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# **Section 12**

## **Stormwater Management**

## Stormwater Management

### General

This stormwater runoff evaluation report has been prepared for the Maine Medical Center (MMC) to evaluate stormwater runoff associated with the comprehensive facilities construction project at its Bramhall Street campus. The hospital is planning the following improvements:

- A four-story, 192,000 square foot building addition for obstetrics and newborn services, referred to as the Charles Street addition. The Charles Street project also includes improvements to the Richards Wing/admitting lobby. In order to construct this addition, Charles Street will be discontinued and Ellsworth Street will be relocated as shown on the project plans.
- A new parking garage to accommodate 512 additional parking spaces for patients and visitors. The new garage will be located immediately east of and connected to the existing parking garage on Congress Street. A pedestrian bridge will lead from both garages to the main hospital building.
- A new central utility plant, located on Gilman Street, which will provide a central heating/cooling facility for the campus.
- A new helicopter landing pad to be constructed on the top level of the existing parking garage on Congress Street.
- Reconfiguration of the main entrances to the hospital and lobbies.

The proposed development of the site will result in a net increase in impervious area of approximately 0.85 acre. This increase in impervious area is primarily attributed to the footprint of the proposed parking garage (27,300 square feet) and the footprint of the proposed central utility plant (7,000 square feet). The remaining increase in impervious area is attributed to the construction of the Charles Street addition, the relocation of Ellsworth Street, and the reconfiguration of the main entrance to the hospital.

### Site Characteristics

The project site occupies an area bounded by Congress Street, Wescott Street, Charles Street, Ellsworth Street, Gilman Street and Crescent Street in Portland. The site is located in a densely developed urban setting consisting of hospital and office buildings with their associated parking and landscaped areas, public roadways and multi family residential housing. The undeveloped areas of the site consist of steeply sloped land abutting Congress Street and Gilman Street. Ground cover in this area consists primarily of grass, brush and evergreen tree growth.

The proposed Parking Garage occupies a steeply sloped undeveloped area adjacent to Congress Street, and the Central Utility plant occupies a steeply sloped undeveloped area abutting Gillman Street at a point opposite A Street. The remaining site improvements occur on previously developed areas of the site.

The subject site is located at a high point in the west end of the Portland Peninsula. Runoff from the project site is collected through a series of roof drains and catch basins and conveyed to combined sanitary/stormwater sewers located within public streets abutting the site. There are currently no facilities installed to provide stormwater quality treatment to runoff from the site.

A 15,000-gallon stormwater detention tank was installed in 1983 on the steeply sloped, wooded area adjacent to Gilman Street at the location of the proposed Central Utility Plant. Based on conversations with City of Portland Public Works staff, it is our understanding that this detention tank does not function as intended to provide attenuation of stormwater runoff. This tank is included in the pre-development runoff analysis attached to this report. The hydraulic characteristics of this facility are based on design plans.

The only existing point of connection to the City's separated storm drain system is located at the intersection of A Street and Gilman Street. This sewer was installed by the City of Portland Public Works Department in 2000-2001 as part of the St. John Street Sewer Separation Project. The City of Portland Public Works Department has indicated that this sewer was designed and constructed for the purpose of separating storm drainage and sanitary sewer flow from the Maine Medical Center Campus.

The enclosed pre-development and post-development watershed maps and USGS topographic map depict the general drainage patterns and infrastructure in the project area.

### **Soils**

Soil classifications within the project area were referenced from the Cumberland County Medium Intensity Soil Survey. The site is primarily comprised of Hinckley gravelly sand loam. The project geotechnical evaluation report indicates significant depths of granular fill overlaying glacial till. For modeling purposes of this report, the soils were considered hydraulic soil groups A consistent with the Cumberland County soil survey.

### **Stormwater Management**

In order to evaluate drainage characteristics in pre and post-development conditions, a quantitative analysis was performed to determine peak rates of runoff for the 2, 10 and 25-year storm events. Runoff calculations were performed following the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds, Technical Release #55" and HydroCAD Stormwater Modeling System software.

The 24-hour rainfall values utilized in the hydrologic model are as follows.

Storm Frequency Precipitation (in./24 hr)	
2-year	3.0
10-year	4.7
25-year	5.5

Nineteen watersheds were analyzed in the pre-development condition, and twenty-one watersheds in the post-developed condition. The watershed delineations are based on the topography of the site, record drawings, and field surveys of the drainage infrastructure. Watershed delineations along the hospital building rooftops are based on visible roof drain locations and record design drawings. Due to the age of a number of buildings, records indicating the locations of roof drain connections to the surrounding sewer system are not available. In these cases, the assumed watershed delineations were made based observations of the rooflines and the surrounding topography and sewer infrastructure.

Seven Study Points, identified on the attached watershed plans and hydrologic model output as points SP-1 through SP-7, were selected for the evaluation pre and post-developed runoff conditions. The Study Points represent locations where stormwater runoff from the project site enters the public drainage infrastructure system. In most cases, the capacity of the existing combined sewers is small relative the area draining to them under existing conditions. In these cases, the study point represents the total stormwater discharge at the study point, including both gutter flow and flow in the sewer.

Study Point SP-1 represents the point where stormwater runoff from the site enters a combined sewer at the intersection of Wescott Street and Crescent Street. The study point represents runoff at a manhole identified as DMH-99 on the project plans. The sewer outlet from this manhole is a 12" cement line that drains in a westerly direction along Crescent Street, eventually draining to Park Avenue via sewers in Ellsworth Street, Congress Street and Weymouth Street.

Study Point SP-2 represents the point where runoff from the existing Maine Medical Center parking garage enters a combined sewer at the intersection of Congress Street and Forest Street. The study point represents runoff at manhole SMH-13 on the project plans. The sewer outlet from this manhole is an 18" reinforced concrete pipe that drains in a northerly direction along Forest Street to Park Avenue.

Study Point SP-3 represents the point where runoff from areas of the project site east of the existing emergency room enters the combined sewer system at the intersection of Gilman Street and Congress Street. At this point, runoff within the sewer system discharges in a northerly direction along Gilman Street to Park Avenue. Runoff in the roadway that bypasses the catch basins at the intersection discharges in a westerly direction along Congress Street to St. John Street.

Study Point SP-4 represents runoff at the intersection of Gilman Street and A Street at the upstream end of an existing 15" separate storm drainage system constructed by the City of Portland in 2001 as part of the St. John Street sewer separation project. The storm drain was extended along A Street from its intersection with St. John Street to a drainage manhole in Gilman Street opposite the location of the proposed central utility plant. This manhole is identified as SMH-27 on the project existing conditions plan. It is our understanding that this storm drain was extended to the hospital property specifically for the purpose of providing a point of connection for separated stormwater runoff from the hospital. Under existing conditions, this storm drain only conveys runoff entering two catch basins draining Gilman Street south of its intersection with A Street. Under post-development conditions, runoff from areas of the site, including the existing emergency room parking area, L. L. Bean wing, and service areas abutting the proposed central utility plant are directed to the A Street storm drain.

Study Point SP-5 represents the point where runoff from the site enters the combined sewer system at the intersection of Bramhall Street and Chadwick Street. The proposed development of the site does not affect runoff at this point. The study point represents runoff at a manhole structure identified as SMH-8; the sewer outlet from this manhole is a 15 cement line that drains in an easterly direction along Bramhall Street to Brackett Street.

Study Point SP-6 represents runoff at the intersection of Ellsworth Street and Wescott Street. Runoff currently enters the combined sewer system via manholes in Ellsworth Street and drains in an easterly direction along Ellsworth Street towards its intersection with Congress Street.

Study Point SP-7 represents runoff at the intersection of Russell Street and Brackett Street. Runoff entering the combined sewer system drains in a southeasterly direction along Brackett Street.

The areas and times of concentration of the post-development watersheds vary from the existing conditions based on the proposed site development. Due to the highly developed nature of the site, the time of concentration in some watersheds is less than five minutes. A minimum time of concentration of five minutes was used in these cases.

Table 1 summarizes the results of the hydrologic analysis of the project under pre-development and post-development conditions.

Study Point	Total Watershed Area (Ac)		Avg. Weighted Curve No. (Cn)		Peak Rates of Runoff (cfs)								
	Pre	Post	Pre	Post	2-Year			10-Year			25-Year		
					Pre	Post		Pre	Post		Pre	Post	
						wo/d	w/d		wo/d	w/d		wo/d	w/d
1P	0.54	.77	88	82	1.2	1.3		2.1	2.6		2.6	3.2	
2P	9.70	7.71	88	91	18.7	15.5		33.0	27.2		39.7	32.6	
3P	6.10	1.40	86	70	11.6	1.3		23.6	3.1		27.2	4.0	
4P	2.20	8.60	62	85	<1	16.8		3.0	29.9		4.3	33.6	
5P	2.00	2.00	92	92	5.1	5.1		8.7	8.7		10.3	10.3	
6P	1.18	1.39	90	92	2.7	3.2		4.8	5.6		5.7	6.7	
7P	0.25	0.10	84	98	<1	<1		<1	<1		1.1	<1	

Stormwater modeling results indicate that the peak rates of runoff in the developed condition will be reduced from pre-developed runoff rates in the combined sewers at Study Points SP-2, SP-3, SP-5 and SP-7 during the 2-year, 10-year and 25-year storm events. This reduction is due primarily to the realignment of the public roadways on the site and the separation of stormwater runoff from existing developed areas to the dedicated storm drain line at the intersection of Gilman Street and A Street (Study Point SP-4).

The stormwater modeling results indicate minor increases in the peak rate of runoff at Study Points SP-1 and SP-6 during the 2, 10, and 25-year storm events. This increase in the post-development runoff is due to the proposed vacation of Charles Street and realignment of Ellsworth Street and the resulting alteration to existing drainage patterns.

The stormwater analysis results indicate an increase in runoff at Study Point SP-4 which represents runoff in the A Street storm sewer at the intersection of Gilman Street and A Street. This existing storm sewer was specifically designed and constructed for a future separation of storm drainage from the hospital property. Under proposed condition, this storm drain conveys runoff from the existing emergency room parking area, the L. L. Bean Wing and the service drive providing access from Crescent Street to Gilman Street at the rear of the L. L. Bean Wing. This design is consistent with improvements planned as part of the St. John Street sewer separation project, but not completed as part of the City's sewer construction project. The proposed development also directs rooftop runoff from the proposed Charles Street building to the separate storm drainage system in A Street. This design provides stormwater separation for approximately 6.3 acres of existing development that is currently tributary to combined sewers in Crescent Street and Congress Street.

### Stormwater Quality

The project site is not located within a watershed at risk from development as defined by the Maine Department of Environmental Protection. Stormwater quality treatment is, therefore, not required under State stormwater regulations. However, stormwater quality treatment is required by the City of Portland's stormwater design criteria related to proposed parking areas and to replace the existing stormwater quantity detention tank which will be removed as part of the Central Utility Plant construction.

To meet the stormwater quality treatment requirements for the site, two Hydro-International Downstream Defender stormwater treatment units are proposed to treat runoff from both proposed and existing impervious surfaces.

A 6-foot diameter Downstream Defender Unit is proposed to treat runoff generated from the paved surface of the proposed parking garage. Runoff from the parking garage will be collected in the structure's roof drainage system and directed to a treatment unit installed at the Congress Street parking level. The treated stormwater will discharge to an existing 15" combined sewer located on hospital property adjacent to Congress Street and tributary to Study Point SP2.

A 10-foot diameter Downstream Defender Unit is proposed to treat runoff tributary to Study Point SP-4. The unit is proposed at a location adjacent to Gilman Street and discharges to the separated storm sewer manhole at the intersection of Gilman Street and A Street. This unit provides stormwater quality treatment to runoff from approximately 4.93 acres of previously untreated impervious surfaces.

The proposed treatment units have been sized based on the Maine Department of Environmental Protection (MDEP) criteria to provide a 60% total suspended solids (TSS) removal efficiency for runoff generated by a 1-year storm. The units have also been sized such that the 25-year discharge to each unit is less than the manufacturer's published capacity flow rate. Table 2 below summarizes the design flow rates for the stormwater treatment units.

Unit	Downstream Defender Treatment Unit Capacity (cfs)			Post Development Flow rates (cfs)	
	50% TSS Removal (Q <sub>1-year</sub> )	60% TSS Removal (Q <sub>1-year</sub> )	Unit Capacity (Q <sub>25-year</sub> )	1-year	25-year
	6-ft (SP-2)	3.86	3.58	8.0	1.51
10-ft (SP-4)	13.84	12.85	25.0	10.66	22.85

### Summary

The proposed development of the Maine Medical Center Bramhall Campus will result in significant reductions in the stormwater runoff entering the existing combined sewers within the public right-of-ways surrounding the site. The analysis indicates that the peak rate of runoff in the developed condition will be less than pre-developed runoff rates at four of the seven project study points (Study Points for Study Points SP-2, SP-3, SP-5 and SP-7).

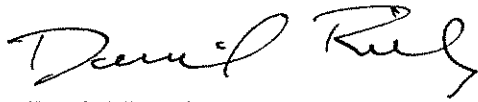
Insignificant increases in stormwater water runoff are anticipated at Study Point SP-1 representing the intersection of Crescent street and Wescott Street and at Study Point SP-6 representing the intersection Ellsworth Street and Wescott Street. The increases are considered insignificant based on the relatively small flow rates involved.

The proposed development will direct runoff from approximately 6.3 acres of existing urban development away from the combined sewers in Crescent Street, Ellsworth Street and Congress Street to a separate storm drainage system in A Street. This storm drain, identified as Study Point SP-4 in the hydrologic model, was designed and constructed as part of the City of Portland's St. John Street sewer separation project for the purpose of providing a fully separated storm sewer to drain the hospital campus site. The drainage infrastructure proposed as part of the Maine Medical Center expansion project is consistent with the design plans for the sewer separation project.

Stormwater quality treatment for the site is provided by two Downstream Defender treatment units. A 6-foot unit is proposed to treat the impervious area associated with the proposed parking garage. A 10-foot diameter unit is proposed to provide stormwater treatment for runoff tributary to the A Street sewer. This unit provides treatment to approximately 4.93 acres of previously untreated impervious surfaces from the northeastern portion of the site, which are currently tributary to the City's combined sewer system.

Prepared by:

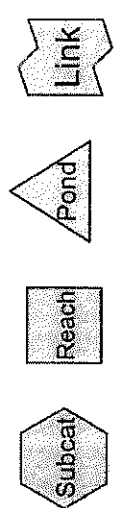
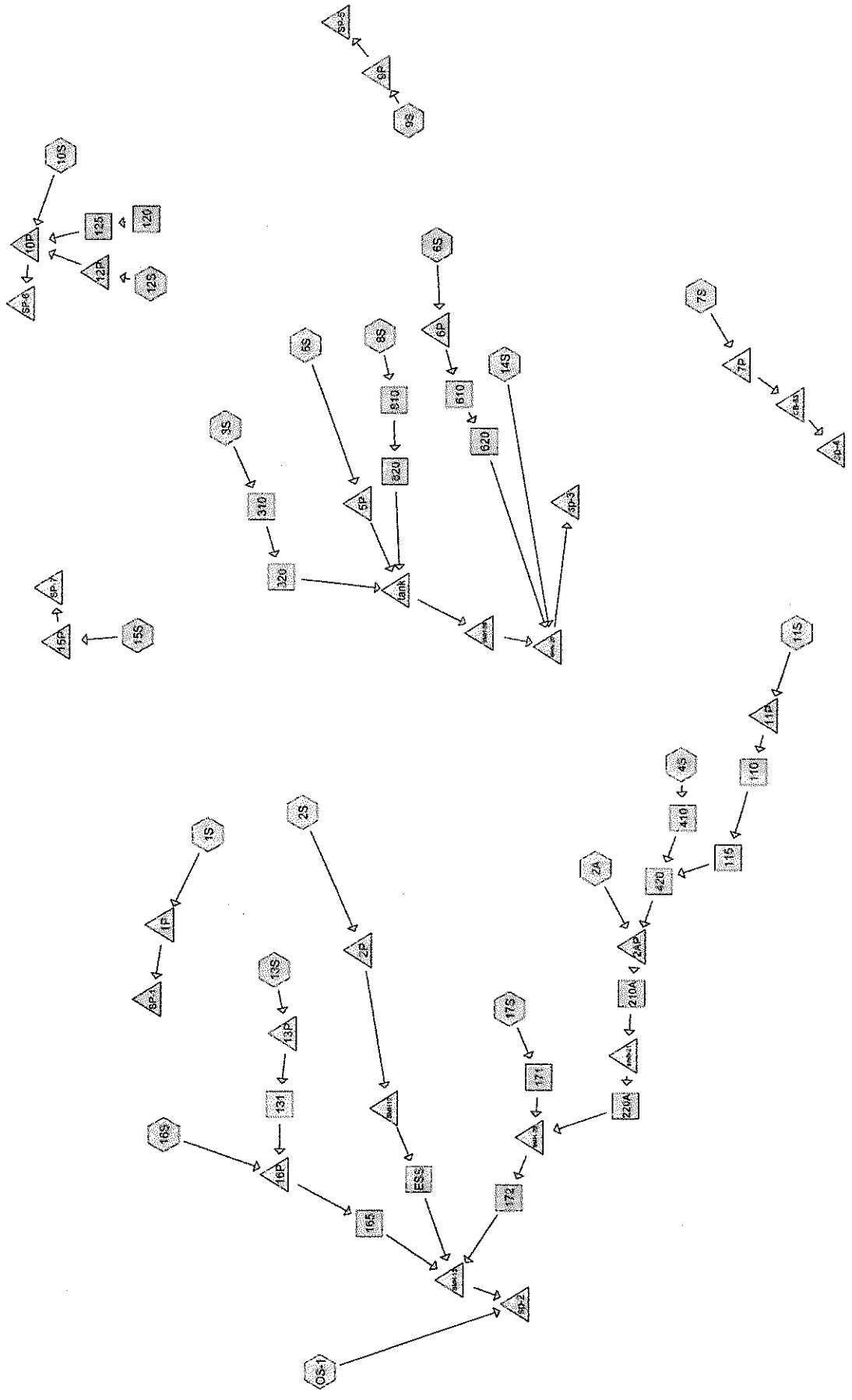
SEBAGO TECHNICS, INC.



Daniel L. Riley, P.E.  
Senior Project Manager

DLR/APP:app/jc  
Enclosure





**Drainage Diagram for 01046-PRE**

Prepared by {enter your company name here} 12/15/03

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=3.00"  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment 1S: (new node)</b>	Tc=5.0 min	CN=88	Area=0.539 ac	Runoff= 1.15 cfs	0.076 af
<b>Subcatchment 2A: (new node)</b>	Tc=5.0 min	CN=98	Area=0.576 ac	Runoff= 1.69 cfs	0.124 af
<b>Subcatchment 2S: (new node)</b>	Tc=5.0 min	CN=89	Area=0.672 ac	Runoff= 1.49 cfs	0.100 af
<b>Subcatchment 3S: (new node)</b>	Tc=5.0 min	CN=98	Area=0.401 ac	Runoff= 1.17 cfs	0.087 af
<b>Subcatchment 4S: (new node)</b>	Tc=5.0 min	CN=98	Area=0.528 ac	Runoff= 1.54 cfs	0.114 af
<b>Subcatchment 5S: (new node)</b>	Tc=5.0 min	CN=94	Area=2.860 ac	Runoff= 7.63 cfs	0.529 af
<b>Subcatchment 6S: (new node)</b>	Tc=5.0 min	CN=43	Area=0.250 ac	Runoff= 0.00 cfs	0.000 af
<b>Subcatchment 7S: (new node)</b>	Tc=5.0 min	CN=62	Area=2.216 ac	Runoff= 0.64 cfs	0.064 af
<b>Subcatchment 8S: (new node)</b>	Tc=5.0 min	CN=89	Area=1.150 ac	Runoff= 2.55 cfs	0.171 af
<b>Subcatchment 9S: (new node)</b>	Tc=5.0 min	CN=92	Area=2.030 ac	Runoff= 5.07 cfs	0.345 af
<b>Subcatchment 10S: (new node)</b>	Tc=5.0 min	CN=86	Area=0.767 ac	Runoff= 1.50 cfs	0.099 af
<b>Subcatchment 11S: (new node)</b>	Tc=5.0 min	CN=98	Area=0.216 ac	Runoff= 0.63 cfs	0.047 af
<b>Subcatchment 12S: (new node)</b>	Tc=5.0 min	CN=98	Area=0.415 ac	Runoff= 1.21 cfs	0.090 af
<b>Subcatchment 13S: (new node)</b>	Tc=5.0 min	CN=43	Area=0.210 ac	Runoff= 0.00 cfs	0.000 af
<b>Subcatchment 14S: (new node)</b>	Tc=5.0 min	CN=71	Area=1.390 ac	Runoff= 1.11 cfs	0.079 af

**Subcatchment 15S: (new node)**

Tc=5.0 min CN=84 Area=0.254 ac Runoff= 0.45 cfs 0.030 af

**Subcatchment 16S: (new node)**

Tc=5.0 min CN=61 Area=0.506 ac Runoff= 0.12 cfs 0.013 af

**Subcatchment 17S: (new node)**

Tc=5.0 min CN=98 Area=0.918 ac Runoff= 2.69 cfs 0.198 af

**Subcatchment OS-1: OS-1**

Tc=10.0 min CN=89 Area=6.030 ac Runoff= 11.55 cfs 0.894 af

**Reach 110: (new node)**Length= 60.0' Max Vel= 3.6 fps Capacity= 3.86 cfs Inflow= 0.63 cfs 0.047 af  
Outflow= 0.62 cfs 0.047 af**Reach 115: (new node)**Length= 50.0' Max Vel= 3.6 fps Capacity= 3.86 cfs Inflow= 0.62 cfs 0.047 af  
Outflow= 0.62 cfs 0.047 af**Reach 120: (new node)**Length= 55.0' Max Vel= 0.0 fps Capacity= 5.65 cfs Inflow= 0.00 cfs 0.000 af  
Outflow= 0.00 cfs 0.000 af**Reach 125: (new node)**Length= 172.0' Max Vel= 0.0 fps Capacity= 0.92 cfs Inflow= 0.00 cfs 0.000 af  
Outflow= 0.00 cfs 0.000 af**Reach 131: (new node)**Length= 30.0' Max Vel= 0.4 fps Capacity= 0.21 cfs Inflow= 0.00 cfs 0.000 af  
Outflow= 0.00 cfs 0.000 af**Reach 165: (new node)**Length= 215.0' Max Vel= 4.3 fps Capacity= 3.01 cfs Inflow= 0.14 cfs 0.013 af  
Outflow= 0.12 cfs 0.013 af**Reach 171: (new node)**Length= 31.0' Max Vel= 14.8 fps Capacity= 29.32 cfs Inflow= 2.69 cfs 0.198 af  
Outflow= 2.68 cfs 0.198 af**Reach 172: (new node)**Length= 32.0' Max Vel= 18.8 fps Capacity= 28.85 cfs Inflow= 6.35 cfs 0.483 af  
Outflow= 6.35 cfs 0.483 af**Reach 210A: (new node)**Length= 150.0' Max Vel= 20.3 fps Capacity= 39.83 cfs Inflow= 3.78 cfs 0.285 af  
Outflow= 3.77 cfs 0.285 af**Reach 220A: (new node)**Length= 168.0' Max Vel= 9.5 fps Capacity= 13.64 cfs Inflow= 3.77 cfs 0.285 af  
Outflow= 3.73 cfs 0.285 af**Reach 310: (new node)**Length= 195.0' Max Vel= 5.0 fps Capacity= 4.73 cfs Inflow= 1.17 cfs 0.087 af  
Outflow= 1.14 cfs 0.086 af**Reach 320.: (new node)**Length= 56.0' Max Vel= 19.2 fps Capacity= 32.06 cfs Inflow= 1.14 cfs 0.086 af  
Outflow= 1.14 cfs 0.086 af

<b>Reach 410: (new node)</b>	Inflow= 1.54 cfs 0.114 af
Length= 110.0' Max Vel= 4.6 fps Capacity= 3.86 cfs	Outflow= 1.51 cfs 0.114 af
<b>Reach 420: (new node)</b>	Inflow= 2.13 cfs 0.160 af
Length= 14.0' Max Vel= 8.4 fps Capacity= 24.14 cfs	Outflow= 2.12 cfs 0.160 af
<b>Reach 610: (new node)</b>	Inflow= 0.00 cfs 0.000 af
Length= 28.0' Max Vel= 0.3 fps Capacity= 26.83 cfs	Outflow= 0.00 cfs 0.000 af
<b>Reach 620: (new node)</b>	Inflow= 0.00 cfs 0.000 af
Length= 265.0' Max Vel= 0.1 fps Capacity= 0.75 cfs	Outflow= 0.00 cfs 0.000 af
<b>Reach 810: (new node)</b>	Inflow= 2.55 cfs 0.171 af
Length= 169.0' Max Vel= 15.4 fps Capacity= 16.82 cfs	Outflow= 2.53 cfs 0.171 af
<b>Reach 820: (new node)</b>	Inflow= 2.53 cfs 0.171 af
Length= 141.0' Max Vel= 13.3 fps Capacity= 13.70 cfs	Outflow= 2.52 cfs 0.171 af
<b>Reach ESS: (new node)</b>	Inflow= 1.34 cfs 0.100 af
Length= 265.0' Max Vel= 8.5 fps Capacity= 3.10 cfs	Outflow= 1.33 cfs 0.100 af
<b>Pond 1P: (new node)</b>	Inflow= 1.15 cfs 0.076 af
	Primary= 1.15 cfs 0.076 af
<b>Pond 2AP: (new node)</b>	Inflow= 3.78 cfs 0.285 af
	Primary= 3.78 cfs 0.285 af
<b>Pond 2P: (new node)</b>	Peak Storage= 131 cf Inflow= 1.49 cfs 0.100 af
Primary= 1.34 cfs 0.100 af Secondary= 0.00 cfs 0.000 af	Outflow= 1.34 cfs 0.100 af
<b>Pond 5P: (new node)</b>	Inflow= 7.63 cfs 0.529 af
	Primary= 7.63 cfs 0.529 af
<b>Pond 6P: (new node)</b>	Inflow= 0.00 cfs 0.000 af
	Primary= 0.00 cfs 0.000 af
<b>Pond 7P: (new node)</b>	Inflow= 0.64 cfs 0.064 af
	Primary= 0.64 cfs 0.064 af
<b>Pond 9P: (new node)</b>	Inflow= 5.07 cfs 0.345 af
	Primary= 5.07 cfs 0.345 af
<b>Pond 10P: (new node)</b>	Inflow= 2.72 cfs 0.189 af
	Primary= 2.72 cfs 0.189 af
<b>Pond 11P: (new node)</b>	Inflow= 0.63 cfs 0.047 af
	Primary= 0.63 cfs 0.047 af

<b>Pond 12P: (new node)</b>	Inflow= 1.21 cfs 0.090 af Primary= 1.21 cfs 0.090 af
<b>Pond 13P: (new node)</b>	Inflow= 0.00 cfs 0.000 af Primary= 0.00 cfs 0.000 af
<b>Pond 15P: (new node)</b>	Inflow= 0.45 cfs 0.030 af Primary= 0.45 cfs 0.030 af
<b>Pond 16P: (new node)</b>	Peak Storage= 10 cf Inflow= 0.12 cfs 0.013 af Primary= 0.14 cfs 0.013 af Secondary= 0.00 cfs 0.000 af Outflow= 0.14 cfs 0.013 af
<b>Pond CB-63: (new node)</b>	Inflow= 0.64 cfs 0.064 af Primary= 0.64 cfs 0.064 af
<b>Pond dmh-20: (new node)</b>	Inflow= 11.64 cfs 0.862 af Primary= 11.64 cfs 0.862 af
<b>Pond SMH-13: (new node)</b>	Inflow= 7.65 cfs 0.596 af Primary= 7.65 cfs 0.596 af
<b>Pond SMH-20: (new node)</b>	Inflow= 6.35 cfs 0.483 af Primary= 6.35 cfs 0.483 af
<b>Pond smh-21: (new node)</b>	Inflow= 3.77 cfs 0.285 af Primary= 3.77 cfs 0.285 af
<b>Pond SMH-26: (new node)</b>	Peak Storage= 102 cf Inflow= 10.73 cfs 0.783 af Primary= 10.58 cfs 0.783 af Secondary= 0.00 cfs 0.000 af Outflow= 10.58 cfs 0.783 af
<b>Pond SMH12: (new node)</b>	Inflow= 1.34 cfs 0.100 af Primary= 1.34 cfs 0.100 af
<b>Pond SP-1: (new node)</b>	Inflow= 1.15 cfs 0.076 af Primary= 1.15 cfs 0.076 af
<b>Pond sp-2: (new node)</b>	Inflow= 18.67 cfs 1.490 af Primary= 18.67 cfs 1.490 af
<b>Pond sp-3: (new node)</b>	Inflow= 11.64 cfs 0.862 af Primary= 11.64 cfs 0.862 af
<b>Pond sp-4: (new node)</b>	Inflow= 0.64 cfs 0.064 af Primary= 0.64 cfs 0.064 af
<b>Pond SP-5: (new node)</b>	Inflow= 5.07 cfs 0.345 af Primary= 5.07 cfs 0.345 af

01046-PRE

Type III 24-hr Rainfall=3.00"

Prepared by {enter your company name here}

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**Pond SP-6: (new node)**

Inflow= 2.72 cfs 0.189 af

Primary= 2.72 cfs 0.189 af

**Pond SP-7: (new node)**

Inflow= 0.45 cfs 0.030 af

Primary= 0.45 cfs 0.030 af

**Pond tank: (new node)**

Peak Storage= 1,461 cf Inflow= 11.18 cfs 0.787 af

Primary= 10.73 cfs 0.783 af Secondary= 0.00 cfs 0.000 af Outflow= 10.73 cfs 0.783 af

**Runoff Area = 21.928 ac Volume = 3.060 af Average Depth = 1.67"**

**Subcatchment 1S: (new node)**

Runoff = 1.15 cfs @ 12.08 hrs, Volume= 0.076 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.036	39	>75% Grass cover, Good, HSG A
0.061	48	Brush, Poor, HSG A
0.442	98	Paved parking & roofs
0.539	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0250	1.2		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.9	195	0.0300	3.5		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
3.6					<b>Direct Entry, DIRECT</b>
5.0	235	Total			

**Subcatchment 2A: (new node)**

Runoff = 1.69 cfs @ 12.07 hrs, Volume= 0.124 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.576	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	40	0.0430	1.5		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.6	170	0.0520	4.6		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.6	140	0.0100	3.8	1.31	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 8.0" Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
0.0	14	0.0450	13.7	24.14	<b>Circular Channel (pipe), PIPE D TO E</b> Diam= 18.0" Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
3.4					<b>Direct Entry, DIRECT</b>
5.0	364	Total			

**Subcatchment 2S: (new node)**

Runoff = 1.49 cfs @ 12.08 hrs, Volume= 0.100 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.568	98	Paved parking & roofs
0.104	39	>75% Grass cover, Good, HSG A
0.672	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0250	1.2		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
1.0	283	0.0580	4.9		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.1	16	0.0100	4.9	3.86	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
3.4					<b>Direct Entry, DIRECT</b>
5.0	339	Total			

**Subcatchment 3S: (new node)**

Runoff = 1.17 cfs @ 12.07 hrs, Volume= 0.087 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.401	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	40	0.0875	2.0		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.7	218	0.0690	5.3		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.4	205	0.0370	9.5	7.42	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
3.6					<b>Direct Entry, DIRECT</b>
5.0	463	Total			



**Subcatchment 4S: (new node)**

Runoff = 1.54 cfs @ 12.07 hrs, Volume= 0.114 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.528	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	50	0.0050	0.7		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
1.3	110	0.0050	1.4		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, DIRECT</b>
5.0	160	Total			

**Subcatchment 5S: (new node)**

Runoff = 7.63 cfs @ 12.07 hrs, Volume= 0.529 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
2.664	98	Paved parking & roofs
0.196	39	>75% Grass cover, Good, HSG A
2.860	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	35	0.0050	0.6		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.2	355	0.0050	2.7	0.93	<b>Circular Channel (pipe), PIPE B TO C</b> Diam= 8.0" Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
0.4	63	0.0050	2.7	0.93	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 8.0" Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
1.5					<b>Direct Entry, DIRECT</b>
5.0	453	Total			

**Subcatchment 6S: (new node)**

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description			
0.250	43	Woods/grass comb., Fair, HSG A			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	40	0.3500	0.2		<b>Sheet Flow, SHEET A TO B</b> Woods: Light underbrush n= 0.400 P2= 3.00"
0.3	59	0.3720	3.0		<b>Shallow Concentrated Flow, SHALLOW B OT C</b> Woodland Kv= 5.0 fps
1.3					<b>Direct Entry, DIRECT</b>
5.0	99	Total			

**Subcatchment 7S: (new node)**

Runoff = 0.64 cfs @ 12.12 hrs, Volume= 0.064 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description			
0.456	98	Paved roads w/curbs & sewers			
1.354	43	Woods/grass comb., Fair, HSG A			
0.079	43	Woods/grass comb., Fair, HSG A			
0.327	98	Paved roads w/curbs & sewers			
2.216	62	Weighted Average			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	75	0.0400	1.7		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.5	78	0.0180	2.7		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.7	219	0.0590	4.9		<b>Shallow Concentrated Flow, SHALLOW C TO D</b> Paved Kv= 20.3 fps
0.7	266	0.0930	6.2		<b>Shallow Concentrated Flow, SHALLOW D TO E</b> Paved Kv= 20.3 fps
2.3					<b>Direct Entry, DIRECT</b>
5.0	638	Total			

**Subcatchment 8S: (new node)**

Runoff = 2.55 cfs @ 12.08 hrs, Volume= 0.171 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.973	98	Paved parking & roofs
0.152	43	Woods/grass comb., Fair, HSG A
0.025	39	>75% Grass cover, Good, HSG A
1.150	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.6		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.3	93	0.0100	4.9	3.86	<b>Circular Channel (pipe), PIPE B TO C</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.5	135	0.0100	4.9	3.86	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.4	131	0.0100	4.9	3.86	<b>Circular Channel (pipe), PIPE D TO E</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
2.8					<b>Direct Entry, DIRECT</b>
5.0	399	Total			

**Subcatchment 9S: (new node)**

Runoff = 5.07 cfs @ 12.07 hrs, Volume= 0.345 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.191	39	>75% Grass cover, Good, HSG A
1.839	98	Paved parking & roofs
2.030	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.6		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
1.3	285	0.0100	3.8	1.31	<b>Circular Channel (pipe), PIPE B TO C</b> Diam= 8.0" Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
0.3	97	0.0100	4.9	3.86	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
2.4					<b>Direct Entry, DIRECT</b>
5.0	422	Total			

**Subcatchment 10S: (new node)**

Runoff = 1.50 cfs @ 12.08 hrs, Volume= 0.099 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.195	61	1/4 acre lots, 38% imp, HSG A
0.542	98	Paved parking & roofs
0.012	39	>75% Grass cover, Good, HSG A
0.018	39	>75% Grass cover, Good, HSG A
0.767	86	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	40	0.0125	0.9		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
1.3	235	0.0210	2.9		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
3.0					<b>Direct Entry, DIRECT</b>
5.0	275	Total			

**Subcatchment 11S: (new node)**

Runoff = 0.63 cfs @ 12.07 hrs, Volume= 0.047 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.216	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.6		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.7	60	0.0050	1.4		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
3.5					<b>Direct Entry, DIRECT</b>
5.0	90	Total			

**Subcatchment 12S: (new node)**

Runoff = 1.21 cfs @ 12.07 hrs, Volume= 0.090 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.415	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.6		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.3	24	0.0050	1.4		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
3.9					<b>Direct Entry, DIRECT</b>
5.0	54	Total			

**Subcatchment 13S: (new node)**

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.210	43	Woods/grass comb., Fair, HSG A

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	40	0.2500	0.2		<b>Sheet Flow, SHEET A TO B</b> Woods: Light underbrush n= 0.400 P2= 3.00"
0.3	50	0.4400	3.3		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Woodland Kv= 5.0 fps
0.3	43	0.2100	2.3		<b>Shallow Concentrated Flow, SHALLOW C TO D</b> Woodland Kv= 5.0 fps
0.5					<b>Direct Entry, DIRECT</b>
5.0	133	Total			

**Subcatchment 14S: (new node)**

Runoff = 1.11 cfs @ 12.09 hrs, Volume= 0.079 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.728	98	Paved parking & roofs
0.429	39	>75% Grass cover, Good, HSG A
0.233	43	Woods/grass comb., Fair, HSG A
1.390	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	40	0.1060	0.3		<b>Sheet Flow, SHEET A TO B</b> Grass: Short n= 0.150 P2= 3.00"
0.6	225	0.1940	6.6		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Grassed Waterway Kv= 15.0 fps
0.6	168	0.0625	5.1		<b>Shallow Concentrated Flow, SHALLOW C TO D</b> Paved Kv= 20.3 fps
1.3					<b>Direct Entry, DIRECT</b>
5.0	433	Total			

**Subcatchment 15S: (new node)**

Runoff = 0.45 cfs @ 12.08 hrs, Volume= 0.030 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.194	98	Paved parking & roofs
0.060	39	>75% Grass cover, Good, HSG A
0.254	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	15	0.0600	0.2		<b>Sheet Flow, SHEET A TO B</b> Grass: Short n= 0.150 P2= 3.00"
0.2	35	0.0420	3.3		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Unpaved Kv= 16.1 fps
3.4					<b>Direct Entry, DIRECT</b>
5.0	50	Total			

**Subcatchment 16S: (new node)**

Runoff = 0.12 cfs @ 12.12 hrs, Volume= 0.013 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.167	98	Paved parking & roofs
0.339	43	Woods/grass comb., Fair, HSG A
0.506	61	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	40	0.2500	0.2		<b>Sheet Flow, SHEET A TO B</b>
					Woods: Light underbrush n= 0.400 P2= 3.00"
0.3	71	0.5490	3.7		<b>Shallow Concentrated Flow, SHALLOW B TO C</b>
					Woodland Kv= 5.0 fps
0.5	117	0.0420	4.2		<b>Shallow Concentrated Flow, SHALLOW C TO D</b>
					Paved Kv= 20.3 fps
0.3					<b>Direct Entry, DIRECT</b>
5.0	228	Total			

**Subcatchment 17S: (new node)**

Runoff = 2.69 cfs @ 12.07 hrs, Volume= 0.198 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.918	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.8		<b>Sheet Flow, SHEET A TO B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
0.1	14	0.0100	2.0		<b>Shallow Concentrated Flow, SHALLOW B TO C</b>
					Paved Kv= 20.3 fps
0.1	134	0.1600	15.0	5.24	<b>Circular Channel (pipe), PIPE C TO D</b>
					Diam= 8.0" Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
4.0					<b>Direct Entry, DIRECT</b>
5.0	188	Total			

**Subcatchment OS-1: OS-1**

Runoff = 11.55 cfs @ 12.14 hrs, Volume= 0.894 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
6.030	89	Urban commercial, 85% imp, HSG A

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	60	0.0400	0.2		<b>Sheet Flow, Sheet flow A-B</b> Grass: Short n= 0.150 P2= 3.00"
0.9	180	0.0250	3.2		<b>Shallow Concentrated Flow, Gutter Flow B-C (Russell Street)</b> Paved Kv= 20.3 fps
0.7	80	0.0100	2.0		<b>Shallow Concentrated Flow, Gutter Flow C-D (Hill Street)</b> Paved Kv= 20.3 fps
1.1	375	0.0800	5.7		<b>Shallow Concentrated Flow, Gutter Flow D-E (Ellsworth Street)</b> Paved Kv= 20.3 fps
2.2	605	0.0500	4.5		<b>Shallow Concentrated Flow, Gutter Flow E-F (Congress Street)</b> Paved Kv= 20.3 fps
10.0	1,300	Total			

**Reach 110: (new node)**

Inflow = 0.63 cfs @ 12.07 hrs, Volume= 0.047 af  
 Outflow = 0.62 cfs @ 12.08 hrs, Volume= 0.047 af, Atten= 2%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 3.6 fps, Min. Travel Time= 0.3 min  
 Avg. Velocity = 1.4 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.27'  
 Capacity at bank full= 3.86 cfs  
 12.0" Diameter Pipe n= 0.012 Length= 60.0' Slope= 0.0100 '/'

**Reach 115: (new node)**

Inflow = 0.62 cfs @ 12.08 hrs, Volume= 0.047 af  
 Outflow = 0.62 cfs @ 12.09 hrs, Volume= 0.047 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 3.6 fps, Min. Travel Time= 0.2 min  
 Avg. Velocity = 1.4 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.27'  
 Capacity at bank full= 3.86 cfs  
 12.0" Diameter Pipe n= 0.012 Length= 50.0' Slope= 0.0100 '/'

**Reach 120: (new node)**

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min  
 Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min



Peak Depth= 0.00'  
Capacity at bank full= 5.65 cfs  
10.00' x 0.25' deep channel, n= 0.040 Length= 55.0' Slope= 0.0251 '/'

**Reach 125: (new node)**

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min  
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00'  
Capacity at bank full= 0.92 cfs  
6.0" Diameter Pipe n= 0.012 Length= 172.0' Slope= 0.0230 '/'

**Reach 131: (new node)**

Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.4 fps, Min. Travel Time= 1.2 min  
Avg. Velocity = 0.4 fps, Avg. Travel Time= 1.4 min

Peak Depth= 0.01'  
Capacity at bank full= 0.21 cfs  
4.0" Diameter Pipe n= 0.012 Length= 30.0' Slope= 0.0100 '/'

**Reach 165: (new node)**

Inflow = 0.14 cfs @ 12.11 hrs, Volume= 0.013 af  
Outflow = 0.12 cfs @ 12.16 hrs, Volume= 0.013 af, Atten= 15%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 4.3 fps, Min. Travel Time= 0.8 min  
Avg. Velocity = 2.3 fps, Avg. Travel Time= 1.5 min

Peak Depth= 0.09'  
Capacity at bank full= 3.01 cfs  
8.0" Diameter Pipe n= 0.012 Length= 215.0' Slope= 0.0530 '/'

**Reach 171: (new node)**

Inflow = 2.69 cfs @ 12.07 hrs, Volume= 0.198 af  
Outflow = 2.68 cfs @ 12.07 hrs, Volume= 0.198 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 14.8 fps, Min. Travel Time= 0.0 min  
Avg. Velocity = 5.6 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.26'

Capacity at bank full= 29.32 cfs

15.0" Diameter Pipe n= 0.012 Length= 31.0' Slope= 0.1755 '/'

**Reach 172: (new node)**

Inflow = 6.35 cfs @ 12.08 hrs, Volume= 0.483 af

Outflow = 6.35 cfs @ 12.09 hrs, Volume= 0.483 af, Atten= 0%, Lag= 0.1 min

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

Max. Velocity= 18.8 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 7.2 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.40'

Capacity at bank full= 28.85 cfs

15.0" Diameter Pipe n= 0.012 Length= 32.0' Slope= 0.1700 '/'

**Reach 210A: (new node)**

Inflow = 3.78 cfs @ 12.08 hrs, Volume= 0.285 af

Outflow = 3.77 cfs @ 12.08 hrs, Volume= 0.285 af, Atten= 0%, Lag= 0.2 min

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

Max. Velocity= 20.3 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 7.7 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.26'

Capacity at bank full= 39.83 cfs

15.0" Diameter Pipe n= 0.012 Length= 150.0' Slope= 0.3240 '/'

**Reach 220A: (new node)**

Inflow = 3.77 cfs @ 12.08 hrs, Volume= 0.285 af

Outflow = 3.73 cfs @ 12.09 hrs, Volume= 0.285 af, Atten= 1%, Lag= 0.5 min

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

Max. Velocity= 9.5 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 3.6 fps, Avg. Travel Time= 0.8 min

Peak Depth= 0.45'

Capacity at bank full= 13.64 cfs

15.0" Diameter Pipe n= 0.012 Length= 168.0' Slope= 0.0380 '/'

**Reach 310: (new node)**

Inflow = 1.17 cfs @ 12.07 hrs, Volume= 0.087 af

Outflow = 1.14 cfs @ 12.09 hrs, Volume= 0.086 af, Atten= 3%, Lag= 1.3 min

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

Max. Velocity= 5.0 fps, Min. Travel Time= 0.7 min

Avg. Velocity = 1.9 fps, Avg. Travel Time= 1.7 min

Peak Depth= 0.34'

Capacity at bank full= 4.73 cfs

12.0" Diameter Pipe n= 0.012 Length= 195.0' Slope= 0.0150 '/'

### Reach 320.: (new node)

Inflow = 1.14 cfs @ 12.09 hrs, Volume= 0.086 af

Outflow = 1.14 cfs @ 12.09 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.1 min

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

Max. Velocity= 19.2 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 7.3 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.13'

Capacity at bank full= 32.06 cfs

12.0" Diameter Pipe n= 0.012 Length= 56.0' Slope= 0.6900 '/'

### Reach 410: (new node)

Inflow = 1.54 cfs @ 12.07 hrs, Volume= 0.114 af

Outflow = 1.51 cfs @ 12.09 hrs, Volume= 0.114 af, Atten= 2%, Lag= 0.9 min

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

Max. Velocity= 4.6 fps, Min. Travel Time= 0.4 min

Avg. Velocity = 1.8 fps, Avg. Travel Time= 1.0 min

Peak Depth= 0.44'

Capacity at bank full= 3.86 cfs

12.0" Diameter Pipe n= 0.012 Length= 110.0' Slope= 0.0100 '/'

### Reach 420: (new node)

Inflow = 2.13 cfs @ 12.09 hrs, Volume= 0.160 af

Outflow = 2.12 cfs @ 12.09 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min

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

Max. Velocity= 8.4 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 3.2 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.30'

Capacity at bank full= 24.14 cfs

18.0" Diameter Pipe n= 0.012 Length= 14.0' Slope= 0.0450 '/'

**Reach 610: (new node)**

Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.3 fps, Min. Travel Time= 1.8 min  
 Avg. Velocity = 0.3 fps, Avg. Travel Time= 1.8 min

Peak Depth= 0.00'  
 Capacity at bank full= 26.83 cfs  
 20.00' x 0.25' deep channel, n= 0.050 Length= 28.0' Slope= 0.2139 '/'

**Reach 620: (new node)**

Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Atten= 13%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 0.1 fps, Min. Travel Time= 33.7 min  
 Avg. Velocity = 0.1 fps, Avg. Travel Time= 33.7 min

Peak Depth= 0.00'  
 Capacity at bank full= 0.75 cfs  
 1.00' x 0.25' deep channel, n= 0.040 Length= 265.0' Slope= 0.0370 '/'  
 Side Slope Z-value= 3.0 0.0 '/'

**Reach 810: (new node)**

Inflow = 2.55 cfs @ 12.08 hrs, Volume= 0.171 af  
 Outflow = 2.53 cfs @ 12.08 hrs, Volume= 0.171 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 15.4 fps, Min. Travel Time= 0.2 min  
 Avg. Velocity = 5.6 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.26'  
 Capacity at bank full= 16.82 cfs  
 12.0" Diameter Pipe n= 0.012 Length= 169.0' Slope= 0.1900 '/'

**Reach 820: (new node)**

Inflow = 2.53 cfs @ 12.08 hrs, Volume= 0.171 af  
 Outflow = 2.52 cfs @ 12.09 hrs, Volume= 0.171 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 13.3 fps, Min. Travel Time= 0.2 min  
 Avg. Velocity = 4.9 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.29'  
 Capacity at bank full= 13.70 cfs  
 12.0" Diameter Pipe n= 0.012 Length= 141.0' Slope= 0.1260 'f'

**Reach ESS: (new node)**

Inflow = 1.34 cfs @ 12.12 hrs, Volume= 0.100 af  
 Outflow = 1.33 cfs @ 12.13 hrs, Volume= 0.100 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 8.5 fps, Min. Travel Time= 0.5 min  
 Avg. Velocity = 3.3 fps, Avg. Travel Time= 1.3 min

Peak Depth= 0.31'  
 Capacity at bank full= 3.10 cfs  
 8.0" Diameter Pipe n= 0.012 Length= 265.0' Slope= 0.0560 'f'

**Pond 1P: (new node)**

Inflow = 1.15 cfs @ 12.08 hrs, Volume= 0.076 af  
 Primary = 1.15 cfs @ 12.08 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

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

**Pond 2AP: (new node)**

Inflow = 3.78 cfs @ 12.08 hrs, Volume= 0.285 af  
 Primary = 3.78 cfs @ 12.08 hrs, Volume= 0.285 af, Atten= 0%, Lag= 0.0 min

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

**Pond 2P: (new node)**

Inflow = 1.49 cfs @ 12.08 hrs, Volume= 0.100 af  
 Outflow = 1.34 cfs @ 12.12 hrs, Volume= 0.100 af, Atten= 10%, Lag= 2.8 min  
 Primary = 1.34 cfs @ 12.12 hrs, Volume= 0.100 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

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

Peak Elev= 119.92' Storage= 131 cf  
 Plug-Flow detention time= 0.7 min calculated for 0.100 af (100% of inflow)  
 Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
109.00	12	0	0
123.00	12	168	168
124.00	12	12	180

**Primary OutFlow** (Free Discharge)  
 ↳1=Culvert

**Secondary OutFlow** (Free Discharge)  
 ↳2=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	109.00'	<b>4.0" x 113.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 67.75' S= 0.3650 '/' n= 0.012 Cc= 0.900
2	Secondary	123.00'	<b>4.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> 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 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.74

**Pond 5P: (new node)**

Inflow = 7.63 cfs @ 12.07 hrs, Volume= 0.529 af  
 Primary = 7.63 cfs @ 12.07 hrs, Volume= 0.529 af, Atten= 0%, Lag= 0.0 min

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

**Pond 6P: (new node)**

Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af  
 Primary = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

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

**Pond 7P: (new node)**

Inflow = 0.64 cfs @ 12.12 hrs, Volume= 0.064 af  
 Primary = 0.64 cfs @ 12.12 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

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

**Pond 9P: (new node)**

Inflow = 5.07 cfs @ 12.07 hrs, Volume= 0.345 af  
 Primary = 5.07 cfs @ 12.07 hrs, Volume= 0.345 af, Atten= 0%, Lag= 0.0 min

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

**Pond 10P: (new node)**

Inflow = 2.72 cfs @ 12.07 hrs, Volume= 0.189 af  
 Primary = 2.72 cfs @ 12.07 hrs, Volume= 0.189 af, Atten= 0%, Lag= 0.0 min

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

**Pond 11P: (new node)**

Inflow = 0.63 cfs @ 12.07 hrs, Volume= 0.047 af  
 Primary = 0.63 cfs @ 12.07 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

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

**Pond 12P: (new node)**

Inflow = 1.21 cfs @ 12.07 hrs, Volume= 0.090 af  
 Primary = 1.21 cfs @ 12.07 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min

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

**Pond 13P: (new node)**

Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af  
 Primary = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

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

**Pond 15P: (new node)**

Inflow = 0.45 cfs @ 12.08 hrs, Volume= 0.030 af  
 Primary = 0.45 cfs @ 12.08 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

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

**Pond 16P: (new node)**

Inflow = 0.12 cfs @ 12.12 hrs, Volume= 0.013 af  
 Outflow = 0.14 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.14 cfs @ 12.11 hrs, Volume= 0.013 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

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

Peak Elev= 62.30' Storage= 10 cf  
 Plug-Flow detention time= 5.8 min calculated for 0.013 af (99% of inflow)  
 Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.50	12	0	0
62.00	12	6	6
66.00	12	48	54
67.00	12	12	66

**Primary OutFlow (Free Discharge)**

↑1=Culvert

**Secondary OutFlow (Free Discharge)**

↑2=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	62.00'	<b>4.0" x 21.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 61.79' S= 0.0100 '/' n= 0.012 Cc= 0.900
2	Secondary	65.50'	<b>4.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> 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 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.74

**Pond CB-63: (new node)**

Inflow = 0.64 cfs @ 12.12 hrs, Volume= 0.064 af  
 Primary = 0.64 cfs @ 12.12 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

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

**Pond dmh-20: (new node)**

Inflow = 11.64 cfs @ 12.12 hrs, Volume= 0.862 af  
 Primary = 11.64 cfs @ 12.12 hrs, Volume= 0.862 af, Atten= 0%, Lag= 0.0 min

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

**Pond SMH-13: (new node)**

Inflow = 7.65 cfs @ 12.09 hrs, Volume= 0.596 af  
 Primary = 7.65 cfs @ 12.09 hrs, Volume= 0.596 af, Atten= 0%, Lag= 0.0 min

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

**Pond SMH-20: (new node)**

Inflow = 6.35 cfs @ 12.08 hrs, Volume= 0.483 af  
 Primary = 6.35 cfs @ 12.08 hrs, Volume= 0.483 af, Atten= 0%, Lag= 0.0 min

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

**Pond smh-21: (new node)**

Inflow = 3.77 cfs @ 12.08 hrs, Volume= 0.285 af  
 Primary = 3.77 cfs @ 12.08 hrs, Volume= 0.285 af, Atten= 0%, Lag= 0.0 min

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



**Pond SMH-26: (new node)**

Inflow = 10.73 cfs @ 12.11 hrs, Volume= 0.783 af  
 Outflow = 10.58 cfs @ 12.12 hrs, Volume= 0.783 af, Atten= 1%, Lag= 0.5 min  
 Primary = 10.58 cfs @ 12.12 hrs, Volume= 0.783 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

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

Peak Elev= 52.46' Storage= 102 cf  
 Plug-Flow detention time= 0.2 min calculated for 0.783 af (100% of inflow)  
 Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	12	0	0
53.42	12	113	113
55.00	12	19	132

**Primary OutFlow (Free Discharge)**  
 ↳1=Culvert

**Secondary OutFlow (Free Discharge)**  
 ↳2=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	44.20'	<b>12.0" x 209.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 31.99' S= 0.0584 '/' n= 0.012 Cc= 0.900
2	Secondary	53.40'	<b>4.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> 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 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.7

**Pond SMH12: (new node)**

Inflow = 1.34 cfs @ 12.12 hrs, Volume= 0.100 af  
 Primary = 1.34 cfs @ 12.12 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min

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

**Pond SP-1: (new node)**

Inflow = 1.15 cfs @ 12.08 hrs, Volume= 0.076 af  
 Primary = 1.15 cfs @ 12.08 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

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

**Pond sp-2: (new node)**

Inflow = 18.67 cfs @ 12.12 hrs, Volume= 1.490 af  
 Primary = 18.67 cfs @ 12.12 hrs, Volume= 1.490 af, Atten= 0%, Lag= 0.0 min

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

**Pond sp-3: (new node)**

Inflow = 11.64 cfs @ 12.12 hrs, Volume= 0.862 af  
 Primary = 11.64 cfs @ 12.12 hrs, Volume= 0.862 af, Atten= 0%, Lag= 0.0 min

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

**Pond sp-4: (new node)**

Inflow = 0.64 cfs @ 12.12 hrs, Volume= 0.064 af  
 Primary = 0.64 cfs @ 12.12 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

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

**Pond SP-5: (new node)**

Inflow = 5.07 cfs @ 12.07 hrs, Volume= 0.345 af  
 Primary = 5.07 cfs @ 12.07 hrs, Volume= 0.345 af, Atten= 0%, Lag= 0.0 min

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

**Pond SP-6: (new node)**

Inflow = 2.72 cfs @ 12.07 hrs, Volume= 0.189 af  
 Primary = 2.72 cfs @ 12.07 hrs, Volume= 0.189 af, Atten= 0%, Lag= 0.0 min

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

**Pond SP-7: (new node)**

Inflow = 0.45 cfs @ 12.08 hrs, Volume= 0.030 af  
 Primary = 0.45 cfs @ 12.08 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

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

**Pond tank: (new node)**

Inflow = 11.18 cfs @ 12.08 hrs, Volume= 0.787 af  
 Outflow = 10.73 cfs @ 12.11 hrs, Volume= 0.783 af, Atten= 4%, Lag= 2.1 min  
 Primary = 10.73 cfs @ 12.11 hrs, Volume= 0.783 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

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

Peak Elev= 69.50' Storage= 1,461 cf

Plug-Flow detention time= 5.1 min calculated for 0.783 af (100% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
63.00	225	0	0
72.00	225	2,025	2,025
73.00	225	225	2,250

**Primary OutFlow** (Free Discharge)

- └1=Culvert
- └2=Orifice/Grate

**Secondary OutFlow** (Free Discharge)

- └3=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	63.50'	<b>12.0" x 168.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 44.97' S= 0.1103 '/' n= 0.012 Cc= 0.900
2	Primary	68.00'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600
3	Secondary	72.00'	<b>4.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> 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 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.73 2.73

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
 Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=4.70"  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: (new node)**

Tc=5.0 min CN=88 Area=0.539 ac Runoff= 2.11 cfs 0.143 af

**Subcatchment 2A: (new node)**

Tc=5.0 min CN=98 Area=0.576 ac Runoff= 2.66 cfs 0.199 af

**Subcatchment 2S: (new node)**

Tc=5.0 min CN=89 Area=0.672 ac Runoff= 2.69 cfs 0.184 af

**Subcatchment 3S: (new node)**

Tc=5.0 min CN=98 Area=0.401 ac Runoff= 1.85 cfs 0.139 af

**Subcatchment 4S: (new node)**

Tc=5.0 min CN=98 Area=0.528 ac Runoff= 2.44 cfs 0.182 af

**Subcatchment 5S: (new node)**

Tc=5.0 min CN=94 Area=2.860 ac Runoff= 12.64 cfs 0.903 af

**Subcatchment 6S: (new node)**

Tc=5.0 min CN=43 Area=0.250 ac Runoff= 0.02 cfs 0.005 af

**Subcatchment 7S: (new node)**

Tc=5.0 min CN=62 Area=2.216 ac Runoff= 2.98 cfs 0.210 af

**Subcatchment 8S: (new node)**

Tc=5.0 min CN=89 Area=1.150 ac Runoff= 4.61 cfs 0.315 af

**Subcatchment 9S: (new node)**

Tc=5.0 min CN=92 Area=2.030 ac Runoff= 8.66 cfs 0.607 af

**Subcatchment 10S: (new node)**

Tc=5.0 min CN=86 Area=0.767 ac Runoff= 2.85 cfs 0.192 af

**Subcatchment 11S: (new node)**

Tc=5.0 min CN=98 Area=0.216 ac Runoff= 1.00 cfs 0.075 af

**Subcatchment 12S: (new node)**

Tc=5.0 min CN=98 Area=0.415 ac Runoff= 1.92 cfs 0.143 af

**Subcatchment 13S: (new node)**

Tc=5.0 min CN=43 Area=0.210 ac Runoff= 0.02 cfs 0.004 af

**Subcatchment 14S: (new node)**

Tc=5.0 min CN=71 Area=1.390 ac Runoff= 3.04 cfs 0.202 af

**Subcatchment 15S: (new node)**

Tc=5.0 min CN=84 Area=0.254 ac Runoff= 0.89 cfs 0.060 af

**Subcatchment 16S: (new node)**

Tc=5.0 min CN=61 Area=0.506 ac Runoff= 0.64 cfs 0.045 af

**Subcatchment 17S: (new node)**

Tc=5.0 min CN=98 Area=0.918 ac Runoff= 4.25 cfs 0.317 af

**Subcatchment OS-1: OS-1**

Tc=10.0 min CN=89 Area=6.030 ac Runoff= 20.76 cfs 1.651 af

**Reach 110: (new node)**Length= 60.0' Max Vel= 4.1 fps Capacity= 3.86 cfs Inflow= 1.00 cfs 0.075 af  
Outflow= 0.98 cfs 0.075 af**Reach 115: (new node)**Length= 50.0' Max Vel= 4.1 fps Capacity= 3.86 cfs Inflow= 0.98 cfs 0.075 af  
Outflow= 0.98 cfs 0.075 af**Reach 120: (new node)**

Length= 55.0' Max Vel= 0.0 fps Capacity= 5.65 cfs Outflow= 0.00 cfs 0.000 af

**Reach 125: (new node)**Length= 172.0' Max Vel= 0.0 fps Capacity= 0.92 cfs Inflow= 0.00 cfs 0.000 af  
Outflow= 0.00 cfs 0.000 af**Reach 131: (new node)**Length= 30.0' Max Vel= 1.5 fps Capacity= 0.21 cfs Inflow= 0.02 cfs 0.004 af  
Outflow= 0.02 cfs 0.004 af**Reach 165: (new node)**Length= 215.0' Max Vel= 6.7 fps Capacity= 3.01 cfs Inflow= 0.60 cfs 0.049 af  
Outflow= 0.59 cfs 0.049 af**Reach 171: (new node)**Length= 31.0' Max Vel= 16.9 fps Capacity= 29.32 cfs Inflow= 4.25 cfs 0.317 af  
Outflow= 4.24 cfs 0.317 af**Reach 172: (new node)**Length= 32.0' Max Vel= 21.3 fps Capacity= 28.85 cfs Inflow= 10.07 cfs 0.773 af  
Outflow= 10.07 cfs 0.773 af**Reach 210A: (new node)**Length= 150.0' Max Vel= 23.2 fps Capacity= 39.83 cfs Inflow= 5.98 cfs 0.456 af  
Outflow= 5.97 cfs 0.456 af**Reach 220A: (new node)**Length= 168.0' Max Vel= 10.7 fps Capacity= 13.64 cfs Inflow= 5.97 cfs 0.456 af  
Outflow= 5.92 cfs 0.456 af**Reach 310: (new node)**Length= 195.0' Max Vel= 5.6 fps Capacity= 4.73 cfs Inflow= 1.85 cfs 0.139 af  
Outflow= 1.80 cfs 0.138 af**Reach 320.: (new node)**Length= 56.0' Max Vel= 22.0 fps Capacity= 32.06 cfs Inflow= 1.80 cfs 0.138 af  
Outflow= 1.80 cfs 0.138 af

<b>Reach 410: (new node)</b>	Inflow= 2.44 cfs 0.182 af
Length= 110.0' Max Vel= 5.2 fps Capacity= 3.86 cfs	Outflow= 2.39 cfs 0.182 af
<b>Reach 420: (new node)</b>	Inflow= 3.37 cfs 0.257 af
Length= 14.0' Max Vel= 9.6 fps Capacity= 24.14 cfs	Outflow= 3.36 cfs 0.257 af
<b>Reach 610: (new node)</b>	Inflow= 0.02 cfs 0.005 af
Length= 28.0' Max Vel= 0.3 fps Capacity= 26.83 cfs	Outflow= 0.02 cfs 0.005 af
<b>Reach 620: (new node)</b>	Inflow= 0.02 cfs 0.005 af
Length= 265.0' Max Vel= 0.6 fps Capacity= 0.75 cfs	Outflow= 0.02 cfs 0.005 af
<b>Reach 810: (new node)</b>	Inflow= 4.61 cfs 0.315 af
Length= 169.0' Max Vel= 18.1 fps Capacity= 16.82 cfs	Outflow= 4.55 cfs 0.315 af
<b>Reach 820: (new node)</b>	Inflow= 4.55 cfs 0.315 af
Length= 141.0' Max Vel= 15.6 fps Capacity= 13.70 cfs	Outflow= 4.53 cfs 0.315 af
<b>Reach ESS: (new node)</b>	Inflow= 2.85 cfs 0.184 af
Length= 265.0' Max Vel= 10.0 fps Capacity= 3.10 cfs	Outflow= 2.63 cfs 0.184 af
<b>Pond 1P: (new node)</b>	Inflow= 2.11 cfs 0.143 af
	Primary= 2.11 cfs 0.143 af
<b>Pond 2AP: (new node)</b>	Inflow= 5.98 cfs 0.456 af
	Primary= 5.98 cfs 0.456 af
<b>Pond 2P: (new node)</b>	Peak Storage= 171 cf Inflow= 2.69 cfs 0.184 af
Primary= 1.36 cfs 0.171 af Secondary= 1.49 cfs 0.013 af	Outflow= 2.85 cfs 0.184 af
<b>Pond 5P: (new node)</b>	Inflow= 12.64 cfs 0.903 af
	Primary= 12.64 cfs 0.903 af
<b>Pond 6P: (new node)</b>	Inflow= 0.02 cfs 0.005 af
	Primary= 0.02 cfs 0.005 af
<b>Pond 7P: (new node)</b>	Inflow= 2.98 cfs 0.210 af
	Primary= 2.98 cfs 0.210 af
<b>Pond 9P: (new node)</b>	Inflow= 8.66 cfs 0.607 af
	Primary= 8.66 cfs 0.607 af
<b>Pond 10P: (new node)</b>	Inflow= 4.77 cfs 0.335 af
	Primary= 4.77 cfs 0.335 af
<b>Pond 11P: (new node)</b>	Inflow= 1.00 cfs 0.075 af
	Primary= 1.00 cfs 0.075 af

<b>Pond 12P: (new node)</b>	Inflow= 1.92 cfs 0.143 af Primary= 1.92 cfs 0.143 af
<b>Pond 13P: (new node)</b>	Inflow= 0.02 cfs 0.004 af Primary= 0.02 cfs 0.004 af
<b>Pond 15P: (new node)</b>	Inflow= 0.89 cfs 0.060 af Primary= 0.89 cfs 0.060 af
<b>Pond 16P: (new node)</b>	Peak Storage= 42 cf Inflow= 0.64 cfs 0.049 af Primary= 0.60 cfs 0.049 af Secondary= 0.00 cfs 0.000 af Outflow= 0.60 cfs 0.049 af
<b>Pond CB-63: (new node)</b>	Inflow= 2.98 cfs 0.210 af Primary= 2.98 cfs 0.210 af
<b>Pond dmh-20: (new node)</b>	Inflow= 23.60 cfs 1.559 af Primary= 23.60 cfs 1.559 af
<b>Pond SMH-13: (new node)</b>	Inflow= 13.22 cfs 1.006 af Primary= 13.22 cfs 1.006 af
<b>Pond SMH-20: (new node)</b>	Inflow= 10.07 cfs 0.773 af Primary= 10.07 cfs 0.773 af
<b>Pond smh-21: (new node)</b>	Inflow= 5.97 cfs 0.456 af Primary= 5.97 cfs 0.456 af
<b>Pond SMH-26: (new node)</b>	Peak Storage= 124 cf Inflow= 20.78 cfs 1.352 af Primary= 10.93 cfs 1.280 af Secondary= 9.67 cfs 0.072 af Outflow= 20.60 cfs 1.352 af
<b>Pond SMH12: (new node)</b>	Inflow= 2.85 cfs 0.184 af Primary= 2.85 cfs 0.184 af
<b>Pond SP-1: (new node)</b>	Inflow= 2.11 cfs 0.143 af Primary= 2.11 cfs 0.143 af
<b>Pond sp-2: (new node)</b>	Inflow= 32.95 cfs 2.657 af Primary= 32.95 cfs 2.657 af
<b>Pond sp-3: (new node)</b>	Inflow= 23.60 cfs 1.559 af Primary= 23.60 cfs 1.559 af
<b>Pond sp-4: (new node)</b>	Inflow= 2.98 cfs 0.210 af Primary= 2.98 cfs 0.210 af
<b>Pond SP-5: (new node)</b>	Inflow= 8.66 cfs 0.607 af Primary= 8.66 cfs 0.607 af

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Type III 24-hr Rainfall=4.70"

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**Pond SP-6: (new node)**

Inflow= 4.77 cfs 0.335 af

Primary= 4.77 cfs 0.335 af

**Pond SP-7: (new node)**

Inflow= 0.89 cfs 0.060 af

Primary= 0.89 cfs 0.060 af

**Pond tank: (new node)**

Peak Storage= 2,181 cf Inflow= 18.80 cfs 1.356 af

Primary= 14.66 cfs 1.327 af Secondary= 6.13 cfs 0.025 af Outflow= 20.78 cfs 1.352 af

**Runoff Area = 21.928 ac Volume = 5.576 af Average Depth = 3.05"**



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=5.50"  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: (new node)**

Tc=5.0 min CN=88 Area=0.539 ac Runoff= 2.56 cfs 0.176 af

**Subcatchment 2A: (new node)**

Tc=5.0 min CN=98 Area=0.576 ac Runoff= 3.12 cfs 0.234 af

**Subcatchment 2S: (new node)**

Tc=5.0 min CN=89 Area=0.672 ac Runoff= 3.25 cfs 0.225 af

**Subcatchment 3S: (new node)**

Tc=5.0 min CN=98 Area=0.401 ac Runoff= 2.17 cfs 0.163 af

**Subcatchment 4S: (new node)**

Tc=5.0 min CN=98 Area=0.528 ac Runoff= 2.86 cfs 0.214 af

**Subcatchment 5S: (new node)**

Tc=5.0 min CN=94 Area=2.860 ac Runoff= 14.97 cfs 1.079 af

**Subcatchment 6S: (new node)**

Tc=5.0 min CN=43 Area=0.250 ac Runoff= 0.06 cfs 0.009 af

**Subcatchment 7S: (new node)**

Tc=5.0 min CN=62 Area=2.216 ac Runoff= 4.34 cfs 0.296 af

**Subcatchment 8S: (new node)**

Tc=5.0 min CN=89 Area=1.150 ac Runoff= 5.57 cfs 0.385 af

**Subcatchment 9S: (new node)**

Tc=5.0 min CN=92 Area=2.030 ac Runoff= 10.34 cfs 0.732 af

**Subcatchment 10S: (new node)**

Tc=5.0 min CN=86 Area=0.767 ac Runoff= 3.49 cfs 0.237 af

**Subcatchment 11S: (new node)**

Tc=5.0 min CN=98 Area=0.216 ac Runoff= 1.17 cfs 0.088 af

**Subcatchment 12S: (new node)**

Tc=5.0 min CN=98 Area=0.415 ac Runoff= 2.25 cfs 0.169 af

**Subcatchment 13S: (new node)**

Tc=5.0 min CN=43 Area=0.210 ac Runoff= 0.05 cfs 0.008 af

**Subcatchment 14S: (new node)**

Tc=5.0 min CN=71 Area=1.390 ac Runoff= 4.06 cfs 0.268 af

**Subcatchment 15S: (new node)**

Tc=5.0 min CN=84 Area=0.254 ac Runoff= 1.10 cfs 0.074 af

**Subcatchment 16S: (new node)**

Tc=5.0 min CN=61 Area=0.506 ac Runoff= 0.94 cfs 0.064 af

**Subcatchment 17S: (new node)**

Tc=5.0 min CN=98 Area=0.918 ac Runoff= 4.98 cfs 0.373 af

**Subcatchment OS-1: OS-1**

Tc=10.0 min CN=89 Area=6.030 ac Runoff= 25.09 cfs 2.017 af

**Reach 110: (new node)**Length= 60.0' Max Vel= 4.3 fps Capacity= 3.86 cfs Inflow= 1.17 cfs 0.088 af  
Outflow= 1.15 cfs 0.088 af**Reach 115: (new node)**Length= 50.0' Max Vel= 4.3 fps Capacity= 3.86 cfs Inflow= 1.15 cfs 0.088 af  
Outflow= 1.14 cfs 0.088 af**Reach 120: (new node)**

Length= 55.0' Max Vel= 0.0 fps Capacity= 5.65 cfs Outflow= 0.00 cfs 0.000 af

**Reach 125: (new node)**Length= 172.0' Max Vel= 0.0 fps Capacity= 0.92 cfs Inflow= 0.00 cfs 0.000 af  
Outflow= 0.00 cfs 0.000 af**Reach 131: (new node)**Length= 30.0' Max Vel= 1.9 fps Capacity= 0.21 cfs Inflow= 0.05 cfs 0.008 af  
Outflow= 0.05 cfs 0.008 af**Reach 165: (new node)**Length= 215.0' Max Vel= 7.9 fps Capacity= 3.01 cfs Inflow= 1.10 cfs 0.072 af  
Outflow= 1.00 cfs 0.072 af**Reach 171: (new node)**Length= 31.0' Max Vel= 17.7 fps Capacity= 29.32 cfs Inflow= 4.98 cfs 0.373 af  
Outflow= 4.97 cfs 0.373 af**Reach 172: (new node)**Length= 32.0' Max Vel= 22.3 fps Capacity= 28.85 cfs Inflow= 11.82 cfs 0.908 af  
Outflow= 11.81 cfs 0.908 af**Reach 210A: (new node)**Length= 150.0' Max Vel= 24.3 fps Capacity= 39.83 cfs Inflow= 7.02 cfs 0.536 af  
Outflow= 7.00 cfs 0.536 af**Reach 220A: (new node)**Length= 168.0' Max Vel= 11.2 fps Capacity= 13.64 cfs Inflow= 7.00 cfs 0.536 af  
Outflow= 6.95 cfs 0.536 af**Reach 310: (new node)**Length= 195.0' Max Vel= 5.9 fps Capacity= 4.73 cfs Inflow= 2.17 cfs 0.163 af  
Outflow= 2.11 cfs 0.163 af**Reach 320.: (new node)**Length= 56.0' Max Vel= 23.1 fps Capacity= 32.06 cfs Inflow= 2.11 cfs 0.163 af  
Outflow= 2.11 cfs 0.163 af

<b>Reach 410: (new node)</b>	Inflow= 2.86 cfs 0.214 af
Length= 110.0' Max Vel= 5.3 fps Capacity= 3.86 cfs	Outflow= 2.80 cfs 0.214 af
<b>Reach 420: (new node)</b>	Inflow= 3.95 cfs 0.302 af
Length= 14.0' Max Vel= 10.0 fps Capacity= 24.14 cfs	Outflow= 3.95 cfs 0.302 af
<b>Reach 610: (new node)</b>	Inflow= 0.06 cfs 0.009 af
Length= 28.0' Max Vel= 0.5 fps Capacity= 26.83 cfs	Outflow= 0.06 cfs 0.009 af
<b>Reach 620: (new node)</b>	Inflow= 0.06 cfs 0.009 af
Length= 265.0' Max Vel= 0.9 fps Capacity= 0.75 cfs	Outflow= 0.06 cfs 0.009 af
<b>Reach 810: (new node)</b>	Inflow= 5.57 cfs 0.385 af
Length= 169.0' Max Vel= 19.0 fps Capacity= 16.82 cfs	Outflow= 5.50 cfs 0.385 af
<b>Reach 820: (new node)</b>	Inflow= 5.50 cfs 0.385 af
Length= 141.0' Max Vel= 16.4 fps Capacity= 13.70 cfs	Outflow= 5.47 cfs 0.385 af
<b>Reach ESS: (new node)</b>	Inflow= 3.53 cfs 0.225 af
Length= 265.0' Max Vel= 10.1 fps Capacity= 3.10 cfs	Outflow= 3.15 cfs 0.225 af
<b>Pond 1P: (new node)</b>	Inflow= 2.56 cfs 0.176 af
	Primary= 2.56 cfs 0.176 af
<b>Pond 2AP: (new node)</b>	Inflow= 7.02 cfs 0.536 af
	Primary= 7.02 cfs 0.536 af
<b>Pond 2P: (new node)</b>	Peak Storage= 172 cf Inflow= 3.25 cfs 0.225 af
Primary= 1.36 cfs 0.202 af Secondary= 2.17 cfs 0.023 af	Outflow= 3.53 cfs 0.225 af
<b>Pond 5P: (new node)</b>	Inflow= 14.97 cfs 1.079 af
	Primary= 14.97 cfs 1.079 af
<b>Pond 6P: (new node)</b>	Inflow= 0.06 cfs 0.009 af
	Primary= 0.06 cfs 0.009 af
<b>Pond 7P: (new node)</b>	Inflow= 4.34 cfs 0.296 af
	Primary= 4.34 cfs 0.296 af
<b>Pond 9P: (new node)</b>	Inflow= 10.34 cfs 0.732 af
	Primary= 10.34 cfs 0.732 af
<b>Pond 10P: (new node)</b>	Inflow= 5.74 cfs 0.406 af
	Primary= 5.74 cfs 0.406 af
<b>Pond 11P: (new node)</b>	Inflow= 1.17 cfs 0.088 af
	Primary= 1.17 cfs 0.088 af

<b>Pond 12P: (new node)</b>	Inflow= 2.25 cfs 0.169 af Primary= 2.25 cfs 0.169 af
<b>Pond 13P: (new node)</b>	Inflow= 0.05 cfs 0.008 af Primary= 0.05 cfs 0.008 af
<b>Pond 15P: (new node)</b>	Inflow= 1.10 cfs 0.074 af Primary= 1.10 cfs 0.074 af
<b>Pond 16P: (new node)</b>	Peak Storage= 50 cf Inflow= 0.97 cfs 0.072 af Primary= 0.66 cfs 0.069 af Secondary= 0.44 cfs 0.002 af Outflow= 1.10 cfs 0.072 af
<b>Pond CB-63: (new node)</b>	Inflow= 4.34 cfs 0.296 af Primary= 4.34 cfs 0.296 af
<b>Pond dmh-20: (new node)</b>	Inflow= 27.22 cfs 1.899 af Primary= 27.22 cfs 1.899 af
<b>Pond SMH-13: (new node)</b>	Inflow= 15.90 cfs 1.205 af Primary= 15.90 cfs 1.205 af
<b>Pond SMH-20: (new node)</b>	Inflow= 11.82 cfs 0.908 af Primary= 11.82 cfs 0.908 af
<b>Pond smh-21: (new node)</b>	Inflow= 7.00 cfs 0.536 af Primary= 7.00 cfs 0.536 af
<b>Pond SMH-26: (new node)</b>	Peak Storage= 126 cf Inflow= 23.27 cfs 1.622 af Primary= 10.98 cfs 1.493 af Secondary= 12.21 cfs 0.129 af Outflow= 23.19 cfs 1.622 af
<b>Pond SMH12: (new node)</b>	Inflow= 3.53 cfs 0.225 af Primary= 3.53 cfs 0.225 af
<b>Pond SP-1: (new node)</b>	Inflow= 2.56 cfs 0.176 af Primary= 2.56 cfs 0.176 af
<b>Pond sp-2: (new node)</b>	Inflow= 39.74 cfs 3.222 af Primary= 39.74 cfs 3.222 af
<b>Pond sp-3: (new node)</b>	Inflow= 27.22 cfs 1.899 af Primary= 27.22 cfs 1.899 af
<b>Pond sp-4: (new node)</b>	Inflow= 4.34 cfs 0.296 af Primary= 4.34 cfs 0.296 af
<b>Pond SP-5: (new node)</b>	Inflow= 10.34 cfs 0.732 af Primary= 10.34 cfs 0.732 af

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Type III 24-hr Rainfall=5.50"

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Pond SP-6: (new node)

Inflow= 5.74 cfs 0.406 af  
Primary= 5.74 cfs 0.406 af

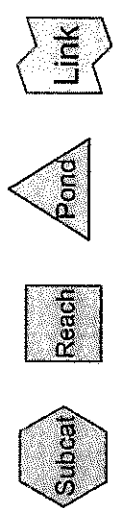
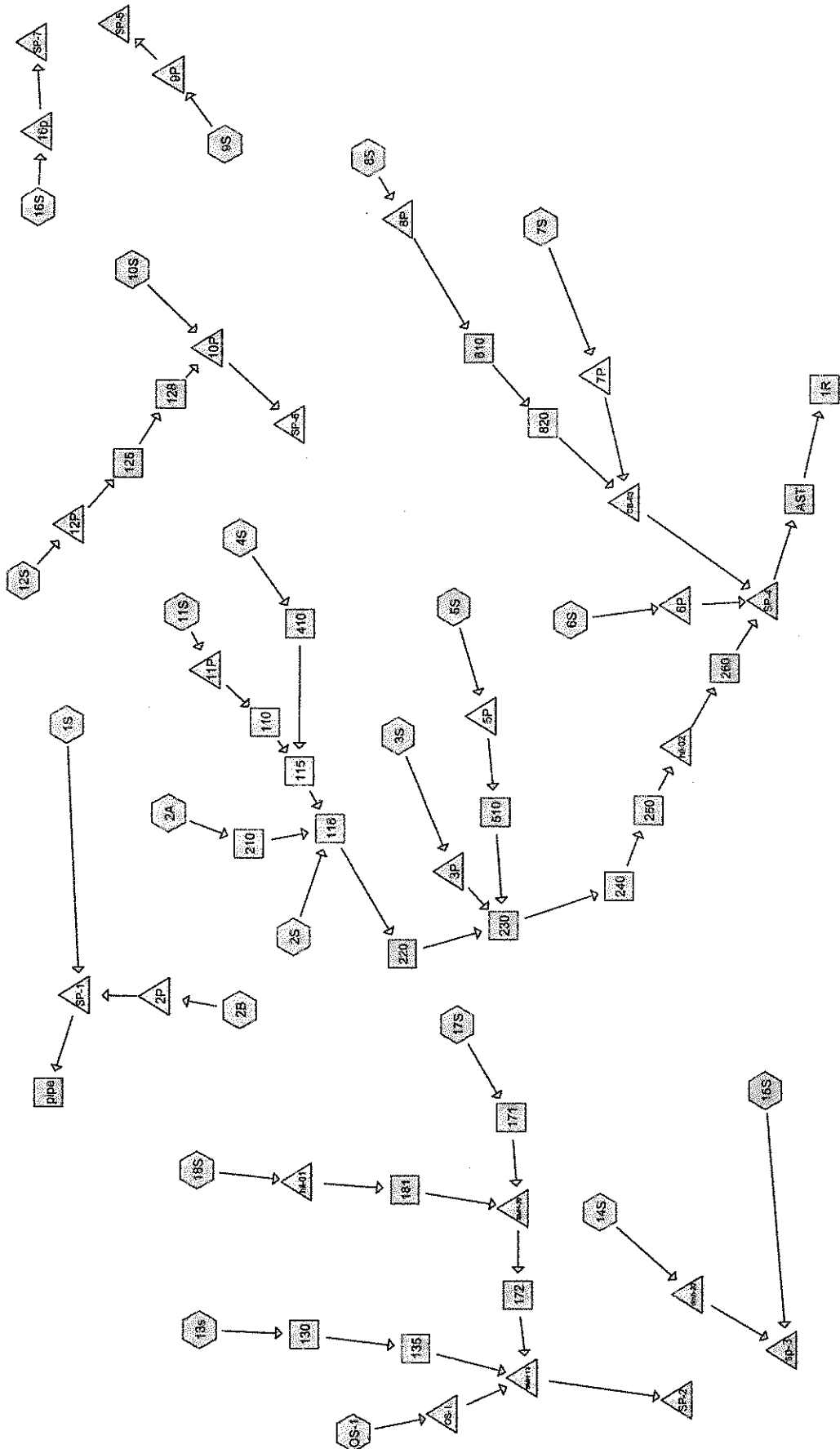
Pond SP-7: (new node)

Inflow= 1.10 cfs 0.074 af  
Primary= 1.10 cfs 0.074 af

Pond tank: (new node)

Peak Storage= 2,218 cf Inflow= 22.36 cfs 1.626 af  
Primary= 14.83 cfs 1.560 af Secondary= 8.44 cfs 0.063 af Outflow= 23.27 cfs 1.622 af

**Runoff Area = 21.928 ac Volume = 6.810 af Average Depth = 3.73"**



**Drainage Diagram for 01046-post**

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
 Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=3.00"  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: (new node)**

Tc=5.0 min CN=84 Area=0.448 ac Runoff= 0.80 cfs 0.053 af

**Subcatchment 2A: (new node)**

Tc=5.0 min CN=98 Area=0.568 ac Runoff= 1.66 cfs 0.123 af

**Subcatchment 2B: (new node)**

Tc=5.0 min CN=80 Area=0.320 ac Runoff= 0.46 cfs 0.031 af

**Subcatchment 2S: (new node)**

Tc=5.0 min CN=98 Area=0.384 ac Runoff= 1.12 cfs 0.083 af

**Subcatchment 3S: (new node)**

Tc=5.0 min CN=89 Area=0.347 ac Runoff= 0.77 cfs 0.052 af

**Subcatchment 4S: (new node)**

Tc=5.0 min CN=98 Area=0.528 ac Runoff= 1.54 cfs 0.114 af

**Subcatchment 5S: (new node)**

Tc=5.0 min CN=91 Area=2.860 ac Runoff= 6.89 cfs 0.465 af

**Subcatchment 6S: (new node)**

Tc=5.0 min CN=91 Area=0.251 ac Runoff= 0.60 cfs 0.041 af

**Subcatchment 7S: (new node)**

Tc=5.0 min CN=62 Area=2.216 ac Runoff= 0.64 cfs 0.064 af

**Subcatchment 8S: (new node)**

Tc=5.0 min CN=89 Area=1.150 ac Runoff= 2.55 cfs 0.171 af

**Subcatchment 9S: (new node)**

Tc=5.0 min CN=92 Area=2.030 ac Runoff= 5.07 cfs 0.345 af

**Subcatchment 10S: (new node)**

Tc=5.0 min CN=87 Area=0.853 ac Runoff= 1.74 cfs 0.116 af

**Subcatchment 11S: (new node)**

Tc=5.0 min CN=98 Area=0.249 ac Runoff= 0.73 cfs 0.054 af

**Subcatchment 12S: (new node)**

Tc=5.0 min CN=98 Area=0.533 ac Runoff= 1.56 cfs 0.115 af

**Subcatchment 13s: (new node)**

Tc=6.2 min CN=78 Area=0.146 ac Runoff= 0.18 cfs 0.013 af

**Subcatchment 14S: (new node)**

Tc=5.0 min CN=76 Area=1.140 ac Runoff= 1.30 cfs 0.088 af

**Subcatchment 15S: (new node)**

Tc=5.0 min CN=43 Area=0.241 ac Runoff= 0.00 cfs 0.000 af

**Subcatchment 16S: (new node)**

Tc=5.0 min CN=98 Area=0.093 ac Runoff= 0.27 cfs 0.020 af

**Subcatchment 17S: (new node)**

Tc=5.0 min CN=98 Area=0.918 ac Runoff= 2.69 cfs 0.198 af

**Subcatchment 18S: (new node)**

Tc=5.0 min CN=98 Area=0.623 ac Runoff= 1.82 cfs 0.134 af

**Subcatchment OS-1: OS-1**

Tc=10.0 min CN=89 Area=6.030 ac Runoff= 11.55 cfs 0.894 af

**Reach 1R: (new node)**Length= 10.0' Max Vel= 7.7 fps Capacity= 22.37 cfs Inflow= 15.90 cfs 1.164 af  
Outflow= 15.88 cfs 1.164 af**Reach 110: (new node)**Length= 51.0' Max Vel= 3.8 fps Capacity= 1.31 cfs Inflow= 0.73 cfs 0.054 af  
Outflow= 0.72 cfs 0.054 af**Reach 115: (new node)**Length= 83.0' Max Vel= 5.1 fps Capacity= 7.00 cfs Inflow= 2.24 cfs 0.168 af  
Outflow= 2.22 cfs 0.168 af**Reach 118: (new node)**Length= 66.0' Max Vel= 5.9 fps Capacity= 10.76 cfs Inflow= 4.93 cfs 0.373 af  
Outflow= 4.90 cfs 0.373 af**Reach 125: (new node)**Length= 113.0' Max Vel= 6.0 fps Capacity= 5.59 cfs Inflow= 1.56 cfs 0.115 af  
Outflow= 1.53 cfs 0.115 af**Reach 128: (new node)**Length= 71.0' Max Vel= 3.5 fps Capacity= 2.71 cfs Inflow= 1.53 cfs 0.115 af  
Outflow= 1.51 cfs 0.115 af**Reach 130: (new node)**Length= 74.0' Max Vel= 4.2 fps Capacity= 7.91 cfs Inflow= 0.18 cfs 0.013 af  
Outflow= 0.18 cfs 0.013 af**Reach 135: (new node)**Length= 225.0' Max Vel= 4.8 fps Capacity= 3.10 cfs Inflow= 0.18 cfs 0.013 af  
Outflow= 0.17 cfs 0.013 af**Reach 171: (new node)**Length= 31.0' Max Vel= 14.8 fps Capacity= 29.32 cfs Inflow= 2.69 cfs 0.198 af  
Outflow= 2.68 cfs 0.198 af**Reach 172: (new node)**Length= 32.0' Max Vel= 16.9 fps Capacity= 28.85 cfs Inflow= 4.46 cfs 0.333 af  
Outflow= 4.44 cfs 0.332 af



<b>Reach 181: (new node)</b>	Inflow= 1.82 cfs 0.134 af
Length= 125.0' Max Vel= 7.7 fps Capacity= 13.83 cfs	Outflow= 1.79 cfs 0.134 af
<b>Reach 210: (new node)</b>	Inflow= 1.66 cfs 0.123 af
Length= 147.0' Max Vel= 4.1 fps Capacity= 3.23 cfs	Outflow= 1.61 cfs 0.122 af
<b>Reach 220: (new node)</b>	Inflow= 4.90 cfs 0.373 af
Length= 218.0' Max Vel= 11.4 fps Capacity= 26.19 cfs	Outflow= 4.85 cfs 0.373 af
<b>Reach 230: (new node)</b>	Inflow= 12.36 cfs 0.889 af
Length= 71.0' Max Vel= 25.9 fps Capacity= 57.69 cfs	Outflow= 12.35 cfs 0.889 af
<b>Reach 240: (new node)</b>	Inflow= 12.35 cfs 0.889 af
Length= 69.0' Max Vel= 22.9 fps Capacity= 48.44 cfs	Outflow= 12.33 cfs 0.889 af
<b>Reach 250: (new node)</b>	Inflow= 12.33 cfs 0.889 af
Length= 36.0' Max Vel= 11.9 fps Capacity= 43.43 cfs	Outflow= 12.32 cfs 0.889 af
<b>Reach 260: (new node)</b>	Inflow= 12.32 cfs 0.889 af
Length= 39.0' Max Vel= 7.5 fps Capacity= 23.22 cfs	Outflow= 12.29 cfs 0.889 af
<b>Reach 410: (new node)</b>	Inflow= 1.54 cfs 0.114 af
Length= 35.0' Max Vel= 3.6 fps Capacity= 2.77 cfs	Outflow= 1.52 cfs 0.114 af
<b>Reach 510: (new node)</b>	Inflow= 6.89 cfs 0.465 af
Length= 23.0' Max Vel= 26.2 fps Capacity= 74.96 cfs	Outflow= 6.88 cfs 0.465 af
<b>Reach 810: (new node)</b>	Inflow= 2.55 cfs 0.171 af
Length= 200.0' Max Vel= 14.5 fps Capacity= 15.48 cfs	Outflow= 2.53 cfs 0.171 af
<b>Reach 820: (new node)</b>	Inflow= 2.53 cfs 0.171 af
Length= 192.0' Max Vel= 12.2 fps Capacity= 12.21 cfs	Outflow= 2.51 cfs 0.171 af
<b>Reach AST: (new node)</b>	Inflow= 15.99 cfs 1.164 af
Length= 214.0' Max Vel= 19.8 fps Capacity= 22.39 cfs	Outflow= 15.90 cfs 1.164 af
<b>Reach pipe: (new node)</b>	Inflow= 1.26 cfs 0.083 af
Length= 10.0' Max Vel= 5.6 fps Capacity= 5.46 cfs	Outflow= 1.26 cfs 0.083 af
<b>Pond 2P: (new node)</b>	Peak Storage= 4 cf Inflow= 0.46 cfs 0.031 af
	Primary= 0.46 cfs 0.031 af Outflow= 0.46 cfs 0.031 af
<b>Pond 3P: (new node)</b>	Inflow= 0.77 cfs 0.052 af
	Primary= 0.77 cfs 0.052 af
<b>Pond 5P: (new node)</b>	Inflow= 6.89 cfs 0.465 af
	Primary= 6.89 cfs 0.465 af

**01046-post**

Type III 24-hr Rainfall=3.00"

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<b>Pond 6P: (new node)</b>	Inflow= 0.60 cfs 0.041 af Primary= 0.60 cfs 0.041 af
<b>Pond 7P: (new node)</b>	Inflow= 0.64 cfs 0.064 af Primary= 0.64 cfs 0.064 af
<b>Pond 8P: (new node)</b>	Inflow= 2.55 cfs 0.171 af Primary= 2.55 cfs 0.171 af
<b>Pond 9P: (new node)</b>	Inflow= 5.07 cfs 0.345 af Primary= 5.07 cfs 0.345 af
<b>Pond 10P: (new node)</b>	Inflow= 3.24 cfs 0.230 af Primary= 3.24 cfs 0.230 af
<b>Pond 11P: (new node)</b>	Inflow= 0.73 cfs 0.054 af Primary= 0.73 cfs 0.054 af
<b>Pond 12P: (new node)</b>	Inflow= 1.56 cfs 0.115 af Primary= 1.56 cfs 0.115 af
<b>Pond 16p: (new node)</b>	Inflow= 0.27 cfs 0.020 af Primary= 0.27 cfs 0.020 af
<b>Pond CB-63: (new node)</b>	Peak Storage= 15 cf Inflow= 3.13 cfs 0.235 af Primary= 3.13 cfs 0.235 af Outflow= 3.13 cfs 0.235 af
<b>Pond dmh-20: (new node)</b>	Inflow= 1.30 cfs 0.088 af Primary= 1.30 cfs 0.088 af
<b>Pond hil-01: (new node)</b>	Inflow= 1.82 cfs 0.134 af Primary= 1.82 cfs 0.134 af
<b>Pond hil-02: (new node)</b>	Inflow= 12.32 cfs 0.889 af Primary= 12.32 cfs 0.889 af
<b>Pond OS-1.: (new node)</b>	Inflow= 11.55 cfs 0.894 af Primary= 11.55 cfs 0.894 af
<b>Pond SMH-13: (new node)</b>	Inflow= 15.49 cfs 1.239 af Primary= 15.49 cfs 1.239 af
<b>Pond SMH-20: (new node)</b>	Inflow= 4.46 cfs 0.333 af Primary= 4.46 cfs 0.333 af
<b>Pond SP-1: (new node)</b>	Inflow= 1.26 cfs 0.083 af Primary= 1.26 cfs 0.083 af

01046-post

Type III 24-hr Rainfall=3.00"

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12/23/03

**Pond SP-2: (new node)**

Inflow= 15.49 cfs 1.239 af  
Primary= 15.49 cfs 1.239 af

**Pond sp-3: (new node)**

Inflow= 1.30 cfs 0.088 af  
Primary= 1.30 cfs 0.088 af

**Pond SP-4: (new node)**

Inflow= 15.99 cfs 1.164 af  
Primary= 15.99 cfs 1.164 af

**Pond SP-5: (new node)**

Inflow= 5.07 cfs 0.345 af  
Primary= 5.07 cfs 0.345 af

**Pond SP-6: (new node)**

Inflow= 3.24 cfs 0.230 af  
Primary= 3.24 cfs 0.230 af

**Pond SP-7: (new node)**

Inflow= 0.27 cfs 0.020 af  
Primary= 0.27 cfs 0.020 af

**Runoff Area = 21.928 ac Volume = 3.171 af Average Depth = 1.74"**

**Subcatchment 1S: (new node)**

Runoff = 0.80 cfs @ 12.08 hrs, Volume= 0.053 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.344	98	Paved parking & roofs
0.104	39	>75% Grass cover, Good, HSG A
0.448	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	40	0.0500	0.2		<b>Sheet Flow, SHEET A TO B</b> Grass: Short n= 0.150 P2= 3.00"
0.2	33	0.0500	3.4		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Grassed Waterway Kv= 15.0 fps
0.3	82	0.0420	4.2		<b>Shallow Concentrated Flow, SHALLOW C TO D</b> Paved Kv= 20.3 fps
0.1	74	0.0500	11.0	8.63	<b>Circular Channel (pipe), PIPE D TO E</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.0					<b>Direct Entry, DIRECT</b>
5.0	229	Total			

**Subcatchment 2A: (new node)**

Runoff = 1.66 cfs @ 12.07 hrs, Volume= 0.123 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.568	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.6		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
1.3	112	0.0050	1.4		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
2.9					<b>Direct Entry, DIRECT</b>
5.0	142	Total			

**Subcatchment 2B: (new node)**

Runoff = 0.46 cfs @ 12.08 hrs, Volume= 0.031 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.220	98	Paved parking & roofs
0.100	39	>75% Grass cover, Good, HSG A
0.320	80	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	30	0.0100	0.8		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.5	123	0.0380	4.0		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
2.0	131	0.0005	1.1	0.86	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.9					<b>Direct Entry, DIRECT</b>
5.0	284	Total			

**Subcatchment 2S: (new node)**

Runoff = 1.12 cfs @ 12.07 hrs, Volume= 0.083 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.384	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0180	1.0		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.3	78	0.0370	3.9		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.4	136	0.0107	5.1	3.99	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
3.8					<b>Direct Entry, DIRECT</b>
5.0	244	Total			

**Subcatchment 3S: (new node)**

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.052 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.054	39	>75% Grass cover, Good, HSG A
0.293	98	Paved parking & roofs
0.347	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0250	1.1		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.3	106	0.0810	5.8		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.2	222	0.0530	14.8	26.20	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 18.0" Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
4.1					<b>Direct Entry, DIRECT</b>
5.0	358	Total			

**Subcatchment 4S: (new node)**

Runoff = 1.54 cfs @ 12.07 hrs, Volume= 0.114 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.528	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	50	0.0050	0.7		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
1.3	110	0.0050	1.4		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
2.4					<b>Direct Entry, DIRECT</b>
5.0	160	Total			

**Subcatchment 5S: (new node)**

Runoff = 6.89 cfs @ 12.07 hrs, Volume= 0.465 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
2.506	98	Paved parking & roofs
0.354	39	>75% Grass cover, Good, HSG A
2.860	91	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	35	0.0050	0.6		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
2.2	355	0.0050	2.7	0.93	<b>Circular Channel (pipe), PIPE B TO C</b> Diam= 8.0" Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
0.1	35	0.0300	8.5	6.69	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.2	85	0.0160	6.2	4.88	<b>Circular Channel (pipe), PIPE D TO E</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.6					<b>Direct Entry, DIRECT</b>
5.0	510	Total			

**Subcatchment 6S: (new node)**

Runoff = 0.60 cfs @ 12.07 hrs, Volume= 0.041 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.049	61	>75% Grass cover, Good, HSG B
0.202	98	Paved parking & roofs
0.251	91	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	30	0.0100	0.8		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.3	64	0.0100	3.8	1.31	<b>Circular Channel (pipe), PIPE B TO C (ROOF DRAIN)</b> Diam= 8.0" Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
0.0	27	0.0740	10.2	3.56	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 8.0" Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
4.1					<b>Direct Entry, DIRECT</b>
5.0	121	Total			

**Subcatchment 7S: (new node)**

Runoff = 0.64 cfs @ 12.12 hrs, Volume= 0.064 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.456	98	Paved roads w/curbs & sewers
1.354	43	Woods/grass comb., Fair, HSG A
0.079	43	Woods/grass comb., Fair, HSG A
0.327	98	Paved roads w/curbs & sewers
2.216	62	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	75	0.0400	1.7		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.5	78	0.0180	2.7		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.7	219	0.0590	4.9		<b>Shallow Concentrated Flow, SHALLOW C TO D</b> Paved Kv= 20.3 fps
0.2	72	0.0970	6.3		<b>Shallow Concentrated Flow, SHALLOW D TO E</b> Paved Kv= 20.3 fps
0.2	190	0.1020	15.7	12.33	<b>Circular Channel (pipe), PIPE E TO F</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
2.6					<b>Direct Entry, DIRECT</b>
5.0	634	Total			

**Subcatchment 8S: (new node)**

Runoff = 2.55 cfs @ 12.08 hrs, Volume= 0.171 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.973	98	Paved parking & roofs
0.152	43	Woods/grass comb., Fair, HSG A
0.025	39	>75% Grass cover, Good, HSG A
1.150	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.6		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.3	93	0.0100	4.9	3.86	<b>Circular Channel (pipe), PIPE B TO C</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.5	135	0.0100	4.9	3.86	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.4	131	0.0100	4.9	3.86	<b>Circular Channel (pipe), PIPE D TO E</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
2.8					<b>Direct Entry, DIRECT</b>
5.0	399	Total			



**Subcatchment 9S: (new node)**

Runoff = 5.07 cfs @ 12.07 hrs, Volume= 0.345 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.191	39	>75% Grass cover, Good, HSG A
1.839	98	Paved parking & roofs
2.030	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.6		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
1.3	285	0.0100	3.8	1.31	<b>Circular Channel (pipe), PIPE B TO C</b> Diam= 8.0" Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
0.3	97	0.0100	4.9	3.86	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
2.4					<b>Direct Entry, DIRECT</b>
5.0	422	Total			

**Subcatchment 10S: (new node)**

Runoff = 1.74 cfs @ 12.08 hrs, Volume= 0.116 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.157	39	>75% Grass cover, Good, HSG A
0.696	98	Paved parking & roofs
0.853	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0400	1.4		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.1	37	0.0540	4.7		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.4	75	0.0200	2.9		<b>Shallow Concentrated Flow, SHALLOW C TO D</b> Paved Kv= 20.3 fps
0.3	113	0.0210	7.1	5.59	<b>Circular Channel (pipe), PIPE D TO E</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.3	71	0.0050	3.5	2.73	<b>Circular Channel (pipe), PIPE E TO F</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
3.5					<b>Direct Entry, DIRECT</b>
5.0	326	Total			

**Subcatchment 11S: (new node)**

Runoff = 0.73 cfs @ 12.07 hrs, Volume= 0.054 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.249	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.6		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.7	60	0.0050	1.4		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
3.5					<b>Direct Entry, DIRECT</b>
5.0	90	Total			

**Subcatchment 12S: (new node)**

Runoff = 1.56 cfs @ 12.07 hrs, Volume= 0.115 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.533	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.6		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.9	80	0.0050	1.4		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.4	90	0.0100	3.8	1.31	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 8.0" Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
2.9					<b>Direct Entry, DIRECT</b>
5.0	200	Total			

**Subcatchment 13s: (new node)**

Runoff = 0.18 cfs @ 12.10 hrs, Volume= 0.013 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.093	98	Paved parking & roofs
0.053	43	Woods/grass comb., Fair, HSG A
0.146	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	40	0.1000	0.1		<b>Sheet Flow, SHEET A TO B</b> Woods: Light underbrush n= 0.400 P2= 3.00"
0.2	51	0.6400	4.0		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Woodland Kv= 5.0 fps
0.4	105	0.0420	4.2		<b>Shallow Concentrated Flow, SHALLOW C TO D</b> Paved Kv= 20.3 fps
6.2	196	Total			

**Subcatchment 14S: (new node)**

Runoff = 1.30 cfs @ 12.09 hrs, Volume= 0.088 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.711	98	Paved parking & roofs
0.429	39	>75% Grass cover, Good, HSG A
1.140	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	45	0.0680	0.2		<b>Sheet Flow, SHEET A TO B</b> Grass: Short n= 0.150 P2= 3.00"
1.0	217	0.0320	3.6		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.7					<b>Direct Entry, DIRECT</b>
5.0	262	Total			

**Subcatchment 15S: (new node)**

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.225	39	>75% Grass cover, Good, HSG A
0.016	98	Paved parking & roofs
0.241	43	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	18	0.2770	0.3		<b>Sheet Flow, SHEET A TO B</b> Grass: Short n= 0.150 P2= 3.00"
0.5	190	0.1920	6.6		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Grassed Waterway Kv= 15.0 fps
0.5	176	0.0760	5.6		<b>Shallow Concentrated Flow, SHALLOW C TO D</b> Paved Kv= 20.3 fps
3.1					<b>Direct Entry, DIRECT</b>
5.0	384	Total			

**Subcatchment 16S: (new node)**

Runoff = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.093	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	30	0.0100	0.8		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.2	28	0.0100	2.0		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.0	11	0.0125	5.5	4.32	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
4.2					<b>Direct Entry, DIRECT</b>
5.0	69	Total			

**Subcatchment 17S: (new node)**

Runoff = 2.69 cfs @ 12.07 hrs, Volume= 0.198 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.918	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.8		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.1	14	0.0100	2.0		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.1	134	0.1600	15.0	5.24	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 8.0" Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
4.0					<b>Direct Entry, DIRECT</b>
5.0	188	Total			

**Subcatchment 18S: (new node)**

Runoff = 1.82 cfs @ 12.07 hrs, Volume= 0.134 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.623	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.8		<b>Sheet Flow, SHEET A TO B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.3	141	0.2000	9.1		<b>Shallow Concentrated Flow, SHALLOW B TO C</b> Paved Kv= 20.3 fps
0.4	135	0.0110	5.2	4.05	<b>Circular Channel (pipe), PIPE C TO D</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
3.5					<b>Direct Entry, DIRECT</b>
5.0	316	Total			

**Subcatchment OS-1: OS-1**

Runoff = 11.55 cfs @ 12.14 hrs, Volume= 0.894 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
6.030	89	Urban commercial, 85% imp, HSG A

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	60	0.0400	0.2		<b>Sheet Flow, Sheet flow A-B</b> Grass: Short n= 0.150 P2= 3.00"
0.9	180	0.0250	3.2		<b>Shallow Concentrated Flow, Gutter Flow B-C (Russell Street)</b> Paved Kv= 20.3 fps
0.7	80	0.0100	2.0		<b>Shallow Concentrated Flow, Gutter Flow C-D (Hill Street)</b> Paved Kv= 20.3 fps
1.1	375	0.0800	5.7		<b>Shallow Concentrated Flow, Gutter Flow D-E (Ellsworth Street)</b> Paved Kv= 20.3 fps
2.2	605	0.0500	4.5		<b>Shallow Concentrated Flow, Gutter Flow E-F (Congress Street)</b> Paved Kv= 20.3 fps
10.0	1,300	Total			

**Reach 1R: (new node)**

Inflow = 15.90 cfs @ 12.10 hrs, Volume= 1.164 af  
 Outflow = 15.88 cfs @ 12.10 hrs, Volume= 1.164 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 7.7 fps, Min. Travel Time= 0.0 min  
 Avg. Velocity = 3.0 fps, Avg. Travel Time= 0.1 min

Peak Depth= 1.25'  
 Capacity at bank full= 22.37 cfs  
 24.0" Diameter Pipe n= 0.011 Length= 10.0' Slope= 0.0070 'f'

**Reach 110: (new node)**

Inflow = 0.73 cfs @ 12.07 hrs, Volume= 0.054 af  
 Outflow = 0.72 cfs @ 12.08 hrs, Volume= 0.054 af, Atten= 2%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 3.8 fps, Min. Travel Time= 0.2 min  
 Avg. Velocity = 1.5 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.35'  
 Capacity at bank full= 1.31 cfs  
 8.0" Diameter Pipe n= 0.012 Length= 51.0' Slope= 0.0100 'f'

**Reach 115: (new node)**

Inflow = 2.24 cfs @ 12.08 hrs, Volume= 0.168 af  
 Outflow = 2.22 cfs @ 12.09 hrs, Volume= 0.168 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 5.1 fps, Min. Travel Time= 0.3 min  
 Avg. Velocity = 1.9 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.49'

Capacity at bank full= 7.00 cfs

15.0" Diameter Pipe n= 0.012 Length= 83.0' Slope= 0.0100 1'

**Reach 118: (new node)**

Inflow = 4.93 cfs @ 12.08 hrs, Volume= 0.373 af

Outflow = 4.90 cfs @ 12.09 hrs, Volume= 0.373 af, Atten= 1%, Lag= 0.3 min

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

Max. Velocity= 5.9 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 2.3 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.71'

Capacity at bank full= 10.76 cfs

18.0" Diameter Pipe n= 0.012 Length= 66.0' Slope= 0.0089 1'

**Reach 125: (new node)**

Inflow = 1.56 cfs @ 12.07 hrs, Volume= 0.115 af

Outflow = 1.53 cfs @ 12.08 hrs, Volume= 0.115 af, Atten= 2%, Lag= 0.7 min

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

Max. Velocity= 6.0 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 2.3 fps, Avg. Travel Time= 0.8 min

Peak Depth= 0.36'

Capacity at bank full= 5.59 cfs

12.0" Diameter Pipe n= 0.012 Length= 113.0' Slope= 0.0210 1'

**Reach 128: (new node)**

Inflow = 1.53 cfs @ 12.08 hrs, Volume= 0.115 af

Outflow = 1.51 cfs @ 12.09 hrs, Volume= 0.115 af, Atten= 1%, Lag= 0.6 min

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

Max. Velocity= 3.5 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 1.4 fps, Avg. Travel Time= 0.8 min

Peak Depth= 0.54'

Capacity at bank full= 2.71 cfs

12.0" Diameter Pipe n= 0.012 Length= 71.0' Slope= 0.0049 1'

**Reach 130: (new node)**

Inflow = 0.18 cfs @ 12.10 hrs, Volume= 0.013 af

Outflow = 0.18 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 1%, Lag= 0.4 min

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

Max. Velocity= 4.2 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 1.7 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.11'

Capacity at bank full= 7.91 cfs

12.0" Diameter Pipe n= 0.012 Length= 74.0' Slope= 0.0420 '/'

**Reach 135: (new node)**

Inflow = 0.18 cfs @ 12.11 hrs, Volume= 0.013 af

Outflow = 0.17 cfs @ 12.13 hrs, Volume= 0.013 af, Atten= 5%, Lag= 1.5 min

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

Max. Velocity= 4.8 fps, Min. Travel Time= 0.8 min

Avg. Velocity = 2.0 fps, Avg. Travel Time= 1.9 min

Peak Depth= 0.11'

Capacity at bank full= 3.10 cfs

8.0" Diameter Pipe n= 0.012 Length= 225.0' Slope= 0.0560 '/'

**Reach 171: (new node)**

Inflow = 2.69 cfs @ 12.07 hrs, Volume= 0.198 af

Outflow = 2.68 cfs @ 12.07 hrs, Volume= 0.198 af, Atten= 0%, Lag= 0.1 min

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

Max. Velocity= 14.8 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 5.6 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.26'

Capacity at bank full= 29.32 cfs

15.0" Diameter Pipe n= 0.012 Length= 31.0' Slope= 0.1755 '/'

**Reach 172: (new node)**

Inflow = 4.46 cfs @ 12.07 hrs, Volume= 0.333 af

Outflow = 4.44 cfs @ 12.08 hrs, Volume= 0.332 af, Atten= 1%, Lag= 0.1 min

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

Max. Velocity= 16.9 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 6.4 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.33'

Capacity at bank full= 28.85 cfs

15.0" Diameter Pipe n= 0.012 Length= 32.0' Slope= 0.1700 '/'

**Reach 181: (new node)**

Inflow = 1.82 cfs @ 12.07 hrs, Volume= 0.134 af

Outflow = 1.79 cfs @ 12.08 hrs, Volume= 0.134 af, Atten= 2%, Lag= 0.6 min



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

Max. Velocity= 7.7 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 2.9 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.31'

Capacity at bank full= 13.83 cfs

15.0" Diameter Pipe n= 0.012 Length= 125.0' Slope= 0.0390 '/'

#### Reach 210: (new node)

Inflow = 1.66 cfs @ 12.07 hrs, Volume= 0.123 af

Outflow = 1.61 cfs @ 12.09 hrs, Volume= 0.122 af, Atten= 3%, Lag= 1.2 min

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

Max. Velocity= 4.1 fps, Min. Travel Time= 0.6 min

Avg. Velocity = 1.6 fps, Avg. Travel Time= 1.5 min

Peak Depth= 0.51'

Capacity at bank full= 3.23 cfs

12.0" Diameter Pipe n= 0.012 Length= 147.0' Slope= 0.0070 '/'

#### Reach 220: (new node)

Inflow = 4.90 cfs @ 12.09 hrs, Volume= 0.373 af

Outflow = 4.85 cfs @ 12.10 hrs, Volume= 0.373 af, Atten= 1%, Lag= 0.5 min

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

Max. Velocity= 11.4 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 4.3 fps, Avg. Travel Time= 0.8 min

Peak Depth= 0.44'

Capacity at bank full= 26.19 cfs

18.0" Diameter Pipe n= 0.012 Length= 218.0' Slope= 0.0530 '/'

#### Reach 230: (new node)

Inflow = 12.36 cfs @ 12.08 hrs, Volume= 0.889 af

Outflow = 12.35 cfs @ 12.09 hrs, Volume= 0.889 af, Atten= 0%, Lag= 0.1 min

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

Max. Velocity= 25.9 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 9.5 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.47'

Capacity at bank full= 57.69 cfs

18.0" Diameter Pipe n= 0.012 Length= 71.0' Slope= 0.2570 '/'

**Reach 240: (new node)**

Inflow = 12.35 cfs @ 12.09 hrs, Volume= 0.889 af  
 Outflow = 12.33 cfs @ 12.09 hrs, Volume= 0.889 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 22.9 fps, Min. Travel Time= 0.1 min  
 Avg. Velocity = 8.4 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.52'  
 Capacity at bank full= 48.44 cfs  
 18.0" Diameter Pipe n= 0.012 Length= 69.0' Slope= 0.1812 '/'

**Reach 250: (new node)**

Inflow = 12.33 cfs @ 12.09 hrs, Volume= 0.889 af  
 Outflow = 12.32 cfs @ 12.09 hrs, Volume= 0.889 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 11.9 fps, Min. Travel Time= 0.1 min  
 Avg. Velocity = 4.4 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.73'  
 Capacity at bank full= 43.43 cfs  
 24.0" Diameter Pipe n= 0.011 Length= 36.0' Slope= 0.0264 '/'

**Reach 260: (new node)**

Inflow = 12.32 cfs @ 12.09 hrs, Volume= 0.889 af  
 Outflow = 12.29 cfs @ 12.09 hrs, Volume= 0.889 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 7.5 fps, Min. Travel Time= 0.1 min  
 Avg. Velocity = 2.8 fps, Avg. Travel Time= 0.2 min

Peak Depth= 1.04'  
 Capacity at bank full= 23.22 cfs  
 24.0" Diameter Pipe n= 0.012 Length= 39.0' Slope= 0.0090 '/'

**Reach 410: (new node)**

Inflow = 1.54 cfs @ 12.07 hrs, Volume= 0.114 af  
 Outflow = 1.52 cfs @ 12.08 hrs, Volume= 0.114 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 3.6 fps, Min. Travel Time= 0.2 min  
 Avg. Velocity = 1.4 fps, Avg. Travel Time= 0.4 min

**01046-post**

Type III 24-hr Rainfall=3.00"

Prepared by {enter your company name here}  
HydroCAD® 6.00 s/n 000643 © 1986-2001 Applied Microcomputer SystemsPage 21  
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Peak Depth= 0.53'  
 Capacity at bank full= 2.77 cfs  
 12.0" Diameter Pipe n= 0.012 Length= 35.0' Slope= 0.0051 '/'

**Reach 510: (new node)**

Inflow = 6.89 cfs @ 12.07 hrs, Volume= 0.465 af  
 Outflow = 6.88 cfs @ 12.07 hrs, Volume= 0.465 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 26.2 fps, Min. Travel Time= 0.0 min  
 Avg. Velocity = 9.4 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.31'  
 Capacity at bank full= 74.96 cfs  
 18.0" Diameter Pipe n= 0.012 Length= 23.0' Slope= 0.4339 '/'

**Reach 810: (new node)**

Inflow = 2.55 cfs @ 12.08 hrs, Volume= 0.171 af  
 Outflow = 2.53 cfs @ 12.08 hrs, Volume= 0.171 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 14.5 fps, Min. Travel Time= 0.2 min  
 Avg. Velocity = 5.3 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.28'  
 Capacity at bank full= 15.48 cfs  
 12.0" Diameter Pipe n= 0.012 Length= 200.0' Slope= 0.1608 '/'

**Reach 820: (new node)**

Inflow = 2.53 cfs @ 12.08 hrs, Volume= 0.171 af  
 Outflow = 2.51 cfs @ 12.09 hrs, Volume= 0.171 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 12.2 fps, Min. Travel Time= 0.3 min  
 Avg. Velocity = 4.5 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.31'  
 Capacity at bank full= 12.21 cfs  
 12.0" Diameter Pipe n= 0.012 Length= 192.0' Slope= 0.1000 '/'

**Reach AST: (new node)**

Inflow = 15.99 cfs @ 12.09 hrs, Volume= 1.164 af  
 Outflow = 15.90 cfs @ 12.10 hrs, Volume= 1.164 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 19.8 fps, Min. Travel Time= 0.2 min  
 Avg. Velocity = 7.6 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.78'

Capacity at bank full= 22.39 cfs

15.0" Diameter Pipe n= 0.011 Length= 214.0' Slope= 0.0860 %

**Reach pipe: (new node)**

Inflow = 1.26 cfs @ 12.08 hrs, Volume= 0.083 af

Outflow = 1.26 cfs @ 12.08 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.1 min

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

Max. Velocity= 5.6 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 2.2 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.33'

Capacity at bank full= 5.46 cfs

12.0" Diameter Pipe n= 0.012 Length= 10.0' Slope= 0.0200 %

**Pond 2P: (new node)**

Inflow = 0.46 cfs @ 12.08 hrs, Volume= 0.031 af

Outflow = 0.46 cfs @ 12.08 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.1 min

Primary = 0.46 cfs @ 12.08 hrs, Volume= 0.031 af

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

Peak Elev= 107.29' Storage= 4 cf

Plug-Flow detention time= 0.3 min calculated for 0.031 af (100% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	13	0	0
120.00	13	169	169

**Primary OutFlow (Free Discharge)**

↑ 1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	107.00'	18.0" x 50.0' long Culvert RCP, square edge headwall, Ke= 0.500 Outlet Invert= 106.50' S= 0.0100 % n= 0.011 Cc= 0.900

**Pond 3P: (new node)**

Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.052 af

Primary = 0.77 cfs @ 12.08 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min

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

**Pond 5P: (new node)**

Inflow = 6.89 cfs @ 12.07 hrs, Volume= 0.465 af  
 Primary = 6.89 cfs @ 12.07 hrs, Volume= 0.465 af, Atten= 0%, Lag= 0.0 min

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

**Pond 6P: (new node)**

Inflow = 0.60 cfs @ 12.07 hrs, Volume= 0.041 af  
 Primary = 0.60 cfs @ 12.07 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min

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

**Pond 7P: (new node)**

Inflow = 0.64 cfs @ 12.12 hrs, Volume= 0.064 af  
 Primary = 0.64 cfs @ 12.12 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

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

**Pond 8P: (new node)**

Inflow = 2.55 cfs @ 12.08 hrs, Volume= 0.171 af  
 Primary = 2.55 cfs @ 12.08 hrs, Volume= 0.171 af, Atten= 0%, Lag= 0.0 min

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

**Pond 9P: (new node)**

Inflow = 5.07 cfs @ 12.07 hrs, Volume= 0.345 af  
 Primary = 5.07 cfs @ 12.07 hrs, Volume= 0.345 af, Atten= 0%, Lag= 0.0 min

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

**Pond 10P: (new node)**

Inflow = 3.24 cfs @ 12.08 hrs, Volume= 0.230 af  
 Primary = 3.24 cfs @ 12.08 hrs, Volume= 0.230 af, Atten= 0%, Lag= 0.0 min

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

**Pond 11P: (new node)**

Inflow = 0.73 cfs @ 12.07 hrs, Volume= 0.054 af  
 Primary = 0.73 cfs @ 12.07 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

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

**Pond 12P: (new node)**

Inflow = 1.56 cfs @ 12.07 hrs, Volume= 0.115 af  
 Primary = 1.56 cfs @ 12.07 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min

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

**Pond 16p: (new node)**

Inflow = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af  
 Primary = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min

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

**Pond CB-63: (new node)**

Inflow = 3.13 cfs @ 12.10 hrs, Volume= 0.235 af  
 Outflow = 3.13 cfs @ 12.10 hrs, Volume= 0.235 af, Atten= 0%, Lag= 0.1 min  
 Primary = 3.13 cfs @ 12.10 hrs, Volume= 0.235 af

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

Peak Elev= 60.98' Storage= 15 cf

Plug-Flow detention time= 0.2 min calculated for 0.235 af (100% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.80	13	0	0
66.00	13	81	81

**Primary OutFlow (Free Discharge)**

↑=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	59.80'	<b>12.0" x 10.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 58.46' S= 0.1340 ' n= 0.012 Cc= 0.900

**Pond dmh-20: (new node)**

Inflow = 1.30 cfs @ 12.09 hrs, Volume= 0.088 af  
 Primary = 1.30 cfs @ 12.09 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min

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

**Pond hil-01: (new node)**

Inflow = 1.82 cfs @ 12.07 hrs, Volume= 0.134 af  
 Primary = 1.82 cfs @ 12.07 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min

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

**Pond hil-02: (new node)**

Inflow = 12.32 cfs @ 12.09 hrs, Volume= 0.889 af  
 Primary = 12.32 cfs @ 12.09 hrs, Volume= 0.889 af, Atten= 0%, Lag= 0.0 min

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

**Pond OS-1.: (new node)**

Inflow = 11.55 cfs @ 12.14 hrs, Volume= 0.894 af  
 Primary = 11.55 cfs @ 12.14 hrs, Volume= 0.894 af, Atten= 0%, Lag= 0.0 min

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

**Pond SMH-13: (new node)**

Inflow = 15.49 cfs @ 12.12 hrs, Volume= 1.239 af  
 Primary = 15.49 cfs @ 12.12 hrs, Volume= 1.239 af, Atten= 0%, Lag= 0.0 min

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

**Pond SMH-20: (new node)**

Inflow = 4.46 cfs @ 12.07 hrs, Volume= 0.333 af  
 Primary = 4.46 cfs @ 12.07 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min

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

**Pond SP-1: (new node)**

Inflow = 1.26 cfs @ 12.08 hrs, Volume= 0.083 af  
 Primary = 1.26 cfs @ 12.08 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min

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

**Pond SP-2: (new node)**

Inflow = 15.49 cfs @ 12.12 hrs, Volume= 1.239 af  
 Primary = 15.49 cfs @ 12.12 hrs, Volume= 1.239 af, Atten= 0%, Lag= 0.0 min

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

**Pond sp-3: (new node)**

Inflow = 1.30 cfs @ 12.09 hrs, Volume= 0.088 af  
Primary = 1.30 cfs @ 12.09 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min

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

**Pond SP-4: (new node)**

Inflow = 15.99 cfs @ 12.09 hrs, Volume= 1.164 af  
Primary = 15.99 cfs @ 12.09 hrs, Volume= 1.164 af, Atten= 0%, Lag= 0.0 min

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

**Pond SP-5: (new node)**

Inflow = 5.07 cfs @ 12.07 hrs, Volume= 0.345 af  
Primary = 5.07 cfs @ 12.07 hrs, Volume= 0.345 af, Atten= 0%, Lag= 0.0 min

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

**Pond SP-6: (new node)**

Inflow = 3.24 cfs @ 12.08 hrs, Volume= 0.230 af  
Primary = 3.24 cfs @ 12.08 hrs, Volume= 0.230 af, Atten= 0%, Lag= 0.0 min

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

**Pond SP-7: (new node)**

Inflow = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af  
Primary = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min

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



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=4.70"  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: (new node)**

Tc=5.0 min CN=84 Area=0.448 ac Runoff= 1.57 cfs 0.105 af

**Subcatchment 2A: (new node)**

Tc=5.0 min CN=98 Area=0.568 ac Runoff= 2.63 cfs 0.196 af

**Subcatchment 2B: (new node)**

Tc=5.0 min CN=80 Area=0.320 ac Runoff= 0.99 cfs 0.066 af

**Subcatchment 2S: (new node)**

Tc=5.0 min CN=98 Area=0.384 ac Runoff= 1.78 cfs 0.133 af

**Subcatchment 3S: (new node)**

Tc=5.0 min CN=89 Area=0.347 ac Runoff= 1.39 cfs 0.095 af

**Subcatchment 4S: (new node)**

Tc=5.0 min CN=98 Area=0.528 ac Runoff= 2.44 cfs 0.182 af

**Subcatchment 5S: (new node)**

Tc=5.0 min CN=91 Area=2.860 ac Runoff= 11.97 cfs 0.832 af

**Subcatchment 6S: (new node)**

Tc=5.0 min CN=91 Area=0.251 ac Runoff= 1.05 cfs 0.073 af

**Subcatchment 7S: (new node)**

Tc=5.0 min CN=62 Area=2.216 ac Runoff= 2.98 cfs 0.210 af

**Subcatchment 8S: (new node)**

Tc=5.0 min CN=89 Area=1.150 ac Runoff= 4.61 cfs 0.315 af

**Subcatchment 9S: (new node)**

Tc=5.0 min CN=92 Area=2.030 ac Runoff= 8.66 cfs 0.607 af

**Subcatchment 10S: (new node)**

Tc=5.0 min CN=87 Area=0.853 ac Runoff= 3.25 cfs 0.220 af

**Subcatchment 11S: (new node)**

Tc=5.0 min CN=98 Area=0.249 ac Runoff= 1.15 cfs 0.086 af

**Subcatchment 12S: (new node)**

Tc=5.0 min CN=98 Area=0.533 ac Runoff= 2.46 cfs 0.184 af

**Subcatchment 13s: (new node)**

Tc=6.2 min CN=78 Area=0.146 ac Runoff= 0.41 cfs 0.028 af

**Subcatchment 14S: (new node)**

Tc=5.0 min CN=76 Area=1.140 ac Runoff= 3.06 cfs 0.202 af

**Subcatchment 15S: (new node)**

Tc=5.0 min CN=43 Area=0.241 ac Runoff= 0.02 cfs 0.005 af

**Subcatchment 16S: (new node)**

Tc=5.0 min CN=98 Area=0.093 ac Runoff= 0.43 cfs 0.032 af

**Subcatchment 17S: (new node)**

Tc=5.0 min CN=98 Area=0.918 ac Runoff= 4.25 cfs 0.317 af

**Subcatchment 18S: (new node)**

Tc=5.0 min CN=98 Area=0.623 ac Runoff= 2.88 cfs 0.215 af

**Subcatchment OS-1: OS-1**

Tc=10.0 min CN=89 Area=6.030 ac Runoff= 20.76 cfs 1.651 af

**Reach 1R: (new node)**Length= 10.0' Max Vel= 8.1 fps Capacity= 22.37 cfs Inflow= 22.39 cfs 2.120 af  
Outflow= 22.39 cfs 2.120 af**Reach 110: (new node)**Length= 51.0' Max Vel= 4.2 fps Capacity= 1.31 cfs Inflow= 1.15 cfs 0.086 af  
Outflow= 1.13 cfs 0.086 af**Reach 115: (new node)**Length= 83.0' Max Vel= 5.7 fps Capacity= 7.00 cfs Inflow= 3.54 cfs 0.268 af  
Outflow= 3.51 cfs 0.268 af**Reach 118: (new node)**Length= 66.0' Max Vel= 6.6 fps Capacity= 10.76 cfs Inflow= 7.81 cfs 0.597 af  
Outflow= 7.77 cfs 0.597 af**Reach 125: (new node)**Length= 113.0' Max Vel= 6.8 fps Capacity= 5.59 cfs Inflow= 2.46 cfs 0.184 af  
Outflow= 2.42 cfs 0.184 af**Reach 128: (new node)**Length= 71.0' Max Vel= 3.9 fps Capacity= 2.71 cfs Inflow= 2.42 cfs 0.184 af  
Outflow= 2.40 cfs 0.184 af**Reach 130: (new node)**Length= 74.0' Max Vel= 5.3 fps Capacity= 7.91 cfs Inflow= 0.41 cfs 0.028 af  
Outflow= 0.41 cfs 0.028 af**Reach 135: (new node)**Length= 225.0' Max Vel= 6.1 fps Capacity= 3.10 cfs Inflow= 0.41 cfs 0.028 af  
Outflow= 0.39 cfs 0.028 af**Reach 171: (new node)**Length= 31.0' Max Vel= 16.9 fps Capacity= 29.32 cfs Inflow= 4.25 cfs 0.317 af  
Outflow= 4.24 cfs 0.317 af**Reach 172: (new node)**Length= 32.0' Max Vel= 19.2 fps Capacity= 28.85 cfs Inflow= 7.06 cfs 0.532 af  
Outflow= 7.02 cfs 0.532 af

<b>Reach 181: (new node)</b>	Inflow= 2.88 cfs 0.215 af
Length= 125.0' Max Vel= 8.8 fps Capacity= 13.83 cfs	Outflow= 2.83 cfs 0.215 af
<b>Reach 210: (new node)</b>	Inflow= 2.63 cfs 0.196 af
Length= 147.0' Max Vel= 4.6 fps Capacity= 3.23 cfs	Outflow= 2.56 cfs 0.196 af
<b>Reach 220: (new node)</b>	Inflow= 7.77 cfs 0.597 af
Length= 218.0' Max Vel= 12.9 fps Capacity= 26.19 cfs	Outflow= 7.69 cfs 0.597 af
<b>Reach 230: (new node)</b>	Inflow= 20.79 cfs 1.523 af
Length= 71.0' Max Vel= 29.9 fps Capacity= 57.69 cfs	Outflow= 20.77 cfs 1.523 af
<b>Reach 240: (new node)</b>	Inflow= 20.77 cfs 1.523 af
Length= 69.0' Max Vel= 26.3 fps Capacity= 48.44 cfs	Outflow= 20.74 cfs 1.523 af
<b>Reach 250: (new node)</b>	Inflow= 20.74 cfs 1.523 af
Length= 36.0' Max Vel= 13.6 fps Capacity= 43.43 cfs	Outflow= 20.72 cfs 1.523 af
<b>Reach 260: (new node)</b>	Inflow= 20.72 cfs 1.523 af
Length= 39.0' Max Vel= 8.3 fps Capacity= 23.22 cfs	Outflow= 20.68 cfs 1.523 af
<b>Reach 410: (new node)</b>	Inflow= 2.44 cfs 0.182 af
Length= 35.0' Max Vel= 4.0 fps Capacity= 2.77 cfs	Outflow= 2.41 cfs 0.182 af
<b>Reach 510: (new node)</b>	Inflow= 11.97 cfs 0.832 af
Length= 23.0' Max Vel= 30.8 fps Capacity= 74.96 cfs	Outflow= 11.96 cfs 0.832 af
<b>Reach 810: (new node)</b>	Inflow= 4.61 cfs 0.315 af
Length= 200.0' Max Vel= 17.0 fps Capacity= 15.48 cfs	Outflow= 4.54 cfs 0.315 af
<b>Reach 820: (new node)</b>	Inflow= 4.54 cfs 0.315 af
Length= 192.0' Max Vel= 14.4 fps Capacity= 12.21 cfs	Outflow= 4.51 cfs 0.315 af
<b>Reach AST: (new node)</b>	Inflow= 29.21 cfs 2.121 af
Length= 214.0' Max Vel= 20.7 fps Capacity= 22.39 cfs	Outflow= 22.39 cfs 2.120 af
<b>Reach pipe: (new node)</b>	Inflow= 2.55 cfs 0.170 af
Length= 10.0' Max Vel= 6.8 fps Capacity= 5.46 cfs	Outflow= 2.55 cfs 0.170 af
<b>Pond 2P: (new node)</b>	Peak Storage= 6 cf Inflow= 0.99 cfs 0.066 af
	Primary= 0.99 cfs 0.066 af Outflow= 0.99 cfs 0.066 af
<b>Pond 3P: (new node)</b>	Inflow= 1.39 cfs 0.095 af
	Primary= 1.39 cfs 0.095 af
<b>Pond 5P: (new node)</b>	Inflow= 11.97 cfs 0.832 af
	Primary= 11.97 cfs 0.832 af

<b>Pond 6P: (new node)</b>	Inflow= 1.05 cfs 0.073 af Primary= 1.05 cfs 0.073 af
<b>Pond 7P: (new node)</b>	Inflow= 2.98 cfs 0.210 af Primary= 2.98 cfs 0.210 af
<b>Pond 8P: (new node)</b>	Inflow= 4.61 cfs 0.315 af Primary= 4.61 cfs 0.315 af
<b>Pond 9P: (new node)</b>	Inflow= 8.66 cfs 0.607 af Primary= 8.66 cfs 0.607 af
<b>Pond 10P: (new node)</b>	Inflow= 5.61 cfs 0.404 af Primary= 5.61 cfs 0.404 af
<b>Pond 11P: (new node)</b>	Inflow= 1.15 cfs 0.086 af Primary= 1.15 cfs 0.086 af
<b>Pond 12P: (new node)</b>	Inflow= 2.46 cfs 0.184 af Primary= 2.46 cfs 0.184 af
<b>Pond 16p: (new node)</b>	Inflow= 0.43 cfs 0.032 af Primary= 0.43 cfs 0.032 af
<b>Pond CB-63: (new node)</b>	Peak Storage= 58 cf Inflow= 7.50 cfs 0.525 af Primary= 7.51 cfs 0.525 af Outflow= 7.51 cfs 0.525 af
<b>Pond dmh-20: (new node)</b>	Inflow= 3.06 cfs 0.202 af Primary= 3.06 cfs 0.202 af
<b>Pond hil-01: (new node)</b>	Inflow= 2.88 cfs 0.215 af Primary= 2.88 cfs 0.215 af
<b>Pond hil-02: (new node)</b>	Inflow= 20.72 cfs 1.523 af Primary= 20.72 cfs 1.523 af
<b>Pond OS-1.: (new node)</b>	Inflow= 20.76 cfs 1.651 af Primary= 20.76 cfs 1.651 af
<b>Pond SMH-13: (new node)</b>	Inflow= 27.15 cfs 2.211 af Primary= 27.15 cfs 2.211 af
<b>Pond SMH-20: (new node)</b>	Inflow= 7.06 cfs 0.532 af Primary= 7.06 cfs 0.532 af
<b>Pond SP-1: (new node)</b>	Inflow= 2.55 cfs 0.170 af Primary= 2.55 cfs 0.170 af

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Type III 24-hr Rainfall=4.70"

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**Pond SP-2: (new node)**

Inflow= 27.15 cfs 2.211 af  
Primary= 27.15 cfs 2.211 af

**Pond sp-3: (new node)**

Inflow= 3.06 cfs 0.206 af  
Primary= 3.06 cfs 0.206 af

**Pond SP-4: (new node)**

Inflow= 29.21 cfs 2.121 af  
Primary= 29.21 cfs 2.121 af

**Pond SP-5: (new node)**

Inflow= 8.66 cfs 0.607 af  
Primary= 8.66 cfs 0.607 af

**Pond SP-6: (new node)**

Inflow= 5.61 cfs 0.404 af  
Primary= 5.61 cfs 0.404 af

**Pond SP-7: (new node)**

Inflow= 0.43 cfs 0.032 af  
Primary= 0.43 cfs 0.032 af

**Runoff Area = 21.928 ac Volume = 5.754 af Average Depth = 3.15"**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=5.50"  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment 1S: (new node)</b>	Tc=5.0 min	CN=84	Area=0.448 ac	Runoff= 1.95 cfs	0.131 af
<b>Subcatchment 2A: (new node)</b>	Tc=5.0 min	CN=98	Area=0.568 ac	Runoff= 3.08 cfs	0.231 af
<b>Subcatchment 2B: (new node)</b>	Tc=5.0 min	CN=80	Area=0.320 ac	Runoff= 1.25 cfs	0.083 af
<b>Subcatchment 2S: (new node)</b>	Tc=5.0 min	CN=98	Area=0.384 ac	Runoff= 2.08 cfs	0.156 af
<b>Subcatchment 3S: (new node)</b>	Tc=5.0 min	CN=89	Area=0.347 ac	Runoff= 1.68 cfs	0.116 af
<b>Subcatchment 4S: (new node)</b>	Tc=5.0 min	CN=98	Area=0.528 ac	Runoff= 2.86 cfs	0.214 af
<b>Subcatchment 5S: (new node)</b>	Tc=5.0 min	CN=91	Area=2.860 ac	Runoff= 14.34 cfs	1.007 af
<b>Subcatchment 6S: (new node)</b>	Tc=5.0 min	CN=91	Area=0.251 ac	Runoff= 1.26 cfs	0.088 af
<b>Subcatchment 7S: (new node)</b>	Tc=5.0 min	CN=62	Area=2.216 ac	Runoff= 4.34 cfs	0.296 af
<b>Subcatchment 8S: (new node)</b>	Tc=5.0 min	CN=89	Area=1.150 ac	Runoff= 5.57 cfs	0.385 af
<b>Subcatchment 9S: (new node)</b>	Tc=5.0 min	CN=92	Area=2.030 ac	Runoff= 10.34 cfs	0.732 af
<b>Subcatchment 10S: (new node)</b>	Tc=5.0 min	CN=87	Area=0.853 ac	Runoff= 3.97 cfs	0.271 af
<b>Subcatchment 11S: (new node)</b>	Tc=5.0 min	CN=98	Area=0.249 ac	Runoff= 1.35 cfs	0.101 af
<b>Subcatchment 12S: (new node)</b>	Tc=5.0 min	CN=98	Area=0.533 ac	Runoff= 2.89 cfs	0.216 af
<b>Subcatchment 13s: (new node)</b>	Tc=6.2 min	CN=78	Area=0.146 ac	Runoff= 0.52 cfs	0.036 af

**Subcatchment 14S: (new node)**

Tc=5.0 min CN=76 Area=1.140 ac Runoff= 3.95 cfs 0.261 af

**Subcatchment 15S: (new node)**

Tc=5.0 min CN=43 Area=0.241 ac Runoff= 0.06 cfs 0.009 af

**Subcatchment 16S: (new node)**

Tc=5.0 min CN=98 Area=0.093 ac Runoff= 0.50 cfs 0.038 af

**Subcatchment 17S: (new node)**

Tc=5.0 min CN=98 Area=0.918 ac Runoff= 4.98 cfs 0.373 af

**Subcatchment 18S: (new node)**

Tc=5.0 min CN=98 Area=0.623 ac Runoff= 3.38 cfs 0.253 af

**Subcatchment OS-1: OS-1**

Tc=10.0 min CN=89 Area=6.030 ac Runoff= 25.09 cfs 2.017 af

**Reach 1R: (new node)**Length= 10.0' Max Vel= 8.1 fps Capacity= 22.37 cfs Inflow= 22.39 cfs 2.592 af  
Outflow= 22.43 cfs 2.592 af**Reach 110: (new node)**Length= 51.0' Max Vel= 4.3 fps Capacity= 1.31 cfs Inflow= 1.35 cfs 0.101 af  
Outflow= 1.33 cfs 0.101 af**Reach 115: (new node)**Length= 83.0' Max Vel= 5.9 fps Capacity= 7.00 cfs Inflow= 4.15 cfs 0.315 af  
Outflow= 4.12 cfs 0.315 af**Reach 118: (new node)**Length= 66.0' Max Vel= 6.8 fps Capacity= 10.76 cfs Inflow= 9.15 cfs 0.702 af  
Outflow= 9.11 cfs 0.702 af**Reach 125: (new node)**Length= 113.0' Max Vel= 7.1 fps Capacity= 5.59 cfs Inflow= 2.89 cfs 0.216 af  
Outflow= 2.84 cfs 0.216 af**Reach 128: (new node)**Length= 71.0' Max Vel= 3.9 fps Capacity= 2.71 cfs Inflow= 2.84 cfs 0.216 af  
Outflow= 2.81 cfs 0.216 af**Reach 130: (new node)**Length= 74.0' Max Vel= 5.7 fps Capacity= 7.91 cfs Inflow= 0.52 cfs 0.036 af  
Outflow= 0.52 cfs 0.036 af**Reach 135: (new node)**Length= 225.0' Max Vel= 6.6 fps Capacity= 3.10 cfs Inflow= 0.52 cfs 0.036 af  
Outflow= 0.51 cfs 0.036 af**Reach 171: (new node)**Length= 31.0' Max Vel= 17.7 fps Capacity= 29.32 cfs Inflow= 4.98 cfs 0.373 af  
Outflow= 4.97 cfs 0.373 af**Reach 172: (new node)**Length= 32.0' Max Vel= 20.1 fps Capacity= 28.85 cfs Inflow= 8.28 cfs 0.626 af  
Outflow= 8.26 cfs 0.626 af

<b>Reach 181: (new node)</b>	Inflow= 3.38 cfs 0.253 af
Length= 125.0' Max Vel= 9.2 fps Capacity= 13.83 cfs	Outflow= 3.32 cfs 0.253 af
<b>Reach 210: (new node)</b>	Inflow= 3.08 cfs 0.231 af
Length= 147.0' Max Vel= 4.7 fps Capacity= 3.23 cfs	Outflow= 3.00 cfs 0.231 af
<b>Reach 220: (new node)</b>	Inflow= 9.11 cfs 0.702 af
Length= 218.0' Max Vel= 13.5 fps Capacity= 26.19 cfs	Outflow= 9.03 cfs 0.701 af
<b>Reach 230: (new node)</b>	Inflow= 24.73 cfs 1.824 af
Length= 71.0' Max Vel= 31.3 fps Capacity= 57.69 cfs	Outflow= 24.70 cfs 1.824 af
<b>Reach 240: (new node)</b>	Inflow= 24.70 cfs 1.824 af
Length= 69.0' Max Vel= 27.4 fps Capacity= 48.44 cfs	Outflow= 24.68 cfs 1.824 af
<b>Reach 250: (new node)</b>	Inflow= 24.68 cfs 1.824 af
Length= 36.0' Max Vel= 14.2 fps Capacity= 43.43 cfs	Outflow= 24.65 cfs 1.824 af
<b>Reach 260: (new node)</b>	Inflow= 24.65 cfs 1.824 af
Length= 39.0' Max Vel= 8.4 fps Capacity= 23.22 cfs	Outflow= 24.59 cfs 1.824 af
<b>Reach 410: (new node)</b>	Inflow= 2.86 cfs 0.214 af
Length= 35.0' Max Vel= 4.0 fps Capacity= 2.77 cfs	Outflow= 2.82 cfs 0.214 af
<b>Reach 510: (new node)</b>	Inflow= 14.34 cfs 1.007 af
Length= 23.0' Max Vel= 32.4 fps Capacity= 74.96 cfs	Outflow= 14.33 cfs 1.007 af
<b>Reach 810: (new node)</b>	Inflow= 5.57 cfs 0.385 af
Length= 200.0' Max Vel= 17.9 fps Capacity= 15.48 cfs	Outflow= 5.49 cfs 0.385 af
<b>Reach 820: (new node)</b>	Inflow= 5.49 cfs 0.385 af
Length= 192.0' Max Vel= 15.1 fps Capacity= 12.21 cfs	Outflow= 5.46 cfs 0.385 af
<b>Reach AST: (new node)</b>	Inflow= 35.64 cfs 2.593 af
Length= 214.0' Max Vel= 20.8 fps Capacity= 22.39 cfs	Outflow= 22.39 cfs 2.592 af
<b>Reach pipe: (new node)</b>	Inflow= 3.18 cfs 0.214 af
Length= 10.0' Max Vel= 7.2 fps Capacity= 5.46 cfs	Outflow= 3.18 cfs 0.214 af
<b>Pond 2P: (new node)</b>	Peak Storage= 6 cf Inflow= 1.25 cfs 0.083 af
	Primary= 1.25 cfs 0.083 af Outflow= 1.25 cfs 0.083 af
<b>Pond 3P: (new node)</b>	Inflow= 1.68 cfs 0.116 af
	Primary= 1.68 cfs 0.116 af
<b>Pond 5P: (new node)</b>	Inflow= 14.34 cfs 1.007 af
	Primary= 14.34 cfs 1.007 af



<b>Pond 6P: (new node)</b>	Inflow= 1.26 cfs 0.088 af Primary= 1.26 cfs 0.088 af
<b>Pond 7P: (new node)</b>	Inflow= 4.34 cfs 0.296 af Primary= 4.34 cfs 0.296 af
<b>Pond 8P: (new node)</b>	Inflow= 5.57 cfs 0.385 af Primary= 5.57 cfs 0.385 af
<b>Pond 9P: (new node)</b>	Inflow= 10.34 cfs 0.732 af Primary= 10.34 cfs 0.732 af
<b>Pond 10P: (new node)</b>	Inflow= 6.72 cfs 0.487 af Primary= 6.72 cfs 0.487 af
<b>Pond 11P: (new node)</b>	Inflow= 1.35 cfs 0.101 af Primary= 1.35 cfs 0.101 af
<b>Pond 12P: (new node)</b>	Inflow= 2.89 cfs 0.216 af Primary= 2.89 cfs 0.216 af
<b>Pond 16p: (new node)</b>	Inflow= 0.50 cfs 0.038 af Primary= 0.50 cfs 0.038 af
<b>Pond CB-63: (new node)</b>	Peak Storage= 94 cf Inflow= 9.80 cfs 0.681 af Primary= 9.83 cfs 0.681 af Outflow= 9.83 cfs 0.681 af
<b>Pond dmh-20: (new node)</b>	Inflow= 3.95 cfs 0.261 af Primary= 3.95 cfs 0.261 af
<b>Pond hil-01: (new node)</b>	Inflow= 3.38 cfs 0.253 af Primary= 3.38 cfs 0.253 af
<b>Pond hil-02: (new node)</b>	Inflow= 24.65 cfs 1.824 af Primary= 24.65 cfs 1.824 af
<b>Pond OS-1.: (new node)</b>	Inflow= 25.09 cfs 2.017 af Primary= 25.09 cfs 2.017 af
<b>Pond SMH-13: (new node)</b>	Inflow= 32.63 cfs 2.678 af Primary= 32.63 cfs 2.678 af
<b>Pond SMH-20: (new node)</b>	Inflow= 8.28 cfs 0.626 af Primary= 8.28 cfs 0.626 af
<b>Pond SP-1: (new node)</b>	Inflow= 3.18 cfs 0.214 af Primary= 3.18 cfs 0.214 af

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Type III 24-hr Rainfall=5.50"

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<b>Pond SP-2: (new node)</b>	Inflow= 32.63 cfs 2.678 af Primary= 32.63 cfs 2.678 af
<b>Pond sp-3: (new node)</b>	Inflow= 3.98 cfs 0.270 af Primary= 3.98 cfs 0.270 af
<b>Pond SP-4: (new node)</b>	Inflow= 35.64 cfs 2.593 af Primary= 35.64 cfs 2.593 af
<b>Pond SP-5: (new node)</b>	Inflow= 10.34 cfs 0.732 af Primary= 10.34 cfs 0.732 af
<b>Pond SP-6: (new node)</b>	Inflow= 6.72 cfs 0.487 af Primary= 6.72 cfs 0.487 af
<b>Pond SP-7: (new node)</b>	Inflow= 0.50 cfs 0.038 af Primary= 0.50 cfs 0.038 af

**Runoff Area = 21.928 ac Volume = 7.014 af Average Depth = 3.84"**