 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.37' @ 12.13 hrs Surf.Area= 96 sf Storage= 82 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.0 min (824.8 - 823.8)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	24 cf	**6.00'W x 8.00'L x 2.50'H Media/Stone** 120 cf Overall x 20.0% Voids
#2	102.25'	48 cf	**6.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	30 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		102 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	42	0	0
103.50	200	30	30

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.31 cfs @ 11.49 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.31 cfs)

Secondary OutFlow Max=3.52 cfs @ 12.13 hrs HW=103.37' (Free Discharge)
└**2=CB** (Weir Controls 3.52 cfs @ 2.00 fps)

Summary for Pond 5.11P: Filterra 6X6

Inflow Area = 0.220 ac, 88.19% Impervious, Inflow Depth = 5.33" for 25-year event
Inflow = 1.30 cfs @ 12.07 hrs, Volume= 0.098 af
Outflow = 1.29 cfs @ 12.07 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.1 min
Primary = 0.23 cfs @ 11.65 hrs, Volume= 0.075 af
Secondary = 1.06 cfs @ 12.07 hrs, Volume= 0.023 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.17' @ 12.07 hrs Surf.Area= 72 sf Storage= 51 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.7 min (758.5 - 757.8)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	18 cf	**6.00'W x 6.00'L x 2.50'H Media/Stone** 90 cf Overall x 20.0% Voids
#2	102.25'	36 cf	**6.00'W x 6.00'L x 1.00'H Prismatoid**
#3	103.25'	30 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		84 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	36	0	0
103.50	200	30	30

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.23 cfs @ 11.65 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Secondary OutFlow Max=1.05 cfs @ 12.07 hrs HW=103.17' (Free Discharge)
└**2=CB** (Weir Controls 1.05 cfs @ 1.34 fps)

Summary for Pond 5.12P: Filterra 6X10

Inflow Area = 1.473 ac, 23.84% Impervious, Inflow Depth = 3.40" for 25-year event
Inflow = 5.61 cfs @ 12.11 hrs, Volume= 0.418 af
Outflow = 5.61 cfs @ 12.11 hrs, Volume= 0.418 af, Atten= 0%, Lag= 0.2 min
Primary = 0.39 cfs @ 11.39 hrs, Volume= 0.237 af
Secondary = 5.22 cfs @ 12.11 hrs, Volume= 0.180 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.49' @ 12.11 hrs Surf.Area= 120 sf Storage= 120 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.0 min (822.8 - 821.8)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	30 cf	**6.00'W x 10.00'L x 2.50'H Media/Stone** 150 cf Overall x 20.0% Voids
#2	102.25'	60 cf	**6.00'W x 10.00'L x 1.00'H Prismatoid**
#3	103.25'	33 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		123 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	60	0	0
103.50	200	33	33

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.39 cfs @ 11.39 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.39 cfs)

Secondary OutFlow Max=5.21 cfs @ 12.11 hrs HW=103.49' (Free Discharge)
└**2=CB** (Weir Controls 5.21 cfs @ 2.28 fps)

Summary for Pond 5.13P: Filterra 6X8

Inflow Area = 0.370 ac, 75.66% Impervious, Inflow Depth = 4.99" for 25-year event
Inflow = 1.99 cfs @ 12.09 hrs, Volume= 0.154 af
Outflow = 1.98 cfs @ 12.09 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.1 min
Primary = 0.31 cfs @ 11.64 hrs, Volume= 0.112 af
Secondary = 1.67 cfs @ 12.09 hrs, Volume= 0.042 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.23' @ 12.09 hrs Surf.Area= 96 sf Storage= 71 cf

Plug-Flow detention time= 0.9 min calculated for 0.154 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (775.2 - 774.3)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	24 cf	**6.00'W x 8.00'L x 2.50'H Media/Stone** 120 cf Overall x 20.0% Voids
#2	102.25'	48 cf	**6.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	30 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		102 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	42	0	0
103.50	200	30	30

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.31 cfs @ 11.64 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.31 cfs)

Secondary OutFlow Max=1.67 cfs @ 12.09 hrs HW=103.23' (Free Discharge)
└**2=CB** (Weir Controls 1.67 cfs @ 1.56 fps)

Summary for Pond 5.14P: Filterra 6X12

Inflow Area =	1.259 ac, 30.59% Impervious, Inflow Depth = 4.01" for 25-year event				
Inflow =	5.64 cfs @	12.10 hrs,	Volume=	0.421 af	
Outflow =	5.63 cfs @	12.10 hrs,	Volume=	0.421 af,	Atten= 0%, Lag= 0.2 min
Primary =	0.39 cfs @	11.26 hrs,	Volume=	0.242 af	
Secondary =	5.24 cfs @	12.10 hrs,	Volume=	0.178 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.49' @ 12.10 hrs Surf.Area= 120 sf Storage= 120 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.0 min (806.7 - 805.7)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	30 cf	**6.00'W x 10.00'L x 2.50'H Media/Stone** 150 cf Overall x 20.0% Voids
#2	102.25'	60 cf	**6.00'W x 10.00'L x 1.00'H Prismatoid**
#3	103.25'	33 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		123 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	60	0	0
103.50	200	33	33

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.39 cfs @ 11.26 hrs HW=102.25' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.39 cfs)

Secondary OutFlow Max=5.24 cfs @ 12.10 hrs HW=103.49' (Free Discharge)
└─**2=CB** (Weir Controls 5.24 cfs @ 2.28 fps)

Summary for Pond 5.15P: Filterra 6X10

Inflow Area =	1.038 ac, 32.57% Impervious, Inflow Depth = 3.80" for 25-year event				
Inflow =	4.94 cfs @	12.06 hrs,	Volume=	0.329 af	
Outflow =	4.93 cfs @	12.06 hrs,	Volume=	0.329 af, Atten= 0%, Lag= 0.2 min	
Primary =	0.39 cfs @	11.46 hrs,	Volume=	0.203 af	
Secondary =	4.54 cfs @	12.06 hrs,	Volume=	0.126 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.44' @ 12.06 hrs Surf.Area= 120 sf Storage= 112 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.9 min (809.3 - 808.4)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	30 cf	**6.00'W x 10.00'L x 2.50'H Media/Stone** 150 cf Overall x 20.0% Voids
#2	102.25'	60 cf	**6.00'W x 10.00'L x 1.00'H Prismatoid**
#3	103.25'	33 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		123 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	60	0	0
103.50	200	33	33

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.39 cfs @ 11.46 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.39 cfs)

Secondary OutFlow Max=4.53 cfs @ 12.06 hrs HW=103.44' (Free Discharge)
└**2=CB** (Weir Controls 4.53 cfs @ 2.17 fps)

Summary for Pond 5.1P: Filterra 6X12

Inflow Area =	1.391 ac, 30.85% Impervious, Inflow Depth = 3.80" for 25-year event				
Inflow =	4.46 cfs @	12.23 hrs,	Volume=	0.441 af	
Outflow =	4.46 cfs @	12.23 hrs,	Volume=	0.441 af, Atten= 0%, Lag= 0.2 min	
Primary =	0.47 cfs @	11.56 hrs,	Volume=	0.264 af	
Secondary =	3.99 cfs @	12.23 hrs,	Volume=	0.177 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.41' @ 12.23 hrs Surf.Area= 144 sf Storage= 126 cf

Plug-Flow detention time= 1.3 min calculated for 0.441 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (821.4 - 820.4)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	36 cf	**6.00'W x 12.00'L x 2.50'H Media/Stone** 180 cf Overall x 20.0% Voids
#2	102.25'	72 cf	**6.00'W x 12.00'L x 1.00'H Prismatoid**
#3	103.25'	34 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		142 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	72	0	0
103.50	200	34	34

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.47 cfs @ 11.56 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.47 cfs)

Secondary OutFlow Max=3.99 cfs @ 12.23 hrs HW=103.41' (Free Discharge)
└**2=CB** (Weir Controls 3.99 cfs @ 2.08 fps)

Summary for Pond 5.4P: Filterra 6X8

Inflow Area =	0.663 ac, 40.00% Impervious, Inflow Depth = 4.01" for 25-year event				
Inflow =	2.51 cfs @	12.17 hrs,	Volume=	0.222 af	
Outflow =	2.51 cfs @	12.17 hrs,	Volume=	0.222 af,	Atten= 0%, Lag= 0.1 min
Primary =	0.31 cfs @	11.64 hrs,	Volume=	0.144 af	
Secondary =	2.19 cfs @	12.17 hrs,	Volume=	0.078 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.27' @ 12.17 hrs Surf.Area= 96 sf Storage= 73 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.9 min (811.6 - 810.7)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	24 cf	**6.00'W x 8.00'L x 2.50'H Media/Stone** 120 cf Overall x 20.0% Voids
#2	102.25'	48 cf	**6.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	30 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		102 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	42	0	0
103.50	200	30	30

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.31 cfs @ 11.64 hrs HW=102.25' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.31 cfs)

Secondary OutFlow Max=2.19 cfs @ 12.17 hrs HW=103.27' (Free Discharge)
└─**2=CB** (Weir Controls 2.19 cfs @ 1.71 fps)

Summary for Pond 5.5P: Filterra 4x8

Inflow Area =	0.375 ac, 47.08% Impervious, Inflow Depth = 4.11" for 25-year event				
Inflow =	1.72 cfs @	12.10 hrs,	Volume=	0.129 af	
Outflow =	1.72 cfs @	12.10 hrs,	Volume=	0.129 af,	Atten= 0%, Lag= 0.1 min
Primary =	0.21 cfs @	11.62 hrs,	Volume=	0.086 af	
Secondary =	1.51 cfs @	12.10 hrs,	Volume=	0.042 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.21' @ 12.10 hrs Surf.Area= 64 sf Storage= 47 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (803.7 - 802.8)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	16 cf	**4.00'W x 8.00'L x 2.50'H Media/Stone** 80 cf Overall x 20.0% Voids
#2	102.25'	32 cf	**4.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		77 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 11.62 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=1.51 cfs @ 12.10 hrs HW=103.21' (Free Discharge)
└**2=CB** (Weir Controls 1.51 cfs @ 1.51 fps)

Summary for Pond 5.8P: Filterra 6X10

Inflow Area =	1.046 ac, 29.07% Impervious, Inflow Depth = 3.50" for 25-year event				
Inflow =	3.23 cfs @	12.21 hrs,	Volume=	0.305 af	
Outflow =	3.23 cfs @	12.21 hrs,	Volume=	0.305 af, Atten= 0%, Lag= 0.1 min	
Primary =	0.39 cfs @	11.67 hrs,	Volume=	0.191 af	
Secondary =	2.84 cfs @	12.21 hrs,	Volume=	0.114 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.32' @ 12.21 hrs Surf.Area= 120 sf Storage= 96 cf

Plug-Flow detention time= 1.2 min calculated for 0.305 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (827.7 - 826.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	30 cf	**6.00'W x 10.00'L x 2.50'H Media/Stone** 150 cf Overall x 20.0% Voids
#2	102.25'	60 cf	**6.00'W x 10.00'L x 1.00'H Prismatoid**
#3	103.25'	33 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		123 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	60	0	0
103.50	200	33	33

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.39 cfs @ 11.67 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.39 cfs)

Secondary OutFlow Max=2.84 cfs @ 12.21 hrs HW=103.32' (Free Discharge)
└**2=CB** (Weir Controls 2.84 cfs @ 1.86 fps)

Summary for Pond 5.9P: Filterra 4x8

Inflow Area =	0.435 ac, 34.48% Impervious, Inflow Depth = 3.80" for 25-year event				
Inflow =	1.90 cfs @	12.09 hrs,	Volume=	0.138 af	
Outflow =	1.90 cfs @	12.09 hrs,	Volume=	0.138 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.21 cfs @	11.61 hrs,	Volume=	0.090 af	
Secondary =	1.69 cfs @	12.09 hrs,	Volume=	0.047 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 103.23' @ 12.09 hrs Surf.Area= 64 sf Storage= 47 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.9 min (811.6 - 810.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	16 cf	**4.00'W x 8.00'L x 2.50'H Media/Stone** 80 cf Overall x 20.0% Voids
#2	102.25'	32 cf	**4.00'W x 8.00'L x 1.00'H Prismatoid**
#3	103.25'	29 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		77 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.25	32	0	0
103.50	200	29	29

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	103.00'	**18.0" Horiz. CB** C= 0.600 in 24.0" x 24.0" Grate (44% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 11.61 hrs HW=102.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=1.68 cfs @ 12.09 hrs HW=103.23' (Free Discharge)
└**2=CB** (Weir Controls 1.68 cfs @ 1.56 fps)

Summary for Pond 5P: 24" Culvert

Inflow Area = 4.597 ac, 4.24% Impervious, Inflow Depth = 3.60" for 25-year event
Inflow = 9.35 cfs @ 12.58 hrs, Volume= 1.380 af
Outflow = 7.04 cfs @ 12.85 hrs, Volume= 1.380 af, Atten= 25%, Lag= 16.3 min
Primary = 7.04 cfs @ 12.85 hrs, Volume= 1.380 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 34.03' @ 12.85 hrs Surf.Area= 6,394 sf Storage= 6,686 cf

Plug-Flow detention time= 8.6 min calculated for 1.380 af (100% of inflow)
Center-of-Mass det. time= 8.6 min (857.4 - 848.7)

Volume	Invert	Avail.Storage	Storage Description
#1	32.20'	13,784 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.20	100	0	0
33.00	3,660	1,504	1,504
34.00	6,340	5,000	6,504
35.00	8,220	7,280	13,784

Device	Routing	Invert	Outlet Devices
#1	Primary	32.20'	**24.0" Round 24" Culvert w/ 12.0" inside fill** L= 72.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 31.20' / 28.50' S= 0.0375 '/' Cc= 0.900 n= 0.013, Flow Area= 1.57 sf

Primary OutFlow Max=7.04 cfs @ 12.85 hrs HW=34.03' (Free Discharge)
└─**1=24" Culvert** (Inlet Controls 7.04 cfs @ 4.48 fps)