

Preliminary Stormwater Management Report

University Station

University Avenue

Westwood, MA

Submitted to:

Town of Westwood

October 9, 2012

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1.0 Introduction

This report summarizes the drainage analysis and Stormwater Management Plan associated with the University Station project (the project) at a Master Plan level. The intent of this report and Stormwater Management Plan is to create the framework and performance standards to which the project must adhere as the design advances. The University Station project includes multiple improvements that may be constructed in multiple phases. The performance standards set forth in this report can be achieved as each phase of the project is completed.

The project is a mixed use development located approximately 12 miles southwest of Boston in the Town of Westwood (Figure 1-1) and involves the redevelopment of a significant portion of the University Avenue Business Park. University Station will replace approximately 1.4 million square feet of the former industrial, warehouse, and office uses with a blend of modern residential, retail, restaurant, hotel, office, and public spaces.

Portions of the former industrial park, associated parking/loading areas, and access driveways have been previously demolished. This analysis utilizes the pre-demolition state of the site as the existing condition, as the site work that had been previously conducted is only an interim step in the overall development of the project.

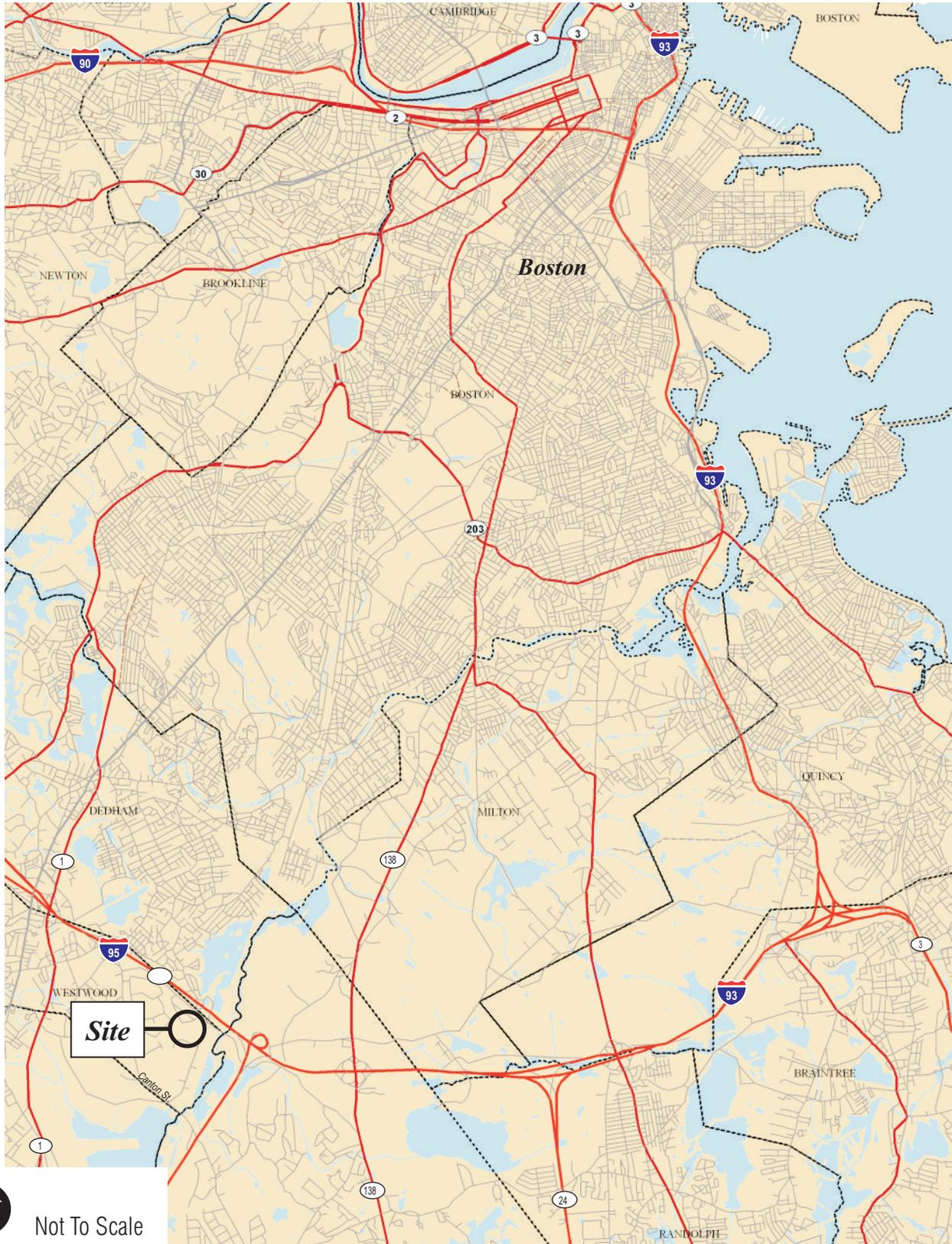
The site is adjacent to the existing University Avenue/Route 128 MBTA Station, and its 2,700 vehicle parking facility. This facility provides a direct transit link to Back Bay and South Station in Downtown Boston. The other land uses adjacent to the project include residential neighborhoods to the west (Town of Westwood), Route 128/95 to the north (Town of Dedham), commercial/industrial uses to the south (Town of Norwood), and the MBTA/Amtrak rail corridor and Neponset River along the eastern boundary (Town of Canton).

The hydrologic study area is $326.1 \pm$ acres and drains to four individual points of analysis. These four locations represent the individual convergence points of the major watershed boundaries that make up the overall drainage study limits. All four of these watersheds are drained through a combination of open and closed drainage systems and ultimately flow to the Neponset River. Land coverage within the study boundary consists generally of a mix of industrial and residential uses. Non-developed areas are landscaped, wooded, or grassed. Further description of each watershed and point of analysis are included in Sections 2.0 and 3.0.

As indicated in Table 1-1, construction of the proposed project will result in an increase in impervious area from existing conditions. The project will mitigate this increase through a combination of stormwater management practices consistent with the Massachusetts Department of Environmental Protection (MADEP) Stormwater Management Standards as well as standards imposed by the Town of Westwood.

Table 1 Hydrologic Study Area Land Use Distribution Summary

Area	Existing	Proposed
Roofs/Buildings	49.9	50.4
Pavement, Sidewalks, Hardscape	87.1	99.0
Open Space (woods, grass, landscaped area)	189.1	176.7
Total	326.1	326.1



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2.0 Existing Conditions

2.1 Topography

The study area elevations range generally from 50± to 190±, with the highest elevations occurring along the western boundary of the study limits in a residential area. Lowest elevations generally occur along the railroad tracks, west of the Neponset River at approximately elevation 50±. The study area slopes from west to east, in the direction of the Neponset River.

2.2 Soils

According to the USDA Soil Survey of Norfolk and Suffolk Counties, the soils within the project and adjoining areas consist mainly of urban land, wet substratum soil map unit Uw (Appendix D). Buildings, industrial areas, pavement, and railroad beds cover more than 75 percent of the land surface. Smaller areas of urban land (Ur) and Udorthents (Ua and Ud) are also located in the area. Areas described as Udorthents are those areas where the original soils have been removed, cut away, or covered. Geotechnical investigations indicate that these areas identified as Urban Land and Udorthents are generally sandy/gravelly soils underlain by bedrock. The bedrock elevation rises quickly in an east to west direction, away from the Neponset River.

2.3 Watershed Boundaries

The study area is divided into four major watershed boundaries, each having multiple, smaller sub-catchment areas. The project site drains in an easterly direction towards the Neponset River. A majority of the runoff is generated from the developed impervious areas on the site; specifically, large parking areas, building roofs, and roadways. Limited stormwater management controls exist to attenuate peak flows or control or treat the quality of the stormwater runoff prior to discharge. Much of the stormwater management infrastructure that exists is designed simply to collect and convey runoff. As shown in the Existing Stormwater Infrastructure Plan (Figure 2), the drainage collection system that services the existing site consists of catch basins in roadways and parking lots and the storm drains that convey untreated runoff to open channels and on to the Neponset River. A detailed depiction of the overall watersheds and their sub-catchment areas are shown on Figure 4.

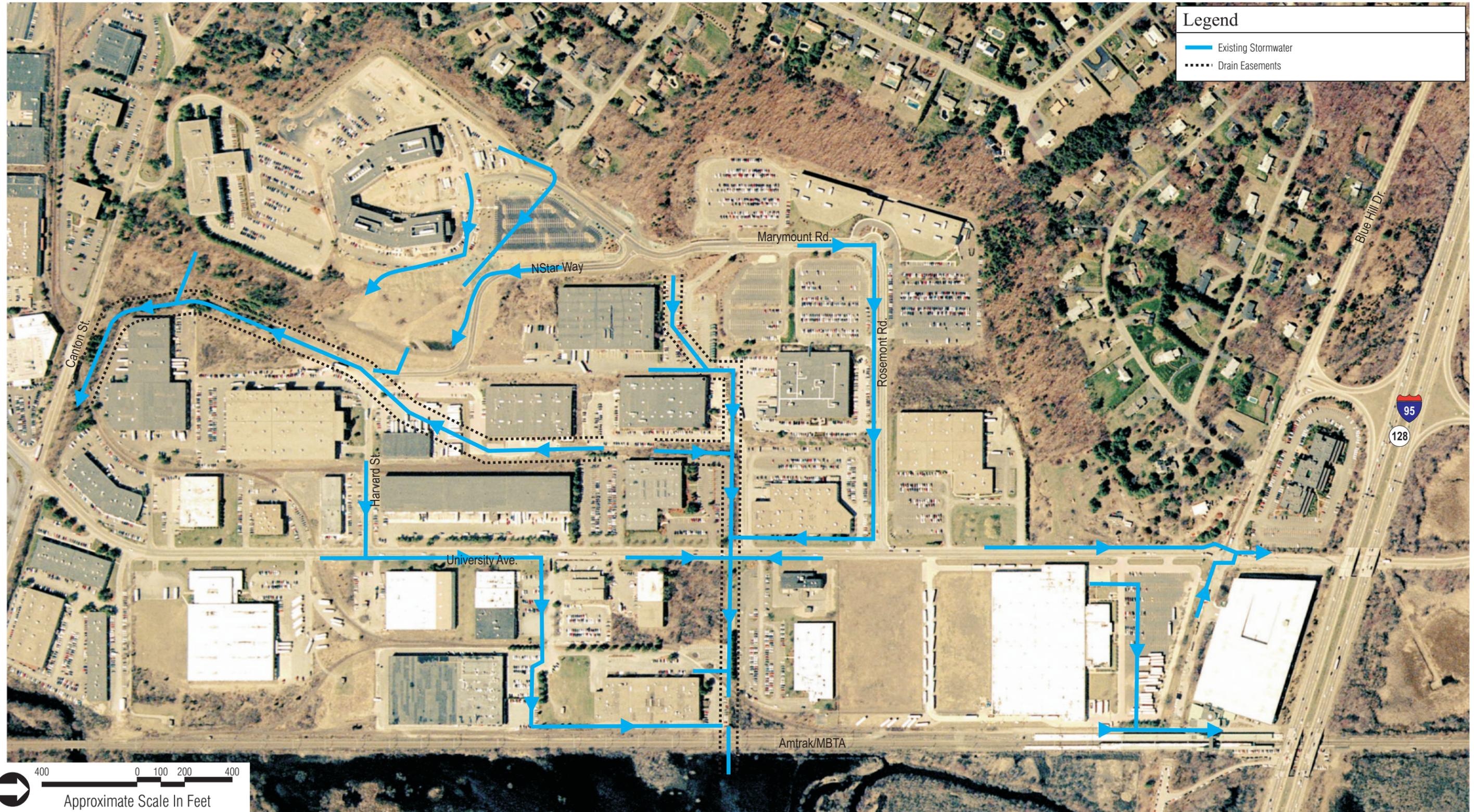
Point of Analysis 1 - Runoff from the southwestern portion of the study area is collected and conveyed via catch basins and a closed drainage system to a drainage ditch that runs along Canton Street (Point of Analysis 1). Runoff from the NSTAR property is similarly collected and conveyed through a small detention basin to the Canton Street ditch. Ground coverage within this watershed is comprised largely of industrial, office, and residential uses. The undeveloped areas are either landscaped, lawn, or wooded areas.

Point of Analysis 2 - Stormwater within the central portion of the hydrological study area is collected and conveyed through a series of catch basins, storm drains and ditches to the second discharge point (Points of Analysis 2). There are no controls in place to

attenuate peak flow rates or to provide water quality treatment stormwater prior to discharge. This outlet consists of 60 inch culvert beneath the lead railroad track and into a pocket wetland. From there, stormwater flows into a 72 inch culvert beneath the main railroad track and discharges to a wetland up gradient of the Neponset River. This point of analysis is largely made up of industrial and office uses, their associated parking areas, and roadways. The remaining area is a mix of various forms of open space.

Point of Analysis 3 - The third point of analysis is comprised of the land to the north/northwest of the study area. Land coverage in this watershed consists of office and industrial uses with associated parking and access drives, scattered residential development and undeveloped/wooded areas. This watershed generally drains northwest to southeast through as a combination of overland flow, piped stormwater collection and conveyance systems, and open channel/ditches. This network of pipes run north along University Avenue, through the northern portion of the site, and ultimately flows towards the Neponset River, north of the Amtrak/Route 128 station.

Point of Analysis 4 - This point of analysis consists largely of industrial uses with limited undisturbed areas. The stormwater runoff from the north end of University Avenue, along with the stormwater runoff from Blue Hill Drive, is conveyed via catch basins and a closed stormwater management system to the fourth major point of analysis (Point of Analysis 4). Storm water is discharged into the University Avenue stormwater collection system which then drains through a 36 inch pipe into a 48 inch collector drain along the Amtrak/Route 128 station and, eventually on to the Neponset River.



University Station
Westwood, Massachusetts

Existing Stormwater
Infrastructure

3.0 Proposed Conditions

The proposed stormwater management plan for the project has been developed to exceed the requirements of the MADEP Stormwater Management Policy. In terms of stormwater quantity, the plan provides substantial groundwater recharge to the aquifer system located under the central portion of the project through a system of innovative stormwater infiltration systems. The infiltration provided by the project exceeds the requirements of the MADEP Stormwater Management Policy. The project also provides peak flow attenuation through a combination of sub-surface infiltration and surface extended detention basins to control the discharge of stormwater runoff from large individual storms (2, 10, 25 and 100-year storms). These stormwater management measures will act to mitigate stormwater discharges so that post construction discharge rates will not exceed preconstruction stormwater discharge rates.

In terms of the stormwater quality, the stormwater management plan exceeds the MADEP Stormwater Management Policy's requirements for pollutant removal by implementing a combination of stormwater Best Management Practices (BMP's) and an aggressive street sweeping program. Figure 5 shows the boundaries of the four watersheds in the proposed condition. The proposed stormwater infrastructure is shown shown in greater detail on the Preliminary Site Development Plans (provided under separate cover).

As indicated in Section 1, construction of the proposed project will result in an increase in impervious area from existing conditions in each of the four major water watersheds. However, increased runoff and water quality effects from the increased impervious cover will be mitigated by compliance with the ten standards of the MADEP Stormwater Management Policy. Compliance with the ten standards are summarized below.

3.1 Stormwater Management Standards

The purpose of the Stormwater Management Plan is to provide a comprehensive framework for the long-term protection of natural resources in and around the project area from degradation as a result of stormwater discharges. This is achieved through the use of a variety of water quality and quantity control measures designed to decrease pollutants discharged from the project area and to mitigate post construction stormwater discharge rates.

The proposed stormwater management system complies with the current MADEP Stormwater Management Policy. The Checklist for a Stormwater Report is enclosed in Appendix C.

3.1.1 Standard # 1 – Untreated Stormwater

No point discharges of untreated stormwater to resource areas are proposed. Stormwater quality control for the project includes street sweeping, deep-sump, hooded catch basins, water quality structures, sub-surface infiltration basins, and extended dry detention basins with sediment forebays. All points of discharge are designed to prevent scour and erosion.

3.1.2 Standard # 2 – Post-Development Peak Discharge Rates

Stormwater management controls are developed for the 2-, 10-, 25-, and 100-year 24-hour storm events. Under existing and proposed conditions, hydrologic analyses were performed utilizing the computer program, HydroCAD[®]. In order to determine the peak rate of discharge for existing and proposed conditions, runoff hydrographs were generated for the storm events using the SCS TR-20 Method (refer to Appendix B, HydroCAD[®] Input/Output). Table 3-1 summarizes the pre- and post-development peak runoff discharge rates determined in the hydrologic/hydraulic analyses performed for the project area. As shown below, there will be no increase in peak run-off discharge rates as a result of the project for the 2-, 10-, 25-, or 100-year storms.

Table 2 Comparison of Peak Runoff Rates (in cfs)

Point of Analysis	2-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
PA1	63.90	50.26	-13.64	109.42	91.09	-18.33	139.08	119.72	-19.36	177.12	159.48	-17.64
PA2	134.11	53.32	-80.79	211.70	105.31	-106.39	251.26	148.40	-102.86	282.39	202.98	-79.41
PA3*	23.00	15.46	-7.54	36.00	21.19	-14.81	39.00	24.40	-14.6	41.00	40.12	-0.88
PA4	29.02	4.62	-24.40	42.85	23.81	-19.04	47.12	37.43	-9.69	52.23	50.98	-1.25

*The current HydroCAD model is predicting higher peak flow rates under pre development conditions than the previously approved drainage calculations at Point of Analysis 3. Tetra Tech is reviewing the pre development peak runoff rates associated with Point of Analysis 3 with the developer of the HydroCAD modeling software in an effort to reconcile this model's output with the previously approved calculations. However, for consistency with prior approvals and calculations, the pre development rate of runoff shown in the table above for Point of Analysis 3 are consisted with the Westwood Station Master Plan Special Permit calculations. Post-development calculations have been developed to meet these rates of runoff.

3.1.3 Standard # 3 – Recharge to Groundwater

Substantial recharge of groundwater is provided through a system of sub-surface infiltration galleries located beneath the parking areas associated with the western retail portion of the project and beneath the Village Green. These recharge systems are designed to infiltrate approximately 2.48 acre-feet of stormwater, exceeding the 2.47 acre-feet required by MassDEP. The provided recharge volume was calculated using the

simple dynamic method. Calculations have been provided to demonstrate the recharge volume will “drain down” within 72 hours.

3.1.4 Standard # 4 – TSS Removal (Stormwater Quality)

Best Management Practices (BMPs) will be used to provide water quality. The following BMPs will be provided within the project area: roadway sweeping, deep sump, hooded catch basins, water quality structures, sediment forebays, and extended dry detention basins. Water quality calculations are included in Appendix D.

Street Sweeping

The proposed design incorporates street sweeping as a BMP to control the amount of sediment that enters the drainage system. Street sweeping will be conducted on a monthly average, with a mechanical sweeper. In accordance with the MADEP Stormwater Management Policy, a 5 percent TSS removal rate is credited for this BMP.

Deep Sump, Hooded Catch Basins.

All proposed catch basins within the project area will be deep sump, hooded catch basins, which will serve to trap sediment and floatables before entering the drainage system. Sumps will be four-foot deep. Inlets should be inspected and, if necessary, cleaned a minimum of two (2) times per year. Sediments and hydrocarbons shall be properly handled and disposed of, in accordance with local, state, and federal requirements. All catch basins will be installed with sediment sumps and oil hoods. In accordance with the MADEP Standards, a 25 percent TSS removal rate is credited for this BMP.

Water Quality Structures

Proprietary water quality structures are proposed to treat runoff from paved portions of the project area. The structures are located at the end of drainage systems before the parking lot runoff enters into the stormwater management areas. Up to an 80 percent TSS removal rate can be credited for this BMP. Water quality structures will be sized to adequately treat the 1” water quality volume, consistent with MADEP requirements (See enclosed Checklist for Stormwater Report).

Sub-Surface Stormwater Infiltration Systems

A series of sub-surface infiltration galleries are proposed to collect, treat, and recharge stormwater to groundwater resources. Each system consists of a large, single, open chamber that is surrounded by crushed stone and filter fabric. These infiltration systems are proposed to run linearly along the lower reaches of some of the parking areas as well as within the central open space located in the Village portion of the project. Runoff from building rooftops and paved surfaces will be directed to these systems. Runoff entering the infiltration areas will be treated to

remove a minimum of 44 percent TSS prior to discharge into the infiltration systems.

The configuration of these systems provides an effective and efficient means of infiltrating stormwater. They allow for multiple inlets to evenly distribute stormwater into the system rather than at one location. By nature of its footprint, it allows for uniform recharge to groundwater and does not concentrate discharges into a small area. The locations of these systems are shown on Figure 3-1. Details are included with the Preliminary Site Development Plans (under separate cover). Consistent with MA DEP standards, an 80 percent TSS removal rate is credited for this BMP.

Extended Dry Detention Basins with Sediment Forebays

The proposed design incorporates extended dry detention basins with sediment forebays as BMPs to control the amount of sediment that discharges from the project area. The basins are located at the low end of drainage systems before the runoff discharges toward to their respective outlets. Sediment forebays were sized in accordance with the Massachusetts Stormwater Policy. In accordance with the MADEP Standards a 50 percent TSS removal rate is credited for this BMP.

The incorporation of these BMP's will achieve a TSS removal rate of greater than 80 percent, exceeding the current MADEP requirement (Refer to Appendix D, Water Quality Calculations).

3.1.5 Standard # 5 – Higher Pollutant Load

The project is classified as use that will generate higher pollutant loads and is subject to the requirements of Standard 5, including pretreatment of stormwater. In accordance with these standards, the project area stormwater management system has been designed to achieve a TSS removal rate of greater than 80% which exceeds the rate required under the MADEP Stormwater Management Policy. As discussed under Standard #3, significant groundwater recharge is provided. The portions of the project that are directed to the sub-surface infiltration galleries have been designed to achieve a TSS removal rate of 64% prior to entering the infiltration areas, which is greater than the 44% required in the MADEP Stormwater Management Standards.

Consistent with MADEP Stormwater Management Standards, the proprietary stormwater quality structures proposed as part of the project area stormwater management system will be sized to treat the 1" water quality volume.

3.1.6 Standard # 6 – Protection of Critical Areas

The project is not located in and does not discharge to a critical area as defined by the MADEP.

3.1.7 Standard # 7 – Redevelopment Project

Although this project is a redevelopment project, the stormwater management system has been designed to meet the all the standards for a new development.

3.1.8 Standard # 8 – Erosion / Sediment Control Plan

The project will result in the disturbance of greater than one acre of land and discharges to a water of the US or a municipal separate storm drain system which discharges to a water of the US, and therefore requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System General Permit for Discharges from Construction Activities. The Construction General Permit (CGP) authorizes the discharge of storm water from construction activities.

The SWPPP will include site specific temporary and permanent erosion and sediment control practices including the following:

- Installation of silt fence between the limit of work and wetland resource areas to minimize sediment laden runoff from entering resource areas.
- Establish stabilized crushed stone construction entrances to prevent sediment tracking on the public ways.
- Immediate stabilization of all re-graded area adjacent to wetland areas; stabilization will be achieved by hydro-seed and/or the use of erosion control blankets until permanent ground cover can be established.
- Site specific construction sequencing plans in order to minimize the extent of the disturbance at any given time.
- Construction of temporary sediment basin(s) and swales to divert, convey and detain construction term storm runoff and allow for settling of solids prior to discharge.
- A Notice of Intent will be filed with the U.S. EPA to obtain coverage under the NPDES Construction General Permit.

3.1.9 Standard # 9 – Operation / Maintenance Plan

The stormwater management system will be owned and operated by the owner. The General Contractor (under Contract with the owner) will appoint a Project Manager who will be responsible during construction. Costs associated with the operation and maintenance of the stormwater management systems are subject to contracts with licensed maintenance providers and are variable. As a result, costs associated with the Operation and Maintenance Plans are not currently included with this report. The Stormwater Drainage Operations and Maintenance Plans are included in Appendix E.

3.1.10**Standard # 10 – Illicit Discharges**

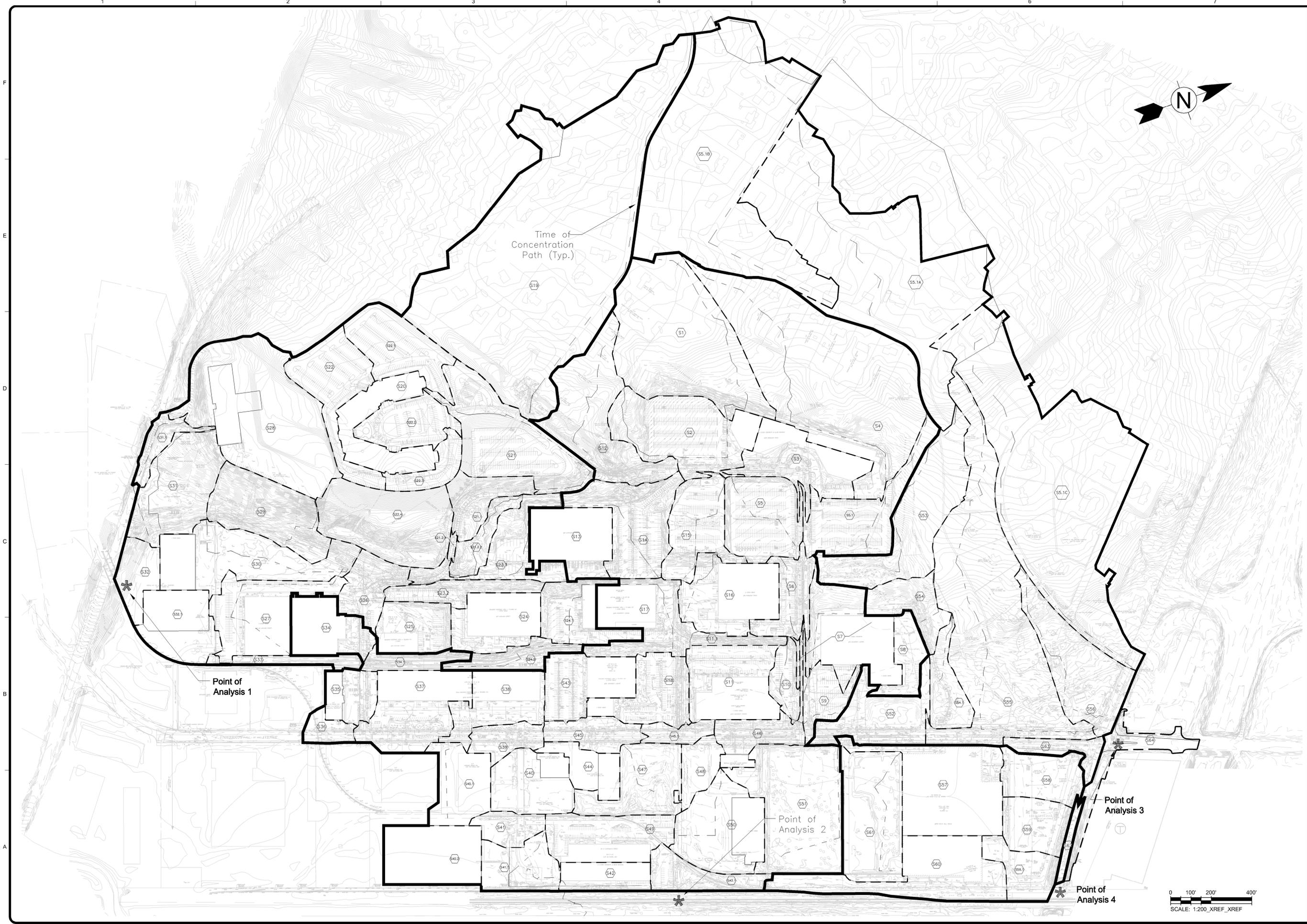
The Stormwater Management System has been designed such that prior to stormwater runoff discharging from the site, it is treated through a series of best management practices. To the Engineer's knowledge, there are no known or designed non-stormwater discharges that are or will be connected to the stormwater collection system that would convey pollutants directly to groundwater or surface waters.

4.0 Conclusions

The Stormwater Management System addresses both the quantity and quality of stormwater runoff from the site and conforms, and some cases significantly exceed the ten (10) standards outlined by the MA DEP Stormwater Policy and the Town of Westwood Stormwater Standards.

Appendix A
Watershed Plans

10/10/2012 2:58:46 PM - P:\3659\127-3659-12003\CAD\SHEETFILES\WATERSHED\FIGURES\C-801-EXISTING WATERSHED.DWG - CHEAL_NATE



www.tetratech.com
 One Grant Street
 Framingham, MA 01701
 PHONE: (508) 903-2000 FAX: (508) 903-2001

MARK	DATE	DESCRIPTION
1	10/9/12	Preliminary Site Development Plans

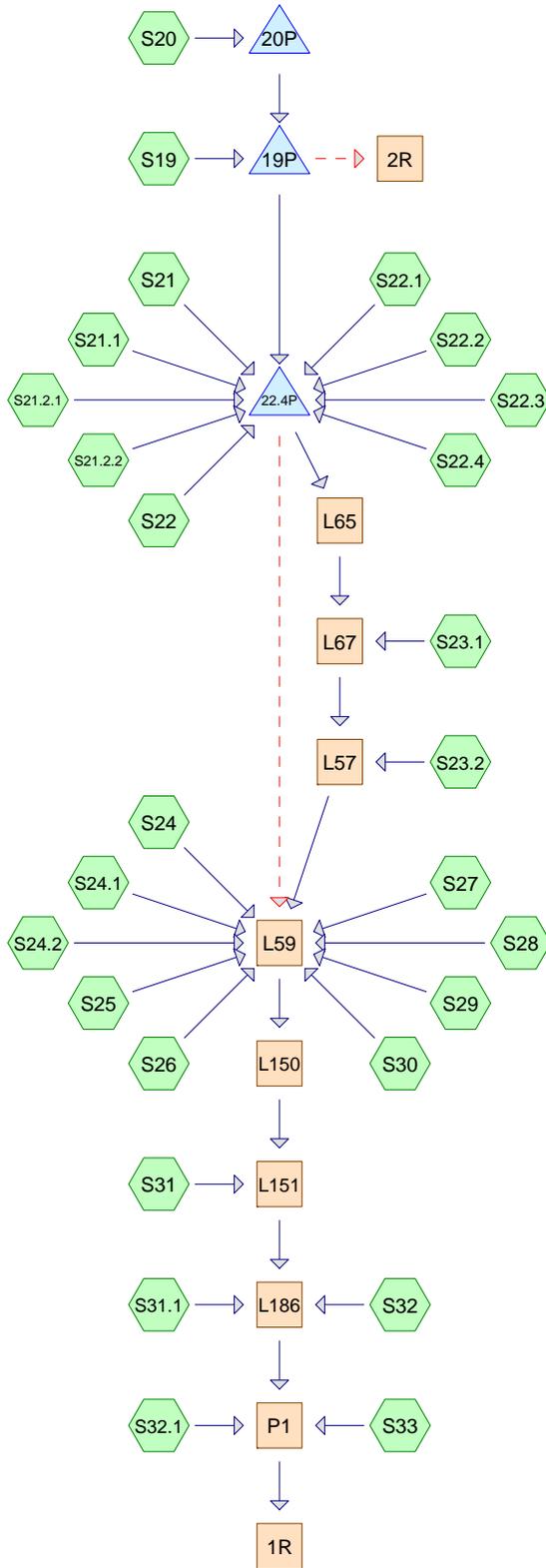
BY: N.H.C.
 Client: Westwood Marketplace Holdings LLC
 Proj. Loc.: University Ave, Westwood, MA
 University Station - University Avenue
 Redevelopment
 Existing Watershed Model

Project No.: 127-3659-12003
 Designed By: N.H.C.
 Drawn By: J.V.B.
 Checked By: R.F.D.

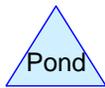
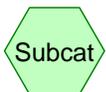
Figure 4

Bar Measures 1 inch

Appendix B
HydroCAD Input/Output



Point of Analysis 1



Routing Diagram for 3659-12003C-Existing Conditions POA 1-01
 Prepared by {enter your company name here}, Printed 10/8/2012
 HydroCAD® 10.00 s/n 00983 © 2012 HydroCAD Software Solutions LLC

3659-12003C-Existing Conditions POA 1-01

Prepared by {enter your company name here}

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.450	43	(S19)
3.360	65	(S19)
9.300	76	(S19)
41.760	98	(S19, S20, S21, S21.1, S21.2.1, S21.2.2, S22, S22.1, S22.2, S22.3, S23.1, S23.2, S24, S24.1, S25, S26, S27, S28, S29, S30, S31.1, S32, S32.1)
14.410	49	(S21, S21.1, S21.2.2, S23.1, S23.2, S24, S24.1, S24.2, S25, S26, S27, S30, S32.1, S33)
5.960	69	(S22, S22.1, S22.2, S22.3, S22.4, S28, S29, S32)
11.490	60	(S22.4, S29, S31, S31.1)
0.620	89	(S28, S31.1)
1.170	79	(S31, S31.1)
96.520	76	TOTAL AREA

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S19: Runoff Area=25.790 ac 18.15% Impervious Runoff Depth>0.66"
 Tc=11.4 min CN=68 Runoff=15.48 cfs 1.409 af

Subcatchment S20: Runoff Area=2.640 ac 100.00% Impervious Runoff Depth>2.83"
 Tc=5.0 min CN=98 Runoff=8.25 cfs 0.622 af

Subcatchment S21: Runoff Area=5.370 ac 63.69% Impervious Runoff Depth>1.29"
 Flow Length=640' Slope=0.0600 '/ Tc=12.1 min CN=80 Runoff=7.09 cfs 0.578 af

Subcatchment S21.1: Runoff Area=1.730 ac 26.59% Impervious Runoff Depth>0.42"
 Flow Length=410' Tc=11.6 min CN=62 Runoff=0.54 cfs 0.061 af

Subcatchment S21.2.1: Runoff Area=0.107 ac 100.00% Impervious Runoff Depth>2.83"
 Tc=5.0 min CN=98 Runoff=0.33 cfs 0.025 af

Subcatchment S21.2.2: Runoff Area=1.133 ac 3.80% Impervious Runoff Depth>0.12"
 Flow Length=90' Slope=0.0070 '/ Tc=13.2 min CN=51 Runoff=0.04 cfs 0.011 af

Subcatchment S22: Runoff Area=3.230 ac 73.07% Impervious Runoff Depth>2.04"
 Tc=5.0 min CN=90 Runoff=8.17 cfs 0.549 af

Subcatchment S22.1: Runoff Area=3.010 ac 65.12% Impervious Runoff Depth>1.87"
 Tc=5.0 min CN=88 Runoff=7.02 cfs 0.470 af

Subcatchment S22.2: Runoff Area=2.220 ac 76.13% Impervious Runoff Depth>2.13"
 Tc=5.0 min CN=91 Runoff=5.81 cfs 0.394 af

Subcatchment S22.3: Runoff Area=1.150 ac 75.65% Impervious Runoff Depth>2.13"
 Tc=5.0 min CN=91 Runoff=3.01 cfs 0.204 af

Subcatchment S22.4: Runoff Area=4.970 ac 0.00% Impervious Runoff Depth>0.36"
 Tc=5.0 min CN=60 Runoff=1.42 cfs 0.147 af

Subcatchment S23.1: Runoff Area=2.670 ac 49.44% Impervious Runoff Depth>0.89"
 Tc=19.0 min CN=73 Runoff=1.96 cfs 0.198 af

Subcatchment S23.2: Runoff Area=1.450 ac 38.62% Impervious Runoff Depth>0.65"
 Flow Length=955' Tc=14.3 min CN=68 Runoff=0.80 cfs 0.079 af

Subcatchment S24: Runoff Area=2.660 ac 95.86% Impervious Runoff Depth>2.61"
 Tc=5.0 min CN=96 Runoff=8.03 cfs 0.579 af

Subcatchment S24.1: Runoff Area=2.330 ac 67.38% Impervious Runoff Depth>1.42"
 Flow Length=1,260' Slope=0.0040 '/ Tc=12.1 min CN=82 Runoff=3.40 cfs 0.276 af

Subcatchment S24.2: Runoff Area=1.300 ac 0.00% Impervious Runoff Depth>0.08"
 Flow Length=1,260' Slope=0.0040 '/ Tc=9.8 min CN=49 Runoff=0.02 cfs 0.009 af

Subcatchment S25:	Runoff Area=2.050 ac 82.93% Impervious Runoff Depth>2.04" Tc=5.0 min CN=90 Runoff=5.18 cfs 0.348 af
Subcatchment S26:	Runoff Area=1.770 ac 41.24% Impervious Runoff Depth>0.70" Tc=5.0 min CN=69 Runoff=1.44 cfs 0.104 af
Subcatchment S27:	Runoff Area=3.680 ac 93.21% Impervious Runoff Depth>2.51" Tc=5.0 min CN=95 Runoff=10.86 cfs 0.769 af
Subcatchment S28:	Runoff Area=8.850 ac 69.72% Impervious Runoff Depth>2.04" Tc=5.0 min CN=90 Runoff=22.38 cfs 1.504 af
Subcatchment S29:	Runoff Area=3.760 ac 2.93% Impervious Runoff Depth>0.42" Tc=7.8 min CN=62 Runoff=1.31 cfs 0.132 af
Subcatchment S30:	Runoff Area=4.820 ac 38.17% Impervious Runoff Depth>0.65" Tc=18.3 min CN=68 Runoff=2.45 cfs 0.262 af
Subcatchment S31:	Runoff Area=3.920 ac 0.00% Impervious Runoff Depth>0.49" Tc=14.4 min CN=64 Runoff=1.45 cfs 0.161 af
Subcatchment S31.1:	Runoff Area=0.920 ac 38.04% Impervious Runoff Depth>1.64" Tc=9.2 min CN=85 Runoff=1.67 cfs 0.125 af
Subcatchment S32:	Runoff Area=1.450 ac 50.34% Impervious Runoff Depth>1.57" Tc=5.0 min CN=84 Runoff=2.86 cfs 0.189 af
Subcatchment S32.1:	Runoff Area=2.720 ac 90.81% Impervious Runoff Depth>2.31" Tc=5.0 min CN=93 Runoff=7.60 cfs 0.524 af
Subcatchment S33:	Runoff Area=0.820 ac 0.00% Impervious Runoff Depth>0.08" Tc=5.0 min CN=49 Runoff=0.01 cfs 0.006 af
Reach 1R: Point of Analysis 1	Inflow=63.90 cfs 9.293 af Outflow=63.90 cfs 9.293 af
Reach 2R:	Inflow=10.75 cfs 0.270 af Outflow=10.75 cfs 0.270 af
Reach L150:	Avg. Flow Depth=1.50' Max Vel=3.45 fps Inflow=59.67 cfs 8.332 af n=0.030 L=136.0' S=0.0043 '/ Capacity=654.46 cfs Outflow=58.74 cfs 8.323 af
Reach L151:	Avg. Flow Depth=1.40' Max Vel=5.63 fps Inflow=59.96 cfs 8.484 af n=0.030 L=155.0' S=0.0148 '/ Capacity=2,128.99 cfs Outflow=58.89 cfs 8.478 af
Reach L186:	Avg. Flow Depth=2.15' Max Vel=2.77 fps Inflow=62.09 cfs 8.793 af n=0.030 L=340.0' S=0.0020 '/ Capacity=279.47 cfs Outflow=60.61 cfs 8.765 af
Reach L57:	Avg. Flow Depth=1.79' Max Vel=4.48 fps Inflow=19.71 cfs 4.382 af 36.0" Round Pipe n=0.014 L=446.0' S=0.0023 '/ Capacity=29.62 cfs Outflow=19.68 cfs 4.372 af
Reach L59:	Avg. Flow Depth=1.66' Max Vel=3.97 fps Inflow=62.34 cfs 8.356 af n=0.030 L=430.0' S=0.0053 '/ Capacity=196.83 cfs Outflow=59.67 cfs 8.332 af

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Type III 24-hr 2-Year Rainfall=3.20"

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Reach L65: Avg. Flow Depth=0.59' Max Vel=19.69 fps Inflow=17.51 cfs 4.108 af
30.0" Round Pipe n=0.014 L=104.0' S=0.1394 '/ Capacity=142.22 cfs Outflow=17.52 cfs 4.108 af

Reach L67: Avg. Flow Depth=0.88' Max Vel=9.25 fps Inflow=19.09 cfs 4.305 af
48.0" Round Pipe n=0.014 L=185.0' S=0.0178 '/ Capacity=178.14 cfs Outflow=19.08 cfs 4.303 af

Reach P1: Avg. Flow Depth=0.70' Max Vel=7.58 fps Inflow=63.98 cfs 9.294 af
n=0.030 L=46.0' S=0.0435 '/ Capacity=407.83 cfs Outflow=63.90 cfs 9.293 af

Pond 19P: Peak Elev=139.31' Storage=1,830 cf Inflow=23.26 cfs 2.029 af
Primary=10.66 cfs 1.756 af Secondary=10.75 cfs 0.270 af Outflow=21.41 cfs 2.026 af

Pond 20P: Peak Elev=167.55' Storage=2,838 cf Inflow=8.25 cfs 0.622 af
24.0" Round Culvert n=0.014 L=293.0' S=0.0819 '/ Outflow=11.03 cfs 0.620 af

Pond 22.4P: Peak Elev=74.16' Storage=39,331 cf Inflow=41.33 cfs 4.195 af
Primary=17.51 cfs 4.108 af Secondary=0.00 cfs 0.000 af Outflow=17.51 cfs 4.108 af

Total Runoff Area = 96.520 ac Runoff Volume = 9.736 af Average Runoff Depth = 1.21"
56.73% Pervious = 54.760 ac 43.27% Impervious = 41.760 ac

Summary for Subcatchment S19:

Runoff = 15.48 cfs @ 12.19 hrs, Volume= 1.409 af, Depth> 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 8.450	43	
* 3.360	65	
* 9.300	76	
* 4.680	98	
25.790	68	Weighted Average
21.110		81.85% Pervious Area
4.680		18.15% Impervious Area

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

Summary for Subcatchment S20:

Runoff = 8.25 cfs @ 12.07 hrs, Volume= 0.622 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 2.640	98	
2.640		100.00% Impervious Area

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

Summary for Subcatchment S21:

Runoff = 7.09 cfs @ 12.17 hrs, Volume= 0.578 af, Depth> 1.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.950	49	
* 3.420	98	
5.370	80	Weighted Average
1.950		36.31% Pervious Area
3.420		63.69% Impervious Area

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Type III 24-hr 2-Year Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5					
0.6	640	0.0600	19.11	60.03	Direct Entry, Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
12.1	640	Total			

Summary for Subcatchment S21.1:

Runoff = 0.54 cfs @ 12.22 hrs, Volume= 0.061 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.270	49	
* 0.460	98	
1.730	62	Weighted Average
1.270		73.41% Pervious Area
0.460		26.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	170	0.0865	4.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	140	0.1015	28.84	141.57	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
11.6	410	Total			

Summary for Subcatchment S21.2.1:

Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.025 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.107	98	
0.107		100.00% Impervious Area

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

Summary for Subcatchment S21.2.2:

Runoff = 0.04 cfs @ 12.55 hrs, Volume= 0.011 af, Depth> 0.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.090	49	
* 0.043	98	
1.133	51	Weighted Average
1.090		96.20% Pervious Area
0.043		3.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					Direct Entry,
0.4	90	0.0070	4.11	3.23	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
13.2	90	Total			

Summary for Subcatchment S22:

Runoff = 8.17 cfs @ 12.07 hrs, Volume= 0.549 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.870	69	
* 2.360	98	
3.230	90	Weighted Average
0.870		26.93% Pervious Area
2.360		73.07% Impervious Area

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

Summary for Subcatchment S22.1:

Runoff = 7.02 cfs @ 12.08 hrs, Volume= 0.470 af, Depth> 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
* 1.050	69	
* 1.960	98	
3.010	88	Weighted Average
1.050		34.88% Pervious Area
1.960		65.12% Impervious Area

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

Summary for Subcatchment S22.2:

Runoff = 5.81 cfs @ 12.07 hrs, Volume= 0.394 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.530	69	
* 1.690	98	
2.220	91	Weighted Average
0.530		23.87% Pervious Area
1.690		76.13% Impervious Area

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

Summary for Subcatchment S22.3:

Runoff = 3.01 cfs @ 12.07 hrs, Volume= 0.204 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.280	69	
* 0.870	98	
1.150	91	Weighted Average
0.280		24.35% Pervious Area
0.870		75.65% Impervious Area

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

Summary for Subcatchment S22.4:

Runoff = 1.42 cfs @ 12.12 hrs, Volume= 0.147 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.100	69	
* 4.870	60	
4.970	60	Weighted Average
4.970		100.00% Pervious Area

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

Summary for Subcatchment S23.1:

Runoff = 1.96 cfs @ 12.29 hrs, Volume= 0.198 af, Depth> 0.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.350	49	
* 1.320	98	
2.670	73	Weighted Average
1.350		50.56% Pervious Area
1.320		49.44% Impervious Area

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

Summary for Subcatchment S23.2:

Runoff = 0.80 cfs @ 12.23 hrs, Volume= 0.079 af, Depth> 0.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.890	49	
* 0.560	98	
1.450	68	Weighted Average
0.890		61.38% Pervious Area
0.560		38.62% Impervious Area

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Type III 24-hr 2-Year Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.1825	0.19		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
3.2	360	0.0139	1.90		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.7	390	0.0374	3.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.5	105	0.0050	3.47	2.73	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
14.3	955	Total			

Summary for Subcatchment S24:

Runoff = 8.03 cfs @ 12.07 hrs, Volume= 0.579 af, Depth> 2.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.110	49	
* 2.550	98	
2.660	96	Weighted Average
0.110		4.14% Pervious Area
2.550		95.86% Impervious Area

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

Summary for Subcatchment S24.1:

Runoff = 3.40 cfs @ 12.17 hrs, Volume= 0.276 af, Depth> 1.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.760	49	
* 1.570	98	
2.330	82	Weighted Average
0.760		32.62% Pervious Area
1.570		67.38% Impervious Area

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Type III 24-hr 2-Year Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					
3.7	1,260	0.0040	5.73	28.10	Direct Entry, Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
12.1	1,260	Total			

Summary for Subcatchment S24.2:

Runoff = 0.02 cfs @ 13.73 hrs, Volume= 0.009 af, Depth> 0.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.300	49	
1.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					
3.7	1,260	0.0040	5.73	28.10	Direct Entry, Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
9.8	1,260	Total			

Summary for Subcatchment S25:

Runoff = 5.18 cfs @ 12.07 hrs, Volume= 0.348 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.350	49	
* 1.700	98	
2.050	90	Weighted Average
0.350		17.07% Pervious Area
1.700		82.93% Impervious Area

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

Summary for Subcatchment S26:

Runoff = 1.44 cfs @ 12.09 hrs, Volume= 0.104 af, Depth> 0.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.040	49	
* 0.730	98	
1.770	69	Weighted Average
1.040		58.76% Pervious Area
0.730		41.24% Impervious Area

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

Summary for Subcatchment S27:

Runoff = 10.86 cfs @ 12.07 hrs, Volume= 0.769 af, Depth> 2.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.250	49	
* 3.430	98	
3.680	95	Weighted Average
0.250		6.79% Pervious Area
3.430		93.21% Impervious Area

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

Summary for Subcatchment S28:

Runoff = 22.38 cfs @ 12.07 hrs, Volume= 1.504 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 2.120	69	
* 0.560	89	
* 6.170	98	
8.850	90	Weighted Average
2.680		30.28% Pervious Area
6.170		69.72% Impervious Area

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

Summary for Subcatchment S29:

Runoff = 1.31 cfs @ 12.16 hrs, Volume= 0.132 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 3.360	60	
* 0.290	69	
* 0.110	98	
3.760	62	Weighted Average
3.650		97.07% Pervious Area
0.110		2.93% Impervious Area

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

Summary for Subcatchment S30:

Runoff = 2.45 cfs @ 12.30 hrs, Volume= 0.262 af, Depth> 0.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 2.980	49	
* 1.840	98	
4.820	68	Weighted Average
2.980		61.83% Pervious Area
1.840		38.17% Impervious Area

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

Summary for Subcatchment S31:

Runoff = 1.45 cfs @ 12.26 hrs, Volume= 0.161 af, Depth> 0.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
* 3.190	60	
* 0.730	79	
3.920	64	Weighted Average
3.920		100.00% Pervious Area

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

Summary for Subcatchment S31.1:

Runoff = 1.67 cfs @ 12.13 hrs, Volume= 0.125 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.070	60	
* 0.440	79	
* 0.060	89	
* 0.350	98	
0.920	85	Weighted Average
0.570		61.96% Pervious Area
0.350		38.04% Impervious Area

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

Summary for Subcatchment S32:

Runoff = 2.86 cfs @ 12.08 hrs, Volume= 0.189 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.720	69	
* 0.730	98	
1.450	84	Weighted Average
0.720		49.66% Pervious Area
0.730		50.34% Impervious Area

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

Summary for Subcatchment S32.1:

Runoff = 7.60 cfs @ 12.07 hrs, Volume= 0.524 af, Depth> 2.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.250	49	
* 2.470	98	
2.720	93	Weighted Average
0.250		9.19% Pervious Area
2.470		90.81% Impervious Area

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

Summary for Subcatchment S33:

Runoff = 0.01 cfs @ 13.65 hrs, Volume= 0.006 af, Depth> 0.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.820	49	
0.820		100.00% Pervious Area

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

Summary for Reach 1R: Point of Analysis 1

Inflow Area = 96.520 ac, 43.27% Impervious, Inflow Depth > 1.16" for 2-Year event
Inflow = 63.90 cfs @ 12.25 hrs, Volume= 9.293 af
Outflow = 63.90 cfs @ 12.25 hrs, Volume= 9.293 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R:

Inflow = 10.75 cfs @ 12.14 hrs, Volume= 0.270 af
Outflow = 10.75 cfs @ 12.14 hrs, Volume= 0.270 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

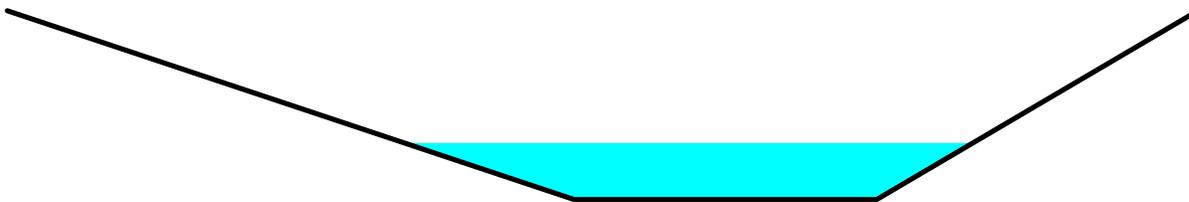
Summary for Reach L150:

Inflow Area = 86.690 ac, 44.08% Impervious, Inflow Depth > 1.15" for 2-Year event
Inflow = 59.67 cfs @ 12.15 hrs, Volume= 8.332 af
Outflow = 58.74 cfs @ 12.17 hrs, Volume= 8.323 af, Atten= 2%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.45 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.24 fps, Avg. Travel Time= 1.8 min

Peak Storage= 2,354 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.50'
Bank-Full Depth= 5.00' Flow Area= 98.8 sf, Capacity= 654.46 cfs

8.00' x 5.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 1.7 '/' Top Width= 31.50'
Length= 136.0' Slope= 0.0043 '/'
Inlet Invert= 48.58', Outlet Invert= 48.00'



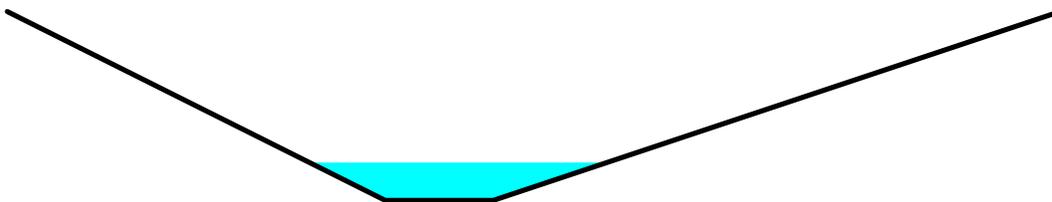
Summary for Reach L151:

Inflow Area = 90.610 ac, 42.17% Impervious, Inflow Depth > 1.12" for 2-Year event
Inflow = 59.96 cfs @ 12.17 hrs, Volume= 8.484 af
Outflow = 58.89 cfs @ 12.19 hrs, Volume= 8.478 af, Atten= 2%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.63 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.26 fps, Avg. Travel Time= 1.1 min

Peak Storage= 1,629 cf @ 12.18 hrs
Average Depth at Peak Storage= 1.40'
Bank-Full Depth= 7.00' Flow Area= 150.5 sf, Capacity= 2,128.99 cfs

4.00' x 7.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 3.0 '/' Top Width= 39.00'
Length= 155.0' Slope= 0.0148 '/'
Inlet Invert= 48.00', Outlet Invert= 45.71'



Summary for Reach L186:

Inflow Area = 92.980 ac, 42.26% Impervious, Inflow Depth > 1.13" for 2-Year event
Inflow = 62.09 cfs @ 12.18 hrs, Volume= 8.793 af
Outflow = 60.61 cfs @ 12.25 hrs, Volume= 8.765 af, Atten= 2%, Lag= 4.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.77 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 1.04 fps, Avg. Travel Time= 5.4 min

Peak Storage= 7,530 cf @ 12.21 hrs
Average Depth at Peak Storage= 2.15'
Bank-Full Depth= 4.50' Flow Area= 67.5 sf, Capacity= 279.47 cfs

6.00' x 4.50' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 24.00'
Length= 340.0' Slope= 0.0020 '/'
Inlet Invert= 45.71', Outlet Invert= 45.04'



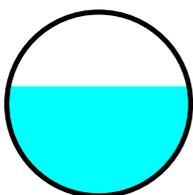
Summary for Reach L57:

Inflow Area = 55.470 ac, 36.25% Impervious, Inflow Depth > 0.95" for 2-Year event
Inflow = 19.71 cfs @ 12.39 hrs, Volume= 4.382 af
Outflow = 19.68 cfs @ 12.44 hrs, Volume= 4.372 af, Atten= 0%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.48 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.97 fps, Avg. Travel Time= 3.8 min

Peak Storage= 1,959 cf @ 12.41 hrs
Average Depth at Peak Storage= 1.79'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 29.62 cfs

36.0" Round Pipe
n= 0.014
Length= 446.0' Slope= 0.0023 '/'
Inlet Invert= 47.30', Outlet Invert= 46.28'



Summary for Reach L59:

Inflow Area = 86.690 ac, 44.08% Impervious, Inflow Depth > 1.16" for 2-Year event
Inflow = 62.34 cfs @ 12.09 hrs, Volume= 8.356 af
Outflow = 59.67 cfs @ 12.15 hrs, Volume= 8.332 af, Atten= 4%, Lag= 3.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.97 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.42 fps, Avg. Travel Time= 5.1 min

Peak Storage= 6,640 cf @ 12.11 hrs
Average Depth at Peak Storage= 1.66'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 196.83 cfs

6.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 18.00'
Length= 430.0' Slope= 0.0053 '/'
Inlet Invert= 48.58', Outlet Invert= 46.28'



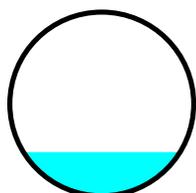
Summary for Reach L65:

Inflow Area = 51.350 ac, 35.50% Impervious, Inflow Depth > 0.96" for 2-Year event
Inflow = 17.51 cfs @ 12.51 hrs, Volume= 4.108 af
Outflow = 17.52 cfs @ 12.51 hrs, Volume= 4.108 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 19.69 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 8.63 fps, Avg. Travel Time= 0.2 min

Peak Storage= 93 cf @ 12.51 hrs
Average Depth at Peak Storage= 0.59'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 142.22 cfs

30.0" Round Pipe
n= 0.014
Length= 104.0' Slope= 0.1394 '/'
Inlet Invert= 71.00', Outlet Invert= 56.50'



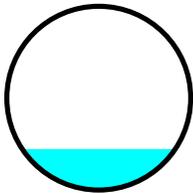
Summary for Reach L67:

Inflow Area = 54.020 ac, 36.19% Impervious, Inflow Depth > 0.96" for 2-Year event
Inflow = 19.09 cfs @ 12.40 hrs, Volume= 4.305 af
Outflow = 19.08 cfs @ 12.41 hrs, Volume= 4.303 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.25 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.98 fps, Avg. Travel Time= 0.8 min

Peak Storage= 382 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.88'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 178.14 cfs

48.0" Round Pipe
n= 0.014
Length= 185.0' Slope= 0.0178 '/
Inlet Invert= 50.70', Outlet Invert= 47.40'



Summary for Reach P1:

Inflow Area = 96.520 ac, 43.27% Impervious, Inflow Depth > 1.16" for 2-Year event
Inflow = 63.98 cfs @ 12.25 hrs, Volume= 9.294 af
Outflow = 63.90 cfs @ 12.25 hrs, Volume= 9.293 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.58 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.46 fps, Avg. Travel Time= 0.3 min

Peak Storage= 388 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 2.33' Flow Area= 28.0 sf, Capacity= 407.83 cfs

12.00' x 2.33' deep channel, n= 0.030
Length= 46.0' Slope= 0.0435 '/
Inlet Invert= 43.00', Outlet Invert= 41.00'



Summary for Pond 19P:

Inflow Area = 28.430 ac, 25.75% Impervious, Inflow Depth > 0.86" for 2-Year event
 Inflow = 23.26 cfs @ 12.11 hrs, Volume= 2.029 af
 Outflow = 21.41 cfs @ 12.14 hrs, Volume= 2.026 af, Atten= 8%, Lag= 1.7 min
 Primary = 10.66 cfs @ 12.14 hrs, Volume= 1.756 af
 Secondary = 10.75 cfs @ 12.14 hrs, Volume= 0.270 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 139.31' @ 12.14 hrs Surf.Area= 2,248 sf Storage= 1,830 cf

Plug-Flow detention time= 2.5 min calculated for 2.026 af (100% of inflow)
 Center-of-Mass det. time= 1.9 min (809.6 - 807.7)

Volume	Invert	Avail.Storage	Storage Description
#1	137.80'	30,987 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.80	174	0	0
138.30	860	259	259
138.80	1,546	602	860
139.30	2,232	945	1,805
139.80	2,919	1,288	3,092
140.30	3,605	1,631	4,723
140.80	4,291	1,974	6,697
141.30	4,977	2,317	9,014
141.80	5,663	2,660	11,674
148.00	567	19,313	30,987

Device	Routing	Invert	Outlet Devices
#1	Primary	137.80'	24.0" Round Culvert L= 612.0' Ke= 0.500 Inlet / Outlet Invert= 137.80' / 105.30' S= 0.0531 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	139.00'	23.0' long x 18.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=10.61 cfs @ 12.14 hrs HW=139.31' (Free Discharge)
 ↖**1=Culvert** (Inlet Controls 10.61 cfs @ 4.18 fps)

Secondary OutFlow Max=10.50 cfs @ 12.14 hrs HW=139.31' (Free Discharge)
 ↖**2=Broad-Crested Rectangular Weir** (Weir Controls 10.50 cfs @ 1.49 fps)

Summary for Pond 20P:

Inflow Area = 2.640 ac, 100.00% Impervious, Inflow Depth > 2.83" for 2-Year event
 Inflow = 8.25 cfs @ 12.07 hrs, Volume= 0.622 af
 Outflow = 11.03 cfs @ 12.10 hrs, Volume= 0.620 af, Atten= 0%, Lag= 1.7 min
 Primary = 11.03 cfs @ 12.10 hrs, Volume= 0.620 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

3659-12003C-Existing Conditions POA 1-01

Type III 24-hr 2-Year Rainfall=3.20"

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Peak Elev= 167.55' @ 12.10 hrs Surf.Area= 4,356 sf Storage= 2,838 cf

Plug-Flow detention time= 13.1 min calculated for 0.618 af (99% of inflow)
 Center-of-Mass det. time= 11.3 min (739.2 - 727.9)

Volume	Invert	Avail.Storage	Storage Description
#1	166.00'	2,838 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
166.00	0	0	0
166.25	2,875	359	359
166.50	3,790	833	1,193
166.75	4,225	1,002	2,194
166.90	4,356	644	2,838

Device	Routing	Invert	Outlet Devices
#1	Primary	166.00'	24.0" Round Culvert L= 293.0' Ke= 0.500 Inlet / Outlet Invert= 166.00' / 142.00' S= 0.0819 '/' Cc= 0.900 n= 0.014, Flow Area= 3.14 sf

Primary OutFlow Max=10.97 cfs @ 12.10 hrs HW=167.54' (Free Discharge)
 ←1=Culvert (Inlet Controls 10.97 cfs @ 4.23 fps)

Summary for Pond 22.4P:

Inflow Area = 51.350 ac, 35.50% Impervious, Inflow Depth > 0.98" for 2-Year event
 Inflow = 41.33 cfs @ 12.10 hrs, Volume= 4.195 af
 Outflow = 17.51 cfs @ 12.51 hrs, Volume= 4.108 af, Atten= 58%, Lag= 24.5 min
 Primary = 17.51 cfs @ 12.51 hrs, Volume= 4.108 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 74.16' @ 12.51 hrs Surf.Area= 22,599 sf Storage= 39,331 cf

Plug-Flow detention time= 34.1 min calculated for 4.108 af (98% of inflow)
 Center-of-Mass det. time= 26.3 min (829.2 - 802.9)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	233,786 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	5,227	0	0
71.25	5,793	1,378	1,378
71.50	6,360	1,519	2,897
71.75	6,926	1,661	4,557
72.00	7,492	1,802	6,360
72.25	9,295	2,098	8,458
72.50	11,097	2,549	11,007
72.75	12,899	3,000	14,007
73.00	14,702	3,450	17,457
73.25	16,504	3,901	21,357
73.50	18,306	4,351	25,709
73.75	20,108	4,802	30,510
74.00	21,911	5,252	35,763
74.25	22,983	5,612	41,375
74.50	24,056	5,880	47,254
74.75	25,129	6,148	53,403
75.00	26,201	6,416	59,819
75.25	27,274	6,684	66,503
75.50	28,347	6,953	73,456
75.75	29,419	7,221	80,677
76.00	30,492	7,489	88,165
76.25	31,478	7,746	95,912
76.50	32,463	7,993	103,904
76.75	33,449	8,239	112,143
77.00	34,434	8,485	120,629
77.25	35,420	8,732	129,360
77.50	36,405	8,978	138,339
77.75	37,391	9,225	147,563
78.00	38,376	9,471	157,034
79.00	38,376	38,376	195,410
80.00	38,376	38,376	233,786

Device	Routing	Invert	Outlet Devices
#1	Secondary	79.00'	12.0' long x 37.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	71.00'	21.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 71.00' / 70.99' S= 0.0100 1/ S= 0.0100 Cc= 0.900 n= 0.005, Flow Area= 2.41 sf

Primary OutFlow Max=17.50 cfs @ 12.51 hrs HW=74.16' (Free Discharge)

↑**2=Culvert** (Inlet Controls 17.50 cfs @ 7.28 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment S19:** Runoff Area=25.790 ac 18.15% Impervious Runoff Depth>1.46"
 Tc=11.4 min CN=68 Runoff=38.41 cfs 3.139 af
- Subcatchment S20:** Runoff Area=2.640 ac 100.00% Impervious Runoff Depth>4.16"
 Tc=5.0 min CN=98 Runoff=11.95 cfs 0.916 af
- Subcatchment S21:** Runoff Area=5.370 ac 63.69% Impervious Runoff Depth>2.37"
 Flow Length=640' Slope=0.0600 '/ Tc=12.1 min CN=80 Runoff=13.06 cfs 1.061 af
- Subcatchment S21.1:** Runoff Area=1.730 ac 26.59% Impervious Runoff Depth>1.08"
 Flow Length=410' Tc=11.6 min CN=62 Runoff=1.77 cfs 0.156 af
- Subcatchment S21.2.1:** Runoff Area=0.107 ac 100.00% Impervious Runoff Depth>4.16"
 Tc=5.0 min CN=98 Runoff=0.48 cfs 0.037 af
- Subcatchment S21.2.2:** Runoff Area=1.133 ac 3.80% Impervious Runoff Depth>0.51"
 Flow Length=90' Slope=0.0070 '/ Tc=13.2 min CN=51 Runoff=0.36 cfs 0.048 af
- Subcatchment S22:** Runoff Area=3.230 ac 73.07% Impervious Runoff Depth>3.30"
 Tc=5.0 min CN=90 Runoff=12.90 cfs 0.888 af
- Subcatchment S22.1:** Runoff Area=3.010 ac 65.12% Impervious Runoff Depth>3.10"
 Tc=5.0 min CN=88 Runoff=11.46 cfs 0.778 af
- Subcatchment S22.2:** Runoff Area=2.220 ac 76.13% Impervious Runoff Depth>3.40"
 Tc=5.0 min CN=91 Runoff=9.06 cfs 0.629 af
- Subcatchment S22.3:** Runoff Area=1.150 ac 75.65% Impervious Runoff Depth>3.40"
 Tc=5.0 min CN=91 Runoff=4.69 cfs 0.326 af
- Subcatchment S22.4:** Runoff Area=4.970 ac 0.00% Impervious Runoff Depth>0.97"
 Tc=5.0 min CN=60 Runoff=5.48 cfs 0.400 af
- Subcatchment S23.1:** Runoff Area=2.670 ac 49.44% Impervious Runoff Depth>1.81"
 Tc=19.0 min CN=73 Runoff=4.17 cfs 0.403 af
- Subcatchment S23.2:** Runoff Area=1.450 ac 38.62% Impervious Runoff Depth>1.46"
 Flow Length=955' Tc=14.3 min CN=68 Runoff=1.99 cfs 0.176 af
- Subcatchment S24:** Runoff Area=2.660 ac 95.86% Impervious Runoff Depth>3.94"
 Tc=5.0 min CN=96 Runoff=11.81 cfs 0.872 af
- Subcatchment S24.1:** Runoff Area=2.330 ac 67.38% Impervious Runoff Depth>2.54"
 Flow Length=1,260' Slope=0.0040 '/ Tc=12.1 min CN=82 Runoff=6.06 cfs 0.494 af
- Subcatchment S24.2:** Runoff Area=1.300 ac 0.00% Impervious Runoff Depth>0.42"
 Flow Length=1,260' Slope=0.0040 '/ Tc=9.8 min CN=49 Runoff=0.31 cfs 0.046 af

3659-12003C-Existing Conditions POA 1-01

Type III 24-hr 10-Year Rainfall=4.60"

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Subcatchment S25:	Runoff Area=2.050 ac 82.93% Impervious Runoff Depth>3.30" Tc=5.0 min CN=90 Runoff=8.19 cfs 0.564 af
Subcatchment S26:	Runoff Area=1.770 ac 41.24% Impervious Runoff Depth>1.53" Tc=5.0 min CN=69 Runoff=3.37 cfs 0.226 af
Subcatchment S27:	Runoff Area=3.680 ac 93.21% Impervious Runoff Depth>3.82" Tc=5.0 min CN=95 Runoff=16.13 cfs 1.173 af
Subcatchment S28:	Runoff Area=8.850 ac 69.72% Impervious Runoff Depth>3.30" Tc=5.0 min CN=90 Runoff=35.34 cfs 2.433 af
Subcatchment S29:	Runoff Area=3.760 ac 2.93% Impervious Runoff Depth>1.08" Tc=7.8 min CN=62 Runoff=4.32 cfs 0.339 af
Subcatchment S30:	Runoff Area=4.820 ac 38.17% Impervious Runoff Depth>1.46" Tc=18.3 min CN=68 Runoff=6.02 cfs 0.585 af
Subcatchment S31:	Runoff Area=3.920 ac 0.00% Impervious Runoff Depth>1.20" Tc=14.4 min CN=64 Runoff=4.27 cfs 0.392 af
Subcatchment S31.1:	Runoff Area=0.920 ac 38.04% Impervious Runoff Depth>2.81" Tc=9.2 min CN=85 Runoff=2.83 cfs 0.216 af
Subcatchment S32:	Runoff Area=1.450 ac 50.34% Impervious Runoff Depth>2.73" Tc=5.0 min CN=84 Runoff=4.92 cfs 0.329 af
Subcatchment S32.1:	Runoff Area=2.720 ac 90.81% Impervious Runoff Depth>3.61" Tc=5.0 min CN=93 Runoff=11.54 cfs 0.818 af
Subcatchment S33:	Runoff Area=0.820 ac 0.00% Impervious Runoff Depth>0.42" Tc=5.0 min CN=49 Runoff=0.22 cfs 0.029 af
Reach 1R: Point of Analysis 1	Inflow=109.42 cfs 16.157 af Outflow=109.42 cfs 16.157 af
Reach 2R:	Inflow=32.17 cfs 1.070 af Outflow=32.17 cfs 1.070 af
Reach L150:	Avg. Flow Depth=1.97' Max Vel=4.00 fps Inflow=99.53 cfs 14.435 af n=0.030 L=136.0' S=0.0043 '/ Capacity=654.46 cfs Outflow=98.48 cfs 14.423 af
Reach L151:	Avg. Flow Depth=1.83' Max Vel=6.52 fps Inflow=102.34 cfs 14.815 af n=0.030 L=155.0' S=0.0148 '/ Capacity=2,128.99 cfs Outflow=101.27 cfs 14.807 af
Reach L186:	Avg. Flow Depth=2.82' Max Vel=3.21 fps Inflow=107.15 cfs 15.352 af n=0.030 L=340.0' S=0.0020 '/ Capacity=279.47 cfs Outflow=103.98 cfs 15.313 af
Reach L57:	Avg. Flow Depth=2.27' Max Vel=4.75 fps Inflow=27.29 cfs 7.754 af 36.0" Round Pipe n=0.014 L=446.0' S=0.0023 '/ Capacity=29.62 cfs Outflow=27.21 cfs 7.738 af
Reach L59:	Avg. Flow Depth=2.17' Max Vel=4.59 fps Inflow=104.04 cfs 14.469 af n=0.030 L=430.0' S=0.0053 '/ Capacity=196.83 cfs Outflow=99.53 cfs 14.435 af

3659-12003C-Existing Conditions POA 1-01

Type III 24-hr 10-Year Rainfall=4.60"

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Reach L65: Avg. Flow Depth=0.67' Max Vel=21.15 fps Inflow=22.46 cfs 7.179 af
30.0" Round Pipe n=0.014 L=104.0' S=0.1394 '/' Capacity=142.22 cfs Outflow=22.47 cfs 7.178 af

Reach L67: Avg. Flow Depth=1.03' Max Vel=10.08 fps Inflow=25.71 cfs 7.581 af
48.0" Round Pipe n=0.014 L=185.0' S=0.0178 '/' Capacity=178.14 cfs Outflow=25.70 cfs 7.577 af

Reach P1: Avg. Flow Depth=0.99' Max Vel=9.22 fps Inflow=109.60 cfs 16.159 af
n=0.030 L=46.0' S=0.0435 '/' Capacity=407.83 cfs Outflow=109.42 cfs 16.157 af

Pond 19P: Peak Elev=139.65' Storage=2,662 cf Inflow=46.96 cfs 4.052 af
Primary=14.02 cfs 2.976 af Secondary=32.17 cfs 1.070 af Outflow=46.19 cfs 4.047 af

Pond 20P: Peak Elev=167.70' Storage=2,838 cf Inflow=11.95 cfs 0.916 af
24.0" Round Culvert n=0.014 L=293.0' S=0.0819 '/' Outflow=12.67 cfs 0.912 af

Pond 22.4P: Peak Elev=75.64' Storage=77,366 cf Inflow=68.32 cfs 7.298 af
Primary=22.46 cfs 7.179 af Secondary=0.00 cfs 0.000 af Outflow=22.46 cfs 7.179 af

Total Runoff Area = 96.520 ac Runoff Volume = 17.471 af Average Runoff Depth = 2.17"
56.73% Pervious = 54.760 ac 43.27% Impervious = 41.760 ac

Summary for Subcatchment S19:

Runoff = 38.41 cfs @ 12.17 hrs, Volume= 3.139 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 8.450	43	
* 3.360	65	
* 9.300	76	
* 4.680	98	
25.790	68	Weighted Average
21.110		81.85% Pervious Area
4.680		18.15% Impervious Area

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

Summary for Subcatchment S20:

Runoff = 11.95 cfs @ 12.07 hrs, Volume= 0.916 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 2.640	98	
2.640		100.00% Impervious Area

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

Summary for Subcatchment S21:

Runoff = 13.06 cfs @ 12.17 hrs, Volume= 1.061 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.950	49	
* 3.420	98	
5.370	80	Weighted Average
1.950		36.31% Pervious Area
3.420		63.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5					
0.6	640	0.0600	19.11	60.03	Direct Entry, Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
12.1	640	Total			

Summary for Subcatchment S21.1:

Runoff = 1.77 cfs @ 12.18 hrs, Volume= 0.156 af, Depth> 1.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.270	49	
* 0.460	98	
1.730	62	Weighted Average
1.270		73.41% Pervious Area
0.460		26.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	170	0.0865	4.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	140	0.1015	28.84	141.57	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
11.6	410	Total			

Summary for Subcatchment S21.2.1:

Runoff = 0.48 cfs @ 12.07 hrs, Volume= 0.037 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.107	98	
0.107		100.00% Impervious Area

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

Summary for Subcatchment S21.2.2:

Runoff = 0.36 cfs @ 12.29 hrs, Volume= 0.048 af, Depth> 0.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.090	49	
* 0.043	98	
1.133	51	Weighted Average
1.090		96.20% Pervious Area
0.043		3.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					Direct Entry,
0.4	90	0.0070	4.11	3.23	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
13.2	90	Total			

Summary for Subcatchment S22:

Runoff = 12.90 cfs @ 12.07 hrs, Volume= 0.888 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.870	69	
* 2.360	98	
3.230	90	Weighted Average
0.870		26.93% Pervious Area
2.360		73.07% Impervious Area

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

Summary for Subcatchment S22.1:

Runoff = 11.46 cfs @ 12.07 hrs, Volume= 0.778 af, Depth> 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
* 1.050	69	
* 1.960	98	
3.010	88	Weighted Average
1.050		34.88% Pervious Area
1.960		65.12% Impervious Area

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

Summary for Subcatchment S22.2:

Runoff = 9.06 cfs @ 12.07 hrs, Volume= 0.629 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.530	69	
* 1.690	98	
2.220	91	Weighted Average
0.530		23.87% Pervious Area
1.690		76.13% Impervious Area

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

Summary for Subcatchment S22.3:

Runoff = 4.69 cfs @ 12.07 hrs, Volume= 0.326 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.280	69	
* 0.870	98	
1.150	91	Weighted Average
0.280		24.35% Pervious Area
0.870		75.65% Impervious Area

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

Summary for Subcatchment S22.4:

Runoff = 5.48 cfs @ 12.09 hrs, Volume= 0.400 af, Depth> 0.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.100	69	
* 4.870	60	
4.970	60	Weighted Average
4.970		100.00% Pervious Area

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

Summary for Subcatchment S23.1:

Runoff = 4.17 cfs @ 12.27 hrs, Volume= 0.403 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.350	49	
* 1.320	98	
2.670	73	Weighted Average
1.350		50.56% Pervious Area
1.320		49.44% Impervious Area

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

Summary for Subcatchment S23.2:

Runoff = 1.99 cfs @ 12.21 hrs, Volume= 0.176 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.890	49	
* 0.560	98	
1.450	68	Weighted Average
0.890		61.38% Pervious Area
0.560		38.62% Impervious Area

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Type III 24-hr 10-Year Rainfall=4.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.1825	0.19		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
3.2	360	0.0139	1.90		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.7	390	0.0374	3.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.5	105	0.0050	3.47	2.73	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
14.3	955	Total			

Summary for Subcatchment S24:

Runoff = 11.81 cfs @ 12.07 hrs, Volume= 0.872 af, Depth> 3.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.110	49	
* 2.550	98	
2.660	96	Weighted Average
0.110		4.14% Pervious Area
2.550		95.86% Impervious Area

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

Summary for Subcatchment S24.1:

Runoff = 6.06 cfs @ 12.17 hrs, Volume= 0.494 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.760	49	
* 1.570	98	
2.330	82	Weighted Average
0.760		32.62% Pervious Area
1.570		67.38% Impervious Area

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Type III 24-hr 10-Year Rainfall=4.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					
3.7	1,260	0.0040	5.73	28.10	Direct Entry, Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
12.1	1,260	Total			

Summary for Subcatchment S24.2:

Runoff = 0.31 cfs @ 12.30 hrs, Volume= 0.046 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.300	49	
1.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					
3.7	1,260	0.0040	5.73	28.10	Direct Entry, Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
9.8	1,260	Total			

Summary for Subcatchment S25:

Runoff = 8.19 cfs @ 12.07 hrs, Volume= 0.564 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.350	49	
* 1.700	98	
2.050	90	Weighted Average
0.350		17.07% Pervious Area
1.700		82.93% Impervious Area

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

Summary for Subcatchment S26:

Runoff = 3.37 cfs @ 12.08 hrs, Volume= 0.226 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.040	49	
* 0.730	98	
1.770	69	Weighted Average
1.040		58.76% Pervious Area
0.730		41.24% Impervious Area

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

Summary for Subcatchment S27:

Runoff = 16.13 cfs @ 12.07 hrs, Volume= 1.173 af, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.250	49	
* 3.430	98	
3.680	95	Weighted Average
0.250		6.79% Pervious Area
3.430		93.21% Impervious Area

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

Summary for Subcatchment S28:

Runoff = 35.34 cfs @ 12.07 hrs, Volume= 2.433 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 2.120	69	
* 0.560	89	
* 6.170	98	
8.850	90	Weighted Average
2.680		30.28% Pervious Area
6.170		69.72% Impervious Area

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

Summary for Subcatchment S29:

Runoff = 4.32 cfs @ 12.13 hrs, Volume= 0.339 af, Depth> 1.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 3.360	60	
* 0.290	69	
* 0.110	98	
3.760	62	Weighted Average
3.650		97.07% Pervious Area
0.110		2.93% Impervious Area

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

Summary for Subcatchment S30:

Runoff = 6.02 cfs @ 12.27 hrs, Volume= 0.585 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 2.980	49	
* 1.840	98	
4.820	68	Weighted Average
2.980		61.83% Pervious Area
1.840		38.17% Impervious Area

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

Summary for Subcatchment S31:

Runoff = 4.27 cfs @ 12.22 hrs, Volume= 0.392 af, Depth> 1.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
* 3.190	60	
* 0.730	79	
3.920	64	Weighted Average
3.920		100.00% Pervious Area

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

Summary for Subcatchment S31.1:

Runoff = 2.83 cfs @ 12.13 hrs, Volume= 0.216 af, Depth> 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.070	60	
* 0.440	79	
* 0.060	89	
* 0.350	98	
0.920	85	Weighted Average
0.570		61.96% Pervious Area
0.350		38.04% Impervious Area

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

Summary for Subcatchment S32:

Runoff = 4.92 cfs @ 12.08 hrs, Volume= 0.329 af, Depth> 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.720	69	
* 0.730	98	
1.450	84	Weighted Average
0.720		49.66% Pervious Area
0.730		50.34% Impervious Area

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

Summary for Subcatchment S32.1:

Runoff = 11.54 cfs @ 12.07 hrs, Volume= 0.818 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.250	49	
* 2.470	98	
2.720	93	Weighted Average
0.250		9.19% Pervious Area
2.470		90.81% Impervious Area

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

Summary for Subcatchment S33:

Runoff = 0.22 cfs @ 12.15 hrs, Volume= 0.029 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.820	49	
0.820		100.00% Pervious Area

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

Summary for Reach 1R: Point of Analysis 1

Inflow Area = 96.520 ac, 43.27% Impervious, Inflow Depth > 2.01" for 10-Year event
Inflow = 109.42 cfs @ 12.22 hrs, Volume= 16.157 af
Outflow = 109.42 cfs @ 12.22 hrs, Volume= 16.157 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R:

Inflow = 32.17 cfs @ 12.16 hrs, Volume= 1.070 af
Outflow = 32.17 cfs @ 12.16 hrs, Volume= 1.070 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

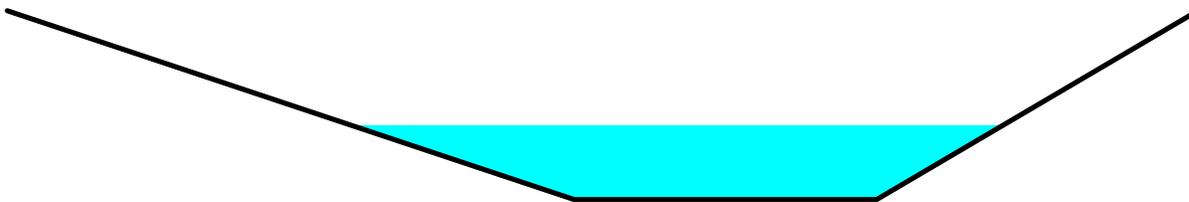
Summary for Reach L150:

Inflow Area = 86.690 ac, 44.08% Impervious, Inflow Depth > 2.00" for 10-Year event
Inflow = 99.53 cfs @ 12.14 hrs, Volume= 14.435 af
Outflow = 98.48 cfs @ 12.16 hrs, Volume= 14.423 af, Atten= 1%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.00 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 1.5 min

Peak Storage= 3,391 cf @ 12.15 hrs
Average Depth at Peak Storage= 1.97'
Bank-Full Depth= 5.00' Flow Area= 98.8 sf, Capacity= 654.46 cfs

8.00' x 5.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 1.7 '/' Top Width= 31.50'
Length= 136.0' Slope= 0.0043 '/'
Inlet Invert= 48.58', Outlet Invert= 48.00'



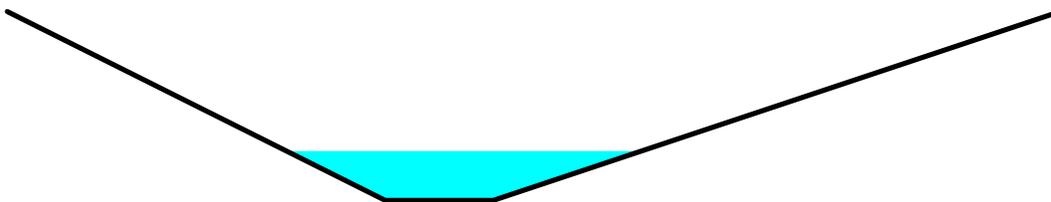
Summary for Reach L151:

Inflow Area = 90.610 ac, 42.17% Impervious, Inflow Depth > 1.96" for 10-Year event
Inflow = 102.34 cfs @ 12.16 hrs, Volume= 14.815 af
Outflow = 101.27 cfs @ 12.17 hrs, Volume= 14.807 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.52 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.65 fps, Avg. Travel Time= 1.0 min

Peak Storage= 2,429 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.83'
Bank-Full Depth= 7.00' Flow Area= 150.5 sf, Capacity= 2,128.99 cfs

4.00' x 7.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 3.0 '/' Top Width= 39.00'
Length= 155.0' Slope= 0.0148 '/'
Inlet Invert= 48.00', Outlet Invert= 45.71'



Summary for Reach L186:

Inflow Area = 92.980 ac, 42.26% Impervious, Inflow Depth > 1.98" for 10-Year event
Inflow = 107.15 cfs @ 12.17 hrs, Volume= 15.352 af
Outflow = 103.98 cfs @ 12.22 hrs, Volume= 15.313 af, Atten= 3%, Lag= 3.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.21 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.25 fps, Avg. Travel Time= 4.6 min

Peak Storage= 11,157 cf @ 12.19 hrs
Average Depth at Peak Storage= 2.82'
Bank-Full Depth= 4.50' Flow Area= 67.5 sf, Capacity= 279.47 cfs

6.00' x 4.50' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 24.00'
Length= 340.0' Slope= 0.0020 '/'
Inlet Invert= 45.71', Outlet Invert= 45.04'



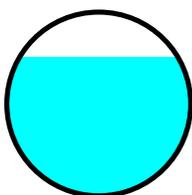
Summary for Reach L57:

Inflow Area = 55.470 ac, 36.25% Impervious, Inflow Depth > 1.68" for 10-Year event
Inflow = 27.29 cfs @ 12.32 hrs, Volume= 7.754 af
Outflow = 27.21 cfs @ 12.38 hrs, Volume= 7.738 af, Atten= 0%, Lag= 3.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.75 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 2.33 fps, Avg. Travel Time= 3.2 min

Peak Storage= 2,556 cf @ 12.35 hrs
Average Depth at Peak Storage= 2.27'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 29.62 cfs

36.0" Round Pipe
n= 0.014
Length= 446.0' Slope= 0.0023 '/'
Inlet Invert= 47.30', Outlet Invert= 46.28'



Summary for Reach L59:

Inflow Area = 86.690 ac, 44.08% Impervious, Inflow Depth > 2.00" for 10-Year event
Inflow = 104.04 cfs @ 12.09 hrs, Volume= 14.469 af
Outflow = 99.53 cfs @ 12.14 hrs, Volume= 14.435 af, Atten= 4%, Lag= 3.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.59 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.71 fps, Avg. Travel Time= 4.2 min

Peak Storage= 9,648 cf @ 12.11 hrs
Average Depth at Peak Storage= 2.17'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 196.83 cfs

6.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 18.00'
Length= 430.0' Slope= 0.0053 '/'
Inlet Invert= 48.58', Outlet Invert= 46.28'



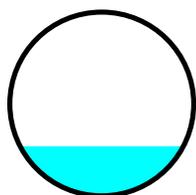
Summary for Reach L65:

Inflow Area = 51.350 ac, 35.50% Impervious, Inflow Depth > 1.68" for 10-Year event
Inflow = 22.46 cfs @ 12.56 hrs, Volume= 7.179 af
Outflow = 22.47 cfs @ 12.56 hrs, Volume= 7.178 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 21.15 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 10.25 fps, Avg. Travel Time= 0.2 min

Peak Storage= 110 cf @ 12.56 hrs
Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 142.22 cfs

30.0" Round Pipe
n= 0.014
Length= 104.0' Slope= 0.1394 '/'
Inlet Invert= 71.00', Outlet Invert= 56.50'



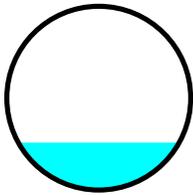
Summary for Reach L67:

Inflow Area = 54.020 ac, 36.19% Impervious, Inflow Depth > 1.68" for 10-Year event
Inflow = 25.71 cfs @ 12.36 hrs, Volume= 7.581 af
Outflow = 25.70 cfs @ 12.36 hrs, Volume= 7.577 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.08 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 4.74 fps, Avg. Travel Time= 0.7 min

Peak Storage= 472 cf @ 12.36 hrs
Average Depth at Peak Storage= 1.03'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 178.14 cfs

48.0" Round Pipe
n= 0.014
Length= 185.0' Slope= 0.0178 '/
Inlet Invert= 50.70', Outlet Invert= 47.40'



Summary for Reach P1:

Inflow Area = 96.520 ac, 43.27% Impervious, Inflow Depth > 2.01" for 10-Year event
Inflow = 109.60 cfs @ 12.22 hrs, Volume= 16.159 af
Outflow = 109.42 cfs @ 12.22 hrs, Volume= 16.157 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.22 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.01 fps, Avg. Travel Time= 0.3 min

Peak Storage= 545 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.99'
Bank-Full Depth= 2.33' Flow Area= 28.0 sf, Capacity= 407.83 cfs

12.00' x 2.33' deep channel, n= 0.030
Length= 46.0' Slope= 0.0435 '/
Inlet Invert= 43.00', Outlet Invert= 41.00'



Summary for Pond 19P:

Inflow Area = 28.430 ac, 25.75% Impervious, Inflow Depth > 1.71" for 10-Year event
 Inflow = 46.96 cfs @ 12.15 hrs, Volume= 4.052 af
 Outflow = 46.19 cfs @ 12.16 hrs, Volume= 4.047 af, Atten= 2%, Lag= 0.6 min
 Primary = 14.02 cfs @ 12.16 hrs, Volume= 2.976 af
 Secondary = 32.17 cfs @ 12.16 hrs, Volume= 1.070 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 139.65' @ 12.16 hrs Surf.Area= 2,709 sf Storage= 2,662 cf

Plug-Flow detention time= 2.1 min calculated for 4.047 af (100% of inflow)
 Center-of-Mass det. time= 1.6 min (801.1 - 799.4)

Volume	Invert	Avail.Storage	Storage Description
#1	137.80'	30,987 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.80	174	0	0
138.30	860	259	259
138.80	1,546	602	860
139.30	2,232	945	1,805
139.80	2,919	1,288	3,092
140.30	3,605	1,631	4,723
140.80	4,291	1,974	6,697
141.30	4,977	2,317	9,014
141.80	5,663	2,660	11,674
148.00	567	19,313	30,987

Device	Routing	Invert	Outlet Devices
#1	Primary	137.80'	24.0" Round Culvert L= 612.0' Ke= 0.500 Inlet / Outlet Invert= 137.80' / 105.30' S= 0.0531 '/' Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	139.00'	23.0' long x 18.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=13.96 cfs @ 12.16 hrs HW=139.64' (Free Discharge)
 ↖1=Culvert (Inlet Controls 13.96 cfs @ 4.62 fps)

Secondary OutFlow Max=31.65 cfs @ 12.16 hrs HW=139.64' (Free Discharge)
 ↖2=Broad-Crested Rectangular Weir (Weir Controls 31.65 cfs @ 2.15 fps)

Summary for Pond 20P:

Inflow Area = 2.640 ac, 100.00% Impervious, Inflow Depth > 4.16" for 10-Year event
 Inflow = 11.95 cfs @ 12.07 hrs, Volume= 0.916 af
 Outflow = 12.67 cfs @ 12.06 hrs, Volume= 0.912 af, Atten= 0%, Lag= 0.0 min
 Primary = 12.67 cfs @ 12.06 hrs, Volume= 0.912 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

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Type III 24-hr 10-Year Rainfall=4.60"

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Peak Elev= 167.70' @ 12.06 hrs Surf.Area= 4,356 sf Storage= 2,838 cf

Plug-Flow detention time= 12.0 min calculated for 0.912 af (100% of inflow)

Center-of-Mass det. time= 10.3 min (731.5 - 721.2)

Volume	Invert	Avail.Storage	Storage Description
#1	166.00'	2,838 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
166.00	0	0	0
166.25	2,875	359	359
166.50	3,790	833	1,193
166.75	4,225	1,002	2,194
166.90	4,356	644	2,838

Device	Routing	Invert	Outlet Devices
#1	Primary	166.00'	24.0" Round Culvert L= 293.0' Ke= 0.500 Inlet / Outlet Invert= 166.00' / 142.00' S= 0.0819 '/' Cc= 0.900 n= 0.014, Flow Area= 3.14 sf

Primary OutFlow Max=12.10 cfs @ 12.06 hrs HW=167.65' (Free Discharge)

↑1=Culvert (Inlet Controls 12.10 cfs @ 4.37 fps)

Summary for Pond 22.4P:

Inflow Area = 51.350 ac, 35.50% Impervious, Inflow Depth > 1.71" for 10-Year event
 Inflow = 68.32 cfs @ 12.09 hrs, Volume= 7.298 af
 Outflow = 22.46 cfs @ 12.56 hrs, Volume= 7.179 af, Atten= 67%, Lag= 28.2 min
 Primary = 22.46 cfs @ 12.56 hrs, Volume= 7.179 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 75.64' @ 12.56 hrs Surf.Area= 28,932 sf Storage= 77,366 cf

Plug-Flow detention time= 40.1 min calculated for 7.161 af (98% of inflow)

Center-of-Mass det. time= 33.8 min (832.3 - 798.4)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	233,786 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type III 24-hr 10-Year Rainfall=4.60"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	5,227	0	0
71.25	5,793	1,378	1,378
71.50	6,360	1,519	2,897
71.75	6,926	1,661	4,557
72.00	7,492	1,802	6,360
72.25	9,295	2,098	8,458
72.50	11,097	2,549	11,007
72.75	12,899	3,000	14,007
73.00	14,702	3,450	17,457
73.25	16,504	3,901	21,357
73.50	18,306	4,351	25,709
73.75	20,108	4,802	30,510
74.00	21,911	5,252	35,763
74.25	22,983	5,612	41,375
74.50	24,056	5,880	47,254
74.75	25,129	6,148	53,403
75.00	26,201	6,416	59,819
75.25	27,274	6,684	66,503
75.50	28,347	6,953	73,456
75.75	29,419	7,221	80,677
76.00	30,492	7,489	88,165
76.25	31,478	7,746	95,912
76.50	32,463	7,993	103,904
76.75	33,449	8,239	112,143
77.00	34,434	8,485	120,629
77.25	35,420	8,732	129,360
77.50	36,405	8,978	138,339
77.75	37,391	9,225	147,563
78.00	38,376	9,471	157,034
79.00	38,376	38,376	195,410
80.00	38,376	38,376	233,786

Device	Routing	Invert	Outlet Devices
#1	Secondary	79.00'	12.0' long x 37.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	71.00'	21.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 71.00' / 70.99' S= 0.0100 1/ S= 0.0100 Cc= 0.900 n= 0.005, Flow Area= 2.41 sf

Primary OutFlow Max=22.46 cfs @ 12.56 hrs HW=75.63' (Free Discharge)

↑**2=Culvert** (Inlet Controls 22.46 cfs @ 9.34 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment S19:** Runoff Area=25.790 ac 18.15% Impervious Runoff Depth>2.06"
Tc=11.4 min CN=68 Runoff=55.19 cfs 4.430 af
- Subcatchment S20:** Runoff Area=2.640 ac 100.00% Impervious Runoff Depth>5.02"
Tc=5.0 min CN=98 Runoff=14.31 cfs 1.105 af
- Subcatchment S21:** Runoff Area=5.370 ac 63.69% Impervious Runoff Depth>3.11"
Flow Length=640' Slope=0.0600 '/ Tc=12.1 min CN=80 Runoff=17.07 cfs 1.393 af
- Subcatchment S21.1:** Runoff Area=1.730 ac 26.59% Impervious Runoff Depth>1.60"
Flow Length=410' Tc=11.6 min CN=62 Runoff=2.76 cfs 0.230 af
- Subcatchment S21.2.1:** Runoff Area=0.107 ac 100.00% Impervious Runoff Depth>5.02"
Tc=5.0 min CN=98 Runoff=0.58 cfs 0.045 af
- Subcatchment S21.2.2:** Runoff Area=1.133 ac 3.80% Impervious Runoff Depth>0.86"
Flow Length=90' Slope=0.0070 '/ Tc=13.2 min CN=51 Runoff=0.75 cfs 0.081 af
- Subcatchment S22:** Runoff Area=3.230 ac 73.07% Impervious Runoff Depth>4.13"
Tc=5.0 min CN=90 Runoff=15.92 cfs 1.111 af
- Subcatchment S22.1:** Runoff Area=3.010 ac 65.12% Impervious Runoff Depth>3.92"
Tc=5.0 min CN=88 Runoff=14.29 cfs 0.982 af
- Subcatchment S22.2:** Runoff Area=2.220 ac 76.13% Impervious Runoff Depth>4.23"
Tc=5.0 min CN=91 Runoff=11.13 cfs 0.783 af
- Subcatchment S22.3:** Runoff Area=1.150 ac 75.65% Impervious Runoff Depth>4.23"
Tc=5.0 min CN=91 Runoff=5.77 cfs 0.406 af
- Subcatchment S22.4:** Runoff Area=4.970 ac 0.00% Impervious Runoff Depth>1.46"
Tc=5.0 min CN=60 Runoff=8.71 cfs 0.603 af
- Subcatchment S23.1:** Runoff Area=2.670 ac 49.44% Impervious Runoff Depth>2.47"
Tc=19.0 min CN=73 Runoff=5.73 cfs 0.550 af
- Subcatchment S23.2:** Runoff Area=1.450 ac 38.62% Impervious Runoff Depth>2.06"
Flow Length=955' Tc=14.3 min CN=68 Runoff=2.86 cfs 0.249 af
- Subcatchment S24:** Runoff Area=2.660 ac 95.86% Impervious Runoff Depth>4.79"
Tc=5.0 min CN=96 Runoff=14.22 cfs 1.062 af
- Subcatchment S24.1:** Runoff Area=2.330 ac 67.38% Impervious Runoff Depth>3.31"
Flow Length=1,260' Slope=0.0040 '/ Tc=12.1 min CN=82 Runoff=7.82 cfs 0.642 af
- Subcatchment S24.2:** Runoff Area=1.300 ac 0.00% Impervious Runoff Depth>0.74"
Flow Length=1,260' Slope=0.0040 '/ Tc=9.8 min CN=49 Runoff=0.75 cfs 0.080 af

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Type III 24-hr 25-Year Rainfall=5.50"

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Subcatchment S25:	Runoff Area=2.050 ac 82.93% Impervious Runoff Depth>4.13" Tc=5.0 min CN=90 Runoff=10.11 cfs 0.705 af
Subcatchment S26:	Runoff Area=1.770 ac 41.24% Impervious Runoff Depth>2.15" Tc=5.0 min CN=69 Runoff=4.78 cfs 0.317 af
Subcatchment S27:	Runoff Area=3.680 ac 93.21% Impervious Runoff Depth>4.68" Tc=5.0 min CN=95 Runoff=19.48 cfs 1.434 af
Subcatchment S28:	Runoff Area=8.850 ac 69.72% Impervious Runoff Depth>4.13" Tc=5.0 min CN=90 Runoff=43.63 cfs 3.044 af
Subcatchment S29:	Runoff Area=3.760 ac 2.93% Impervious Runoff Depth>1.60" Tc=7.8 min CN=62 Runoff=6.76 cfs 0.501 af
Subcatchment S30:	Runoff Area=4.820 ac 38.17% Impervious Runoff Depth>2.06" Tc=18.3 min CN=68 Runoff=8.64 cfs 0.826 af
Subcatchment S31:	Runoff Area=3.920 ac 0.00% Impervious Runoff Depth>1.74" Tc=14.4 min CN=64 Runoff=6.43 cfs 0.570 af
Subcatchment S31.1:	Runoff Area=0.920 ac 38.04% Impervious Runoff Depth>3.60" Tc=9.2 min CN=85 Runoff=3.59 cfs 0.276 af
Subcatchment S32:	Runoff Area=1.450 ac 50.34% Impervious Runoff Depth>3.51" Tc=5.0 min CN=84 Runoff=6.31 cfs 0.424 af
Subcatchment S32.1:	Runoff Area=2.720 ac 90.81% Impervious Runoff Depth>4.45" Tc=5.0 min CN=93 Runoff=14.05 cfs 1.009 af
Subcatchment S33:	Runoff Area=0.820 ac 0.00% Impervious Runoff Depth>0.74" Tc=5.0 min CN=49 Runoff=0.57 cfs 0.051 af
Reach 1R: Point of Analysis 1	Inflow=139.08 cfs 20.848 af Outflow=139.08 cfs 20.848 af
Reach 2R:	Inflow=48.88 cfs 1.776 af Outflow=48.88 cfs 1.776 af
Reach L150:	Avg. Flow Depth=2.22' Max Vel=4.26 fps Inflow=124.74 cfs 18.591 af n=0.030 L=136.0' S=0.0043 '/' Capacity=654.46 cfs Outflow=123.64 cfs 18.576 af
Reach L151:	Avg. Flow Depth=2.05' Max Vel=6.94 fps Inflow=129.48 cfs 19.146 af n=0.030 L=155.0' S=0.0148 '/' Capacity=2,128.99 cfs Outflow=128.35 cfs 19.136 af
Reach L186:	Avg. Flow Depth=3.17' Max Vel=3.41 fps Inflow=135.94 cfs 19.837 af n=0.030 L=340.0' S=0.0020 '/' Capacity=279.47 cfs Outflow=132.06 cfs 19.791 af
Reach L57:	Avg. Flow Depth=2.73' Max Vel=4.78 fps Inflow=31.85 cfs 10.038 af 36.0" Round Pipe n=0.014 L=446.0' S=0.0023 '/' Capacity=29.62 cfs Outflow=31.65 cfs 10.019 af
Reach L59:	Avg. Flow Depth=2.44' Max Vel=4.89 fps Inflow=130.33 cfs 18.630 af n=0.030 L=430.0' S=0.0053 '/' Capacity=196.83 cfs Outflow=124.74 cfs 18.591 af

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Type III 24-hr 25-Year Rainfall=5.50"

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Reach L65: Avg. Flow Depth=0.71' Max Vel=21.81 fps Inflow=25.01 cfs 9.244 af
30.0" Round Pipe n=0.014 L=104.0' S=0.1394 '/' Capacity=142.22 cfs Outflow=25.01 cfs 9.243 af

Reach L67: Avg. Flow Depth=1.10' Max Vel=10.49 fps Inflow=29.51 cfs 9.793 af
48.0" Round Pipe n=0.014 L=185.0' S=0.0178 '/' Capacity=178.14 cfs Outflow=29.50 cfs 9.789 af

Reach P1: Avg. Flow Depth=1.15' Max Vel=10.08 fps Inflow=139.27 cfs 20.851 af
n=0.030 L=46.0' S=0.0435 '/' Capacity=407.83 cfs Outflow=139.08 cfs 20.848 af

Pond 19P: Peak Elev=139.87' Storage=3,287 cf Inflow=64.53 cfs 5.531 af
Primary=15.61 cfs 3.749 af Secondary=48.88 cfs 1.776 af Outflow=64.49 cfs 5.525 af

Pond 20P: Peak Elev=167.88' Storage=2,838 cf Inflow=14.31 cfs 1.105 af
24.0" Round Culvert n=0.014 L=293.0' S=0.0819 '/' Outflow=14.34 cfs 1.101 af

Pond 22.4P: Peak Elev=76.54' Storage=105,210 cf Inflow=86.42 cfs 9.383 af
Primary=25.01 cfs 9.244 af Secondary=0.00 cfs 0.000 af Outflow=25.01 cfs 9.244 af

Total Runoff Area = 96.520 ac Runoff Volume = 22.910 af Average Runoff Depth = 2.85"
56.73% Pervious = 54.760 ac 43.27% Impervious = 41.760 ac

Summary for Subcatchment S19:

Runoff = 55.19 cfs @ 12.17 hrs, Volume= 4.430 af, Depth> 2.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 8.450	43	
* 3.360	65	
* 9.300	76	
* 4.680	98	
25.790	68	Weighted Average
21.110		81.85% Pervious Area
4.680		18.15% Impervious Area

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

Summary for Subcatchment S20:

Runoff = 14.31 cfs @ 12.07 hrs, Volume= 1.105 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 2.640	98	
2.640		100.00% Impervious Area

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

Summary for Subcatchment S21:

Runoff = 17.07 cfs @ 12.17 hrs, Volume= 1.393 af, Depth> 3.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.950	49	
* 3.420	98	
5.370	80	Weighted Average
1.950		36.31% Pervious Area
3.420		63.69% Impervious Area

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Type III 24-hr 25-Year Rainfall=5.50"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5					
0.6	640	0.0600	19.11	60.03	Direct Entry, Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
12.1	640	Total			

Summary for Subcatchment S21.1:

Runoff = 2.76 cfs @ 12.17 hrs, Volume= 0.230 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.270	49	
* 0.460	98	
1.730	62	Weighted Average
1.270		73.41% Pervious Area
0.460		26.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	170	0.0865	4.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	140	0.1015	28.84	141.57	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
11.6	410	Total			

Summary for Subcatchment S21.2.1:

Runoff = 0.58 cfs @ 12.07 hrs, Volume= 0.045 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.107	98	
0.107		100.00% Impervious Area

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

Summary for Subcatchment S21.2.2:

Runoff = 0.75 cfs @ 12.23 hrs, Volume= 0.081 af, Depth> 0.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.090	49	
* 0.043	98	
1.133	51	Weighted Average
1.090		96.20% Pervious Area
0.043		3.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					Direct Entry,
0.4	90	0.0070	4.11	3.23	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
13.2	90	Total			

Summary for Subcatchment S22:

Runoff = 15.92 cfs @ 12.07 hrs, Volume= 1.111 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.870	69	
* 2.360	98	
3.230	90	Weighted Average
0.870		26.93% Pervious Area
2.360		73.07% Impervious Area

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

Summary for Subcatchment S22.1:

Runoff = 14.29 cfs @ 12.07 hrs, Volume= 0.982 af, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (ac)	CN	Description
* 1.050	69	
* 1.960	98	
3.010	88	Weighted Average
1.050		34.88% Pervious Area
1.960		65.12% Impervious Area

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

Summary for Subcatchment S22.2:

Runoff = 11.13 cfs @ 12.07 hrs, Volume= 0.783 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.530	69	
* 1.690	98	
2.220	91	Weighted Average
0.530		23.87% Pervious Area
1.690		76.13% Impervious Area

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

Summary for Subcatchment S22.3:

Runoff = 5.77 cfs @ 12.07 hrs, Volume= 0.406 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.280	69	
* 0.870	98	
1.150	91	Weighted Average
0.280		24.35% Pervious Area
0.870		75.65% Impervious Area

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

Summary for Subcatchment S22.4:

Runoff = 8.71 cfs @ 12.09 hrs, Volume= 0.603 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.100	69	
* 4.870	60	
4.970	60	Weighted Average
4.970		100.00% Pervious Area

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

Summary for Subcatchment S23.1:

Runoff = 5.73 cfs @ 12.27 hrs, Volume= 0.550 af, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.350	49	
* 1.320	98	
2.670	73	Weighted Average
1.350		50.56% Pervious Area
1.320		49.44% Impervious Area

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

Summary for Subcatchment S23.2:

Runoff = 2.86 cfs @ 12.21 hrs, Volume= 0.249 af, Depth> 2.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.890	49	
* 0.560	98	
1.450	68	Weighted Average
0.890		61.38% Pervious Area
0.560		38.62% Impervious Area

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Type III 24-hr 25-Year Rainfall=5.50"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.1825	0.19		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
3.2	360	0.0139	1.90		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.7	390	0.0374	3.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.5	105	0.0050	3.47	2.73	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
14.3	955	Total			

Summary for Subcatchment S24:

Runoff = 14.22 cfs @ 12.07 hrs, Volume= 1.062 af, Depth> 4.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.110	49	
* 2.550	98	
2.660	96	Weighted Average
0.110		4.14% Pervious Area
2.550		95.86% Impervious Area

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

Summary for Subcatchment S24.1:

Runoff = 7.82 cfs @ 12.17 hrs, Volume= 0.642 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.760	49	
* 1.570	98	
2.330	82	Weighted Average
0.760		32.62% Pervious Area
1.570		67.38% Impervious Area

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Type III 24-hr 25-Year Rainfall=5.50"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					
3.7	1,260	0.0040	5.73	28.10	Direct Entry, Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
12.1	1,260	Total			

Summary for Subcatchment S24.2:

Runoff = 0.75 cfs @ 12.19 hrs, Volume= 0.080 af, Depth> 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.300	49	
1.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					
3.7	1,260	0.0040	5.73	28.10	Direct Entry, Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
9.8	1,260	Total			

Summary for Subcatchment S25:

Runoff = 10.11 cfs @ 12.07 hrs, Volume= 0.705 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.350	49	
* 1.700	98	
2.050	90	Weighted Average
0.350		17.07% Pervious Area
1.700		82.93% Impervious Area

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

Summary for Subcatchment S26:

Runoff = 4.78 cfs @ 12.08 hrs, Volume= 0.317 af, Depth> 2.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.040	49	
* 0.730	98	
1.770	69	Weighted Average
1.040		58.76% Pervious Area
0.730		41.24% Impervious Area

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

Summary for Subcatchment S27:

Runoff = 19.48 cfs @ 12.07 hrs, Volume= 1.434 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.250	49	
* 3.430	98	
3.680	95	Weighted Average
0.250		6.79% Pervious Area
3.430		93.21% Impervious Area

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

Summary for Subcatchment S28:

Runoff = 43.63 cfs @ 12.07 hrs, Volume= 3.044 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 2.120	69	
* 0.560	89	
* 6.170	98	
8.850	90	Weighted Average
2.680		30.28% Pervious Area
6.170		69.72% Impervious Area

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

Summary for Subcatchment S29:

Runoff = 6.76 cfs @ 12.12 hrs, Volume= 0.501 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 3.360	60	
* 0.290	69	
* 0.110	98	
3.760	62	Weighted Average
3.650		97.07% Pervious Area
0.110		2.93% Impervious Area

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

Summary for Subcatchment S30:

Runoff = 8.64 cfs @ 12.27 hrs, Volume= 0.826 af, Depth> 2.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 2.980	49	
* 1.840	98	
4.820	68	Weighted Average
2.980		61.83% Pervious Area
1.840		38.17% Impervious Area

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

Summary for Subcatchment S31:

Runoff = 6.43 cfs @ 12.21 hrs, Volume= 0.570 af, Depth> 1.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (ac)	CN	Description
* 3.190	60	
* 0.730	79	
3.920	64	Weighted Average
3.920		100.00% Pervious Area

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

Summary for Subcatchment S31.1:

Runoff = 3.59 cfs @ 12.13 hrs, Volume= 0.276 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.070	60	
* 0.440	79	
* 0.060	89	
* 0.350	98	
0.920	85	Weighted Average
0.570		61.96% Pervious Area
0.350		38.04% Impervious Area

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

Summary for Subcatchment S32:

Runoff = 6.31 cfs @ 12.07 hrs, Volume= 0.424 af, Depth> 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.720	69	
* 0.730	98	
1.450	84	Weighted Average
0.720		49.66% Pervious Area
0.730		50.34% Impervious Area

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

Summary for Subcatchment S32.1:

Runoff = 14.05 cfs @ 12.07 hrs, Volume= 1.009 af, Depth> 4.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.250	49	
* 2.470	98	
2.720	93	Weighted Average
0.250		9.19% Pervious Area
2.470		90.81% Impervious Area

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

Summary for Subcatchment S33:

Runoff = 0.57 cfs @ 12.11 hrs, Volume= 0.051 af, Depth> 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.820	49	
0.820		100.00% Pervious Area

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

Summary for Reach 1R: Point of Analysis 1

Inflow Area = 96.520 ac, 43.27% Impervious, Inflow Depth > 2.59" for 25-Year event
Inflow = 139.08 cfs @ 12.21 hrs, Volume= 20.848 af
Outflow = 139.08 cfs @ 12.21 hrs, Volume= 20.848 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R:

Inflow = 48.88 cfs @ 12.16 hrs, Volume= 1.776 af
Outflow = 48.88 cfs @ 12.16 hrs, Volume= 1.776 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

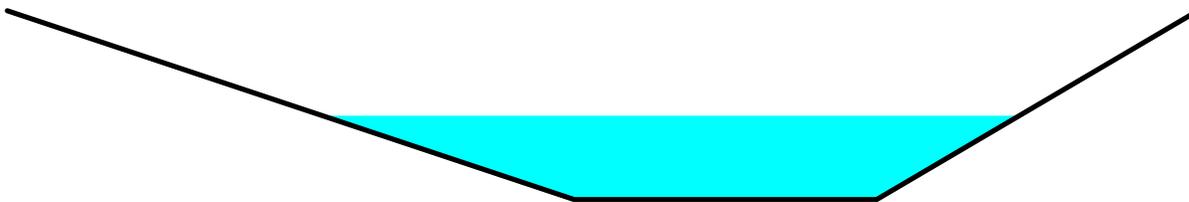
Summary for Reach L150:

Inflow Area = 86.690 ac, 44.08% Impervious, Inflow Depth > 2.57" for 25-Year event
Inflow = 124.74 cfs @ 12.14 hrs, Volume= 18.591 af
Outflow = 123.64 cfs @ 12.15 hrs, Volume= 18.576 af, Atten= 1%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.26 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.62 fps, Avg. Travel Time= 1.4 min

Peak Storage= 3,990 cf @ 12.14 hrs
Average Depth at Peak Storage= 2.22'
Bank-Full Depth= 5.00' Flow Area= 98.8 sf, Capacity= 654.46 cfs

8.00' x 5.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 1.7 '/' Top Width= 31.50'
Length= 136.0' Slope= 0.0043 '/'
Inlet Invert= 48.58', Outlet Invert= 48.00'



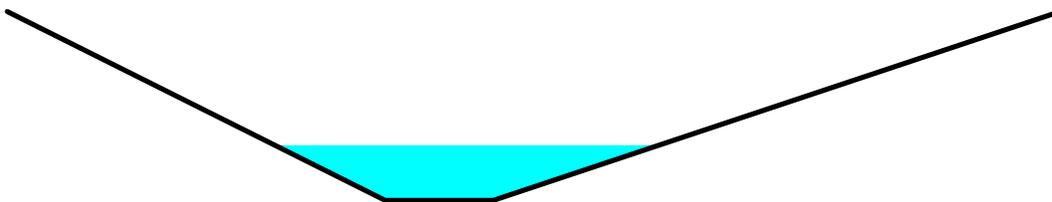
Summary for Reach L151:

Inflow Area = 90.610 ac, 42.17% Impervious, Inflow Depth > 2.54" for 25-Year event
Inflow = 129.48 cfs @ 12.15 hrs, Volume= 19.146 af
Outflow = 128.35 cfs @ 12.16 hrs, Volume= 19.136 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.94 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.86 fps, Avg. Travel Time= 0.9 min

Peak Storage= 2,891 cf @ 12.16 hrs
Average Depth at Peak Storage= 2.05'
Bank-Full Depth= 7.00' Flow Area= 150.5 sf, Capacity= 2,128.99 cfs

4.00' x 7.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 3.0 '/' Top Width= 39.00'
Length= 155.0' Slope= 0.0148 '/'
Inlet Invert= 48.00', Outlet Invert= 45.71'



Summary for Reach L186:

Inflow Area = 92.980 ac, 42.26% Impervious, Inflow Depth > 2.56" for 25-Year event
Inflow = 135.94 cfs @ 12.16 hrs, Volume= 19.837 af
Outflow = 132.06 cfs @ 12.21 hrs, Volume= 19.791 af, Atten= 3%, Lag= 3.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.41 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.36 fps, Avg. Travel Time= 4.2 min

Peak Storage= 13,287 cf @ 12.19 hrs
Average Depth at Peak Storage= 3.17'
Bank-Full Depth= 4.50' Flow Area= 67.5 sf, Capacity= 279.47 cfs

6.00' x 4.50' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 24.00'
Length= 340.0' Slope= 0.0020 '/'
Inlet Invert= 45.71', Outlet Invert= 45.04'



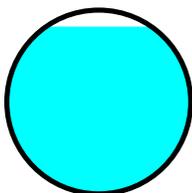
Summary for Reach L57:

Inflow Area = 55.470 ac, 36.25% Impervious, Inflow Depth > 2.17" for 25-Year event
Inflow = 31.85 cfs @ 12.31 hrs, Volume= 10.038 af
Outflow = 31.65 cfs @ 12.38 hrs, Volume= 10.019 af, Atten= 1%, Lag= 4.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.78 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 2.9 min

Peak Storage= 3,011 cf @ 12.35 hrs
Average Depth at Peak Storage= 2.73'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 29.62 cfs

36.0" Round Pipe
n= 0.014
Length= 446.0' Slope= 0.0023 '/'
Inlet Invert= 47.30', Outlet Invert= 46.28'



Summary for Reach L59:

Inflow Area = 86.690 ac, 44.08% Impervious, Inflow Depth > 2.58" for 25-Year event
Inflow = 130.33 cfs @ 12.09 hrs, Volume= 18.630 af
Outflow = 124.74 cfs @ 12.14 hrs, Volume= 18.591 af, Atten= 4%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.89 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.86 fps, Avg. Travel Time= 3.8 min

Peak Storage= 11,386 cf @ 12.11 hrs
Average Depth at Peak Storage= 2.44'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 196.83 cfs

6.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 18.00'
Length= 430.0' Slope= 0.0053 '/'
Inlet Invert= 48.58', Outlet Invert= 46.28'



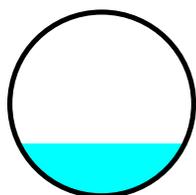
Summary for Reach L65:

Inflow Area = 51.350 ac, 35.50% Impervious, Inflow Depth > 2.16" for 25-Year event
Inflow = 25.01 cfs @ 12.60 hrs, Volume= 9.244 af
Outflow = 25.01 cfs @ 12.60 hrs, Volume= 9.243 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 21.81 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 11.14 fps, Avg. Travel Time= 0.2 min

Peak Storage= 119 cf @ 12.60 hrs
Average Depth at Peak Storage= 0.71'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 142.22 cfs

30.0" Round Pipe
n= 0.014
Length= 104.0' Slope= 0.1394 '/'
Inlet Invert= 71.00', Outlet Invert= 56.50'



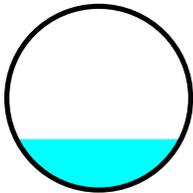
Summary for Reach L67:

Inflow Area = 54.020 ac, 36.19% Impervious, Inflow Depth > 2.18" for 25-Year event
Inflow = 29.51 cfs @ 12.33 hrs, Volume= 9.793 af
Outflow = 29.50 cfs @ 12.35 hrs, Volume= 9.789 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.49 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 5.16 fps, Avg. Travel Time= 0.6 min

Peak Storage= 520 cf @ 12.34 hrs
Average Depth at Peak Storage= 1.10'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 178.14 cfs

48.0" Round Pipe
n= 0.014
Length= 185.0' Slope= 0.0178 '/
Inlet Invert= 50.70', Outlet Invert= 47.40'



Summary for Reach P1:

Inflow Area = 96.520 ac, 43.27% Impervious, Inflow Depth > 2.59" for 25-Year event
Inflow = 139.27 cfs @ 12.21 hrs, Volume= 20.851 af
Outflow = 139.08 cfs @ 12.21 hrs, Volume= 20.848 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.08 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.31 fps, Avg. Travel Time= 0.2 min

Peak Storage= 635 cf @ 12.21 hrs
Average Depth at Peak Storage= 1.15'
Bank-Full Depth= 2.33' Flow Area= 28.0 sf, Capacity= 407.83 cfs

12.00' x 2.33' deep channel, n= 0.030
Length= 46.0' Slope= 0.0435 '/
Inlet Invert= 43.00', Outlet Invert= 41.00'



Summary for Pond 19P:

Inflow Area = 28.430 ac, 25.75% Impervious, Inflow Depth > 2.33" for 25-Year event
 Inflow = 64.53 cfs @ 12.15 hrs, Volume= 5.531 af
 Outflow = 64.49 cfs @ 12.16 hrs, Volume= 5.525 af, Atten= 0%, Lag= 0.6 min
 Primary = 15.61 cfs @ 12.16 hrs, Volume= 3.749 af
 Secondary = 48.88 cfs @ 12.16 hrs, Volume= 1.776 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 139.87' @ 12.16 hrs Surf.Area= 3,009 sf Storage= 3,287 cf

Plug-Flow detention time= 1.9 min calculated for 5.511 af (100% of inflow)
 Center-of-Mass det. time= 1.5 min (796.4 - 794.9)

Volume	Invert	Avail.Storage	Storage Description
#1	137.80'	30,987 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.80	174	0	0
138.30	860	259	259
138.80	1,546	602	860
139.30	2,232	945	1,805
139.80	2,919	1,288	3,092
140.30	3,605	1,631	4,723
140.80	4,291	1,974	6,697
141.30	4,977	2,317	9,014
141.80	5,663	2,660	11,674
148.00	567	19,313	30,987

Device	Routing	Invert	Outlet Devices
#1	Primary	137.80'	24.0" Round Culvert L= 612.0' Ke= 0.500 Inlet / Outlet Invert= 137.80' / 105.30' S= 0.0531 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	139.00'	23.0' long x 18.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=15.55 cfs @ 12.16 hrs HW=139.86' (Free Discharge)
 ↖1=Culvert (Inlet Controls 15.55 cfs @ 4.95 fps)

Secondary OutFlow Max=48.13 cfs @ 12.16 hrs HW=139.86' (Free Discharge)
 ↖2=Broad-Crested Rectangular Weir (Weir Controls 48.13 cfs @ 2.44 fps)

Summary for Pond 20P:

Inflow Area = 2.640 ac, 100.00% Impervious, Inflow Depth > 5.02" for 25-Year event
 Inflow = 14.31 cfs @ 12.07 hrs, Volume= 1.105 af
 Outflow = 14.34 cfs @ 12.07 hrs, Volume= 1.101 af, Atten= 0%, Lag= 0.0 min
 Primary = 14.34 cfs @ 12.07 hrs, Volume= 1.101 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

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Peak Elev= 167.88' @ 12.07 hrs Surf.Area= 4,356 sf Storage= 2,838 cf

Plug-Flow detention time= 11.5 min calculated for 1.098 af (99% of inflow)
 Center-of-Mass det. time= 9.8 min (728.1 - 718.4)

Volume	Invert	Avail.Storage	Storage Description
#1	166.00'	2,838 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
166.00	0	0	0
166.25	2,875	359	359
166.50	3,790	833	1,193
166.75	4,225	1,002	2,194
166.90	4,356	644	2,838

Device	Routing	Invert	Outlet Devices
#1	Primary	166.00'	24.0" Round Culvert L= 293.0' Ke= 0.500 Inlet / Outlet Invert= 166.00' / 142.00' S= 0.0819 '/' Cc= 0.900 n= 0.014, Flow Area= 3.14 sf

Primary OutFlow Max=13.81 cfs @ 12.07 hrs HW=167.82' (Free Discharge)
 ←1=Culvert (Inlet Controls 13.81 cfs @ 4.60 fps)

Summary for Pond 22.4P:

Inflow Area = 51.350 ac, 35.50% Impervious, Inflow Depth > 2.19" for 25-Year event
 Inflow = 86.42 cfs @ 12.09 hrs, Volume= 9.383 af
 Outflow = 25.01 cfs @ 12.60 hrs, Volume= 9.244 af, Atten= 71%, Lag= 30.1 min
 Primary = 25.01 cfs @ 12.60 hrs, Volume= 9.244 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 76.54' @ 12.60 hrs Surf.Area= 32,621 sf Storage= 105,210 cf

Plug-Flow detention time= 45.8 min calculated for 9.244 af (99% of inflow)
 Center-of-Mass det. time= 40.1 min (835.6 - 795.5)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	233,786 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	5,227	0	0
71.25	5,793	1,378	1,378
71.50	6,360	1,519	2,897
71.75	6,926	1,661	4,557
72.00	7,492	1,802	6,360
72.25	9,295	2,098	8,458
72.50	11,097	2,549	11,007
72.75	12,899	3,000	14,007
73.00	14,702	3,450	17,457
73.25	16,504	3,901	21,357
73.50	18,306	4,351	25,709
73.75	20,108	4,802	30,510
74.00	21,911	5,252	35,763
74.25	22,983	5,612	41,375
74.50	24,056	5,880	47,254
74.75	25,129	6,148	53,403
75.00	26,201	6,416	59,819
75.25	27,274	6,684	66,503
75.50	28,347	6,953	73,456
75.75	29,419	7,221	80,677
76.00	30,492	7,489	88,165
76.25	31,478	7,746	95,912
76.50	32,463	7,993	103,904
76.75	33,449	8,239	112,143
77.00	34,434	8,485	120,629
77.25	35,420	8,732	129,360
77.50	36,405	8,978	138,339
77.75	37,391	9,225	147,563
78.00	38,376	9,471	157,034
79.00	38,376	38,376	195,410
80.00	38,376	38,376	233,786

Device	Routing	Invert	Outlet Devices
#1	Secondary	79.00'	12.0' long x 37.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	71.00'	21.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 71.00' / 70.99' S= 0.0100 1/ S= 0.0100 Cc= 0.900 n= 0.005, Flow Area= 2.41 sf

Primary OutFlow Max=25.01 cfs @ 12.60 hrs HW=76.54' (Free Discharge)

↑**2=Culvert** (Inlet Controls 25.01 cfs @ 10.40 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment S19:** Runoff Area=25.790 ac 18.15% Impervious Runoff Depth>2.89"
Tc=11.4 min CN=68 Runoff=78.10 cfs 6.218 af
- Subcatchment S20:** Runoff Area=2.640 ac 100.00% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=17.33 cfs 1.347 af
- Subcatchment S21:** Runoff Area=5.370 ac 63.69% Impervious Runoff Depth>4.10"
Flow Length=640' Slope=0.0600 '/ Tc=12.1 min CN=80 Runoff=22.29 cfs 1.834 af
- Subcatchment S21.1:** Runoff Area=1.730 ac 26.59% Impervious Runoff Depth>2.33"
Flow Length=410' Tc=11.6 min CN=62 Runoff=4.14 cfs 0.336 af
- Subcatchment S21.2.1:** Runoff Area=0.107 ac 100.00% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=0.70 cfs 0.055 af
- Subcatchment S21.2.2:** Runoff Area=1.133 ac 3.80% Impervious Runoff Depth>1.40"
Flow Length=90' Slope=0.0070 '/ Tc=13.2 min CN=51 Runoff=1.40 cfs 0.132 af
- Subcatchment S22:** Runoff Area=3.230 ac 73.07% Impervious Runoff Depth>5.20"
Tc=5.0 min CN=90 Runoff=19.76 cfs 1.399 af
- Subcatchment S22.1:** Runoff Area=3.010 ac 65.12% Impervious Runoff Depth>4.97"
Tc=5.0 min CN=88 Runoff=17.90 cfs 1.247 af
- Subcatchment S22.2:** Runoff Area=2.220 ac 76.13% Impervious Runoff Depth>5.31"
Tc=5.0 min CN=91 Runoff=13.76 cfs 0.982 af
- Subcatchment S22.3:** Runoff Area=1.150 ac 75.65% Impervious Runoff Depth>5.31"
Tc=5.0 min CN=91 Runoff=7.13 cfs 0.509 af
- Subcatchment S22.4:** Runoff Area=4.970 ac 0.00% Impervious Runoff Depth>2.16"
Tc=5.0 min CN=60 Runoff=13.31 cfs 0.895 af
- Subcatchment S23.1:** Runoff Area=2.670 ac 49.44% Impervious Runoff Depth>3.37"
Tc=19.0 min CN=73 Runoff=7.82 cfs 0.751 af
- Subcatchment S23.2:** Runoff Area=1.450 ac 38.62% Impervious Runoff Depth>2.89"
Flow Length=955' Tc=14.3 min CN=68 Runoff=4.05 cfs 0.349 af
- Subcatchment S24:** Runoff Area=2.660 ac 95.86% Impervious Runoff Depth>5.89"
Tc=5.0 min CN=96 Runoff=17.29 cfs 1.305 af
- Subcatchment S24.1:** Runoff Area=2.330 ac 67.38% Impervious Runoff Depth>4.31"
Flow Length=1,260' Slope=0.0040 '/ Tc=12.1 min CN=82 Runoff=10.10 cfs 0.837 af
- Subcatchment S24.2:** Runoff Area=1.300 ac 0.00% Impervious Runoff Depth>1.24"
Flow Length=1,260' Slope=0.0040 '/ Tc=9.8 min CN=49 Runoff=1.52 cfs 0.135 af

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Subcatchment S25:	Runoff Area=2.050 ac 82.93% Impervious Runoff Depth>5.20" Tc=5.0 min CN=90 Runoff=12.54 cfs 0.888 af
Subcatchment S26:	Runoff Area=1.770 ac 41.24% Impervious Runoff Depth>3.00" Tc=5.0 min CN=69 Runoff=6.69 cfs 0.442 af
Subcatchment S27:	Runoff Area=3.680 ac 93.21% Impervious Runoff Depth>5.77" Tc=5.0 min CN=95 Runoff=23.75 cfs 1.769 af
Subcatchment S28:	Runoff Area=8.850 ac 69.72% Impervious Runoff Depth>5.20" Tc=5.0 min CN=90 Runoff=54.15 cfs 3.832 af
Subcatchment S29:	Runoff Area=3.760 ac 2.93% Impervious Runoff Depth>2.34" Tc=7.8 min CN=62 Runoff=10.13 cfs 0.732 af
Subcatchment S30:	Runoff Area=4.820 ac 38.17% Impervious Runoff Depth>2.89" Tc=18.3 min CN=68 Runoff=12.24 cfs 1.159 af
Subcatchment S31:	Runoff Area=3.920 ac 0.00% Impervious Runoff Depth>2.51" Tc=14.4 min CN=64 Runoff=9.43 cfs 0.821 af
Subcatchment S31.1:	Runoff Area=0.920 ac 38.04% Impervious Runoff Depth>4.64" Tc=9.2 min CN=85 Runoff=4.56 cfs 0.356 af
Subcatchment S32:	Runoff Area=1.450 ac 50.34% Impervious Runoff Depth>4.53" Tc=5.0 min CN=84 Runoff=8.05 cfs 0.548 af
Subcatchment S32.1:	Runoff Area=2.720 ac 90.81% Impervious Runoff Depth>5.54" Tc=5.0 min CN=93 Runoff=17.24 cfs 1.255 af
Subcatchment S33:	Runoff Area=0.820 ac 0.00% Impervious Runoff Depth>1.25" Tc=5.0 min CN=49 Runoff=1.12 cfs 0.085 af
Reach 1R: Point of Analysis 1	Inflow=177.12 cfs 27.010 af Outflow=177.12 cfs 27.010 af
Reach 2R:	Inflow=71.99 cfs 2.868 af Outflow=71.99 cfs 2.868 af
Reach L150:	Avg. Flow Depth=2.50' Max Vel=4.54 fps Inflow=157.14 cfs 24.031 af n=0.030 L=136.0' S=0.0043 '/' Capacity=654.46 cfs Outflow=155.80 cfs 24.014 af
Reach L151:	Avg. Flow Depth=2.29' Max Vel=7.39 fps Inflow=164.40 cfs 24.835 af n=0.030 L=155.0' S=0.0148 '/' Capacity=2,128.99 cfs Outflow=163.13 cfs 24.823 af
Reach L186:	Avg. Flow Depth=3.56' Max Vel=3.63 fps Inflow=172.94 cfs 25.727 af n=0.030 L=340.0' S=0.0020 '/' Capacity=279.47 cfs Outflow=167.94 cfs 25.673 af
Reach L57:	Avg. Flow Depth=3.00' Max Vel=4.77 fps Inflow=37.47 cfs 13.001 af 36.0" Round Pipe n=0.014 L=446.0' S=0.0023 '/' Capacity=29.62 cfs Outflow=30.64 cfs 12.978 af
Reach L59:	Avg. Flow Depth=2.74' Max Vel=5.20 fps Inflow=164.07 cfs 24.076 af n=0.030 L=430.0' S=0.0053 '/' Capacity=196.83 cfs Outflow=157.14 cfs 24.031 af

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Reach L65: Avg. Flow Depth=0.75' Max Vel=22.48 fps Inflow=27.83 cfs 11.907 af
30.0" Round Pipe n=0.014 L=104.0' S=0.1394 '/' Capacity=142.22 cfs Outflow=27.83 cfs 11.906 af

Reach L67: Avg. Flow Depth=1.19' Max Vel=10.93 fps Inflow=34.11 cfs 12.657 af
48.0" Round Pipe n=0.014 L=185.0' S=0.0178 '/' Capacity=178.14 cfs Outflow=34.10 cfs 12.652 af

Reach P1: Avg. Flow Depth=1.34' Max Vel=10.99 fps Inflow=177.32 cfs 27.013 af
n=0.030 L=46.0' S=0.0435 '/' Capacity=407.83 cfs Outflow=177.12 cfs 27.010 af

Pond 19P: Peak Elev=140.12' Storage=4,100 cf Inflow=87.93 cfs 7.559 af
Primary=17.38 cfs 4.683 af Secondary=71.99 cfs 2.868 af Outflow=89.38 cfs 7.551 af

Pond 20P: Peak Elev=168.43' Storage=2,838 cf Inflow=17.33 cfs 1.347 af
24.0" Round Culvert n=0.014 L=293.0' S=0.0819 '/' Outflow=18.24 cfs 1.342 af

Pond 22.4P: Peak Elev=77.65' Storage=143,762 cf Inflow=109.91 cfs 12.072 af
Primary=27.83 cfs 11.907 af Secondary=0.00 cfs 0.000 af Outflow=27.83 cfs 11.907 af

Total Runoff Area = 96.520 ac Runoff Volume = 30.216 af Average Runoff Depth = 3.76"
56.73% Pervious = 54.760 ac 43.27% Impervious = 41.760 ac

Summary for Subcatchment S19:

Runoff = 78.10 cfs @ 12.16 hrs, Volume= 6.218 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 8.450	43	
* 3.360	65	
* 9.300	76	
* 4.680	98	
25.790	68	Weighted Average
21.110		81.85% Pervious Area
4.680		18.15% Impervious Area

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

Summary for Subcatchment S20:

Runoff = 17.33 cfs @ 12.07 hrs, Volume= 1.347 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 2.640	98	
2.640		100.00% Impervious Area

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

Summary for Subcatchment S21:

Runoff = 22.29 cfs @ 12.17 hrs, Volume= 1.834 af, Depth> 4.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.950	49	
* 3.420	98	
5.370	80	Weighted Average
1.950		36.31% Pervious Area
3.420		63.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5					
0.6	640	0.0600	19.11	60.03	Direct Entry, Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
12.1	640	Total			

Summary for Subcatchment S21.1:

Runoff = 4.14 cfs @ 12.17 hrs, Volume= 0.336 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.270	49	
* 0.460	98	
1.730	62	Weighted Average
1.270		73.41% Pervious Area
0.460		26.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	170	0.0865	4.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	140	0.1015	28.84	141.57	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
11.6	410	Total			

Summary for Subcatchment S21.2.1:

Runoff = 0.70 cfs @ 12.07 hrs, Volume= 0.055 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.107	98	
0.107		100.00% Impervious Area

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

Summary for Subcatchment S21.2.2:

Runoff = 1.40 cfs @ 12.21 hrs, Volume= 0.132 af, Depth> 1.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.090	49	
* 0.043	98	
1.133	51	Weighted Average
1.090		96.20% Pervious Area
0.043		3.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					Direct Entry,
0.4	90	0.0070	4.11	3.23	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
13.2	90	Total			

Summary for Subcatchment S22:

Runoff = 19.76 cfs @ 12.07 hrs, Volume= 1.399 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.870	69	
* 2.360	98	
3.230	90	Weighted Average
0.870		26.93% Pervious Area
2.360		73.07% Impervious Area

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

Summary for Subcatchment S22.1:

Runoff = 17.90 cfs @ 12.07 hrs, Volume= 1.247 af, Depth> 4.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Area (ac)	CN	Description
* 1.050	69	
* 1.960	98	
3.010	88	Weighted Average
1.050		34.88% Pervious Area
1.960		65.12% Impervious Area

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

Summary for Subcatchment S22.2:

Runoff = 13.76 cfs @ 12.07 hrs, Volume= 0.982 af, Depth> 5.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.530	69	
* 1.690	98	
2.220	91	Weighted Average
0.530		23.87% Pervious Area
1.690		76.13% Impervious Area

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

Summary for Subcatchment S22.3:

Runoff = 7.13 cfs @ 12.07 hrs, Volume= 0.509 af, Depth> 5.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.280	69	
* 0.870	98	
1.150	91	Weighted Average
0.280		24.35% Pervious Area
0.870		75.65% Impervious Area

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

Summary for Subcatchment S22.4:

Runoff = 13.31 cfs @ 12.09 hrs, Volume= 0.895 af, Depth> 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.100	69	
* 4.870	60	
4.970	60	Weighted Average
4.970		100.00% Pervious Area

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

Summary for Subcatchment S23.1:

Runoff = 7.82 cfs @ 12.26 hrs, Volume= 0.751 af, Depth> 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.350	49	
* 1.320	98	
2.670	73	Weighted Average
1.350		50.56% Pervious Area
1.320		49.44% Impervious Area

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

Summary for Subcatchment S23.2:

Runoff = 4.05 cfs @ 12.20 hrs, Volume= 0.349 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.890	49	
* 0.560	98	
1.450	68	Weighted Average
0.890		61.38% Pervious Area
0.560		38.62% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.1825	0.19		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
3.2	360	0.0139	1.90		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.7	390	0.0374	3.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.5	105	0.0050	3.47	2.73	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
14.3	955	Total			

Summary for Subcatchment S24:

Runoff = 17.29 cfs @ 12.07 hrs, Volume= 1.305 af, Depth> 5.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.110	49	
* 2.550	98	
2.660	96	Weighted Average
0.110		4.14% Pervious Area
2.550		95.86% Impervious Area

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

Summary for Subcatchment S24.1:

Runoff = 10.10 cfs @ 12.17 hrs, Volume= 0.837 af, Depth> 4.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.760	49	
* 1.570	98	
2.330	82	Weighted Average
0.760		32.62% Pervious Area
1.570		67.38% Impervious Area

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Type III 24-hr 100-Year Rainfall=6.65"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					
3.7	1,260	0.0040	5.73	28.10	Direct Entry, Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
12.1	1,260	Total			

Summary for Subcatchment S24.2:

Runoff = 1.52 cfs @ 12.16 hrs, Volume= 0.135 af, Depth> 1.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.300	49	
1.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					
3.7	1,260	0.0040	5.73	28.10	Direct Entry, Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
9.8	1,260	Total			

Summary for Subcatchment S25:

Runoff = 12.54 cfs @ 12.07 hrs, Volume= 0.888 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.350	49	
* 1.700	98	
2.050	90	Weighted Average
0.350		17.07% Pervious Area
1.700		82.93% Impervious Area

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

Summary for Subcatchment S26:

Runoff = 6.69 cfs @ 12.08 hrs, Volume= 0.442 af, Depth> 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.040	49	
* 0.730	98	
1.770	69	Weighted Average
1.040		58.76% Pervious Area
0.730		41.24% Impervious Area

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

Summary for Subcatchment S27:

Runoff = 23.75 cfs @ 12.07 hrs, Volume= 1.769 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.250	49	
* 3.430	98	
3.680	95	Weighted Average
0.250		6.79% Pervious Area
3.430		93.21% Impervious Area

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

Summary for Subcatchment S28:

Runoff = 54.15 cfs @ 12.07 hrs, Volume= 3.832 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 2.120	69	
* 0.560	89	
* 6.170	98	
8.850	90	Weighted Average
2.680		30.28% Pervious Area
6.170		69.72% Impervious Area

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

Summary for Subcatchment S29:

Runoff = 10.13 cfs @ 12.12 hrs, Volume= 0.732 af, Depth> 2.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 3.360	60	
* 0.290	69	
* 0.110	98	
3.760	62	Weighted Average
3.650		97.07% Pervious Area
0.110		2.93% Impervious Area

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

Summary for Subcatchment S30:

Runoff = 12.24 cfs @ 12.26 hrs, Volume= 1.159 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 2.980	49	
* 1.840	98	
4.820	68	Weighted Average
2.980		61.83% Pervious Area
1.840		38.17% Impervious Area

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

Summary for Subcatchment S31:

Runoff = 9.43 cfs @ 12.21 hrs, Volume= 0.821 af, Depth> 2.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (ac)	CN	Description
* 3.190	60	
* 0.730	79	
3.920	64	Weighted Average
3.920		100.00% Pervious Area

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

Summary for Subcatchment S31.1:

Runoff = 4.56 cfs @ 12.13 hrs, Volume= 0.356 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.070	60	
* 0.440	79	
* 0.060	89	
* 0.350	98	
0.920	85	Weighted Average
0.570		61.96% Pervious Area
0.350		38.04% Impervious Area

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

Summary for Subcatchment S32:

Runoff = 8.05 cfs @ 12.07 hrs, Volume= 0.548 af, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.720	69	
* 0.730	98	
1.450	84	Weighted Average
0.720		49.66% Pervious Area
0.730		50.34% Impervious Area

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

Summary for Subcatchment S32.1:

Runoff = 17.24 cfs @ 12.07 hrs, Volume= 1.255 af, Depth> 5.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.250	49	
* 2.470	98	
2.720	93	Weighted Average
0.250		9.19% Pervious Area
2.470		90.81% Impervious Area

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

Summary for Subcatchment S33:

Runoff = 1.12 cfs @ 12.10 hrs, Volume= 0.085 af, Depth> 1.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.820	49	
0.820		100.00% Pervious Area

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

Summary for Reach 1R: Point of Analysis 1

Inflow Area = 96.520 ac, 43.27% Impervious, Inflow Depth > 3.36" for 100-Year event
Inflow = 177.12 cfs @ 12.20 hrs, Volume= 27.010 af
Outflow = 177.12 cfs @ 12.20 hrs, Volume= 27.010 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R:

Inflow = 71.99 cfs @ 12.16 hrs, Volume= 2.868 af
Outflow = 71.99 cfs @ 12.16 hrs, Volume= 2.868 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

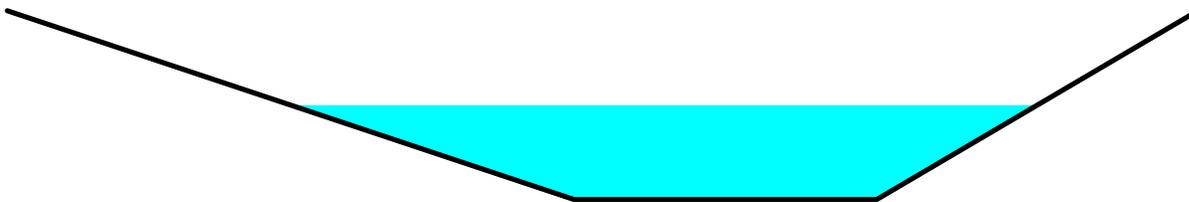
Summary for Reach L150:

Inflow Area = 86.690 ac, 44.08% Impervious, Inflow Depth > 3.33" for 100-Year event
Inflow = 157.14 cfs @ 12.13 hrs, Volume= 24.031 af
Outflow = 155.80 cfs @ 12.15 hrs, Volume= 24.014 af, Atten= 1%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.54 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.78 fps, Avg. Travel Time= 1.3 min

Peak Storage= 4,715 cf @ 12.14 hrs
Average Depth at Peak Storage= 2.50'
Bank-Full Depth= 5.00' Flow Area= 98.8 sf, Capacity= 654.46 cfs

8.00' x 5.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 1.7 '/' Top Width= 31.50'
Length= 136.0' Slope= 0.0043 '/'
Inlet Invert= 48.58', Outlet Invert= 48.00'



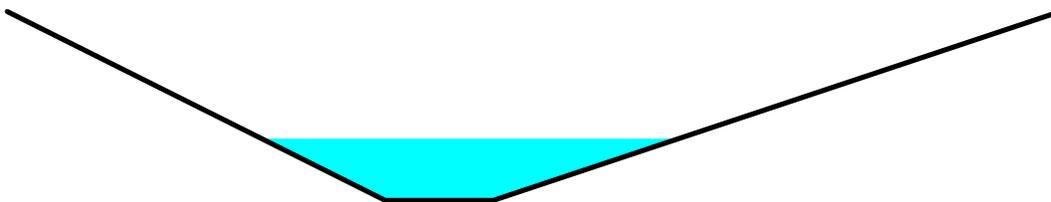
Summary for Reach L151:

Inflow Area = 90.610 ac, 42.17% Impervious, Inflow Depth > 3.29" for 100-Year event
Inflow = 164.40 cfs @ 12.15 hrs, Volume= 24.835 af
Outflow = 163.13 cfs @ 12.16 hrs, Volume= 24.823 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.39 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.10 fps, Avg. Travel Time= 0.8 min

Peak Storage= 3,450 cf @ 12.16 hrs
Average Depth at Peak Storage= 2.29'
Bank-Full Depth= 7.00' Flow Area= 150.5 sf, Capacity= 2,128.99 cfs

4.00' x 7.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 3.0 '/' Top Width= 39.00'
Length= 155.0' Slope= 0.0148 '/'
Inlet Invert= 48.00', Outlet Invert= 45.71'



Summary for Reach L186:

Inflow Area = 92.980 ac, 42.26% Impervious, Inflow Depth > 3.32" for 100-Year event
Inflow = 172.94 cfs @ 12.16 hrs, Volume= 25.727 af
Outflow = 167.94 cfs @ 12.21 hrs, Volume= 25.673 af, Atten= 3%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.63 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 3.8 min

Peak Storage= 15,873 cf @ 12.18 hrs
Average Depth at Peak Storage= 3.56'
Bank-Full Depth= 4.50' Flow Area= 67.5 sf, Capacity= 279.47 cfs

6.00' x 4.50' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 24.00'
Length= 340.0' Slope= 0.0020 '/'
Inlet Invert= 45.71', Outlet Invert= 45.04'



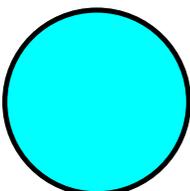
Summary for Reach L57:

Inflow Area = 55.470 ac, 36.25% Impervious, Inflow Depth > 2.81" for 100-Year event
Inflow = 37.47 cfs @ 12.29 hrs, Volume= 13.001 af
Outflow = 30.64 cfs @ 12.20 hrs, Volume= 12.978 af, Atten= 18%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.77 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 2.67 fps, Avg. Travel Time= 2.8 min

Peak Storage= 3,153 cf @ 12.20 hrs
Average Depth at Peak Storage= 3.00'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 29.62 cfs

36.0" Round Pipe
n= 0.014
Length= 446.0' Slope= 0.0023 '/'
Inlet Invert= 47.30', Outlet Invert= 46.28'



Summary for Reach L59:

Inflow Area = 86.690 ac, 44.08% Impervious, Inflow Depth > 3.33" for 100-Year event
Inflow = 164.07 cfs @ 12.09 hrs, Volume= 24.076 af
Outflow = 157.14 cfs @ 12.13 hrs, Volume= 24.031 af, Atten= 4%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.20 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 2.05 fps, Avg. Travel Time= 3.5 min

Peak Storage= 13,489 cf @ 12.11 hrs
Average Depth at Peak Storage= 2.74'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 196.83 cfs

6.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 18.00'
Length= 430.0' Slope= 0.0053 '/'
Inlet Invert= 48.58', Outlet Invert= 46.28'



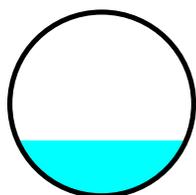
Summary for Reach L65:

Inflow Area = 51.350 ac, 35.50% Impervious, Inflow Depth > 2.78" for 100-Year event
Inflow = 27.83 cfs @ 12.63 hrs, Volume= 11.907 af
Outflow = 27.83 cfs @ 12.64 hrs, Volume= 11.906 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 22.48 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 12.16 fps, Avg. Travel Time= 0.1 min

Peak Storage= 129 cf @ 12.63 hrs
Average Depth at Peak Storage= 0.75'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 142.22 cfs

30.0" Round Pipe
n= 0.014
Length= 104.0' Slope= 0.1394 '/'
Inlet Invert= 71.00', Outlet Invert= 56.50'



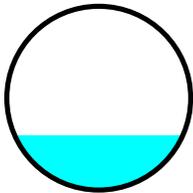
Summary for Reach L67:

Inflow Area = 54.020 ac, 36.19% Impervious, Inflow Depth > 2.81" for 100-Year event
Inflow = 34.11 cfs @ 12.32 hrs, Volume= 12.657 af
Outflow = 34.10 cfs @ 12.32 hrs, Volume= 12.652 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.93 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 5.64 fps, Avg. Travel Time= 0.5 min

Peak Storage= 577 cf @ 12.32 hrs
Average Depth at Peak Storage= 1.19'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 178.14 cfs

48.0" Round Pipe
n= 0.014
Length= 185.0' Slope= 0.0178 '/
Inlet Invert= 50.70', Outlet Invert= 47.40'



Summary for Reach P1:

Inflow Area = 96.520 ac, 43.27% Impervious, Inflow Depth > 3.36" for 100-Year event
Inflow = 177.32 cfs @ 12.20 hrs, Volume= 27.013 af
Outflow = 177.12 cfs @ 12.20 hrs, Volume= 27.010 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.99 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.67 fps, Avg. Travel Time= 0.2 min

Peak Storage= 742 cf @ 12.20 hrs
Average Depth at Peak Storage= 1.34'
Bank-Full Depth= 2.33' Flow Area= 28.0 sf, Capacity= 407.83 cfs

12.00' x 2.33' deep channel, n= 0.030
Length= 46.0' Slope= 0.0435 '/
Inlet Invert= 43.00', Outlet Invert= 41.00'



Summary for Pond 19P:

Inflow Area = 28.430 ac, 25.75% Impervious, Inflow Depth > 3.19" for 100-Year event
 Inflow = 87.93 cfs @ 12.15 hrs, Volume= 7.559 af
 Outflow = 89.38 cfs @ 12.16 hrs, Volume= 7.551 af, Atten= 0%, Lag= 0.5 min
 Primary = 17.38 cfs @ 12.16 hrs, Volume= 4.683 af
 Secondary = 71.99 cfs @ 12.16 hrs, Volume= 2.868 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 140.12' @ 12.16 hrs Surf.Area= 3,359 sf Storage= 4,100 cf

Plug-Flow detention time= 1.8 min calculated for 7.532 af (100% of inflow)
 Center-of-Mass det. time= 1.4 min (791.3 - 790.0)

Volume	Invert	Avail.Storage	Storage Description
#1	137.80'	30,987 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.80	174	0	0
138.30	860	259	259
138.80	1,546	602	860
139.30	2,232	945	1,805
139.80	2,919	1,288	3,092
140.30	3,605	1,631	4,723
140.80	4,291	1,974	6,697
141.30	4,977	2,317	9,014
141.80	5,663	2,660	11,674
148.00	567	19,313	30,987

Device	Routing	Invert	Outlet Devices
#1	Primary	137.80'	24.0" Round Culvert L= 612.0' Ke= 0.500 Inlet / Outlet Invert= 137.80' / 105.30' S= 0.0531 '/' Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	139.00'	23.0' long x 18.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=17.32 cfs @ 12.16 hrs HW=140.11' (Free Discharge)
 ↑1=Culvert (Inlet Controls 17.32 cfs @ 5.51 fps)

Secondary OutFlow Max=71.01 cfs @ 12.16 hrs HW=140.11' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 71.01 cfs @ 2.78 fps)

Summary for Pond 20P:

Inflow Area = 2.640 ac, 100.00% Impervious, Inflow Depth > 6.12" for 100-Year event
 Inflow = 17.33 cfs @ 12.07 hrs, Volume= 1.347 af
 Outflow = 18.24 cfs @ 12.09 hrs, Volume= 1.342 af, Atten= 0%, Lag= 1.0 min
 Primary = 18.24 cfs @ 12.09 hrs, Volume= 1.342 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

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Peak Elev= 168.43' @ 12.09 hrs Surf.Area= 4,356 sf Storage= 2,838 cf

Plug-Flow detention time= 10.9 min calculated for 1.338 af (99% of inflow)
 Center-of-Mass det. time= 9.2 min (724.8 - 715.6)

Volume	Invert	Avail.Storage	Storage Description
#1	166.00'	2,838 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
166.00	0	0	0
166.25	2,875	359	359
166.50	3,790	833	1,193
166.75	4,225	1,002	2,194
166.90	4,356	644	2,838

Device	Routing	Invert	Outlet Devices
#1	Primary	166.00'	24.0" Round Culvert L= 293.0' Ke= 0.500 Inlet / Outlet Invert= 166.00' / 142.00' S= 0.0819 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf

Primary OutFlow Max=17.34 cfs @ 12.09 hrs HW=168.31' (Free Discharge)
 ←1=Culvert (Inlet Controls 17.34 cfs @ 5.52 fps)

Summary for Pond 22.4P:

Inflow Area = 51.350 ac, 35.50% Impervious, Inflow Depth > 2.82" for 100-Year event
 Inflow = 109.91 cfs @ 12.09 hrs, Volume= 12.072 af
 Outflow = 27.83 cfs @ 12.63 hrs, Volume= 11.907 af, Atten= 75%, Lag= 32.3 min
 Primary = 27.83 cfs @ 12.63 hrs, Volume= 11.907 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 77.65' @ 12.63 hrs Surf.Area= 36,988 sf Storage= 143,762 cf

Plug-Flow detention time= 54.1 min calculated for 11.878 af (98% of inflow)
 Center-of-Mass det. time= 48.7 min (840.3 - 791.6)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	233,786 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type III 24-hr 100-Year Rainfall=6.65"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	5,227	0	0
71.25	5,793	1,378	1,378
71.50	6,360	1,519	2,897
71.75	6,926	1,661	4,557
72.00	7,492	1,802	6,360
72.25	9,295	2,098	8,458
72.50	11,097	2,549	11,007
72.75	12,899	3,000	14,007
73.00	14,702	3,450	17,457
73.25	16,504	3,901	21,357
73.50	18,306	4,351	25,709
73.75	20,108	4,802	30,510
74.00	21,911	5,252	35,763
74.25	22,983	5,612	41,375
74.50	24,056	5,880	47,254
74.75	25,129	6,148	53,403
75.00	26,201	6,416	59,819
75.25	27,274	6,684	66,503
75.50	28,347	6,953	73,456
75.75	29,419	7,221	80,677
76.00	30,492	7,489	88,165
76.25	31,478	7,746	95,912
76.50	32,463	7,993	103,904
76.75	33,449	8,239	112,143
77.00	34,434	8,485	120,629
77.25	35,420	8,732	129,360
77.50	36,405	8,978	138,339
77.75	37,391	9,225	147,563
78.00	38,376	9,471	157,034
79.00	38,376	38,376	195,410
80.00	38,376	38,376	233,786

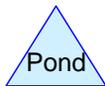
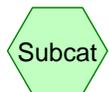
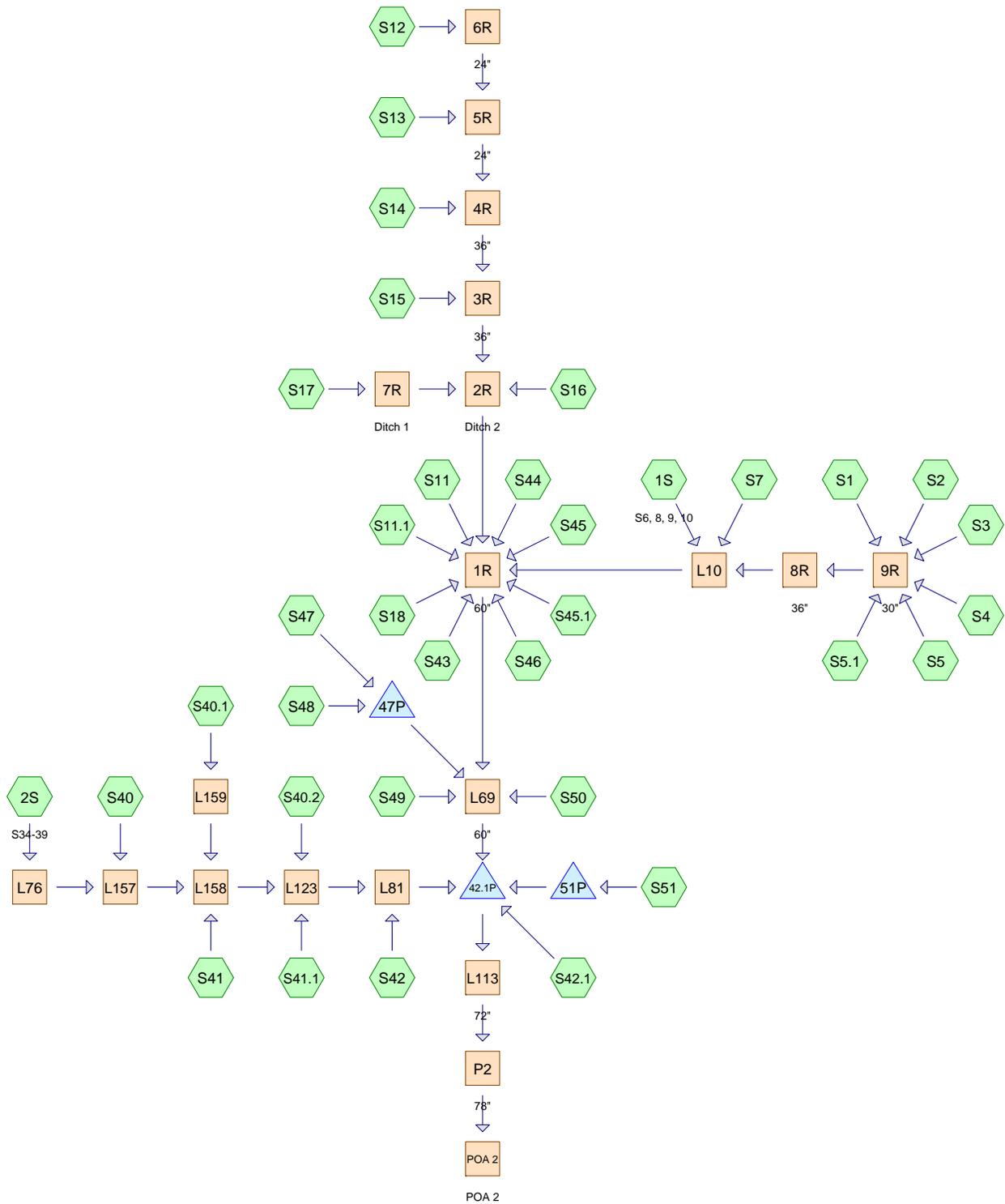
Device	Routing	Invert	Outlet Devices
#1	Secondary	79.00'	12.0' long x 37.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	71.00'	21.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 71.00' / 70.99' S= 0.0100 1/ S= 0.0100 Cc= 0.900 n= 0.005, Flow Area= 2.41 sf

Primary OutFlow Max=27.82 cfs @ 12.63 hrs HW=77.65' (Free Discharge)

↑**2=Culvert** (Inlet Controls 27.82 cfs @ 11.57 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Routing Diagram for 3659-12003C-Existing Conditions POA 2-01
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
34.578	49	(1S, 2S, S11, S11.1, S13, S14, S15, S16, S17, S18, S4, S40, S40.1, S41, S41.1, S42, S43, S44, S45, S45.1, S46, S48, S49, S5, S50, S51)
69.670	98	(1S, 2S, S1, S11, S12, S13, S14, S15, S16, S17, S18, S2, S3, S4, S40, S40.1, S40.2, S41, S41.1, S42, S42.1, S43, S44, S45, S45.1, S46, S47, S48, S49, S5, S5.1, S50, S51, S7)
4.800	69	(1S, S3, S4, S5.1, S7)
15.260	43	(S1, S12, S2, S42.1)
1.220	65	(S1, S2, S7)
2.870	36	(S41, S41.1, S47)
0.710	60	(S5.1)
129.108	75	TOTAL AREA

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 2-Year Rainfall=3.20"

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Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: S6, 8, 9, 10	Runoff Area=5.450 ac 75.78% Impervious Runoff Depth>1.79" Tc=5.0 min CN=87 Runoff=12.22 cfs 0.814 af
Subcatchment 2S: S34-39	Runoff Area=13.110 ac 74.29% Impervious Runoff Depth>1.64" Tc=5.0 min CN=85 Runoff=27.04 cfs 1.791 af
Subcatchment S1:	Runoff Area=9.020 ac 3.55% Impervious Runoff Depth>0.04" Tc=30.2 min CN=46 Runoff=0.07 cfs 0.029 af
Subcatchment S11:	Runoff Area=3.560 ac 92.70% Impervious Runoff Depth>2.41" Tc=5.0 min CN=94 Runoff=10.23 cfs 0.714 af
Subcatchment S11.1:	Runoff Area=24,742 sf 0.00% Impervious Runoff Depth>0.08" Flow Length=952' Tc=11.1 min CN=49 Runoff=0.01 cfs 0.004 af
Subcatchment S12:	Runoff Area=5.060 ac 8.10% Impervious Runoff Depth>0.05" Flow Length=260' Slope=0.0427 '/' Tc=18.6 min CN=47 Runoff=0.05 cfs 0.022 af
Subcatchment S13:	Runoff Area=2.930 ac 98.63% Impervious Runoff Depth>2.72" Tc=5.0 min CN=97 Runoff=9.02 cfs 0.664 af
Subcatchment S14:	Runoff Area=3.760 ac 48.40% Impervious Runoff Depth>0.89" Tc=7.9 min CN=73 Runoff=3.74 cfs 0.280 af
Subcatchment S15:	Runoff Area=2.850 ac 77.19% Impervious Runoff Depth>1.79" Tc=5.0 min CN=87 Runoff=6.39 cfs 0.426 af
Subcatchment S16:	Runoff Area=3.550 ac 90.99% Impervious Runoff Depth>2.41" Tc=5.0 min CN=94 Runoff=10.20 cfs 0.712 af
Subcatchment S17:	Runoff Area=3.400 ac 66.47% Impervious Runoff Depth>1.43" Tc=6.5 min CN=82 Runoff=5.92 cfs 0.404 af
Subcatchment S18:	Runoff Area=2.630 ac 70.72% Impervious Runoff Depth>1.57" Tc=5.0 min CN=84 Runoff=5.19 cfs 0.343 af
Subcatchment S2:	Runoff Area=5.040 ac 66.07% Impervious Runoff Depth>1.23" Tc=14.8 min CN=79 Runoff=5.87 cfs 0.516 af
Subcatchment S3:	Runoff Area=3.380 ac 75.74% Impervious Runoff Depth>2.13" Tc=5.0 min CN=91 Runoff=8.85 cfs 0.599 af
Subcatchment S4:	Runoff Area=13.930 ac 10.84% Impervious Runoff Depth>0.29" Tc=25.6 min CN=58 Runoff=1.92 cfs 0.335 af
Subcatchment S40:	Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>1.43" Tc=5.0 min CN=82 Runoff=4.81 cfs 0.317 af

Subcatchment S40.1:	Runoff Area=2.310 ac 45.89% Impervious Runoff Depth>0.77" Tc=63.2 min CN=71 Runoff=0.82 cfs 0.149 af
Subcatchment S40.2:	Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>2.83" Tc=5.0 min CN=98 Runoff=10.00 cfs 0.754 af
Subcatchment S41:	Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>1.06" Tc=5.0 min CN=76 Runoff=1.42 cfs 0.095 af
Subcatchment S41.1:	Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>0.21" Tc=16.7 min CN=55 Runoff=0.19 cfs 0.035 af
Subcatchment S42:	Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>1.64" Tc=5.0 min CN=85 Runoff=2.97 cfs 0.197 af
Subcatchment S42.1:	Runoff Area=1.660 ac 54.82% Impervious Runoff Depth>0.89" Tc=5.0 min CN=73 Runoff=1.81 cfs 0.124 af
Subcatchment S43:	Runoff Area=2.700 ac 93.70% Impervious Runoff Depth>2.51" Tc=5.0 min CN=95 Runoff=7.97 cfs 0.564 af
Subcatchment S44:	Runoff Area=1.430 ac 98.60% Impervious Runoff Depth>2.72" Tc=5.0 min CN=97 Runoff=4.40 cfs 0.324 af
Subcatchment S45:	Runoff Area=1.450 ac 55.17% Impervious Runoff Depth>1.06" Tc=5.0 min CN=76 Runoff=1.90 cfs 0.128 af
Subcatchment S45.1:	Runoff Area=0.740 ac 71.62% Impervious Runoff Depth>1.57" Tc=5.0 min CN=84 Runoff=1.46 cfs 0.097 af
Subcatchment S46:	Runoff Area=1.800 ac 62.78% Impervious Runoff Depth>1.30" Tc=5.0 min CN=80 Runoff=2.94 cfs 0.194 af
Subcatchment S47:	Runoff Area=2.940 ac 10.54% Impervious Runoff Depth>0.01" Tc=18.7 min CN=43 Runoff=0.01 cfs 0.003 af
Subcatchment S48:	Runoff Area=1.170 ac 83.76% Impervious Runoff Depth>2.04" Tc=5.0 min CN=90 Runoff=2.96 cfs 0.199 af
Subcatchment S49:	Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>1.79" Tc=5.0 min CN=87 Runoff=7.00 cfs 0.466 af
Subcatchment S5:	Runoff Area=3.400 ac 78.24% Impervious Runoff Depth>1.79" Tc=5.0 min CN=87 Runoff=7.62 cfs 0.508 af
Subcatchment S5.1:	Runoff Area=3.550 ac 72.39% Impervious Runoff Depth>1.86" Tc=16.7 min CN=88 Runoff=5.98 cfs 0.552 af
Subcatchment S50:	Runoff Area=3.890 ac 73.52% Impervious Runoff Depth>1.64" Tc=5.0 min CN=85 Runoff=8.02 cfs 0.531 af
Subcatchment S51:	Runoff Area=6.230 ac 5.62% Impervious Runoff Depth>0.14" Tc=26.2 min CN=52 Runoff=0.23 cfs 0.072 af

Subcatchment S7: Runoff Area=4.060 ac 65.52% Impervious Runoff Depth>1.78"
Flow Length=150' Slope=0.0253 '/' Tc=20.9 min CN=87 Runoff=6.01 cfs 0.603 af

Reach 1R: 60" Avg. Flow Depth=2.38' Max Vel=9.79 fps Inflow=90.35 cfs 8.805 af
60.0" Round Pipe n=0.014 L=480.0' S=0.0066 '/' Capacity=196.22 cfs Outflow=89.55 cfs 8.795 af

Reach 2R: Ditch 2 Avg. Flow Depth=1.52' Max Vel=3.52 fps Inflow=32.13 cfs 2.504 af
n=0.030 L=370.0' S=0.0062 '/' Capacity=150.34 cfs Outflow=30.49 cfs 2.498 af

Reach 3R: 36" Avg. Flow Depth=0.77' Max Vel=12.76 fps Inflow=18.40 cfs 1.390 af
36.0" Round Pipe n=0.014 L=355.0' S=0.0417 '/' Capacity=126.46 cfs Outflow=18.07 cfs 1.389 af

Reach 4R: 36" Avg. Flow Depth=0.96' Max Vel=6.35 fps Inflow=12.35 cfs 0.965 af
36.0" Round Pipe n=0.014 L=123.0' S=0.0081 '/' Capacity=55.84 cfs Outflow=12.19 cfs 0.965 af

Reach 5R: 24" Avg. Flow Depth=0.67' Max Vel=9.60 fps Inflow=9.02 cfs 0.686 af
24.0" Round Pipe n=0.014 L=238.0' S=0.0307 '/' Capacity=36.79 cfs Outflow=8.82 cfs 0.685 af

Reach 6R: 24" Avg. Flow Depth=0.05' Max Vel=2.68 fps Inflow=0.05 cfs 0.022 af
24.0" Round Pipe n=0.014 L=490.0' S=0.0641 '/' Capacity=53.18 cfs Outflow=0.05 cfs 0.022 af

Reach 7R: Ditch 1 Avg. Flow Depth=0.66' Max Vel=2.29 fps Inflow=5.92 cfs 0.404 af
n=0.030 L=305.0' S=0.0066 '/' Capacity=154.41 cfs Outflow=5.49 cfs 0.402 af

Reach 8R: 36" Avg. Flow Depth=0.98' Max Vel=12.03 fps Inflow=24.07 cfs 2.537 af
36.0" Round Pipe n=0.014 L=390.0' S=0.0290 '/' Capacity=105.42 cfs Outflow=23.44 cfs 2.535 af

Reach 9R: 30" Avg. Flow Depth=0.93' Max Vel=14.74 fps Inflow=24.25 cfs 2.539 af
30.0" Round Pipe n=0.014 L=400.0' S=0.0480 '/' Capacity=83.45 cfs Outflow=24.07 cfs 2.537 af

Reach L10: Avg. Flow Depth=2.53' Max Vel=4.44 fps Inflow=38.58 cfs 3.952 af
48.0" Round Pipe n=0.014 L=612.0' S=0.0015 '/' Capacity=51.15 cfs Outflow=36.84 cfs 3.938 af

Reach L113: 72" Avg. Flow Depth=2.13' Max Vel=14.96 fps Inflow=134.29 cfs 13.237 af
72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/' Capacity=498.08 cfs Outflow=134.15 cfs 13.235 af

Reach L123: Avg. Flow Depth=1.96' Max Vel=6.21 fps Inflow=38.34 cfs 3.133 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/' Capacity=78.83 cfs Outflow=37.28 cfs 3.129 af

Reach L157: Avg. Flow Depth=1.88' Max Vel=5.26 fps Inflow=30.57 cfs 2.105 af
48.0" Round Pipe n=0.014 L=138.0' S=0.0026 '/' Capacity=68.13 cfs Outflow=29.88 cfs 2.104 af

Reach L158: Avg. Flow Depth=1.75' Max Vel=5.79 fps Inflow=31.25 cfs 2.347 af
48.0" Round Pipe n=0.014 L=254.0' S=0.0034 '/' Capacity=77.61 cfs Outflow=30.24 cfs 2.344 af

Reach L159: Avg. Flow Depth=0.26' Max Vel=2.31 fps Inflow=0.82 cfs 0.149 af
48.0" Round Pipe n=0.014 L=340.0' S=0.0050 '/' Capacity=94.32 cfs Outflow=0.81 cfs 0.148 af

Reach L69: 60" Avg. Flow Depth=2.53' Max Vel=10.06 fps Inflow=100.15 cfs 9.792 af
60.0" Round Pipe n=0.014 L=127.0' S=0.0066 '/' Capacity=196.68 cfs Outflow=99.93 cfs 9.789 af

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Type III 24-hr 2-Year Rainfall=3.20"

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Reach L76: Avg. Flow Depth=1.61' Max Vel=5.68 fps Inflow=27.04 cfs 1.791 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/' Capacity=78.83 cfs Outflow=25.95 cfs 1.788 af

Reach L81: Avg. Flow Depth=1.48' Max Vel=8.13 fps Inflow=39.45 cfs 3.326 af
60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/' Capacity=207.41 cfs Outflow=39.22 cfs 3.325 af

Reach P2: 78" Avg. Flow Depth=2.00' Max Vel=15.49 fps Inflow=134.15 cfs 13.235 af
78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/' Capacity=653.15 cfs Outflow=134.11 cfs 13.234 af

Reach POA 2: POA 2 Inflow=134.11 cfs 13.234 af
Outflow=134.11 cfs 13.234 af

Pond 42.1P: Peak Elev=41.06' Storage=11,343 cf Inflow=140.53 cfs 13.237 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/' Outflow=134.29 cfs 13.237 af

Pond 47P: Peak Elev=44.44' Storage=8,779 cf Inflow=2.96 cfs 0.202 af
Outflow=0.00 cfs 0.000 af

Pond 51P: Peak Elev=45.25' Storage=3,114 cf Inflow=0.23 cfs 0.072 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 129.108 ac Runoff Volume = 13.564 af Average Runoff Depth = 1.26"
46.04% Pervious = 59.438 ac 53.96% Impervious = 69.670 ac

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Type III 24-hr 2-Year Rainfall=3.20"

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Summary for Subcatchment 1S: S6, 8, 9, 10

Runoff = 12.22 cfs @ 12.08 hrs, Volume= 0.814 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.680	49	
* 1.060	98	
* 0.110	69	
* 1.150	98	
* 0.260	49	
* 1.200	98	
* 0.270	49	
* 0.720	98	
5.450	87	Weighted Average
1.320		24.22% Pervious Area
4.130		75.78% Impervious Area

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

Summary for Subcatchment 2S: S34-39

Runoff = 27.04 cfs @ 12.08 hrs, Volume= 1.791 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.300	49	
* 1.970	98	
* 0.840	49	
* 0.100	98	
* 0.160	49	
* 1.290	98	
* 0.330	49	
* 0.380	98	
* 0.620	49	
* 3.250	98	
* 0.440	49	
* 2.270	98	
* 0.680	49	
* 0.480	98	
13.110	85	Weighted Average
3.370		25.71% Pervious Area
9.740		74.29% Impervious Area

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

Summary for Subcatchment S1:

Runoff = 0.07 cfs @ 15.42 hrs, Volume= 0.029 af, Depth> 0.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 8.170	43	
* 0.530	65	
* 0.320	98	
9.020	46	Weighted Average
8.700		96.45% Pervious Area
0.320		3.55% Impervious Area

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

Summary for Subcatchment S11:

Runoff = 10.23 cfs @ 12.07 hrs, Volume= 0.714 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.260	49	
* 3.300	98	
3.560	94	Weighted Average
0.260		7.30% Pervious Area
3.300		92.70% Impervious Area

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

Summary for Subcatchment S11.1:

Runoff = 0.01 cfs @ 13.75 hrs, Volume= 0.004 af, Depth> 0.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 2-Year Rainfall=3.20"

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Area (sf)	CN	Description
* 24,742	49	
24,742		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	40	0.3750	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
6.4	460	0.0055	1.19		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.3	390	0.0107	5.06	6.20	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014
0.2	62	0.0065	5.39	16.94	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.014
11.1	952	Total			

Summary for Subcatchment S12:

Runoff = 0.05 cfs @ 15.00 hrs, Volume= 0.022 af, Depth> 0.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 4.650	43	
* 0.410	98	
5.060	47	Weighted Average
4.650		91.90% Pervious Area
0.410		8.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2					Direct Entry,
0.4	260	0.0427	10.10	12.40	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014
18.6	260	Total			

Summary for Subcatchment S13:

Runoff = 9.02 cfs @ 12.07 hrs, Volume= 0.664 af, Depth> 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
* 0.040	49	
* 2.890	98	
2.930	97	Weighted Average
0.040		1.37% Pervious Area
2.890		98.63% Impervious Area

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

Summary for Subcatchment S14:

Runoff = 3.74 cfs @ 12.12 hrs, Volume= 0.280 af, Depth> 0.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.940	49	
* 1.820	98	
3.760	73	Weighted Average
1.940		51.60% Pervious Area
1.820		48.40% Impervious Area

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

Summary for Subcatchment S15:

Runoff = 6.39 cfs @ 12.08 hrs, Volume= 0.426 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.650	49	
* 2.200	98	
2.850	87	Weighted Average
0.650		22.81% Pervious Area
2.200		77.19% Impervious Area

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

Summary for Subcatchment S16:

Runoff = 10.20 cfs @ 12.07 hrs, Volume= 0.712 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.320	49	
* 3.230	98	
3.550	94	Weighted Average
0.320		9.01% Pervious Area
3.230		90.99% Impervious Area

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

Summary for Subcatchment S17:

Runoff = 5.92 cfs @ 12.10 hrs, Volume= 0.404 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.140	49	
* 2.260	98	
3.400	82	Weighted Average
1.140		33.53% Pervious Area
2.260		66.47% Impervious Area

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

Summary for Subcatchment S18:

Runoff = 5.19 cfs @ 12.08 hrs, Volume= 0.343 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.770	49	
* 1.860	98	
2.630	84	Weighted Average
0.770		29.28% Pervious Area
1.860		70.72% Impervious Area

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Type III 24-hr 2-Year Rainfall=3.20"

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

Summary for Subcatchment S2:

Runoff = 5.87 cfs @ 12.21 hrs, Volume= 0.516 af, Depth> 1.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.690	43	
* 0.020	65	
* 3.330	98	
5.040	79	Weighted Average
1.710		33.93% Pervious Area
3.330		66.07% Impervious Area

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

Summary for Subcatchment S3:

Runoff = 8.85 cfs @ 12.07 hrs, Volume= 0.599 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.820	69	
* 2.560	98	
3.380	91	Weighted Average
0.820		24.26% Pervious Area
2.560		75.74% Impervious Area

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

Summary for Subcatchment S4:

Runoff = 1.92 cfs @ 12.56 hrs, Volume= 0.335 af, Depth> 0.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
* 9.550	49	
* 2.870	69	
* 1.510	98	
13.930	58	Weighted Average
12.420		89.16% Pervious Area
1.510		10.84% Impervious Area

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

Summary for Subcatchment S40:

Runoff = 4.81 cfs @ 12.08 hrs, Volume= 0.317 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.870	49	
* 1.800	98	
2.670	82	Weighted Average
0.870		32.58% Pervious Area
1.800		67.42% Impervious Area

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

Summary for Subcatchment S40.1:

Runoff = 0.82 cfs @ 12.94 hrs, Volume= 0.149 af, Depth> 0.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.250	49	
* 1.060	98	
2.310	71	Weighted Average
1.250		54.11% Pervious Area
1.060		45.89% Impervious Area

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

Summary for Subcatchment S40.2:

Runoff = 10.00 cfs @ 12.07 hrs, Volume= 0.754 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 3.200	98	
3.200		100.00% Impervious Area

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

Summary for Subcatchment S41:

Runoff = 1.42 cfs @ 12.08 hrs, Volume= 0.095 af, Depth> 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.460	49	
* 0.020	36	
* 0.600	98	
1.080	76	Weighted Average
0.480		44.44% Pervious Area
0.600		55.56% Impervious Area

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

Summary for Subcatchment S41.1:

Runoff = 0.19 cfs @ 12.50 hrs, Volume= 0.035 af, Depth> 0.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.510	49	
* 0.220	36	
* 0.300	98	
2.030	55	Weighted Average
1.730		85.22% Pervious Area
0.300		14.78% Impervious Area

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

Summary for Subcatchment S42:

Runoff = 2.97 cfs @ 12.08 hrs, Volume= 0.197 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.380	49	
* 1.060	98	
1.440	85	Weighted Average
0.380		26.39% Pervious Area
1.060		73.61% Impervious Area

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

Summary for Subcatchment S42.1:

Runoff = 1.81 cfs @ 12.09 hrs, Volume= 0.124 af, Depth> 0.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.750	43	
* 0.910	98	
1.660	73	Weighted Average
0.750		45.18% Pervious Area
0.910		54.82% Impervious Area

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

Summary for Subcatchment S43:

Runoff = 7.97 cfs @ 12.07 hrs, Volume= 0.564 af, Depth> 2.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
* 0.170	49	
* 2.530	98	
2.700	95	Weighted Average
0.170		6.30% Pervious Area
2.530		93.70% Impervious Area

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

Summary for Subcatchment S44:

Runoff = 4.40 cfs @ 12.07 hrs, Volume= 0.324 af, Depth> 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.020	49	
* 1.410	98	
1.430	97	Weighted Average
0.020		1.40% Pervious Area
1.410		98.60% Impervious Area

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

Summary for Subcatchment S45:

Runoff = 1.90 cfs @ 12.08 hrs, Volume= 0.128 af, Depth> 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.650	49	
* 0.800	98	
1.450	76	Weighted Average
0.650		44.83% Pervious Area
0.800		55.17% Impervious Area

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

Summary for Subcatchment S45.1:

Runoff = 1.46 cfs @ 12.08 hrs, Volume= 0.097 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.210	49	
* 0.530	98	
0.740	84	Weighted Average
0.210		28.38% Pervious Area
0.530		71.62% Impervious Area

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

Summary for Subcatchment S46:

Runoff = 2.94 cfs @ 12.08 hrs, Volume= 0.194 af, Depth> 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.670	49	
* 1.130	98	
1.800	80	Weighted Average
0.670		37.22% Pervious Area
1.130		62.78% Impervious Area

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

Summary for Subcatchment S47:

Runoff = 0.01 cfs @ 17.38 hrs, Volume= 0.003 af, Depth> 0.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 2.630	36	
* 0.310	98	
2.940	43	Weighted Average
2.630		89.46% Pervious Area
0.310		10.54% Impervious Area

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

Summary for Subcatchment S48:

Runoff = 2.96 cfs @ 12.07 hrs, Volume= 0.199 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.190	49	
* 0.980	98	
1.170	90	Weighted Average
0.190		16.24% Pervious Area
0.980		83.76% Impervious Area

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

Summary for Subcatchment S49:

Runoff = 7.00 cfs @ 12.08 hrs, Volume= 0.466 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.730	49	
* 2.390	98	
3.120	87	Weighted Average
0.730		23.40% Pervious Area
2.390		76.60% Impervious Area

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

Summary for Subcatchment S5:

Runoff = 7.62 cfs @ 12.08 hrs, Volume= 0.508 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
* 0.740	49	
* 2.660	98	
3.400	87	Weighted Average
0.740		21.76% Pervious Area
2.660		78.24% Impervious Area

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

Summary for Subcatchment S5.1:

Runoff = 5.98 cfs @ 12.23 hrs, Volume= 0.552 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.270	69	
* 0.710	60	
* 2.570	98	
3.550	88	Weighted Average
0.980		27.61% Pervious Area
2.570		72.39% Impervious Area

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

Summary for Subcatchment S50:

Runoff = 8.02 cfs @ 12.08 hrs, Volume= 0.531 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.030	49	
* 2.860	98	
3.890	85	Weighted Average
1.030		26.48% Pervious Area
2.860		73.52% Impervious Area

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

Summary for Subcatchment S51:

Runoff = 0.23 cfs @ 12.73 hrs, Volume= 0.072 af, Depth> 0.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 5.880	49	
* 0.350	98	
6.230	52	Weighted Average
5.880		94.38% Pervious Area
0.350		5.62% Impervious Area

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

Summary for Subcatchment S7:

Runoff = 6.01 cfs @ 12.29 hrs, Volume= 0.603 af, Depth> 1.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.730	69	
* 0.670	65	
* 2.660	98	
4.060	87	Weighted Average
1.400		34.48% Pervious Area
2.660		65.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7					Direct Entry,
0.2	150	0.0253	13.94	98.51	Pipe Channel, 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.014

20.9 150 Total

Summary for Reach 1R: 60"

Inflow Area = 84.258 ac, 52.35% Impervious, Inflow Depth > 1.25" for 2-Year event
Inflow = 90.35 cfs @ 12.14 hrs, Volume= 8.805 af
Outflow = 89.55 cfs @ 12.16 hrs, Volume= 8.795 af, Atten= 1%, Lag= 1.6 min

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Type III 24-hr 2-Year Rainfall=3.20"

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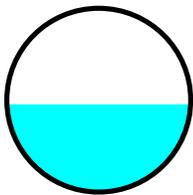
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Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.79 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 3.44 fps, Avg. Travel Time= 2.3 min

Peak Storage= 4,434 cf @ 12.15 hrs
Average Depth at Peak Storage= 2.38'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.22 cfs

60.0" Round Pipe
n= 0.014
Length= 480.0' Slope= 0.0066 '/'
Inlet Invert= 42.00', Outlet Invert= 38.84'



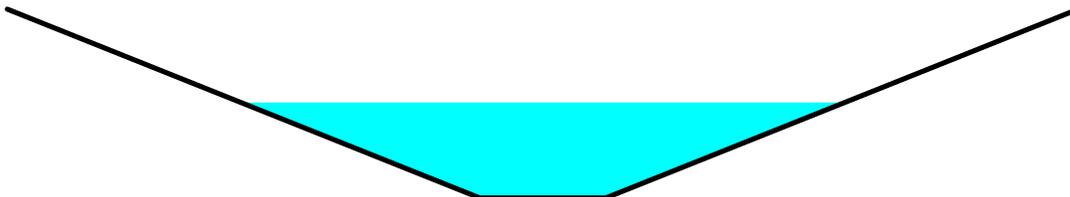
Summary for Reach 2R: Ditch 2

Inflow Area = 21.550 ac, 59.44% Impervious, Inflow Depth > 1.39" for 2-Year event
Inflow = 32.13 cfs @ 12.10 hrs, Volume= 2.504 af
Outflow = 30.49 cfs @ 12.16 hrs, Volume= 2.498 af, Atten= 5%, Lag= 3.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.52 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.25 fps, Avg. Travel Time= 4.9 min

Peak Storage= 3,244 cf @ 12.13 hrs
Average Depth at Peak Storage= 1.52'
Bank-Full Depth= 3.00' Flow Area= 28.5 sf, Capacity= 150.34 cfs

2.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.5 '/' Top Width= 17.00'
Length= 370.0' Slope= 0.0062 '/'
Inlet Invert= 48.90', Outlet Invert= 46.60'



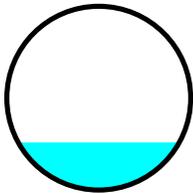
Summary for Reach 3R: 36"

Inflow Area = 14.600 ac, 50.14% Impervious, Inflow Depth > 1.14" for 2-Year event
Inflow = 18.40 cfs @ 12.10 hrs, Volume= 1.390 af
Outflow = 18.07 cfs @ 12.11 hrs, Volume= 1.389 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.76 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 4.25 fps, Avg. Travel Time= 1.4 min

Peak Storage= 513 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.77'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 126.46 cfs

36.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0417 '/'
Inlet Invert= 63.70', Outlet Invert= 48.90'



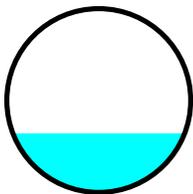
Summary for Reach 4R: 36"

Inflow Area = 11.750 ac, 43.57% Impervious, Inflow Depth > 0.99" for 2-Year event
Inflow = 12.35 cfs @ 12.10 hrs, Volume= 0.965 af
Outflow = 12.19 cfs @ 12.10 hrs, Volume= 0.965 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.35 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.19 fps, Avg. Travel Time= 0.9 min

Peak Storage= 240 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.96'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 55.84 cfs

36.0" Round Pipe
n= 0.014
Length= 123.0' Slope= 0.0081 '/'
Inlet Invert= 68.80', Outlet Invert= 67.80'



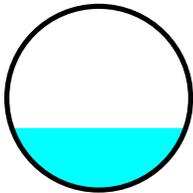
Summary for Reach 5R: 24"

Inflow Area = 7.990 ac, 41.30% Impervious, Inflow Depth > 1.03" for 2-Year event
Inflow = 9.02 cfs @ 12.07 hrs, Volume= 0.686 af
Outflow = 8.82 cfs @ 12.09 hrs, Volume= 0.685 af, Atten= 2%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.60 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 3.38 fps, Avg. Travel Time= 1.2 min

Peak Storage= 221 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 36.79 cfs

24.0" Round Pipe
n= 0.014
Length= 238.0' Slope= 0.0307 '/'
Inlet Invert= 79.70', Outlet Invert= 72.40'



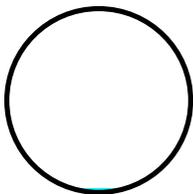
Summary for Reach 6R: 24"

Inflow Area = 5.060 ac, 8.10% Impervious, Inflow Depth > 0.05" for 2-Year event
Inflow = 0.05 cfs @ 15.00 hrs, Volume= 0.022 af
Outflow = 0.05 cfs @ 15.08 hrs, Volume= 0.022 af, Atten= 0%, Lag= 5.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.68 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 2.41 fps, Avg. Travel Time= 3.4 min

Peak Storage= 9 cf @ 15.03 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 53.18 cfs

24.0" Round Pipe
n= 0.014
Length= 490.0' Slope= 0.0641 '/'
Inlet Invert= 103.80', Outlet Invert= 72.40'



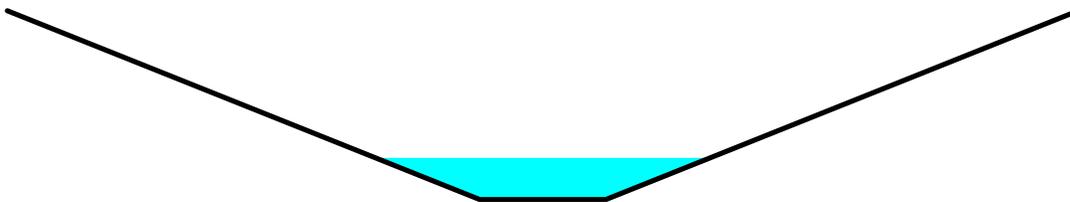
Summary for Reach 7R: Ditch 1

Inflow Area = 3.400 ac, 66.47% Impervious, Inflow Depth > 1.43" for 2-Year event
Inflow = 5.92 cfs @ 12.10 hrs, Volume= 0.404 af
Outflow = 5.49 cfs @ 12.17 hrs, Volume= 0.402 af, Atten= 7%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.29 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.91 fps, Avg. Travel Time= 5.6 min

Peak Storage= 739 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 3.00' Flow Area= 28.5 sf, Capacity= 154.41 cfs

2.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.5 '/ Top Width= 17.00'
Length= 305.0' Slope= 0.0066 '/
Inlet Invert= 50.90', Outlet Invert= 48.90'



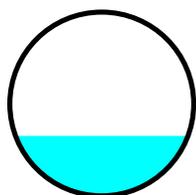
Summary for Reach 8R: 36"

Inflow Area = 38.320 ac, 33.79% Impervious, Inflow Depth > 0.79" for 2-Year event
Inflow = 24.07 cfs @ 12.12 hrs, Volume= 2.537 af
Outflow = 23.44 cfs @ 12.14 hrs, Volume= 2.535 af, Atten= 3%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.03 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 4.81 fps, Avg. Travel Time= 1.4 min

Peak Storage= 777 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.98'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 105.42 cfs

36.0" Round Pipe
n= 0.014
Length= 390.0' Slope= 0.0290 '/
Inlet Invert= 59.80', Outlet Invert= 48.50'



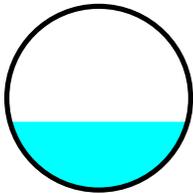
Summary for Reach 9R: 30"

Inflow Area = 38.320 ac, 33.79% Impervious, Inflow Depth > 0.80" for 2-Year event
Inflow = 24.25 cfs @ 12.10 hrs, Volume= 2.539 af
Outflow = 24.07 cfs @ 12.12 hrs, Volume= 2.537 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 14.74 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 5.87 fps, Avg. Travel Time= 1.1 min

Peak Storage= 661 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.93'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 83.45 cfs

30.0" Round Pipe
n= 0.014
Length= 400.0' Slope= 0.0480 '/'
Inlet Invert= 79.60', Outlet Invert= 60.40'



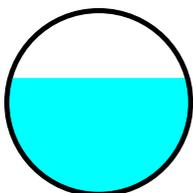
Summary for Reach L10:

Inflow Area = 47.830 ac, 41.27% Impervious, Inflow Depth > 0.99" for 2-Year event
Inflow = 38.58 cfs @ 12.11 hrs, Volume= 3.952 af
Outflow = 36.84 cfs @ 12.20 hrs, Volume= 3.938 af, Atten= 4%, Lag= 5.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.44 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 5.6 min

Peak Storage= 5,136 cf @ 12.15 hrs
Average Depth at Peak Storage= 2.53'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 51.15 cfs

48.0" Round Pipe
n= 0.014
Length= 612.0' Slope= 0.0015 '/'
Inlet Invert= 47.50', Outlet Invert= 46.60'



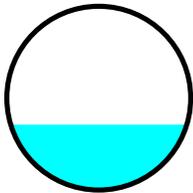
Summary for Reach L113: 72"

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 1.23" for 2-Year event
Inflow = 134.29 cfs @ 12.20 hrs, Volume= 13.237 af
Outflow = 134.15 cfs @ 12.20 hrs, Volume= 13.235 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 14.96 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 5.07 fps, Avg. Travel Time= 0.3 min

Peak Storage= 862 cf @ 12.20 hrs
Average Depth at Peak Storage= 2.13'
Bank-Full Depth= 6.00' Flow Area= 28.3 sf, Capacity= 498.08 cfs

72.0" Round Pipe
n= 0.014
Length= 96.0' Slope= 0.0160 '/'
Inlet Invert= 36.11', Outlet Invert= 34.57'



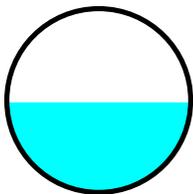
Summary for Reach L123:

Inflow Area = 24.400 ac, 68.44% Impervious, Inflow Depth > 1.54" for 2-Year event
Inflow = 38.34 cfs @ 12.12 hrs, Volume= 3.133 af
Outflow = 37.28 cfs @ 12.15 hrs, Volume= 3.129 af, Atten= 3%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.21 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 2.06 fps, Avg. Travel Time= 2.9 min

Peak Storage= 2,170 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.96'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



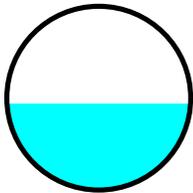
Summary for Reach L157:

Inflow Area = 15.780 ac, 73.13% Impervious, Inflow Depth > 1.60" for 2-Year event
Inflow = 30.57 cfs @ 12.11 hrs, Volume= 2.105 af
Outflow = 29.88 cfs @ 12.12 hrs, Volume= 2.104 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.26 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.05 fps, Avg. Travel Time= 1.1 min

Peak Storage= 799 cf @ 12.11 hrs
Average Depth at Peak Storage= 1.88'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 68.13 cfs

48.0" Round Pipe
n= 0.014
Length= 138.0' Slope= 0.0026 '/'
Inlet Invert= 42.06', Outlet Invert= 41.70'



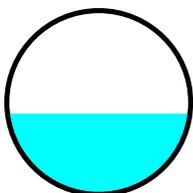
Summary for Reach L158:

Inflow Area = 19.170 ac, 68.86% Impervious, Inflow Depth > 1.47" for 2-Year event
Inflow = 31.25 cfs @ 12.12 hrs, Volume= 2.347 af
Outflow = 30.24 cfs @ 12.14 hrs, Volume= 2.344 af, Atten= 3%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.79 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.34 fps, Avg. Travel Time= 1.8 min

Peak Storage= 1,345 cf @ 12.13 hrs
Average Depth at Peak Storage= 1.75'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 77.61 cfs

48.0" Round Pipe
n= 0.014
Length= 254.0' Slope= 0.0034 '/'
Inlet Invert= 41.60', Outlet Invert= 40.74'



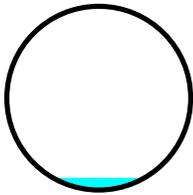
Summary for Reach L159:

Inflow Area = 2.310 ac, 45.89% Impervious, Inflow Depth > 0.77" for 2-Year event
Inflow = 0.82 cfs @ 12.94 hrs, Volume= 0.149 af
Outflow = 0.81 cfs @ 13.01 hrs, Volume= 0.148 af, Atten= 0%, Lag= 4.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.31 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 1.40 fps, Avg. Travel Time= 4.0 min

Peak Storage= 120 cf @ 12.97 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 340.0' Slope= 0.0050 '/
Inlet Invert= 43.40', Outlet Invert= 41.70'



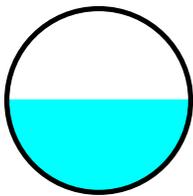
Summary for Reach L69: 60"

Inflow Area = 95.378 ac, 53.10% Impervious, Inflow Depth > 1.23" for 2-Year event
Inflow = 100.15 cfs @ 12.15 hrs, Volume= 9.792 af
Outflow = 99.93 cfs @ 12.15 hrs, Volume= 9.789 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.06 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.54 fps, Avg. Travel Time= 0.6 min

Peak Storage= 1,265 cf @ 12.15 hrs
Average Depth at Peak Storage= 2.53'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.68 cfs

60.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0066 '/
Inlet Invert= 38.84', Outlet Invert= 38.00'



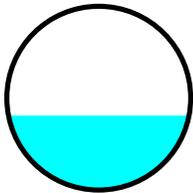
Summary for Reach L76:

Inflow Area = 13.110 ac, 74.29% Impervious, Inflow Depth > 1.64" for 2-Year event
Inflow = 27.04 cfs @ 12.08 hrs, Volume= 1.791 af
Outflow = 25.95 cfs @ 12.11 hrs, Volume= 1.788 af, Atten= 4%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.68 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 2.18 fps, Avg. Travel Time= 2.7 min

Peak Storage= 1,687 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.61'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



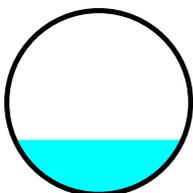
Summary for Reach L81:

Inflow Area = 25.840 ac, 68.73% Impervious, Inflow Depth > 1.54" for 2-Year event
Inflow = 39.45 cfs @ 12.15 hrs, Volume= 3.326 af
Outflow = 39.22 cfs @ 12.15 hrs, Volume= 3.325 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.13 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.65 fps, Avg. Travel Time= 0.8 min

Peak Storage= 587 cf @ 12.15 hrs
Average Depth at Peak Storage= 1.48'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 207.41 cfs

60.0" Round Pipe
n= 0.014
Length= 121.0' Slope= 0.0074 '/'
Inlet Invert= 38.80', Outlet Invert= 37.91'



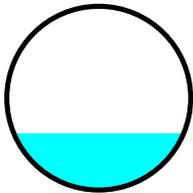
Summary for Reach P2: 78"

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 1.23" for 2-Year event
 Inflow = 134.15 cfs @ 12.20 hrs, Volume= 13.235 af
 Outflow = 134.11 cfs @ 12.20 hrs, Volume= 13.234 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 15.49 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 5.24 fps, Avg. Travel Time= 0.1 min

Peak Storage= 217 cf @ 12.20 hrs
 Average Depth at Peak Storage= 2.00'
 Bank-Full Depth= 6.50' Flow Area= 33.2 sf, Capacity= 653.15 cfs

78.0" Round Pipe
 n= 0.014
 Length= 25.0' Slope= 0.0180 '/'
 Inlet Invert= 34.57', Outlet Invert= 34.12'



Summary for Reach POA 2: POA 2

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 1.23" for 2-Year event
 Inflow = 134.11 cfs @ 12.20 hrs, Volume= 13.234 af
 Outflow = 134.11 cfs @ 12.20 hrs, Volume= 13.234 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 42.1P:

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 1.23" for 2-Year event
 Inflow = 140.53 cfs @ 12.15 hrs, Volume= 13.237 af
 Outflow = 134.29 cfs @ 12.20 hrs, Volume= 13.237 af, Atten= 4%, Lag= 2.7 min
 Primary = 134.29 cfs @ 12.20 hrs, Volume= 13.237 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.06' @ 12.20 hrs Surf.Area= 8,615 sf Storage= 11,343 cf

Plug-Flow detention time= 0.6 min calculated for 13.237 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (789.2 - 788.6)

Volume	Invert	Avail.Storage	Storage Description
#1	36.10'	83,475 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 2-Year Rainfall=3.20"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.10	0	0	0
36.56	36	8	8
37.02	71	25	33
37.52	628	175	208
38.02	1,185	453	661
38.52	1,515	675	1,336
39.02	1,845	840	2,176
39.52	2,750	1,149	3,325
40.02	3,654	1,601	4,926
40.52	6,082	2,434	7,360
41.02	8,510	3,648	11,008
41.52	9,847	4,589	15,597
42.02	11,185	5,258	20,855
42.52	12,262	5,862	26,717
43.02	13,340	6,401	33,117
43.52	14,672	7,003	40,120
44.02	16,005	7,669	47,789
44.52	17,355	8,340	56,129
45.02	18,705	9,015	65,144
46.00	18,705	18,331	83,475

Device	Routing	Invert	Outlet Devices
#1	Primary	36.11'	72.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 36.11' / 36.10' S= 0.0100 1' Cc= 0.900 n= 0.014, Flow Area= 28.27 sf

Primary OutFlow Max=134.18 cfs @ 12.20 hrs HW=41.06' (Free Discharge)

↑**1=Culvert** (Barrel Controls 134.18 cfs @ 7.31 fps)

Summary for Pond 47P:

Inflow Area = 4.110 ac, 31.39% Impervious, Inflow Depth > 0.59" for 2-Year event
 Inflow = 2.96 cfs @ 12.07 hrs, Volume= 0.202 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.44' @ 20.00 hrs Surf.Area= 21,812 sf Storage= 8,779 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	277,477 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 2-Year Rainfall=3.20"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	17,860	0	0
44.50	22,325	10,046	10,046
45.00	26,789	12,279	22,325
45.50	31,254	14,511	36,836
46.00	35,719	16,743	53,579
46.50	42,471	19,548	73,126
47.00	49,223	22,924	96,050
47.50	55,975	26,300	122,349
48.00	62,726	29,675	152,025
50.00	62,726	125,452	277,477

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	165.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)
 ↳1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 51P:

Inflow Area = 6.230 ac, 5.62% Impervious, Inflow Depth > 0.14" for 2-Year event
 Inflow = 0.23 cfs @ 12.73 hrs, Volume= 0.072 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 45.25' @ 20.00 hrs Surf.Area= 19,494 sf Storage= 3,114 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	513,572 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	5,227	0	0
45.50	33,541	9,692	9,692
46.00	61,855	23,849	33,541
46.50	81,239	35,774	69,315
47.00	100,624	45,466	114,780
47.50	120,008	55,158	169,938
48.00	139,392	64,850	234,788
50.00	139,392	278,784	513,572

Device	Routing	Invert	Outlet Devices
#1	Primary	48.50'	75.0' long x 5.0' breadth Broad-Crested Rectangular Weir

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 2-Year Rainfall=3.20"

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Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00
	2.50	3.00	3.50	4.00	4.50	5.00	5.50			
Coef. (English)	2.34	2.50	2.70	2.68	2.68	2.66	2.65	2.65	2.65	2.65
	2.65	2.67	2.66	2.68	2.70	2.74	2.79	2.88		

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.00' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: S6, 8, 9, 10	Runoff Area=5.450 ac 75.78% Impervious Runoff Depth>3.01" Tc=5.0 min CN=87 Runoff=20.22 cfs 1.365 af
Subcatchment 2S: S34-39	Runoff Area=13.110 ac 74.29% Impervious Runoff Depth>2.82" Tc=5.0 min CN=85 Runoff=46.05 cfs 3.078 af
Subcatchment S1:	Runoff Area=9.020 ac 3.55% Impervious Runoff Depth>0.30" Tc=30.2 min CN=46 Runoff=0.98 cfs 0.224 af
Subcatchment S11:	Runoff Area=3.560 ac 92.70% Impervious Runoff Depth>3.72" Tc=5.0 min CN=94 Runoff=15.37 cfs 1.102 af
Subcatchment S11.1:	Runoff Area=24,742 sf 0.00% Impervious Runoff Depth>0.42" Flow Length=952' Tc=11.1 min CN=49 Runoff=0.14 cfs 0.020 af
Subcatchment S12:	Runoff Area=5.060 ac 8.10% Impervious Runoff Depth>0.34" Flow Length=260' Slope=0.0427 '/' Tc=18.6 min CN=47 Runoff=0.79 cfs 0.143 af
Subcatchment S13:	Runoff Area=2.930 ac 98.63% Impervious Runoff Depth>4.05" Tc=5.0 min CN=97 Runoff=13.15 cfs 0.989 af
Subcatchment S14:	Runoff Area=3.760 ac 48.40% Impervious Runoff Depth>1.82" Tc=7.9 min CN=73 Runoff=7.92 cfs 0.570 af
Subcatchment S15:	Runoff Area=2.850 ac 77.19% Impervious Runoff Depth>3.01" Tc=5.0 min CN=87 Runoff=10.58 cfs 0.714 af
Subcatchment S16:	Runoff Area=3.550 ac 90.99% Impervious Runoff Depth>3.72" Tc=5.0 min CN=94 Runoff=15.32 cfs 1.099 af
Subcatchment S17:	Runoff Area=3.400 ac 66.47% Impervious Runoff Depth>2.55" Tc=6.5 min CN=82 Runoff=10.50 cfs 0.722 af
Subcatchment S18:	Runoff Area=2.630 ac 70.72% Impervious Runoff Depth>2.73" Tc=5.0 min CN=84 Runoff=8.92 cfs 0.597 af
Subcatchment S2:	Runoff Area=5.040 ac 66.07% Impervious Runoff Depth>2.28" Tc=14.8 min CN=79 Runoff=11.01 cfs 0.959 af
Subcatchment S3:	Runoff Area=3.380 ac 75.74% Impervious Runoff Depth>3.40" Tc=5.0 min CN=91 Runoff=13.79 cfs 0.958 af
Subcatchment S4:	Runoff Area=13.930 ac 10.84% Impervious Runoff Depth>0.84" Tc=25.6 min CN=58 Runoff=7.81 cfs 0.980 af
Subcatchment S40:	Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>2.55" Tc=5.0 min CN=82 Runoff=8.52 cfs 0.567 af

Subcatchment S40.1:	Runoff Area=2.310 ac 45.89% Impervious Runoff Depth>1.63" Tc=63.2 min CN=71 Runoff=1.82 cfs 0.314 af
Subcatchment S40.2:	Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>4.16" Tc=5.0 min CN=98 Runoff=14.48 cfs 1.110 af
Subcatchment S41:	Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>2.05" Tc=5.0 min CN=76 Runoff=2.79 cfs 0.184 af
Subcatchment S41.1:	Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>0.69" Tc=16.7 min CN=55 Runoff=1.00 cfs 0.117 af
Subcatchment S42:	Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>2.82" Tc=5.0 min CN=85 Runoff=5.06 cfs 0.338 af
Subcatchment S42.1:	Runoff Area=1.660 ac 54.82% Impervious Runoff Depth>1.82" Tc=5.0 min CN=73 Runoff=3.80 cfs 0.252 af
Subcatchment S43:	Runoff Area=2.700 ac 93.70% Impervious Runoff Depth>3.82" Tc=5.0 min CN=95 Runoff=11.83 cfs 0.861 af
Subcatchment S44:	Runoff Area=1.430 ac 98.60% Impervious Runoff Depth>4.05" Tc=5.0 min CN=97 Runoff=6.42 cfs 0.482 af
Subcatchment S45:	Runoff Area=1.450 ac 55.17% Impervious Runoff Depth>2.05" Tc=5.0 min CN=76 Runoff=3.75 cfs 0.248 af
Subcatchment S45.1:	Runoff Area=0.740 ac 71.62% Impervious Runoff Depth>2.73" Tc=5.0 min CN=84 Runoff=2.51 cfs 0.168 af
Subcatchment S46:	Runoff Area=1.800 ac 62.78% Impervious Runoff Depth>2.38" Tc=5.0 min CN=80 Runoff=5.38 cfs 0.356 af
Subcatchment S47:	Runoff Area=2.940 ac 10.54% Impervious Runoff Depth>0.20" Tc=18.7 min CN=43 Runoff=0.18 cfs 0.049 af
Subcatchment S48:	Runoff Area=1.170 ac 83.76% Impervious Runoff Depth>3.30" Tc=5.0 min CN=90 Runoff=4.67 cfs 0.322 af
Subcatchment S49:	Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>3.01" Tc=5.0 min CN=87 Runoff=11.58 cfs 0.781 af
Subcatchment S5:	Runoff Area=3.400 ac 78.24% Impervious Runoff Depth>3.01" Tc=5.0 min CN=87 Runoff=12.62 cfs 0.851 af
Subcatchment S5.1:	Runoff Area=3.550 ac 72.39% Impervious Runoff Depth>3.09" Tc=16.7 min CN=88 Runoff=9.76 cfs 0.914 af
Subcatchment S50:	Runoff Area=3.890 ac 73.52% Impervious Runoff Depth>2.82" Tc=5.0 min CN=85 Runoff=13.66 cfs 0.913 af
Subcatchment S51:	Runoff Area=6.230 ac 5.62% Impervious Runoff Depth>0.55" Tc=26.2 min CN=52 Runoff=1.86 cfs 0.283 af

Subcatchment S7: Runoff Area=4.060 ac 65.52% Impervious Runoff Depth>2.99"
Flow Length=150' Slope=0.0253 '/ Tc=20.9 min CN=87 Runoff=9.92 cfs 1.012 af

Reach 1R: 60" Avg. Flow Depth=3.21' Max Vel=10.90 fps Inflow=146.72 cfs 15.295 af
60.0" Round Pipe n=0.014 L=480.0' S=0.0066 '/ Capacity=196.22 cfs Outflow=142.89 cfs 15.280 af

Reach 2R: Ditch 2 Avg. Flow Depth=1.90' Max Vel=4.01 fps Inflow=52.93 cfs 4.230 af
n=0.030 L=370.0' S=0.0062 '/ Capacity=150.34 cfs Outflow=50.33 cfs 4.222 af

Reach 3R: 36" Avg. Flow Depth=1.00' Max Vel=14.73 fps Inflow=30.45 cfs 2.413 af
36.0" Round Pipe n=0.014 L=355.0' S=0.0417 '/ Capacity=126.46 cfs Outflow=30.00 cfs 2.411 af

Reach 4R: 36" Avg. Flow Depth=1.26' Max Vel=7.30 fps Inflow=20.49 cfs 1.700 af
36.0" Round Pipe n=0.014 L=123.0' S=0.0081 '/ Capacity=55.84 cfs Outflow=20.27 cfs 1.699 af

Reach 5R: 24" Avg. Flow Depth=0.82' Max Vel=10.64 fps Inflow=13.15 cfs 1.131 af
24.0" Round Pipe n=0.014 L=238.0' S=0.0307 '/ Capacity=36.79 cfs Outflow=12.87 cfs 1.130 af

Reach 6R: 24" Avg. Flow Depth=0.17' Max Vel=6.13 fps Inflow=0.79 cfs 0.143 af
24.0" Round Pipe n=0.014 L=490.0' S=0.0641 '/ Capacity=53.18 cfs Outflow=0.79 cfs 0.142 af

Reach 7R: Ditch 1 Avg. Flow Depth=0.89' Max Vel=2.68 fps Inflow=10.50 cfs 0.722 af
n=0.030 L=305.0' S=0.0066 '/ Capacity=154.41 cfs Outflow=9.80 cfs 0.719 af

Reach 8R: 36" Avg. Flow Depth=1.32' Max Vel=14.00 fps Inflow=41.99 cfs 4.885 af
36.0" Round Pipe n=0.014 L=390.0' S=0.0290 '/ Capacity=105.42 cfs Outflow=41.11 cfs 4.882 af

Reach 9R: 30" Avg. Flow Depth=1.26' Max Vel=17.04 fps Inflow=42.24 cfs 4.888 af
30.0" Round Pipe n=0.014 L=400.0' S=0.0480 '/ Capacity=83.45 cfs Outflow=41.99 cfs 4.885 af

Reach L10: Avg. Flow Depth=4.00' Max Vel=4.62 fps Inflow=65.99 cfs 7.259 af
48.0" Round Pipe n=0.014 L=612.0' S=0.0015 '/ Capacity=51.15 cfs Outflow=51.81 cfs 7.238 af

Reach L113: 72" Avg. Flow Depth=2.73' Max Vel=16.91 fps Inflow=211.97 cfs 22.913 af
72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/ Capacity=498.08 cfs Outflow=211.75 cfs 22.910 af

Reach L123: Avg. Flow Depth=2.76' Max Vel=6.98 fps Inflow=65.50 cfs 5.360 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/ Capacity=78.83 cfs Outflow=63.53 cfs 5.354 af

Reach L157: Avg. Flow Depth=2.63' Max Vel=5.98 fps Inflow=52.46 cfs 3.641 af
48.0" Round Pipe n=0.014 L=138.0' S=0.0026 '/ Capacity=68.13 cfs Outflow=51.48 cfs 3.639 af

Reach L158: Avg. Flow Depth=2.45' Max Vel=6.65 fps Inflow=54.36 cfs 4.137 af
48.0" Round Pipe n=0.014 L=254.0' S=0.0034 '/ Capacity=77.61 cfs Outflow=52.44 cfs 4.133 af

Reach L159: Avg. Flow Depth=0.39' Max Vel=2.94 fps Inflow=1.82 cfs 0.314 af
48.0" Round Pipe n=0.014 L=340.0' S=0.0050 '/ Capacity=94.32 cfs Outflow=1.82 cfs 0.313 af

Reach L69: 60" Avg. Flow Depth=3.47' Max Vel=11.18 fps Inflow=164.26 cfs 16.975 af
60.0" Round Pipe n=0.014 L=127.0' S=0.0066 '/ Capacity=196.68 cfs Outflow=162.24 cfs 16.971 af

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Type III 24-hr 10-Year Rainfall=4.60"

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Reach L76: Avg. Flow Depth=2.19' Max Vel=6.50 fps Inflow=46.05 cfs 3.078 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/' Capacity=78.83 cfs Outflow=44.22 cfs 3.074 af

Reach L81: Avg. Flow Depth=1.96' Max Vel=9.43 fps Inflow=67.31 cfs 5.692 af
60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/' Capacity=207.41 cfs Outflow=66.98 cfs 5.691 af

Reach P2: 78" Avg. Flow Depth=2.55' Max Vel=17.57 fps Inflow=211.75 cfs 22.910 af
78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/' Capacity=653.15 cfs Outflow=211.70 cfs 22.909 af

Reach POA 2: POA 2 Inflow=211.70 cfs 22.909 af
Outflow=211.70 cfs 22.909 af

Pond 42.1P: Peak Elev=42.74' Storage=29,517 cf Inflow=232.04 cfs 22.913 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/' Outflow=211.97 cfs 22.913 af

Pond 47P: Peak Elev=44.76' Storage=16,142 cf Inflow=4.67 cfs 0.371 af
Outflow=0.00 cfs 0.000 af

Pond 51P: Peak Elev=45.57' Storage=12,301 cf Inflow=1.86 cfs 0.283 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 129.108 ac Runoff Volume = 23.644 af Average Runoff Depth = 2.20"
46.04% Pervious = 59.438 ac 53.96% Impervious = 69.670 ac

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Summary for Subcatchment 1S: S6, 8, 9, 10

Runoff = 20.22 cfs @ 12.07 hrs, Volume= 1.365 af, Depth> 3.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.680	49	
* 1.060	98	
* 0.110	69	
* 1.150	98	
* 0.260	49	
* 1.200	98	
* 0.270	49	
* 0.720	98	
5.450	87	Weighted Average
1.320		24.22% Pervious Area
4.130		75.78% Impervious Area

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

Summary for Subcatchment 2S: S34-39

Runoff = 46.05 cfs @ 12.07 hrs, Volume= 3.078 af, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.300	49	
* 1.970	98	
* 0.840	49	
* 0.100	98	
* 0.160	49	
* 1.290	98	
* 0.330	49	
* 0.380	98	
* 0.620	49	
* 3.250	98	
* 0.440	49	
* 2.270	98	
* 0.680	49	
* 0.480	98	
13.110	85	Weighted Average
3.370		25.71% Pervious Area
9.740		74.29% Impervious Area

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

Summary for Subcatchment S1:

Runoff = 0.98 cfs @ 12.69 hrs, Volume= 0.224 af, Depth> 0.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 8.170	43	
* 0.530	65	
* 0.320	98	
9.020	46	Weighted Average
8.700		96.45% Pervious Area
0.320		3.55% Impervious Area

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

Summary for Subcatchment S11:

Runoff = 15.37 cfs @ 12.07 hrs, Volume= 1.102 af, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.260	49	
* 3.300	98	
3.560	94	Weighted Average
0.260		7.30% Pervious Area
3.300		92.70% Impervious Area

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

Summary for Subcatchment S11.1:

Runoff = 0.14 cfs @ 12.33 hrs, Volume= 0.020 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (sf)	CN	Description
* 24,742	49	
24,742		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	40	0.3750	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
6.4	460	0.0055	1.19		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.3	390	0.0107	5.06	6.20	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014
0.2	62	0.0065	5.39	16.94	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.014
11.1	952	Total			

Summary for Subcatchment S12:

Runoff = 0.79 cfs @ 12.50 hrs, Volume= 0.143 af, Depth> 0.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 4.650	43	
* 0.410	98	
5.060	47	Weighted Average
4.650		91.90% Pervious Area
0.410		8.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2					Direct Entry,
0.4	260	0.0427	10.10	12.40	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014
18.6	260	Total			

Summary for Subcatchment S13:

Runoff = 13.15 cfs @ 12.07 hrs, Volume= 0.989 af, Depth> 4.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
* 0.040	49	
* 2.890	98	
2.930	97	Weighted Average
0.040		1.37% Pervious Area
2.890		98.63% Impervious Area

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

Summary for Subcatchment S14:

Runoff = 7.92 cfs @ 12.12 hrs, Volume= 0.570 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.940	49	
* 1.820	98	
3.760	73	Weighted Average
1.940		51.60% Pervious Area
1.820		48.40% Impervious Area

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

Summary for Subcatchment S15:

Runoff = 10.58 cfs @ 12.07 hrs, Volume= 0.714 af, Depth> 3.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.650	49	
* 2.200	98	
2.850	87	Weighted Average
0.650		22.81% Pervious Area
2.200		77.19% Impervious Area

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

Summary for Subcatchment S16:

Runoff = 15.32 cfs @ 12.07 hrs, Volume= 1.099 af, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.320	49	
* 3.230	98	
3.550	94	Weighted Average
0.320		9.01% Pervious Area
3.230		90.99% Impervious Area

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

Summary for Subcatchment S17:

Runoff = 10.50 cfs @ 12.10 hrs, Volume= 0.722 af, Depth> 2.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.140	49	
* 2.260	98	
3.400	82	Weighted Average
1.140		33.53% Pervious Area
2.260		66.47% Impervious Area

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

Summary for Subcatchment S18:

Runoff = 8.92 cfs @ 12.08 hrs, Volume= 0.597 af, Depth> 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.770	49	
* 1.860	98	
2.630	84	Weighted Average
0.770		29.28% Pervious Area
1.860		70.72% Impervious Area

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Type III 24-hr 10-Year Rainfall=4.60"

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

Summary for Subcatchment S2:

Runoff = 11.01 cfs @ 12.21 hrs, Volume= 0.959 af, Depth> 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.690	43	
* 0.020	65	
* 3.330	98	
5.040	79	Weighted Average
1.710		33.93% Pervious Area
3.330		66.07% Impervious Area

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

Summary for Subcatchment S3:

Runoff = 13.79 cfs @ 12.07 hrs, Volume= 0.958 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.820	69	
* 2.560	98	
3.380	91	Weighted Average
0.820		24.26% Pervious Area
2.560		75.74% Impervious Area

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

Summary for Subcatchment S4:

Runoff = 7.81 cfs @ 12.43 hrs, Volume= 0.980 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
* 9.550	49	
* 2.870	69	
* 1.510	98	
13.930	58	Weighted Average
12.420		89.16% Pervious Area
1.510		10.84% Impervious Area

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

Summary for Subcatchment S40:

Runoff = 8.52 cfs @ 12.08 hrs, Volume= 0.567 af, Depth> 2.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.870	49	
* 1.800	98	
2.670	82	Weighted Average
0.870		32.58% Pervious Area
1.800		67.42% Impervious Area

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

Summary for Subcatchment S40.1:

Runoff = 1.82 cfs @ 12.88 hrs, Volume= 0.314 af, Depth> 1.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.250	49	
* 1.060	98	
2.310	71	Weighted Average
1.250		54.11% Pervious Area
1.060		45.89% Impervious Area

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

Summary for Subcatchment S40.2:

Runoff = 14.48 cfs @ 12.07 hrs, Volume= 1.110 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 3.200	98	
3.200		100.00% Impervious Area

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

Summary for Subcatchment S41:

Runoff = 2.79 cfs @ 12.08 hrs, Volume= 0.184 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.460	49	
* 0.020	36	
* 0.600	98	
1.080	76	Weighted Average
0.480		44.44% Pervious Area
0.600		55.56% Impervious Area

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

Summary for Subcatchment S41.1:

Runoff = 1.00 cfs @ 12.30 hrs, Volume= 0.117 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.510	49	
* 0.220	36	
* 0.300	98	
2.030	55	Weighted Average
1.730		85.22% Pervious Area
0.300		14.78% Impervious Area

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

Summary for Subcatchment S42:

Runoff = 5.06 cfs @ 12.07 hrs, Volume= 0.338 af, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.380	49	
* 1.060	98	
1.440	85	Weighted Average
0.380		26.39% Pervious Area
1.060		73.61% Impervious Area

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

Summary for Subcatchment S42.1:

Runoff = 3.80 cfs @ 12.08 hrs, Volume= 0.252 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.750	43	
* 0.910	98	
1.660	73	Weighted Average
0.750		45.18% Pervious Area
0.910		54.82% Impervious Area

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

Summary for Subcatchment S43:

Runoff = 11.83 cfs @ 12.07 hrs, Volume= 0.861 af, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
* 0.170	49	
* 2.530	98	
2.700	95	Weighted Average
0.170		6.30% Pervious Area
2.530		93.70% Impervious Area

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

Summary for Subcatchment S44:

Runoff = 6.42 cfs @ 12.07 hrs, Volume= 0.482 af, Depth> 4.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.020	49	
* 1.410	98	
1.430	97	Weighted Average
0.020		1.40% Pervious Area
1.410		98.60% Impervious Area

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

Summary for Subcatchment S45:

Runoff = 3.75 cfs @ 12.08 hrs, Volume= 0.248 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.650	49	
* 0.800	98	
1.450	76	Weighted Average
0.650		44.83% Pervious Area
0.800		55.17% Impervious Area

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

Summary for Subcatchment S45.1:

Runoff = 2.51 cfs @ 12.08 hrs, Volume= 0.168 af, Depth> 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.210	49	
* 0.530	98	
0.740	84	Weighted Average
0.210		28.38% Pervious Area
0.530		71.62% Impervious Area

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

Summary for Subcatchment S46:

Runoff = 5.38 cfs @ 12.08 hrs, Volume= 0.356 af, Depth> 2.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.670	49	
* 1.130	98	
1.800	80	Weighted Average
0.670		37.22% Pervious Area
1.130		62.78% Impervious Area

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

Summary for Subcatchment S47:

Runoff = 0.18 cfs @ 12.60 hrs, Volume= 0.049 af, Depth> 0.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 2.630	36	
* 0.310	98	
2.940	43	Weighted Average
2.630		89.46% Pervious Area
0.310		10.54% Impervious Area

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

Summary for Subcatchment S48:

Runoff = 4.67 cfs @ 12.07 hrs, Volume= 0.322 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.190	49	
* 0.980	98	
1.170	90	Weighted Average
0.190		16.24% Pervious Area
0.980		83.76% Impervious Area

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

Summary for Subcatchment S49:

Runoff = 11.58 cfs @ 12.07 hrs, Volume= 0.781 af, Depth> 3.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.730	49	
* 2.390	98	
3.120	87	Weighted Average
0.730		23.40% Pervious Area
2.390		76.60% Impervious Area

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

Summary for Subcatchment S5:

Runoff = 12.62 cfs @ 12.07 hrs, Volume= 0.851 af, Depth> 3.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
* 0.740	49	
* 2.660	98	
3.400	87	Weighted Average
0.740		21.76% Pervious Area
2.660		78.24% Impervious Area

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

Summary for Subcatchment S5.1:

Runoff = 9.76 cfs @ 12.22 hrs, Volume= 0.914 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.270	69	
* 0.710	60	
* 2.570	98	
3.550	88	Weighted Average
0.980		27.61% Pervious Area
2.570		72.39% Impervious Area

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

Summary for Subcatchment S50:

Runoff = 13.66 cfs @ 12.07 hrs, Volume= 0.913 af, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.030	49	
* 2.860	98	
3.890	85	Weighted Average
1.030		26.48% Pervious Area
2.860		73.52% Impervious Area

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

Summary for Subcatchment S51:

Runoff = 1.86 cfs @ 12.51 hrs, Volume= 0.283 af, Depth> 0.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 5.880	49	
* 0.350	98	
6.230	52	Weighted Average
5.880		94.38% Pervious Area
0.350		5.62% Impervious Area

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

Summary for Subcatchment S7:

Runoff = 9.92 cfs @ 12.28 hrs, Volume= 1.012 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.730	69	
* 0.670	65	
* 2.660	98	
4.060	87	Weighted Average
1.400		34.48% Pervious Area
2.660		65.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7					Direct Entry,
0.2	150	0.0253	13.94	98.51	Pipe Channel, 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.014

20.9 150 Total

Summary for Reach 1R: 60"

Inflow Area = 84.258 ac, 52.35% Impervious, Inflow Depth > 2.18" for 10-Year event
Inflow = 146.72 cfs @ 12.11 hrs, Volume= 15.295 af
Outflow = 142.89 cfs @ 12.14 hrs, Volume= 15.280 af, Atten= 3%, Lag= 1.7 min

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Type III 24-hr 10-Year Rainfall=4.60"

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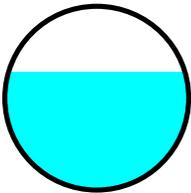
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Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.90 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 4.03 fps, Avg. Travel Time= 2.0 min

Peak Storage= 6,401 cf @ 12.12 hrs
Average Depth at Peak Storage= 3.21'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.22 cfs

60.0" Round Pipe
n= 0.014
Length= 480.0' Slope= 0.0066 '/'
Inlet Invert= 42.00', Outlet Invert= 38.84'



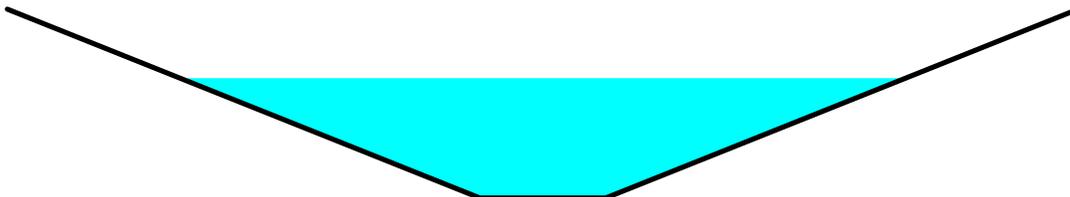
Summary for Reach 2R: Ditch 2

Inflow Area = 21.550 ac, 59.44% Impervious, Inflow Depth > 2.36" for 10-Year event
Inflow = 52.93 cfs @ 12.10 hrs, Volume= 4.230 af
Outflow = 50.33 cfs @ 12.15 hrs, Volume= 4.222 af, Atten= 5%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.01 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.45 fps, Avg. Travel Time= 4.2 min

Peak Storage= 4,751 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.90'
Bank-Full Depth= 3.00' Flow Area= 28.5 sf, Capacity= 150.34 cfs

2.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.5 '/' Top Width= 17.00'
Length= 370.0' Slope= 0.0062 '/'
Inlet Invert= 48.90', Outlet Invert= 46.60'



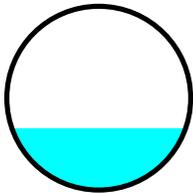
Summary for Reach 3R: 36"

Inflow Area = 14.600 ac, 50.14% Impervious, Inflow Depth > 1.98" for 10-Year event
Inflow = 30.45 cfs @ 12.09 hrs, Volume= 2.413 af
Outflow = 30.00 cfs @ 12.10 hrs, Volume= 2.411 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 14.73 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.94 fps, Avg. Travel Time= 1.2 min

Peak Storage= 736 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 126.46 cfs

36.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0417 '/
Inlet Invert= 63.70', Outlet Invert= 48.90'



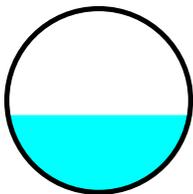
Summary for Reach 4R: 36"

Inflow Area = 11.750 ac, 43.57% Impervious, Inflow Depth > 1.74" for 10-Year event
Inflow = 20.49 cfs @ 12.10 hrs, Volume= 1.700 af
Outflow = 20.27 cfs @ 12.10 hrs, Volume= 1.699 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.30 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.55 fps, Avg. Travel Time= 0.8 min

Peak Storage= 346 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.26'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 55.84 cfs

36.0" Round Pipe
n= 0.014
Length= 123.0' Slope= 0.0081 '/
Inlet Invert= 68.80', Outlet Invert= 67.80'



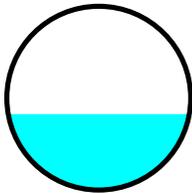
Summary for Reach 5R: 24"

Inflow Area = 7.990 ac, 41.30% Impervious, Inflow Depth > 1.70" for 10-Year event
Inflow = 13.15 cfs @ 12.07 hrs, Volume= 1.131 af
Outflow = 12.87 cfs @ 12.08 hrs, Volume= 1.130 af, Atten= 2%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.64 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 3.92 fps, Avg. Travel Time= 1.0 min

Peak Storage= 290 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 36.79 cfs

24.0" Round Pipe
n= 0.014
Length= 238.0' Slope= 0.0307 '/'
Inlet Invert= 79.70', Outlet Invert= 72.40'



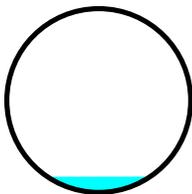
Summary for Reach 6R: 24"

Inflow Area = 5.060 ac, 8.10% Impervious, Inflow Depth > 0.34" for 10-Year event
Inflow = 0.79 cfs @ 12.50 hrs, Volume= 0.143 af
Outflow = 0.79 cfs @ 12.54 hrs, Volume= 0.142 af, Atten= 1%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.13 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 3.98 fps, Avg. Travel Time= 2.1 min

Peak Storage= 63 cf @ 12.52 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 53.18 cfs

24.0" Round Pipe
n= 0.014
Length= 490.0' Slope= 0.0641 '/'
Inlet Invert= 103.80', Outlet Invert= 72.40'



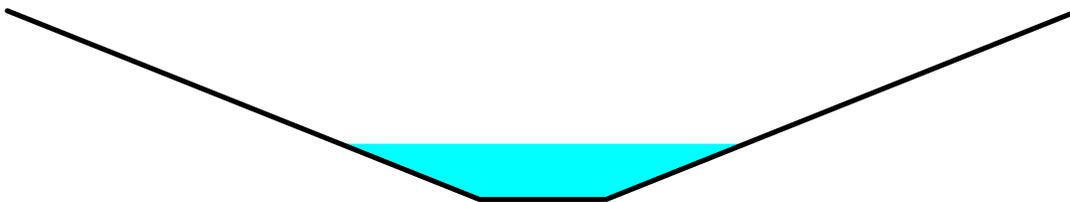
Summary for Reach 7R: Ditch 1

Inflow Area = 3.400 ac, 66.47% Impervious, Inflow Depth > 2.55" for 10-Year event
Inflow = 10.50 cfs @ 12.10 hrs, Volume= 0.722 af
Outflow = 9.80 cfs @ 12.16 hrs, Volume= 0.719 af, Atten= 7%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.68 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 1.03 fps, Avg. Travel Time= 4.9 min

Peak Storage= 1,140 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.89'
Bank-Full Depth= 3.00' Flow Area= 28.5 sf, Capacity= 154.41 cfs

2.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.5 '/ Top Width= 17.00'
Length= 305.0' Slope= 0.0066 '/
Inlet Invert= 50.90', Outlet Invert= 48.90'



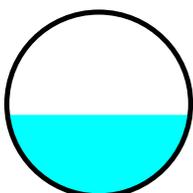
Summary for Reach 8R: 36"

Inflow Area = 38.320 ac, 33.79% Impervious, Inflow Depth > 1.53" for 10-Year event
Inflow = 41.99 cfs @ 12.12 hrs, Volume= 4.885 af
Outflow = 41.11 cfs @ 12.14 hrs, Volume= 4.882 af, Atten= 2%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 14.00 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 5.60 fps, Avg. Travel Time= 1.2 min

Peak Storage= 1,165 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.32'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 105.42 cfs

36.0" Round Pipe
n= 0.014
Length= 390.0' Slope= 0.0290 '/
Inlet Invert= 59.80', Outlet Invert= 48.50'



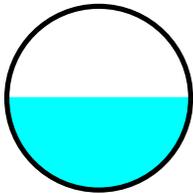
Summary for Reach 9R: 30"

Inflow Area = 38.320 ac, 33.79% Impervious, Inflow Depth > 1.53" for 10-Year event
Inflow = 42.24 cfs @ 12.11 hrs, Volume= 4.888 af
Outflow = 41.99 cfs @ 12.12 hrs, Volume= 4.885 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 17.04 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 6.83 fps, Avg. Travel Time= 1.0 min

Peak Storage= 994 cf @ 12.11 hrs
Average Depth at Peak Storage= 1.26'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 83.45 cfs

30.0" Round Pipe
n= 0.014
Length= 400.0' Slope= 0.0480 '/
Inlet Invert= 79.60', Outlet Invert= 60.40'



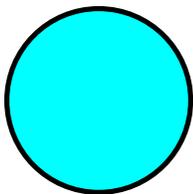
Summary for Reach L10:

Inflow Area = 47.830 ac, 41.27% Impervious, Inflow Depth > 1.82" for 10-Year event
Inflow = 65.99 cfs @ 12.11 hrs, Volume= 7.259 af
Outflow = 51.81 cfs @ 12.55 hrs, Volume= 7.238 af, Atten= 21%, Lag= 26.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.62 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.08 fps, Avg. Travel Time= 4.9 min

Peak Storage= 7,691 cf @ 12.10 hrs
Average Depth at Peak Storage= 4.00'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 51.15 cfs

48.0" Round Pipe
n= 0.014
Length= 612.0' Slope= 0.0015 '/
Inlet Invert= 47.50', Outlet Invert= 46.60'



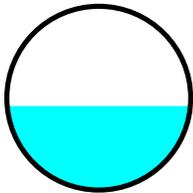
Summary for Reach L113: 72"

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 2.13" for 10-Year event
Inflow = 211.97 cfs @ 12.20 hrs, Volume= 22.913 af
Outflow = 211.75 cfs @ 12.20 hrs, Volume= 22.910 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 16.91 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 5.98 fps, Avg. Travel Time= 0.3 min

Peak Storage= 1,204 cf @ 12.20 hrs
Average Depth at Peak Storage= 2.73'
Bank-Full Depth= 6.00' Flow Area= 28.3 sf, Capacity= 498.08 cfs

72.0" Round Pipe
n= 0.014
Length= 96.0' Slope= 0.0160 '/'
Inlet Invert= 36.11', Outlet Invert= 34.57'



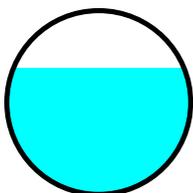
Summary for Reach L123:

Inflow Area = 24.400 ac, 68.44% Impervious, Inflow Depth > 2.64" for 10-Year event
Inflow = 65.50 cfs @ 12.12 hrs, Volume= 5.360 af
Outflow = 63.53 cfs @ 12.15 hrs, Volume= 5.354 af, Atten= 3%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.98 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.40 fps, Avg. Travel Time= 2.5 min

Peak Storage= 3,279 cf @ 12.13 hrs
Average Depth at Peak Storage= 2.76'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



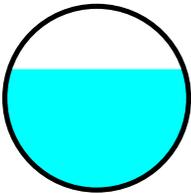
Summary for Reach L157:

Inflow Area = 15.780 ac, 73.13% Impervious, Inflow Depth > 2.77" for 10-Year event
Inflow = 52.46 cfs @ 12.10 hrs, Volume= 3.641 af
Outflow = 51.48 cfs @ 12.11 hrs, Volume= 3.639 af, Atten= 2%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.98 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.30 fps, Avg. Travel Time= 1.0 min

Peak Storage= 1,209 cf @ 12.11 hrs
Average Depth at Peak Storage= 2.63'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 68.13 cfs

48.0" Round Pipe
n= 0.014
Length= 138.0' Slope= 0.0026 '/'
Inlet Invert= 42.06', Outlet Invert= 41.70'



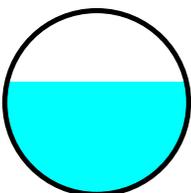
Summary for Reach L158:

Inflow Area = 19.170 ac, 68.86% Impervious, Inflow Depth > 2.59" for 10-Year event
Inflow = 54.36 cfs @ 12.11 hrs, Volume= 4.137 af
Outflow = 52.44 cfs @ 12.13 hrs, Volume= 4.133 af, Atten= 4%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.65 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.63 fps, Avg. Travel Time= 1.6 min

Peak Storage= 2,054 cf @ 12.12 hrs
Average Depth at Peak Storage= 2.45'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 77.61 cfs

48.0" Round Pipe
n= 0.014
Length= 254.0' Slope= 0.0034 '/'
Inlet Invert= 41.60', Outlet Invert= 40.74'



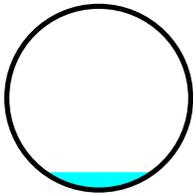
Summary for Reach L159:

Inflow Area = 2.310 ac, 45.89% Impervious, Inflow Depth > 1.63" for 10-Year event
Inflow = 1.82 cfs @ 12.88 hrs, Volume= 0.314 af
Outflow = 1.82 cfs @ 12.94 hrs, Volume= 0.313 af, Atten= 0%, Lag= 3.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.94 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 1.62 fps, Avg. Travel Time= 3.5 min

Peak Storage= 210 cf @ 12.91 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 340.0' Slope= 0.0050 '/'
Inlet Invert= 43.40', Outlet Invert= 41.70'



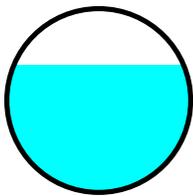
Summary for Reach L69: 60"

Inflow Area = 95.378 ac, 53.10% Impervious, Inflow Depth > 2.14" for 10-Year event
Inflow = 164.26 cfs @ 12.12 hrs, Volume= 16.975 af
Outflow = 162.24 cfs @ 12.13 hrs, Volume= 16.971 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.18 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.15 fps, Avg. Travel Time= 0.5 min

Peak Storage= 1,847 cf @ 12.13 hrs
Average Depth at Peak Storage= 3.47'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.68 cfs

60.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0066 '/'
Inlet Invert= 38.84', Outlet Invert= 38.00'



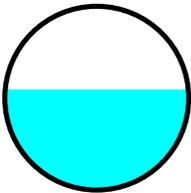
Summary for Reach L76:

Inflow Area = 13.110 ac, 74.29% Impervious, Inflow Depth > 2.82" for 10-Year event
Inflow = 46.05 cfs @ 12.07 hrs, Volume= 3.078 af
Outflow = 44.22 cfs @ 12.10 hrs, Volume= 3.074 af, Atten= 4%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.50 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 2.43 fps, Avg. Travel Time= 2.4 min

Peak Storage= 2,497 cf @ 12.09 hrs
Average Depth at Peak Storage= 2.19'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



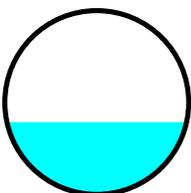
Summary for Reach L81:

Inflow Area = 25.840 ac, 68.73% Impervious, Inflow Depth > 2.64" for 10-Year event
Inflow = 67.31 cfs @ 12.14 hrs, Volume= 5.692 af
Outflow = 66.98 cfs @ 12.15 hrs, Volume= 5.691 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.43 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.09 fps, Avg. Travel Time= 0.7 min

Peak Storage= 864 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.96'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 207.41 cfs

60.0" Round Pipe
n= 0.014
Length= 121.0' Slope= 0.0074 '/'
Inlet Invert= 38.80', Outlet Invert= 37.91'



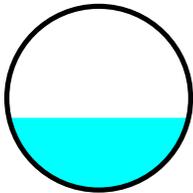
Summary for Reach P2: 78"

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 2.13" for 10-Year event
 Inflow = 211.75 cfs @ 12.20 hrs, Volume= 22.910 af
 Outflow = 211.70 cfs @ 12.20 hrs, Volume= 22.909 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 17.57 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 6.17 fps, Avg. Travel Time= 0.1 min

Peak Storage= 301 cf @ 12.20 hrs
 Average Depth at Peak Storage= 2.55'
 Bank-Full Depth= 6.50' Flow Area= 33.2 sf, Capacity= 653.15 cfs

78.0" Round Pipe
 n= 0.014
 Length= 25.0' Slope= 0.0180 '/
 Inlet Invert= 34.57', Outlet Invert= 34.12'



Summary for Reach POA 2: POA 2

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 2.13" for 10-Year event
 Inflow = 211.70 cfs @ 12.20 hrs, Volume= 22.909 af
 Outflow = 211.70 cfs @ 12.20 hrs, Volume= 22.909 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 42.1P:

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 2.13" for 10-Year event
 Inflow = 232.04 cfs @ 12.14 hrs, Volume= 22.913 af
 Outflow = 211.97 cfs @ 12.20 hrs, Volume= 22.913 af, Atten= 9%, Lag= 3.8 min
 Primary = 211.97 cfs @ 12.20 hrs, Volume= 22.913 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 42.74' @ 12.20 hrs Surf.Area= 12,745 sf Storage= 29,517 cf

Plug-Flow detention time= 0.9 min calculated for 22.913 af (100% of inflow)
 Center-of-Mass det. time= 0.9 min (781.8 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	36.10'	83,475 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 10-Year Rainfall=4.60"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.10	0	0	0
36.56	36	8	8
37.02	71	25	33
37.52	628	175	208
38.02	1,185	453	661
38.52	1,515	675	1,336
39.02	1,845	840	2,176
39.52	2,750	1,149	3,325
40.02	3,654	1,601	4,926
40.52	6,082	2,434	7,360
41.02	8,510	3,648	11,008
41.52	9,847	4,589	15,597
42.02	11,185	5,258	20,855
42.52	12,262	5,862	26,717
43.02	13,340	6,401	33,117
43.52	14,672	7,003	40,120
44.02	16,005	7,669	47,789
44.52	17,355	8,340	56,129
45.02	18,705	9,015	65,144
46.00	18,705	18,331	83,475

Device	Routing	Invert	Outlet Devices
#1	Primary	36.11'	72.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 36.11' / 36.10' S= 0.0100 '/' Cc= 0.900 n= 0.014, Flow Area= 28.27 sf

Primary OutFlow Max=211.87 cfs @ 12.20 hrs HW=42.74' (Free Discharge)

↑**1=Culvert** (Barrel Controls 211.87 cfs @ 8.45 fps)

Summary for Pond 47P:

Inflow Area = 4.110 ac, 31.39% Impervious, Inflow Depth > 1.08" for 10-Year event
 Inflow = 4.67 cfs @ 12.07 hrs, Volume= 0.371 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.76' @ 20.00 hrs Surf.Area= 24,642 sf Storage= 16,142 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	277,477 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 10-Year Rainfall=4.60"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	17,860	0	0
44.50	22,325	10,046	10,046
45.00	26,789	12,279	22,325
45.50	31,254	14,511	36,836
46.00	35,719	16,743	53,579
46.50	42,471	19,548	73,126
47.00	49,223	22,924	96,050
47.50	55,975	26,300	122,349
48.00	62,726	29,675	152,025
50.00	62,726	125,452	277,477

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	165.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)

←1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 51P:

Inflow Area = 6.230 ac, 5.62% Impervious, Inflow Depth > 0.55" for 10-Year event
 Inflow = 1.86 cfs @ 12.51 hrs, Volume= 0.283 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 45.57' @ 20.00 hrs Surf.Area= 37,689 sf Storage= 12,301 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	513,572 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	5,227	0	0
45.50	33,541	9,692	9,692
46.00	61,855	23,849	33,541
46.50	81,239	35,774	69,315
47.00	100,624	45,466	114,780
47.50	120,008	55,158	169,938
48.00	139,392	64,850	234,788
50.00	139,392	278,784	513,572

Device	Routing	Invert	Outlet Devices
#1	Primary	48.50'	75.0' long x 5.0' breadth Broad-Crested Rectangular Weir

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 10-Year Rainfall=4.60"

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Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00
	2.50	3.00	3.50	4.00	4.50	5.00	5.50			
Coef. (English)	2.34	2.50	2.70	2.68	2.68	2.66	2.65	2.65	2.65	2.65
	2.65	2.67	2.66	2.68	2.70	2.74	2.79	2.88		

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.00' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: S6, 8, 9, 10	Runoff Area=5.450 ac 75.78% Impervious Runoff Depth>3.81" Tc=5.0 min CN=87 Runoff=25.36 cfs 1.732 af
Subcatchment 2S: S34-39	Runoff Area=13.110 ac 74.29% Impervious Runoff Depth>3.61" Tc=5.0 min CN=85 Runoff=58.38 cfs 3.943 af
Subcatchment S1:	Runoff Area=9.020 ac 3.55% Impervious Runoff Depth>0.57" Tc=30.2 min CN=46 Runoff=2.49 cfs 0.427 af
Subcatchment S11:	Runoff Area=3.560 ac 92.70% Impervious Runoff Depth>4.56" Tc=5.0 min CN=94 Runoff=18.63 cfs 1.354 af
Subcatchment S11.1:	Runoff Area=24,742 sf 0.00% Impervious Runoff Depth>0.74" Flow Length=952' Tc=11.1 min CN=49 Runoff=0.32 cfs 0.035 af
Subcatchment S12:	Runoff Area=5.060 ac 8.10% Impervious Runoff Depth>0.63" Flow Length=260' Slope=0.0427 '/' Tc=18.6 min CN=47 Runoff=1.87 cfs 0.264 af
Subcatchment S13:	Runoff Area=2.930 ac 98.63% Impervious Runoff Depth>4.91" Tc=5.0 min CN=97 Runoff=15.79 cfs 1.198 af
Subcatchment S14:	Runoff Area=3.760 ac 48.40% Impervious Runoff Depth>2.48" Tc=7.9 min CN=73 Runoff=10.88 cfs 0.778 af
Subcatchment S15:	Runoff Area=2.850 ac 77.19% Impervious Runoff Depth>3.81" Tc=5.0 min CN=87 Runoff=13.26 cfs 0.905 af
Subcatchment S16:	Runoff Area=3.550 ac 90.99% Impervious Runoff Depth>4.56" Tc=5.0 min CN=94 Runoff=18.58 cfs 1.350 af
Subcatchment S17:	Runoff Area=3.400 ac 66.47% Impervious Runoff Depth>3.31" Tc=6.5 min CN=82 Runoff=13.53 cfs 0.938 af
Subcatchment S18:	Runoff Area=2.630 ac 70.72% Impervious Runoff Depth>3.51" Tc=5.0 min CN=84 Runoff=11.44 cfs 0.769 af
Subcatchment S2:	Runoff Area=5.040 ac 66.07% Impervious Runoff Depth>3.02" Tc=14.8 min CN=79 Runoff=14.48 cfs 1.267 af
Subcatchment S3:	Runoff Area=3.380 ac 75.74% Impervious Runoff Depth>4.23" Tc=5.0 min CN=91 Runoff=16.95 cfs 1.193 af
Subcatchment S4:	Runoff Area=13.930 ac 10.84% Impervious Runoff Depth>1.30" Tc=25.6 min CN=58 Runoff=12.91 cfs 1.510 af
Subcatchment S40:	Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>3.31" Tc=5.0 min CN=82 Runoff=10.98 cfs 0.737 af

Subcatchment S40.1:	Runoff Area=2.310 ac 45.89% Impervious Runoff Depth>2.26" Tc=63.2 min CN=71 Runoff=2.55 cfs 0.435 af
Subcatchment S40.2:	Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>5.02" Tc=5.0 min CN=98 Runoff=17.35 cfs 1.339 af
Subcatchment S41:	Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>2.75" Tc=5.0 min CN=76 Runoff=3.74 cfs 0.248 af
Subcatchment S41.1:	Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>1.11" Tc=16.7 min CN=55 Runoff=1.80 cfs 0.187 af
Subcatchment S42:	Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>3.61" Tc=5.0 min CN=85 Runoff=6.41 cfs 0.433 af
Subcatchment S42.1:	Runoff Area=1.660 ac 54.82% Impervious Runoff Depth>2.49" Tc=5.0 min CN=73 Runoff=5.21 cfs 0.344 af
Subcatchment S43:	Runoff Area=2.700 ac 93.70% Impervious Runoff Depth>4.68" Tc=5.0 min CN=95 Runoff=14.29 cfs 1.052 af
Subcatchment S44:	Runoff Area=1.430 ac 98.60% Impervious Runoff Depth>4.91" Tc=5.0 min CN=97 Runoff=7.71 cfs 0.585 af
Subcatchment S45:	Runoff Area=1.450 ac 55.17% Impervious Runoff Depth>2.75" Tc=5.0 min CN=76 Runoff=5.02 cfs 0.332 af
Subcatchment S45.1:	Runoff Area=0.740 ac 71.62% Impervious Runoff Depth>3.51" Tc=5.0 min CN=84 Runoff=3.22 cfs 0.216 af
Subcatchment S46:	Runoff Area=1.800 ac 62.78% Impervious Runoff Depth>3.12" Tc=5.0 min CN=80 Runoff=7.02 cfs 0.468 af
Subcatchment S47:	Runoff Area=2.940 ac 10.54% Impervious Runoff Depth>0.42" Tc=18.7 min CN=43 Runoff=0.59 cfs 0.104 af
Subcatchment S48:	Runoff Area=1.170 ac 83.76% Impervious Runoff Depth>4.13" Tc=5.0 min CN=90 Runoff=5.77 cfs 0.402 af
Subcatchment S49:	Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>3.81" Tc=5.0 min CN=87 Runoff=14.52 cfs 0.991 af
Subcatchment S5:	Runoff Area=3.400 ac 78.24% Impervious Runoff Depth>3.81" Tc=5.0 min CN=87 Runoff=15.82 cfs 1.080 af
Subcatchment S5.1:	Runoff Area=3.550 ac 72.39% Impervious Runoff Depth>3.90" Tc=16.7 min CN=88 Runoff=12.19 cfs 1.155 af
Subcatchment S50:	Runoff Area=3.890 ac 73.52% Impervious Runoff Depth>3.61" Tc=5.0 min CN=85 Runoff=17.32 cfs 1.170 af
Subcatchment S51:	Runoff Area=6.230 ac 5.62% Impervious Runoff Depth>0.91" Tc=26.2 min CN=52 Runoff=3.60 cfs 0.473 af

Subcatchment S7: Runoff Area=4.060 ac 65.52% Impervious Runoff Depth>3.80"
Flow Length=150' Slope=0.0253 '/' Tc=20.9 min CN=87 Runoff=12.46 cfs 1.284 af

Reach 1R: 60" Avg. Flow Depth=3.65' Max Vel=11.27 fps Inflow=173.78 cfs 19.846 af
60.0" Round Pipe n=0.014 L=480.0' S=0.0066 '/' Capacity=196.22 cfs Outflow=169.20 cfs 19.828 af

Reach 2R: Ditch 2 Avg. Flow Depth=2.11' Max Vel=4.26 fps Inflow=66.75 cfs 5.428 af
n=0.030 L=370.0' S=0.0062 '/' Capacity=150.34 cfs Outflow=63.55 cfs 5.418 af

Reach 3R: 36" Avg. Flow Depth=1.14' Max Vel=15.72 fps Inflow=38.54 cfs 3.143 af
36.0" Round Pipe n=0.014 L=355.0' S=0.0417 '/' Capacity=126.46 cfs Outflow=38.02 cfs 3.142 af

Reach 4R: 36" Avg. Flow Depth=1.44' Max Vel=7.77 fps Inflow=26.07 cfs 2.239 af
36.0" Round Pipe n=0.014 L=123.0' S=0.0081 '/' Capacity=55.84 cfs Outflow=25.82 cfs 2.238 af

Reach 5R: 24" Avg. Flow Depth=0.91' Max Vel=11.19 fps Inflow=15.85 cfs 1.461 af
24.0" Round Pipe n=0.014 L=238.0' S=0.0307 '/' Capacity=36.79 cfs Outflow=15.53 cfs 1.461 af

Reach 6R: 24" Avg. Flow Depth=0.26' Max Vel=7.95 fps Inflow=1.87 cfs 0.264 af
24.0" Round Pipe n=0.014 L=490.0' S=0.0641 '/' Capacity=53.18 cfs Outflow=1.87 cfs 0.263 af

Reach 7R: Ditch 1 Avg. Flow Depth=1.00' Max Vel=2.87 fps Inflow=13.53 cfs 0.938 af
n=0.030 L=305.0' S=0.0066 '/' Capacity=154.41 cfs Outflow=12.66 cfs 0.936 af

Reach 8R: 36" Avg. Flow Depth=1.53' Max Vel=15.02 fps Inflow=55.08 cfs 6.629 af
36.0" Round Pipe n=0.014 L=390.0' S=0.0290 '/' Capacity=105.42 cfs Outflow=54.12 cfs 6.625 af

Reach 9R: 30" Avg. Flow Depth=1.49' Max Vel=18.16 fps Inflow=55.37 cfs 6.632 af
30.0" Round Pipe n=0.014 L=400.0' S=0.0480 '/' Capacity=83.45 cfs Outflow=55.08 cfs 6.629 af

Reach L10: Avg. Flow Depth=4.00' Max Vel=4.64 fps Inflow=85.16 cfs 9.641 af
48.0" Round Pipe n=0.014 L=612.0' S=0.0015 '/' Capacity=51.15 cfs Outflow=51.15 cfs 9.616 af

Reach L113: 72" Avg. Flow Depth=3.02' Max Vel=17.66 fps Inflow=251.47 cfs 29.628 af
72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/' Capacity=498.08 cfs Outflow=251.30 cfs 29.625 af

Reach L123: Avg. Flow Depth=3.43' Max Vel=7.15 fps Inflow=83.38 cfs 6.877 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/' Capacity=78.83 cfs Outflow=80.75 cfs 6.870 af

Reach L157: Avg. Flow Depth=3.20' Max Vel=6.18 fps Inflow=66.77 cfs 4.675 af
48.0" Round Pipe n=0.014 L=138.0' S=0.0026 '/' Capacity=68.13 cfs Outflow=65.50 cfs 4.673 af

Reach L158: Avg. Flow Depth=2.93' Max Vel=6.97 fps Inflow=69.46 cfs 5.355 af
48.0" Round Pipe n=0.014 L=254.0' S=0.0034 '/' Capacity=77.61 cfs Outflow=67.08 cfs 5.350 af

Reach L159: Avg. Flow Depth=0.45' Max Vel=3.26 fps Inflow=2.55 cfs 0.435 af
48.0" Round Pipe n=0.014 L=340.0' S=0.0050 '/' Capacity=94.32 cfs Outflow=2.55 cfs 0.434 af

Reach L69: 60" Avg. Flow Depth=4.13' Max Vel=11.42 fps Inflow=198.59 cfs 21.990 af
60.0" Round Pipe n=0.014 L=127.0' S=0.0066 '/' Capacity=196.68 cfs Outflow=197.37 cfs 21.985 af

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Type III 24-hr 25-Year Rainfall=5.50"

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Reach L76: Avg. Flow Depth=2.55' Max Vel=6.85 fps Inflow=58.38 cfs 3.943 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/' Capacity=78.83 cfs Outflow=56.13 cfs 3.938 af

Reach L81: Avg. Flow Depth=2.24' Max Vel=10.05 fps Inflow=85.53 cfs 7.303 af
60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/' Capacity=207.41 cfs Outflow=85.12 cfs 7.301 af

Reach P2: 78" Avg. Flow Depth=2.80' Max Vel=18.40 fps Inflow=251.30 cfs 29.625 af
78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/' Capacity=653.15 cfs Outflow=251.26 cfs 29.624 af

Reach POA 2: POA 2 Inflow=251.26 cfs 29.624 af
Outflow=251.26 cfs 29.624 af

Pond 42.1P: Peak Elev=43.72' Storage=43,158 cf Inflow=283.86 cfs 29.629 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/' Outflow=251.47 cfs 29.628 af

Pond 47P: Peak Elev=44.99' Storage=22,042 cf Inflow=5.78 cfs 0.506 af
Outflow=0.00 cfs 0.000 af

Pond 51P: Peak Elev=45.76' Storage=20,552 cf Inflow=3.60 cfs 0.473 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 129.108 ac Runoff Volume = 30.700 af Average Runoff Depth = 2.85"
46.04% Pervious = 59.438 ac 53.96% Impervious = 69.670 ac

Summary for Subcatchment 1S: S6, 8, 9, 10

Runoff = 25.36 cfs @ 12.07 hrs, Volume= 1.732 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.680	49	
* 1.060	98	
* 0.110	69	
* 1.150	98	
* 0.260	49	
* 1.200	98	
* 0.270	49	
* 0.720	98	
5.450	87	Weighted Average
1.320		24.22% Pervious Area
4.130		75.78% Impervious Area

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

Summary for Subcatchment 2S: S34-39

Runoff = 58.38 cfs @ 12.07 hrs, Volume= 3.943 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.300	49	
* 1.970	98	
* 0.840	49	
* 0.100	98	
* 0.160	49	
* 1.290	98	
* 0.330	49	
* 0.380	98	
* 0.620	49	
* 3.250	98	
* 0.440	49	
* 2.270	98	
* 0.680	49	
* 0.480	98	
13.110	85	Weighted Average
3.370		25.71% Pervious Area
9.740		74.29% Impervious Area

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Type III 24-hr 25-Year Rainfall=5.50"

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

Summary for Subcatchment S1:

Runoff = 2.49 cfs @ 12.59 hrs, Volume= 0.427 af, Depth> 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 8.170	43	
* 0.530	65	
* 0.320	98	
9.020	46	Weighted Average
8.700		96.45% Pervious Area
0.320		3.55% Impervious Area

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

Summary for Subcatchment S11:

Runoff = 18.63 cfs @ 12.07 hrs, Volume= 1.354 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.260	49	
* 3.300	98	
3.560	94	Weighted Average
0.260		7.30% Pervious Area
3.300		92.70% Impervious Area

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

Summary for Subcatchment S11.1:

Runoff = 0.32 cfs @ 12.21 hrs, Volume= 0.035 af, Depth> 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (sf)	CN	Description
* 24,742	49	
24,742		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	40	0.3750	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
6.4	460	0.0055	1.19		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.3	390	0.0107	5.06	6.20	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014
0.2	62	0.0065	5.39	16.94	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.014
11.1	952	Total			

Summary for Subcatchment S12:

Runoff = 1.87 cfs @ 12.39 hrs, Volume= 0.264 af, Depth> 0.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 4.650	43	
* 0.410	98	
5.060	47	Weighted Average
4.650		91.90% Pervious Area
0.410		8.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2					Direct Entry,
0.4	260	0.0427	10.10	12.40	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014
18.6	260	Total			

Summary for Subcatchment S13:

Runoff = 15.79 cfs @ 12.07 hrs, Volume= 1.198 af, Depth> 4.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (ac)	CN	Description
* 0.040	49	
* 2.890	98	
2.930	97	Weighted Average
0.040		1.37% Pervious Area
2.890		98.63% Impervious Area

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

Summary for Subcatchment S14:

Runoff = 10.88 cfs @ 12.12 hrs, Volume= 0.778 af, Depth> 2.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.940	49	
* 1.820	98	
3.760	73	Weighted Average
1.940		51.60% Pervious Area
1.820		48.40% Impervious Area

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

Summary for Subcatchment S15:

Runoff = 13.26 cfs @ 12.07 hrs, Volume= 0.905 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.650	49	
* 2.200	98	
2.850	87	Weighted Average
0.650		22.81% Pervious Area
2.200		77.19% Impervious Area

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

Summary for Subcatchment S16:

Runoff = 18.58 cfs @ 12.07 hrs, Volume= 1.350 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.320	49	
* 3.230	98	
3.550	94	Weighted Average
0.320		9.01% Pervious Area
3.230		90.99% Impervious Area

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

Summary for Subcatchment S17:

Runoff = 13.53 cfs @ 12.10 hrs, Volume= 0.938 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.140	49	
* 2.260	98	
3.400	82	Weighted Average
1.140		33.53% Pervious Area
2.260		66.47% Impervious Area

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

Summary for Subcatchment S18:

Runoff = 11.44 cfs @ 12.07 hrs, Volume= 0.769 af, Depth> 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.770	49	
* 1.860	98	
2.630	84	Weighted Average
0.770		29.28% Pervious Area
1.860		70.72% Impervious Area

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Type III 24-hr 25-Year Rainfall=5.50"

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

Summary for Subcatchment S2:

Runoff = 14.48 cfs @ 12.21 hrs, Volume= 1.267 af, Depth> 3.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.690	43	
* 0.020	65	
* 3.330	98	
5.040	79	Weighted Average
1.710		33.93% Pervious Area
3.330		66.07% Impervious Area

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

Summary for Subcatchment S3:

Runoff = 16.95 cfs @ 12.07 hrs, Volume= 1.193 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.820	69	
* 2.560	98	
3.380	91	Weighted Average
0.820		24.26% Pervious Area
2.560		75.74% Impervious Area

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

Summary for Subcatchment S4:

Runoff = 12.91 cfs @ 12.41 hrs, Volume= 1.510 af, Depth> 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (ac)	CN	Description
* 9.550	49	
* 2.870	69	
* 1.510	98	
13.930	58	Weighted Average
12.420		89.16% Pervious Area
1.510		10.84% Impervious Area

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

Summary for Subcatchment S40:

Runoff = 10.98 cfs @ 12.08 hrs, Volume= 0.737 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.870	49	
* 1.800	98	
2.670	82	Weighted Average
0.870		32.58% Pervious Area
1.800		67.42% Impervious Area

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

Summary for Subcatchment S40.1:

Runoff = 2.55 cfs @ 12.87 hrs, Volume= 0.435 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.250	49	
* 1.060	98	
2.310	71	Weighted Average
1.250		54.11% Pervious Area
1.060		45.89% Impervious Area

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

Summary for Subcatchment S40.2:

Runoff = 17.35 cfs @ 12.07 hrs, Volume= 1.339 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 3.200	98	
3.200		100.00% Impervious Area

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

Summary for Subcatchment S41:

Runoff = 3.74 cfs @ 12.08 hrs, Volume= 0.248 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.460	49	
* 0.020	36	
* 0.600	98	
1.080	76	Weighted Average
0.480		44.44% Pervious Area
0.600		55.56% Impervious Area

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

Summary for Subcatchment S41.1:

Runoff = 1.80 cfs @ 12.27 hrs, Volume= 0.187 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.510	49	
* 0.220	36	
* 0.300	98	
2.030	55	Weighted Average
1.730		85.22% Pervious Area
0.300		14.78% Impervious Area

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

Summary for Subcatchment S42:

Runoff = 6.41 cfs @ 12.07 hrs, Volume= 0.433 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.380	49	
* 1.060	98	
1.440	85	Weighted Average
0.380		26.39% Pervious Area
1.060		73.61% Impervious Area

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

Summary for Subcatchment S42.1:

Runoff = 5.21 cfs @ 12.08 hrs, Volume= 0.344 af, Depth> 2.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.750	43	
* 0.910	98	
1.660	73	Weighted Average
0.750		45.18% Pervious Area
0.910		54.82% Impervious Area

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

Summary for Subcatchment S43:

Runoff = 14.29 cfs @ 12.07 hrs, Volume= 1.052 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (ac)	CN	Description
* 0.170	49	
* 2.530	98	
2.700	95	Weighted Average
0.170		6.30% Pervious Area
2.530		93.70% Impervious Area

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

Summary for Subcatchment S44:

Runoff = 7.71 cfs @ 12.07 hrs, Volume= 0.585 af, Depth> 4.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.020	49	
* 1.410	98	
1.430	97	Weighted Average
0.020		1.40% Pervious Area
1.410		98.60% Impervious Area

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

Summary for Subcatchment S45:

Runoff = 5.02 cfs @ 12.08 hrs, Volume= 0.332 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.650	49	
* 0.800	98	
1.450	76	Weighted Average
0.650		44.83% Pervious Area
0.800		55.17% Impervious Area

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

Summary for Subcatchment S45.1:

Runoff = 3.22 cfs @ 12.07 hrs, Volume= 0.216 af, Depth> 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.210	49	
* 0.530	98	
0.740	84	Weighted Average
0.210		28.38% Pervious Area
0.530		71.62% Impervious Area

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

Summary for Subcatchment S46:

Runoff = 7.02 cfs @ 12.08 hrs, Volume= 0.468 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.670	49	
* 1.130	98	
1.800	80	Weighted Average
0.670		37.22% Pervious Area
1.130		62.78% Impervious Area

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

Summary for Subcatchment S47:

Runoff = 0.59 cfs @ 12.49 hrs, Volume= 0.104 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 2.630	36	
* 0.310	98	
2.940	43	Weighted Average
2.630		89.46% Pervious Area
0.310		10.54% Impervious Area

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

Summary for Subcatchment S48:

Runoff = 5.77 cfs @ 12.07 hrs, Volume= 0.402 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.190	49	
* 0.980	98	
1.170	90	Weighted Average
0.190		16.24% Pervious Area
0.980		83.76% Impervious Area

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

Summary for Subcatchment S49:

Runoff = 14.52 cfs @ 12.07 hrs, Volume= 0.991 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.730	49	
* 2.390	98	
3.120	87	Weighted Average
0.730		23.40% Pervious Area
2.390		76.60% Impervious Area

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

Summary for Subcatchment S5:

Runoff = 15.82 cfs @ 12.07 hrs, Volume= 1.080 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 25-Year Rainfall=5.50"

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Area (ac)	CN	Description
* 0.740	49	
* 2.660	98	
3.400	87	Weighted Average
0.740		21.76% Pervious Area
2.660		78.24% Impervious Area

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

Summary for Subcatchment S5.1:

Runoff = 12.19 cfs @ 12.22 hrs, Volume= 1.155 af, Depth> 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.270	69	
* 0.710	60	
* 2.570	98	
3.550	88	Weighted Average
0.980		27.61% Pervious Area
2.570		72.39% Impervious Area

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

Summary for Subcatchment S50:

Runoff = 17.32 cfs @ 12.07 hrs, Volume= 1.170 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.030	49	
* 2.860	98	
3.890	85	Weighted Average
1.030		26.48% Pervious Area
2.860		73.52% Impervious Area

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

Summary for Subcatchment S51:

Runoff = 3.60 cfs @ 12.45 hrs, Volume= 0.473 af, Depth> 0.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 5.880	49	
* 0.350	98	
6.230	52	Weighted Average
5.880		94.38% Pervious Area
0.350		5.62% Impervious Area

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

Summary for Subcatchment S7:

Runoff = 12.46 cfs @ 12.28 hrs, Volume= 1.284 af, Depth> 3.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.730	69	
* 0.670	65	
* 2.660	98	
4.060	87	Weighted Average
1.400		34.48% Pervious Area
2.660		65.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7					Direct Entry,
0.2	150	0.0253	13.94	98.51	Pipe Channel, 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.014

20.9 150 Total

Summary for Reach 1R: 60"

Inflow Area = 84.258 ac, 52.35% Impervious, Inflow Depth > 2.83" for 25-Year event
Inflow = 173.78 cfs @ 12.11 hrs, Volume= 19.846 af
Outflow = 169.20 cfs @ 12.13 hrs, Volume= 19.828 af, Atten= 3%, Lag= 1.4 min

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 25-Year Rainfall=5.50"

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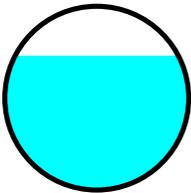
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Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.27 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 4.36 fps, Avg. Travel Time= 1.8 min

Peak Storage= 7,382 cf @ 12.11 hrs
Average Depth at Peak Storage= 3.65'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.22 cfs

60.0" Round Pipe
n= 0.014
Length= 480.0' Slope= 0.0066 '/'
Inlet Invert= 42.00', Outlet Invert= 38.84'



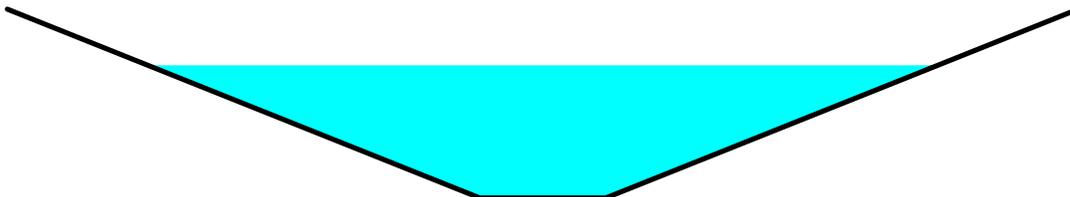
Summary for Reach 2R: Ditch 2

Inflow Area = 21.550 ac, 59.44% Impervious, Inflow Depth > 3.02" for 25-Year event
Inflow = 66.75 cfs @ 12.10 hrs, Volume= 5.428 af
Outflow = 63.55 cfs @ 12.15 hrs, Volume= 5.418 af, Atten= 5%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.26 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 1.56 fps, Avg. Travel Time= 4.0 min

Peak Storage= 5,661 cf @ 12.12 hrs
Average Depth at Peak Storage= 2.11'
Bank-Full Depth= 3.00' Flow Area= 28.5 sf, Capacity= 150.34 cfs

2.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.5 '/' Top Width= 17.00'
Length= 370.0' Slope= 0.0062 '/'
Inlet Invert= 48.90', Outlet Invert= 46.60'



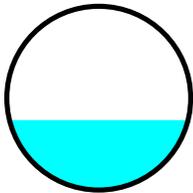
Summary for Reach 3R: 36"

Inflow Area = 14.600 ac, 50.14% Impervious, Inflow Depth > 2.58" for 25-Year event
Inflow = 38.54 cfs @ 12.09 hrs, Volume= 3.143 af
Outflow = 38.02 cfs @ 12.10 hrs, Volume= 3.142 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.72 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.32 fps, Avg. Travel Time= 1.1 min

Peak Storage= 872 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.14'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 126.46 cfs

36.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0417 '/'
Inlet Invert= 63.70', Outlet Invert= 48.90'



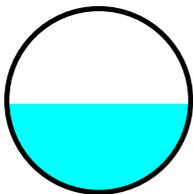
Summary for Reach 4R: 36"

Inflow Area = 11.750 ac, 43.57% Impervious, Inflow Depth > 2.29" for 25-Year event
Inflow = 26.07 cfs @ 12.10 hrs, Volume= 2.239 af
Outflow = 25.82 cfs @ 12.10 hrs, Volume= 2.238 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.77 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.75 fps, Avg. Travel Time= 0.7 min

Peak Storage= 414 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.44'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 55.84 cfs

36.0" Round Pipe
n= 0.014
Length= 123.0' Slope= 0.0081 '/'
Inlet Invert= 68.80', Outlet Invert= 67.80'



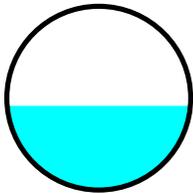
Summary for Reach 5R: 24"

Inflow Area = 7.990 ac, 41.30% Impervious, Inflow Depth > 2.19" for 25-Year event
Inflow = 15.85 cfs @ 12.07 hrs, Volume= 1.461 af
Outflow = 15.53 cfs @ 12.08 hrs, Volume= 1.461 af, Atten= 2%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.19 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.21 fps, Avg. Travel Time= 0.9 min

Peak Storage= 333 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.91'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 36.79 cfs

24.0" Round Pipe
n= 0.014
Length= 238.0' Slope= 0.0307 '/'
Inlet Invert= 79.70', Outlet Invert= 72.40'



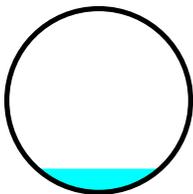
Summary for Reach 6R: 24"

Inflow Area = 5.060 ac, 8.10% Impervious, Inflow Depth > 0.63" for 25-Year event
Inflow = 1.87 cfs @ 12.39 hrs, Volume= 0.264 af
Outflow = 1.87 cfs @ 12.42 hrs, Volume= 0.263 af, Atten= 0%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.95 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 4.66 fps, Avg. Travel Time= 1.8 min

Peak Storage= 115 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 53.18 cfs

24.0" Round Pipe
n= 0.014
Length= 490.0' Slope= 0.0641 '/'
Inlet Invert= 103.80', Outlet Invert= 72.40'



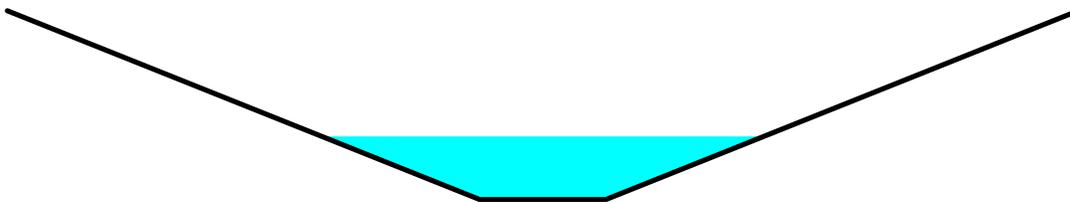
Summary for Reach 7R: Ditch 1

Inflow Area = 3.400 ac, 66.47% Impervious, Inflow Depth > 3.31" for 25-Year event
Inflow = 13.53 cfs @ 12.10 hrs, Volume= 0.938 af
Outflow = 12.66 cfs @ 12.15 hrs, Volume= 0.936 af, Atten= 6%, Lag= 3.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.87 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.09 fps, Avg. Travel Time= 4.7 min

Peak Storage= 1,380 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 3.00' Flow Area= 28.5 sf, Capacity= 154.41 cfs

2.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.5 '/' Top Width= 17.00'
Length= 305.0' Slope= 0.0066 '/'
Inlet Invert= 50.90', Outlet Invert= 48.90'



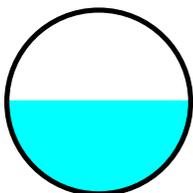
Summary for Reach 8R: 36"

Inflow Area = 38.320 ac, 33.79% Impervious, Inflow Depth > 2.08" for 25-Year event
Inflow = 55.08 cfs @ 12.12 hrs, Volume= 6.629 af
Outflow = 54.12 cfs @ 12.15 hrs, Volume= 6.625 af, Atten= 2%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.02 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 6.03 fps, Avg. Travel Time= 1.1 min

Peak Storage= 1,410 cf @ 12.13 hrs
Average Depth at Peak Storage= 1.53'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 105.42 cfs

36.0" Round Pipe
n= 0.014
Length= 390.0' Slope= 0.0290 '/'
Inlet Invert= 59.80', Outlet Invert= 48.50'



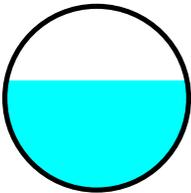
Summary for Reach 9R: 30"

Inflow Area = 38.320 ac, 33.79% Impervious, Inflow Depth > 2.08" for 25-Year event
Inflow = 55.37 cfs @ 12.11 hrs, Volume= 6.632 af
Outflow = 55.08 cfs @ 12.12 hrs, Volume= 6.629 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 18.16 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 7.35 fps, Avg. Travel Time= 0.9 min

Peak Storage= 1,221 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.49'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 83.45 cfs

30.0" Round Pipe
n= 0.014
Length= 400.0' Slope= 0.0480 '/'
Inlet Invert= 79.60', Outlet Invert= 60.40'



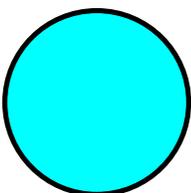
Summary for Reach L10:

Inflow Area = 47.830 ac, 41.27% Impervious, Inflow Depth > 2.42" for 25-Year event
Inflow = 85.16 cfs @ 12.11 hrs, Volume= 9.641 af
Outflow = 51.15 cfs @ 12.10 hrs, Volume= 9.616 af, Atten= 40%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.64 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.22 fps, Avg. Travel Time= 4.6 min

Peak Storage= 7,691 cf @ 12.05 hrs
Average Depth at Peak Storage= 4.00'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 51.15 cfs

48.0" Round Pipe
n= 0.014
Length= 612.0' Slope= 0.0015 '/'
Inlet Invert= 47.50', Outlet Invert= 46.60'



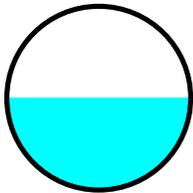
Summary for Reach L113: 72"

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 2.75" for 25-Year event
Inflow = 251.47 cfs @ 12.20 hrs, Volume= 29.628 af
Outflow = 251.30 cfs @ 12.21 hrs, Volume= 29.625 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 17.66 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 6.48 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1,367 cf @ 12.20 hrs
Average Depth at Peak Storage= 3.02'
Bank-Full Depth= 6.00' Flow Area= 28.3 sf, Capacity= 498.08 cfs

72.0" Round Pipe
n= 0.014
Length= 96.0' Slope= 0.0160 '/'
Inlet Invert= 36.11', Outlet Invert= 34.57'



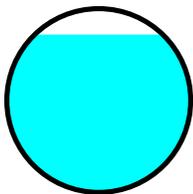
Summary for Reach L123:

Inflow Area = 24.400 ac, 68.44% Impervious, Inflow Depth > 3.38" for 25-Year event
Inflow = 83.38 cfs @ 12.11 hrs, Volume= 6.877 af
Outflow = 80.75 cfs @ 12.14 hrs, Volume= 6.870 af, Atten= 3%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.15 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.59 fps, Avg. Travel Time= 2.3 min

Peak Storage= 4,082 cf @ 12.13 hrs
Average Depth at Peak Storage= 3.43'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



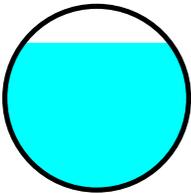
Summary for Reach L157:

Inflow Area = 15.780 ac, 73.13% Impervious, Inflow Depth > 3.56" for 25-Year event
Inflow = 66.77 cfs @ 12.10 hrs, Volume= 4.675 af
Outflow = 65.50 cfs @ 12.11 hrs, Volume= 4.673 af, Atten= 2%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.18 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.41 fps, Avg. Travel Time= 1.0 min

Peak Storage= 1,487 cf @ 12.10 hrs
Average Depth at Peak Storage= 3.20'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 68.13 cfs

48.0" Round Pipe
n= 0.014
Length= 138.0' Slope= 0.0026 '/'
Inlet Invert= 42.06', Outlet Invert= 41.70'



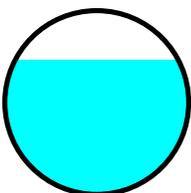
Summary for Reach L158:

Inflow Area = 19.170 ac, 68.86% Impervious, Inflow Depth > 3.35" for 25-Year event
Inflow = 69.46 cfs @ 12.11 hrs, Volume= 5.355 af
Outflow = 67.08 cfs @ 12.13 hrs, Volume= 5.350 af, Atten= 3%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.97 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.76 fps, Avg. Travel Time= 1.5 min

Peak Storage= 2,508 cf @ 12.12 hrs
Average Depth at Peak Storage= 2.93'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 77.61 cfs

48.0" Round Pipe
n= 0.014
Length= 254.0' Slope= 0.0034 '/'
Inlet Invert= 41.60', Outlet Invert= 40.74'



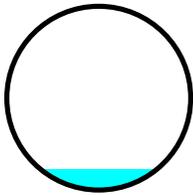
Summary for Reach L159:

Inflow Area = 2.310 ac, 45.89% Impervious, Inflow Depth > 2.26" for 25-Year event
Inflow = 2.55 cfs @ 12.87 hrs, Volume= 0.435 af
Outflow = 2.55 cfs @ 12.92 hrs, Volume= 0.434 af, Atten= 0%, Lag= 3.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.26 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.73 fps, Avg. Travel Time= 3.3 min

Peak Storage= 266 cf @ 12.89 hrs
Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 340.0' Slope= 0.0050 '/'
Inlet Invert= 43.40', Outlet Invert= 41.70'



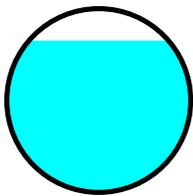
Summary for Reach L69: 60"

Inflow Area = 95.378 ac, 53.10% Impervious, Inflow Depth > 2.77" for 25-Year event
Inflow = 198.59 cfs @ 12.11 hrs, Volume= 21.990 af
Outflow = 197.37 cfs @ 12.12 hrs, Volume= 21.985 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.42 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.48 fps, Avg. Travel Time= 0.5 min

Peak Storage= 2,205 cf @ 12.12 hrs
Average Depth at Peak Storage= 4.13'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.68 cfs

60.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0066 '/'
Inlet Invert= 38.84', Outlet Invert= 38.00'



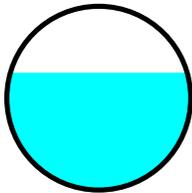
Summary for Reach L76:

Inflow Area = 13.110 ac, 74.29% Impervious, Inflow Depth > 3.61" for 25-Year event
Inflow = 58.38 cfs @ 12.07 hrs, Volume= 3.943 af
Outflow = 56.13 cfs @ 12.10 hrs, Volume= 3.938 af, Atten= 4%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.85 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 2.55 fps, Avg. Travel Time= 2.3 min

Peak Storage= 3,001 cf @ 12.09 hrs
Average Depth at Peak Storage= 2.55'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



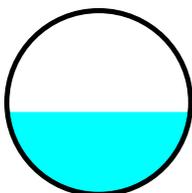
Summary for Reach L81:

Inflow Area = 25.840 ac, 68.73% Impervious, Inflow Depth > 3.39" for 25-Year event
Inflow = 85.53 cfs @ 12.14 hrs, Volume= 7.303 af
Outflow = 85.12 cfs @ 12.15 hrs, Volume= 7.301 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.05 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.34 fps, Avg. Travel Time= 0.6 min

Peak Storage= 1,029 cf @ 12.14 hrs
Average Depth at Peak Storage= 2.24'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 207.41 cfs

60.0" Round Pipe
n= 0.014
Length= 121.0' Slope= 0.0074 '/'
Inlet Invert= 38.80', Outlet Invert= 37.91'



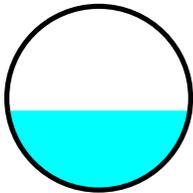
Summary for Reach P2: 78"

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 2.75" for 25-Year event
 Inflow = 251.30 cfs @ 12.21 hrs, Volume= 29.625 af
 Outflow = 251.26 cfs @ 12.21 hrs, Volume= 29.624 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 18.40 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 6.69 fps, Avg. Travel Time= 0.1 min

Peak Storage= 341 cf @ 12.21 hrs
 Average Depth at Peak Storage= 2.80'
 Bank-Full Depth= 6.50' Flow Area= 33.2 sf, Capacity= 653.15 cfs

78.0" Round Pipe
 n= 0.014
 Length= 25.0' Slope= 0.0180 '/'
 Inlet Invert= 34.57', Outlet Invert= 34.12'



Summary for Reach POA 2: POA 2

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 2.75" for 25-Year event
 Inflow = 251.26 cfs @ 12.21 hrs, Volume= 29.624 af
 Outflow = 251.26 cfs @ 12.21 hrs, Volume= 29.624 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 42.1P:

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 2.75" for 25-Year event
 Inflow = 283.86 cfs @ 12.13 hrs, Volume= 29.629 af
 Outflow = 251.47 cfs @ 12.20 hrs, Volume= 29.628 af, Atten= 11%, Lag= 4.5 min
 Primary = 251.47 cfs @ 12.20 hrs, Volume= 29.628 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 43.72' @ 12.20 hrs Surf.Area= 15,214 sf Storage= 43,158 cf

Plug-Flow detention time= 1.1 min calculated for 29.628 af (100% of inflow)
 Center-of-Mass det. time= 1.1 min (778.8 - 777.7)

Volume	Invert	Avail.Storage	Storage Description
#1	36.10'	83,475 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type III 24-hr 25-Year Rainfall=5.50"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.10	0	0	0
36.56	36	8	8
37.02	71	25	33
37.52	628	175	208
38.02	1,185	453	661
38.52	1,515	675	1,336
39.02	1,845	840	2,176
39.52	2,750	1,149	3,325
40.02	3,654	1,601	4,926
40.52	6,082	2,434	7,360
41.02	8,510	3,648	11,008
41.52	9,847	4,589	15,597
42.02	11,185	5,258	20,855
42.52	12,262	5,862	26,717
43.02	13,340	6,401	33,117
43.52	14,672	7,003	40,120
44.02	16,005	7,669	47,789
44.52	17,355	8,340	56,129
45.02	18,705	9,015	65,144
46.00	18,705	18,331	83,475

Device	Routing	Invert	Outlet Devices
#1	Primary	36.11'	72.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 36.11' / 36.10' S= 0.0100 1' Cc= 0.900 n= 0.014, Flow Area= 28.27 sf

Primary OutFlow Max=251.15 cfs @ 12.20 hrs HW=43.71' (Free Discharge)

↑1=Culvert (Barrel Controls 251.15 cfs @ 9.05 fps)

Summary for Pond 47P:

Inflow Area = 4.110 ac, 31.39% Impervious, Inflow Depth > 1.48" for 25-Year event
 Inflow = 5.78 cfs @ 12.07 hrs, Volume= 0.506 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.99' @ 20.00 hrs Surf.Area= 26,695 sf Storage= 22,042 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	277,477 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type III 24-hr 25-Year Rainfall=5.50"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	17,860	0	0
44.50	22,325	10,046	10,046
45.00	26,789	12,279	22,325
45.50	31,254	14,511	36,836
46.00	35,719	16,743	53,579
46.50	42,471	19,548	73,126
47.00	49,223	22,924	96,050
47.50	55,975	26,300	122,349
48.00	62,726	29,675	152,025
50.00	62,726	125,452	277,477

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	165.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)
 ↳1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 51P:

Inflow Area = 6.230 ac, 5.62% Impervious, Inflow Depth > 0.91" for 25-Year event
 Inflow = 3.60 cfs @ 12.45 hrs, Volume= 0.473 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 45.76' @ 20.00 hrs Surf.Area= 48,528 sf Storage= 20,552 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	513,572 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	5,227	0	0
45.50	33,541	9,692	9,692
46.00	61,855	23,849	33,541
46.50	81,239	35,774	69,315
47.00	100,624	45,466	114,780
47.50	120,008	55,158	169,938
48.00	139,392	64,850	234,788
50.00	139,392	278,784	513,572

Device	Routing	Invert	Outlet Devices
#1	Primary	48.50'	75.0' long x 5.0' breadth Broad-Crested Rectangular Weir

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Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00
	2.50	3.00	3.50	4.00	4.50	5.00	5.50			
Coef. (English)	2.34	2.50	2.70	2.68	2.68	2.66	2.65	2.65	2.65	2.65
	2.65	2.67	2.66	2.68	2.70	2.74	2.79	2.88		

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.00' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment 1S: S6, 8, 9, 10** Runoff Area=5.450 ac 75.78% Impervious Runoff Depth>4.86"
Tc=5.0 min CN=87 Runoff=31.90 cfs 2.208 af
- Subcatchment 2S: S34-39** Runoff Area=13.110 ac 74.29% Impervious Runoff Depth>4.64"
Tc=5.0 min CN=85 Runoff=74.16 cfs 5.072 af
- Subcatchment S1:** Runoff Area=9.020 ac 3.55% Impervious Runoff Depth>1.01"
Tc=30.2 min CN=46 Runoff=5.27 cfs 0.756 af
- Subcatchment S11:** Runoff Area=3.560 ac 92.70% Impervious Runoff Depth>5.65"
Tc=5.0 min CN=94 Runoff=22.78 cfs 1.677 af
- Subcatchment S11.1:** Runoff Area=24,742 sf 0.00% Impervious Runoff Depth>1.24"
Flow Length=952' Tc=11.1 min CN=49 Runoff=0.63 cfs 0.059 af
- Subcatchment S12:** Runoff Area=5.060 ac 8.10% Impervious Runoff Depth>1.09"
Flow Length=260' Slope=0.0427 '/' Tc=18.6 min CN=47 Runoff=3.92 cfs 0.458 af
- Subcatchment S13:** Runoff Area=2.930 ac 98.63% Impervious Runoff Depth>6.00"
Tc=5.0 min CN=97 Runoff=19.15 cfs 1.466 af
- Subcatchment S14:** Runoff Area=3.760 ac 48.40% Impervious Runoff Depth>3.39"
Tc=7.9 min CN=73 Runoff=14.82 cfs 1.061 af
- Subcatchment S15:** Runoff Area=2.850 ac 77.19% Impervious Runoff Depth>4.86"
Tc=5.0 min CN=87 Runoff=16.68 cfs 1.155 af
- Subcatchment S16:** Runoff Area=3.550 ac 90.99% Impervious Runoff Depth>5.65"
Tc=5.0 min CN=94 Runoff=22.72 cfs 1.672 af
- Subcatchment S17:** Runoff Area=3.400 ac 66.47% Impervious Runoff Depth>4.32"
Tc=6.5 min CN=82 Runoff=17.45 cfs 1.223 af
- Subcatchment S18:** Runoff Area=2.630 ac 70.72% Impervious Runoff Depth>4.53"
Tc=5.0 min CN=84 Runoff=14.61 cfs 0.994 af
- Subcatchment S2:** Runoff Area=5.040 ac 66.07% Impervious Runoff Depth>3.99"
Tc=14.8 min CN=79 Runoff=19.02 cfs 1.676 af
- Subcatchment S3:** Runoff Area=3.380 ac 75.74% Impervious Runoff Depth>5.31"
Tc=5.0 min CN=91 Runoff=20.95 cfs 1.496 af
- Subcatchment S4:** Runoff Area=13.930 ac 10.84% Impervious Runoff Depth>1.97"
Tc=25.6 min CN=58 Runoff=20.31 cfs 2.283 af
- Subcatchment S40:** Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>4.32"
Tc=5.0 min CN=82 Runoff=14.25 cfs 0.961 af

Subcatchment S40.1:	Runoff Area=2.310 ac 45.89% Impervious Runoff Depth>3.12" Tc=63.2 min CN=71 Runoff=3.54 cfs 0.601 af
Subcatchment S40.2:	Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>6.12" Tc=5.0 min CN=98 Runoff=21.01 cfs 1.632 af
Subcatchment S41:	Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>3.69" Tc=5.0 min CN=76 Runoff=4.99 cfs 0.332 af
Subcatchment S41.1:	Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>1.72" Tc=16.7 min CN=55 Runoff=2.99 cfs 0.291 af
Subcatchment S42:	Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>4.64" Tc=5.0 min CN=85 Runoff=8.15 cfs 0.557 af
Subcatchment S42.1:	Runoff Area=1.660 ac 54.82% Impervious Runoff Depth>3.39" Tc=5.0 min CN=73 Runoff=7.08 cfs 0.469 af
Subcatchment S43:	Runoff Area=2.700 ac 93.70% Impervious Runoff Depth>5.77" Tc=5.0 min CN=95 Runoff=17.43 cfs 1.298 af
Subcatchment S44:	Runoff Area=1.430 ac 98.60% Impervious Runoff Depth>6.00" Tc=5.0 min CN=97 Runoff=9.35 cfs 0.715 af
Subcatchment S45:	Runoff Area=1.450 ac 55.17% Impervious Runoff Depth>3.69" Tc=5.0 min CN=76 Runoff=6.70 cfs 0.446 af
Subcatchment S45.1:	Runoff Area=0.740 ac 71.62% Impervious Runoff Depth>4.53" Tc=5.0 min CN=84 Runoff=4.11 cfs 0.280 af
Subcatchment S46:	Runoff Area=1.800 ac 62.78% Impervious Runoff Depth>4.11" Tc=5.0 min CN=80 Runoff=9.21 cfs 0.616 af
Subcatchment S47:	Runoff Area=2.940 ac 10.54% Impervious Runoff Depth>0.80" Tc=18.7 min CN=43 Runoff=1.44 cfs 0.197 af
Subcatchment S48:	Runoff Area=1.170 ac 83.76% Impervious Runoff Depth>5.20" Tc=5.0 min CN=90 Runoff=7.16 cfs 0.507 af
Subcatchment S49:	Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>4.86" Tc=5.0 min CN=87 Runoff=18.26 cfs 1.264 af
Subcatchment S5:	Runoff Area=3.400 ac 78.24% Impervious Runoff Depth>4.86" Tc=5.0 min CN=87 Runoff=19.90 cfs 1.378 af
Subcatchment S5.1:	Runoff Area=3.550 ac 72.39% Impervious Runoff Depth>4.96" Tc=16.7 min CN=88 Runoff=15.28 cfs 1.467 af
Subcatchment S50:	Runoff Area=3.890 ac 73.52% Impervious Runoff Depth>4.64" Tc=5.0 min CN=85 Runoff=22.00 cfs 1.505 af
Subcatchment S51:	Runoff Area=6.230 ac 5.62% Impervious Runoff Depth>1.47" Tc=26.2 min CN=52 Runoff=6.34 cfs 0.761 af

Subcatchment S7: Runoff Area=4.060 ac 65.52% Impervious Runoff Depth>4.84"
Flow Length=150' Slope=0.0253 '/' Tc=20.9 min CN=87 Runoff=15.69 cfs 1.638 af

Reach 1R: 60" Avg. Flow Depth=4.34' Max Vel=11.39 fps Inflow=206.79 cfs 25.962 af
60.0" Round Pipe n=0.014 L=480.0' S=0.0066 '/' Capacity=196.22 cfs Outflow=201.80 cfs 25.941 af

Reach 2R: Ditch 2 Avg. Flow Depth=2.34' Max Vel=4.53 fps Inflow=85.20 cfs 7.028 af
n=0.030 L=370.0' S=0.0062 '/' Capacity=150.34 cfs Outflow=81.22 cfs 7.016 af

Reach 3R: 36" Avg. Flow Depth=1.31' Max Vel=16.82 fps Inflow=49.60 cfs 4.137 af
36.0" Round Pipe n=0.014 L=355.0' S=0.0417 '/' Capacity=126.46 cfs Outflow=49.00 cfs 4.135 af

Reach 4R: 36" Avg. Flow Depth=1.69' Max Vel=8.29 fps Inflow=34.01 cfs 2.983 af
36.0" Round Pipe n=0.014 L=123.0' S=0.0081 '/' Capacity=55.84 cfs Outflow=33.70 cfs 2.982 af

Reach 5R: 24" Avg. Flow Depth=1.04' Max Vel=11.87 fps Inflow=19.85 cfs 1.923 af
24.0" Round Pipe n=0.014 L=238.0' S=0.0307 '/' Capacity=36.79 cfs Outflow=19.50 cfs 1.922 af

Reach 6R: 24" Avg. Flow Depth=0.37' Max Vel=9.88 fps Inflow=3.92 cfs 0.458 af
24.0" Round Pipe n=0.014 L=490.0' S=0.0641 '/' Capacity=53.18 cfs Outflow=3.89 cfs 0.457 af

Reach 7R: Ditch 1 Avg. Flow Depth=1.13' Max Vel=3.08 fps Inflow=17.45 cfs 1.223 af
n=0.030 L=305.0' S=0.0066 '/' Capacity=154.41 cfs Outflow=16.34 cfs 1.220 af

Reach 8R: 36" Avg. Flow Depth=1.82' Max Vel=16.06 fps Inflow=71.93 cfs 9.051 af
36.0" Round Pipe n=0.014 L=390.0' S=0.0290 '/' Capacity=105.42 cfs Outflow=72.08 cfs 9.046 af

Reach 9R: 30" Avg. Flow Depth=1.82' Max Vel=19.15 fps Inflow=73.32 cfs 9.055 af
30.0" Round Pipe n=0.014 L=400.0' S=0.0480 '/' Capacity=83.45 cfs Outflow=71.93 cfs 9.051 af

Reach L10: Avg. Flow Depth=4.00' Max Vel=4.63 fps Inflow=110.61 cfs 12.892 af
48.0" Round Pipe n=0.014 L=612.0' S=0.0015 '/' Capacity=51.15 cfs Outflow=51.15 cfs 12.861 af

Reach L113: 72" Avg. Flow Depth=3.24' Max Vel=18.17 fps Inflow=282.94 cfs 38.593 af
72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/' Capacity=498.08 cfs Outflow=282.49 cfs 38.589 af

Reach L123: Avg. Flow Depth=4.00' Max Vel=7.14 fps Inflow=96.46 cfs 8.875 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/' Capacity=78.83 cfs Outflow=79.30 cfs 8.867 af

Reach L157: Avg. Flow Depth=4.00' Max Vel=6.14 fps Inflow=84.98 cfs 6.028 af
48.0" Round Pipe n=0.014 L=138.0' S=0.0026 '/' Capacity=68.13 cfs Outflow=68.93 cfs 6.025 af

Reach L158: Avg. Flow Depth=3.21' Max Vel=7.04 fps Inflow=76.99 cfs 6.957 af
48.0" Round Pipe n=0.014 L=254.0' S=0.0034 '/' Capacity=77.61 cfs Outflow=75.40 cfs 6.952 af

Reach L159: Avg. Flow Depth=0.53' Max Vel=3.59 fps Inflow=3.54 cfs 0.601 af
48.0" Round Pipe n=0.014 L=340.0' S=0.0050 '/' Capacity=94.32 cfs Outflow=3.53 cfs 0.600 af

Reach L69: 60" Avg. Flow Depth=5.00' Max Vel=11.32 fps Inflow=238.60 cfs 28.710 af
60.0" Round Pipe n=0.014 L=127.0' S=0.0066 '/' Capacity=196.68 cfs Outflow=213.68 cfs 28.704 af

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Type III 24-hr 100-Year Rainfall=6.65"

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Reach L76: Avg. Flow Depth=3.05' Max Vel=7.12 fps Inflow=74.16 cfs 5.072 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/' Capacity=78.83 cfs Outflow=71.26 cfs 5.067 af

Reach L81: Avg. Flow Depth=2.27' Max Vel=10.12 fps Inflow=87.18 cfs 9.424 af
60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/' Capacity=207.41 cfs Outflow=87.57 cfs 9.422 af

Reach P2: 78" Avg. Flow Depth=2.99' Max Vel=18.97 fps Inflow=282.49 cfs 38.589 af
78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/' Capacity=653.15 cfs Outflow=282.39 cfs 38.588 af

Reach POA 2: POA 2 Inflow=282.39 cfs 38.588 af
Outflow=282.39 cfs 38.588 af

Pond 42.1P: Peak Elev=44.44' Storage=54,709 cf Inflow=299.71 cfs 38.595 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/' Outflow=282.94 cfs 38.593 af

Pond 47P: Peak Elev=45.30' Storage=30,622 cf Inflow=7.26 cfs 0.703 af
Outflow=0.00 cfs 0.000 af

Pond 51P: Peak Elev=45.99' Storage=33,120 cf Inflow=6.34 cfs 0.761 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 129.108 ac Runoff Volume = 40.170 af Average Runoff Depth = 3.73"
46.04% Pervious = 59.438 ac 53.96% Impervious = 69.670 ac

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Summary for Subcatchment 1S: S6, 8, 9, 10

Runoff = 31.90 cfs @ 12.07 hrs, Volume= 2.208 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.680	49	
* 1.060	98	
* 0.110	69	
* 1.150	98	
* 0.260	49	
* 1.200	98	
* 0.270	49	
* 0.720	98	
5.450	87	Weighted Average
1.320		24.22% Pervious Area
4.130		75.78% Impervious Area

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

Summary for Subcatchment 2S: S34-39

Runoff = 74.16 cfs @ 12.07 hrs, Volume= 5.072 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.300	49	
* 1.970	98	
* 0.840	49	
* 0.100	98	
* 0.160	49	
* 1.290	98	
* 0.330	49	
* 0.380	98	
* 0.620	49	
* 3.250	98	
* 0.440	49	
* 2.270	98	
* 0.680	49	
* 0.480	98	
13.110	85	Weighted Average
3.370		25.71% Pervious Area
9.740		74.29% Impervious Area

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Type III 24-hr 100-Year Rainfall=6.65"

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

Summary for Subcatchment S1:

Runoff = 5.27 cfs @ 12.53 hrs, Volume= 0.756 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 8.170	43	
* 0.530	65	
* 0.320	98	
9.020	46	Weighted Average
8.700		96.45% Pervious Area
0.320		3.55% Impervious Area

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

Summary for Subcatchment S11:

Runoff = 22.78 cfs @ 12.07 hrs, Volume= 1.677 af, Depth> 5.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.260	49	
* 3.300	98	
3.560	94	Weighted Average
0.260		7.30% Pervious Area
3.300		92.70% Impervious Area

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

Summary for Subcatchment S11.1:

Runoff = 0.63 cfs @ 12.19 hrs, Volume= 0.059 af, Depth> 1.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (sf)	CN	Description
* 24,742	49	
24,742		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	40	0.3750	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
6.4	460	0.0055	1.19		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.3	390	0.0107	5.06	6.20	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014
0.2	62	0.0065	5.39	16.94	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.014
11.1	952	Total			

Summary for Subcatchment S12:

Runoff = 3.92 cfs @ 12.32 hrs, Volume= 0.458 af, Depth> 1.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 4.650	43	
* 0.410	98	
5.060	47	Weighted Average
4.650		91.90% Pervious Area
0.410		8.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2					Direct Entry,
0.4	260	0.0427	10.10	12.40	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014
18.6	260	Total			

Summary for Subcatchment S13:

Runoff = 19.15 cfs @ 12.07 hrs, Volume= 1.466 af, Depth> 6.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (ac)	CN	Description
* 0.040	49	
* 2.890	98	
2.930	97	Weighted Average
0.040		1.37% Pervious Area
2.890		98.63% Impervious Area

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

Summary for Subcatchment S14:

Runoff = 14.82 cfs @ 12.11 hrs, Volume= 1.061 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.940	49	
* 1.820	98	
3.760	73	Weighted Average
1.940		51.60% Pervious Area
1.820		48.40% Impervious Area

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

Summary for Subcatchment S15:

Runoff = 16.68 cfs @ 12.07 hrs, Volume= 1.155 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.650	49	
* 2.200	98	
2.850	87	Weighted Average
0.650		22.81% Pervious Area
2.200		77.19% Impervious Area

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

Summary for Subcatchment S16:

Runoff = 22.72 cfs @ 12.07 hrs, Volume= 1.672 af, Depth> 5.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.320	49	
* 3.230	98	
3.550	94	Weighted Average
0.320		9.01% Pervious Area
3.230		90.99% Impervious Area

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

Summary for Subcatchment S17:

Runoff = 17.45 cfs @ 12.10 hrs, Volume= 1.223 af, Depth> 4.32"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.140	49	
* 2.260	98	
3.400	82	Weighted Average
1.140		33.53% Pervious Area
2.260		66.47% Impervious Area

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

Summary for Subcatchment S18:

Runoff = 14.61 cfs @ 12.07 hrs, Volume= 0.994 af, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.770	49	
* 1.860	98	
2.630	84	Weighted Average
0.770		29.28% Pervious Area
1.860		70.72% Impervious Area

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Type III 24-hr 100-Year Rainfall=6.65"

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

Summary for Subcatchment S2:

Runoff = 19.02 cfs @ 12.20 hrs, Volume= 1.676 af, Depth> 3.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.690	43	
* 0.020	65	
* 3.330	98	
5.040	79	Weighted Average
1.710		33.93% Pervious Area
3.330		66.07% Impervious Area

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

Summary for Subcatchment S3:

Runoff = 20.95 cfs @ 12.07 hrs, Volume= 1.496 af, Depth> 5.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.820	69	
* 2.560	98	
3.380	91	Weighted Average
0.820		24.26% Pervious Area
2.560		75.74% Impervious Area

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

Summary for Subcatchment S4:

Runoff = 20.31 cfs @ 12.39 hrs, Volume= 2.283 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (ac)	CN	Description
* 9.550	49	
* 2.870	69	
* 1.510	98	
13.930	58	Weighted Average
12.420		89.16% Pervious Area
1.510		10.84% Impervious Area

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

Summary for Subcatchment S40:

Runoff = 14.25 cfs @ 12.07 hrs, Volume= 0.961 af, Depth> 4.32"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.870	49	
* 1.800	98	
2.670	82	Weighted Average
0.870		32.58% Pervious Area
1.800		67.42% Impervious Area

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

Summary for Subcatchment S40.1:

Runoff = 3.54 cfs @ 12.86 hrs, Volume= 0.601 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.250	49	
* 1.060	98	
2.310	71	Weighted Average
1.250		54.11% Pervious Area
1.060		45.89% Impervious Area

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

Summary for Subcatchment S40.2:

Runoff = 21.01 cfs @ 12.07 hrs, Volume= 1.632 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 3.200	98	
3.200		100.00% Impervious Area

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

Summary for Subcatchment S41:

Runoff = 4.99 cfs @ 12.08 hrs, Volume= 0.332 af, Depth> 3.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.460	49	
* 0.020	36	
* 0.600	98	
1.080	76	Weighted Average
0.480		44.44% Pervious Area
0.600		55.56% Impervious Area

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

Summary for Subcatchment S41.1:

Runoff = 2.99 cfs @ 12.26 hrs, Volume= 0.291 af, Depth> 1.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.510	49	
* 0.220	36	
* 0.300	98	
2.030	55	Weighted Average
1.730		85.22% Pervious Area
0.300		14.78% Impervious Area

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

Summary for Subcatchment S42:

Runoff = 8.15 cfs @ 12.07 hrs, Volume= 0.557 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.380	49	
* 1.060	98	
1.440	85	Weighted Average
0.380		26.39% Pervious Area
1.060		73.61% Impervious Area

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

Summary for Subcatchment S42.1:

Runoff = 7.08 cfs @ 12.08 hrs, Volume= 0.469 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.750	43	
* 0.910	98	
1.660	73	Weighted Average
0.750		45.18% Pervious Area
0.910		54.82% Impervious Area

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

Summary for Subcatchment S43:

Runoff = 17.43 cfs @ 12.07 hrs, Volume= 1.298 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (ac)	CN	Description
* 0.170	49	
* 2.530	98	
2.700	95	Weighted Average
0.170		6.30% Pervious Area
2.530		93.70% Impervious Area

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

Summary for Subcatchment S44:

Runoff = 9.35 cfs @ 12.07 hrs, Volume= 0.715 af, Depth> 6.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.020	49	
* 1.410	98	
1.430	97	Weighted Average
0.020		1.40% Pervious Area
1.410		98.60% Impervious Area

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

Summary for Subcatchment S45:

Runoff = 6.70 cfs @ 12.08 hrs, Volume= 0.446 af, Depth> 3.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.650	49	
* 0.800	98	
1.450	76	Weighted Average
0.650		44.83% Pervious Area
0.800		55.17% Impervious Area

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

Summary for Subcatchment S45.1:

Runoff = 4.11 cfs @ 12.07 hrs, Volume= 0.280 af, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.210	49	
* 0.530	98	
0.740	84	Weighted Average
0.210		28.38% Pervious Area
0.530		71.62% Impervious Area

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

Summary for Subcatchment S46:

Runoff = 9.21 cfs @ 12.07 hrs, Volume= 0.616 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.670	49	
* 1.130	98	
1.800	80	Weighted Average
0.670		37.22% Pervious Area
1.130		62.78% Impervious Area

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

Summary for Subcatchment S47:

Runoff = 1.44 cfs @ 12.37 hrs, Volume= 0.197 af, Depth> 0.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 2.630	36	
* 0.310	98	
2.940	43	Weighted Average
2.630		89.46% Pervious Area
0.310		10.54% Impervious Area

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

Summary for Subcatchment S48:

Runoff = 7.16 cfs @ 12.07 hrs, Volume= 0.507 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.190	49	
* 0.980	98	
1.170	90	Weighted Average
0.190		16.24% Pervious Area
0.980		83.76% Impervious Area

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

Summary for Subcatchment S49:

Runoff = 18.26 cfs @ 12.07 hrs, Volume= 1.264 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.730	49	
* 2.390	98	
3.120	87	Weighted Average
0.730		23.40% Pervious Area
2.390		76.60% Impervious Area

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

Summary for Subcatchment S5:

Runoff = 19.90 cfs @ 12.07 hrs, Volume= 1.378 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Area (ac)	CN	Description
* 0.740	49	
* 2.660	98	
3.400	87	Weighted Average
0.740		21.76% Pervious Area
2.660		78.24% Impervious Area

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

Summary for Subcatchment S5.1:

Runoff = 15.28 cfs @ 12.22 hrs, Volume= 1.467 af, Depth> 4.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.270	69	
* 0.710	60	
* 2.570	98	
3.550	88	Weighted Average
0.980		27.61% Pervious Area
2.570		72.39% Impervious Area

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

Summary for Subcatchment S50:

Runoff = 22.00 cfs @ 12.07 hrs, Volume= 1.505 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.030	49	
* 2.860	98	
3.890	85	Weighted Average
1.030		26.48% Pervious Area
2.860		73.52% Impervious Area

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

Summary for Subcatchment S51:

Runoff = 6.34 cfs @ 12.42 hrs, Volume= 0.761 af, Depth> 1.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 5.880	49	
* 0.350	98	
6.230	52	Weighted Average
5.880		94.38% Pervious Area
0.350		5.62% Impervious Area

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

Summary for Subcatchment S7:

Runoff = 15.69 cfs @ 12.28 hrs, Volume= 1.638 af, Depth> 4.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.730	69	
* 0.670	65	
* 2.660	98	
4.060	87	Weighted Average
1.400		34.48% Pervious Area
2.660		65.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7					Direct Entry,
0.2	150	0.0253	13.94	98.51	Pipe Channel, 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.014

20.9 150 Total

Summary for Reach 1R: 60"

Inflow Area = 84.258 ac, 52.35% Impervious, Inflow Depth > 3.70" for 100-Year event
Inflow = 206.79 cfs @ 12.10 hrs, Volume= 25.962 af
Outflow = 201.80 cfs @ 12.13 hrs, Volume= 25.941 af, Atten= 2%, Lag= 1.4 min

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Type III 24-hr 100-Year Rainfall=6.65"

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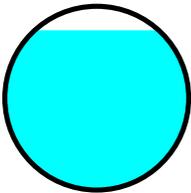
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Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.39 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 4.74 fps, Avg. Travel Time= 1.7 min

Peak Storage= 8,699 cf @ 12.11 hrs
Average Depth at Peak Storage= 4.34'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.22 cfs

60.0" Round Pipe
n= 0.014
Length= 480.0' Slope= 0.0066 '/'
Inlet Invert= 42.00', Outlet Invert= 38.84'



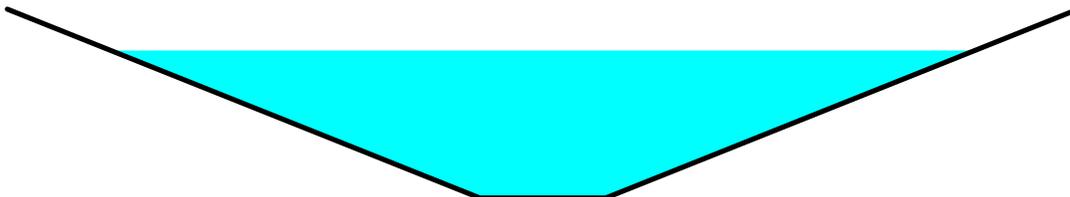
Summary for Reach 2R: Ditch 2

Inflow Area = 21.550 ac, 59.44% Impervious, Inflow Depth > 3.91" for 100-Year event
Inflow = 85.20 cfs @ 12.10 hrs, Volume= 7.028 af
Outflow = 81.22 cfs @ 12.15 hrs, Volume= 7.016 af, Atten= 5%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.53 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 1.68 fps, Avg. Travel Time= 3.7 min

Peak Storage= 6,807 cf @ 12.12 hrs
Average Depth at Peak Storage= 2.34'
Bank-Full Depth= 3.00' Flow Area= 28.5 sf, Capacity= 150.34 cfs

2.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.5 '/' Top Width= 17.00'
Length= 370.0' Slope= 0.0062 '/'
Inlet Invert= 48.90', Outlet Invert= 46.60'



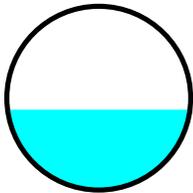
Summary for Reach 3R: 36"

Inflow Area = 14.600 ac, 50.14% Impervious, Inflow Depth > 3.40" for 100-Year event
Inflow = 49.60 cfs @ 12.10 hrs, Volume= 4.137 af
Outflow = 49.00 cfs @ 12.10 hrs, Volume= 4.135 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 16.82 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.75 fps, Avg. Travel Time= 1.0 min

Peak Storage= 1,049 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.31'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 126.46 cfs

36.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0417 '/'
Inlet Invert= 63.70', Outlet Invert= 48.90'



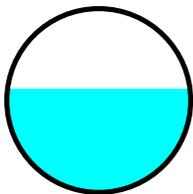
Summary for Reach 4R: 36"

Inflow Area = 11.750 ac, 43.57% Impervious, Inflow Depth > 3.05" for 100-Year event
Inflow = 34.01 cfs @ 12.10 hrs, Volume= 2.983 af
Outflow = 33.70 cfs @ 12.11 hrs, Volume= 2.982 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.29 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.97 fps, Avg. Travel Time= 0.7 min

Peak Storage= 505 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.69'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 55.84 cfs

36.0" Round Pipe
n= 0.014
Length= 123.0' Slope= 0.0081 '/'
Inlet Invert= 68.80', Outlet Invert= 67.80'



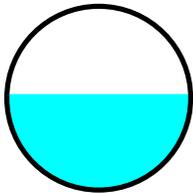
Summary for Reach 5R: 24"

Inflow Area = 7.990 ac, 41.30% Impervious, Inflow Depth > 2.89" for 100-Year event
Inflow = 19.85 cfs @ 12.07 hrs, Volume= 1.923 af
Outflow = 19.50 cfs @ 12.09 hrs, Volume= 1.922 af, Atten= 2%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.87 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 4.54 fps, Avg. Travel Time= 0.9 min

Peak Storage= 394 cf @ 12.08 hrs
Average Depth at Peak Storage= 1.04'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 36.79 cfs

24.0" Round Pipe
n= 0.014
Length= 238.0' Slope= 0.0307 '/'
Inlet Invert= 79.70', Outlet Invert= 72.40'



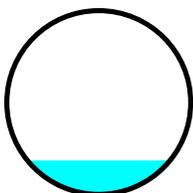
Summary for Reach 6R: 24"

Inflow Area = 5.060 ac, 8.10% Impervious, Inflow Depth > 1.09" for 100-Year event
Inflow = 3.92 cfs @ 12.32 hrs, Volume= 0.458 af
Outflow = 3.89 cfs @ 12.35 hrs, Volume= 0.457 af, Atten= 1%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.88 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 5.37 fps, Avg. Travel Time= 1.5 min

Peak Storage= 193 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 53.18 cfs

24.0" Round Pipe
n= 0.014
Length= 490.0' Slope= 0.0641 '/'
Inlet Invert= 103.80', Outlet Invert= 72.40'



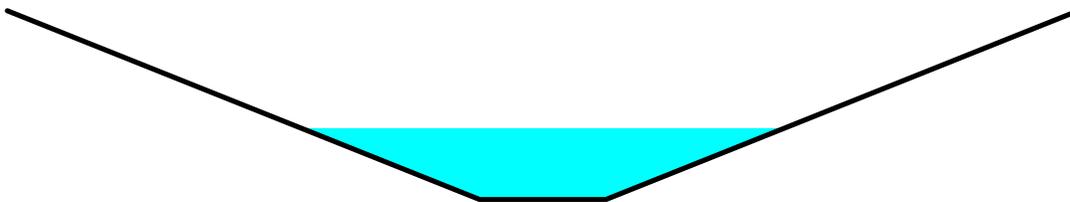
Summary for Reach 7R: Ditch 1

Inflow Area = 3.400 ac, 66.47% Impervious, Inflow Depth > 4.32" for 100-Year event
Inflow = 17.45 cfs @ 12.10 hrs, Volume= 1.223 af
Outflow = 16.34 cfs @ 12.15 hrs, Volume= 1.220 af, Atten= 6%, Lag= 3.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.08 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.15 fps, Avg. Travel Time= 4.4 min

Peak Storage= 1,670 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.13'
Bank-Full Depth= 3.00' Flow Area= 28.5 sf, Capacity= 154.41 cfs

2.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.5 '/' Top Width= 17.00'
Length= 305.0' Slope= 0.0066 '/'
Inlet Invert= 50.90', Outlet Invert= 48.90'



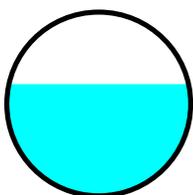
Summary for Reach 8R: 36"

Inflow Area = 38.320 ac, 33.79% Impervious, Inflow Depth > 2.83" for 100-Year event
Inflow = 71.93 cfs @ 12.14 hrs, Volume= 9.051 af
Outflow = 72.08 cfs @ 12.16 hrs, Volume= 9.046 af, Atten= 0%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 16.06 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 6.50 fps, Avg. Travel Time= 1.0 min

Peak Storage= 1,752 cf @ 12.15 hrs
Average Depth at Peak Storage= 1.82'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 105.42 cfs

36.0" Round Pipe
n= 0.014
Length= 390.0' Slope= 0.0290 '/'
Inlet Invert= 59.80', Outlet Invert= 48.50'



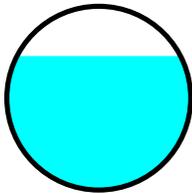
Summary for Reach 9R: 30"

Inflow Area = 38.320 ac, 33.79% Impervious, Inflow Depth > 2.84" for 100-Year event
Inflow = 73.32 cfs @ 12.12 hrs, Volume= 9.055 af
Outflow = 71.93 cfs @ 12.14 hrs, Volume= 9.051 af, Atten= 2%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 19.15 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 7.92 fps, Avg. Travel Time= 0.8 min

Peak Storage= 1,532 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.82'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 83.45 cfs

30.0" Round Pipe
n= 0.014
Length= 400.0' Slope= 0.0480 '/
Inlet Invert= 79.60', Outlet Invert= 60.40'



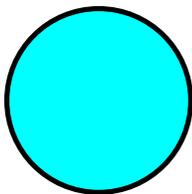
Summary for Reach L10:

Inflow Area = 47.830 ac, 41.27% Impervious, Inflow Depth > 3.23" for 100-Year event
Inflow = 110.61 cfs @ 12.12 hrs, Volume= 12.892 af
Outflow = 51.15 cfs @ 12.05 hrs, Volume= 12.861 af, Atten= 54%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.63 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.37 fps, Avg. Travel Time= 4.3 min

Peak Storage= 7,691 cf @ 12.00 hrs
Average Depth at Peak Storage= 4.00'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 51.15 cfs

48.0" Round Pipe
n= 0.014
Length= 612.0' Slope= 0.0015 '/
Inlet Invert= 47.50', Outlet Invert= 46.60'



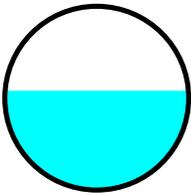
Summary for Reach L113: 72"

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 3.59" for 100-Year event
Inflow = 282.94 cfs @ 12.29 hrs, Volume= 38.593 af
Outflow = 282.49 cfs @ 12.29 hrs, Volume= 38.589 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 18.17 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 7.06 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1,493 cf @ 12.29 hrs
Average Depth at Peak Storage= 3.24'
Bank-Full Depth= 6.00' Flow Area= 28.3 sf, Capacity= 498.08 cfs

72.0" Round Pipe
n= 0.014
Length= 96.0' Slope= 0.0160 '/'
Inlet Invert= 36.11', Outlet Invert= 34.57'



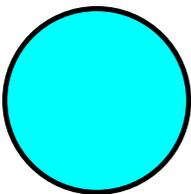
Summary for Reach L123:

Inflow Area = 24.400 ac, 68.44% Impervious, Inflow Depth > 4.36" for 100-Year event
Inflow = 96.46 cfs @ 12.10 hrs, Volume= 8.875 af
Outflow = 79.30 cfs @ 12.10 hrs, Volume= 8.867 af, Atten= 18%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.14 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.79 fps, Avg. Travel Time= 2.1 min

Peak Storage= 4,461 cf @ 12.10 hrs
Average Depth at Peak Storage= 4.00'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



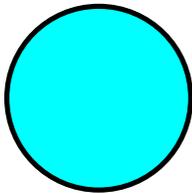
Summary for Reach L157:

Inflow Area = 15.780 ac, 73.13% Impervious, Inflow Depth > 4.58" for 100-Year event
Inflow = 84.98 cfs @ 12.10 hrs, Volume= 6.028 af
Outflow = 68.93 cfs @ 12.05 hrs, Volume= 6.025 af, Atten= 19%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.14 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.54 fps, Avg. Travel Time= 0.9 min

Peak Storage= 1,734 cf @ 12.10 hrs
Average Depth at Peak Storage= 4.00'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 68.13 cfs

48.0" Round Pipe
n= 0.014
Length= 138.0' Slope= 0.0026 '/'
Inlet Invert= 42.06', Outlet Invert= 41.70'



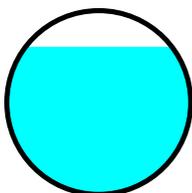
Summary for Reach L158:

Inflow Area = 19.170 ac, 68.86% Impervious, Inflow Depth > 4.36" for 100-Year event
Inflow = 76.99 cfs @ 12.07 hrs, Volume= 6.957 af
Outflow = 75.40 cfs @ 12.12 hrs, Volume= 6.952 af, Atten= 2%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.04 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.93 fps, Avg. Travel Time= 1.4 min

Peak Storage= 2,746 cf @ 12.10 hrs
Average Depth at Peak Storage= 3.21'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 77.61 cfs

48.0" Round Pipe
n= 0.014
Length= 254.0' Slope= 0.0034 '/'
Inlet Invert= 41.60', Outlet Invert= 40.74'



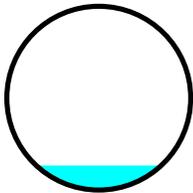
Summary for Reach L159:

Inflow Area = 2.310 ac, 45.89% Impervious, Inflow Depth > 3.12" for 100-Year event
Inflow = 3.54 cfs @ 12.86 hrs, Volume= 0.601 af
Outflow = 3.53 cfs @ 12.91 hrs, Volume= 0.600 af, Atten= 0%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.59 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.84 fps, Avg. Travel Time= 3.1 min

Peak Storage= 334 cf @ 12.88 hrs
Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 340.0' Slope= 0.0050 '/
Inlet Invert= 43.40', Outlet Invert= 41.70'



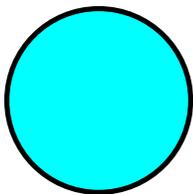
Summary for Reach L69: 60"

Inflow Area = 95.378 ac, 53.10% Impervious, Inflow Depth > 3.61" for 100-Year event
Inflow = 238.60 cfs @ 12.11 hrs, Volume= 28.710 af
Outflow = 213.68 cfs @ 12.28 hrs, Volume= 28.704 af, Atten= 10%, Lag= 10.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.32 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.85 fps, Avg. Travel Time= 0.4 min

Peak Storage= 2,494 cf @ 12.10 hrs
Average Depth at Peak Storage= 5.00'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.68 cfs

60.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0066 '/
Inlet Invert= 38.84', Outlet Invert= 38.00'



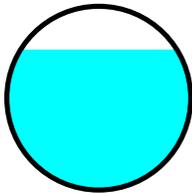
Summary for Reach L76:

Inflow Area = 13.110 ac, 74.29% Impervious, Inflow Depth > 4.64" for 100-Year event
Inflow = 74.16 cfs @ 12.07 hrs, Volume= 5.072 af
Outflow = 71.26 cfs @ 12.10 hrs, Volume= 5.067 af, Atten= 4%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.12 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.69 fps, Avg. Travel Time= 2.2 min

Peak Storage= 3,657 cf @ 12.09 hrs
Average Depth at Peak Storage= 3.05'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



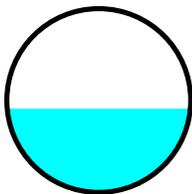
Summary for Reach L81:

Inflow Area = 25.840 ac, 68.73% Impervious, Inflow Depth > 4.38" for 100-Year event
Inflow = 87.18 cfs @ 12.11 hrs, Volume= 9.424 af
Outflow = 87.57 cfs @ 12.11 hrs, Volume= 9.422 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.12 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.61 fps, Avg. Travel Time= 0.6 min

Peak Storage= 1,050 cf @ 12.11 hrs
Average Depth at Peak Storage= 2.27'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 207.41 cfs

60.0" Round Pipe
n= 0.014
Length= 121.0' Slope= 0.0074 '/'
Inlet Invert= 38.80', Outlet Invert= 37.91'



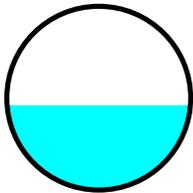
Summary for Reach P2: 78"

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 3.59" for 100-Year event
 Inflow = 282.49 cfs @ 12.29 hrs, Volume= 38.589 af
 Outflow = 282.39 cfs @ 12.29 hrs, Volume= 38.588 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 18.97 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 7.29 fps, Avg. Travel Time= 0.1 min

Peak Storage= 372 cf @ 12.29 hrs
 Average Depth at Peak Storage= 2.99'
 Bank-Full Depth= 6.50' Flow Area= 33.2 sf, Capacity= 653.15 cfs

78.0" Round Pipe
 n= 0.014
 Length= 25.0' Slope= 0.0180 '/'
 Inlet Invert= 34.57', Outlet Invert= 34.12'



Summary for Reach POA 2: POA 2

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 3.59" for 100-Year event
 Inflow = 282.39 cfs @ 12.29 hrs, Volume= 38.588 af
 Outflow = 282.39 cfs @ 12.29 hrs, Volume= 38.588 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 42.1P:

Inflow Area = 129.108 ac, 53.96% Impervious, Inflow Depth > 3.59" for 100-Year event
 Inflow = 299.71 cfs @ 12.28 hrs, Volume= 38.595 af
 Outflow = 282.94 cfs @ 12.29 hrs, Volume= 38.593 af, Atten= 6%, Lag= 0.6 min
 Primary = 282.94 cfs @ 12.29 hrs, Volume= 38.593 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.44' @ 12.29 hrs Surf.Area= 17,133 sf Storage= 54,709 cf

Plug-Flow detention time= 1.3 min calculated for 38.497 af (100% of inflow)
 Center-of-Mass det. time= 1.3 min (776.8 - 775.6)

Volume	Invert	Avail.Storage	Storage Description
#1	36.10'	83,475 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 100-Year Rainfall=6.65"

Prepared by {enter your company name here}

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.10	0	0	0
36.56	36	8	8
37.02	71	25	33
37.52	628	175	208
38.02	1,185	453	661
38.52	1,515	675	1,336
39.02	1,845	840	2,176
39.52	2,750	1,149	3,325
40.02	3,654	1,601	4,926
40.52	6,082	2,434	7,360
41.02	8,510	3,648	11,008
41.52	9,847	4,589	15,597
42.02	11,185	5,258	20,855
42.52	12,262	5,862	26,717
43.02	13,340	6,401	33,117
43.52	14,672	7,003	40,120
44.02	16,005	7,669	47,789
44.52	17,355	8,340	56,129
45.02	18,705	9,015	65,144
46.00	18,705	18,331	83,475

Device	Routing	Invert	Outlet Devices
#1	Primary	36.11'	72.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 36.11' / 36.10' S= 0.0100 1' Cc= 0.900 n= 0.014, Flow Area= 28.27 sf

Primary OutFlow Max=282.01 cfs @ 12.29 hrs HW=44.42' (Free Discharge)

↑**1=Culvert** (Barrel Controls 282.01 cfs @ 9.97 fps)

Summary for Pond 47P:

Inflow Area = 4.110 ac, 31.39% Impervious, Inflow Depth > 2.05" for 100-Year event
 Inflow = 7.26 cfs @ 12.08 hrs, Volume= 0.703 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 45.30' @ 20.00 hrs Surf.Area= 29,425 sf Storage= 30,622 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	277,477 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 100-Year Rainfall=6.65"

Prepared by {enter your company name here}

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	17,860	0	0
44.50	22,325	10,046	10,046
45.00	26,789	12,279	22,325
45.50	31,254	14,511	36,836
46.00	35,719	16,743	53,579
46.50	42,471	19,548	73,126
47.00	49,223	22,924	96,050
47.50	55,975	26,300	122,349
48.00	62,726	29,675	152,025
50.00	62,726	125,452	277,477

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	165.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)

←1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 51P:

Inflow Area = 6.230 ac, 5.62% Impervious, Inflow Depth > 1.47" for 100-Year event
 Inflow = 6.34 cfs @ 12.42 hrs, Volume= 0.761 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 45.99' @ 20.00 hrs Surf.Area= 61,468 sf Storage= 33,120 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	513,572 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	5,227	0	0
45.50	33,541	9,692	9,692
46.00	61,855	23,849	33,541
46.50	81,239	35,774	69,315
47.00	100,624	45,466	114,780
47.50	120,008	55,158	169,938
48.00	139,392	64,850	234,788
50.00	139,392	278,784	513,572

Device	Routing	Invert	Outlet Devices
#1	Primary	48.50'	75.0' long x 5.0' breadth Broad-Crested Rectangular Weir

3659-12003C-Existing Conditions POA 2-01

Type III 24-hr 100-Year Rainfall=6.65"

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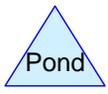
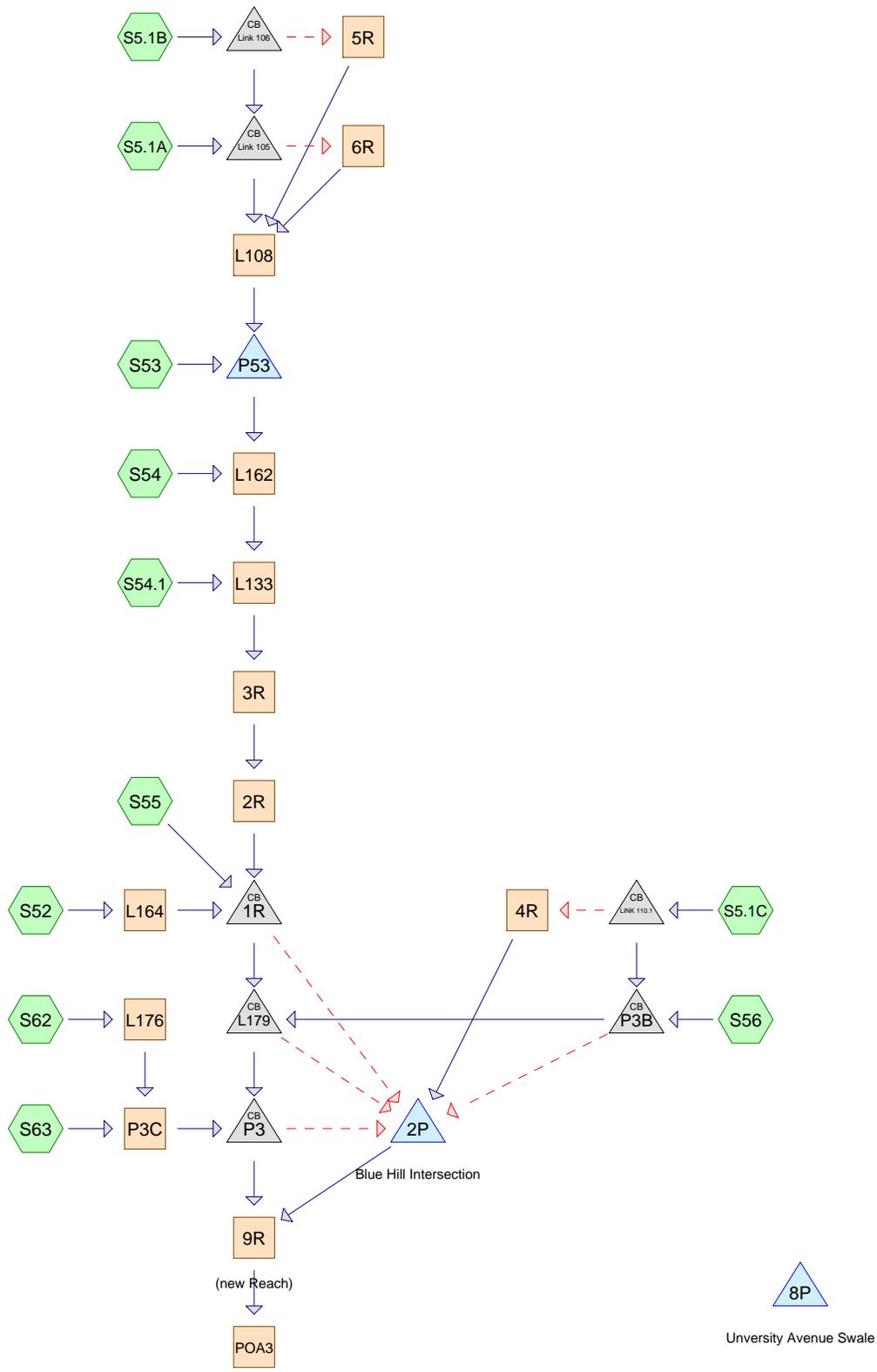
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Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00
	2.50	3.00	3.50	4.00	4.50	5.00	5.50			
Coef. (English)	2.34	2.50	2.70	2.68	2.68	2.66	2.65	2.65	2.65	2.65
	2.65	2.67	2.66	2.68	2.70	2.74	2.79	2.88		

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.00' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)



Routing Diagram for 3659-12003C-Existing Conditions POA 3-01
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
27.960	49	50-75% Grass cover, Fair, HSG A (S5.1A, S5.1B, S5.1C, S63)
12.900	69	50-75% Grass cover, Fair, HSG B (S5.1C, S52)
3.200	79	50-75% Grass cover, Fair, HSG C (S5.1B)
13.500	98	Paved parking & roofs (S5.1A, S5.1B, S5.1C, S52, S53, S54, S54.1, S55, S56, S62, S63)
22.950	65	Woods/grass comb., Fair, HSG B (S53, S54, S54.1, S55, S56)
80.510	66	TOTAL AREA

Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S5.1A:	Runoff Area=15.250 ac 12.00% Impervious Runoff Depth>0.21" Tc=16.7 min CN=55 Runoff=1.40 cfs 0.265 af
Subcatchment S5.1B:	Runoff Area=16.990 ac 17.83% Impervious Runoff Depth>0.45" Tc=25.4 min CN=63 Runoff=4.63 cfs 0.641 af
Subcatchment S5.1C:	Runoff Area=17.500 ac 13.43% Impervious Runoff Depth>0.70" Tc=14.3 min CN=69 Runoff=10.62 cfs 1.019 af
Subcatchment S52:	Runoff Area=3.030 ac 53.14% Impervious Runoff Depth>1.57" Tc=5.0 min CN=84 Runoff=6.12 cfs 0.395 af
Subcatchment S53:	Runoff Area=5.340 ac 6.37% Impervious Runoff Depth>0.61" Tc=15.8 min CN=67 Runoff=2.62 cfs 0.272 af
Subcatchment S54:	Runoff Area=1.790 ac 11.17% Impervious Runoff Depth>0.70" Tc=14.0 min CN=69 Runoff=1.10 cfs 0.104 af
Subcatchment S54.1:	Runoff Area=1.570 ac 5.10% Impervious Runoff Depth>0.62" Flow Length=22' Tc=0.0 min CN=67 Runoff=1.24 cfs 0.081 af
Subcatchment S55:	Runoff Area=13.380 ac 10.31% Impervious Runoff Depth>0.65" Tc=36.7 min CN=68 Runoff=5.09 cfs 0.721 af
Subcatchment S56:	Runoff Area=4.240 ac 32.31% Impervious Runoff Depth>1.06" Tc=5.0 min CN=76 Runoff=5.68 cfs 0.373 af
Subcatchment S62:	Runoff Area=0.380 ac 100.00% Impervious Runoff Depth>2.83" Tc=5.0 min CN=98 Runoff=1.20 cfs 0.090 af
Subcatchment S63:	Runoff Area=1.040 ac 89.42% Impervious Runoff Depth>2.31" Tc=5.0 min CN=93 Runoff=2.95 cfs 0.200 af
Reach 2R:	Avg. Flow Depth=0.44' Max Vel=1.52 fps Inflow=7.56 cfs 1.328 af n=0.030 L=460.0' S=0.0073 '/ Capacity=417.73 cfs Outflow=7.37 cfs 1.314 af
Reach 3R:	Avg. Flow Depth=0.53' Max Vel=1.08 fps Inflow=7.66 cfs 1.337 af n=0.030 L=195.0' S=0.0028 '/ Capacity=41.41 cfs Outflow=7.56 cfs 1.328 af
Reach 4R:	Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af n=0.030 L=183.0' S=0.0231 '/ Capacity=18.43 cfs Outflow=0.00 cfs 0.000 af
Reach 5R:	Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af n=0.030 L=900.0' S=0.0289 '/ Capacity=20.61 cfs Outflow=0.00 cfs 0.000 af
Reach 6R:	Avg. Flow Depth=0.23' Max Vel=4.60 fps Inflow=6.01 cfs 0.906 af n=0.030 L=50.0' S=0.1600 '/ Capacity=48.49 cfs Outflow=6.01 cfs 0.906 af

Reach 9R: (new Reach)	Avg. Flow Depth=1.68'	Max Vel=1.54 fps	Inflow=23.47 cfs	4.110 af
	n=0.050	L=280.0'	S=0.0024 '/	Capacity=144.88 cfs
			Outflow=22.46 cfs	4.087 af
Reach L108:	Avg. Flow Depth=0.07'	Max Vel=2.11 fps	Inflow=6.01 cfs	0.906 af
	n=0.030	L=774.0'	S=0.0646 '/	Capacity=1,762.00 cfs
			Outflow=5.79 cfs	0.892 af
Reach L133:	Avg. Flow Depth=0.29'	Max Vel=3.28 fps	Inflow=7.70 cfs	1.342 af
	n=0.030	L=344.0'	S=0.0343 '/	Capacity=842.72 cfs
			Outflow=7.66 cfs	1.337 af
Reach L162:	Avg. Flow Depth=0.53'	Max Vel=2.89 fps	Inflow=7.55 cfs	1.268 af
	n=0.030	L=394.0'	S=0.0124 '/	Capacity=26.45 cfs
			Outflow=7.50 cfs	1.261 af
Reach L164:	Avg. Flow Depth=0.99'	Max Vel=3.78 fps	Inflow=6.12 cfs	0.395 af
24.0" Round Pipe	n=0.014	L=368.0'	S=0.0033 '/	Capacity=12.00 cfs
			Outflow=5.78 cfs	0.394 af
Reach L176:	Avg. Flow Depth=0.41'	Max Vel=3.87 fps	Inflow=1.20 cfs	0.090 af
12.0" Round Pipe	n=0.014	L=242.0'	S=0.0100 '/	Capacity=3.31 cfs
			Outflow=1.15 cfs	0.089 af
Reach P3C:	Avg. Flow Depth=0.58'	Max Vel=6.41 fps	Inflow=4.06 cfs	0.290 af
18.0" Round Pipe	n=0.014	L=127.0'	S=0.0172 '/	Capacity=12.78 cfs
			Outflow=3.99 cfs	0.290 af
Reach POA3:			Inflow=22.46 cfs	4.087 af
			Outflow=22.46 cfs	4.087 af
Pond 1R:		Peak Elev=45.49'	Inflow=11.46 cfs	2.430 af
	Primary=11.46 cfs	2.430 af	Secondary=0.00 cfs	0.000 af
			Outflow=11.46 cfs	2.430 af
Pond 2P: Blue Hill Intersection		Peak Elev=45.63'	Storage=70 cf	Inflow=0.30 cfs
				0.002 af
			Outflow=0.00 cfs	0.000 af
Pond 8P: Unversity Avenue Swale		Peak Elev=0.00'	Storage=0 cf	
			Primary=0.00 cfs	0.000 af
Pond L179:		Peak Elev=44.67'	Inflow=20.12 cfs	3.820 af
	Primary=20.12 cfs	3.820 af	Secondary=0.00 cfs	0.000 af
			Outflow=20.12 cfs	3.820 af
Pond Link 105:		Peak Elev=140.38'	Inflow=6.01 cfs	0.906 af
	Primary=0.00 cfs	0.000 af	Secondary=6.01 cfs	0.906 af
			Outflow=6.01 cfs	0.906 af
Pond Link 106:		Peak Elev=143.04'	Inflow=4.63 cfs	0.641 af
	Primary=4.63 cfs	0.641 af	Secondary=0.00 cfs	0.000 af
			Outflow=4.63 cfs	0.641 af
Pond LINK 110.1:		Peak Elev=48.76'	Inflow=10.62 cfs	1.019 af
	Primary=10.62 cfs	1.019 af	Secondary=0.00 cfs	0.000 af
			Outflow=10.62 cfs	1.019 af
Pond P3:		Peak Elev=44.61'	Inflow=23.47 cfs	4.110 af
	Primary=23.47 cfs	4.110 af	Secondary=0.00 cfs	0.000 af
			Outflow=23.47 cfs	4.110 af
Pond P3B:		Peak Elev=45.97'	Inflow=13.79 cfs	1.392 af
	Primary=13.50 cfs	1.390 af	Secondary=0.30 cfs	0.002 af
			Outflow=13.79 cfs	1.392 af
Pond P53:		Peak Elev=78.42'	Storage=191 cf	Inflow=7.08 cfs
				1.164 af
			Outflow=7.07 cfs	1.164 af

3659-12003C-Existing Conditions POA 3-01

Type III 24-hr 2-Year Rainfall=3.20"

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Total Runoff Area = 80.510 ac Runoff Volume = 4.161 af Average Runoff Depth = 0.62"
83.23% Pervious = 67.010 ac 16.77% Impervious = 13.500 ac

Summary for Subcatchment S5.1A:

Runoff = 1.40 cfs @ 12.50 hrs, Volume= 0.265 af, Depth> 0.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
13.420	49	50-75% Grass cover, Fair, HSG A
1.830	98	Paved parking & roofs
15.250	55	Weighted Average
13.420		88.00% Pervious Area
1.830		12.00% Impervious Area

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

Summary for Subcatchment S5.1B:

Runoff = 4.63 cfs @ 12.46 hrs, Volume= 0.641 af, Depth> 0.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
10.760	49	50-75% Grass cover, Fair, HSG A
3.200	79	50-75% Grass cover, Fair, HSG C
3.030	98	Paved parking & roofs
16.990	63	Weighted Average
13.960		82.17% Pervious Area
3.030		17.83% Impervious Area

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

Summary for Subcatchment S5.1C:

Runoff = 10.62 cfs @ 12.22 hrs, Volume= 1.019 af, Depth> 0.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

3659-12003C-Existing Conditions POA 3-01

Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
3.670	49	50-75% Grass cover, Fair, HSG A
11.480	69	50-75% Grass cover, Fair, HSG B
2.350	98	Paved parking & roofs
17.500	69	Weighted Average
15.150		86.57% Pervious Area
2.350		13.43% Impervious Area

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

Summary for Subcatchment S52:

Runoff = 6.12 cfs @ 12.08 hrs, Volume= 0.395 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
1.420	69	50-75% Grass cover, Fair, HSG B
1.610	98	Paved parking & roofs
3.030	84	Weighted Average
1.420		46.86% Pervious Area
1.610		53.14% Impervious Area

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

Summary for Subcatchment S53:

Runoff = 2.62 cfs @ 12.26 hrs, Volume= 0.272 af, Depth> 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
5.000	65	Woods/grass comb., Fair, HSG B
0.340	98	Paved parking & roofs
5.340	67	Weighted Average
5.000		93.63% Pervious Area
0.340		6.37% Impervious Area

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

Summary for Subcatchment S54:

Runoff = 1.10 cfs @ 12.22 hrs, Volume= 0.104 af, Depth> 0.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
1.590	65	Woods/grass comb., Fair, HSG B
0.200	98	Paved parking & roofs
1.790	69	Weighted Average
1.590		88.83% Pervious Area
0.200		11.17% Impervious Area

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

Summary for Subcatchment S54.1:

Runoff = 1.24 cfs @ 12.01 hrs, Volume= 0.081 af, Depth> 0.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
1.490	65	Woods/grass comb., Fair, HSG B
0.080	98	Paved parking & roofs
1.570	67	Weighted Average
1.490		94.90% Pervious Area
0.080		5.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	22				Direct Entry,

Summary for Subcatchment S55:

Runoff = 5.09 cfs @ 12.59 hrs, Volume= 0.721 af, Depth> 0.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
12.000	65	Woods/grass comb., Fair, HSG B
1.380	98	Paved parking & roofs
13.380	68	Weighted Average
12.000		89.69% Pervious Area
1.380		10.31% Impervious Area

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Type III 24-hr 2-Year Rainfall=3.20"

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

Summary for Subcatchment S56:

Runoff = 5.68 cfs @ 12.08 hrs, Volume= 0.373 af, Depth> 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
2.870	65	Woods/grass comb., Fair, HSG B
1.370	98	Paved parking & roofs
4.240	76	Weighted Average
2.870		67.69% Pervious Area
1.370		32.31% Impervious Area

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

Summary for Subcatchment S62:

Runoff = 1.20 cfs @ 12.07 hrs, Volume= 0.090 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
0.380	98	Paved parking & roofs
0.380		100.00% Impervious Area

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

Summary for Subcatchment S63:

Runoff = 2.95 cfs @ 12.07 hrs, Volume= 0.200 af, Depth> 2.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
0.110	49	50-75% Grass cover, Fair, HSG A
0.930	98	Paved parking & roofs
1.040	93	Weighted Average
0.110		10.58% Pervious Area
0.930		89.42% Impervious Area

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

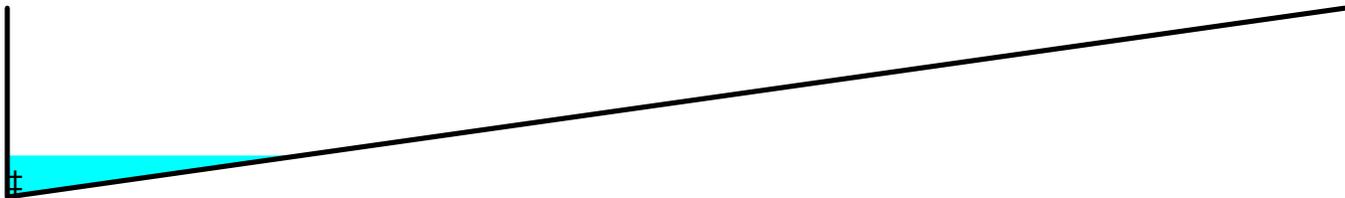
Summary for Reach 2R:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 0.39" for 2-Year event
 Inflow = 7.56 cfs @ 12.82 hrs, Volume= 1.328 af
 Outflow = 7.37 cfs @ 12.97 hrs, Volume= 1.314 af, Atten= 3%, Lag= 9.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 1.52 fps, Min. Travel Time= 5.0 min
 Avg. Velocity = 1.02 fps, Avg. Travel Time= 7.5 min

Peak Storage= 2,228 cf @ 12.89 hrs
 Average Depth at Peak Storage= 0.44'
 Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 417.73 cfs

0.00' x 2.00' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 100.00'
 Length= 460.0' Slope= 0.0073 '/'
 Inlet Invert= 50.25', Outlet Invert= 46.89'



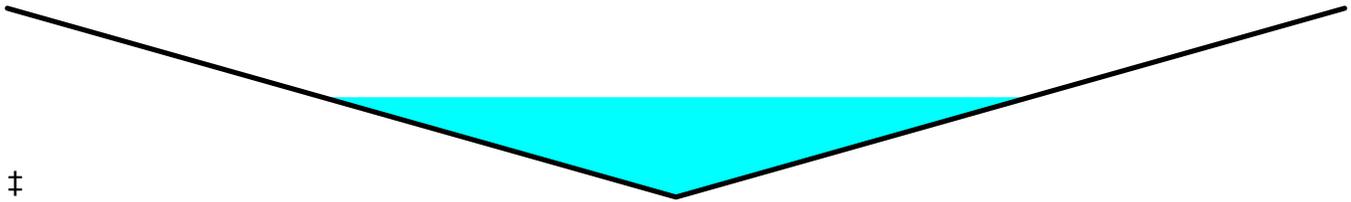
Summary for Reach 3R:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 0.39" for 2-Year event
 Inflow = 7.66 cfs @ 12.73 hrs, Volume= 1.337 af
 Outflow = 7.56 cfs @ 12.82 hrs, Volume= 1.328 af, Atten= 1%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 1.08 fps, Min. Travel Time= 3.0 min
 Avg. Velocity = 0.72 fps, Avg. Travel Time= 4.5 min

Peak Storage= 1,364 cf @ 12.77 hrs
 Average Depth at Peak Storage= 0.53'
 Bank-Full Depth= 1.00' Flow Area= 25.0 sf, Capacity= 41.41 cfs

0.00' x 1.00' deep channel, n= 0.030
 Side Slope Z-value= 25.0 '/' Top Width= 50.00'
 Length= 195.0' Slope= 0.0028 '/'
 Inlet Invert= 50.80', Outlet Invert= 50.25'



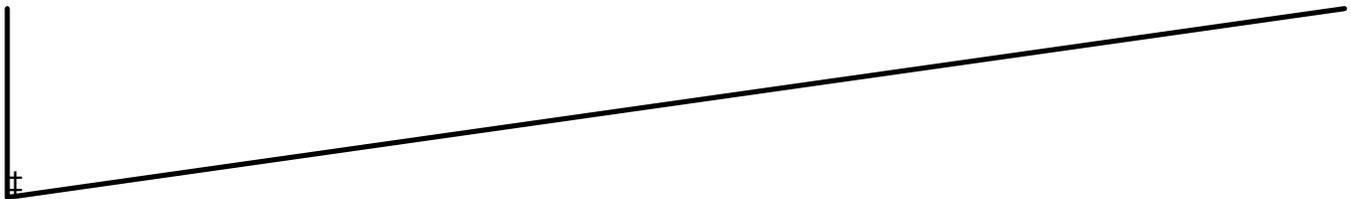
Summary for Reach 4R:

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

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
 Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 18.43 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 183.0' Slope= 0.0231 '/'
 Inlet Invert= 51.23', Outlet Invert= 47.00'



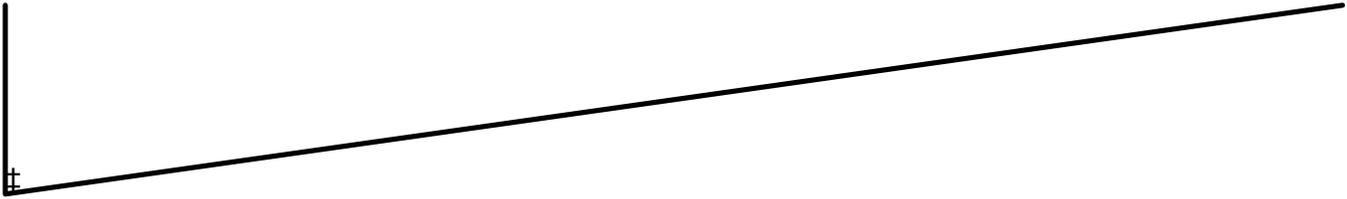
Summary for Reach 5R:

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

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
 Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 20.61 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 900.0' Slope= 0.0289 '/'
 Inlet Invert= 158.00', Outlet Invert= 132.00'



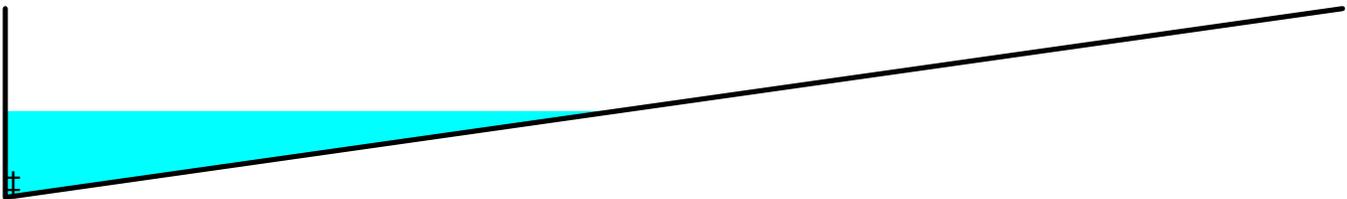
Summary for Reach 6R:

Inflow = 6.01 cfs @ 12.47 hrs, Volume= 0.906 af
 Outflow = 6.01 cfs @ 12.48 hrs, Volume= 0.906 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 4.60 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.98 fps, Avg. Travel Time= 0.3 min

Peak Storage= 65 cf @ 12.47 hrs
 Average Depth at Peak Storage= 0.23'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 48.49 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 50.0' Slope= 0.1600 '/'
 Inlet Invert= 140.00', Outlet Invert= 132.00'



Summary for Reach 9R: (new Reach)

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 0.61" for 2-Year event
 Inflow = 23.47 cfs @ 12.14 hrs, Volume= 4.110 af
 Outflow = 22.46 cfs @ 12.25 hrs, Volume= 4.087 af, Atten= 4%, Lag= 6.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 1.54 fps, Min. Travel Time= 3.0 min
 Avg. Velocity = 0.58 fps, Avg. Travel Time= 8.1 min

Peak Storage= 4,092 cf @ 12.19 hrs
 Average Depth at Peak Storage= 1.68'
 Bank-Full Depth= 4.00' Flow Area= 58.0 sf, Capacity= 144.88 cfs

4.50' x 4.00' deep channel, n= 0.050 Scattered brush, heavy weeds
 Side Slope Z-value= 2.5 '/' Top Width= 24.50'
 Length= 280.0' Slope= 0.0024 '/'
 Inlet Invert= 42.00', Outlet Invert= 41.32'



Summary for Reach L108:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 0.34" for 2-Year event
 Inflow = 6.01 cfs @ 12.48 hrs, Volume= 0.906 af
 Outflow = 5.79 cfs @ 12.66 hrs, Volume= 0.892 af, Atten= 4%, Lag= 10.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 2.11 fps, Min. Travel Time= 6.1 min
 Avg. Velocity = 1.15 fps, Avg. Travel Time= 11.2 min

Peak Storage= 2,126 cf @ 12.56 hrs
 Average Depth at Peak Storage= 0.07'
 Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 1,762.00 cfs

40.00' x 2.00' deep channel, n= 0.030
 Side Slope Z-value= 5.0 '/' Top Width= 60.00'
 Length= 774.0' Slope= 0.0646 '/'
 Inlet Invert= 132.00', Outlet Invert= 82.00'



‡

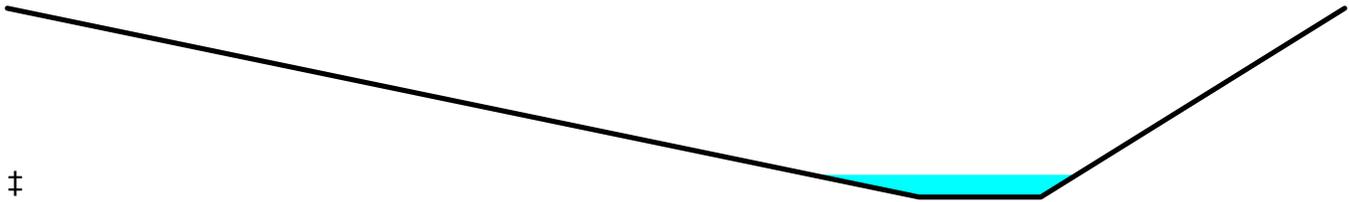
Summary for Reach L133:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 0.39" for 2-Year event
 Inflow = 7.70 cfs @ 12.68 hrs, Volume= 1.342 af
 Outflow = 7.66 cfs @ 12.73 hrs, Volume= 1.337 af, Atten= 1%, Lag= 3.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 3.28 fps, Min. Travel Time= 1.7 min
 Avg. Velocity = 2.01 fps, Avg. Travel Time= 2.9 min

Peak Storage= 804 cf @ 12.70 hrs
 Average Depth at Peak Storage= 0.29'
 Bank-Full Depth= 2.50' Flow Area= 75.0 sf, Capacity= 842.72 cfs

5.00' x 2.50' deep channel, n= 0.030
 Side Slope Z-value= 15.0 5.0 '/' Top Width= 55.00'
 Length= 344.0' Slope= 0.0343 '/'
 Inlet Invert= 62.60', Outlet Invert= 50.80'



Summary for Reach L162:

Inflow Area = 39.370 ac, 13.72% Impervious, Inflow Depth > 0.39" for 2-Year event
 Inflow = 7.55 cfs @ 12.61 hrs, Volume= 1.268 af
 Outflow = 7.50 cfs @ 12.68 hrs, Volume= 1.261 af, Atten= 1%, Lag= 4.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 2.89 fps, Min. Travel Time= 2.3 min
 Avg. Velocity = 1.72 fps, Avg. Travel Time= 3.8 min

Peak Storage= 1,025 cf @ 12.64 hrs
 Average Depth at Peak Storage= 0.53'
 Bank-Full Depth= 1.00' Flow Area= 6.5 sf, Capacity= 26.45 cfs

3.00' x 1.00' deep channel, n= 0.030
 Side Slope Z-value= 3.5 '/' Top Width= 10.00'
 Length= 394.0' Slope= 0.0124 '/'
 Inlet Invert= 67.50', Outlet Invert= 62.60'



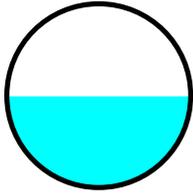
Summary for Reach L164:

Inflow Area = 3.030 ac, 53.14% Impervious, Inflow Depth > 1.57" for 2-Year event
 Inflow = 6.12 cfs @ 12.08 hrs, Volume= 0.395 af
 Outflow = 5.78 cfs @ 12.13 hrs, Volume= 0.394 af, Atten= 6%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 3.78 fps, Min. Travel Time= 1.6 min
 Avg. Velocity = 1.50 fps, Avg. Travel Time= 4.1 min

Peak Storage= 571 cf @ 12.10 hrs
 Average Depth at Peak Storage= 0.99'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 12.00 cfs

24.0" Round Pipe
 n= 0.014
 Length= 368.0' Slope= 0.0033 '/'
 Inlet Invert= 46.20', Outlet Invert= 45.00'



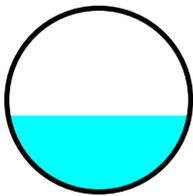
Summary for Reach L176:

Inflow Area = 0.380 ac, 100.00% Impervious, Inflow Depth > 2.83" for 2-Year event
Inflow = 1.20 cfs @ 12.07 hrs, Volume= 0.090 af
Outflow = 1.15 cfs @ 12.10 hrs, Volume= 0.089 af, Atten= 5%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.87 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.34 fps, Avg. Travel Time= 3.0 min

Peak Storage= 74 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.31 cfs

12.0" Round Pipe
n= 0.014
Length= 242.0' Slope= 0.0100 '/'
Inlet Invert= 45.80', Outlet Invert= 43.38'



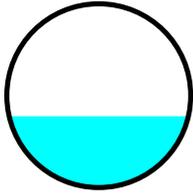
Summary for Reach P3C:

Inflow Area = 1.420 ac, 92.25% Impervious, Inflow Depth > 2.45" for 2-Year event
Inflow = 4.06 cfs @ 12.08 hrs, Volume= 0.290 af
Outflow = 3.99 cfs @ 12.09 hrs, Volume= 0.290 af, Atten= 2%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.41 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.09 fps, Avg. Travel Time= 1.0 min

Peak Storage= 80 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 12.78 cfs

18.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0172 '/'
Inlet Invert= 43.38', Outlet Invert= 41.20'



Summary for Reach POA3:

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 0.61" for 2-Year event
 Inflow = 22.46 cfs @ 12.25 hrs, Volume= 4.087 af
 Outflow = 22.46 cfs @ 12.25 hrs, Volume= 4.087 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

Summary for Pond 1R:

Inflow Area = 57.350 ac, 14.77% Impervious, Inflow Depth > 0.51" for 2-Year event
 Inflow = 11.46 cfs @ 12.90 hrs, Volume= 2.430 af
 Outflow = 11.46 cfs @ 12.90 hrs, Volume= 2.430 af, Atten= 0%, Lag= 0.0 min
 Primary = 11.46 cfs @ 12.90 hrs, Volume= 2.430 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 45.49' @ 12.90 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	43.90'	24.0" Round Culvert L= 175.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 43.90' / 41.90' S= 0.0114 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	46.33'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=11.45 cfs @ 12.90 hrs HW=45.48' (Free Discharge)
 ↑1=Culvert (Inlet Controls 11.45 cfs @ 4.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=43.90' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 2P: Blue Hill Intersection

Inflow = 0.30 cfs @ 12.20 hrs, Volume= 0.002 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 45.63' @ 12.28 hrs Surf.Area= 1,083 sf Storage= 70 cf

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

3659-12003C-Existing Conditions POA 3-01

Type III 24-hr 2-Year Rainfall=3.20"

Prepared by {enter your company name here}

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Volume	Invert	Avail.Storage	Storage Description
#1	45.50'	29,372 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.50	1	0	0
46.00	4,216	1,054	1,054
47.00	52,420	28,318	29,372

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	Curb, C= 3.27 Offset (feet) 0.00 140.50 231.95 323.40 493.00 Elev. (feet) 47.50 46.50 46.00 46.50 47.50

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.50' (Free Discharge)
 ↑**1=Curb** (Controls 0.00 cfs)

Summary for Pond 8P: Unversity Avenue Swale

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs / 2
 Peak Elev= 0.00' @ 0.00 hrs Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= (not calculated)
 Center-of-Mass det. time= (not calculated)

Volume	Invert	Avail.Storage	Storage Description
#1	40.66'	408,373 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.66	1	0	0
42.00	308	207	207
43.00	5,236	2,772	2,979
44.00	7,524	6,380	9,359
45.00	10,163	8,844	18,203
46.00	11,162	10,663	28,865
80.00	11,162	379,508	408,373

Device	Routing	Invert	Outlet Devices
#1	Primary	41.32'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
 ↑**1=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond L179:

Inflow Area = 79.090 ac, 15.41% Impervious, Inflow Depth > 0.58" for 2-Year event
 Inflow = 20.12 cfs @ 12.17 hrs, Volume= 3.820 af
 Outflow = 20.12 cfs @ 12.17 hrs, Volume= 3.820 af, Atten= 0%, Lag= 0.0 min
 Primary = 20.12 cfs @ 12.17 hrs, Volume= 3.820 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 44.67' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.90'	24.0" Round Culvert L= 60.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 41.90' / 41.10' S= 0.0133 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	45.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=20.06 cfs @ 12.17 hrs HW=44.66' (Free Discharge)
 ↑1=Culvert (Inlet Controls 20.06 cfs @ 6.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=41.90' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond Link 105:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 0.34" for 2-Year event
 Inflow = 6.01 cfs @ 12.47 hrs, Volume= 0.906 af
 Outflow = 6.01 cfs @ 12.47 hrs, Volume= 0.906 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 6.01 cfs @ 12.47 hrs, Volume= 0.906 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 140.38' @ 12.47 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	140.75'	24.0" Round Culvert L= 350.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 140.75' / 132.70' S= 0.0230 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	140.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=140.00' (Free Discharge)
 ↑1=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=6.00 cfs @ 12.47 hrs HW=140.37' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 6.00 cfs @ 2.00 fps)

Summary for Pond Link 106:

Inflow Area = 16.990 ac, 17.83% Impervious, Inflow Depth > 0.45" for 2-Year event
 Inflow = 4.63 cfs @ 12.46 hrs, Volume= 0.641 af
 Outflow = 4.63 cfs @ 12.46 hrs, Volume= 0.641 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.63 cfs @ 12.46 hrs, Volume= 0.641 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 143.04' @ 12.46 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	141.80'	15.0" Round Culvert L= 5.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 141.80' / 141.50' S= 0.0600 '/ Cc= 0.900 n= 0.014, Flow Area= 1.23 sf
#2	Secondary	158.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.63 cfs @ 12.46 hrs HW=143.04' (Free Discharge)
 ↑1=Culvert (Inlet Controls 4.63 cfs @ 3.78 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=141.80' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond LINK 110.1:

Inflow Area = 17.500 ac, 13.43% Impervious, Inflow Depth > 0.70" for 2-Year event
 Inflow = 10.62 cfs @ 12.22 hrs, Volume= 1.019 af
 Outflow = 10.62 cfs @ 12.22 hrs, Volume= 1.019 af, Atten= 0%, Lag= 0.0 min
 Primary = 10.62 cfs @ 12.22 hrs, Volume= 1.019 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 48.76' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.45'	18.0" Round Culvert L= 260.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 46.45' / 42.50' S= 0.0152 '/ Cc= 0.900 n= 0.014, Flow Area= 1.77 sf
#2	Secondary	51.23'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.55 cfs @ 12.22 hrs HW=48.74' (Free Discharge)
 ↑1=Culvert (Inlet Controls 10.55 cfs @ 5.97 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=46.45' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond P3:

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 0.61" for 2-Year event
 Inflow = 23.47 cfs @ 12.14 hrs, Volume= 4.110 af
 Outflow = 23.47 cfs @ 12.14 hrs, Volume= 4.110 af, Atten= 0%, Lag= 0.0 min
 Primary = 23.47 cfs @ 12.14 hrs, Volume= 4.110 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 44.61' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	24.0" Round Culvert L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 41.10' / 40.66' S= 0.0085 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	45.79'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=23.17 cfs @ 12.14 hrs HW=44.56' (Free Discharge)
 ↑1=Culvert (Barrel Controls 23.17 cfs @ 7.37 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=41.10' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond P3B:

Inflow Area = 21.740 ac, 17.11% Impervious, Inflow Depth > 0.77" for 2-Year event
 Inflow = 13.79 cfs @ 12.20 hrs, Volume= 1.392 af
 Outflow = 13.79 cfs @ 12.20 hrs, Volume= 1.392 af, Atten= 0%, Lag= 0.0 min
 Primary = 13.50 cfs @ 12.20 hrs, Volume= 1.390 af
 Secondary = 0.30 cfs @ 12.20 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 45.97' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	42.40'	18.0" Round Culvert L= 63.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 42.40' / 41.90' S= 0.0079 '/ Cc= 0.900 n= 0.014, Flow Area= 1.77 sf
#2	Secondary	45.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=13.50 cfs @ 12.20 hrs HW=45.97' (Free Discharge)
 ↑1=Culvert (Barrel Controls 13.50 cfs @ 7.64 fps)

Secondary OutFlow Max=0.28 cfs @ 12.20 hrs HW=45.97' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 0.28 cfs @ 0.72 fps)

Summary for Pond P53:

Inflow Area = 37.580 ac, 13.84% Impervious, Inflow Depth > 0.37" for 2-Year event
 Inflow = 7.08 cfs @ 12.62 hrs, Volume= 1.164 af
 Outflow = 7.07 cfs @ 12.63 hrs, Volume= 1.164 af, Atten= 0%, Lag= 0.6 min
 Primary = 7.07 cfs @ 12.63 hrs, Volume= 1.164 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 78.42' @ 12.63 hrs Surf.Area= 912 sf Storage= 191 cf

Plug-Flow detention time= 0.3 min calculated for 1.161 af (100% of inflow)
 Center-of-Mass det. time= 0.3 min (874.4 - 874.1)

Volume	Invert	Avail.Storage	Storage Description
#1	78.00'	43,344 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.00	0	0	0
78.25	545	68	68
78.50	1,089	204	272
78.75	1,634	340	613
79.00	2,178	477	1,089
79.25	3,920	762	1,852
79.50	5,663	1,198	3,049
79.75	7,405	1,634	4,683
80.00	9,148	2,069	6,752
84.00	9,148	36,592	43,344

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=7.05 cfs @ 12.63 hrs HW=78.42' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 7.05 cfs @ 1.69 fps)

Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S5.1A: Runoff Area=15.250 ac 12.00% Impervious Runoff Depth>0.69"
Tc=16.7 min CN=55 Runoff=7.51 cfs 0.880 af

Subcatchment S5.1B: Runoff Area=16.990 ac 17.83% Impervious Runoff Depth>1.13"
Tc=25.4 min CN=63 Runoff=13.87 cfs 1.602 af

Subcatchment S5.1C: Runoff Area=17.500 ac 13.43% Impervious Runoff Depth>1.53"
Tc=14.3 min CN=69 Runoff=25.34 cfs 2.227 af

Subcatchment S52: Runoff Area=3.030 ac 53.14% Impervious Runoff Depth>2.73"
Tc=5.0 min CN=84 Runoff=10.52 cfs 0.688 af

Subcatchment S53: Runoff Area=5.340 ac 6.37% Impervious Runoff Depth>1.39"
Tc=15.8 min CN=67 Runoff=6.69 cfs 0.619 af

Subcatchment S54: Runoff Area=1.790 ac 11.17% Impervious Runoff Depth>1.53"
Tc=14.0 min CN=69 Runoff=2.61 cfs 0.228 af

Subcatchment S54.1: Runoff Area=1.570 ac 5.10% Impervious Runoff Depth>1.40"
Flow Length=22' Tc=0.0 min CN=67 Runoff=3.14 cfs 0.183 af

Subcatchment S55: Runoff Area=13.380 ac 10.31% Impervious Runoff Depth>1.44"
Tc=36.7 min CN=68 Runoff=12.35 cfs 1.610 af

Subcatchment S56: Runoff Area=4.240 ac 32.31% Impervious Runoff Depth>2.05"
Tc=5.0 min CN=76 Runoff=11.22 cfs 0.724 af

Subcatchment S62: Runoff Area=0.380 ac 100.00% Impervious Runoff Depth>4.16"
Tc=5.0 min CN=98 Runoff=1.74 cfs 0.132 af

Subcatchment S63: Runoff Area=1.040 ac 89.42% Impervious Runoff Depth>3.61"
Tc=5.0 min CN=93 Runoff=4.48 cfs 0.313 af

Reach 2R: Avg. Flow Depth=0.71' Max Vel=2.09 fps Inflow=26.70 cfs 3.457 af
n=0.030 L=460.0' S=0.0073 '/ Capacity=417.73 cfs Outflow=26.22 cfs 3.434 af

Reach 3R: Avg. Flow Depth=0.85' Max Vel=1.48 fps Inflow=26.86 cfs 3.470 af
n=0.030 L=195.0' S=0.0028 '/ Capacity=41.41 cfs Outflow=26.70 cfs 3.457 af

Reach 4R: Avg. Flow Depth=0.40' Max Vel=2.54 fps Inflow=10.41 cfs 0.194 af
n=0.030 L=183.0' S=0.0231 '/ Capacity=18.43 cfs Outflow=10.05 cfs 0.194 af

Reach 5R: Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.030 L=900.0' S=0.0289 '/ Capacity=20.61 cfs Outflow=0.00 cfs 0.000 af

Reach 6R: Avg. Flow Depth=0.36' Max Vel=6.23 fps Inflow=20.20 cfs 2.470 af
n=0.030 L=50.0' S=0.1600 '/ Capacity=48.49 cfs Outflow=20.20 cfs 2.469 af

Reach 9R: (new Reach)	Avg. Flow Depth=2.49' Max Vel=1.91 fps Inflow=51.07 cfs 9.102 af n=0.050 L=280.0' S=0.0024 '/ Capacity=144.88 cfs Outflow=50.94 cfs 9.068 af
Reach L108:	Avg. Flow Depth=0.15' Max Vel=3.46 fps Inflow=20.94 cfs 2.481 af n=0.030 L=774.0' S=0.0646 '/ Capacity=1,762.00 cfs Outflow=20.64 cfs 2.459 af
Reach L133:	Avg. Flow Depth=0.55' Max Vel=4.64 fps Inflow=26.97 cfs 3.478 af n=0.030 L=344.0' S=0.0343 '/ Capacity=842.72 cfs Outflow=26.86 cfs 3.470 af
Reach L162:	Avg. Flow Depth=1.00' Max Vel=4.07 fps Inflow=26.64 cfs 3.305 af n=0.030 L=394.0' S=0.0124 '/ Capacity=26.45 cfs Outflow=26.48 cfs 3.295 af
Reach L164:	Avg. Flow Depth=1.41' Max Vel=4.27 fps Inflow=10.52 cfs 0.688 af 24.0" Round Pipe n=0.014 L=368.0' S=0.0033 '/ Capacity=12.00 cfs Outflow=9.93 cfs 0.687 af
Reach L176:	Avg. Flow Depth=0.51' Max Vel=4.26 fps Inflow=1.74 cfs 0.132 af 12.0" Round Pipe n=0.014 L=242.0' S=0.0100 '/ Capacity=3.31 cfs Outflow=1.66 cfs 0.132 af
Reach P3C:	Avg. Flow Depth=0.73' Max Vel=7.14 fps Inflow=6.09 cfs 0.444 af 18.0" Round Pipe n=0.014 L=127.0' S=0.0172 '/ Capacity=12.78 cfs Outflow=6.01 cfs 0.444 af
Reach POA3:	Inflow=50.94 cfs 9.068 af Outflow=50.94 cfs 9.068 af
Pond 1R:	Peak Elev=47.07' Inflow=38.81 cfs 5.731 af Primary=22.29 cfs 5.055 af Secondary=16.52 cfs 0.676 af Outflow=38.81 cfs 5.731 af
Pond 2P: Blue Hill Intersection	Peak Elev=46.29' Storage=4,325 cf Inflow=22.14 cfs 1.483 af Outflow=21.93 cfs 1.459 af
Pond 8P: Unversity Avenue Swale	Peak Elev=0.00' Storage=0 cf Primary=0.00 cfs 0.000 af
Pond L179:	Peak Elev=46.35' Inflow=35.36 cfs 7.552 af Primary=28.08 cfs 7.246 af Secondary=7.28 cfs 0.306 af Outflow=35.36 cfs 7.552 af
Pond Link 105:	Peak Elev=141.10' Inflow=20.94 cfs 2.482 af Primary=0.74 cfs 0.012 af Secondary=20.20 cfs 2.470 af Outflow=20.94 cfs 2.482 af
Pond Link 106:	Peak Elev=147.93' Inflow=13.87 cfs 1.602 af Primary=13.87 cfs 1.602 af Secondary=0.00 cfs 0.000 af Outflow=13.87 cfs 1.602 af
Pond LINK 110.1:	Peak Elev=51.77' Inflow=25.34 cfs 2.227 af Primary=14.93 cfs 2.033 af Secondary=10.41 cfs 0.194 af Outflow=25.34 cfs 2.227 af
Pond P3:	Peak Elev=46.03' Inflow=33.04 cfs 7.690 af Primary=29.98 cfs 7.643 af Secondary=3.05 cfs 0.047 af Outflow=33.04 cfs 7.690 af
Pond P3B:	Peak Elev=46.49' Inflow=25.95 cfs 2.757 af Primary=14.80 cfs 2.497 af Secondary=11.15 cfs 0.260 af Outflow=25.95 cfs 2.757 af
Pond P53:	Peak Elev=78.96' Storage=1,012 cf Inflow=25.12 cfs 3.078 af Outflow=25.07 cfs 3.077 af

Total Runoff Area = 80.510 ac Runoff Volume = 9.205 af Average Runoff Depth = 1.37"
83.23% Pervious = 67.010 ac 16.77% Impervious = 13.500 ac

Summary for Subcatchment S5.1A:

Runoff = 7.51 cfs @ 12.30 hrs, Volume= 0.880 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
13.420	49	50-75% Grass cover, Fair, HSG A
1.830	98	Paved parking & roofs
15.250	55	Weighted Average
13.420		88.00% Pervious Area
1.830		12.00% Impervious Area

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

Summary for Subcatchment S5.1B:

Runoff = 13.87 cfs @ 12.40 hrs, Volume= 1.602 af, Depth> 1.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
10.760	49	50-75% Grass cover, Fair, HSG A
3.200	79	50-75% Grass cover, Fair, HSG C
3.030	98	Paved parking & roofs
16.990	63	Weighted Average
13.960		82.17% Pervious Area
3.030		17.83% Impervious Area

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

Summary for Subcatchment S5.1C:

Runoff = 25.34 cfs @ 12.21 hrs, Volume= 2.227 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

3659-12003C-Existing Conditions POA 3-01

Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
3.670	49	50-75% Grass cover, Fair, HSG A
11.480	69	50-75% Grass cover, Fair, HSG B
2.350	98	Paved parking & roofs
17.500	69	Weighted Average
15.150		86.57% Pervious Area
2.350		13.43% Impervious Area

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

Summary for Subcatchment S52:

Runoff = 10.52 cfs @ 12.08 hrs, Volume= 0.688 af, Depth> 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
1.420	69	50-75% Grass cover, Fair, HSG B
1.610	98	Paved parking & roofs
3.030	84	Weighted Average
1.420		46.86% Pervious Area
1.610		53.14% Impervious Area

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

Summary for Subcatchment S53:

Runoff = 6.69 cfs @ 12.24 hrs, Volume= 0.619 af, Depth> 1.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
5.000	65	Woods/grass comb., Fair, HSG B
0.340	98	Paved parking & roofs
5.340	67	Weighted Average
5.000		93.63% Pervious Area
0.340		6.37% Impervious Area

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

Summary for Subcatchment S54:

Runoff = 2.61 cfs @ 12.21 hrs, Volume= 0.228 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
1.590	65	Woods/grass comb., Fair, HSG B
0.200	98	Paved parking & roofs
1.790	69	Weighted Average
1.590		88.83% Pervious Area
0.200		11.17% Impervious Area

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

Summary for Subcatchment S54.1:

Runoff = 3.14 cfs @ 12.01 hrs, Volume= 0.183 af, Depth> 1.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
1.490	65	Woods/grass comb., Fair, HSG B
0.080	98	Paved parking & roofs
1.570	67	Weighted Average
1.490		94.90% Pervious Area
0.080		5.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	22				Direct Entry,

Summary for Subcatchment S55:

Runoff = 12.35 cfs @ 12.54 hrs, Volume= 1.610 af, Depth> 1.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
12.000	65	Woods/grass comb., Fair, HSG B
1.380	98	Paved parking & roofs
13.380	68	Weighted Average
12.000		89.69% Pervious Area
1.380		10.31% Impervious Area

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Type III 24-hr 10-Year Rainfall=4.60"

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

Summary for Subcatchment S56:

Runoff = 11.22 cfs @ 12.08 hrs, Volume= 0.724 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
2.870	65	Woods/grass comb., Fair, HSG B
1.370	98	Paved parking & roofs
4.240	76	Weighted Average
2.870		67.69% Pervious Area
1.370		32.31% Impervious Area

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

Summary for Subcatchment S62:

Runoff = 1.74 cfs @ 12.07 hrs, Volume= 0.132 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.380	98	Paved parking & roofs
0.380		100.00% Impervious Area

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

Summary for Subcatchment S63:

Runoff = 4.48 cfs @ 12.07 hrs, Volume= 0.313 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.110	49	50-75% Grass cover, Fair, HSG A
0.930	98	Paved parking & roofs
1.040	93	Weighted Average
0.110		10.58% Pervious Area
0.930		89.42% Impervious Area

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

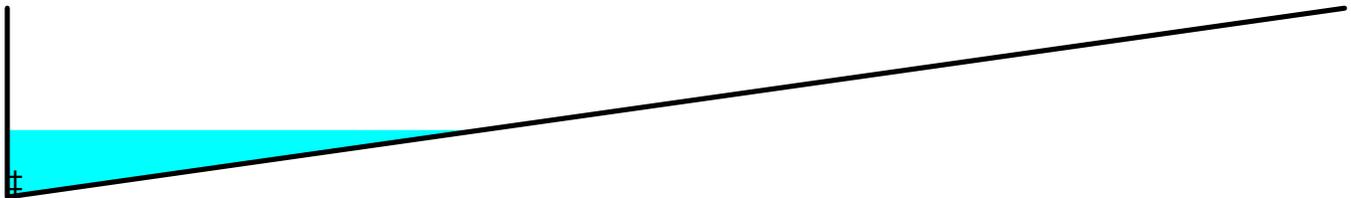
Summary for Reach 2R:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 1.01" for 10-Year event
 Inflow = 26.70 cfs @ 12.60 hrs, Volume= 3.457 af
 Outflow = 26.22 cfs @ 12.71 hrs, Volume= 3.434 af, Atten= 2%, Lag= 6.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 2.09 fps, Min. Travel Time= 3.7 min
 Avg. Velocity = 1.18 fps, Avg. Travel Time= 6.5 min

Peak Storage= 5,780 cf @ 12.65 hrs
 Average Depth at Peak Storage= 0.71'
 Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 417.73 cfs

0.00' x 2.00' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 100.00'
 Length= 460.0' Slope= 0.0073 '/'
 Inlet Invert= 50.25', Outlet Invert= 46.89'



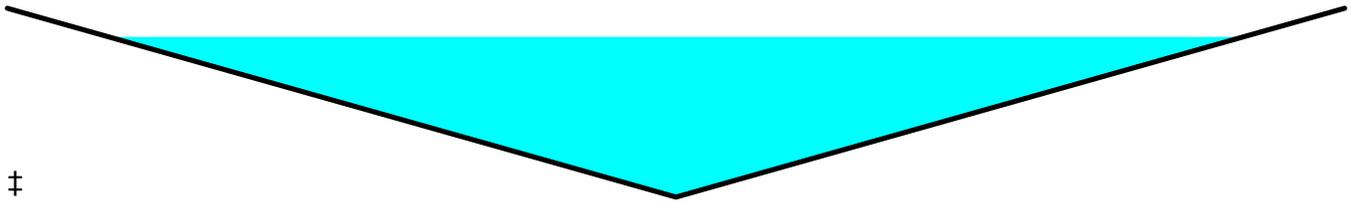
Summary for Reach 3R:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 1.02" for 10-Year event
 Inflow = 26.86 cfs @ 12.54 hrs, Volume= 3.470 af
 Outflow = 26.70 cfs @ 12.60 hrs, Volume= 3.457 af, Atten= 1%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 1.48 fps, Min. Travel Time= 2.2 min
 Avg. Velocity = 0.83 fps, Avg. Travel Time= 3.9 min

Peak Storage= 3,510 cf @ 12.57 hrs
 Average Depth at Peak Storage= 0.85'
 Bank-Full Depth= 1.00' Flow Area= 25.0 sf, Capacity= 41.41 cfs

0.00' x 1.00' deep channel, n= 0.030
 Side Slope Z-value= 25.0 '/' Top Width= 50.00'
 Length= 195.0' Slope= 0.0028 '/'
 Inlet Invert= 50.80', Outlet Invert= 50.25'



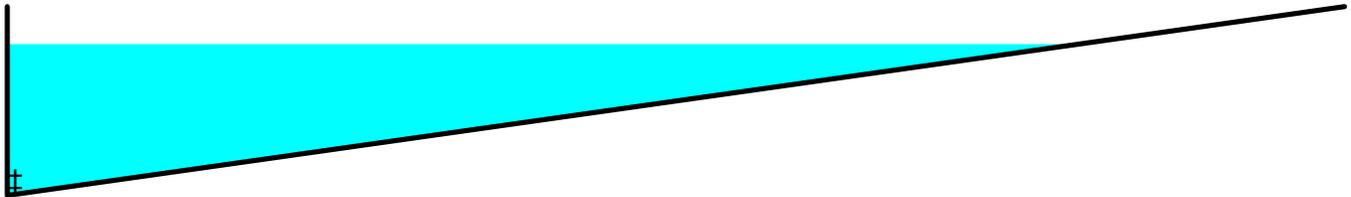
Summary for Reach 4R:

Inflow = 10.41 cfs @ 12.21 hrs, Volume= 0.194 af
 Outflow = 10.05 cfs @ 12.25 hrs, Volume= 0.194 af, Atten= 3%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 2.54 fps, Min. Travel Time= 1.2 min
 Avg. Velocity = 0.64 fps, Avg. Travel Time= 4.8 min

Peak Storage= 735 cf @ 12.23 hrs
 Average Depth at Peak Storage= 0.40'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 18.43 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 183.0' Slope= 0.0231 '/'
 Inlet Invert= 51.23', Outlet Invert= 47.00'



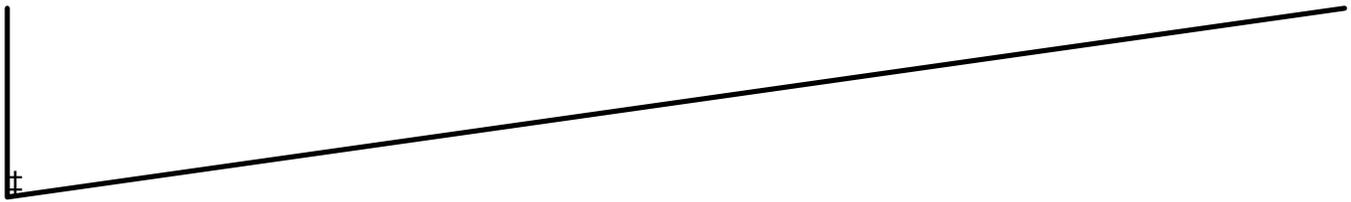
Summary for Reach 5R:

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

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
 Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 20.61 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 900.0' Slope= 0.0289 '/'
 Inlet Invert= 158.00', Outlet Invert= 132.00'



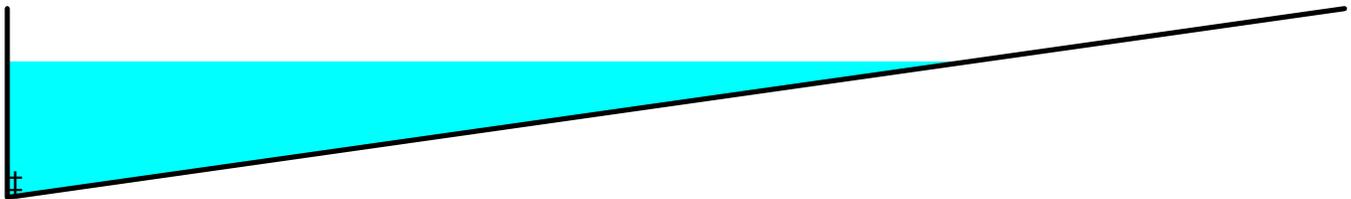
Summary for Reach 6R:

Inflow = 20.20 cfs @ 12.37 hrs, Volume= 2.470 af
 Outflow = 20.20 cfs @ 12.37 hrs, Volume= 2.469 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 6.23 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.59 fps, Avg. Travel Time= 0.2 min

Peak Storage= 162 cf @ 12.37 hrs
 Average Depth at Peak Storage= 0.36'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 48.49 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 50.0' Slope= 0.1600 '/'
 Inlet Invert= 140.00', Outlet Invert= 132.00'



Summary for Reach 9R: (new Reach)

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 1.36" for 10-Year event
 Inflow = 51.07 cfs @ 12.52 hrs, Volume= 9.102 af
 Outflow = 50.94 cfs @ 12.59 hrs, Volume= 9.068 af, Atten= 0%, Lag= 4.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 1.91 fps, Min. Travel Time= 2.4 min
 Avg. Velocity = 0.71 fps, Avg. Travel Time= 6.6 min

Peak Storage= 7,465 cf @ 12.55 hrs
 Average Depth at Peak Storage= 2.49'
 Bank-Full Depth= 4.00' Flow Area= 58.0 sf, Capacity= 144.88 cfs

4.50' x 4.00' deep channel, n= 0.050 Scattered brush, heavy weeds
 Side Slope Z-value= 2.5 '/' Top Width= 24.50'
 Length= 280.0' Slope= 0.0024 '/'
 Inlet Invert= 42.00', Outlet Invert= 41.32'



Summary for Reach L108:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 0.92" for 10-Year event
 Inflow = 20.94 cfs @ 12.37 hrs, Volume= 2.481 af
 Outflow = 20.64 cfs @ 12.48 hrs, Volume= 2.459 af, Atten= 1%, Lag= 6.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 3.46 fps, Min. Travel Time= 3.7 min
 Avg. Velocity = 1.56 fps, Avg. Travel Time= 8.3 min

Peak Storage= 4,624 cf @ 12.42 hrs
 Average Depth at Peak Storage= 0.15'
 Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 1,762.00 cfs

40.00' x 2.00' deep channel, n= 0.030
 Side Slope Z-value= 5.0 '/' Top Width= 60.00'
 Length= 774.0' Slope= 0.0646 '/'
 Inlet Invert= 132.00', Outlet Invert= 82.00'



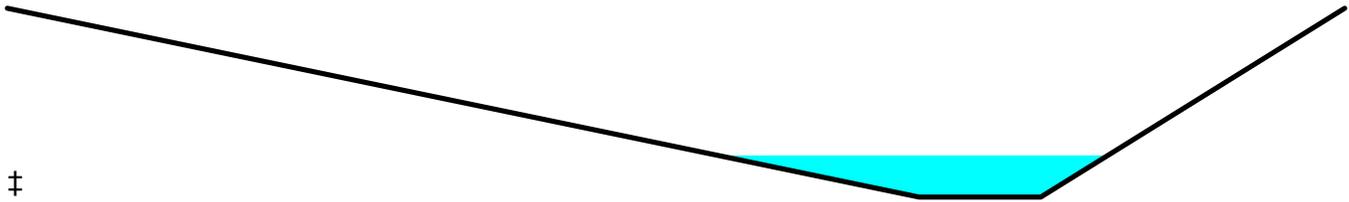
Summary for Reach L133:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 1.02" for 10-Year event
 Inflow = 26.97 cfs @ 12.50 hrs, Volume= 3.478 af
 Outflow = 26.86 cfs @ 12.54 hrs, Volume= 3.470 af, Atten= 0%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 4.64 fps, Min. Travel Time= 1.2 min
 Avg. Velocity = 2.42 fps, Avg. Travel Time= 2.4 min

Peak Storage= 1,995 cf @ 12.51 hrs
 Average Depth at Peak Storage= 0.55'
 Bank-Full Depth= 2.50' Flow Area= 75.0 sf, Capacity= 842.72 cfs

5.00' x 2.50' deep channel, n= 0.030
 Side Slope Z-value= 15.0 5.0 '/' Top Width= 55.00'
 Length= 344.0' Slope= 0.0343 '/'
 Inlet Invert= 62.60', Outlet Invert= 50.80'



Summary for Reach L162:

Inflow Area = 39.370 ac, 13.72% Impervious, Inflow Depth > 1.01" for 10-Year event
 Inflow = 26.64 cfs @ 12.45 hrs, Volume= 3.305 af
 Outflow = 26.48 cfs @ 12.50 hrs, Volume= 3.295 af, Atten= 1%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 4.07 fps, Min. Travel Time= 1.6 min
 Avg. Velocity = 2.06 fps, Avg. Travel Time= 3.2 min

Peak Storage= 2,568 cf @ 12.48 hrs
 Average Depth at Peak Storage= 1.00'
 Bank-Full Depth= 1.00' Flow Area= 6.5 sf, Capacity= 26.45 cfs

3.00' x 1.00' deep channel, n= 0.030
 Side Slope Z-value= 3.5 '/' Top Width= 10.00'
 Length= 394.0' Slope= 0.0124 '/'
 Inlet Invert= 67.50', Outlet Invert= 62.60'



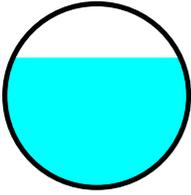
Summary for Reach L164:

Inflow Area = 3.030 ac, 53.14% Impervious, Inflow Depth > 2.73" for 10-Year event
 Inflow = 10.52 cfs @ 12.08 hrs, Volume= 0.688 af
 Outflow = 9.93 cfs @ 12.12 hrs, Volume= 0.687 af, Atten= 6%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 4.27 fps, Min. Travel Time= 1.4 min
 Avg. Velocity = 1.67 fps, Avg. Travel Time= 3.7 min

Peak Storage= 874 cf @ 12.10 hrs
 Average Depth at Peak Storage= 1.41'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 12.00 cfs

24.0" Round Pipe
 n= 0.014
 Length= 368.0' Slope= 0.0033 '/'
 Inlet Invert= 46.20', Outlet Invert= 45.00'



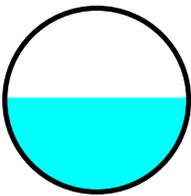
Summary for Reach L176:

Inflow Area = 0.380 ac, 100.00% Impervious, Inflow Depth > 4.16" for 10-Year event
Inflow = 1.74 cfs @ 12.07 hrs, Volume= 0.132 af
Outflow = 1.66 cfs @ 12.10 hrs, Volume= 0.132 af, Atten= 5%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.26 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.51 fps, Avg. Travel Time= 2.7 min

Peak Storage= 98 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.51'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.31 cfs

12.0" Round Pipe
n= 0.014
Length= 242.0' Slope= 0.0100 '/'
Inlet Invert= 45.80', Outlet Invert= 43.38'



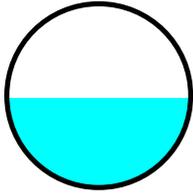
Summary for Reach P3C:

Inflow Area = 1.420 ac, 92.25% Impervious, Inflow Depth > 3.76" for 10-Year event
Inflow = 6.09 cfs @ 12.08 hrs, Volume= 0.444 af
Outflow = 6.01 cfs @ 12.09 hrs, Volume= 0.444 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.14 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.39 fps, Avg. Travel Time= 0.9 min

Peak Storage= 108 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.73'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 12.78 cfs

18.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0172 '/'
Inlet Invert= 43.38', Outlet Invert= 41.20'



Summary for Reach POA3:

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 1.35" for 10-Year event
 Inflow = 50.94 cfs @ 12.59 hrs, Volume= 9.068 af
 Outflow = 50.94 cfs @ 12.59 hrs, Volume= 9.068 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

Summary for Pond 1R:

Inflow Area = 57.350 ac, 14.77% Impervious, Inflow Depth > 1.20" for 10-Year event
 Inflow = 38.81 cfs @ 12.67 hrs, Volume= 5.731 af
 Outflow = 38.81 cfs @ 12.67 hrs, Volume= 5.731 af, Atten= 0%, Lag= 0.0 min
 Primary = 22.29 cfs @ 12.67 hrs, Volume= 5.055 af
 Secondary = 16.52 cfs @ 12.67 hrs, Volume= 0.676 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 47.07' @ 12.67 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	43.90'	24.0" Round Culvert L= 175.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 43.90' / 41.90' S= 0.0114 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	46.33'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=22.28 cfs @ 12.67 hrs HW=47.07' (Free Discharge)
 ←1=Culvert (Inlet Controls 22.28 cfs @ 7.09 fps)

Secondary OutFlow Max=16.56 cfs @ 12.67 hrs HW=47.07' (Free Discharge)
 ←2=Orifice/Grate (Orifice Controls 16.56 cfs @ 4.14 fps)

Summary for Pond 2P: Blue Hill Intersection

Inflow = 22.14 cfs @ 12.49 hrs, Volume= 1.483 af
 Outflow = 21.93 cfs @ 12.53 hrs, Volume= 1.459 af, Atten= 1%, Lag= 2.2 min
 Primary = 21.93 cfs @ 12.53 hrs, Volume= 1.459 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 46.29' @ 12.53 hrs Surf.Area= 18,251 sf Storage= 4,325 cf

Plug-Flow detention time= 3.8 min calculated for 1.456 af (98% of inflow)
 Center-of-Mass det. time= 3.4 min (753.4 - 749.9)

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Type III 24-hr 10-Year Rainfall=4.60"

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Volume	Invert	Avail.Storage	Storage Description
#1	45.50'	29,372 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.50	1	0	0
46.00	4,216	1,054	1,054
47.00	52,420	28,318	29,372

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	Curb, C= 3.27 Offset (feet) 0.00 140.50 231.95 323.40 493.00 Elev. (feet) 47.50 46.50 46.00 46.50 47.50

Primary OutFlow Max=21.85 cfs @ 12.53 hrs HW=46.29' (Free Discharge)

↑1=Curb (Weir Controls 21.85 cfs @ 0.71 fps)

Summary for Pond 8P: Unversity Avenue Swale

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs / 2

Peak Elev= 0.00' @ 0.00 hrs Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= (not calculated)

Center-of-Mass det. time= (not calculated)

Volume	Invert	Avail.Storage	Storage Description
#1	40.66'	408,373 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.66	1	0	0
42.00	308	207	207
43.00	5,236	2,772	2,979
44.00	7,524	6,380	9,359
45.00	10,163	8,844	18,203
46.00	11,162	10,663	28,865
80.00	11,162	379,508	408,373

Device	Routing	Invert	Outlet Devices
#1	Primary	41.32'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)

↑1=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond L179:

Inflow Area = 79.090 ac, 15.41% Impervious, Inflow Depth > 1.15" for 10-Year event
 Inflow = 35.36 cfs @ 12.53 hrs, Volume= 7.552 af
 Outflow = 35.36 cfs @ 12.53 hrs, Volume= 7.552 af, Atten= 0%, Lag= 0.0 min
 Primary = 28.08 cfs @ 12.53 hrs, Volume= 7.246 af
 Secondary = 7.28 cfs @ 12.53 hrs, Volume= 0.306 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 46.35' @ 12.53 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.90'	24.0" Round Culvert L= 60.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 41.90' / 41.10' S= 0.0133 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	45.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=28.08 cfs @ 12.53 hrs HW=46.35' (Free Discharge)
 ↑1=Culvert (Inlet Controls 28.08 cfs @ 8.94 fps)

Secondary OutFlow Max=7.25 cfs @ 12.53 hrs HW=46.35' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 7.25 cfs @ 2.13 fps)

Summary for Pond Link 105:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 0.92" for 10-Year event
 Inflow = 20.94 cfs @ 12.37 hrs, Volume= 2.482 af
 Outflow = 20.94 cfs @ 12.37 hrs, Volume= 2.482 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.74 cfs @ 12.37 hrs, Volume= 0.012 af
 Secondary = 20.20 cfs @ 12.37 hrs, Volume= 2.470 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 141.10' @ 12.37 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	140.75'	24.0" Round Culvert L= 350.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 140.75' / 132.70' S= 0.0230 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	140.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.73 cfs @ 12.37 hrs HW=141.10' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.73 cfs @ 2.00 fps)

Secondary OutFlow Max=20.17 cfs @ 12.37 hrs HW=141.10' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 20.17 cfs @ 5.04 fps)

Summary for Pond Link 106:

Inflow Area = 16.990 ac, 17.83% Impervious, Inflow Depth > 1.13" for 10-Year event
 Inflow = 13.87 cfs @ 12.40 hrs, Volume= 1.602 af
 Outflow = 13.87 cfs @ 12.40 hrs, Volume= 1.602 af, Atten= 0%, Lag= 0.0 min
 Primary = 13.87 cfs @ 12.40 hrs, Volume= 1.602 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 147.93' @ 12.40 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	141.80'	15.0" Round Culvert L= 5.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 141.80' / 141.50' S= 0.0600 '/ Cc= 0.900 n= 0.014, Flow Area= 1.23 sf
#2	Secondary	158.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=13.86 cfs @ 12.40 hrs HW=147.93' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 13.86 cfs @ 11.30 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=141.80' (Free Discharge)
 ↑**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond LINK 110.1:

Inflow Area = 17.500 ac, 13.43% Impervious, Inflow Depth > 1.53" for 10-Year event
 Inflow = 25.34 cfs @ 12.21 hrs, Volume= 2.227 af
 Outflow = 25.34 cfs @ 12.21 hrs, Volume= 2.227 af, Atten= 0%, Lag= 0.0 min
 Primary = 14.93 cfs @ 12.21 hrs, Volume= 2.033 af
 Secondary = 10.41 cfs @ 12.21 hrs, Volume= 0.194 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 51.77' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.45'	18.0" Round Culvert L= 260.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 46.45' / 42.50' S= 0.0152 '/ Cc= 0.900 n= 0.014, Flow Area= 1.77 sf
#2	Secondary	51.23'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=14.92 cfs @ 12.21 hrs HW=51.76' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 14.92 cfs @ 8.44 fps)

Secondary OutFlow Max=10.22 cfs @ 12.21 hrs HW=51.76' (Free Discharge)
 ↑**2=Orifice/Grate** (Weir Controls 10.22 cfs @ 2.39 fps)

Summary for Pond P3:

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 1.15" for 10-Year event
 Inflow = 33.04 cfs @ 12.10 hrs, Volume= 7.690 af
 Outflow = 33.04 cfs @ 12.10 hrs, Volume= 7.690 af, Atten= 0%, Lag= 0.0 min
 Primary = 29.98 cfs @ 12.10 hrs, Volume= 7.643 af
 Secondary = 3.05 cfs @ 12.10 hrs, Volume= 0.047 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 46.03' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	24.0" Round Culvert L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 41.10' / 40.66' S= 0.0085 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	45.79'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=29.96 cfs @ 12.10 hrs HW=46.02' (Free Discharge)
 ↑1=Culvert (Inlet Controls 29.96 cfs @ 9.54 fps)

Secondary OutFlow Max=2.94 cfs @ 12.10 hrs HW=46.02' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 2.94 cfs @ 1.58 fps)

Summary for Pond P3B:

Inflow Area = 21.740 ac, 17.11% Impervious, Inflow Depth > 1.52" for 10-Year event
 Inflow = 25.95 cfs @ 12.09 hrs, Volume= 2.757 af
 Outflow = 25.95 cfs @ 12.09 hrs, Volume= 2.757 af, Atten= 0%, Lag= 0.0 min
 Primary = 14.80 cfs @ 12.09 hrs, Volume= 2.497 af
 Secondary = 11.15 cfs @ 12.09 hrs, Volume= 0.260 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 46.49' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	42.40'	18.0" Round Culvert L= 63.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 42.40' / 41.90' S= 0.0079 '/ Cc= 0.900 n= 0.014, Flow Area= 1.77 sf
#2	Secondary	45.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=14.75 cfs @ 12.09 hrs HW=46.47' (Free Discharge)
 ↑1=Culvert (Barrel Controls 14.75 cfs @ 8.35 fps)

Secondary OutFlow Max=10.64 cfs @ 12.09 hrs HW=46.47' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 10.64 cfs @ 2.42 fps)

Summary for Pond P53:

Inflow Area = 37.580 ac, 13.84% Impervious, Inflow Depth > 0.98" for 10-Year event
 Inflow = 25.12 cfs @ 12.45 hrs, Volume= 3.078 af
 Outflow = 25.07 cfs @ 12.46 hrs, Volume= 3.077 af, Atten= 0%, Lag= 0.8 min
 Primary = 25.07 cfs @ 12.46 hrs, Volume= 3.077 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 78.96' @ 12.46 hrs Surf.Area= 2,100 sf Storage= 1,012 cf

Plug-Flow detention time= 0.5 min calculated for 3.077 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (847.4 - 847.0)

Volume	Invert	Avail.Storage	Storage Description
#1	78.00'	43,344 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.00	0	0	0
78.25	545	68	68
78.50	1,089	204	272
78.75	1,634	340	613
79.00	2,178	477	1,089
79.25	3,920	762	1,852
79.50	5,663	1,198	3,049
79.75	7,405	1,634	4,683
80.00	9,148	2,069	6,752
84.00	9,148	36,592	43,344

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=25.01 cfs @ 12.46 hrs HW=78.96' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 25.01 cfs @ 2.60 fps)

Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S5.1A:	Runoff Area=15.250 ac 12.00% Impervious Runoff Depth>1.11" Tc=16.7 min CN=55 Runoff=13.49 cfs 1.404 af
Subcatchment S5.1B:	Runoff Area=16.990 ac 17.83% Impervious Runoff Depth>1.66" Tc=25.4 min CN=63 Runoff=21.07 cfs 2.351 af
Subcatchment S5.1C:	Runoff Area=17.500 ac 13.43% Impervious Runoff Depth>2.14" Tc=14.3 min CN=69 Runoff=36.05 cfs 3.121 af
Subcatchment S52:	Runoff Area=3.030 ac 53.14% Impervious Runoff Depth>3.51" Tc=5.0 min CN=84 Runoff=13.41 cfs 0.886 af
Subcatchment S53:	Runoff Area=5.340 ac 6.37% Impervious Runoff Depth>1.98" Tc=15.8 min CN=67 Runoff=9.71 cfs 0.880 af
Subcatchment S54:	Runoff Area=1.790 ac 11.17% Impervious Runoff Depth>2.14" Tc=14.0 min CN=69 Runoff=3.72 cfs 0.319 af
Subcatchment S54.1:	Runoff Area=1.570 ac 5.10% Impervious Runoff Depth>1.99" Flow Length=22' Tc=0.0 min CN=67 Runoff=4.55 cfs 0.260 af
Subcatchment S55:	Runoff Area=13.380 ac 10.31% Impervious Runoff Depth>2.04" Tc=36.7 min CN=68 Runoff=17.72 cfs 2.274 af
Subcatchment S56:	Runoff Area=4.240 ac 32.31% Impervious Runoff Depth>2.75" Tc=5.0 min CN=76 Runoff=15.04 cfs 0.972 af
Subcatchment S62:	Runoff Area=0.380 ac 100.00% Impervious Runoff Depth>5.02" Tc=5.0 min CN=98 Runoff=2.09 cfs 0.159 af
Subcatchment S63:	Runoff Area=1.040 ac 89.42% Impervious Runoff Depth>4.45" Tc=5.0 min CN=93 Runoff=5.45 cfs 0.386 af
Reach 2R:	Avg. Flow Depth=0.84' Max Vel=2.35 fps Inflow=42.38 cfs 5.148 af n=0.030 L=460.0' S=0.0073 '/ Capacity=417.73 cfs Outflow=41.78 cfs 5.120 af
Reach 3R:	Avg. Flow Depth=1.01' Max Vel=1.67 fps Inflow=42.64 cfs 5.165 af n=0.030 L=195.0' S=0.0028 '/ Capacity=41.41 cfs Outflow=42.38 cfs 5.148 af
Reach 4R:	Avg. Flow Depth=0.52' Max Vel=3.01 fps Inflow=20.56 cfs 0.505 af n=0.030 L=183.0' S=0.0231 '/ Capacity=18.43 cfs Outflow=20.09 cfs 0.505 af
Reach 5R:	Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af n=0.030 L=900.0' S=0.0289 '/ Capacity=20.61 cfs Outflow=0.00 cfs 0.000 af
Reach 6R:	Avg. Flow Depth=0.40' Max Vel=6.67 fps Inflow=26.60 cfs 3.569 af n=0.030 L=50.0' S=0.1600 '/ Capacity=48.49 cfs Outflow=26.59 cfs 3.568 af

Reach 9R: (new Reach) Avg. Flow Depth=3.08' Max Vel=2.15 fps Inflow=81.17 cfs 12.893 af
n=0.050 L=280.0' S=0.0024 '/ Capacity=144.88 cfs Outflow=80.87 cfs 12.851 af

Reach L108: Avg. Flow Depth=0.19' Max Vel=4.16 fps Inflow=33.49 cfs 3.755 af
n=0.030 L=774.0' S=0.0646 '/ Capacity=1,762.00 cfs Outflow=33.08 cfs 3.728 af

Reach L133: Avg. Flow Depth=0.69' Max Vel=5.25 fps Inflow=42.81 cfs 5.174 af
n=0.030 L=344.0' S=0.0343 '/ Capacity=842.72 cfs Outflow=42.64 cfs 5.165 af

Reach L162: Avg. Flow Depth=1.28' Max Vel=4.51 fps Inflow=42.23 cfs 4.927 af
n=0.030 L=394.0' S=0.0124 '/ Capacity=26.45 cfs Outflow=41.98 cfs 4.914 af

Reach L164: Avg. Flow Depth=1.78' Max Vel=4.34 fps Inflow=13.41 cfs 0.886 af
24.0" Round Pipe n=0.014 L=368.0' S=0.0033 '/ Capacity=12.00 cfs Outflow=12.56 cfs 0.884 af

Reach L176: Avg. Flow Depth=0.57' Max Vel=4.44 fps Inflow=2.09 cfs 0.159 af
12.0" Round Pipe n=0.014 L=242.0' S=0.0100 '/ Capacity=3.31 cfs Outflow=2.00 cfs 0.159 af

Reach P3C: Avg. Flow Depth=0.82' Max Vel=7.49 fps Inflow=7.39 cfs 0.545 af
18.0" Round Pipe n=0.014 L=127.0' S=0.0172 '/ Capacity=12.78 cfs Outflow=7.30 cfs 0.545 af

Reach POA3: Inflow=80.87 cfs 12.851 af
Outflow=80.87 cfs 12.851 af

Pond 1R: Peak Elev=49.10' Inflow=60.68 cfs 8.279 af
Primary=28.63 cfs 6.567 af Secondary=32.04 cfs 1.712 af Outflow=60.68 cfs 8.279 af

Pond 2P: Blue Hill Intersection Peak Elev=46.41' Storage=6,849 cf Inflow=51.89 cfs 3.432 af
Outflow=51.74 cfs 3.408 af

Pond 8P: Unversity Avenue Swale Peak Elev=0.00' Storage=0 cf
Primary=0.00 cfs 0.000 af

Pond L179: Peak Elev=46.56' Inflow=42.47 cfs 9.738 af
Primary=28.95 cfs 9.048 af Secondary=13.52 cfs 0.689 af Outflow=42.47 cfs 9.738 af

Pond Link 105: Peak Elev=141.91' Inflow=33.50 cfs 3.755 af
Primary=6.90 cfs 0.187 af Secondary=26.60 cfs 3.569 af Outflow=33.50 cfs 3.755 af

Pond Link 106: Peak Elev=155.14' Inflow=21.07 cfs 2.351 af
Primary=21.07 cfs 2.351 af Secondary=0.00 cfs 0.000 af Outflow=21.07 cfs 2.351 af

Pond LINK 110.1: Peak Elev=52.37' Inflow=36.05 cfs 3.121 af
Primary=15.49 cfs 2.616 af Secondary=20.56 cfs 0.505 af Outflow=36.05 cfs 3.121 af

Pond P3: Peak Elev=46.12' Inflow=35.25 cfs 9.593 af
Primary=30.32 cfs 9.485 af Secondary=4.93 cfs 0.108 af Outflow=35.25 cfs 9.593 af

Pond P3B: Peak Elev=46.60' Inflow=29.88 cfs 3.588 af
Primary=15.07 cfs 3.170 af Secondary=14.81 cfs 0.418 af Outflow=29.88 cfs 3.588 af

Pond P53: Peak Elev=79.29' Storage=2,002 cf Inflow=40.06 cfs 4.608 af
Outflow=39.89 cfs 4.607 af

Total Runoff Area = 80.510 ac Runoff Volume = 13.013 af Average Runoff Depth = 1.94"
83.23% Pervious = 67.010 ac 16.77% Impervious = 13.500 ac

Summary for Subcatchment S5.1A:

Runoff = 13.49 cfs @ 12.27 hrs, Volume= 1.404 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
13.420	49	50-75% Grass cover, Fair, HSG A
1.830	98	Paved parking & roofs
15.250	55	Weighted Average
13.420		88.00% Pervious Area
1.830		12.00% Impervious Area

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

Summary for Subcatchment S5.1B:

Runoff = 21.07 cfs @ 12.38 hrs, Volume= 2.351 af, Depth> 1.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
10.760	49	50-75% Grass cover, Fair, HSG A
3.200	79	50-75% Grass cover, Fair, HSG C
3.030	98	Paved parking & roofs
16.990	63	Weighted Average
13.960		82.17% Pervious Area
3.030		17.83% Impervious Area

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

Summary for Subcatchment S5.1C:

Runoff = 36.05 cfs @ 12.21 hrs, Volume= 3.121 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (ac)	CN	Description
3.670	49	50-75% Grass cover, Fair, HSG A
11.480	69	50-75% Grass cover, Fair, HSG B
2.350	98	Paved parking & roofs
17.500	69	Weighted Average
15.150		86.57% Pervious Area
2.350		13.43% Impervious Area

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

Summary for Subcatchment S52:

Runoff = 13.41 cfs @ 12.08 hrs, Volume= 0.886 af, Depth> 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
1.420	69	50-75% Grass cover, Fair, HSG B
1.610	98	Paved parking & roofs
3.030	84	Weighted Average
1.420		46.86% Pervious Area
1.610		53.14% Impervious Area

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

Summary for Subcatchment S53:

Runoff = 9.71 cfs @ 12.23 hrs, Volume= 0.880 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
5.000	65	Woods/grass comb., Fair, HSG B
0.340	98	Paved parking & roofs
5.340	67	Weighted Average
5.000		93.63% Pervious Area
0.340		6.37% Impervious Area

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

Summary for Subcatchment S54:

Runoff = 3.72 cfs @ 12.20 hrs, Volume= 0.319 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
1.590	65	Woods/grass comb., Fair, HSG B
0.200	98	Paved parking & roofs
1.790	69	Weighted Average
1.590		88.83% Pervious Area
0.200		11.17% Impervious Area

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

Summary for Subcatchment S54.1:

Runoff = 4.55 cfs @ 12.01 hrs, Volume= 0.260 af, Depth> 1.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
1.490	65	Woods/grass comb., Fair, HSG B
0.080	98	Paved parking & roofs
1.570	67	Weighted Average
1.490		94.90% Pervious Area
0.080		5.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	22				Direct Entry,

Summary for Subcatchment S55:

Runoff = 17.72 cfs @ 12.53 hrs, Volume= 2.274 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
12.000	65	Woods/grass comb., Fair, HSG B
1.380	98	Paved parking & roofs
13.380	68	Weighted Average
12.000		89.69% Pervious Area
1.380		10.31% Impervious Area

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Type III 24-hr 25-Year Rainfall=5.50"

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

Summary for Subcatchment S56:

Runoff = 15.04 cfs @ 12.08 hrs, Volume= 0.972 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
2.870	65	Woods/grass comb., Fair, HSG B
1.370	98	Paved parking & roofs
4.240	76	Weighted Average
2.870		67.69% Pervious Area
1.370		32.31% Impervious Area

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

Summary for Subcatchment S62:

Runoff = 2.09 cfs @ 12.07 hrs, Volume= 0.159 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
0.380	98	Paved parking & roofs
0.380		100.00% Impervious Area

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

Summary for Subcatchment S63:

Runoff = 5.45 cfs @ 12.07 hrs, Volume= 0.386 af, Depth> 4.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
0.110	49	50-75% Grass cover, Fair, HSG A
0.930	98	Paved parking & roofs
1.040	93	Weighted Average
0.110		10.58% Pervious Area
0.930		89.42% Impervious Area

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

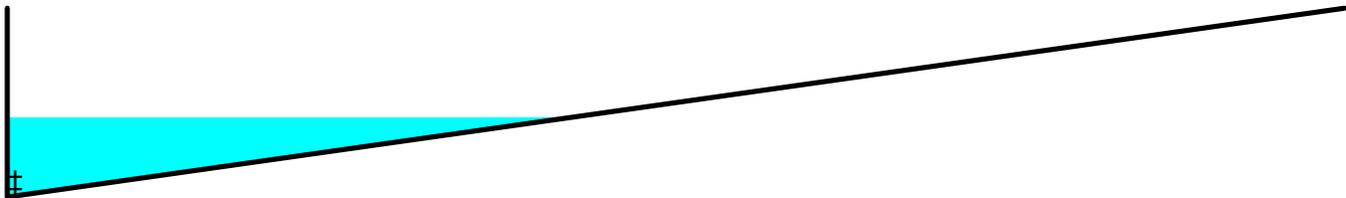
Summary for Reach 2R:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 1.51" for 25-Year event
 Inflow = 42.38 cfs @ 12.55 hrs, Volume= 5.148 af
 Outflow = 41.78 cfs @ 12.65 hrs, Volume= 5.120 af, Atten= 1%, Lag= 6.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 2.35 fps, Min. Travel Time= 3.3 min
 Avg. Velocity = 1.25 fps, Avg. Travel Time= 6.1 min

Peak Storage= 8,194 cf @ 12.59 hrs
 Average Depth at Peak Storage= 0.84'
 Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 417.73 cfs

0.00' x 2.00' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 100.00'
 Length= 460.0' Slope= 0.0073 '/'
 Inlet Invert= 50.25', Outlet Invert= 46.89'



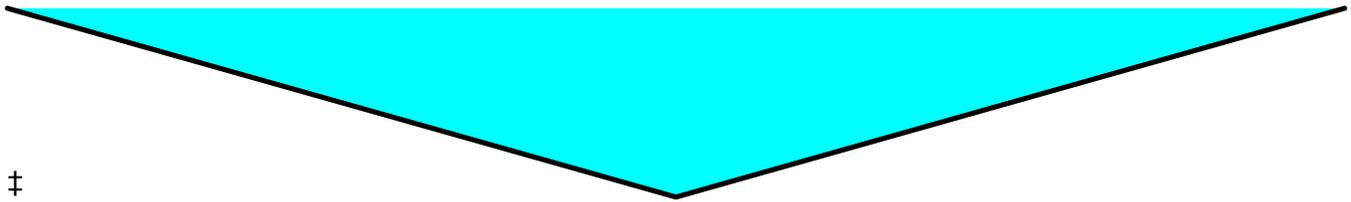
Summary for Reach 3R:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 1.51" for 25-Year event
 Inflow = 42.64 cfs @ 12.49 hrs, Volume= 5.165 af
 Outflow = 42.38 cfs @ 12.55 hrs, Volume= 5.148 af, Atten= 1%, Lag= 3.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 1.67 fps, Min. Travel Time= 2.0 min
 Avg. Velocity = 0.88 fps, Avg. Travel Time= 3.7 min

Peak Storage= 4,967 cf @ 12.52 hrs
 Average Depth at Peak Storage= 1.01'
 Bank-Full Depth= 1.00' Flow Area= 25.0 sf, Capacity= 41.41 cfs

0.00' x 1.00' deep channel, n= 0.030
 Side Slope Z-value= 25.0 '/' Top Width= 50.00'
 Length= 195.0' Slope= 0.0028 '/'
 Inlet Invert= 50.80', Outlet Invert= 50.25'



‡

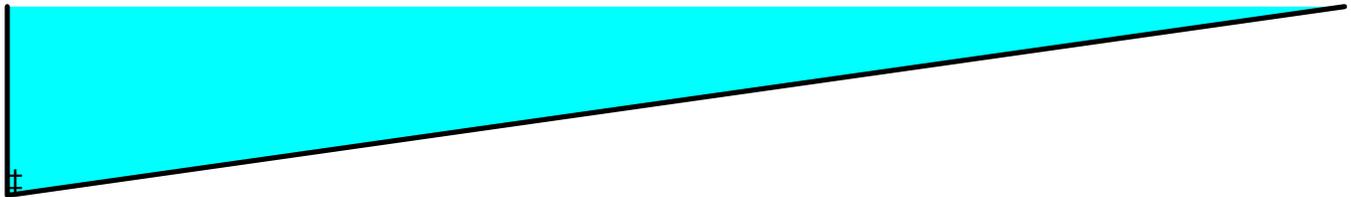
Summary for Reach 4R:

Inflow = 20.56 cfs @ 12.21 hrs, Volume= 0.505 af
 Outflow = 20.09 cfs @ 12.24 hrs, Volume= 0.505 af, Atten= 2%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 3.01 fps, Min. Travel Time= 1.0 min
 Avg. Velocity = 0.83 fps, Avg. Travel Time= 3.7 min

Peak Storage= 1,239 cf @ 12.22 hrs
 Average Depth at Peak Storage= 0.52'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 18.43 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 183.0' Slope= 0.0231 '/'
 Inlet Invert= 51.23', Outlet Invert= 47.00'



‡

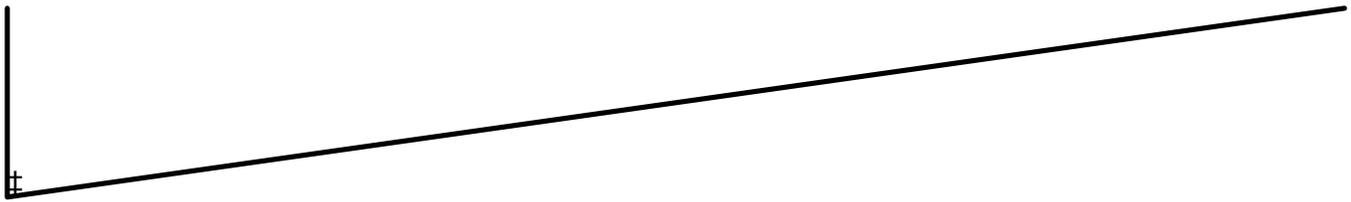
Summary for Reach 5R:

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

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
 Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 20.61 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 900.0' Slope= 0.0289 '/'
 Inlet Invert= 158.00', Outlet Invert= 132.00'



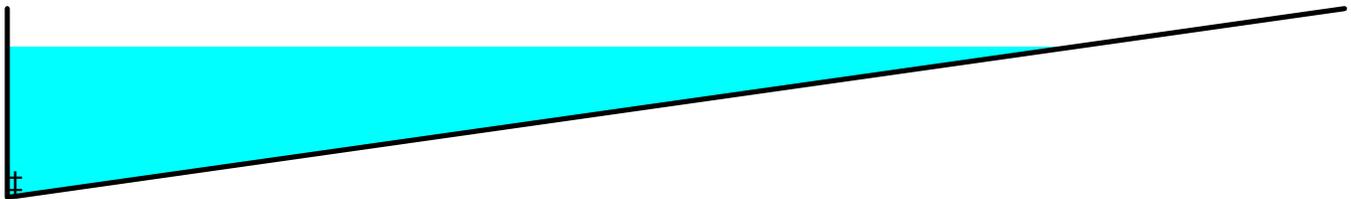
Summary for Reach 6R:

Inflow = 26.60 cfs @ 12.34 hrs, Volume= 3.569 af
 Outflow = 26.59 cfs @ 12.34 hrs, Volume= 3.568 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 6.67 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.83 fps, Avg. Travel Time= 0.2 min

Peak Storage= 199 cf @ 12.34 hrs
 Average Depth at Peak Storage= 0.40'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 48.49 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 50.0' Slope= 0.1600 '/'
 Inlet Invert= 140.00', Outlet Invert= 132.00'



Summary for Reach 9R: (new Reach)

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 1.92" for 25-Year event
 Inflow = 81.17 cfs @ 12.54 hrs, Volume= 12.893 af
 Outflow = 80.87 cfs @ 12.60 hrs, Volume= 12.851 af, Atten= 0%, Lag= 3.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 2.15 fps, Min. Travel Time= 2.2 min
 Avg. Velocity = 0.78 fps, Avg. Travel Time= 6.0 min

Peak Storage= 10,524 cf @ 12.57 hrs
 Average Depth at Peak Storage= 3.08'
 Bank-Full Depth= 4.00' Flow Area= 58.0 sf, Capacity= 144.88 cfs

4.50' x 4.00' deep channel, n= 0.050 Scattered brush, heavy weeds
 Side Slope Z-value= 2.5 '/' Top Width= 24.50'
 Length= 280.0' Slope= 0.0024 '/'
 Inlet Invert= 42.00', Outlet Invert= 41.32'



Summary for Reach L108:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 1.40" for 25-Year event
 Inflow = 33.49 cfs @ 12.34 hrs, Volume= 3.755 af
 Outflow = 33.08 cfs @ 12.43 hrs, Volume= 3.728 af, Atten= 1%, Lag= 5.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 4.16 fps, Min. Travel Time= 3.1 min
 Avg. Velocity = 1.74 fps, Avg. Travel Time= 7.4 min

Peak Storage= 6,171 cf @ 12.38 hrs
 Average Depth at Peak Storage= 0.19'
 Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 1,762.00 cfs

40.00' x 2.00' deep channel, n= 0.030
 Side Slope Z-value= 5.0 '/' Top Width= 60.00'
 Length= 774.0' Slope= 0.0646 '/'
 Inlet Invert= 132.00', Outlet Invert= 82.00'



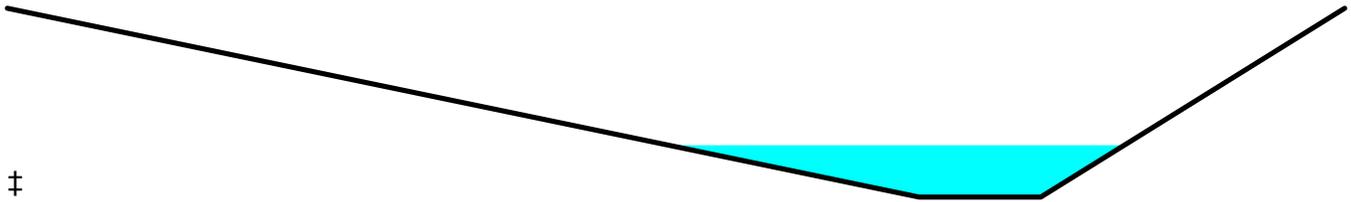
Summary for Reach L133:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 1.52" for 25-Year event
 Inflow = 42.81 cfs @ 12.46 hrs, Volume= 5.174 af
 Outflow = 42.64 cfs @ 12.49 hrs, Volume= 5.165 af, Atten= 0%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 5.25 fps, Min. Travel Time= 1.1 min
 Avg. Velocity = 2.60 fps, Avg. Travel Time= 2.2 min

Peak Storage= 2,801 cf @ 12.47 hrs
 Average Depth at Peak Storage= 0.69'
 Bank-Full Depth= 2.50' Flow Area= 75.0 sf, Capacity= 842.72 cfs

5.00' x 2.50' deep channel, n= 0.030
 Side Slope Z-value= 15.0 5.0 '/' Top Width= 55.00'
 Length= 344.0' Slope= 0.0343 '/'
 Inlet Invert= 62.60', Outlet Invert= 50.80'



Summary for Reach L162:

Inflow Area = 39.370 ac, 13.72% Impervious, Inflow Depth > 1.50" for 25-Year event
 Inflow = 42.23 cfs @ 12.42 hrs, Volume= 4.927 af
 Outflow = 41.98 cfs @ 12.46 hrs, Volume= 4.914 af, Atten= 1%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 4.51 fps, Min. Travel Time= 1.5 min
 Avg. Velocity = 2.21 fps, Avg. Travel Time= 3.0 min

Peak Storage= 3,678 cf @ 12.44 hrs
 Average Depth at Peak Storage= 1.28'
 Bank-Full Depth= 1.00' Flow Area= 6.5 sf, Capacity= 26.45 cfs

3.00' x 1.00' deep channel, n= 0.030
 Side Slope Z-value= 3.5 '/' Top Width= 10.00'
 Length= 394.0' Slope= 0.0124 '/'
 Inlet Invert= 67.50', Outlet Invert= 62.60'



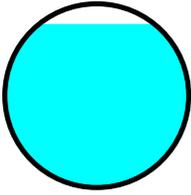
Summary for Reach L164:

Inflow Area = 3.030 ac, 53.14% Impervious, Inflow Depth > 3.51" for 25-Year event
 Inflow = 13.41 cfs @ 12.08 hrs, Volume= 0.886 af
 Outflow = 12.56 cfs @ 12.12 hrs, Volume= 0.884 af, Atten= 6%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 4.34 fps, Min. Travel Time= 1.4 min
 Avg. Velocity = 1.76 fps, Avg. Travel Time= 3.5 min

Peak Storage= 1,090 cf @ 12.10 hrs
 Average Depth at Peak Storage= 1.78'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 12.00 cfs

24.0" Round Pipe
 n= 0.014
 Length= 368.0' Slope= 0.0033 '/'
 Inlet Invert= 46.20', Outlet Invert= 45.00'



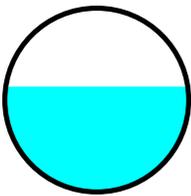
Summary for Reach L176:

Inflow Area = 0.380 ac, 100.00% Impervious, Inflow Depth > 5.02" for 25-Year event
Inflow = 2.09 cfs @ 12.07 hrs, Volume= 0.159 af
Outflow = 2.00 cfs @ 12.10 hrs, Volume= 0.159 af, Atten= 4%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.44 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.60 fps, Avg. Travel Time= 2.5 min

Peak Storage= 113 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.57'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.31 cfs

12.0" Round Pipe
n= 0.014
Length= 242.0' Slope= 0.0100 '/'
Inlet Invert= 45.80', Outlet Invert= 43.38'



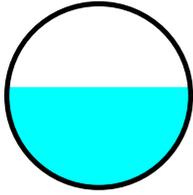
Summary for Reach P3C:

Inflow Area = 1.420 ac, 92.25% Impervious, Inflow Depth > 4.60" for 25-Year event
Inflow = 7.39 cfs @ 12.08 hrs, Volume= 0.545 af
Outflow = 7.30 cfs @ 12.09 hrs, Volume= 0.545 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.49 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.55 fps, Avg. Travel Time= 0.8 min

Peak Storage= 125 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 12.78 cfs

18.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0172 '/'
Inlet Invert= 43.38', Outlet Invert= 41.20'



Summary for Reach POA3:

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 1.92" for 25-Year event
 Inflow = 80.87 cfs @ 12.60 hrs, Volume= 12.851 af
 Outflow = 80.87 cfs @ 12.60 hrs, Volume= 12.851 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

Summary for Pond 1R:

Inflow Area = 57.350 ac, 14.77% Impervious, Inflow Depth > 1.73" for 25-Year event
 Inflow = 60.68 cfs @ 12.61 hrs, Volume= 8.279 af
 Outflow = 60.68 cfs @ 12.61 hrs, Volume= 8.279 af, Atten= 0%, Lag= 0.0 min
 Primary = 28.63 cfs @ 12.61 hrs, Volume= 6.567 af
 Secondary = 32.04 cfs @ 12.61 hrs, Volume= 1.712 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 49.10' @ 12.61 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	43.90'	24.0" Round Culvert L= 175.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 43.90' / 41.90' S= 0.0114 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	46.33'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=28.59 cfs @ 12.61 hrs HW=49.08' (Free Discharge)
 ←1=Culvert (Barrel Controls 28.59 cfs @ 9.10 fps)

Secondary OutFlow Max=31.95 cfs @ 12.61 hrs HW=49.08' (Free Discharge)
 ←2=Orifice/Grate (Orifice Controls 31.95 cfs @ 7.99 fps)

Summary for Pond 2P: Blue Hill Intersection

Inflow = 51.89 cfs @ 12.52 hrs, Volume= 3.432 af
 Outflow = 51.74 cfs @ 12.54 hrs, Volume= 3.408 af, Atten= 0%, Lag= 1.3 min
 Primary = 51.74 cfs @ 12.54 hrs, Volume= 3.408 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 46.41' @ 12.54 hrs Surf.Area= 24,008 sf Storage= 6,849 cf

Plug-Flow detention time= 2.7 min calculated for 3.401 af (99% of inflow)
 Center-of-Mass det. time= 2.5 min (753.2 - 750.7)

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Type III 24-hr 25-Year Rainfall=5.50"

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Volume	Invert	Avail.Storage	Storage Description
#1	45.50'	29,372 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.50	1	0	0
46.00	4,216	1,054	1,054
47.00	52,420	28,318	29,372

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	Curb, C= 3.27 Offset (feet) 0.00 140.50 231.95 323.40 493.00 Elev. (feet) 47.50 46.50 46.00 46.50 47.50

Primary OutFlow Max=51.54 cfs @ 12.54 hrs HW=46.41' (Free Discharge)

↑**1=Curb** (Weir Controls 51.54 cfs @ 0.84 fps)

Summary for Pond 8P: Unversity Avenue Swale

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs / 2

Peak Elev= 0.00' @ 0.00 hrs Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= (not calculated)

Center-of-Mass det. time= (not calculated)

Volume	Invert	Avail.Storage	Storage Description
#1	40.66'	408,373 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.66	1	0	0
42.00	308	207	207
43.00	5,236	2,772	2,979
44.00	7,524	6,380	9,359
45.00	10,163	8,844	18,203
46.00	11,162	10,663	28,865
80.00	11,162	379,508	408,373

Device	Routing	Invert	Outlet Devices
#1	Primary	41.32'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)

↑**1=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond L179:

Inflow Area = 79.090 ac, 15.41% Impervious, Inflow Depth > 1.48" for 25-Year event
 Inflow = 42.47 cfs @ 12.59 hrs, Volume= 9.738 af
 Outflow = 42.47 cfs @ 12.59 hrs, Volume= 9.738 af, Atten= 0%, Lag= 0.0 min
 Primary = 28.95 cfs @ 12.59 hrs, Volume= 9.048 af
 Secondary = 13.52 cfs @ 12.59 hrs, Volume= 0.689 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 46.56' @ 12.59 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.90'	24.0" Round Culvert L= 60.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 41.90' / 41.10' S= 0.0133 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	45.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=28.95 cfs @ 12.59 hrs HW=46.56' (Free Discharge)
 ↑1=Culvert (Inlet Controls 28.95 cfs @ 9.22 fps)

Secondary OutFlow Max=13.48 cfs @ 12.59 hrs HW=46.56' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 13.48 cfs @ 2.62 fps)

Summary for Pond Link 105:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 1.40" for 25-Year event
 Inflow = 33.50 cfs @ 12.34 hrs, Volume= 3.755 af
 Outflow = 33.50 cfs @ 12.34 hrs, Volume= 3.755 af, Atten= 0%, Lag= 0.0 min
 Primary = 6.90 cfs @ 12.34 hrs, Volume= 0.187 af
 Secondary = 26.60 cfs @ 12.34 hrs, Volume= 3.569 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 141.91' @ 12.34 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	140.75'	24.0" Round Culvert L= 350.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 140.75' / 132.70' S= 0.0230 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	140.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.83 cfs @ 12.34 hrs HW=141.90' (Free Discharge)
 ↑1=Culvert (Inlet Controls 6.83 cfs @ 3.65 fps)

Secondary OutFlow Max=26.55 cfs @ 12.34 hrs HW=141.90' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 26.55 cfs @ 6.64 fps)

Summary for Pond Link 106:

Inflow Area = 16.990 ac, 17.83% Impervious, Inflow Depth > 1.66" for 25-Year event
 Inflow = 21.07 cfs @ 12.38 hrs, Volume= 2.351 af
 Outflow = 21.07 cfs @ 12.38 hrs, Volume= 2.351 af, Atten= 0%, Lag= 0.0 min
 Primary = 21.07 cfs @ 12.38 hrs, Volume= 2.351 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 155.14' @ 12.38 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	141.80'	15.0" Round Culvert L= 5.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 141.80' / 141.50' S= 0.0600 '/' Cc= 0.900 n= 0.014, Flow Area= 1.23 sf
#2	Secondary	158.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=21.01 cfs @ 12.38 hrs HW=155.07' (Free Discharge)
 ↑1=Culvert (Inlet Controls 21.01 cfs @ 17.12 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=141.80' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond LINK 110.1:

Inflow Area = 17.500 ac, 13.43% Impervious, Inflow Depth > 2.14" for 25-Year event
 Inflow = 36.05 cfs @ 12.21 hrs, Volume= 3.121 af
 Outflow = 36.05 cfs @ 12.21 hrs, Volume= 3.121 af, Atten= 0%, Lag= 0.0 min
 Primary = 15.49 cfs @ 12.21 hrs, Volume= 2.616 af
 Secondary = 20.56 cfs @ 12.21 hrs, Volume= 0.505 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 52.37' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.45'	18.0" Round Culvert L= 260.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 46.45' / 42.50' S= 0.0152 '/' Cc= 0.900 n= 0.014, Flow Area= 1.77 sf
#2	Secondary	51.23'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=15.47 cfs @ 12.21 hrs HW=52.35' (Free Discharge)
 ↑1=Culvert (Barrel Controls 15.47 cfs @ 8.76 fps)

Secondary OutFlow Max=20.40 cfs @ 12.21 hrs HW=52.35' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 20.40 cfs @ 5.10 fps)

Summary for Pond P3:

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 1.43" for 25-Year event
 Inflow = 35.25 cfs @ 12.09 hrs, Volume= 9.593 af
 Outflow = 35.25 cfs @ 12.09 hrs, Volume= 9.593 af, Atten= 0%, Lag= 0.0 min
 Primary = 30.32 cfs @ 12.09 hrs, Volume= 9.485 af
 Secondary = 4.93 cfs @ 12.09 hrs, Volume= 0.108 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 46.12' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	24.0" Round Culvert L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 41.10' / 40.66' S= 0.0085 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	45.79'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=30.29 cfs @ 12.09 hrs HW=46.11' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 30.29 cfs @ 9.64 fps)

Secondary OutFlow Max=4.76 cfs @ 12.09 hrs HW=46.11' (Free Discharge)
 ↑**2=Orifice/Grate** (Weir Controls 4.76 cfs @ 1.85 fps)

Summary for Pond P3B:

Inflow Area = 21.740 ac, 17.11% Impervious, Inflow Depth > 1.98" for 25-Year event
 Inflow = 29.88 cfs @ 12.08 hrs, Volume= 3.588 af
 Outflow = 29.88 cfs @ 12.08 hrs, Volume= 3.588 af, Atten= 0%, Lag= 0.0 min
 Primary = 15.07 cfs @ 12.08 hrs, Volume= 3.170 af
 Secondary = 14.81 cfs @ 12.08 hrs, Volume= 0.418 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 46.60' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	42.40'	18.0" Round Culvert L= 63.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 42.40' / 41.90' S= 0.0079 '/ Cc= 0.900 n= 0.014, Flow Area= 1.77 sf
#2	Secondary	45.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=15.07 cfs @ 12.08 hrs HW=46.60' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 15.07 cfs @ 8.53 fps)

Secondary OutFlow Max=14.78 cfs @ 12.08 hrs HW=46.60' (Free Discharge)
 ↑**2=Orifice/Grate** (Weir Controls 14.78 cfs @ 2.70 fps)

Summary for Pond P53:

Inflow Area = 37.580 ac, 13.84% Impervious, Inflow Depth > 1.47" for 25-Year event
 Inflow = 40.06 cfs @ 12.40 hrs, Volume= 4.608 af
 Outflow = 39.89 cfs @ 12.43 hrs, Volume= 4.607 af, Atten= 0%, Lag= 1.4 min
 Primary = 39.89 cfs @ 12.43 hrs, Volume= 4.607 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 79.29' @ 12.43 hrs Surf.Area= 4,179 sf Storage= 2,002 cf

Plug-Flow detention time= 0.6 min calculated for 4.607 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (837.7 - 837.2)

Volume	Invert	Avail.Storage	Storage Description
#1	78.00'	43,344 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.00	0	0	0
78.25	545	68	68
78.50	1,089	204	272
78.75	1,634	340	613
79.00	2,178	477	1,089
79.25	3,920	762	1,852
79.50	5,663	1,198	3,049
79.75	7,405	1,634	4,683
80.00	9,148	2,069	6,752
84.00	9,148	36,592	43,344

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=39.78 cfs @ 12.43 hrs HW=79.29' (Free Discharge)
 ↑**1=Broad-Crested Rectangular Weir** (Weir Controls 39.78 cfs @ 3.09 fps)

Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S5.1A:	Runoff Area=15.250 ac 12.00% Impervious Runoff Depth>1.72" Tc=16.7 min CN=55 Runoff=22.51 cfs 2.184 af
Subcatchment S5.1B:	Runoff Area=16.990 ac 17.83% Impervious Runoff Depth>2.41" Tc=25.4 min CN=63 Runoff=31.21 cfs 3.413 af
Subcatchment S5.1C:	Runoff Area=17.500 ac 13.43% Impervious Runoff Depth>2.99" Tc=14.3 min CN=69 Runoff=50.62 cfs 4.354 af
Subcatchment S52:	Runoff Area=3.030 ac 53.14% Impervious Runoff Depth>4.53" Tc=5.0 min CN=84 Runoff=17.10 cfs 1.145 af
Subcatchment S53:	Runoff Area=5.340 ac 6.37% Impervious Runoff Depth>2.79" Tc=15.8 min CN=67 Runoff=13.86 cfs 1.243 af
Subcatchment S54:	Runoff Area=1.790 ac 11.17% Impervious Runoff Depth>2.99" Tc=14.0 min CN=69 Runoff=5.22 cfs 0.445 af
Subcatchment S54.1:	Runoff Area=1.570 ac 5.10% Impervious Runoff Depth>2.81" Flow Length=22' Tc=0.0 min CN=67 Runoff=6.48 cfs 0.368 af
Subcatchment S55:	Runoff Area=13.380 ac 10.31% Impervious Runoff Depth>2.86" Tc=36.7 min CN=68 Runoff=25.06 cfs 3.194 af
Subcatchment S56:	Runoff Area=4.240 ac 32.31% Impervious Runoff Depth>3.69" Tc=5.0 min CN=76 Runoff=20.07 cfs 1.304 af
Subcatchment S62:	Runoff Area=0.380 ac 100.00% Impervious Runoff Depth>6.12" Tc=5.0 min CN=98 Runoff=2.53 cfs 0.194 af
Subcatchment S63:	Runoff Area=1.040 ac 89.42% Impervious Runoff Depth>5.54" Tc=5.0 min CN=93 Runoff=6.69 cfs 0.480 af
Reach 2R:	Avg. Flow Depth=0.97' Max Vel=2.57 fps Inflow=60.73 cfs 7.571 af n=0.030 L=460.0' S=0.0073 '/ Capacity=417.73 cfs Outflow=59.86 cfs 7.537 af
Reach 3R:	Avg. Flow Depth=1.18' Max Vel=1.80 fps Inflow=61.16 cfs 7.591 af n=0.030 L=195.0' S=0.0028 '/ Capacity=41.41 cfs Outflow=60.73 cfs 7.571 af
Reach 4R:	Avg. Flow Depth=0.65' Max Vel=3.31 fps Inflow=33.48 cfs 0.990 af n=0.030 L=183.0' S=0.0231 '/ Capacity=18.43 cfs Outflow=32.82 cfs 0.990 af
Reach 5R:	Avg. Flow Depth=0.32' Max Vel=2.44 fps Inflow=7.57 cfs 0.153 af n=0.030 L=900.0' S=0.0289 '/ Capacity=20.61 cfs Outflow=6.07 cfs 0.153 af
Reach 6R:	Avg. Flow Depth=0.43' Max Vel=6.96 fps Inflow=31.48 cfs 4.915 af n=0.030 L=50.0' S=0.1600 '/ Capacity=48.49 cfs Outflow=31.48 cfs 4.914 af

Reach 9R: (new Reach) Avg. Flow Depth=3.67' Max Vel=2.38 fps Inflow=119.63 cfs 18.181 af
n=0.050 L=280.0' S=0.0024 '/ Capacity=144.88 cfs Outflow=119.12 cfs 18.132 af

Reach L108: Avg. Flow Depth=0.24' Max Vel=4.70 fps Inflow=46.13 cfs 5.597 af
n=0.030 L=774.0' S=0.0646 '/ Capacity=1,762.00 cfs Outflow=45.40 cfs 5.564 af

Reach L133: Avg. Flow Depth=0.81' Max Vel=5.77 fps Inflow=61.49 cfs 7.604 af
n=0.030 L=344.0' S=0.0343 '/ Capacity=842.72 cfs Outflow=61.16 cfs 7.591 af

Reach L162: Avg. Flow Depth=1.62' Max Vel=4.77 fps Inflow=60.41 cfs 7.251 af
n=0.030 L=394.0' S=0.0124 '/ Capacity=26.45 cfs Outflow=60.00 cfs 7.236 af

Reach L164: Avg. Flow Depth=2.00' Max Vel=4.31 fps Inflow=17.10 cfs 1.145 af
24.0" Round Pipe n=0.014 L=368.0' S=0.0033 '/ Capacity=12.00 cfs Outflow=12.00 cfs 1.143 af

Reach L176: Avg. Flow Depth=0.65' Max Vel=4.63 fps Inflow=2.53 cfs 0.194 af
12.0" Round Pipe n=0.014 L=242.0' S=0.0100 '/ Capacity=3.31 cfs Outflow=2.42 cfs 0.194 af

Reach P3C: Avg. Flow Depth=0.93' Max Vel=7.84 fps Inflow=9.04 cfs 0.674 af
18.0" Round Pipe n=0.014 L=127.0' S=0.0172 '/ Capacity=12.78 cfs Outflow=8.93 cfs 0.673 af

Reach POA3: Inflow=119.12 cfs 18.132 af
Outflow=119.12 cfs 18.132 af

Pond 1R: Peak Elev=53.03' Inflow=87.81 cfs 11.874 af
Primary=37.95 cfs 8.642 af Secondary=49.86 cfs 3.232 af Outflow=87.81 cfs 11.874 af

Pond 2P: Blue Hill Intersection Peak Elev=46.51' Storage=9,524 cf Inflow=89.90 cfs 6.432 af
Outflow=89.70 cfs 6.408 af

Pond 8P: Unversity Avenue Swale Peak Elev=0.00' Storage=0 cf
Primary=0.00 cfs 0.000 af

Pond L179: Peak Elev=47.11' Inflow=52.06 cfs 12.659 af
Primary=31.04 cfs 11.326 af Secondary=21.02 cfs 1.333 af Outflow=52.06 cfs 12.659 af

Pond Link 105: Peak Elev=142.67' Inflow=46.13 cfs 5.445 af
Primary=14.65 cfs 0.530 af Secondary=31.48 cfs 4.915 af Outflow=46.13 cfs 5.445 af

Pond Link 106: Peak Elev=158.43' Inflow=31.21 cfs 3.413 af
Primary=23.64 cfs 3.260 af Secondary=7.57 cfs 0.153 af Outflow=31.21 cfs 3.413 af

Pond LINK 110.1: Peak Elev=54.25' Inflow=50.62 cfs 4.354 af
Primary=17.14 cfs 3.364 af Secondary=33.48 cfs 0.990 af Outflow=50.62 cfs 4.354 af

Pond P3: Peak Elev=46.19' Inflow=37.21 cfs 11.999 af
Primary=30.59 cfs 11.774 af Secondary=6.62 cfs 0.225 af Outflow=37.21 cfs 11.999 af

Pond P3B: Peak Elev=46.94' Inflow=35.29 cfs 4.669 af
Primary=15.84 cfs 4.018 af Secondary=19.45 cfs 0.651 af Outflow=35.29 cfs 4.669 af

Pond P53: Peak Elev=79.57' Storage=3,480 cf Inflow=57.19 cfs 6.807 af
Outflow=56.64 cfs 6.806 af

Total Runoff Area = 80.510 ac Runoff Volume = 18.325 af Average Runoff Depth = 2.73"
83.23% Pervious = 67.010 ac 16.77% Impervious = 13.500 ac

Summary for Subcatchment S5.1A:

Runoff = 22.51 cfs @ 12.25 hrs, Volume= 2.184 af, Depth> 1.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
13.420	49	50-75% Grass cover, Fair, HSG A
1.830	98	Paved parking & roofs
15.250	55	Weighted Average
13.420		88.00% Pervious Area
1.830		12.00% Impervious Area

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

Summary for Subcatchment S5.1B:

Runoff = 31.21 cfs @ 12.37 hrs, Volume= 3.413 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
10.760	49	50-75% Grass cover, Fair, HSG A
3.200	79	50-75% Grass cover, Fair, HSG C
3.030	98	Paved parking & roofs
16.990	63	Weighted Average
13.960		82.17% Pervious Area
3.030		17.83% Impervious Area

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

Summary for Subcatchment S5.1C:

Runoff = 50.62 cfs @ 12.20 hrs, Volume= 4.354 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (ac)	CN	Description
3.670	49	50-75% Grass cover, Fair, HSG A
11.480	69	50-75% Grass cover, Fair, HSG B
2.350	98	Paved parking & roofs
17.500	69	Weighted Average
15.150		86.57% Pervious Area
2.350		13.43% Impervious Area

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

Summary for Subcatchment S52:

Runoff = 17.10 cfs @ 12.07 hrs, Volume= 1.145 af, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
1.420	69	50-75% Grass cover, Fair, HSG B
1.610	98	Paved parking & roofs
3.030	84	Weighted Average
1.420		46.86% Pervious Area
1.610		53.14% Impervious Area

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

Summary for Subcatchment S53:

Runoff = 13.86 cfs @ 12.22 hrs, Volume= 1.243 af, Depth> 2.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
5.000	65	Woods/grass comb., Fair, HSG B
0.340	98	Paved parking & roofs
5.340	67	Weighted Average
5.000		93.63% Pervious Area
0.340		6.37% Impervious Area

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

Summary for Subcatchment S54:

Runoff = 5.22 cfs @ 12.20 hrs, Volume= 0.445 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
1.590	65	Woods/grass comb., Fair, HSG B
0.200	98	Paved parking & roofs
1.790	69	Weighted Average
1.590		88.83% Pervious Area
0.200		11.17% Impervious Area

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

Summary for Subcatchment S54.1:

Runoff = 6.48 cfs @ 12.01 hrs, Volume= 0.368 af, Depth> 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
1.490	65	Woods/grass comb., Fair, HSG B
0.080	98	Paved parking & roofs
1.570	67	Weighted Average
1.490		94.90% Pervious Area
0.080		5.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	22				Direct Entry,

Summary for Subcatchment S55:

Runoff = 25.06 cfs @ 12.52 hrs, Volume= 3.194 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
12.000	65	Woods/grass comb., Fair, HSG B
1.380	98	Paved parking & roofs
13.380	68	Weighted Average
12.000		89.69% Pervious Area
1.380		10.31% Impervious Area

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Type III 24-hr 100-Year Rainfall=6.65"

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

Summary for Subcatchment S56:

Runoff = 20.07 cfs @ 12.08 hrs, Volume= 1.304 af, Depth> 3.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
2.870	65	Woods/grass comb., Fair, HSG B
1.370	98	Paved parking & roofs
4.240	76	Weighted Average
2.870		67.69% Pervious Area
1.370		32.31% Impervious Area

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

Summary for Subcatchment S62:

Runoff = 2.53 cfs @ 12.07 hrs, Volume= 0.194 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
0.380	98	Paved parking & roofs
0.380		100.00% Impervious Area

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

Summary for Subcatchment S63:

Runoff = 6.69 cfs @ 12.07 hrs, Volume= 0.480 af, Depth> 5.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
0.110	49	50-75% Grass cover, Fair, HSG A
0.930	98	Paved parking & roofs
1.040	93	Weighted Average
0.110		10.58% Pervious Area
0.930		89.42% Impervious Area

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

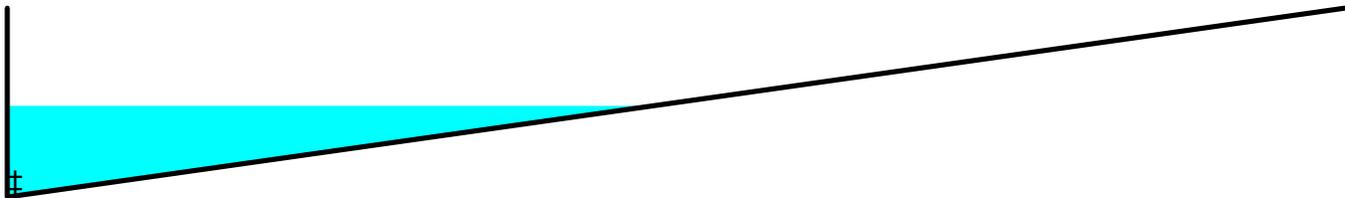
Summary for Reach 2R:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 2.22" for 100-Year event
 Inflow = 60.73 cfs @ 12.48 hrs, Volume= 7.571 af
 Outflow = 59.86 cfs @ 12.58 hrs, Volume= 7.537 af, Atten= 1%, Lag= 5.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 2.57 fps, Min. Travel Time= 3.0 min
 Avg. Velocity = 1.33 fps, Avg. Travel Time= 5.8 min

Peak Storage= 10,729 cf @ 12.53 hrs
 Average Depth at Peak Storage= 0.97'
 Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 417.73 cfs

0.00' x 2.00' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 100.00'
 Length= 460.0' Slope= 0.0073 '/'
 Inlet Invert= 50.25', Outlet Invert= 46.89'



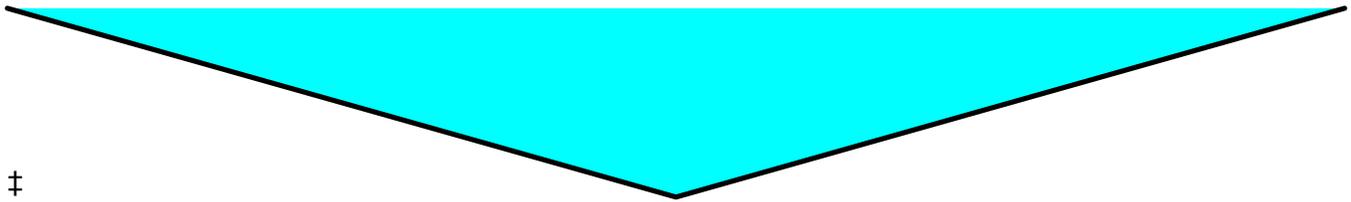
Summary for Reach 3R:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 2.23" for 100-Year event
 Inflow = 61.16 cfs @ 12.42 hrs, Volume= 7.591 af
 Outflow = 60.73 cfs @ 12.48 hrs, Volume= 7.571 af, Atten= 1%, Lag= 3.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 1.80 fps, Min. Travel Time= 1.8 min
 Avg. Velocity = 0.93 fps, Avg. Travel Time= 3.5 min

Peak Storage= 6,601 cf @ 12.45 hrs
 Average Depth at Peak Storage= 1.18'
 Bank-Full Depth= 1.00' Flow Area= 25.0 sf, Capacity= 41.41 cfs

0.00' x 1.00' deep channel, n= 0.030
 Side Slope Z-value= 25.0 '/' Top Width= 50.00'
 Length= 195.0' Slope= 0.0028 '/'
 Inlet Invert= 50.80', Outlet Invert= 50.25'



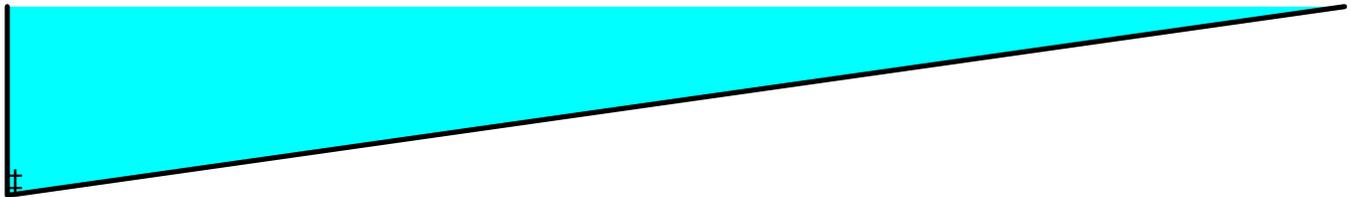
Summary for Reach 4R:

Inflow = 33.48 cfs @ 12.20 hrs, Volume= 0.990 af
 Outflow = 32.82 cfs @ 12.23 hrs, Volume= 0.990 af, Atten= 2%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 3.31 fps, Min. Travel Time= 0.9 min
 Avg. Velocity = 1.01 fps, Avg. Travel Time= 3.0 min

Peak Storage= 1,839 cf @ 12.22 hrs
 Average Depth at Peak Storage= 0.65'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 18.43 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 183.0' Slope= 0.0231 '/'
 Inlet Invert= 51.23', Outlet Invert= 47.00'



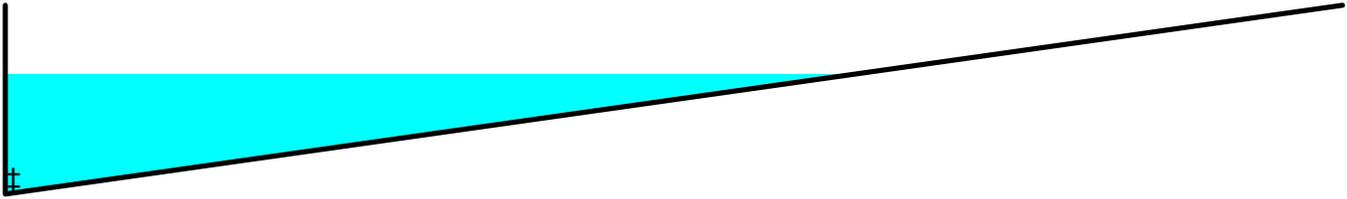
Summary for Reach 5R:

Inflow = 7.57 cfs @ 12.37 hrs, Volume= 0.153 af
 Outflow = 6.07 cfs @ 12.56 hrs, Volume= 0.153 af, Atten= 20%, Lag= 11.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 2.44 fps, Min. Travel Time= 6.2 min
 Avg. Velocity = 0.41 fps, Avg. Travel Time= 36.6 min

Peak Storage= 2,275 cf @ 12.45 hrs
 Average Depth at Peak Storage= 0.32'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 20.61 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 900.0' Slope= 0.0289 '/'
 Inlet Invert= 158.00', Outlet Invert= 132.00'



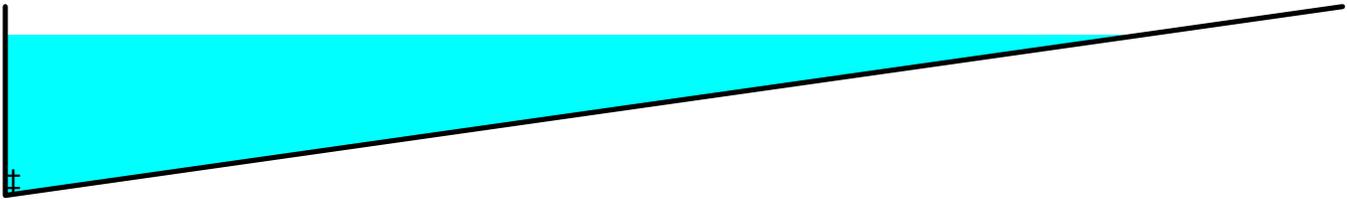
Summary for Reach 6R:

Inflow = 31.48 cfs @ 12.26 hrs, Volume= 4.915 af
 Outflow = 31.48 cfs @ 12.26 hrs, Volume= 4.914 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 6.96 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 4.06 fps, Avg. Travel Time= 0.2 min

Peak Storage= 226 cf @ 12.26 hrs
 Average Depth at Peak Storage= 0.43'
 Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 48.49 cfs

0.00' x 0.50' deep channel, n= 0.030
 Side Slope Z-value= 0.0 50.0 '/' Top Width= 25.00'
 Length= 50.0' Slope= 0.1600 '/'
 Inlet Invert= 140.00', Outlet Invert= 132.00'



Summary for Reach 9R: (new Reach)

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 2.71" for 100-Year event
 Inflow = 119.63 cfs @ 12.50 hrs, Volume= 18.181 af
 Outflow = 119.12 cfs @ 12.55 hrs, Volume= 18.132 af, Atten= 0%, Lag= 3.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 2.38 fps, Min. Travel Time= 2.0 min
 Avg. Velocity = 0.86 fps, Avg. Travel Time= 5.4 min

Peak Storage= 14,046 cf @ 12.52 hrs
 Average Depth at Peak Storage= 3.67'
 Bank-Full Depth= 4.00' Flow Area= 58.0 sf, Capacity= 144.88 cfs

4.50' x 4.00' deep channel, n= 0.050 Scattered brush, heavy weeds
 Side Slope Z-value= 2.5 '/' Top Width= 24.50'
 Length= 280.0' Slope= 0.0024 '/'
 Inlet Invert= 42.00', Outlet Invert= 41.32'



Summary for Reach L108:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 2.08" for 100-Year event
 Inflow = 46.13 cfs @ 12.26 hrs, Volume= 5.597 af
 Outflow = 45.40 cfs @ 12.35 hrs, Volume= 5.564 af, Atten= 2%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 4.70 fps, Min. Travel Time= 2.7 min
 Avg. Velocity = 1.93 fps, Avg. Travel Time= 6.7 min

Peak Storage= 7,501 cf @ 12.30 hrs
 Average Depth at Peak Storage= 0.24'
 Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 1,762.00 cfs

40.00' x 2.00' deep channel, n= 0.030
 Side Slope Z-value= 5.0 ' / ' Top Width= 60.00'
 Length= 774.0' Slope= 0.0646 ' / '
 Inlet Invert= 132.00', Outlet Invert= 82.00'



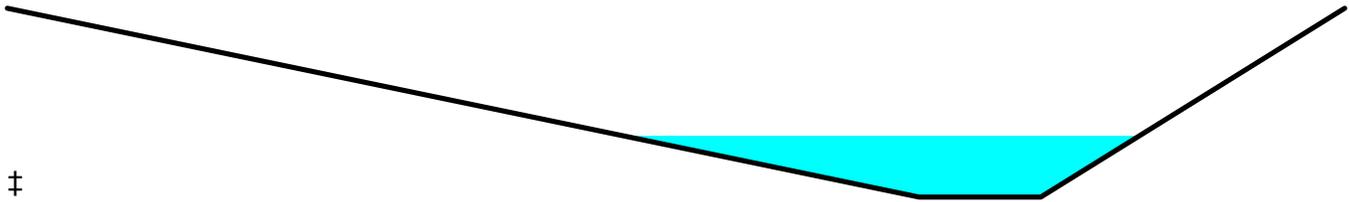
Summary for Reach L133:

Inflow Area = 40.940 ac, 13.39% Impervious, Inflow Depth > 2.23" for 100-Year event
 Inflow = 61.49 cfs @ 12.39 hrs, Volume= 7.604 af
 Outflow = 61.16 cfs @ 12.42 hrs, Volume= 7.591 af, Atten= 1%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 5.77 fps, Min. Travel Time= 1.0 min
 Avg. Velocity = 2.79 fps, Avg. Travel Time= 2.1 min

Peak Storage= 3,663 cf @ 12.40 hrs
 Average Depth at Peak Storage= 0.81'
 Bank-Full Depth= 2.50' Flow Area= 75.0 sf, Capacity= 842.72 cfs

5.00' x 2.50' deep channel, n= 0.030
 Side Slope Z-value= 15.0 5.0 ' / ' Top Width= 55.00'
 Length= 344.0' Slope= 0.0343 ' / '
 Inlet Invert= 62.60', Outlet Invert= 50.80'



Summary for Reach L162:

Inflow Area = 39.370 ac, 13.72% Impervious, Inflow Depth > 2.21" for 100-Year event
 Inflow = 60.41 cfs @ 12.35 hrs, Volume= 7.251 af
 Outflow = 60.00 cfs @ 12.40 hrs, Volume= 7.236 af, Atten= 1%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 4.77 fps, Min. Travel Time= 1.4 min
 Avg. Velocity = 2.38 fps, Avg. Travel Time= 2.8 min

Peak Storage= 4,976 cf @ 12.37 hrs
 Average Depth at Peak Storage= 1.62'
 Bank-Full Depth= 1.00' Flow Area= 6.5 sf, Capacity= 26.45 cfs

3.00' x 1.00' deep channel, n= 0.030
 Side Slope Z-value= 3.5 '/' Top Width= 10.00'
 Length= 394.0' Slope= 0.0124 '/'
 Inlet Invert= 67.50', Outlet Invert= 62.60'



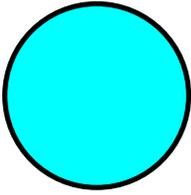
Summary for Reach L164:

Inflow Area = 3.030 ac, 53.14% Impervious, Inflow Depth > 4.53" for 100-Year event
 Inflow = 17.10 cfs @ 12.07 hrs, Volume= 1.145 af
 Outflow = 12.00 cfs @ 12.08 hrs, Volume= 1.143 af, Atten= 30%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 4.31 fps, Min. Travel Time= 1.4 min
 Avg. Velocity = 1.84 fps, Avg. Travel Time= 3.3 min

Peak Storage= 1,156 cf @ 12.04 hrs
 Average Depth at Peak Storage= 2.00'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 12.00 cfs

24.0" Round Pipe
 n= 0.014
 Length= 368.0' Slope= 0.0033 '/'
 Inlet Invert= 46.20', Outlet Invert= 45.00'



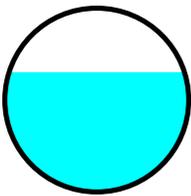
Summary for Reach L176:

Inflow Area = 0.380 ac, 100.00% Impervious, Inflow Depth > 6.12" for 100-Year event
Inflow = 2.53 cfs @ 12.07 hrs, Volume= 0.194 af
Outflow = 2.42 cfs @ 12.10 hrs, Volume= 0.194 af, Atten= 4%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.63 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.69 fps, Avg. Travel Time= 2.4 min

Peak Storage= 131 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.65'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.31 cfs

12.0" Round Pipe
n= 0.014
Length= 242.0' Slope= 0.0100 '/'
Inlet Invert= 45.80', Outlet Invert= 43.38'



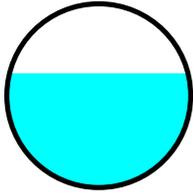
Summary for Reach P3C:

Inflow Area = 1.420 ac, 92.25% Impervious, Inflow Depth > 5.69" for 100-Year event
Inflow = 9.04 cfs @ 12.08 hrs, Volume= 0.674 af
Outflow = 8.93 cfs @ 12.09 hrs, Volume= 0.673 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.84 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.72 fps, Avg. Travel Time= 0.8 min

Peak Storage= 146 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.93'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 12.78 cfs

18.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0172 '/'
Inlet Invert= 43.38', Outlet Invert= 41.20'



Summary for Reach POA3:

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 2.70" for 100-Year event
 Inflow = 119.12 cfs @ 12.55 hrs, Volume= 18.132 af
 Outflow = 119.12 cfs @ 12.55 hrs, Volume= 18.132 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

Summary for Pond 1R:

Inflow Area = 57.350 ac, 14.77% Impervious, Inflow Depth > 2.48" for 100-Year event
 Inflow = 87.81 cfs @ 12.56 hrs, Volume= 11.874 af
 Outflow = 87.81 cfs @ 12.56 hrs, Volume= 11.874 af, Atten= 0%, Lag= 0.0 min
 Primary = 37.95 cfs @ 12.56 hrs, Volume= 8.642 af
 Secondary = 49.86 cfs @ 12.56 hrs, Volume= 3.232 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 53.03' @ 12.56 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	43.90'	24.0" Round Culvert L= 175.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 43.90' / 41.90' S= 0.0114 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	46.33'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=37.92 cfs @ 12.56 hrs HW=53.01' (Free Discharge)

↑1=Culvert (Barrel Controls 37.92 cfs @ 12.07 fps)

Secondary OutFlow Max=49.80 cfs @ 12.56 hrs HW=53.01' (Free Discharge)

↑2=Orifice/Grate (Orifice Controls 49.80 cfs @ 12.45 fps)

Summary for Pond 2P: Blue Hill Intersection

Inflow = 89.90 cfs @ 12.48 hrs, Volume= 6.432 af
 Outflow = 89.70 cfs @ 12.50 hrs, Volume= 6.408 af, Atten= 0%, Lag= 1.1 min
 Primary = 89.70 cfs @ 12.50 hrs, Volume= 6.408 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 46.51' @ 12.50 hrs Surf.Area= 28,884 sf Storage= 9,524 cf

Plug-Flow detention time= 2.2 min calculated for 6.395 af (99% of inflow)

Center-of-Mass det. time= 2.0 min (753.9 - 751.8)

3659-12003C-Existing Conditions POA 3-01

Type III 24-hr 100-Year Rainfall=6.65"

Prepared by {enter your company name here}

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Volume	Invert	Avail.Storage	Storage Description
#1	45.50'	29,372 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.50	1	0	0
46.00	4,216	1,054	1,054
47.00	52,420	28,318	29,372

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	Curb, C= 3.27 Offset (feet) 0.00 140.50 231.95 323.40 493.00 Elev. (feet) 47.50 46.50 46.00 46.50 47.50

Primary OutFlow Max=89.37 cfs @ 12.50 hrs HW=46.51' (Free Discharge)

↑**1=Curb** (Weir Controls 89.37 cfs @ 0.96 fps)

Summary for Pond 8P: Unversity Avenue Swale

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs / 2

Peak Elev= 0.00' @ 0.00 hrs Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= (not calculated)

Center-of-Mass det. time= (not calculated)

Volume	Invert	Avail.Storage	Storage Description
#1	40.66'	408,373 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.66	1	0	0
42.00	308	207	207
43.00	5,236	2,772	2,979
44.00	7,524	6,380	9,359
45.00	10,163	8,844	18,203
46.00	11,162	10,663	28,865
80.00	11,162	379,508	408,373

Device	Routing	Invert	Outlet Devices
#1	Primary	41.32'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)

↑**1=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond L179:

Inflow Area = 79.090 ac, 15.41% Impervious, Inflow Depth > 1.92" for 100-Year event
 Inflow = 52.06 cfs @ 12.55 hrs, Volume= 12.659 af
 Outflow = 52.06 cfs @ 12.55 hrs, Volume= 12.659 af, Atten= 0%, Lag= 0.0 min
 Primary = 31.04 cfs @ 12.55 hrs, Volume= 11.326 af
 Secondary = 21.02 cfs @ 12.55 hrs, Volume= 1.333 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 47.11' @ 12.55 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.90'	24.0" Round Culvert L= 60.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 41.90' / 41.10' S= 0.0133 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	45.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=31.02 cfs @ 12.55 hrs HW=47.11' (Free Discharge)
 ↑1=Culvert (Inlet Controls 31.02 cfs @ 9.88 fps)

Secondary OutFlow Max=20.98 cfs @ 12.55 hrs HW=47.11' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 20.98 cfs @ 5.24 fps)

Summary for Pond Link 105:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 2.03" for 100-Year event
 Inflow = 46.13 cfs @ 12.26 hrs, Volume= 5.445 af
 Outflow = 46.13 cfs @ 12.26 hrs, Volume= 5.445 af, Atten= 0%, Lag= 0.0 min
 Primary = 14.65 cfs @ 12.26 hrs, Volume= 0.530 af
 Secondary = 31.48 cfs @ 12.26 hrs, Volume= 4.915 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 142.67' @ 12.26 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	140.75'	24.0" Round Culvert L= 350.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 140.75' / 132.70' S= 0.0230 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	140.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=14.49 cfs @ 12.26 hrs HW=142.65' (Free Discharge)
 ↑1=Culvert (Inlet Controls 14.49 cfs @ 4.70 fps)

Secondary OutFlow Max=31.37 cfs @ 12.26 hrs HW=142.65' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 31.37 cfs @ 7.84 fps)

Summary for Pond Link 106:

Inflow Area = 16.990 ac, 17.83% Impervious, Inflow Depth > 2.41" for 100-Year event
 Inflow = 31.21 cfs @ 12.37 hrs, Volume= 3.413 af
 Outflow = 31.21 cfs @ 12.37 hrs, Volume= 3.413 af, Atten= 0%, Lag= 0.0 min
 Primary = 23.64 cfs @ 12.37 hrs, Volume= 3.260 af
 Secondary = 7.57 cfs @ 12.37 hrs, Volume= 0.153 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 158.43' @ 12.37 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	141.80'	15.0" Round Culvert L= 5.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 141.80' / 141.50' S= 0.0600 '/ Cc= 0.900 n= 0.014, Flow Area= 1.23 sf
#2	Secondary	158.00'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=23.64 cfs @ 12.37 hrs HW=158.43' (Free Discharge)
 ↑1=Culvert (Inlet Controls 23.64 cfs @ 19.26 fps)

Secondary OutFlow Max=7.39 cfs @ 12.37 hrs HW=158.43' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 7.39 cfs @ 2.15 fps)

Summary for Pond LINK 110.1:

Inflow Area = 17.500 ac, 13.43% Impervious, Inflow Depth > 2.99" for 100-Year event
 Inflow = 50.62 cfs @ 12.20 hrs, Volume= 4.354 af
 Outflow = 50.62 cfs @ 12.20 hrs, Volume= 4.354 af, Atten= 0%, Lag= 0.0 min
 Primary = 17.14 cfs @ 12.20 hrs, Volume= 3.364 af
 Secondary = 33.48 cfs @ 12.20 hrs, Volume= 0.990 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 54.25' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.45'	18.0" Round Culvert L= 260.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 46.45' / 42.50' S= 0.0152 '/ Cc= 0.900 n= 0.014, Flow Area= 1.77 sf
#2	Secondary	51.23'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=17.13 cfs @ 12.20 hrs HW=54.23' (Free Discharge)
 ↑1=Culvert (Barrel Controls 17.13 cfs @ 9.69 fps)

Secondary OutFlow Max=33.37 cfs @ 12.20 hrs HW=54.23' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 33.37 cfs @ 8.34 fps)

Summary for Pond P3:

Inflow Area = 80.510 ac, 16.77% Impervious, Inflow Depth > 1.79" for 100-Year event
 Inflow = 37.21 cfs @ 12.09 hrs, Volume= 11.999 af
 Outflow = 37.21 cfs @ 12.09 hrs, Volume= 11.999 af, Atten= 0%, Lag= 0.0 min
 Primary = 30.59 cfs @ 12.09 hrs, Volume= 11.774 af
 Secondary = 6.62 cfs @ 12.09 hrs, Volume= 0.225 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 46.19' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	41.10'	24.0" Round Culvert L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 41.10' / 40.66' S= 0.0085 '/ Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	45.79'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=30.57 cfs @ 12.09 hrs HW=46.18' (Free Discharge)
 ↑1=Culvert (Inlet Controls 30.57 cfs @ 9.73 fps)

Secondary OutFlow Max=6.48 cfs @ 12.09 hrs HW=46.18' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 6.48 cfs @ 2.05 fps)

Summary for Pond P3B:

Inflow Area = 21.740 ac, 17.11% Impervious, Inflow Depth > 2.58" for 100-Year event
 Inflow = 35.29 cfs @ 12.08 hrs, Volume= 4.669 af
 Outflow = 35.29 cfs @ 12.08 hrs, Volume= 4.669 af, Atten= 0%, Lag= 0.0 min
 Primary = 15.84 cfs @ 12.08 hrs, Volume= 4.018 af
 Secondary = 19.45 cfs @ 12.08 hrs, Volume= 0.651 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 46.94' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	42.40'	18.0" Round Culvert L= 63.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 42.40' / 41.90' S= 0.0079 '/ Cc= 0.900 n= 0.014, Flow Area= 1.77 sf
#2	Secondary	45.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=15.82 cfs @ 12.08 hrs HW=46.93' (Free Discharge)
 ↑1=Culvert (Barrel Controls 15.82 cfs @ 8.95 fps)

Secondary OutFlow Max=19.37 cfs @ 12.08 hrs HW=46.93' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 19.37 cfs @ 4.84 fps)

Summary for Pond P53:

Inflow Area = 37.580 ac, 13.84% Impervious, Inflow Depth > 2.17" for 100-Year event
 Inflow = 57.19 cfs @ 12.33 hrs, Volume= 6.807 af
 Outflow = 56.64 cfs @ 12.36 hrs, Volume= 6.806 af, Atten= 1%, Lag= 1.9 min
 Primary = 56.64 cfs @ 12.36 hrs, Volume= 6.806 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 79.57' @ 12.36 hrs Surf.Area= 6,170 sf Storage= 3,480 cf

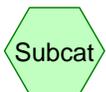
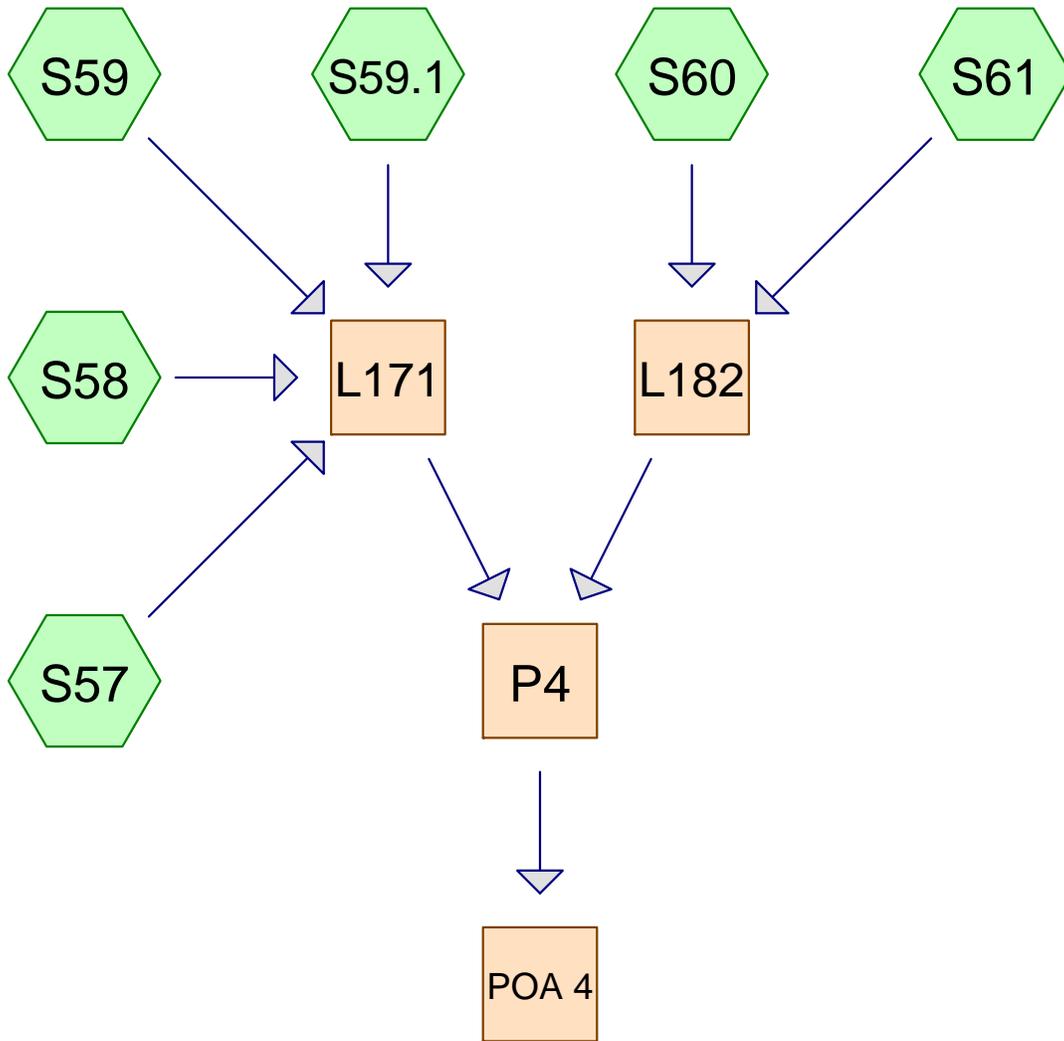
Plug-Flow detention time= 0.7 min calculated for 6.806 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (829.1 - 828.5)

Volume	Invert	Avail.Storage	Storage Description
#1	78.00'	43,344 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.00	0	0	0
78.25	545	68	68
78.50	1,089	204	272
78.75	1,634	340	613
79.00	2,178	477	1,089
79.25	3,920	762	1,852
79.50	5,663	1,198	3,049
79.75	7,405	1,634	4,683
80.00	9,148	2,069	6,752
84.00	9,148	36,592	43,344

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

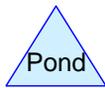
Primary OutFlow Max=56.61 cfs @ 12.36 hrs HW=79.57' (Free Discharge)
 ↑**1=Broad-Crested Rectangular Weir** (Weir Controls 56.61 cfs @ 3.60 fps)



Subcat



Reach



Pond



Link

Routing Diagram for 3659-12003C-Existing Conditions POA 4-01

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
7.940	49	(S57, S58, S59, S59.1, S60, S61)
12.020	98	(S57, S58, S59, S59.1, S60, S61)
19.960	79	TOTAL AREA

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S57: Runoff Area=5.320 ac 93.98% Impervious Runoff Depth>2.51"
Tc=5.0 min CN=95 Runoff=15.69 cfs 1.112 af

Subcatchment S58: Runoff Area=2.110 ac 85.78% Impervious Runoff Depth>2.13"
Tc=5.0 min CN=91 Runoff=5.53 cfs 0.374 af

Subcatchment S59: Runoff Area=1.900 ac 80.53% Impervious Runoff Depth>1.87"
Tc=5.0 min CN=88 Runoff=4.43 cfs 0.296 af

Subcatchment S59.1: Runoff Area=1.680 ac 42.26% Impervious Runoff Depth>0.75"
Tc=5.0 min CN=70 Runoff=1.48 cfs 0.105 af

Subcatchment S60: Runoff Area=4.600 ac 51.74% Impervious Runoff Depth>0.95"
Tc=5.0 min CN=74 Runoff=5.34 cfs 0.363 af

Subcatchment S61: Runoff Area=4.350 ac 13.56% Impervious Runoff Depth>0.23"
Flow Length=700' Slope=0.0050 '/ Tc=45.9 min CN=56 Runoff=0.33 cfs 0.083 af

Reach L171: Avg. Flow Depth=2.05' Max Vel=5.24 fps Inflow=27.11 cfs 1.887 af
36.0" Round Pipe n=0.014 L=138.0' S=0.0029 '/ Capacity=33.34 cfs Outflow=26.55 cfs 1.886 af

Reach L182: Avg. Flow Depth=0.65' Max Vel=4.06 fps Inflow=5.34 cfs 0.446 af
48.0" Round Pipe n=0.014 L=100.0' S=0.0050 '/ Capacity=94.32 cfs Outflow=5.27 cfs 0.446 af

Reach P4: Avg. Flow Depth=2.01' Max Vel=4.57 fps Inflow=31.80 cfs 2.332 af
48.0" Round Pipe n=0.014 L=835.0' S=0.0019 '/ Capacity=57.47 cfs Outflow=29.02 cfs 2.321 af

Reach POA 4: Inflow=29.02 cfs 2.321 af
Outflow=29.02 cfs 2.321 af

Total Runoff Area = 19.960 ac Runoff Volume = 2.333 af Average Runoff Depth = 1.40"
39.78% Pervious = 7.940 ac 60.22% Impervious = 12.020 ac

Summary for Subcatchment S57:

Runoff = 15.69 cfs @ 12.07 hrs, Volume= 1.112 af, Depth> 2.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.320	49	
* 5.000	98	
5.320	95	Weighted Average
0.320		6.02% Pervious Area
5.000		93.98% Impervious Area

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

Summary for Subcatchment S58:

Runoff = 5.53 cfs @ 12.07 hrs, Volume= 0.374 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.300	49	
* 1.810	98	
2.110	91	Weighted Average
0.300		14.22% Pervious Area
1.810		85.78% Impervious Area

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

Summary for Subcatchment S59:

Runoff = 4.43 cfs @ 12.08 hrs, Volume= 0.296 af, Depth> 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.370	49	
* 1.530	98	
1.900	88	Weighted Average
0.370		19.47% Pervious Area
1.530		80.53% Impervious Area

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

Summary for Subcatchment S59.1:

Runoff = 1.48 cfs @ 12.09 hrs, Volume= 0.105 af, Depth> 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.970	49	
* 0.710	98	
1.680	70	Weighted Average
0.970		57.74% Pervious Area
0.710		42.26% Impervious Area

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

Summary for Subcatchment S60:

Runoff = 5.34 cfs @ 12.09 hrs, Volume= 0.363 af, Depth> 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 2.220	49	
* 2.380	98	
4.600	74	Weighted Average
2.220		48.26% Pervious Area
2.380		51.74% Impervious Area

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

Summary for Subcatchment S61:

Runoff = 0.33 cfs @ 12.91 hrs, Volume= 0.083 af, Depth> 0.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
* 3.760	49	
* 0.590	98	
4.350	56	Weighted Average
3.760		86.44% Pervious Area
0.590		13.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.3					Direct Entry,
1.6	700	0.0050	7.51	94.32	Pipe Channel,
					48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00'
					n= 0.014
45.9	700	Total			

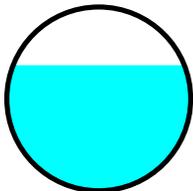
Summary for Reach L171:

Inflow Area = 11.010 ac, 82.20% Impervious, Inflow Depth > 2.06" for 2-Year event
 Inflow = 27.11 cfs @ 12.07 hrs, Volume= 1.887 af
 Outflow = 26.55 cfs @ 12.09 hrs, Volume= 1.886 af, Atten= 2%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.24 fps, Min. Travel Time= 0.4 min
 Avg. Velocity= 1.86 fps, Avg. Travel Time= 1.2 min

Peak Storage= 710 cf @ 12.08 hrs
 Average Depth at Peak Storage= 2.05'
 Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 33.34 cfs

36.0" Round Pipe
 n= 0.014
 Length= 138.0' Slope= 0.0029 '/'
 Inlet Invert= 41.70', Outlet Invert= 41.30'



Summary for Reach L182:

Inflow Area = 8.950 ac, 33.18% Impervious, Inflow Depth > 0.60" for 2-Year event
 Inflow = 5.34 cfs @ 12.09 hrs, Volume= 0.446 af
 Outflow = 5.27 cfs @ 12.10 hrs, Volume= 0.446 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.06 fps, Min. Travel Time= 0.4 min
 Avg. Velocity= 1.87 fps, Avg. Travel Time= 0.9 min

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Type III 24-hr 2-Year Rainfall=3.20"

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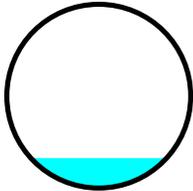
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Peak Storage= 132 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.65'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 100.0' Slope= 0.0050 '/'
Inlet Invert= 39.70', Outlet Invert= 39.20'



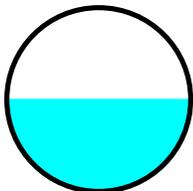
Summary for Reach P4:

Inflow Area = 19.960 ac, 60.22% Impervious, Inflow Depth > 1.40" for 2-Year event
Inflow = 31.80 cfs @ 12.09 hrs, Volume= 2.332 af
Outflow = 29.02 cfs @ 12.18 hrs, Volume= 2.321 af, Atten= 9%, Lag= 5.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.57 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 1.63 fps, Avg. Travel Time= 8.5 min

Peak Storage= 5,294 cf @ 12.13 hrs
Average Depth at Peak Storage= 2.01'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 57.47 cfs

48.0" Round Pipe
n= 0.014
Length= 835.0' Slope= 0.0019 '/'
Inlet Invert= 36.90', Outlet Invert= 35.35'



Summary for Reach POA 4:

Inflow Area = 19.960 ac, 60.22% Impervious, Inflow Depth > 1.40" for 2-Year event
Inflow = 29.02 cfs @ 12.18 hrs, Volume= 2.321 af
Outflow = 29.02 cfs @ 12.18 hrs, Volume= 2.321 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S57: Runoff Area=5.320 ac 93.98% Impervious Runoff Depth>3.82"
Tc=5.0 min CN=95 Runoff=23.31 cfs 1.696 af

Subcatchment S58: Runoff Area=2.110 ac 85.78% Impervious Runoff Depth>3.40"
Tc=5.0 min CN=91 Runoff=8.61 cfs 0.598 af

Subcatchment S59: Runoff Area=1.900 ac 80.53% Impervious Runoff Depth>3.10"
Tc=5.0 min CN=88 Runoff=7.23 cfs 0.491 af

Subcatchment S59.1: Runoff Area=1.680 ac 42.26% Impervious Runoff Depth>1.60"
Tc=5.0 min CN=70 Runoff=3.36 cfs 0.224 af

Subcatchment S60: Runoff Area=4.600 ac 51.74% Impervious Runoff Depth>1.90"
Tc=5.0 min CN=74 Runoff=10.98 cfs 0.726 af

Subcatchment S61: Runoff Area=4.350 ac 13.56% Impervious Runoff Depth>0.73"
Flow Length=700' Slope=0.0050 '/ Tc=45.9 min CN=56 Runoff=1.55 cfs 0.265 af

Reach L171: Avg. Flow Depth=3.00' Max Vel=5.36 fps Inflow=42.49 cfs 3.009 af
36.0" Round Pipe n=0.014 L=138.0' S=0.0029 '/ Capacity=33.34 cfs Outflow=35.61 cfs 3.008 af

Reach L182: Avg. Flow Depth=0.93' Max Vel=5.02 fps Inflow=11.03 cfs 0.991 af
48.0" Round Pipe n=0.014 L=100.0' S=0.0050 '/ Capacity=94.32 cfs Outflow=10.93 cfs 0.991 af

Reach P4: Avg. Flow Depth=2.58' Max Vel=5.01 fps Inflow=44.24 cfs 3.998 af
48.0" Round Pipe n=0.014 L=835.0' S=0.0019 '/ Capacity=57.47 cfs Outflow=42.85 cfs 3.984 af

Reach POA 4: Inflow=42.85 cfs 3.984 af
Outflow=42.85 cfs 3.984 af

Total Runoff Area = 19.960 ac Runoff Volume = 4.000 af Average Runoff Depth = 2.40"
39.78% Pervious = 7.940 ac 60.22% Impervious = 12.020 ac

Summary for Subcatchment S57:

Runoff = 23.31 cfs @ 12.07 hrs, Volume= 1.696 af, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.320	49	
* 5.000	98	
5.320	95	Weighted Average
0.320		6.02% Pervious Area
5.000		93.98% Impervious Area

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

Summary for Subcatchment S58:

Runoff = 8.61 cfs @ 12.07 hrs, Volume= 0.598 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.300	49	
* 1.810	98	
2.110	91	Weighted Average
0.300		14.22% Pervious Area
1.810		85.78% Impervious Area

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

Summary for Subcatchment S59:

Runoff = 7.23 cfs @ 12.07 hrs, Volume= 0.491 af, Depth> 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.370	49	
* 1.530	98	
1.900	88	Weighted Average
0.370		19.47% Pervious Area
1.530		80.53% Impervious Area

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

Summary for Subcatchment S59.1:

Runoff = 3.36 cfs @ 12.08 hrs, Volume= 0.224 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.970	49	
* 0.710	98	
1.680	70	Weighted Average
0.970		57.74% Pervious Area
0.710		42.26% Impervious Area

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

Summary for Subcatchment S60:

Runoff = 10.98 cfs @ 12.08 hrs, Volume= 0.726 af, Depth> 1.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 2.220	49	
* 2.380	98	
4.600	74	Weighted Average
2.220		48.26% Pervious Area
2.380		51.74% Impervious Area

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

Summary for Subcatchment S61:

Runoff = 1.55 cfs @ 12.75 hrs, Volume= 0.265 af, Depth> 0.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
* 3.760	49	
* 0.590	98	
4.350	56	Weighted Average
3.760		86.44% Pervious Area
0.590		13.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.3					Direct Entry,
1.6	700	0.0050	7.51	94.32	Pipe Channel,
					48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00'
					n= 0.014
45.9	700	Total			

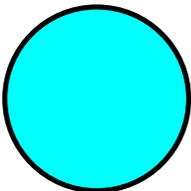
Summary for Reach L171:

Inflow Area = 11.010 ac, 82.20% Impervious, Inflow Depth > 3.28" for 10-Year event
 Inflow = 42.49 cfs @ 12.07 hrs, Volume= 3.009 af
 Outflow = 35.61 cfs @ 12.18 hrs, Volume= 3.008 af, Atten= 16%, Lag= 6.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.36 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.10 fps, Avg. Travel Time= 1.1 min

Peak Storage= 975 cf @ 12.05 hrs
 Average Depth at Peak Storage= 3.00'
 Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 33.34 cfs

36.0" Round Pipe
 n= 0.014
 Length= 138.0' Slope= 0.0029 '/'
 Inlet Invert= 41.70', Outlet Invert= 41.30'

**Summary for Reach L182:**

Inflow Area = 8.950 ac, 33.18% Impervious, Inflow Depth > 1.33" for 10-Year event
 Inflow = 11.03 cfs @ 12.08 hrs, Volume= 0.991 af
 Outflow = 10.93 cfs @ 12.09 hrs, Volume= 0.991 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.02 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 2.23 fps, Avg. Travel Time= 0.7 min

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Type III 24-hr 10-Year Rainfall=4.60"

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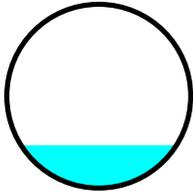
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Peak Storage= 220 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.93'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 100.0' Slope= 0.0050 '/'
Inlet Invert= 39.70', Outlet Invert= 39.20'



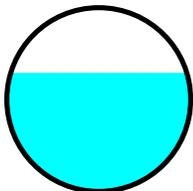
Summary for Reach P4:

Inflow Area = 19.960 ac, 60.22% Impervious, Inflow Depth > 2.40" for 10-Year event
Inflow = 44.24 cfs @ 12.10 hrs, Volume= 3.998 af
Outflow = 42.85 cfs @ 12.20 hrs, Volume= 3.984 af, Atten= 3%, Lag= 5.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.01 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 1.88 fps, Avg. Travel Time= 7.4 min

Peak Storage= 7,148 cf @ 12.15 hrs
Average Depth at Peak Storage= 2.58'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 57.47 cfs

48.0" Round Pipe
n= 0.014
Length= 835.0' Slope= 0.0019 '/'
Inlet Invert= 36.90', Outlet Invert= 35.35'



Summary for Reach POA 4:

Inflow Area = 19.960 ac, 60.22% Impervious, Inflow Depth > 2.39" for 10-Year event
Inflow = 42.85 cfs @ 12.20 hrs, Volume= 3.984 af
Outflow = 42.85 cfs @ 12.20 hrs, Volume= 3.984 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S57: Runoff Area=5.320 ac 93.98% Impervious Runoff Depth>4.68"
Tc=5.0 min CN=95 Runoff=28.17 cfs 2.073 af

Subcatchment S58: Runoff Area=2.110 ac 85.78% Impervious Runoff Depth>4.23"
Tc=5.0 min CN=91 Runoff=10.58 cfs 0.745 af

Subcatchment S59: Runoff Area=1.900 ac 80.53% Impervious Runoff Depth>3.92"
Tc=5.0 min CN=88 Runoff=9.02 cfs 0.620 af

Subcatchment S59.1: Runoff Area=1.680 ac 42.26% Impervious Runoff Depth>2.23"
Tc=5.0 min CN=70 Runoff=4.72 cfs 0.312 af

Subcatchment S60: Runoff Area=4.600 ac 51.74% Impervious Runoff Depth>2.57"
Tc=5.0 min CN=74 Runoff=14.93 cfs 0.986 af

Subcatchment S61: Runoff Area=4.350 ac 13.56% Impervious Runoff Depth>1.15"
Flow Length=700' Slope=0.0050 '/' Tc=45.9 min CN=56 Runoff=2.66 cfs 0.418 af

Reach L171: Avg. Flow Depth=3.00' Max Vel=5.37 fps Inflow=52.47 cfs 3.750 af
36.0" Round Pipe n=0.014 L=138.0' S=0.0029 '/' Capacity=33.34 cfs Outflow=33.44 cfs 3.749 af

Reach L182: Avg. Flow Depth=1.09' Max Vel=5.49 fps Inflow=15.15 cfs 1.404 af
48.0" Round Pipe n=0.014 L=100.0' S=0.0050 '/' Capacity=94.32 cfs Outflow=15.02 cfs 1.404 af

Reach P4: Avg. Flow Depth=2.75' Max Vel=5.10 fps Inflow=48.38 cfs 5.152 af
48.0" Round Pipe n=0.014 L=835.0' S=0.0019 '/' Capacity=57.47 cfs Outflow=47.12 cfs 5.135 af

Reach POA 4: Inflow=47.12 cfs 5.135 af
Outflow=47.12 cfs 5.135 af

Total Runoff Area = 19.960 ac Runoff Volume = 5.155 af Average Runoff Depth = 3.10"
39.78% Pervious = 7.940 ac 60.22% Impervious = 12.020 ac

Summary for Subcatchment S57:

Runoff = 28.17 cfs @ 12.07 hrs, Volume= 2.073 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.320	49	
* 5.000	98	
5.320	95	Weighted Average
0.320		6.02% Pervious Area
5.000		93.98% Impervious Area

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

Summary for Subcatchment S58:

Runoff = 10.58 cfs @ 12.07 hrs, Volume= 0.745 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.300	49	
* 1.810	98	
2.110	91	Weighted Average
0.300		14.22% Pervious Area
1.810		85.78% Impervious Area

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

Summary for Subcatchment S59:

Runoff = 9.02 cfs @ 12.07 hrs, Volume= 0.620 af, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.370	49	
* 1.530	98	
1.900	88	Weighted Average
0.370		19.47% Pervious Area
1.530		80.53% Impervious Area

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

Summary for Subcatchment S59.1:

Runoff = 4.72 cfs @ 12.08 hrs, Volume= 0.312 af, Depth> 2.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.970	49	
* 0.710	98	
1.680	70	Weighted Average
0.970		57.74% Pervious Area
0.710		42.26% Impervious Area

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

Summary for Subcatchment S60:

Runoff = 14.93 cfs @ 12.08 hrs, Volume= 0.986 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 2.220	49	
* 2.380	98	
4.600	74	Weighted Average
2.220		48.26% Pervious Area
2.380		51.74% Impervious Area

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

Summary for Subcatchment S61:

Runoff = 2.66 cfs @ 12.72 hrs, Volume= 0.418 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 3.760	49	
* 0.590	98	
4.350	56	Weighted Average
3.760		86.44% Pervious Area
0.590		13.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.3					Direct Entry,
1.6	700	0.0050	7.51	94.32	Pipe Channel,
					48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00'
					n= 0.014
45.9	700	Total			

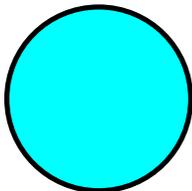
Summary for Reach L171:

Inflow Area = 11.010 ac, 82.20% Impervious, Inflow Depth > 4.09" for 25-Year event
 Inflow = 52.47 cfs @ 12.07 hrs, Volume= 3.750 af
 Outflow = 33.44 cfs @ 12.05 hrs, Volume= 3.749 af, Atten= 36%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.37 fps, Min. Travel Time= 0.4 min
 Avg. Velocity= 2.23 fps, Avg. Travel Time= 1.0 min

Peak Storage= 975 cf @ 12.05 hrs
 Average Depth at Peak Storage= 3.00'
 Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 33.34 cfs

36.0" Round Pipe
 n= 0.014
 Length= 138.0' Slope= 0.0029 '/'
 Inlet Invert= 41.70', Outlet Invert= 41.30'



Summary for Reach L182:

Inflow Area = 8.950 ac, 33.18% Impervious, Inflow Depth > 1.88" for 25-Year event
 Inflow = 15.15 cfs @ 12.08 hrs, Volume= 1.404 af
 Outflow = 15.02 cfs @ 12.09 hrs, Volume= 1.404 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.49 fps, Min. Travel Time= 0.3 min
 Avg. Velocity= 2.39 fps, Avg. Travel Time= 0.7 min

3659-12003C-Existing Conditions POA 4-01

Type III 24-hr 25-Year Rainfall=5.50"

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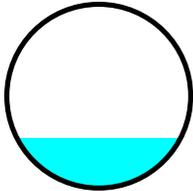
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Peak Storage= 276 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.09'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 100.0' Slope= 0.0050 '/'
Inlet Invert= 39.70', Outlet Invert= 39.20'



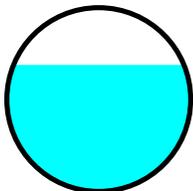
Summary for Reach P4:

Inflow Area = 19.960 ac, 60.22% Impervious, Inflow Depth > 3.10" for 25-Year event
Inflow = 48.38 cfs @ 12.09 hrs, Volume= 5.152 af
Outflow = 47.12 cfs @ 12.17 hrs, Volume= 5.135 af, Atten= 3%, Lag= 5.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.10 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 2.01 fps, Avg. Travel Time= 6.9 min

Peak Storage= 7,695 cf @ 12.13 hrs
Average Depth at Peak Storage= 2.75'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 57.47 cfs

48.0" Round Pipe
n= 0.014
Length= 835.0' Slope= 0.0019 '/'
Inlet Invert= 36.90', Outlet Invert= 35.35'



Summary for Reach POA 4:

Inflow Area = 19.960 ac, 60.22% Impervious, Inflow Depth > 3.09" for 25-Year event
Inflow = 47.12 cfs @ 12.17 hrs, Volume= 5.135 af
Outflow = 47.12 cfs @ 12.17 hrs, Volume= 5.135 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S57: Runoff Area=5.320 ac 93.98% Impervious Runoff Depth>5.77"
Tc=5.0 min CN=95 Runoff=34.34 cfs 2.557 af

Subcatchment S58: Runoff Area=2.110 ac 85.78% Impervious Runoff Depth>5.31"
Tc=5.0 min CN=91 Runoff=13.08 cfs 0.934 af

Subcatchment S59: Runoff Area=1.900 ac 80.53% Impervious Runoff Depth>4.97"
Tc=5.0 min CN=88 Runoff=11.30 cfs 0.787 af

Subcatchment S59.1: Runoff Area=1.680 ac 42.26% Impervious Runoff Depth>3.09"
Tc=5.0 min CN=70 Runoff=6.56 cfs 0.433 af

Subcatchment S60: Runoff Area=4.600 ac 51.74% Impervious Runoff Depth>3.49"
Tc=5.0 min CN=74 Runoff=20.18 cfs 1.338 af

Subcatchment S61: Runoff Area=4.350 ac 13.56% Impervious Runoff Depth>1.78"
Flow Length=700' Slope=0.0050 '/ Tc=45.9 min CN=56 Runoff=4.32 cfs 0.644 af

Reach L171: Avg. Flow Depth=3.00' Max Vel=5.33 fps Inflow=65.27 cfs 4.711 af
36.0" Round Pipe n=0.014 L=138.0' S=0.0029 '/ Capacity=33.34 cfs Outflow=33.34 cfs 4.709 af

Reach L182: Avg. Flow Depth=1.28' Max Vel=6.01 fps Inflow=20.78 cfs 1.982 af
48.0" Round Pipe n=0.014 L=100.0' S=0.0050 '/ Capacity=94.32 cfs Outflow=20.63 cfs 1.981 af

Reach P4: Avg. Flow Depth=3.00' Max Vel=5.18 fps Inflow=53.97 cfs 6.691 af
48.0" Round Pipe n=0.014 L=835.0' S=0.0019 '/ Capacity=57.47 cfs Outflow=52.23 cfs 6.670 af

Reach POA 4: Inflow=52.23 cfs 6.670 af
Outflow=52.23 cfs 6.670 af

Total Runoff Area = 19.960 ac Runoff Volume = 6.694 af Average Runoff Depth = 4.02"
39.78% Pervious = 7.940 ac 60.22% Impervious = 12.020 ac

Summary for Subcatchment S57:

Runoff = 34.34 cfs @ 12.07 hrs, Volume= 2.557 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.320	49	
* 5.000	98	
5.320	95	Weighted Average
0.320		6.02% Pervious Area
5.000		93.98% Impervious Area

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

Summary for Subcatchment S58:

Runoff = 13.08 cfs @ 12.07 hrs, Volume= 0.934 af, Depth> 5.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.300	49	
* 1.810	98	
2.110	91	Weighted Average
0.300		14.22% Pervious Area
1.810		85.78% Impervious Area

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

Summary for Subcatchment S59:

Runoff = 11.30 cfs @ 12.07 hrs, Volume= 0.787 af, Depth> 4.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.370	49	
* 1.530	98	
1.900	88	Weighted Average
0.370		19.47% Pervious Area
1.530		80.53% Impervious Area

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

Summary for Subcatchment S59.1:

Runoff = 6.56 cfs @ 12.08 hrs, Volume= 0.433 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.970	49	
* 0.710	98	
1.680	70	Weighted Average
0.970		57.74% Pervious Area
0.710		42.26% Impervious Area

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

Summary for Subcatchment S60:

Runoff = 20.18 cfs @ 12.08 hrs, Volume= 1.338 af, Depth> 3.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 2.220	49	
* 2.380	98	
4.600	74	Weighted Average
2.220		48.26% Pervious Area
2.380		51.74% Impervious Area

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

Summary for Subcatchment S61:

Runoff = 4.32 cfs @ 12.69 hrs, Volume= 0.644 af, Depth> 1.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 3.760	49	
* 0.590	98	
4.350	56	Weighted Average
3.760		86.44% Pervious Area
0.590		13.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.3					Direct Entry,
1.6	700	0.0050	7.51	94.32	Pipe Channel,
					48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00'
					n= 0.014
45.9	700	Total			

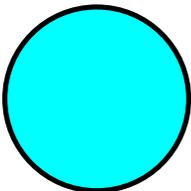
Summary for Reach L171:

Inflow Area = 11.010 ac, 82.20% Impervious, Inflow Depth > 5.14" for 100-Year event
 Inflow = 65.27 cfs @ 12.07 hrs, Volume= 4.711 af
 Outflow = 33.34 cfs @ 12.05 hrs, Volume= 4.709 af, Atten= 49%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.33 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.37 fps, Avg. Travel Time= 1.0 min

Peak Storage= 975 cf @ 12.00 hrs
 Average Depth at Peak Storage= 3.00'
 Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 33.34 cfs

36.0" Round Pipe
 n= 0.014
 Length= 138.0' Slope= 0.0029 '/'
 Inlet Invert= 41.70', Outlet Invert= 41.30'



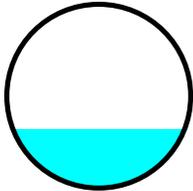
Summary for Reach L182:

Inflow Area = 8.950 ac, 33.18% Impervious, Inflow Depth > 2.66" for 100-Year event
 Inflow = 20.78 cfs @ 12.08 hrs, Volume= 1.982 af
 Outflow = 20.63 cfs @ 12.09 hrs, Volume= 1.981 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.01 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 2.56 fps, Avg. Travel Time= 0.7 min

Peak Storage= 346 cf @ 12.08 hrs
Average Depth at Peak Storage= 1.28'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 100.0' Slope= 0.0050 '/'
Inlet Invert= 39.70', Outlet Invert= 39.20'



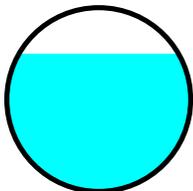
Summary for Reach P4:

Inflow Area = 19.960 ac, 60.22% Impervious, Inflow Depth > 4.02" for 100-Year event
Inflow = 53.97 cfs @ 12.09 hrs, Volume= 6.691 af
Outflow = 52.23 cfs @ 12.17 hrs, Volume= 6.670 af, Atten= 3%, Lag= 4.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.18 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 2.16 fps, Avg. Travel Time= 6.5 min

Peak Storage= 8,439 cf @ 12.12 hrs
Average Depth at Peak Storage= 3.00'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 57.47 cfs

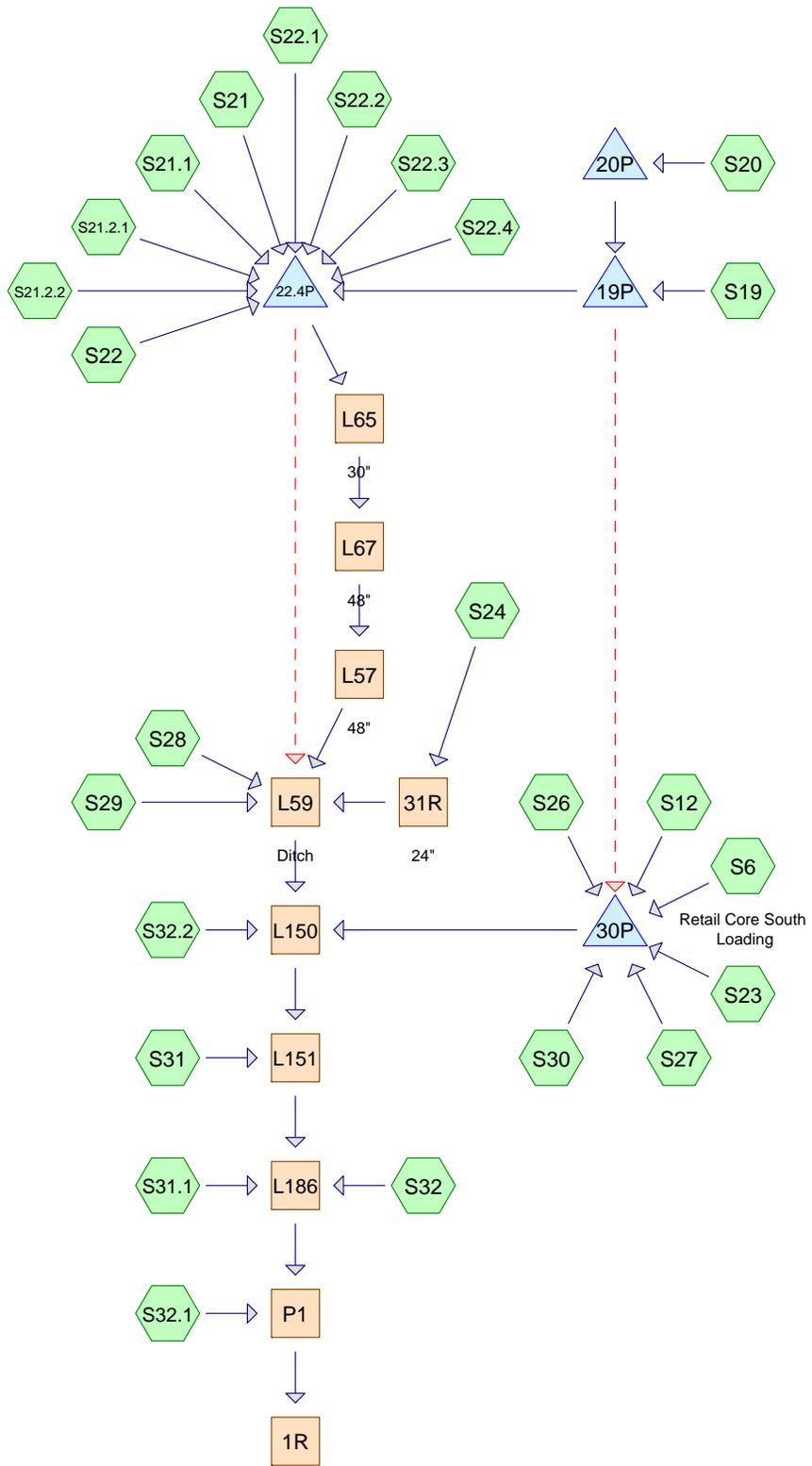
48.0" Round Pipe
n= 0.014
Length= 835.0' Slope= 0.0019 '/'
Inlet Invert= 36.90', Outlet Invert= 35.35'



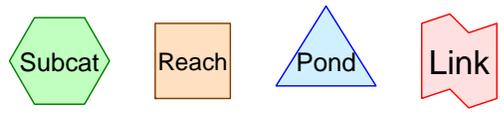
Summary for Reach POA 4:

Inflow Area = 19.960 ac, 60.22% Impervious, Inflow Depth > 4.01" for 100-Year event
Inflow = 52.23 cfs @ 12.17 hrs, Volume= 6.670 af
Outflow = 52.23 cfs @ 12.17 hrs, Volume= 6.670 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs



Point of Analysis 1



3659-12003C-Proposed Conditions POA 1-01

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
12.842	43	(S12, S19)
41.146	98	(S12, S19, S20, S21, S21.1, S21.2.1, S22, S22.1, S22.2, S22.3, S23, S24, S27, S28, S31, S31.1, S32, S32.1, S32.2)
3.360	65	(S19)
9.300	76	(S19)
10.696	49	(S21, S21.1, S21.2.1, S21.2.2, S23, S26, S30, S32.1, S32.2)
5.680	69	(S22, S22.1, S22.2, S22.3, S22.4, S28, S32)
4.940	60	(S22.4, S31.1)
0.620	89	(S28, S31.1)
0.440	79	(S31.1)
1.254	39	>75% Grass cover, Good, HSG A (S6)
6.351	61	>75% Grass cover, Good, HSG B (S27, S29, S31)
2.177	98	Paved parking, HSG A (S6)
0.695	98	Paved parking, HSG B (S29)
99.501	76	TOTAL AREA

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment S12:** Runoff Area=218,472 sf 12.42% Impervious Runoff Depth>0.10"
Flow Length=260' Slope=0.0427 '/' Tc=18.6 min CN=50 Runoff=0.10 cfs 0.042 af
- Subcatchment S19:** Runoff Area=25.790 ac 18.15% Impervious Runoff Depth>0.66"
Tc=11.4 min CN=68 Runoff=15.48 cfs 1.409 af
- Subcatchment S20:** Runoff Area=2.640 ac 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=8.25 cfs 0.622 af
- Subcatchment S21:** Runoff Area=5.517 ac 62.75% Impervious Runoff Depth>1.29"
Flow Length=640' Slope=0.0600 '/' Tc=12.1 min CN=80 Runoff=7.28 cfs 0.594 af
- Subcatchment S21.1:** Runoff Area=48,374 sf 22.82% Impervious Runoff Depth>0.35"
Flow Length=410' Tc=11.6 min CN=60 Runoff=0.25 cfs 0.033 af
- Subcatchment S21.2.1:** Runoff Area=4,774 sf 72.83% Impervious Runoff Depth>1.64"
Tc=5.0 min CN=85 Runoff=0.23 cfs 0.015 af
- Subcatchment S21.2.2:** Runoff Area=14,524 sf 0.00% Impervious Runoff Depth>0.08"
Flow Length=90' Slope=0.0070 '/' Tc=13.2 min CN=49 Runoff=0.01 cfs 0.002 af
- Subcatchment S22:** Runoff Area=3.230 ac 73.07% Impervious Runoff Depth>2.04"
Tc=5.0 min CN=90 Runoff=8.17 cfs 0.549 af
- Subcatchment S22.1:** Runoff Area=3.010 ac 65.12% Impervious Runoff Depth>1.87"
Tc=5.0 min CN=88 Runoff=7.02 cfs 0.470 af
- Subcatchment S22.2:** Runoff Area=2.220 ac 76.13% Impervious Runoff Depth>2.13"
Tc=5.0 min CN=91 Runoff=5.81 cfs 0.394 af
- Subcatchment S22.3:** Runoff Area=1.150 ac 75.65% Impervious Runoff Depth>2.13"
Tc=5.0 min CN=91 Runoff=3.01 cfs 0.204 af
- Subcatchment S22.4:** Runoff Area=4.970 ac 0.00% Impervious Runoff Depth>0.36"
Tc=5.0 min CN=60 Runoff=1.42 cfs 0.147 af
- Subcatchment S23:** Runoff Area=269,131 sf 76.11% Impervious Runoff Depth>1.71"
Tc=19.0 min CN=86 Runoff=9.14 cfs 0.878 af
- Subcatchment S24:** Runoff Area=26,018 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=1.87 cfs 0.141 af
- Subcatchment S26:** Runoff Area=138,390 sf 0.00% Impervious Runoff Depth>0.08"
Tc=5.0 min CN=49 Runoff=0.05 cfs 0.022 af
- Subcatchment S27:** Runoff Area=249,700 sf 86.24% Impervious Runoff Depth>2.31"
Tc=5.0 min CN=93 Runoff=16.01 cfs 1.104 af

Subcatchment S28:	Runoff Area=8.850 ac 69.72% Impervious Runoff Depth>2.04" Tc=5.0 min CN=90 Runoff=22.38 cfs 1.504 af
Subcatchment S29:	Runoff Area=144,253 sf 20.98% Impervious Runoff Depth>0.70" Tc=7.8 min CN=69 Runoff=2.42 cfs 0.194 af
Subcatchment S30:	Runoff Area=81,302 sf 0.00% Impervious Runoff Depth>0.08" Tc=18.3 min CN=49 Runoff=0.03 cfs 0.013 af
Subcatchment S31:	Runoff Area=170,766 sf 24.87% Impervious Runoff Depth>0.74" Tc=14.4 min CN=70 Runoff=2.58 cfs 0.243 af
Subcatchment S31.1:	Runoff Area=0.920 ac 38.04% Impervious Runoff Depth>1.64" Tc=9.2 min CN=85 Runoff=1.67 cfs 0.125 af
Subcatchment S32:	Runoff Area=63,019 sf 49.57% Impervious Runoff Depth>1.50" Tc=5.0 min CN=83 Runoff=2.73 cfs 0.180 af
Subcatchment S32.1:	Runoff Area=124,022 sf 80.54% Impervious Runoff Depth>1.87" Tc=5.0 min CN=88 Runoff=6.64 cfs 0.444 af
Subcatchment S32.2:	Runoff Area=92,636 sf 83.67% Impervious Runoff Depth>2.04" Tc=5.0 min CN=90 Runoff=5.38 cfs 0.361 af
Subcatchment S6: Retail Core South	Runoff Area=149,464 sf 63.46% Impervious Runoff Depth>1.06" Tc=5.0 min CN=76 Runoff=4.50 cfs 0.302 af
Reach 1R: Point of Analysis 1	Inflow=50.26 cfs 9.595 af Outflow=50.26 cfs 9.595 af
Reach 31R: 24"	Avg. Flow Depth=0.62' Max Vel=2.06 fps Inflow=1.87 cfs 0.141 af 24.0" Round Pipe n=0.014 L=420.0' S=0.0015 '/ Capacity=8.20 cfs Outflow=1.68 cfs 0.140 af
Reach L150:	Avg. Flow Depth=1.26' Max Vel=3.13 fps Inflow=43.80 cfs 8.651 af n=0.030 L=136.0' S=0.0043 '/ Capacity=654.46 cfs Outflow=43.14 cfs 8.641 af
Reach L151:	Avg. Flow Depth=1.23' Max Vel=5.26 fps Inflow=45.68 cfs 8.884 af n=0.030 L=155.0' S=0.0148 '/ Capacity=2,128.99 cfs Outflow=45.56 cfs 8.878 af
Reach L186:	Avg. Flow Depth=1.89' Max Vel=2.59 fps Inflow=48.35 cfs 9.184 af n=0.030 L=340.0' S=0.0020 '/ Capacity=279.47 cfs Outflow=47.43 cfs 9.152 af
Reach L57: 48"	Avg. Flow Depth=1.23' Max Vel=5.33 fps Inflow=17.47 cfs 4.074 af 48.0" Round Pipe n=0.014 L=446.0' S=0.0041 '/ Capacity=85.21 cfs Outflow=17.46 cfs 4.066 af
Reach L59: Ditch	Avg. Flow Depth=1.22' Max Vel=3.36 fps Inflow=35.54 cfs 5.904 af n=0.030 L=430.0' S=0.0053 '/ Capacity=196.83 cfs Outflow=34.30 cfs 5.884 af
Reach L65: 30"	Avg. Flow Depth=0.59' Max Vel=19.68 fps Inflow=17.47 cfs 4.077 af 30.0" Round Pipe n=0.014 L=104.0' S=0.1394 '/ Capacity=142.22 cfs Outflow=17.48 cfs 4.077 af
Reach L67: 48"	Avg. Flow Depth=1.00' Max Vel=7.12 fps Inflow=17.48 cfs 4.077 af 48.0" Round Pipe n=0.014 L=185.0' S=0.0092 '/ Capacity=127.86 cfs Outflow=17.47 cfs 4.074 af

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Reach P1: Avg. Flow Depth=0.61' Max Vel=6.92 fps Inflow=50.54 cfs 9.596 af
n=0.030 L=46.0' S=0.0435 '/ Capacity=407.83 cfs Outflow=50.26 cfs 9.595 af

Pond 19P: Peak Elev=139.31' Storage=1,830 cf Inflow=23.26 cfs 2.029 af
Primary=10.66 cfs 1.756 af Secondary=10.75 cfs 0.270 af Outflow=21.41 cfs 2.026 af

Pond 20P: Peak Elev=167.55' Storage=2,838 cf Inflow=8.25 cfs 0.622 af
24.0" Round Culvert n=0.014 L=293.0' S=0.0819 '/ Outflow=11.03 cfs 0.620 af

Pond 22.4P: Peak Elev=74.15' Storage=39,122 cf Inflow=41.20 cfs 4.163 af
Primary=17.47 cfs 4.077 af Secondary=0.00 cfs 0.000 af Outflow=17.47 cfs 4.077 af

Pond 30P: Peak Elev=49.83' Storage=49,199 cf Inflow=35.62 cfs 2.631 af
Outflow=11.11 cfs 2.406 af

Total Runoff Area = 99.501 ac Runoff Volume = 9.993 af Average Runoff Depth = 1.21"
55.76% Pervious = 55.483 ac 44.24% Impervious = 44.018 ac

Summary for Subcatchment S12:

Runoff = 0.10 cfs @ 12.94 hrs, Volume= 0.042 af, Depth> 0.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 191,337	43	
* 27,135	98	
218,472	50	Weighted Average
191,337		87.58% Pervious Area
27,135		12.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2					Direct Entry,
0.4	260	0.0427	10.10	12.40	Pipe Channel,
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.014
18.6	260	Total			

Summary for Subcatchment S19:

Runoff = 15.48 cfs @ 12.19 hrs, Volume= 1.409 af, Depth> 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 8.450	43	
* 3.360	65	
* 9.300	76	
* 4.680	98	
25.790	68	Weighted Average
21.110		81.85% Pervious Area
4.680		18.15% Impervious Area

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

Summary for Subcatchment S20:

Runoff = 8.25 cfs @ 12.07 hrs, Volume= 0.622 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
* 2.640	98	
2.640		100.00% Impervious Area

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

Summary for Subcatchment S21:

Runoff = 7.28 cfs @ 12.17 hrs, Volume= 0.594 af, Depth> 1.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 2.055	49	
* 3.462	98	
5.517	80	Weighted Average
2.055		37.25% Pervious Area
3.462		62.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5					Direct Entry,
0.6	640	0.0600	19.11	60.03	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012

12.1 640 Total

Summary for Subcatchment S21.1:

Runoff = 0.25 cfs @ 12.26 hrs, Volume= 0.033 af, Depth> 0.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 37,334	49	
* 11,040	98	
48,374	60	Weighted Average
37,334		77.18% Pervious Area
11,040		22.82% Impervious Area

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Type III 24-hr 2-Year Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	170	0.0865	4.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	140	0.1015	28.84	141.57	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
11.6	410	Total			

Summary for Subcatchment S21.2.1:

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.015 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 3,477	98	
* 1,297	49	
4,774	85	Weighted Average
1,297		27.17% Pervious Area
3,477		72.83% Impervious Area

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

Summary for Subcatchment S21.2.2:

Runoff = 0.01 cfs @ 13.78 hrs, Volume= 0.002 af, Depth> 0.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 14,524	49	
14,524		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					Direct Entry,
0.4	90	0.0070	4.11	3.23	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
13.2	90	Total			

Summary for Subcatchment S22:

Runoff = 8.17 cfs @ 12.07 hrs, Volume= 0.549 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.870	69	
* 2.360	98	
3.230	90	Weighted Average
0.870		26.93% Pervious Area
2.360		73.07% Impervious Area

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

Summary for Subcatchment S22.1:

Runoff = 7.02 cfs @ 12.08 hrs, Volume= 0.470 af, Depth> 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.050	69	
* 1.960	98	
3.010	88	Weighted Average
1.050		34.88% Pervious Area
1.960		65.12% Impervious Area

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

Summary for Subcatchment S22.2:

Runoff = 5.81 cfs @ 12.07 hrs, Volume= 0.394 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.530	69	
* 1.690	98	
2.220	91	Weighted Average
0.530		23.87% Pervious Area
1.690		76.13% Impervious Area

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Type III 24-hr 2-Year Rainfall=3.20"

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

Summary for Subcatchment S22.3:

Runoff = 3.01 cfs @ 12.07 hrs, Volume= 0.204 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.280	69	
* 0.870	98	
1.150	91	Weighted Average
0.280		24.35% Pervious Area
0.870		75.65% Impervious Area

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

Summary for Subcatchment S22.4:

Runoff = 1.42 cfs @ 12.12 hrs, Volume= 0.147 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.100	69	
* 4.870	60	
4.970	60	Weighted Average
4.970		100.00% Pervious Area

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

Summary for Subcatchment S23:

Runoff = 9.14 cfs @ 12.26 hrs, Volume= 0.878 af, Depth> 1.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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	Area (sf)	CN	Description
*	64,303	49	
*	204,828	98	
	269,131	86	Weighted Average
	64,303		23.89% Pervious Area
	204,828		76.11% Impervious Area

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

Summary for Subcatchment S24:

Runoff = 1.87 cfs @ 12.07 hrs, Volume= 0.141 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	26,018	98	
	26,018		100.00% Impervious Area

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

Summary for Subcatchment S26:

Runoff = 0.05 cfs @ 13.65 hrs, Volume= 0.022 af, Depth> 0.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	138,390	49	
	138,390		100.00% Pervious Area

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

Summary for Subcatchment S27:

Runoff = 16.01 cfs @ 12.07 hrs, Volume= 1.104 af, Depth> 2.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Type III 24-hr 2-Year Rainfall=3.20"

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Area (sf)	CN	Description
34,357	61	>75% Grass cover, Good, HSG B
* 215,343	98	
249,700	93	Weighted Average
34,357		13.76% Pervious Area
215,343		86.24% Impervious Area

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

Summary for Subcatchment S28:

Runoff = 22.38 cfs @ 12.07 hrs, Volume= 1.504 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 2.120	69	
* 0.560	89	
* 6.170	98	
8.850	90	Weighted Average
2.680		30.28% Pervious Area
6.170		69.72% Impervious Area

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

Summary for Subcatchment S29:

Runoff = 2.42 cfs @ 12.13 hrs, Volume= 0.194 af, Depth> 0.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
113,984	61	>75% Grass cover, Good, HSG B
30,269	98	Paved parking, HSG B
144,253	69	Weighted Average
113,984		79.02% Pervious Area
30,269		20.98% Impervious Area

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

Summary for Subcatchment S30:

Runoff = 0.03 cfs @ 13.86 hrs, Volume= 0.013 af, Depth> 0.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 81,302	49	
81,302		100.00% Pervious Area

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

Summary for Subcatchment S31:

Runoff = 2.58 cfs @ 12.22 hrs, Volume= 0.243 af, Depth> 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
128,293	61	>75% Grass cover, Good, HSG B
* 42,473	98	
170,766	70	Weighted Average
128,293		75.13% Pervious Area
42,473		24.87% Impervious Area

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

Summary for Subcatchment S31.1:

Runoff = 1.67 cfs @ 12.13 hrs, Volume= 0.125 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.070	60	
* 0.440	79	
* 0.060	89	
* 0.350	98	
0.920	85	Weighted Average
0.570		61.96% Pervious Area
0.350		38.04% Impervious Area

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Type III 24-hr 2-Year Rainfall=3.20"

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

Summary for Subcatchment S32:

Runoff = 2.73 cfs @ 12.08 hrs, Volume= 0.180 af, Depth> 1.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 31,783	69	
* 31,236	98	
63,019	83	Weighted Average
31,783		50.43% Pervious Area
31,236		49.57% Impervious Area

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

Summary for Subcatchment S32.1:

Runoff = 6.64 cfs @ 12.08 hrs, Volume= 0.444 af, Depth> 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 24,135	49	
* 99,887	98	
124,022	88	Weighted Average
24,135		19.46% Pervious Area
99,887		80.54% Impervious Area

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

Summary for Subcatchment S32.2:

Runoff = 5.38 cfs @ 12.07 hrs, Volume= 0.361 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	15,123	49	
*	77,513	98	
	92,636	90	Weighted Average
	15,123		16.33% Pervious Area
	77,513		83.67% Impervious Area

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

Summary for Subcatchment S6: Retail Core South Loading

Runoff = 4.50 cfs @ 12.08 hrs, Volume= 0.302 af, Depth> 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
54,621	39	>75% Grass cover, Good, HSG A
94,843	98	Paved parking, HSG A
149,464	76	Weighted Average
54,621		36.54% Pervious Area
94,843		63.46% Impervious Area

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

Summary for Reach 1R: Point of Analysis 1

Inflow Area = 99.501 ac, 44.24% Impervious, Inflow Depth > 1.16" for 2-Year event
 Inflow = 50.26 cfs @ 12.28 hrs, Volume= 9.595 af
 Outflow = 50.26 cfs @ 12.28 hrs, Volume= 9.595 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

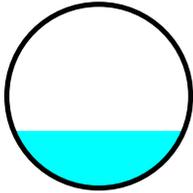
Summary for Reach 31R: 24"

Inflow Area = 0.597 ac, 100.00% Impervious, Inflow Depth > 2.83" for 2-Year event
 Inflow = 1.87 cfs @ 12.07 hrs, Volume= 0.141 af
 Outflow = 1.68 cfs @ 12.17 hrs, Volume= 0.140 af, Atten= 10%, Lag= 5.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.06 fps, Min. Travel Time= 3.4 min
 Avg. Velocity = 0.72 fps, Avg. Travel Time= 9.7 min

Peak Storage= 347 cf @ 12.11 hrs
 Average Depth at Peak Storage= 0.62'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 8.20 cfs

24.0" Round Pipe
n= 0.014
Length= 420.0' Slope= 0.0015 '/'
Inlet Invert= 47.70', Outlet Invert= 47.06'



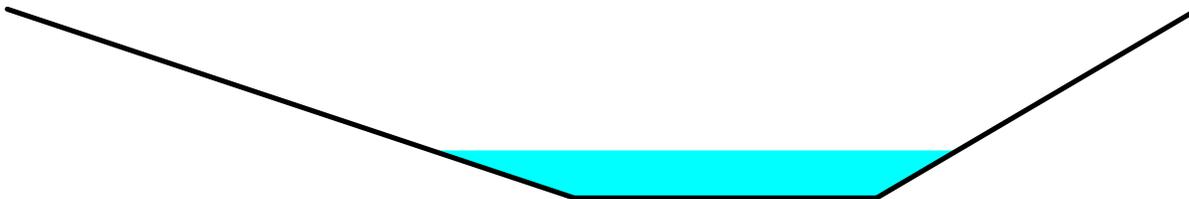
Summary for Reach L150:

Inflow Area = 90.367 ac, 43.91% Impervious, Inflow Depth > 1.15" for 2-Year event
Inflow = 43.80 cfs @ 12.17 hrs, Volume= 8.651 af
Outflow = 43.14 cfs @ 12.20 hrs, Volume= 8.641 af, Atten= 2%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.13 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.22 fps, Avg. Travel Time= 1.9 min

Peak Storage= 1,880 cf @ 12.18 hrs
Average Depth at Peak Storage= 1.26'
Bank-Full Depth= 5.00' Flow Area= 98.8 sf, Capacity= 654.46 cfs

8.00' x 5.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 1.7 '/' Top Width= 31.50'
Length= 136.0' Slope= 0.0043 '/'
Inlet Invert= 48.58', Outlet Invert= 48.00'



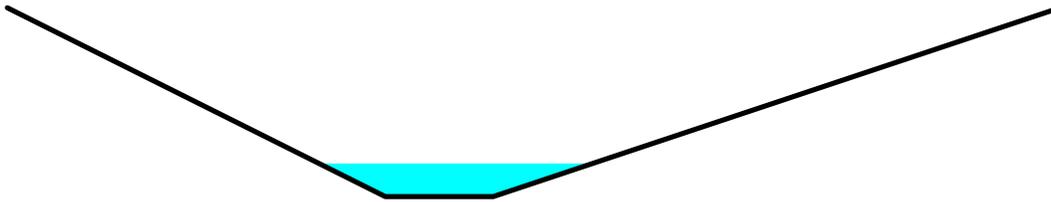
Summary for Reach L151:

Inflow Area = 94.287 ac, 43.12% Impervious, Inflow Depth > 1.13" for 2-Year event
Inflow = 45.68 cfs @ 12.20 hrs, Volume= 8.884 af
Outflow = 45.56 cfs @ 12.22 hrs, Volume= 8.878 af, Atten= 0%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.26 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.23 fps, Avg. Travel Time= 1.2 min

Peak Storage= 1,348 cf @ 12.21 hrs
Average Depth at Peak Storage= 1.23'
Bank-Full Depth= 7.00' Flow Area= 150.5 sf, Capacity= 2,128.99 cfs

4.00' x 7.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 3.0 '/' Top Width= 39.00'
Length= 155.0' Slope= 0.0148 '/'
Inlet Invert= 48.00', Outlet Invert= 45.71'



Summary for Reach L186:

Inflow Area = 96.654 ac, 43.17% Impervious, Inflow Depth > 1.14" for 2-Year event
Inflow = 48.35 cfs @ 12.21 hrs, Volume= 9.184 af
Outflow = 47.43 cfs @ 12.28 hrs, Volume= 9.152 af, Atten= 2%, Lag= 4.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.59 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 1.02 fps, Avg. Travel Time= 5.6 min

Peak Storage= 6,268 cf @ 12.24 hrs
Average Depth at Peak Storage= 1.89'
Bank-Full Depth= 4.50' Flow Area= 67.5 sf, Capacity= 279.47 cfs

6.00' x 4.50' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 24.00'
Length= 340.0' Slope= 0.0020 '/'
Inlet Invert= 45.71', Outlet Invert= 45.04'



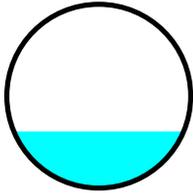
Summary for Reach L57: 48"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 0.98" for 2-Year event
Inflow = 17.47 cfs @ 12.52 hrs, Volume= 4.074 af
Outflow = 17.46 cfs @ 12.56 hrs, Volume= 4.066 af, Atten= 0%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.33 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 2.32 fps, Avg. Travel Time= 3.2 min

Peak Storage= 1,461 cf @ 12.54 hrs
Average Depth at Peak Storage= 1.23'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 85.21 cfs

48.0" Round Pipe
n= 0.014
Length= 446.0' Slope= 0.0041 '/'
Inlet Invert= 49.00', Outlet Invert= 47.18'



Summary for Reach L59: Ditch

Inflow Area = 62.839 ac, 40.51% Impervious, Inflow Depth > 1.13" for 2-Year event
Inflow = 35.54 cfs @ 12.10 hrs, Volume= 5.904 af
Outflow = 34.30 cfs @ 12.17 hrs, Volume= 5.884 af, Atten= 3%, Lag= 4.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.36 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 5.8 min

Peak Storage= 4,433 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.22'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 196.83 cfs

6.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 18.00'
Length= 430.0' Slope= 0.0053 '/'
Inlet Invert= 48.58', Outlet Invert= 46.28'



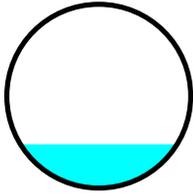
Summary for Reach L65: 30"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 0.98" for 2-Year event
Inflow = 17.47 cfs @ 12.51 hrs, Volume= 4.077 af
Outflow = 17.48 cfs @ 12.51 hrs, Volume= 4.077 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 19.68 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 8.59 fps, Avg. Travel Time= 0.2 min

Peak Storage= 92 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.59'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 142.22 cfs

30.0" Round Pipe
n= 0.014
Length= 104.0' Slope= 0.1394 '/'
Inlet Invert= 71.00', Outlet Invert= 56.50'



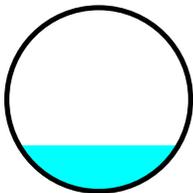
Summary for Reach L67: 48"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 0.98" for 2-Year event
Inflow = 17.48 cfs @ 12.51 hrs, Volume= 4.077 af
Outflow = 17.47 cfs @ 12.52 hrs, Volume= 4.074 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.12 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 3.10 fps, Avg. Travel Time= 1.0 min

Peak Storage= 454 cf @ 12.51 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 127.86 cfs

48.0" Round Pipe
n= 0.014
Length= 185.0' Slope= 0.0092 '/'
Inlet Invert= 50.70', Outlet Invert= 49.00'



Summary for Reach P1:

Inflow Area = 99.501 ac, 44.24% Impervious, Inflow Depth > 1.16" for 2-Year event
Inflow = 50.54 cfs @ 12.27 hrs, Volume= 9.596 af
Outflow = 50.26 cfs @ 12.28 hrs, Volume= 9.595 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.92 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.42 fps, Avg. Travel Time= 0.3 min

Peak Storage= 335 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.61'
Bank-Full Depth= 2.33' Flow Area= 28.0 sf, Capacity= 407.83 cfs

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12.00' x 2.33' deep channel, n= 0.030
 Length= 46.0' Slope= 0.0435 '/'
 Inlet Invert= 43.00', Outlet Invert= 41.00'



Summary for Pond 19P:

Inflow Area = 28.430 ac, 25.75% Impervious, Inflow Depth > 0.86" for 2-Year event
 Inflow = 23.26 cfs @ 12.11 hrs, Volume= 2.029 af
 Outflow = 21.41 cfs @ 12.14 hrs, Volume= 2.026 af, Atten= 8%, Lag= 1.7 min
 Primary = 10.66 cfs @ 12.14 hrs, Volume= 1.756 af
 Secondary = 10.75 cfs @ 12.14 hrs, Volume= 0.270 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 139.31' @ 12.14 hrs Surf.Area= 2,248 sf Storage= 1,830 cf

Plug-Flow detention time= 2.5 min calculated for 2.026 af (100% of inflow)
 Center-of-Mass det. time= 1.9 min (809.6 - 807.7)

Volume	Invert	Avail.Storage	Storage Description
#1	137.80'	30,987 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.80	174	0	0
138.30	860	259	259
138.80	1,546	602	860
139.30	2,232	945	1,805
139.80	2,919	1,288	3,092
140.30	3,605	1,631	4,723
140.80	4,291	1,974	6,697
141.30	4,977	2,317	9,014
141.80	5,663	2,660	11,674
148.00	567	19,313	30,987

Device	Routing	Invert	Outlet Devices
#1	Primary	137.80'	24.0" Round Culvert L= 612.0' Ke= 0.500 Inlet / Outlet Invert= 137.80' / 105.30' S= 0.0531 '/' Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	139.00'	23.0' long x 18.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=10.61 cfs @ 12.14 hrs HW=139.31' (Free Discharge)

↑1=Culvert (Inlet Controls 10.61 cfs @ 4.18 fps)

Secondary OutFlow Max=10.50 cfs @ 12.14 hrs HW=139.31' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Weir Controls 10.50 cfs @ 1.49 fps)

Summary for Pond 20P:

Inflow Area = 2.640 ac, 100.00% Impervious, Inflow Depth > 2.83" for 2-Year event
 Inflow = 8.25 cfs @ 12.07 hrs, Volume= 0.622 af
 Outflow = 11.03 cfs @ 12.10 hrs, Volume= 0.620 af, Atten= 0%, Lag= 1.7 min
 Primary = 11.03 cfs @ 12.10 hrs, Volume= 0.620 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 167.55' @ 12.10 hrs Surf.Area= 4,356 sf Storage= 2,838 cf

Plug-Flow detention time= 13.1 min calculated for 0.618 af (99% of inflow)
 Center-of-Mass det. time= 11.3 min (739.2 - 727.9)

Volume	Invert	Avail.Storage	Storage Description
#1	166.00'	2,838 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
166.00	0	0	0
166.25	2,875	359	359
166.50	3,790	833	1,193
166.75	4,225	1,002	2,194
166.90	4,356	644	2,838

Device	Routing	Invert	Outlet Devices
#1	Primary	166.00'	24.0" Round Culvert L= 293.0' Ke= 0.500 Inlet / Outlet Invert= 166.00' / 142.00' S= 0.0819 1/ S Cc= 0.900 n= 0.014, Flow Area= 3.14 sf

Primary OutFlow Max=10.97 cfs @ 12.10 hrs HW=167.54' (Free Discharge)

↑1=Culvert (Inlet Controls 10.97 cfs @ 4.23 fps)

Summary for Pond 22.4P:

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 1.00" for 2-Year event
 Inflow = 41.20 cfs @ 12.10 hrs, Volume= 4.163 af
 Outflow = 17.47 cfs @ 12.51 hrs, Volume= 4.077 af, Atten= 58%, Lag= 24.4 min
 Primary = 17.47 cfs @ 12.51 hrs, Volume= 4.077 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 74.15' @ 12.51 hrs Surf.Area= 22,559 sf Storage= 39,122 cf

Plug-Flow detention time= 34.1 min calculated for 4.077 af (98% of inflow)

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Center-of-Mass det. time= 26.3 min (829.1 - 802.8)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	233,786 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	5,227	0	0
71.25	5,793	1,378	1,378
71.50	6,360	1,519	2,897
71.75	6,926	1,661	4,557
72.00	7,492	1,802	6,360
72.25	9,295	2,098	8,458
72.50	11,097	2,549	11,007
72.75	12,899	3,000	14,007
73.00	14,702	3,450	17,457
73.25	16,504	3,901	21,357
73.50	18,306	4,351	25,709
73.75	20,108	4,802	30,510
74.00	21,911	5,252	35,763
74.25	22,983	5,612	41,375
74.50	24,056	5,880	47,254
74.75	25,129	6,148	53,403
75.00	26,201	6,416	59,819
75.25	27,274	6,684	66,503
75.50	28,347	6,953	73,456
75.75	29,419	7,221	80,677
76.00	30,492	7,489	88,165
76.25	31,478	7,746	95,912
76.50	32,463	7,993	103,904
76.75	33,449	8,239	112,143
77.00	34,434	8,485	120,629
77.25	35,420	8,732	129,360
77.50	36,405	8,978	138,339
77.75	37,391	9,225	147,563
78.00	38,376	9,471	157,034
79.00	38,376	38,376	195,410
80.00	38,376	38,376	233,786

Device	Routing	Invert	Outlet Devices
#1	Secondary	79.00'	12.0' long x 37.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	71.00'	21.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 71.00' / 70.99' S= 0.0100 1/'' Cc= 0.900 n= 0.005, Flow Area= 2.41 sf

Primary OutFlow Max=17.47 cfs @ 12.51 hrs HW=74.15' (Free Discharge)
 ↳ **2=Culvert** (Inlet Controls 17.47 cfs @ 7.26 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 30P:

Inflow Area = 25.401 ac, 49.00% Impervious, Inflow Depth > 1.24" for 2-Year event
 Inflow = 35.62 cfs @ 12.11 hrs, Volume= 2.631 af
 Outflow = 11.11 cfs @ 12.54 hrs, Volume= 2.406 af, Atten= 69%, Lag= 25.4 min
 Primary = 11.11 cfs @ 12.54 hrs, Volume= 2.406 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 49.83' @ 12.54 hrs Surf.Area= 60,820 sf Storage= 49,199 cf

Plug-Flow detention time= 100.2 min calculated for 2.406 af (91% of inflow)
 Center-of-Mass det. time= 71.5 min (853.5 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	49.00'	264,538 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.00	57,194	0	0
50.00	61,543	59,369	59,369
51.00	66,022	63,783	123,151
52.00	70,631	68,327	191,478
53.00	75,490	73,061	264,538

Device	Routing	Invert	Outlet Devices
#1	Primary	49.00'	90.0 deg x 4.0' long x 2.00' rise Sharp-Crested Vee/Trap Weir Cv= 2.50 (C= 3.13)
#2	Primary	52.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=11.09 cfs @ 12.54 hrs HW=49.83' (Free Discharge)

- ↑1=Sharp-Crested Vee/Trap Weir (Weir Controls 11.09 cfs @ 2.75 fps)
- └2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment S12:** Runoff Area=218,472 sf 12.42% Impervious Runoff Depth>0.46"
 Flow Length=260' Slope=0.0427 '/' Tc=18.6 min CN=50 Runoff=1.27 cfs 0.192 af
- Subcatchment S19:** Runoff Area=25.790 ac 18.15% Impervious Runoff Depth>1.46"
 Tc=11.4 min CN=68 Runoff=38.41 cfs 3.139 af
- Subcatchment S20:** Runoff Area=2.640 ac 100.00% Impervious Runoff Depth>4.16"
 Tc=5.0 min CN=98 Runoff=11.95 cfs 0.916 af
- Subcatchment S21:** Runoff Area=5.517 ac 62.75% Impervious Runoff Depth>2.37"
 Flow Length=640' Slope=0.0600 '/' Tc=12.1 min CN=80 Runoff=13.42 cfs 1.090 af
- Subcatchment S21.1:** Runoff Area=48,374 sf 22.82% Impervious Runoff Depth>0.96"
 Flow Length=410' Tc=11.6 min CN=60 Runoff=0.98 cfs 0.089 af
- Subcatchment S21.2.1:** Runoff Area=4,774 sf 72.83% Impervious Runoff Depth>2.82"
 Tc=5.0 min CN=85 Runoff=0.38 cfs 0.026 af
- Subcatchment S21.2.2:** Runoff Area=14,524 sf 0.00% Impervious Runoff Depth>0.42"
 Flow Length=90' Slope=0.0070 '/' Tc=13.2 min CN=49 Runoff=0.08 cfs 0.012 af
- Subcatchment S22:** Runoff Area=3.230 ac 73.07% Impervious Runoff Depth>3.30"
 Tc=5.0 min CN=90 Runoff=12.90 cfs 0.888 af
- Subcatchment S22.1:** Runoff Area=3.010 ac 65.12% Impervious Runoff Depth>3.10"
 Tc=5.0 min CN=88 Runoff=11.46 cfs 0.778 af
- Subcatchment S22.2:** Runoff Area=2.220 ac 76.13% Impervious Runoff Depth>3.40"
 Tc=5.0 min CN=91 Runoff=9.06 cfs 0.629 af
- Subcatchment S22.3:** Runoff Area=1.150 ac 75.65% Impervious Runoff Depth>3.40"
 Tc=5.0 min CN=91 Runoff=4.69 cfs 0.326 af
- Subcatchment S22.4:** Runoff Area=4.970 ac 0.00% Impervious Runoff Depth>0.97"
 Tc=5.0 min CN=60 Runoff=5.48 cfs 0.400 af
- Subcatchment S23:** Runoff Area=269,131 sf 76.11% Impervious Runoff Depth>2.90"
 Tc=19.0 min CN=86 Runoff=15.30 cfs 1.492 af
- Subcatchment S24:** Runoff Area=26,018 sf 100.00% Impervious Runoff Depth>4.16"
 Tc=5.0 min CN=98 Runoff=2.70 cfs 0.207 af
- Subcatchment S26:** Runoff Area=138,390 sf 0.00% Impervious Runoff Depth>0.42"
 Tc=5.0 min CN=49 Runoff=0.84 cfs 0.112 af
- Subcatchment S27:** Runoff Area=249,700 sf 86.24% Impervious Runoff Depth>3.61"
 Tc=5.0 min CN=93 Runoff=24.32 cfs 1.724 af

Subcatchment S28:	Runoff Area=8.850 ac 69.72% Impervious Runoff Depth>3.30" Tc=5.0 min CN=90 Runoff=35.34 cfs 2.433 af
Subcatchment S29:	Runoff Area=144,253 sf 20.98% Impervious Runoff Depth>1.53" Tc=7.8 min CN=69 Runoff=5.81 cfs 0.423 af
Subcatchment S30:	Runoff Area=81,302 sf 0.00% Impervious Runoff Depth>0.42" Tc=18.3 min CN=49 Runoff=0.41 cfs 0.065 af
Subcatchment S31:	Runoff Area=170,766 sf 24.87% Impervious Runoff Depth>1.60" Tc=14.4 min CN=70 Runoff=5.94 cfs 0.522 af
Subcatchment S31.1:	Runoff Area=0.920 ac 38.04% Impervious Runoff Depth>2.81" Tc=9.2 min CN=85 Runoff=2.83 cfs 0.216 af
Subcatchment S32:	Runoff Area=63,019 sf 49.57% Impervious Runoff Depth>2.64" Tc=5.0 min CN=83 Runoff=4.76 cfs 0.318 af
Subcatchment S32.1:	Runoff Area=124,022 sf 80.54% Impervious Runoff Depth>3.10" Tc=5.0 min CN=88 Runoff=10.84 cfs 0.736 af
Subcatchment S32.2:	Runoff Area=92,636 sf 83.67% Impervious Runoff Depth>3.30" Tc=5.0 min CN=90 Runoff=8.49 cfs 0.585 af
Subcatchment S6: Retail Core South	Runoff Area=149,464 sf 63.46% Impervious Runoff Depth>2.05" Tc=5.0 min CN=76 Runoff=8.87 cfs 0.586 af
Reach 1R: Point of Analysis 1	Inflow=91.09 cfs 17.360 af Outflow=91.09 cfs 17.360 af
Reach 31R: 24"	Avg. Flow Depth=0.76' Max Vel=2.29 fps Inflow=2.70 cfs 0.207 af 24.0" Round Pipe n=0.014 L=420.0' S=0.0015 '/ Capacity=8.20 cfs Outflow=2.49 cfs 0.207 af
Reach L150:	Avg. Flow Depth=1.73' Max Vel=3.72 fps Inflow=78.09 cfs 15.637 af n=0.030 L=136.0' S=0.0043 '/ Capacity=654.46 cfs Outflow=76.84 cfs 15.624 af
Reach L151:	Avg. Flow Depth=1.65' Max Vel=6.18 fps Inflow=82.70 cfs 16.145 af n=0.030 L=155.0' S=0.0148 '/ Capacity=2,128.99 cfs Outflow=82.55 cfs 16.136 af
Reach L186:	Avg. Flow Depth=2.57' Max Vel=3.05 fps Inflow=87.48 cfs 16.669 af n=0.030 L=340.0' S=0.0020 '/ Capacity=279.47 cfs Outflow=86.39 cfs 16.627 af
Reach L57: 48"	Avg. Flow Depth=1.40' Max Vel=5.71 fps Inflow=22.35 cfs 7.090 af 48.0" Round Pipe n=0.014 L=446.0' S=0.0041 '/ Capacity=85.21 cfs Outflow=22.34 cfs 7.078 af
Reach L59: Ditch	Avg. Flow Depth=1.60' Max Vel=3.89 fps Inflow=58.33 cfs 10.140 af n=0.030 L=430.0' S=0.0053 '/ Capacity=196.83 cfs Outflow=55.96 cfs 10.112 af
Reach L65: 30"	Avg. Flow Depth=0.67' Max Vel=21.12 fps Inflow=22.35 cfs 7.095 af 30.0" Round Pipe n=0.014 L=104.0' S=0.1394 '/ Capacity=142.22 cfs Outflow=22.36 cfs 7.094 af
Reach L67: 48"	Avg. Flow Depth=1.13' Max Vel=7.65 fps Inflow=22.36 cfs 7.094 af 48.0" Round Pipe n=0.014 L=185.0' S=0.0092 '/ Capacity=127.86 cfs Outflow=22.35 cfs 7.090 af

Reach P1: Avg. Flow Depth=0.88' Max Vel=8.65 fps Inflow=91.15 cfs 17.362 af
n=0.030 L=46.0' S=0.0435 '/ Outflow=91.09 cfs 17.360 af

Pond 19P: Peak Elev=139.65' Storage=2,662 cf Inflow=46.96 cfs 4.052 af
Primary=14.02 cfs 2.976 af Secondary=32.17 cfs 1.070 af Outflow=46.19 cfs 4.047 af

Pond 20P: Peak Elev=167.70' Storage=2,838 cf Inflow=11.95 cfs 0.916 af
24.0" Round Culvert n=0.014 L=293.0' S=0.0819 '/ Outflow=12.67 cfs 0.912 af

Pond 22.4P: Peak Elev=75.60' Storage=76,288 cf Inflow=67.81 cfs 7.213 af
Primary=22.35 cfs 7.095 af Secondary=0.00 cfs 0.000 af Outflow=22.35 cfs 7.095 af

Pond 30P: Peak Elev=50.51' Storage=91,140 cf Inflow=71.33 cfs 5.241 af
Outflow=30.09 cfs 4.940 af

Total Runoff Area = 99.501 ac Runoff Volume = 17.902 af Average Runoff Depth = 2.16"
55.76% Pervious = 55.483 ac 44.24% Impervious = 44.018 ac

Summary for Subcatchment S12:

Runoff = 1.27 cfs @ 12.43 hrs, Volume= 0.192 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 191,337	43	
* 27,135	98	
218,472	50	Weighted Average
191,337		87.58% Pervious Area
27,135		12.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2					Direct Entry,
0.4	260	0.0427	10.10	12.40	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014
18.6	260	Total			

Summary for Subcatchment S19:

Runoff = 38.41 cfs @ 12.17 hrs, Volume= 3.139 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 8.450	43	
* 3.360	65	
* 9.300	76	
* 4.680	98	
25.790	68	Weighted Average
21.110		81.85% Pervious Area
4.680		18.15% Impervious Area

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

Summary for Subcatchment S20:

Runoff = 11.95 cfs @ 12.07 hrs, Volume= 0.916 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
* 2.640	98	
2.640		100.00% Impervious Area

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

Summary for Subcatchment S21:

Runoff = 13.42 cfs @ 12.17 hrs, Volume= 1.090 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 2.055	49	
* 3.462	98	
5.517	80	Weighted Average
2.055		37.25% Pervious Area
3.462		62.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5					Direct Entry,
0.6	640	0.0600	19.11	60.03	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012

12.1 640 Total

Summary for Subcatchment S21.1:

Runoff = 0.98 cfs @ 12.19 hrs, Volume= 0.089 af, Depth> 0.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 37,334	49	
* 11,040	98	
48,374	60	Weighted Average
37,334		77.18% Pervious Area
11,040		22.82% Impervious Area

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Type III 24-hr 10-Year Rainfall=4.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	170	0.0865	4.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	140	0.1015	28.84	141.57	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
11.6	410	Total			

Summary for Subcatchment S21.2.1:

Runoff = 0.38 cfs @ 12.07 hrs, Volume= 0.026 af, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 3,477	98	
* 1,297	49	
4,774	85	Weighted Average
1,297		27.17% Pervious Area
3,477		72.83% Impervious Area

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

Summary for Subcatchment S21.2.2:

Runoff = 0.08 cfs @ 12.37 hrs, Volume= 0.012 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 14,524	49	
14,524		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					Direct Entry,
0.4	90	0.0070	4.11	3.23	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
13.2	90	Total			

Summary for Subcatchment S22:

Runoff = 12.90 cfs @ 12.07 hrs, Volume= 0.888 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.870	69	
* 2.360	98	
3.230	90	Weighted Average
0.870		26.93% Pervious Area
2.360		73.07% Impervious Area

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

Summary for Subcatchment S22.1:

Runoff = 11.46 cfs @ 12.07 hrs, Volume= 0.778 af, Depth> 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.050	69	
* 1.960	98	
3.010	88	Weighted Average
1.050		34.88% Pervious Area
1.960		65.12% Impervious Area

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

Summary for Subcatchment S22.2:

Runoff = 9.06 cfs @ 12.07 hrs, Volume= 0.629 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.530	69	
* 1.690	98	
2.220	91	Weighted Average
0.530		23.87% Pervious Area
1.690		76.13% Impervious Area

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

Summary for Subcatchment S22.3:

Runoff = 4.69 cfs @ 12.07 hrs, Volume= 0.326 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.280	69	
* 0.870	98	
1.150	91	Weighted Average
0.280		24.35% Pervious Area
0.870		75.65% Impervious Area

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

Summary for Subcatchment S22.4:

Runoff = 5.48 cfs @ 12.09 hrs, Volume= 0.400 af, Depth> 0.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.100	69	
* 4.870	60	
4.970	60	Weighted Average
4.970		100.00% Pervious Area

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

Summary for Subcatchment S23:

Runoff = 15.30 cfs @ 12.26 hrs, Volume= 1.492 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	64,303	49	
*	204,828	98	
	269,131	86	Weighted Average
	64,303		23.89% Pervious Area
	204,828		76.11% Impervious Area

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

Summary for Subcatchment S24:

Runoff = 2.70 cfs @ 12.07 hrs, Volume= 0.207 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	26,018	98	
	26,018		100.00% Impervious Area

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

Summary for Subcatchment S26:

Runoff = 0.84 cfs @ 12.15 hrs, Volume= 0.112 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	138,390	49	
	138,390		100.00% Pervious Area

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

Summary for Subcatchment S27:

Runoff = 24.32 cfs @ 12.07 hrs, Volume= 1.724 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (sf)	CN	Description
34,357	61	>75% Grass cover, Good, HSG B
* 215,343	98	
249,700	93	Weighted Average
34,357		13.76% Pervious Area
215,343		86.24% Impervious Area

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

Summary for Subcatchment S28:

Runoff = 35.34 cfs @ 12.07 hrs, Volume= 2.433 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 2.120	69	
* 0.560	89	
* 6.170	98	
8.850	90	Weighted Average
2.680		30.28% Pervious Area
6.170		69.72% Impervious Area

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

Summary for Subcatchment S29:

Runoff = 5.81 cfs @ 12.12 hrs, Volume= 0.423 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
113,984	61	>75% Grass cover, Good, HSG B
30,269	98	Paved parking, HSG B
144,253	69	Weighted Average
113,984		79.02% Pervious Area
30,269		20.98% Impervious Area

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

Summary for Subcatchment S30:

Runoff = 0.41 cfs @ 12.45 hrs, Volume= 0.065 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 81,302	49	
81,302		100.00% Pervious Area

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

Summary for Subcatchment S31:

Runoff = 5.94 cfs @ 12.21 hrs, Volume= 0.522 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
128,293	61	>75% Grass cover, Good, HSG B
* 42,473	98	
170,766	70	Weighted Average
128,293		75.13% Pervious Area
42,473		24.87% Impervious Area

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

Summary for Subcatchment S31.1:

Runoff = 2.83 cfs @ 12.13 hrs, Volume= 0.216 af, Depth> 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.070	60	
* 0.440	79	
* 0.060	89	
* 0.350	98	
0.920	85	Weighted Average
0.570		61.96% Pervious Area
0.350		38.04% Impervious Area

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

Summary for Subcatchment S32:

Runoff = 4.76 cfs @ 12.08 hrs, Volume= 0.318 af, Depth> 2.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 31,783	69	
* 31,236	98	
63,019	83	Weighted Average
31,783		50.43% Pervious Area
31,236		49.57% Impervious Area

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

Summary for Subcatchment S32.1:

Runoff = 10.84 cfs @ 12.07 hrs, Volume= 0.736 af, Depth> 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 24,135	49	
* 99,887	98	
124,022	88	Weighted Average
24,135		19.46% Pervious Area
99,887		80.54% Impervious Area

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

Summary for Subcatchment S32.2:

Runoff = 8.49 cfs @ 12.07 hrs, Volume= 0.585 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	15,123	49	
*	77,513	98	
	92,636	90	Weighted Average
	15,123		16.33% Pervious Area
	77,513		83.67% Impervious Area

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

Summary for Subcatchment S6: Retail Core South Loading

Runoff = 8.87 cfs @ 12.08 hrs, Volume= 0.586 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
54,621	39	>75% Grass cover, Good, HSG A
94,843	98	Paved parking, HSG A
149,464	76	Weighted Average
54,621		36.54% Pervious Area
94,843		63.46% Impervious Area

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

Summary for Reach 1R: Point of Analysis 1

Inflow Area = 99.501 ac, 44.24% Impervious, Inflow Depth > 2.09" for 10-Year event
 Inflow = 91.09 cfs @ 12.25 hrs, Volume= 17.360 af
 Outflow = 91.09 cfs @ 12.25 hrs, Volume= 17.360 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

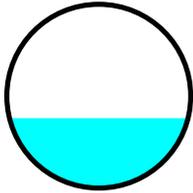
Summary for Reach 31R: 24"

Inflow Area = 0.597 ac, 100.00% Impervious, Inflow Depth > 4.16" for 10-Year event
 Inflow = 2.70 cfs @ 12.07 hrs, Volume= 0.207 af
 Outflow = 2.49 cfs @ 12.16 hrs, Volume= 0.207 af, Atten= 8%, Lag= 5.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.29 fps, Min. Travel Time= 3.1 min
 Avg. Velocity = 0.81 fps, Avg. Travel Time= 8.6 min

Peak Storage= 458 cf @ 12.11 hrs
 Average Depth at Peak Storage= 0.76'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 8.20 cfs

24.0" Round Pipe
n= 0.014
Length= 420.0' Slope= 0.0015 '/'
Inlet Invert= 47.70', Outlet Invert= 47.06'



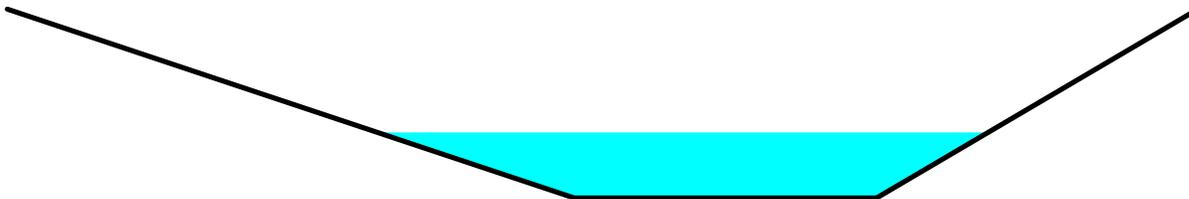
Summary for Reach L150:

Inflow Area = 90.367 ac, 43.91% Impervious, Inflow Depth > 2.08" for 10-Year event
Inflow = 78.09 cfs @ 12.16 hrs, Volume= 15.637 af
Outflow = 76.84 cfs @ 12.19 hrs, Volume= 15.624 af, Atten= 2%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.72 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.47 fps, Avg. Travel Time= 1.5 min

Peak Storage= 2,848 cf @ 12.17 hrs
Average Depth at Peak Storage= 1.73'
Bank-Full Depth= 5.00' Flow Area= 98.8 sf, Capacity= 654.46 cfs

8.00' x 5.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 1.7 '/' Top Width= 31.50'
Length= 136.0' Slope= 0.0043 '/'
Inlet Invert= 48.58', Outlet Invert= 48.00'



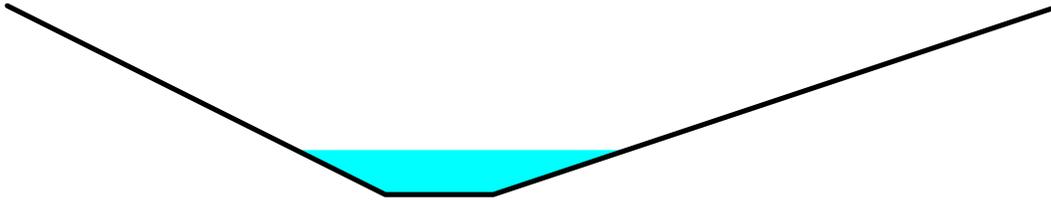
Summary for Reach L151:

Inflow Area = 94.287 ac, 43.12% Impervious, Inflow Depth > 2.05" for 10-Year event
Inflow = 82.70 cfs @ 12.19 hrs, Volume= 16.145 af
Outflow = 82.55 cfs @ 12.21 hrs, Volume= 16.136 af, Atten= 0%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.18 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.62 fps, Avg. Travel Time= 1.0 min

Peak Storage= 2,079 cf @ 12.20 hrs
Average Depth at Peak Storage= 1.65'
Bank-Full Depth= 7.00' Flow Area= 150.5 sf, Capacity= 2,128.99 cfs

4.00' x 7.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 3.0 '/' Top Width= 39.00'
Length= 155.0' Slope= 0.0148 '/'
Inlet Invert= 48.00', Outlet Invert= 45.71'



Summary for Reach L186:

Inflow Area = 96.654 ac, 43.17% Impervious, Inflow Depth > 2.07" for 10-Year event
Inflow = 87.48 cfs @ 12.20 hrs, Volume= 16.669 af
Outflow = 86.39 cfs @ 12.26 hrs, Volume= 16.627 af, Atten= 1%, Lag= 3.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.05 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 1.22 fps, Avg. Travel Time= 4.6 min

Peak Storage= 9,714 cf @ 12.22 hrs
Average Depth at Peak Storage= 2.57'
Bank-Full Depth= 4.50' Flow Area= 67.5 sf, Capacity= 279.47 cfs

6.00' x 4.50' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 24.00'
Length= 340.0' Slope= 0.0020 '/'
Inlet Invert= 45.71', Outlet Invert= 45.04'



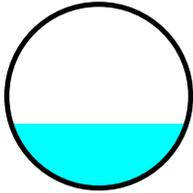
Summary for Reach L57: 48"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 1.70" for 10-Year event
Inflow = 22.35 cfs @ 12.57 hrs, Volume= 7.090 af
Outflow = 22.34 cfs @ 12.61 hrs, Volume= 7.078 af, Atten= 0%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.71 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 2.76 fps, Avg. Travel Time= 2.7 min

Peak Storage= 1,745 cf @ 12.59 hrs
Average Depth at Peak Storage= 1.40'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 85.21 cfs

48.0" Round Pipe
n= 0.014
Length= 446.0' Slope= 0.0041 '/'
Inlet Invert= 49.00', Outlet Invert= 47.18'



Summary for Reach L59: Ditch

Inflow Area = 62.839 ac, 40.51% Impervious, Inflow Depth > 1.94" for 10-Year event
Inflow = 58.33 cfs @ 12.09 hrs, Volume= 10.140 af
Outflow = 55.96 cfs @ 12.15 hrs, Volume= 10.112 af, Atten= 4%, Lag= 3.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.89 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.49 fps, Avg. Travel Time= 4.8 min

Peak Storage= 6,323 cf @ 12.11 hrs
Average Depth at Peak Storage= 1.60'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 196.83 cfs

6.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 18.00'
Length= 430.0' Slope= 0.0053 '/'
Inlet Invert= 48.58', Outlet Invert= 46.28'



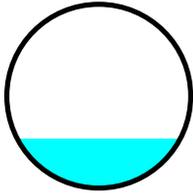
Summary for Reach L65: 30"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 1.70" for 10-Year event
Inflow = 22.35 cfs @ 12.56 hrs, Volume= 7.095 af
Outflow = 22.36 cfs @ 12.56 hrs, Volume= 7.094 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 21.12 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 10.20 fps, Avg. Travel Time= 0.2 min

Peak Storage= 110 cf @ 12.56 hrs
Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 142.22 cfs

30.0" Round Pipe
n= 0.014
Length= 104.0' Slope= 0.1394 '/'
Inlet Invert= 71.00', Outlet Invert= 56.50'



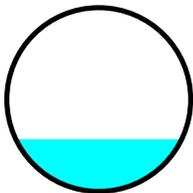
Summary for Reach L67: 48"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 1.70" for 10-Year event
Inflow = 22.36 cfs @ 12.56 hrs, Volume= 7.094 af
Outflow = 22.35 cfs @ 12.57 hrs, Volume= 7.090 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.65 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 3.68 fps, Avg. Travel Time= 0.8 min

Peak Storage= 541 cf @ 12.57 hrs
Average Depth at Peak Storage= 1.13'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 127.86 cfs

48.0" Round Pipe
n= 0.014
Length= 185.0' Slope= 0.0092 '/'
Inlet Invert= 50.70', Outlet Invert= 49.00'



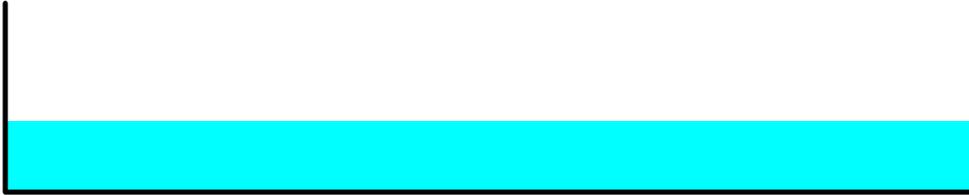
Summary for Reach P1:

Inflow Area = 99.501 ac, 44.24% Impervious, Inflow Depth > 2.09" for 10-Year event
Inflow = 91.15 cfs @ 12.25 hrs, Volume= 17.362 af
Outflow = 91.09 cfs @ 12.25 hrs, Volume= 17.360 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.65 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.97 fps, Avg. Travel Time= 0.3 min

Peak Storage= 485 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.88'
Bank-Full Depth= 2.33' Flow Area= 28.0 sf, Capacity= 407.83 cfs

12.00' x 2.33' deep channel, n= 0.030
 Length= 46.0' Slope= 0.0435 '/'
 Inlet Invert= 43.00', Outlet Invert= 41.00'



Summary for Pond 19P:

Inflow Area = 28.430 ac, 25.75% Impervious, Inflow Depth > 1.71" for 10-Year event
 Inflow = 46.96 cfs @ 12.15 hrs, Volume= 4.052 af
 Outflow = 46.19 cfs @ 12.16 hrs, Volume= 4.047 af, Atten= 2%, Lag= 0.6 min
 Primary = 14.02 cfs @ 12.16 hrs, Volume= 2.976 af
 Secondary = 32.17 cfs @ 12.16 hrs, Volume= 1.070 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 139.65' @ 12.16 hrs Surf.Area= 2,709 sf Storage= 2,662 cf

Plug-Flow detention time= 2.1 min calculated for 4.047 af (100% of inflow)
 Center-of-Mass det. time= 1.6 min (801.1 - 799.4)

Volume	Invert	Avail.Storage	Storage Description
#1	137.80'	30,987 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.80	174	0	0
138.30	860	259	259
138.80	1,546	602	860
139.30	2,232	945	1,805
139.80	2,919	1,288	3,092
140.30	3,605	1,631	4,723
140.80	4,291	1,974	6,697
141.30	4,977	2,317	9,014
141.80	5,663	2,660	11,674
148.00	567	19,313	30,987

Device	Routing	Invert	Outlet Devices
#1	Primary	137.80'	24.0" Round Culvert L= 612.0' Ke= 0.500 Inlet / Outlet Invert= 137.80' / 105.30' S= 0.0531 '/' Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	139.00'	23.0' long x 18.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=13.96 cfs @ 12.16 hrs HW=139.64' (Free Discharge)

↑1=Culvert (Inlet Controls 13.96 cfs @ 4.62 fps)

Secondary OutFlow Max=31.65 cfs @ 12.16 hrs HW=139.64' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Weir Controls 31.65 cfs @ 2.15 fps)

Summary for Pond 20P:

Inflow Area = 2.640 ac, 100.00% Impervious, Inflow Depth > 4.16" for 10-Year event
 Inflow = 11.95 cfs @ 12.07 hrs, Volume= 0.916 af
 Outflow = 12.67 cfs @ 12.06 hrs, Volume= 0.912 af, Atten= 0%, Lag= 0.0 min
 Primary = 12.67 cfs @ 12.06 hrs, Volume= 0.912 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 167.70' @ 12.06 hrs Surf.Area= 4,356 sf Storage= 2,838 cf

Plug-Flow detention time= 12.0 min calculated for 0.912 af (100% of inflow)
 Center-of-Mass det. time= 10.3 min (731.5 - 721.2)

Volume	Invert	Avail.Storage	Storage Description
#1	166.00'	2,838 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
166.00	0	0	0
166.25	2,875	359	359
166.50	3,790	833	1,193
166.75	4,225	1,002	2,194
166.90	4,356	644	2,838

Device	Routing	Invert	Outlet Devices
#1	Primary	166.00'	24.0" Round Culvert L= 293.0' Ke= 0.500 Inlet / Outlet Invert= 166.00' / 142.00' S= 0.0819 1/ S Cc= 0.900 n= 0.014, Flow Area= 3.14 sf

Primary OutFlow Max=12.10 cfs @ 12.06 hrs HW=167.65' (Free Discharge)

↑1=Culvert (Inlet Controls 12.10 cfs @ 4.37 fps)

Summary for Pond 22.4P:

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 1.73" for 10-Year event
 Inflow = 67.81 cfs @ 12.09 hrs, Volume= 7.213 af
 Outflow = 22.35 cfs @ 12.56 hrs, Volume= 7.095 af, Atten= 67%, Lag= 28.0 min
 Primary = 22.35 cfs @ 12.56 hrs, Volume= 7.095 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 75.60' @ 12.56 hrs Surf.Area= 28,772 sf Storage= 76,288 cf

Plug-Flow detention time= 39.9 min calculated for 7.095 af (98% of inflow)

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Type III 24-hr 10-Year Rainfall=4.60"

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Center-of-Mass det. time= 33.6 min (831.7 - 798.2)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	233,786 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	5,227	0	0
71.25	5,793	1,378	1,378
71.50	6,360	1,519	2,897
71.75	6,926	1,661	4,557
72.00	7,492	1,802	6,360
72.25	9,295	2,098	8,458
72.50	11,097	2,549	11,007
72.75	12,899	3,000	14,007
73.00	14,702	3,450	17,457
73.25	16,504	3,901	21,357
73.50	18,306	4,351	25,709
73.75	20,108	4,802	30,510
74.00	21,911	5,252	35,763
74.25	22,983	5,612	41,375
74.50	24,056	5,880	47,254
74.75	25,129	6,148	53,403
75.00	26,201	6,416	59,819
75.25	27,274	6,684	66,503
75.50	28,347	6,953	73,456
75.75	29,419	7,221	80,677
76.00	30,492	7,489	88,165
76.25	31,478	7,746	95,912
76.50	32,463	7,993	103,904
76.75	33,449	8,239	112,143
77.00	34,434	8,485	120,629
77.25	35,420	8,732	129,360
77.50	36,405	8,978	138,339
77.75	37,391	9,225	147,563
78.00	38,376	9,471	157,034
79.00	38,376	38,376	195,410
80.00	38,376	38,376	233,786

Device	Routing	Invert	Outlet Devices
#1	Secondary	79.00'	12.0' long x 37.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	71.00'	21.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 71.00' / 70.99' S= 0.0100 1/8" Cc= 0.900 n= 0.005, Flow Area= 2.41 sf

Primary OutFlow Max=22.35 cfs @ 12.56 hrs HW=75.60' (Free Discharge)
 ↳ **2=Culvert** (Inlet Controls 22.35 cfs @ 9.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 30P:

Inflow Area = 25.401 ac, 49.00% Impervious, Inflow Depth > 2.48" for 10-Year event
 Inflow = 71.33 cfs @ 12.12 hrs, Volume= 5.241 af
 Outflow = 30.09 cfs @ 12.49 hrs, Volume= 4.940 af, Atten= 58%, Lag= 22.4 min
 Primary = 30.09 cfs @ 12.49 hrs, Volume= 4.940 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 50.51' @ 12.49 hrs Surf.Area= 63,813 sf Storage= 91,140 cf

Plug-Flow detention time= 78.3 min calculated for 4.940 af (94% of inflow)
 Center-of-Mass det. time= 57.8 min (829.3 - 771.5)

Volume	Invert	Avail.Storage	Storage Description
#1	49.00'	264,538 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.00	57,194	0	0
50.00	61,543	59,369	59,369
51.00	66,022	63,783	123,151
52.00	70,631	68,327	191,478
53.00	75,490	73,061	264,538

Device	Routing	Invert	Outlet Devices
#1	Primary	49.00'	90.0 deg x 4.0' long x 2.00' rise Sharp-Crested Vee/Trap Weir Cv= 2.50 (C= 3.13)
#2	Primary	52.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=30.06 cfs @ 12.49 hrs HW=50.51' (Free Discharge)

- ↑1=Sharp-Crested Vee/Trap Weir (Weir Controls 30.06 cfs @ 3.63 fps)
- └2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment S12:** Runoff Area=218,472 sf 12.42% Impervious Runoff Depth>0.79"
Flow Length=260' Slope=0.0427 '/' Tc=18.6 min CN=50 Runoff=2.68 cfs 0.332 af
- Subcatchment S19:** Runoff Area=25.790 ac 18.15% Impervious Runoff Depth>2.06"
Tc=11.4 min CN=68 Runoff=55.19 cfs 4.430 af
- Subcatchment S20:** Runoff Area=2.640 ac 100.00% Impervious Runoff Depth>5.02"
Tc=5.0 min CN=98 Runoff=14.31 cfs 1.105 af
- Subcatchment S21:** Runoff Area=5.517 ac 62.75% Impervious Runoff Depth>3.11"
Flow Length=640' Slope=0.0600 '/' Tc=12.1 min CN=80 Runoff=17.54 cfs 1.431 af
- Subcatchment S21.1:** Runoff Area=48,374 sf 22.82% Impervious Runoff Depth>1.45"
Flow Length=410' Tc=11.6 min CN=60 Runoff=1.57 cfs 0.134 af
- Subcatchment S21.2.1:** Runoff Area=4,774 sf 72.83% Impervious Runoff Depth>3.61"
Tc=5.0 min CN=85 Runoff=0.49 cfs 0.033 af
- Subcatchment S21.2.2:** Runoff Area=14,524 sf 0.00% Impervious Runoff Depth>0.74"
Flow Length=90' Slope=0.0070 '/' Tc=13.2 min CN=49 Runoff=0.18 cfs 0.021 af
- Subcatchment S22:** Runoff Area=3.230 ac 73.07% Impervious Runoff Depth>4.13"
Tc=5.0 min CN=90 Runoff=15.92 cfs 1.111 af
- Subcatchment S22.1:** Runoff Area=3.010 ac 65.12% Impervious Runoff Depth>3.92"
Tc=5.0 min CN=88 Runoff=14.29 cfs 0.982 af
- Subcatchment S22.2:** Runoff Area=2.220 ac 76.13% Impervious Runoff Depth>4.23"
Tc=5.0 min CN=91 Runoff=11.13 cfs 0.783 af
- Subcatchment S22.3:** Runoff Area=1.150 ac 75.65% Impervious Runoff Depth>4.23"
Tc=5.0 min CN=91 Runoff=5.77 cfs 0.406 af
- Subcatchment S22.4:** Runoff Area=4.970 ac 0.00% Impervious Runoff Depth>1.46"
Tc=5.0 min CN=60 Runoff=8.71 cfs 0.603 af
- Subcatchment S23:** Runoff Area=269,131 sf 76.11% Impervious Runoff Depth>3.70"
Tc=19.0 min CN=86 Runoff=19.31 cfs 1.903 af
- Subcatchment S24:** Runoff Area=26,018 sf 100.00% Impervious Runoff Depth>5.02"
Tc=5.0 min CN=98 Runoff=3.24 cfs 0.250 af
- Subcatchment S26:** Runoff Area=138,390 sf 0.00% Impervious Runoff Depth>0.74"
Tc=5.0 min CN=49 Runoff=2.21 cfs 0.197 af
- Subcatchment S27:** Runoff Area=249,700 sf 86.24% Impervious Runoff Depth>4.45"
Tc=5.0 min CN=93 Runoff=29.62 cfs 2.127 af

Subcatchment S28:	Runoff Area=8.850 ac 69.72% Impervious Runoff Depth>4.13" Tc=5.0 min CN=90 Runoff=43.63 cfs 3.044 af
Subcatchment S29:	Runoff Area=144,253 sf 20.98% Impervious Runoff Depth>2.15" Tc=7.8 min CN=69 Runoff=8.26 cfs 0.592 af
Subcatchment S30:	Runoff Area=81,302 sf 0.00% Impervious Runoff Depth>0.74" Tc=18.3 min CN=49 Runoff=0.89 cfs 0.115 af
Subcatchment S31:	Runoff Area=170,766 sf 24.87% Impervious Runoff Depth>2.22" Tc=14.4 min CN=70 Runoff=8.37 cfs 0.726 af
Subcatchment S31.1:	Runoff Area=0.920 ac 38.04% Impervious Runoff Depth>3.60" Tc=9.2 min CN=85 Runoff=3.59 cfs 0.276 af
Subcatchment S32:	Runoff Area=63,019 sf 49.57% Impervious Runoff Depth>3.41" Tc=5.0 min CN=83 Runoff=6.14 cfs 0.411 af
Subcatchment S32.1:	Runoff Area=124,022 sf 80.54% Impervious Runoff Depth>3.92" Tc=5.0 min CN=88 Runoff=13.52 cfs 0.929 af
Subcatchment S32.2:	Runoff Area=92,636 sf 83.67% Impervious Runoff Depth>4.13" Tc=5.0 min CN=90 Runoff=10.48 cfs 0.731 af
Subcatchment S6: Retail Core South	Runoff Area=149,464 sf 63.46% Impervious Runoff Depth>2.75" Tc=5.0 min CN=76 Runoff=11.89 cfs 0.787 af
Reach 1R: Point of Analysis 1	Inflow=119.72 cfs 22.833 af Outflow=119.72 cfs 22.833 af
Reach 31R: 24"	Avg. Flow Depth=0.84' Max Vel=2.41 fps Inflow=3.24 cfs 0.250 af 24.0" Round Pipe n=0.014 L=420.0' S=0.0015 '/' Capacity=8.20 cfs Outflow=3.00 cfs 0.249 af
Reach L150:	Avg. Flow Depth=2.00' Max Vel=4.02 fps Inflow=102.11 cfs 20.570 af n=0.030 L=136.0' S=0.0043 '/' Capacity=654.46 cfs Outflow=100.65 cfs 20.554 af
Reach L151:	Avg. Flow Depth=1.89' Max Vel=6.64 fps Inflow=108.95 cfs 21.280 af n=0.030 L=155.0' S=0.0148 '/' Capacity=2,128.99 cfs Outflow=108.81 cfs 21.269 af
Reach L186:	Avg. Flow Depth=2.94' Max Vel=3.28 fps Inflow=115.04 cfs 21.957 af n=0.030 L=340.0' S=0.0020 '/' Capacity=279.47 cfs Outflow=113.84 cfs 21.907 af
Reach L57: 48"	Avg. Flow Depth=1.48' Max Vel=5.88 fps Inflow=24.85 cfs 9.110 af 48.0" Round Pipe n=0.014 L=446.0' S=0.0041 '/' Capacity=85.21 cfs Outflow=24.84 cfs 9.095 af
Reach L59: Ditch	Avg. Flow Depth=1.78' Max Vel=4.13 fps Inflow=71.46 cfs 12.980 af n=0.030 L=430.0' S=0.0053 '/' Capacity=196.83 cfs Outflow=68.50 cfs 12.948 af
Reach L65: 30"	Avg. Flow Depth=0.71' Max Vel=21.77 fps Inflow=24.85 cfs 9.115 af 30.0" Round Pipe n=0.014 L=104.0' S=0.1394 '/' Capacity=142.22 cfs Outflow=24.85 cfs 9.115 af
Reach L67: 48"	Avg. Flow Depth=1.20' Max Vel=7.88 fps Inflow=24.85 cfs 9.115 af 48.0" Round Pipe n=0.014 L=185.0' S=0.0092 '/' Capacity=127.86 cfs Outflow=24.85 cfs 9.110 af

Reach P1: Avg. Flow Depth=1.04' Max Vel=9.56 fps Inflow=119.77 cfs 22.836 af
n=0.030 L=46.0' S=0.0435 '/' Capacity=407.83 cfs Outflow=119.72 cfs 22.833 af

Pond 19P: Peak Elev=139.87' Storage=3,287 cf Inflow=64.53 cfs 5.531 af
Primary=15.61 cfs 3.749 af Secondary=48.88 cfs 1.776 af Outflow=64.49 cfs 5.525 af

Pond 20P: Peak Elev=167.88' Storage=2,838 cf Inflow=14.31 cfs 1.105 af
24.0" Round Culvert n=0.014 L=293.0' S=0.0819 '/' Outflow=14.34 cfs 1.101 af

Pond 22.4P: Peak Elev=76.48' Storage=103,240 cf Inflow=85.47 cfs 9.253 af
Primary=24.85 cfs 9.115 af Secondary=0.00 cfs 0.000 af Outflow=24.85 cfs 9.115 af

Pond 30P: Peak Elev=50.94' Storage=118,974 cf Inflow=99.87 cfs 7.236 af
Outflow=46.74 cfs 6.890 af

Total Runoff Area = 99.501 ac Runoff Volume = 23.460 af Average Runoff Depth = 2.83"
55.76% Pervious = 55.483 ac 44.24% Impervious = 44.018 ac

Summary for Subcatchment S12:

Runoff = 2.68 cfs @ 12.34 hrs, Volume= 0.332 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 191,337	43	
* 27,135	98	
218,472	50	Weighted Average
191,337		87.58% Pervious Area
27,135		12.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2					Direct Entry,
0.4	260	0.0427	10.10	12.40	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.014
18.6	260	Total			

Summary for Subcatchment S19:

Runoff = 55.19 cfs @ 12.17 hrs, Volume= 4.430 af, Depth> 2.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 8.450	43	
* 3.360	65	
* 9.300	76	
* 4.680	98	
25.790	68	Weighted Average
21.110		81.85% Pervious Area
4.680		18.15% Impervious Area

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

Summary for Subcatchment S20:

Runoff = 14.31 cfs @ 12.07 hrs, Volume= 1.105 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (ac)	CN	Description
* 2.640	98	
2.640		100.00% Impervious Area

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

Summary for Subcatchment S21:

Runoff = 17.54 cfs @ 12.17 hrs, Volume= 1.431 af, Depth> 3.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 2.055	49	
* 3.462	98	
5.517	80	Weighted Average
2.055		37.25% Pervious Area
3.462		62.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5					Direct Entry,
0.6	640	0.0600	19.11	60.03	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012

12.1 640 Total

Summary for Subcatchment S21.1:

Runoff = 1.57 cfs @ 12.18 hrs, Volume= 0.134 af, Depth> 1.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 37,334	49	
* 11,040	98	
48,374	60	Weighted Average
37,334		77.18% Pervious Area
11,040		22.82% Impervious Area

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Type III 24-hr 25-Year Rainfall=5.50"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	170	0.0865	4.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	140	0.1015	28.84	141.57	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
11.6	410	Total			

Summary for Subcatchment S21.2.1:

Runoff = 0.49 cfs @ 12.07 hrs, Volume= 0.033 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 3,477	98	
* 1,297	49	
4,774	85	Weighted Average
1,297		27.17% Pervious Area
3,477		72.83% Impervious Area

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

Summary for Subcatchment S21.2.2:

Runoff = 0.18 cfs @ 12.25 hrs, Volume= 0.021 af, Depth> 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 14,524	49	
14,524		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					Direct Entry,
0.4	90	0.0070	4.11	3.23	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
13.2	90	Total			

Summary for Subcatchment S22:

Runoff = 15.92 cfs @ 12.07 hrs, Volume= 1.111 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.870	69	
* 2.360	98	
3.230	90	Weighted Average
0.870		26.93% Pervious Area
2.360		73.07% Impervious Area

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

Summary for Subcatchment S22.1:

Runoff = 14.29 cfs @ 12.07 hrs, Volume= 0.982 af, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.050	69	
* 1.960	98	
3.010	88	Weighted Average
1.050		34.88% Pervious Area
1.960		65.12% Impervious Area

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

Summary for Subcatchment S22.2:

Runoff = 11.13 cfs @ 12.07 hrs, Volume= 0.783 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.530	69	
* 1.690	98	
2.220	91	Weighted Average
0.530		23.87% Pervious Area
1.690		76.13% Impervious Area

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

Summary for Subcatchment S22.3:

Runoff = 5.77 cfs @ 12.07 hrs, Volume= 0.406 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.280	69	
* 0.870	98	
1.150	91	Weighted Average
0.280		24.35% Pervious Area
0.870		75.65% Impervious Area

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

Summary for Subcatchment S22.4:

Runoff = 8.71 cfs @ 12.09 hrs, Volume= 0.603 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.100	69	
* 4.870	60	
4.970	60	Weighted Average
4.970		100.00% Pervious Area

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

Summary for Subcatchment S23:

Runoff = 19.31 cfs @ 12.26 hrs, Volume= 1.903 af, Depth> 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

	Area (sf)	CN	Description
*	64,303	49	
*	204,828	98	
	269,131	86	Weighted Average
	64,303		23.89% Pervious Area
	204,828		76.11% Impervious Area

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

Summary for Subcatchment S24:

Runoff = 3.24 cfs @ 12.07 hrs, Volume= 0.250 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

	Area (sf)	CN	Description
*	26,018	98	
	26,018		100.00% Impervious Area

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

Summary for Subcatchment S26:

Runoff = 2.21 cfs @ 12.11 hrs, Volume= 0.197 af, Depth> 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

	Area (sf)	CN	Description
*	138,390	49	
	138,390		100.00% Pervious Area

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

Summary for Subcatchment S27:

Runoff = 29.62 cfs @ 12.07 hrs, Volume= 2.127 af, Depth> 4.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (sf)	CN	Description
34,357	61	>75% Grass cover, Good, HSG B
* 215,343	98	
249,700	93	Weighted Average
34,357		13.76% Pervious Area
215,343		86.24% Impervious Area

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

Summary for Subcatchment S28:

Runoff = 43.63 cfs @ 12.07 hrs, Volume= 3.044 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 2.120	69	
* 0.560	89	
* 6.170	98	
8.850	90	Weighted Average
2.680		30.28% Pervious Area
6.170		69.72% Impervious Area

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

Summary for Subcatchment S29:

Runoff = 8.26 cfs @ 12.12 hrs, Volume= 0.592 af, Depth> 2.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
113,984	61	>75% Grass cover, Good, HSG B
30,269	98	Paved parking, HSG B
144,253	69	Weighted Average
113,984		79.02% Pervious Area
30,269		20.98% Impervious Area

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

Summary for Subcatchment S30:

Runoff = 0.89 cfs @ 12.35 hrs, Volume= 0.115 af, Depth> 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 81,302	49	
81,302		100.00% Pervious Area

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

Summary for Subcatchment S31:

Runoff = 8.37 cfs @ 12.21 hrs, Volume= 0.726 af, Depth> 2.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
128,293	61	>75% Grass cover, Good, HSG B
* 42,473	98	
170,766	70	Weighted Average
128,293		75.13% Pervious Area
42,473		24.87% Impervious Area

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

Summary for Subcatchment S31.1:

Runoff = 3.59 cfs @ 12.13 hrs, Volume= 0.276 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.070	60	
* 0.440	79	
* 0.060	89	
* 0.350	98	
0.920	85	Weighted Average
0.570		61.96% Pervious Area
0.350		38.04% Impervious Area

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

Summary for Subcatchment S32:

Runoff = 6.14 cfs @ 12.07 hrs, Volume= 0.411 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 31,783	69	
* 31,236	98	
63,019	83	Weighted Average
31,783		50.43% Pervious Area
31,236		49.57% Impervious Area

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

Summary for Subcatchment S32.1:

Runoff = 13.52 cfs @ 12.07 hrs, Volume= 0.929 af, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 24,135	49	
* 99,887	98	
124,022	88	Weighted Average
24,135		19.46% Pervious Area
99,887		80.54% Impervious Area

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

Summary for Subcatchment S32.2:

Runoff = 10.48 cfs @ 12.07 hrs, Volume= 0.731 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

	Area (sf)	CN	Description
*	15,123	49	
*	77,513	98	
	92,636	90	Weighted Average
	15,123		16.33% Pervious Area
	77,513		83.67% Impervious Area

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

Summary for Subcatchment S6: Retail Core South Loading

Runoff = 11.89 cfs @ 12.08 hrs, Volume= 0.787 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
54,621	39	>75% Grass cover, Good, HSG A
94,843	98	Paved parking, HSG A
149,464	76	Weighted Average
54,621		36.54% Pervious Area
94,843		63.46% Impervious Area

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

Summary for Reach 1R: Point of Analysis 1

Inflow Area = 99.501 ac, 44.24% Impervious, Inflow Depth > 2.75" for 25-Year event
Inflow = 119.72 cfs @ 12.25 hrs, Volume= 22.833 af
Outflow = 119.72 cfs @ 12.25 hrs, Volume= 22.833 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

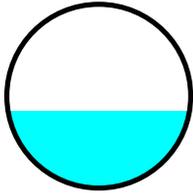
Summary for Reach 31R: 24"

Inflow Area = 0.597 ac, 100.00% Impervious, Inflow Depth > 5.02" for 25-Year event
Inflow = 3.24 cfs @ 12.07 hrs, Volume= 0.250 af
Outflow = 3.00 cfs @ 12.16 hrs, Volume= 0.249 af, Atten= 7%, Lag= 5.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.41 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.86 fps, Avg. Travel Time= 8.1 min

Peak Storage= 524 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 8.20 cfs

24.0" Round Pipe
n= 0.014
Length= 420.0' Slope= 0.0015 '/'
Inlet Invert= 47.70', Outlet Invert= 47.06'



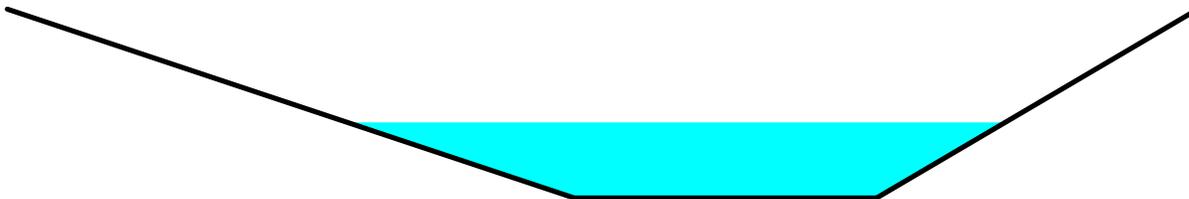
Summary for Reach L150:

Inflow Area = 90.367 ac, 43.91% Impervious, Inflow Depth > 2.73" for 25-Year event
Inflow = 102.11 cfs @ 12.16 hrs, Volume= 20.570 af
Outflow = 100.65 cfs @ 12.19 hrs, Volume= 20.554 af, Atten= 1%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.02 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.60 fps, Avg. Travel Time= 1.4 min

Peak Storage= 3,451 cf @ 12.17 hrs
Average Depth at Peak Storage= 2.00'
Bank-Full Depth= 5.00' Flow Area= 98.8 sf, Capacity= 654.46 cfs

8.00' x 5.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 1.7 '/' Top Width= 31.50'
Length= 136.0' Slope= 0.0043 '/'
Inlet Invert= 48.58', Outlet Invert= 48.00'



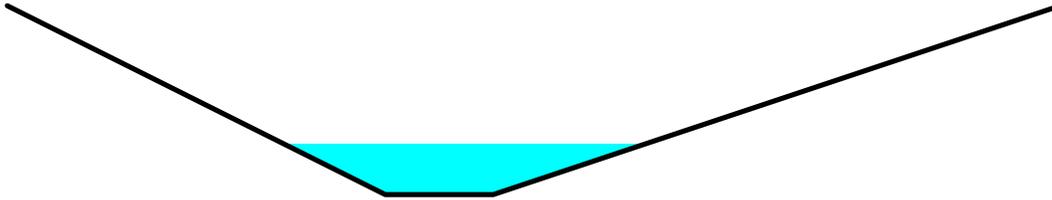
Summary for Reach L151:

Inflow Area = 94.287 ac, 43.12% Impervious, Inflow Depth > 2.71" for 25-Year event
Inflow = 108.95 cfs @ 12.19 hrs, Volume= 21.280 af
Outflow = 108.81 cfs @ 12.21 hrs, Volume= 21.269 af, Atten= 0%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.64 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.83 fps, Avg. Travel Time= 0.9 min

Peak Storage= 2,546 cf @ 12.20 hrs
Average Depth at Peak Storage= 1.89'
Bank-Full Depth= 7.00' Flow Area= 150.5 sf, Capacity= 2,128.99 cfs

4.00' x 7.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 3.0 '/' Top Width= 39.00'
Length= 155.0' Slope= 0.0148 '/'
Inlet Invert= 48.00', Outlet Invert= 45.71'



Summary for Reach L186:

Inflow Area = 96.654 ac, 43.17% Impervious, Inflow Depth > 2.73" for 25-Year event
Inflow = 115.04 cfs @ 12.20 hrs, Volume= 21.957 af
Outflow = 113.84 cfs @ 12.26 hrs, Volume= 21.907 af, Atten= 1%, Lag= 3.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.28 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.33 fps, Avg. Travel Time= 4.3 min

Peak Storage= 11,894 cf @ 12.22 hrs
Average Depth at Peak Storage= 2.94'
Bank-Full Depth= 4.50' Flow Area= 67.5 sf, Capacity= 279.47 cfs

6.00' x 4.50' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 24.00'
Length= 340.0' Slope= 0.0020 '/'
Inlet Invert= 45.71', Outlet Invert= 45.04'



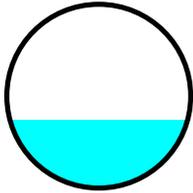
Summary for Reach L57: 48"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 2.18" for 25-Year event
Inflow = 24.85 cfs @ 12.60 hrs, Volume= 9.110 af
Outflow = 24.84 cfs @ 12.64 hrs, Volume= 9.095 af, Atten= 0%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.88 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 3.00 fps, Avg. Travel Time= 2.5 min

Peak Storage= 1,884 cf @ 12.62 hrs
Average Depth at Peak Storage= 1.48'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 85.21 cfs

48.0" Round Pipe
n= 0.014
Length= 446.0' Slope= 0.0041 '/'
Inlet Invert= 49.00', Outlet Invert= 47.18'



Summary for Reach L59: Ditch

Inflow Area = 62.839 ac, 40.51% Impervious, Inflow Depth > 2.48" for 25-Year event
Inflow = 71.46 cfs @ 12.09 hrs, Volume= 12.980 af
Outflow = 68.50 cfs @ 12.14 hrs, Volume= 12.948 af, Atten= 4%, Lag= 3.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.13 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.63 fps, Avg. Travel Time= 4.4 min

Peak Storage= 7,328 cf @ 12.11 hrs
Average Depth at Peak Storage= 1.78'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 196.83 cfs

6.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 18.00'
Length= 430.0' Slope= 0.0053 '/'
Inlet Invert= 48.58', Outlet Invert= 46.28'



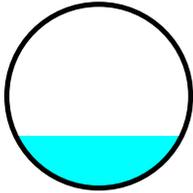
Summary for Reach L65: 30"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 2.18" for 25-Year event
Inflow = 24.85 cfs @ 12.59 hrs, Volume= 9.115 af
Outflow = 24.85 cfs @ 12.59 hrs, Volume= 9.115 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 21.77 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 11.10 fps, Avg. Travel Time= 0.2 min

Peak Storage= 119 cf @ 12.59 hrs
Average Depth at Peak Storage= 0.71'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 142.22 cfs

30.0" Round Pipe
n= 0.014
Length= 104.0' Slope= 0.1394 '/'
Inlet Invert= 71.00', Outlet Invert= 56.50'



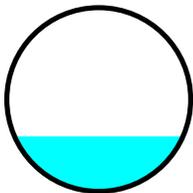
Summary for Reach L67: 48"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 2.18" for 25-Year event
Inflow = 24.85 cfs @ 12.59 hrs, Volume= 9.115 af
Outflow = 24.85 cfs @ 12.60 hrs, Volume= 9.110 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.88 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.00 fps, Avg. Travel Time= 0.8 min

Peak Storage= 583 cf @ 12.60 hrs
Average Depth at Peak Storage= 1.20'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 127.86 cfs

48.0" Round Pipe
n= 0.014
Length= 185.0' Slope= 0.0092 '/'
Inlet Invert= 50.70', Outlet Invert= 49.00'



Summary for Reach P1:

Inflow Area = 99.501 ac, 44.24% Impervious, Inflow Depth > 2.75" for 25-Year event
Inflow = 119.77 cfs @ 12.25 hrs, Volume= 22.836 af
Outflow = 119.72 cfs @ 12.25 hrs, Volume= 22.833 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.56 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.29 fps, Avg. Travel Time= 0.2 min

Peak Storage= 577 cf @ 12.25 hrs
Average Depth at Peak Storage= 1.04'
Bank-Full Depth= 2.33' Flow Area= 28.0 sf, Capacity= 407.83 cfs

12.00' x 2.33' deep channel, n= 0.030
 Length= 46.0' Slope= 0.0435 '/'
 Inlet Invert= 43.00', Outlet Invert= 41.00'



Summary for Pond 19P:

Inflow Area = 28.430 ac, 25.75% Impervious, Inflow Depth > 2.33" for 25-Year event
 Inflow = 64.53 cfs @ 12.15 hrs, Volume= 5.531 af
 Outflow = 64.49 cfs @ 12.16 hrs, Volume= 5.525 af, Atten= 0%, Lag= 0.6 min
 Primary = 15.61 cfs @ 12.16 hrs, Volume= 3.749 af
 Secondary = 48.88 cfs @ 12.16 hrs, Volume= 1.776 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 139.87' @ 12.16 hrs Surf.Area= 3,009 sf Storage= 3,287 cf

Plug-Flow detention time= 1.9 min calculated for 5.511 af (100% of inflow)
 Center-of-Mass det. time= 1.5 min (796.4 - 794.9)

Volume	Invert	Avail.Storage	Storage Description
#1	137.80'	30,987 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.80	174	0	0
138.30	860	259	259
138.80	1,546	602	860
139.30	2,232	945	1,805
139.80	2,919	1,288	3,092
140.30	3,605	1,631	4,723
140.80	4,291	1,974	6,697
141.30	4,977	2,317	9,014
141.80	5,663	2,660	11,674
148.00	567	19,313	30,987

Device	Routing	Invert	Outlet Devices
#1	Primary	137.80'	24.0" Round Culvert L= 612.0' Ke= 0.500 Inlet / Outlet Invert= 137.80' / 105.30' S= 0.0531 '/' Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	139.00'	23.0' long x 18.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=15.55 cfs @ 12.16 hrs HW=139.86' (Free Discharge)

↑1=Culvert (Inlet Controls 15.55 cfs @ 4.95 fps)

Secondary OutFlow Max=48.13 cfs @ 12.16 hrs HW=139.86' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Weir Controls 48.13 cfs @ 2.44 fps)

Summary for Pond 20P:

Inflow Area = 2.640 ac, 100.00% Impervious, Inflow Depth > 5.02" for 25-Year event
 Inflow = 14.31 cfs @ 12.07 hrs, Volume= 1.105 af
 Outflow = 14.34 cfs @ 12.07 hrs, Volume= 1.101 af, Atten= 0%, Lag= 0.0 min
 Primary = 14.34 cfs @ 12.07 hrs, Volume= 1.101 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 167.88' @ 12.07 hrs Surf.Area= 4,356 sf Storage= 2,838 cf

Plug-Flow detention time= 11.5 min calculated for 1.098 af (99% of inflow)
 Center-of-Mass det. time= 9.8 min (728.1 - 718.4)

Volume	Invert	Avail.Storage	Storage Description
#1	166.00'	2,838 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
166.00	0	0	0
166.25	2,875	359	359
166.50	3,790	833	1,193
166.75	4,225	1,002	2,194
166.90	4,356	644	2,838

Device	Routing	Invert	Outlet Devices
#1	Primary	166.00'	24.0" Round Culvert L= 293.0' Ke= 0.500 Inlet / Outlet Invert= 166.00' / 142.00' S= 0.0819 1/ S Cc= 0.900 n= 0.014, Flow Area= 3.14 sf

Primary OutFlow Max=13.81 cfs @ 12.07 hrs HW=167.82' (Free Discharge)

↑1=Culvert (Inlet Controls 13.81 cfs @ 4.60 fps)

Summary for Pond 22.4P:

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 2.22" for 25-Year event
 Inflow = 85.47 cfs @ 12.09 hrs, Volume= 9.253 af
 Outflow = 24.85 cfs @ 12.59 hrs, Volume= 9.115 af, Atten= 71%, Lag= 29.7 min
 Primary = 24.85 cfs @ 12.59 hrs, Volume= 9.115 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 76.48' @ 12.59 hrs Surf.Area= 32,382 sf Storage= 103,240 cf

Plug-Flow detention time= 45.4 min calculated for 9.093 af (98% of inflow)

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Type III 24-hr 25-Year Rainfall=5.50"

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Center-of-Mass det. time= 39.6 min (834.7 - 795.2)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	233,786 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	5,227	0	0
71.25	5,793	1,378	1,378
71.50	6,360	1,519	2,897
71.75	6,926	1,661	4,557
72.00	7,492	1,802	6,360
72.25	9,295	2,098	8,458
72.50	11,097	2,549	11,007
72.75	12,899	3,000	14,007
73.00	14,702	3,450	17,457
73.25	16,504	3,901	21,357
73.50	18,306	4,351	25,709
73.75	20,108	4,802	30,510
74.00	21,911	5,252	35,763
74.25	22,983	5,612	41,375
74.50	24,056	5,880	47,254
74.75	25,129	6,148	53,403
75.00	26,201	6,416	59,819
75.25	27,274	6,684	66,503
75.50	28,347	6,953	73,456
75.75	29,419	7,221	80,677
76.00	30,492	7,489	88,165
76.25	31,478	7,746	95,912
76.50	32,463	7,993	103,904
76.75	33,449	8,239	112,143
77.00	34,434	8,485	120,629
77.25	35,420	8,732	129,360
77.50	36,405	8,978	138,339
77.75	37,391	9,225	147,563
78.00	38,376	9,471	157,034
79.00	38,376	38,376	195,410
80.00	38,376	38,376	233,786

Device	Routing	Invert	Outlet Devices
#1	Secondary	79.00'	12.0' long x 37.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	71.00'	21.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 71.00' / 70.99' S= 0.0100 1/8" Cc= 0.900 n= 0.005, Flow Area= 2.41 sf

Primary OutFlow Max=24.85 cfs @ 12.59 hrs HW=76.48' (Free Discharge)
 ↳ **2=Culvert** (Inlet Controls 24.85 cfs @ 10.33 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 30P:

Inflow Area = 25.401 ac, 49.00% Impervious, Inflow Depth > 3.42" for 25-Year event
 Inflow = 99.87 cfs @ 12.12 hrs, Volume= 7.236 af
 Outflow = 46.74 cfs @ 12.46 hrs, Volume= 6.890 af, Atten= 53%, Lag= 20.3 min
 Primary = 46.74 cfs @ 12.46 hrs, Volume= 6.890 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 50.94' @ 12.46 hrs Surf.Area= 65,738 sf Storage= 118,974 cf

Plug-Flow detention time= 69.1 min calculated for 6.873 af (95% of inflow)
 Center-of-Mass det. time= 51.9 min (819.0 - 767.1)

Volume	Invert	Avail.Storage	Storage Description
#1	49.00'	264,538 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.00	57,194	0	0
50.00	61,543	59,369	59,369
51.00	66,022	63,783	123,151
52.00	70,631	68,327	191,478
53.00	75,490	73,061	264,538

Device	Routing	Invert	Outlet Devices
#1	Primary	49.00'	90.0 deg x 4.0' long x 2.00' rise Sharp-Crested Vee/Trap Weir Cv= 2.50 (C= 3.13)
#2	Primary	52.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=46.66 cfs @ 12.46 hrs HW=50.93' (Free Discharge)

- ↑1=Sharp-Crested Vee/Trap Weir (Weir Controls 46.66 cfs @ 4.06 fps)
- └2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment S12:** Runoff Area=218,472 sf 12.42% Impervious Runoff Depth>1.31"
Flow Length=260' Slope=0.0427 '/' Tc=18.6 min CN=50 Runoff=5.04 cfs 0.549 af
- Subcatchment S19:** Runoff Area=25.790 ac 18.15% Impervious Runoff Depth>2.89"
Tc=11.4 min CN=68 Runoff=78.10 cfs 6.218 af
- Subcatchment S20:** Runoff Area=2.640 ac 100.00% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=17.33 cfs 1.347 af
- Subcatchment S21:** Runoff Area=5.517 ac 62.75% Impervious Runoff Depth>4.10"
Flow Length=640' Slope=0.0600 '/' Tc=12.1 min CN=80 Runoff=22.90 cfs 1.884 af
- Subcatchment S21.1:** Runoff Area=48,374 sf 22.82% Impervious Runoff Depth>2.15"
Flow Length=410' Tc=11.6 min CN=60 Runoff=2.43 cfs 0.199 af
- Subcatchment S21.2.1:** Runoff Area=4,774 sf 72.83% Impervious Runoff Depth>4.64"
Tc=5.0 min CN=85 Runoff=0.62 cfs 0.042 af
- Subcatchment S21.2.2:** Runoff Area=14,524 sf 0.00% Impervious Runoff Depth>1.24"
Flow Length=90' Slope=0.0070 '/' Tc=13.2 min CN=49 Runoff=0.35 cfs 0.034 af
- Subcatchment S22:** Runoff Area=3.230 ac 73.07% Impervious Runoff Depth>5.20"
Tc=5.0 min CN=90 Runoff=19.76 cfs 1.399 af
- Subcatchment S22.1:** Runoff Area=3.010 ac 65.12% Impervious Runoff Depth>4.97"
Tc=5.0 min CN=88 Runoff=17.90 cfs 1.247 af
- Subcatchment S22.2:** Runoff Area=2.220 ac 76.13% Impervious Runoff Depth>5.31"
Tc=5.0 min CN=91 Runoff=13.76 cfs 0.982 af
- Subcatchment S22.3:** Runoff Area=1.150 ac 75.65% Impervious Runoff Depth>5.31"
Tc=5.0 min CN=91 Runoff=7.13 cfs 0.509 af
- Subcatchment S22.4:** Runoff Area=4.970 ac 0.00% Impervious Runoff Depth>2.16"
Tc=5.0 min CN=60 Runoff=13.31 cfs 0.895 af
- Subcatchment S23:** Runoff Area=269,131 sf 76.11% Impervious Runoff Depth>4.73"
Tc=19.0 min CN=86 Runoff=24.44 cfs 2.437 af
- Subcatchment S24:** Runoff Area=26,018 sf 100.00% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=3.92 cfs 0.305 af
- Subcatchment S26:** Runoff Area=138,390 sf 0.00% Impervious Runoff Depth>1.25"
Tc=5.0 min CN=49 Runoff=4.36 cfs 0.330 af
- Subcatchment S27:** Runoff Area=249,700 sf 86.24% Impervious Runoff Depth>5.54"
Tc=5.0 min CN=93 Runoff=36.34 cfs 2.645 af

Subcatchment S28:	Runoff Area=8.850 ac 69.72% Impervious Runoff Depth>5.20" Tc=5.0 min CN=90 Runoff=54.15 cfs 3.832 af
Subcatchment S29:	Runoff Area=144,253 sf 20.98% Impervious Runoff Depth>2.99" Tc=7.8 min CN=69 Runoff=11.59 cfs 0.826 af
Subcatchment S30:	Runoff Area=81,302 sf 0.00% Impervious Runoff Depth>1.24" Tc=18.3 min CN=49 Runoff=1.74 cfs 0.192 af
Subcatchment S31:	Runoff Area=170,766 sf 24.87% Impervious Runoff Depth>3.08" Tc=14.4 min CN=70 Runoff=11.67 cfs 1.007 af
Subcatchment S31.1:	Runoff Area=0.920 ac 38.04% Impervious Runoff Depth>4.64" Tc=9.2 min CN=85 Runoff=4.56 cfs 0.356 af
Subcatchment S32:	Runoff Area=63,019 sf 49.57% Impervious Runoff Depth>4.43" Tc=5.0 min CN=83 Runoff=7.88 cfs 0.534 af
Subcatchment S32.1:	Runoff Area=124,022 sf 80.54% Impervious Runoff Depth>4.97" Tc=5.0 min CN=88 Runoff=16.93 cfs 1.180 af
Subcatchment S32.2:	Runoff Area=92,636 sf 83.67% Impervious Runoff Depth>5.20" Tc=5.0 min CN=90 Runoff=13.01 cfs 0.921 af
Subcatchment S6: Retail Core South	Runoff Area=149,464 sf 63.46% Impervious Runoff Depth>3.69" Tc=5.0 min CN=76 Runoff=15.86 cfs 1.056 af
Reach 1R: Point of Analysis 1	Inflow=159.58 cfs 30.196 af Outflow=159.58 cfs 30.196 af
Reach 31R: 24"	Avg. Flow Depth=0.94' Max Vel=2.53 fps Inflow=3.92 cfs 0.305 af 24.0" Round Pipe n=0.014 L=420.0' S=0.0015 '/ Capacity=8.20 cfs Outflow=3.62 cfs 0.304 af
Reach L150:	Avg. Flow Depth=2.32' Max Vel=4.35 fps Inflow=136.33 cfs 27.212 af n=0.030 L=136.0' S=0.0043 '/ Capacity=654.46 cfs Outflow=134.69 cfs 27.194 af
Reach L151:	Avg. Flow Depth=2.17' Max Vel=7.17 fps Inflow=146.30 cfs 28.201 af n=0.030 L=155.0' S=0.0148 '/ Capacity=2,128.99 cfs Outflow=146.03 cfs 28.189 af
Reach L186:	Avg. Flow Depth=3.39' Max Vel=3.54 fps Inflow=153.93 cfs 29.078 af n=0.030 L=340.0' S=0.0020 '/ Capacity=279.47 cfs Outflow=152.17 cfs 29.020 af
Reach L57: 48"	Avg. Flow Depth=1.57' Max Vel=6.05 fps Inflow=27.60 cfs 11.706 af 48.0" Round Pipe n=0.014 L=446.0' S=0.0041 '/ Capacity=85.21 cfs Outflow=27.60 cfs 11.688 af
Reach L59: Ditch	Avg. Flow Depth=1.99' Max Vel=4.38 fps Inflow=87.82 cfs 16.651 af n=0.030 L=430.0' S=0.0053 '/ Capacity=196.83 cfs Outflow=84.02 cfs 16.612 af
Reach L65: 30"	Avg. Flow Depth=0.75' Max Vel=22.43 fps Inflow=27.60 cfs 11.713 af 30.0" Round Pipe n=0.014 L=104.0' S=0.1394 '/ Capacity=142.22 cfs Outflow=27.60 cfs 11.712 af
Reach L67: 48"	Avg. Flow Depth=1.26' Max Vel=8.12 fps Inflow=27.60 cfs 11.712 af 48.0" Round Pipe n=0.014 L=185.0' S=0.0092 '/ Capacity=127.86 cfs Outflow=27.60 cfs 11.706 af

Reach P1: Avg. Flow Depth=1.26' Max Vel=10.59 fps Inflow=159.65 cfs 30.200 af
n=0.030 L=46.0' S=0.0435 '/' Capacity=407.83 cfs Outflow=159.58 cfs 30.196 af

Pond 19P: Peak Elev=140.12' Storage=4,100 cf Inflow=87.93 cfs 7.559 af
Primary=17.38 cfs 4.683 af Secondary=71.99 cfs 2.868 af Outflow=89.38 cfs 7.551 af

Pond 20P: Peak Elev=168.43' Storage=2,838 cf Inflow=17.33 cfs 1.347 af
24.0" Round Culvert n=0.014 L=293.0' S=0.0819 '/' Outflow=18.24 cfs 1.342 af

Pond 22.4P: Peak Elev=77.56' Storage=140,383 cf Inflow=108.29 cfs 11.876 af
Primary=27.60 cfs 11.713 af Secondary=0.00 cfs 0.000 af Outflow=27.60 cfs 11.713 af

Pond 30P: Peak Elev=51.53' Storage=158,529 cf Inflow=139.37 cfs 10.078 af
Outflow=65.50 cfs 9.679 af

Total Runoff Area = 99.501 ac Runoff Volume = 30.926 af Average Runoff Depth = 3.73"
55.76% Pervious = 55.483 ac 44.24% Impervious = 44.018 ac

Summary for Subcatchment S12:

Runoff = 5.04 cfs @ 12.31 hrs, Volume= 0.549 af, Depth> 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 191,337	43	
* 27,135	98	
218,472	50	Weighted Average
191,337		87.58% Pervious Area
27,135		12.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2					Direct Entry,
0.4	260	0.0427	10.10	12.40	Pipe Channel,
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.014
18.6	260	Total			

Summary for Subcatchment S19:

Runoff = 78.10 cfs @ 12.16 hrs, Volume= 6.218 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 8.450	43	
* 3.360	65	
* 9.300	76	
* 4.680	98	
25.790	68	Weighted Average
21.110		81.85% Pervious Area
4.680		18.15% Impervious Area

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

Summary for Subcatchment S20:

Runoff = 17.33 cfs @ 12.07 hrs, Volume= 1.347 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (ac)	CN	Description
* 2.640	98	
2.640		100.00% Impervious Area

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

Summary for Subcatchment S21:

Runoff = 22.90 cfs @ 12.17 hrs, Volume= 1.884 af, Depth> 4.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 2.055	49	
* 3.462	98	
5.517	80	Weighted Average
2.055		37.25% Pervious Area
3.462		62.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5					Direct Entry,
0.6	640	0.0600	19.11	60.03	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
12.1	640	Total			

Summary for Subcatchment S21.1:

Runoff = 2.43 cfs @ 12.17 hrs, Volume= 0.199 af, Depth> 2.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 37,334	49	
* 11,040	98	
48,374	60	Weighted Average
37,334		77.18% Pervious Area
11,040		22.82% Impervious Area

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Type III 24-hr 100-Year Rainfall=6.65"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	170	0.0865	4.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	140	0.1015	28.84	141.57	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012
11.6	410	Total			

Summary for Subcatchment S21.2.1:

Runoff = 0.62 cfs @ 12.07 hrs, Volume= 0.042 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 3,477	98	
* 1,297	49	
4,774	85	Weighted Average
1,297		27.17% Pervious Area
3,477		72.83% Impervious Area

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

Summary for Subcatchment S21.2.2:

Runoff = 0.35 cfs @ 12.22 hrs, Volume= 0.034 af, Depth> 1.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 14,524	49	
14,524		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					Direct Entry,
0.4	90	0.0070	4.11	3.23	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
13.2	90	Total			

Summary for Subcatchment S22:

Runoff = 19.76 cfs @ 12.07 hrs, Volume= 1.399 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.870	69	
* 2.360	98	
3.230	90	Weighted Average
0.870		26.93% Pervious Area
2.360		73.07% Impervious Area

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

Summary for Subcatchment S22.1:

Runoff = 17.90 cfs @ 12.07 hrs, Volume= 1.247 af, Depth> 4.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.050	69	
* 1.960	98	
3.010	88	Weighted Average
1.050		34.88% Pervious Area
1.960		65.12% Impervious Area

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

Summary for Subcatchment S22.2:

Runoff = 13.76 cfs @ 12.07 hrs, Volume= 0.982 af, Depth> 5.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.530	69	
* 1.690	98	
2.220	91	Weighted Average
0.530		23.87% Pervious Area
1.690		76.13% Impervious Area

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

Summary for Subcatchment S22.3:

Runoff = 7.13 cfs @ 12.07 hrs, Volume= 0.509 af, Depth> 5.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.280	69	
* 0.870	98	
1.150	91	Weighted Average
0.280		24.35% Pervious Area
0.870		75.65% Impervious Area

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

Summary for Subcatchment S22.4:

Runoff = 13.31 cfs @ 12.09 hrs, Volume= 0.895 af, Depth> 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.100	69	
* 4.870	60	
4.970	60	Weighted Average
4.970		100.00% Pervious Area

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

Summary for Subcatchment S23:

Runoff = 24.44 cfs @ 12.25 hrs, Volume= 2.437 af, Depth> 4.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

	Area (sf)	CN	Description
*	64,303	49	
*	204,828	98	
	269,131	86	Weighted Average
	64,303		23.89% Pervious Area
	204,828		76.11% Impervious Area

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

Summary for Subcatchment S24:

Runoff = 3.92 cfs @ 12.07 hrs, Volume= 0.305 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

	Area (sf)	CN	Description
*	26,018	98	
	26,018		100.00% Impervious Area

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

Summary for Subcatchment S26:

Runoff = 4.36 cfs @ 12.10 hrs, Volume= 0.330 af, Depth> 1.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

	Area (sf)	CN	Description
*	138,390	49	
	138,390		100.00% Pervious Area

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

Summary for Subcatchment S27:

Runoff = 36.34 cfs @ 12.07 hrs, Volume= 2.645 af, Depth> 5.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (sf)	CN	Description
34,357	61	>75% Grass cover, Good, HSG B
* 215,343	98	
249,700	93	Weighted Average
34,357		13.76% Pervious Area
215,343		86.24% Impervious Area

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

Summary for Subcatchment S28:

Runoff = 54.15 cfs @ 12.07 hrs, Volume= 3.832 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 2.120	69	
* 0.560	89	
* 6.170	98	
8.850	90	Weighted Average
2.680		30.28% Pervious Area
6.170		69.72% Impervious Area

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

Summary for Subcatchment S29:

Runoff = 11.59 cfs @ 12.12 hrs, Volume= 0.826 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
113,984	61	>75% Grass cover, Good, HSG B
30,269	98	Paved parking, HSG B
144,253	69	Weighted Average
113,984		79.02% Pervious Area
30,269		20.98% Impervious Area

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

Summary for Subcatchment S30:

Runoff = 1.74 cfs @ 12.31 hrs, Volume= 0.192 af, Depth> 1.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 81,302	49	
81,302		100.00% Pervious Area

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

Summary for Subcatchment S31:

Runoff = 11.67 cfs @ 12.20 hrs, Volume= 1.007 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
128,293	61	>75% Grass cover, Good, HSG B
* 42,473	98	
170,766	70	Weighted Average
128,293		75.13% Pervious Area
42,473		24.87% Impervious Area

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

Summary for Subcatchment S31.1:

Runoff = 4.56 cfs @ 12.13 hrs, Volume= 0.356 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.070	60	
* 0.440	79	
* 0.060	89	
* 0.350	98	
0.920	85	Weighted Average
0.570		61.96% Pervious Area
0.350		38.04% Impervious Area

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

Summary for Subcatchment S32:

Runoff = 7.88 cfs @ 12.07 hrs, Volume= 0.534 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 31,783	69	
* 31,236	98	
63,019	83	Weighted Average
31,783		50.43% Pervious Area
31,236		49.57% Impervious Area

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

Summary for Subcatchment S32.1:

Runoff = 16.93 cfs @ 12.07 hrs, Volume= 1.180 af, Depth> 4.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 24,135	49	
* 99,887	98	
124,022	88	Weighted Average
24,135		19.46% Pervious Area
99,887		80.54% Impervious Area

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

Summary for Subcatchment S32.2:

Runoff = 13.01 cfs @ 12.07 hrs, Volume= 0.921 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

	Area (sf)	CN	Description
*	15,123	49	
*	77,513	98	
	92,636	90	Weighted Average
	15,123		16.33% Pervious Area
	77,513		83.67% Impervious Area

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

Summary for Subcatchment S6: Retail Core South Loading

Runoff = 15.86 cfs @ 12.08 hrs, Volume= 1.056 af, Depth> 3.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
54,621	39	>75% Grass cover, Good, HSG A
94,843	98	Paved parking, HSG A
149,464	76	Weighted Average
54,621		36.54% Pervious Area
94,843		63.46% Impervious Area

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

Summary for Reach 1R: Point of Analysis 1

Inflow Area = 99.501 ac, 44.24% Impervious, Inflow Depth > 3.64" for 100-Year event
 Inflow = 159.58 cfs @ 12.25 hrs, Volume= 30.196 af
 Outflow = 159.58 cfs @ 12.25 hrs, Volume= 30.196 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

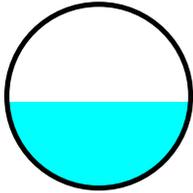
Summary for Reach 31R: 24"

Inflow Area = 0.597 ac, 100.00% Impervious, Inflow Depth > 6.12" for 100-Year event
 Inflow = 3.92 cfs @ 12.07 hrs, Volume= 0.305 af
 Outflow = 3.62 cfs @ 12.15 hrs, Volume= 0.304 af, Atten= 8%, Lag= 4.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.53 fps, Min. Travel Time= 2.8 min
 Avg. Velocity = 0.91 fps, Avg. Travel Time= 7.7 min

Peak Storage= 606 cf @ 12.11 hrs
 Average Depth at Peak Storage= 0.94'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 8.20 cfs

24.0" Round Pipe
n= 0.014
Length= 420.0' Slope= 0.0015 '/'
Inlet Invert= 47.70', Outlet Invert= 47.06'



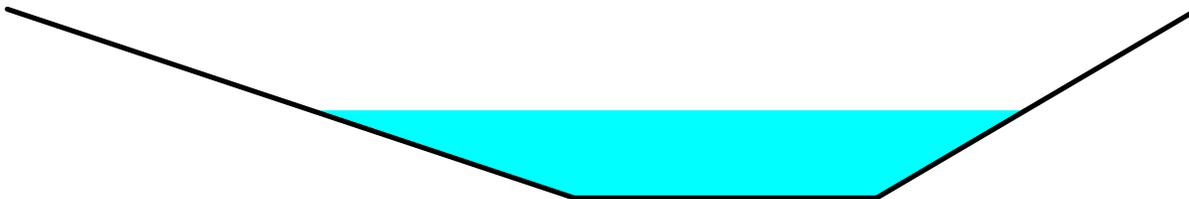
Summary for Reach L150:

Inflow Area = 90.367 ac, 43.91% Impervious, Inflow Depth > 3.61" for 100-Year event
Inflow = 136.33 cfs @ 12.17 hrs, Volume= 27.212 af
Outflow = 134.69 cfs @ 12.19 hrs, Volume= 27.194 af, Atten= 1%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.35 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.76 fps, Avg. Travel Time= 1.3 min

Peak Storage= 4,250 cf @ 12.17 hrs
Average Depth at Peak Storage= 2.32'
Bank-Full Depth= 5.00' Flow Area= 98.8 sf, Capacity= 654.46 cfs

8.00' x 5.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 1.7 '/ Top Width= 31.50'
Length= 136.0' Slope= 0.0043 '/
Inlet Invert= 48.58', Outlet Invert= 48.00'



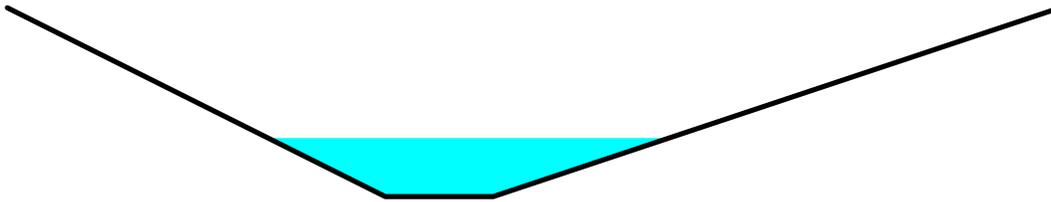
Summary for Reach L151:

Inflow Area = 94.287 ac, 43.12% Impervious, Inflow Depth > 3.59" for 100-Year event
Inflow = 146.30 cfs @ 12.19 hrs, Volume= 28.201 af
Outflow = 146.03 cfs @ 12.20 hrs, Volume= 28.189 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.17 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 3.08 fps, Avg. Travel Time= 0.8 min

Peak Storage= 3,165 cf @ 12.20 hrs
Average Depth at Peak Storage= 2.17'
Bank-Full Depth= 7.00' Flow Area= 150.5 sf, Capacity= 2,128.99 cfs

4.00' x 7.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 3.0 '/' Top Width= 39.00'
Length= 155.0' Slope= 0.0148 '/'
Inlet Invert= 48.00', Outlet Invert= 45.71'



Summary for Reach L186:

Inflow Area = 96.654 ac, 43.17% Impervious, Inflow Depth > 3.61" for 100-Year event
Inflow = 153.93 cfs @ 12.20 hrs, Volume= 29.078 af
Outflow = 152.17 cfs @ 12.25 hrs, Volume= 29.020 af, Atten= 1%, Lag= 3.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.54 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.46 fps, Avg. Travel Time= 3.9 min

Peak Storage= 14,741 cf @ 12.22 hrs
Average Depth at Peak Storage= 3.39'
Bank-Full Depth= 4.50' Flow Area= 67.5 sf, Capacity= 279.47 cfs

6.00' x 4.50' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 24.00'
Length= 340.0' Slope= 0.0020 '/'
Inlet Invert= 45.71', Outlet Invert= 45.04'



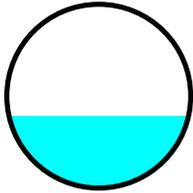
Summary for Reach L57: 48"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 2.81" for 100-Year event
Inflow = 27.60 cfs @ 12.64 hrs, Volume= 11.706 af
Outflow = 27.60 cfs @ 12.67 hrs, Volume= 11.688 af, Atten= 0%, Lag= 2.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.05 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 3.28 fps, Avg. Travel Time= 2.3 min

Peak Storage= 2,034 cf @ 12.65 hrs
Average Depth at Peak Storage= 1.57'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 85.21 cfs

48.0" Round Pipe
n= 0.014
Length= 446.0' Slope= 0.0041 '/'
Inlet Invert= 49.00', Outlet Invert= 47.18'



Summary for Reach L59: Ditch

Inflow Area = 62.839 ac, 40.51% Impervious, Inflow Depth > 3.18" for 100-Year event
Inflow = 87.82 cfs @ 12.09 hrs, Volume= 16.651 af
Outflow = 84.02 cfs @ 12.14 hrs, Volume= 16.612 af, Atten= 4%, Lag= 3.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.38 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.79 fps, Avg. Travel Time= 4.0 min

Peak Storage= 8,512 cf @ 12.11 hrs
Average Depth at Peak Storage= 1.99'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 196.83 cfs

6.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 18.00'
Length= 430.0' Slope= 0.0053 '/'
Inlet Invert= 48.58', Outlet Invert= 46.28'



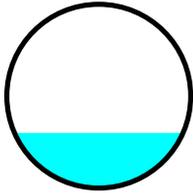
Summary for Reach L65: 30"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 2.81" for 100-Year event
Inflow = 27.60 cfs @ 12.62 hrs, Volume= 11.713 af
Outflow = 27.60 cfs @ 12.62 hrs, Volume= 11.712 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 22.43 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 12.10 fps, Avg. Travel Time= 0.1 min

Peak Storage= 128 cf @ 12.62 hrs
Average Depth at Peak Storage= 0.75'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 142.22 cfs

30.0" Round Pipe
n= 0.014
Length= 104.0' Slope= 0.1394 '/'
Inlet Invert= 71.00', Outlet Invert= 56.50'



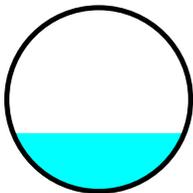
Summary for Reach L67: 48"

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 2.81" for 100-Year event
Inflow = 27.60 cfs @ 12.62 hrs, Volume= 11.712 af
Outflow = 27.60 cfs @ 12.64 hrs, Volume= 11.706 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.12 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.37 fps, Avg. Travel Time= 0.7 min

Peak Storage= 629 cf @ 12.63 hrs
Average Depth at Peak Storage= 1.26'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 127.86 cfs

48.0" Round Pipe
n= 0.014
Length= 185.0' Slope= 0.0092 '/'
Inlet Invert= 50.70', Outlet Invert= 49.00'



Summary for Reach P1:

Inflow Area = 99.501 ac, 44.24% Impervious, Inflow Depth > 3.64" for 100-Year event
Inflow = 159.65 cfs @ 12.24 hrs, Volume= 30.200 af
Outflow = 159.58 cfs @ 12.25 hrs, Volume= 30.196 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.59 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.66 fps, Avg. Travel Time= 0.2 min

Peak Storage= 693 cf @ 12.24 hrs
Average Depth at Peak Storage= 1.26'
Bank-Full Depth= 2.33' Flow Area= 28.0 sf, Capacity= 407.83 cfs

12.00' x 2.33' deep channel, n= 0.030
 Length= 46.0' Slope= 0.0435 '/'
 Inlet Invert= 43.00', Outlet Invert= 41.00'



Summary for Pond 19P:

Inflow Area = 28.430 ac, 25.75% Impervious, Inflow Depth > 3.19" for 100-Year event
 Inflow = 87.93 cfs @ 12.15 hrs, Volume= 7.559 af
 Outflow = 89.38 cfs @ 12.16 hrs, Volume= 7.551 af, Atten= 0%, Lag= 0.5 min
 Primary = 17.38 cfs @ 12.16 hrs, Volume= 4.683 af
 Secondary = 71.99 cfs @ 12.16 hrs, Volume= 2.868 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 140.12' @ 12.16 hrs Surf.Area= 3,359 sf Storage= 4,100 cf

Plug-Flow detention time= 1.8 min calculated for 7.532 af (100% of inflow)
 Center-of-Mass det. time= 1.4 min (791.3 - 790.0)

Volume	Invert	Avail.Storage	Storage Description
#1	137.80'	30,987 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.80	174	0	0
138.30	860	259	259
138.80	1,546	602	860
139.30	2,232	945	1,805
139.80	2,919	1,288	3,092
140.30	3,605	1,631	4,723
140.80	4,291	1,974	6,697
141.30	4,977	2,317	9,014
141.80	5,663	2,660	11,674
148.00	567	19,313	30,987

Device	Routing	Invert	Outlet Devices
#1	Primary	137.80'	24.0" Round Culvert L= 612.0' Ke= 0.500 Inlet / Outlet Invert= 137.80' / 105.30' S= 0.0531 '/' Cc= 0.900 n= 0.014, Flow Area= 3.14 sf
#2	Secondary	139.00'	23.0' long x 18.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=17.32 cfs @ 12.16 hrs HW=140.11' (Free Discharge)

↑1=Culvert (Inlet Controls 17.32 cfs @ 5.51 fps)

Secondary OutFlow Max=71.01 cfs @ 12.16 hrs HW=140.11' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Weir Controls 71.01 cfs @ 2.78 fps)

Summary for Pond 20P:

Inflow Area = 2.640 ac, 100.00% Impervious, Inflow Depth > 6.12" for 100-Year event
 Inflow = 17.33 cfs @ 12.07 hrs, Volume= 1.347 af
 Outflow = 18.24 cfs @ 12.09 hrs, Volume= 1.342 af, Atten= 0%, Lag= 1.0 min
 Primary = 18.24 cfs @ 12.09 hrs, Volume= 1.342 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 168.43' @ 12.09 hrs Surf.Area= 4,356 sf Storage= 2,838 cf

Plug-Flow detention time= 10.9 min calculated for 1.338 af (99% of inflow)
 Center-of-Mass det. time= 9.2 min (724.8 - 715.6)

Volume	Invert	Avail.Storage	Storage Description
#1	166.00'	2,838 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
166.00	0	0	0
166.25	2,875	359	359
166.50	3,790	833	1,193
166.75	4,225	1,002	2,194
166.90	4,356	644	2,838

Device	Routing	Invert	Outlet Devices
#1	Primary	166.00'	24.0" Round Culvert L= 293.0' Ke= 0.500 Inlet / Outlet Invert= 166.00' / 142.00' S= 0.0819 '/' Cc= 0.900 n= 0.014, Flow Area= 3.14 sf

Primary OutFlow Max=17.34 cfs @ 12.09 hrs HW=168.31' (Free Discharge)

↑1=Culvert (Inlet Controls 17.34 cfs @ 5.52 fps)

Summary for Pond 22.4P:

Inflow Area = 50.081 ac, 35.93% Impervious, Inflow Depth > 2.85" for 100-Year event
 Inflow = 108.29 cfs @ 12.09 hrs, Volume= 11.876 af
 Outflow = 27.60 cfs @ 12.62 hrs, Volume= 11.713 af, Atten= 75%, Lag= 31.8 min
 Primary = 27.60 cfs @ 12.62 hrs, Volume= 11.713 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 77.56' @ 12.62 hrs Surf.Area= 36,626 sf Storage= 140,383 cf

Plug-Flow detention time= 53.2 min calculated for 11.684 af (98% of inflow)

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Type III 24-hr 100-Year Rainfall=6.65"

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Center-of-Mass det. time= 47.8 min (839.1 - 791.3)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	233,786 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	5,227	0	0
71.25	5,793	1,378	1,378
71.50	6,360	1,519	2,897
71.75	6,926	1,661	4,557
72.00	7,492	1,802	6,360
72.25	9,295	2,098	8,458
72.50	11,097	2,549	11,007
72.75	12,899	3,000	14,007
73.00	14,702	3,450	17,457
73.25	16,504	3,901	21,357
73.50	18,306	4,351	25,709
73.75	20,108	4,802	30,510
74.00	21,911	5,252	35,763
74.25	22,983	5,612	41,375
74.50	24,056	5,880	47,254
74.75	25,129	6,148	53,403
75.00	26,201	6,416	59,819
75.25	27,274	6,684	66,503
75.50	28,347	6,953	73,456
75.75	29,419	7,221	80,677
76.00	30,492	7,489	88,165
76.25	31,478	7,746	95,912
76.50	32,463	7,993	103,904
76.75	33,449	8,239	112,143
77.00	34,434	8,485	120,629
77.25	35,420	8,732	129,360
77.50	36,405	8,978	138,339
77.75	37,391	9,225	147,563
78.00	38,376	9,471	157,034
79.00	38,376	38,376	195,410
80.00	38,376	38,376	233,786

Device	Routing	Invert	Outlet Devices
#1	Secondary	79.00'	12.0' long x 37.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	71.00'	21.0" Round Culvert L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 71.00' / 70.99' S= 0.0100 1/8" Cc= 0.900 n= 0.005, Flow Area= 2.41 sf

Primary OutFlow Max=27.60 cfs @ 12.62 hrs HW=77.55' (Free Discharge)
 ↳ **2=Culvert** (Inlet Controls 27.60 cfs @ 11.47 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 30P:

Inflow Area = 25.401 ac, 49.00% Impervious, Inflow Depth > 4.76" for 100-Year event
 Inflow = 139.37 cfs @ 12.12 hrs, Volume= 10.078 af
 Outflow = 65.50 cfs @ 12.46 hrs, Volume= 9.679 af, Atten= 53%, Lag= 19.9 min
 Primary = 65.50 cfs @ 12.46 hrs, Volume= 9.679 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 51.53' @ 12.46 hrs Surf.Area= 68,447 sf Storage= 158,529 cf

Plug-Flow detention time= 61.8 min calculated for 9.655 af (96% of inflow)
 Center-of-Mass det. time= 47.2 min (810.6 - 763.4)

Volume	Invert	Avail.Storage	Storage Description
#1	49.00'	264,538 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.00	57,194	0	0
50.00	61,543	59,369	59,369
51.00	66,022	63,783	123,151
52.00	70,631	68,327	191,478
53.00	75,490	73,061	264,538

Device	Routing	Invert	Outlet Devices
#1	Primary	49.00'	90.0 deg x 4.0' long x 2.00' rise Sharp-Crested Vee/Trap Weir Cv= 2.50 (C= 3.13)
#2	Primary	52.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=65.46 cfs @ 12.46 hrs HW=51.52' (Free Discharge)

- 1=Sharp-Crested Vee/Trap Weir (Orifice Controls 65.46 cfs @ 5.46 fps)
- 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
15.219	49	(S13, S14, S35, S40, S40.1, S41, S41.1, S42, S44, S48, S49, S50, S51, S57)
25.656	98	(S13, S14, S35, S40, S40.1, S40.2, S41, S41.1, S42, S42.1, S44, S47, S48, S49, S50, S51, S57, S58)
3.192	36	(S41, S41.1, S47)
1.604	43	(S42.1)
4.422	39	>75% Grass cover, Good, HSG A (S10, S11, S58, S7)
0.496	61	>75% Grass cover, Good, HSG B (S56.2)
0.403	98	Paved parking & roofs (S56.2)
26.065	98	Paved parking, HSG A (S10, S11, S7)
9.580	98	Roofs, HSG A (S8, S9)
86.635	83	TOTAL AREA

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S10: Retail Core South	Runoff Area=602,783 sf 94.98% Impervious Runoff Depth>2.51" Tc=5.0 min CN=95 Runoff=40.82 cfs 2.892 af
Subcatchment S11: Retail Core North	Runoff Area=503,750 sf 87.10% Impervious Runoff Depth>2.04" Tc=5.0 min CN=90 Runoff=29.24 cfs 1.965 af
Subcatchment S13:	Runoff Area=165,913 sf 64.60% Impervious Runoff Depth>1.36" Tc=5.0 min CN=81 Runoff=6.53 cfs 0.432 af
Subcatchment S14:	Runoff Area=212,773 sf 68.78% Impervious Runoff Depth>1.50" Tc=5.0 min CN=83 Runoff=9.21 cfs 0.609 af
Subcatchment S35:	Runoff Area=58,042 sf 78.43% Impervious Runoff Depth>1.79" Tc=5.0 min CN=87 Runoff=2.99 cfs 0.199 af
Subcatchment S40:	Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>1.43" Tc=5.0 min CN=82 Runoff=4.81 cfs 0.317 af
Subcatchment S40.1:	Runoff Area=2.328 ac 45.53% Impervious Runoff Depth>0.77" Tc=63.2 min CN=71 Runoff=0.82 cfs 0.150 af
Subcatchment S40.2:	Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>2.83" Tc=5.0 min CN=98 Runoff=10.00 cfs 0.754 af
Subcatchment S41:	Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>1.06" Tc=5.0 min CN=76 Runoff=1.42 cfs 0.095 af
Subcatchment S41.1:	Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>0.21" Tc=16.7 min CN=55 Runoff=0.19 cfs 0.035 af
Subcatchment S42:	Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>1.64" Tc=5.0 min CN=85 Runoff=2.97 cfs 0.197 af
Subcatchment S42.1:	Runoff Area=86,725 sf 19.44% Impervious Runoff Depth>0.19" Tc=5.0 min CN=54 Runoff=0.17 cfs 0.031 af
Subcatchment S44:	Runoff Area=62,267 sf 91.99% Impervious Runoff Depth>2.41" Tc=5.0 min CN=94 Runoff=4.11 cfs 0.287 af
Subcatchment S47:	Runoff Area=178,425 sf 27.93% Impervious Runoff Depth>0.16" Tc=18.7 min CN=53 Runoff=0.23 cfs 0.055 af
Subcatchment S48:	Runoff Area=48,433 sf 68.30% Impervious Runoff Depth>1.42" Tc=26.2 min CN=82 Runoff=1.20 cfs 0.131 af
Subcatchment S49:	Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>1.79" Tc=5.0 min CN=87 Runoff=7.00 cfs 0.466 af

Subcatchment S50:	Runoff Area=227,716 sf 10.33% Impervious Runoff Depth>0.19" Tc=5.0 min CN=54 Runoff=0.45 cfs 0.081 af
Subcatchment S51:	Runoff Area=65,668 sf 1.15% Impervious Runoff Depth>0.10" Tc=26.2 min CN=50 Runoff=0.03 cfs 0.012 af
Subcatchment S56.2:	Runoff Area=39,128 sf 44.81% Impervious Runoff Depth>1.17" Tc=5.0 min CN=78 Runoff=1.32 cfs 0.088 af
Subcatchment S57:	Runoff Area=33,373 sf 74.54% Impervious Runoff Depth>1.70" Tc=26.2 min CN=86 Runoff=0.99 cfs 0.109 af
Subcatchment S58:	Runoff Area=185,794 sf 85.51% Impervious Runoff Depth>1.95" Tc=5.0 min CN=89 Runoff=10.40 cfs 0.695 af
Subcatchment S7: Retail Core North	Runoff Area=194,544 sf 63.77% Impervious Runoff Depth>1.11" Tc=5.0 min CN=77 Runoff=6.20 cfs 0.414 af
Subcatchment S8: Retail Core South	Runoff Area=219,409 sf 100.00% Impervious Runoff Depth>2.83" Tc=5.0 min CN=98 Runoff=15.75 cfs 1.187 af
Subcatchment S9: Retail Core North	Runoff Area=197,875 sf 100.00% Impervious Runoff Depth>2.83" Tc=5.0 min CN=98 Runoff=14.20 cfs 1.071 af
Reach 1R: 60"	Avg. Flow Depth=0.93' Max Vel=5.90 fps Inflow=15.17 cfs 1.560 af 60.0" Round Pipe n=0.014 L=480.0' S=0.0066 '/ Capacity=196.22 cfs Outflow=14.84 cfs 1.558 af
Reach L113: 72"	Avg. Flow Depth=1.33' Max Vel=11.50 fps Inflow=53.46 cfs 5.131 af 72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/ Capacity=498.08 cfs Outflow=53.35 cfs 5.130 af
Reach L123:	Avg. Flow Depth=1.45' Max Vel=5.35 fps Inflow=22.30 cfs 1.978 af 48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/ Capacity=78.83 cfs Outflow=21.57 cfs 1.974 af
Reach L157:	Avg. Flow Depth=1.21' Max Vel=4.21 fps Inflow=13.49 cfs 0.947 af 48.0" Round Pipe n=0.014 L=138.0' S=0.0026 '/ Capacity=68.13 cfs Outflow=13.14 cfs 0.946 af
Reach L158:	Avg. Flow Depth=1.16' Max Vel=4.70 fps Inflow=14.49 cfs 1.190 af 48.0" Round Pipe n=0.014 L=254.0' S=0.0034 '/ Capacity=77.61 cfs Outflow=14.03 cfs 1.188 af
Reach L159:	Avg. Flow Depth=0.26' Max Vel=2.32 fps Inflow=0.82 cfs 0.150 af 48.0" Round Pipe n=0.014 L=340.0' S=0.0050 '/ Capacity=94.32 cfs Outflow=0.82 cfs 0.149 af
Reach L69: 60"	Avg. Flow Depth=1.35' Max Vel=7.34 fps Inflow=31.42 cfs 2.931 af 60.0" Round Pipe n=0.014 L=127.0' S=0.0066 '/ Capacity=196.68 cfs Outflow=31.19 cfs 2.930 af
Reach L76:	Avg. Flow Depth=0.93' Max Vel=4.23 fps Inflow=9.52 cfs 0.631 af 48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/ Capacity=78.83 cfs Outflow=8.97 cfs 0.629 af
Reach L81:	Avg. Flow Depth=1.15' Max Vel=7.03 fps Inflow=23.83 cfs 2.171 af 60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/ Capacity=207.41 cfs Outflow=23.72 cfs 2.170 af
Reach P2: 78"	Avg. Flow Depth=1.26' Max Vel=11.86 fps Inflow=53.35 cfs 5.130 af 78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/ Capacity=653.15 cfs Outflow=53.32 cfs 5.129 af

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Type III 24-hr 2-Year Rainfall=3.20"

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Reach POA 2: POA 2

Inflow=53.32 cfs 5.129 af
Outflow=53.32 cfs 5.129 af

Pond 10P: (new Pond)

Peak Elev=50.59' Storage=49,244 cf Inflow=56.57 cfs 4.080 af
Discarded=7.47 cfs 3.643 af Primary=8.27 cfs 0.433 af Outflow=15.74 cfs 4.076 af

Pond 11P: (new Pond)

Peak Elev=49.86' Storage=42,431 cf Inflow=49.60 cfs 3.450 af
Discarded=8.83 cfs 3.413 af Primary=0.99 cfs 0.035 af Outflow=9.82 cfs 3.448 af

Pond 42.1P:

Peak Elev=39.06' Storage=2,246 cf Inflow=54.24 cfs 5.131 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/' Outflow=53.46 cfs 5.131 af

Pond 47P:

Peak Elev=44.13' Storage=2,386 cf Inflow=0.23 cfs 0.055 af
Outflow=0.00 cfs 0.000 af

Pond 51P:

Peak Elev=45.53' Storage=541 cf Inflow=0.03 cfs 0.012 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 86.635 ac Runoff Volume = 12.272 af Average Runoff Depth = 1.70"
28.78% Pervious = 24.933 ac 71.22% Impervious = 61.703 ac

Summary for Subcatchment S10: Retail Core South

Runoff = 40.82 cfs @ 12.07 hrs, Volume= 2.892 af, Depth> 2.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
30,244	39	>75% Grass cover, Good, HSG A
572,539	98	Paved parking, HSG A
602,783	95	Weighted Average
30,244		5.02% Pervious Area
572,539		94.98% Impervious Area

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

Summary for Subcatchment S11: Retail Core North

Runoff = 29.24 cfs @ 12.07 hrs, Volume= 1.965 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
64,972	39	>75% Grass cover, Good, HSG A
438,778	98	Paved parking, HSG A
503,750	90	Weighted Average
64,972		12.90% Pervious Area
438,778		87.10% Impervious Area

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

Summary for Subcatchment S13:

Runoff = 6.53 cfs @ 12.08 hrs, Volume= 0.432 af, Depth> 1.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 58,740	49	
* 107,173	98	
165,913	81	Weighted Average
58,740		35.40% Pervious Area
107,173		64.60% Impervious Area

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

Summary for Subcatchment S14:

Runoff = 9.21 cfs @ 12.08 hrs, Volume= 0.609 af, Depth> 1.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 66,423	49	
* 146,350	98	
212,773	83	Weighted Average
66,423		31.22% Pervious Area
146,350		68.78% Impervious Area

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

Summary for Subcatchment S35:

Runoff = 2.99 cfs @ 12.08 hrs, Volume= 0.199 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 12,520	49	
* 45,522	98	
58,042	87	Weighted Average
12,520		21.57% Pervious Area
45,522		78.43% Impervious Area

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

Summary for Subcatchment S40:

Runoff = 4.81 cfs @ 12.08 hrs, Volume= 0.317 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
* 0.870	49	
* 1.800	98	
2.670	82	Weighted Average
0.870		32.58% Pervious Area
1.800		67.42% Impervious Area

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

Summary for Subcatchment S40.1:

Runoff = 0.82 cfs @ 12.94 hrs, Volume= 0.150 af, Depth> 0.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.268	49	
* 1.060	98	
2.328	71	Weighted Average
1.268		54.47% Pervious Area
1.060		45.53% Impervious Area

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

Summary for Subcatchment S40.2:

Runoff = 10.00 cfs @ 12.07 hrs, Volume= 0.754 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 3.200	98	
3.200		100.00% Impervious Area

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

Summary for Subcatchment S41:

Runoff = 1.42 cfs @ 12.08 hrs, Volume= 0.095 af, Depth> 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.460	49	
* 0.020	36	
* 0.600	98	
1.080	76	Weighted Average
0.480		44.44% Pervious Area
0.600		55.56% Impervious Area

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

Summary for Subcatchment S41.1:

Runoff = 0.19 cfs @ 12.50 hrs, Volume= 0.035 af, Depth> 0.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 1.510	49	
* 0.220	36	
* 0.300	98	
2.030	55	Weighted Average
1.730		85.22% Pervious Area
0.300		14.78% Impervious Area

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

Summary for Subcatchment S42:

Runoff = 2.97 cfs @ 12.08 hrs, Volume= 0.197 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
* 0.380	49	
* 1.060	98	
1.440	85	Weighted Average
0.380		26.39% Pervious Area
1.060		73.61% Impervious Area

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

Summary for Subcatchment S42.1:

Runoff = 0.17 cfs @ 12.34 hrs, Volume= 0.031 af, Depth> 0.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 69,866	43	
* 16,859	98	
86,725	54	Weighted Average
69,866		80.56% Pervious Area
16,859		19.44% Impervious Area

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

Summary for Subcatchment S44:

Runoff = 4.11 cfs @ 12.07 hrs, Volume= 0.287 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 4,988	49	
* 57,279	98	
62,267	94	Weighted Average
4,988		8.01% Pervious Area
57,279		91.99% Impervious Area

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

Summary for Subcatchment S47:

Runoff = 0.23 cfs @ 12.57 hrs, Volume= 0.055 af, Depth> 0.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	128,596	36	
*	49,829	98	
	178,425	53	Weighted Average
	128,596		72.07% Pervious Area
	49,829		27.93% Impervious Area

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

Summary for Subcatchment S48:

Runoff = 1.20 cfs @ 12.37 hrs, Volume= 0.131 af, Depth> 1.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	15,352	49	
*	33,081	98	
	48,433	82	Weighted Average
	15,352		31.70% Pervious Area
	33,081		68.30% Impervious Area

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

Summary for Subcatchment S49:

Runoff = 7.00 cfs @ 12.08 hrs, Volume= 0.466 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.730	49	
*	2.390	98	
	3.120	87	Weighted Average
	0.730		23.40% Pervious Area
	2.390		76.60% Impervious Area

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Type III 24-hr 2-Year Rainfall=3.20"

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

Summary for Subcatchment S50:

Runoff = 0.45 cfs @ 12.34 hrs, Volume= 0.081 af, Depth> 0.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	204,204	49	
*	23,512	98	
	227,716	54	Weighted Average
	204,204		89.67% Pervious Area
	23,512		10.33% Impervious Area

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

Summary for Subcatchment S51:

Runoff = 0.03 cfs @ 13.09 hrs, Volume= 0.012 af, Depth> 0.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	64,916	49	
*	752	98	
	65,668	50	Weighted Average
	64,916		98.85% Pervious Area
	752		1.15% Impervious Area

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

Summary for Subcatchment S56.2:

Runoff = 1.32 cfs @ 12.08 hrs, Volume= 0.088 af, Depth> 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Type III 24-hr 2-Year Rainfall=3.20"

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Area (sf)	CN	Description
21,593	61	>75% Grass cover, Good, HSG B
17,535	98	Paved parking & roofs
39,128	78	Weighted Average
21,593		55.19% Pervious Area
17,535		44.81% Impervious Area

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

Summary for Subcatchment S57:

Runoff = 0.99 cfs @ 12.36 hrs, Volume= 0.109 af, Depth> 1.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 8,496	49	
* 24,877	98	
33,373	86	Weighted Average
8,496		25.46% Pervious Area
24,877		74.54% Impervious Area

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

Summary for Subcatchment S58:

Runoff = 10.40 cfs @ 12.07 hrs, Volume= 0.695 af, Depth> 1.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
26,919	39	>75% Grass cover, Good, HSG A
* 158,875	98	
185,794	89	Weighted Average
26,919		14.49% Pervious Area
158,875		85.51% Impervious Area

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

Summary for Subcatchment S7: Retail Core North Loading

Runoff = 6.20 cfs @ 12.08 hrs, Volume= 0.414 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
70,484	39	>75% Grass cover, Good, HSG A
124,060	98	Paved parking, HSG A
194,544	77	Weighted Average
70,484		36.23% Pervious Area
124,060		63.77% Impervious Area

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

Summary for Subcatchment S8: Retail Core South Roof

Runoff = 15.75 cfs @ 12.07 hrs, Volume= 1.187 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
219,409	98	Roofs, HSG A
219,409		100.00% Impervious Area

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

Summary for Subcatchment S9: Retail Core North Roof

Runoff = 14.20 cfs @ 12.07 hrs, Volume= 1.071 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
197,875	98	Roofs, HSG A
197,875		100.00% Impervious Area

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

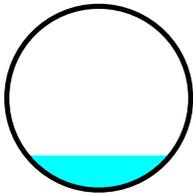
Summary for Reach 1R: 60"

Inflow Area = 47.427 ac, 87.07% Impervious, Inflow Depth > 0.39" for 2-Year event
Inflow = 15.17 cfs @ 12.09 hrs, Volume= 1.560 af
Outflow = 14.84 cfs @ 12.39 hrs, Volume= 1.558 af, Atten= 2%, Lag= 17.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 5.90 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 2.04 fps, Avg. Travel Time= 3.9 min

Peak Storage= 1,219 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.93'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.22 cfs

60.0" Round Pipe
n= 0.014
Length= 480.0' Slope= 0.0066 '/'
Inlet Invert= 42.00', Outlet Invert= 38.84'



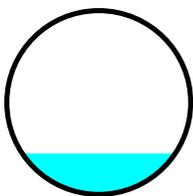
Summary for Reach L113: 72"

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 0.71" for 2-Year event
Inflow = 53.46 cfs @ 12.14 hrs, Volume= 5.131 af
Outflow = 53.35 cfs @ 12.15 hrs, Volume= 5.130 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.50 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.82 fps, Avg. Travel Time= 0.4 min

Peak Storage= 447 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.33'
Bank-Full Depth= 6.00' Flow Area= 28.3 sf, Capacity= 498.08 cfs

72.0" Round Pipe
n= 0.014
Length= 96.0' Slope= 0.0160 '/'
Inlet Invert= 36.11', Outlet Invert= 34.57'



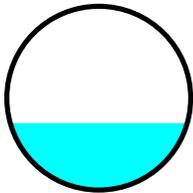
Summary for Reach L123:

Inflow Area = 16.449 ac, 63.62% Impervious, Inflow Depth > 1.44" for 2-Year event
Inflow = 22.30 cfs @ 12.11 hrs, Volume= 1.978 af
Outflow = 21.57 cfs @ 12.15 hrs, Volume= 1.974 af, Atten= 3%, Lag= 2.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.35 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.85 fps, Avg. Travel Time= 3.2 min

Peak Storage= 1,459 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.45'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



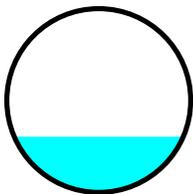
Summary for Reach L157:

Inflow Area = 7.811 ac, 67.92% Impervious, Inflow Depth > 1.45" for 2-Year event
Inflow = 13.49 cfs @ 12.11 hrs, Volume= 0.947 af
Outflow = 13.14 cfs @ 12.12 hrs, Volume= 0.946 af, Atten= 3%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.21 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.55 fps, Avg. Travel Time= 1.5 min

Peak Storage= 440 cf @ 12.11 hrs
Average Depth at Peak Storage= 1.21'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 68.13 cfs

48.0" Round Pipe
n= 0.014
Length= 138.0' Slope= 0.0026 '/'
Inlet Invert= 42.06', Outlet Invert= 41.70'



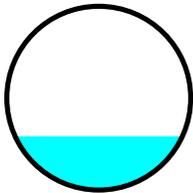
Summary for Reach L158:

Inflow Area = 11.219 ac, 62.08% Impervious, Inflow Depth > 1.27" for 2-Year event
Inflow = 14.49 cfs @ 12.12 hrs, Volume= 1.190 af
Outflow = 14.03 cfs @ 12.15 hrs, Volume= 1.188 af, Atten= 3%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.70 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.83 fps, Avg. Travel Time= 2.3 min

Peak Storage= 771 cf @ 12.13 hrs
Average Depth at Peak Storage= 1.16'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 77.61 cfs

48.0" Round Pipe
n= 0.014
Length= 254.0' Slope= 0.0034 '/'
Inlet Invert= 41.60', Outlet Invert= 40.74'



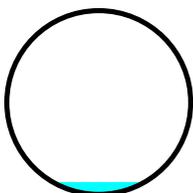
Summary for Reach L159:

Inflow Area = 2.328 ac, 45.53% Impervious, Inflow Depth > 0.77" for 2-Year event
Inflow = 0.82 cfs @ 12.94 hrs, Volume= 0.150 af
Outflow = 0.82 cfs @ 13.01 hrs, Volume= 0.149 af, Atten= 0%, Lag= 4.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.32 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 1.40 fps, Avg. Travel Time= 4.0 min

Peak Storage= 120 cf @ 12.97 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 340.0' Slope= 0.0050 '/'
Inlet Invert= 43.40', Outlet Invert= 41.70'



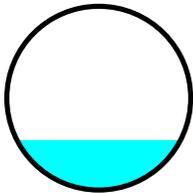
Summary for Reach L69: 60"

Inflow Area = 65.247 ac, 76.28% Impervious, Inflow Depth > 0.54" for 2-Year event
Inflow = 31.42 cfs @ 12.10 hrs, Volume= 2.931 af
Outflow = 31.19 cfs @ 12.11 hrs, Volume= 2.930 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.34 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.53 fps, Avg. Travel Time= 0.8 min

Peak Storage= 545 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.35'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.68 cfs

60.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0066 '/'
Inlet Invert= 38.84', Outlet Invert= 38.00'



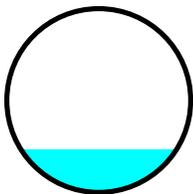
Summary for Reach L76:

Inflow Area = 5.141 ac, 68.18% Impervious, Inflow Depth > 1.47" for 2-Year event
Inflow = 9.52 cfs @ 12.08 hrs, Volume= 0.631 af
Outflow = 8.97 cfs @ 12.12 hrs, Volume= 0.629 af, Atten= 6%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.23 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 1.53 fps, Avg. Travel Time= 3.9 min

Peak Storage= 792 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.93'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



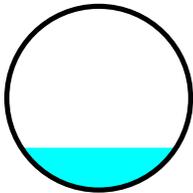
Summary for Reach L81:

Inflow Area = 17.889 ac, 64.43% Impervious, Inflow Depth > 1.46" for 2-Year event
Inflow = 23.83 cfs @ 12.14 hrs, Volume= 2.171 af
Outflow = 23.72 cfs @ 12.15 hrs, Volume= 2.170 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.03 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.40 fps, Avg. Travel Time= 0.8 min

Peak Storage= 410 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.15'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 207.41 cfs

60.0" Round Pipe
n= 0.014
Length= 121.0' Slope= 0.0074 '/'
Inlet Invert= 38.80', Outlet Invert= 37.91'



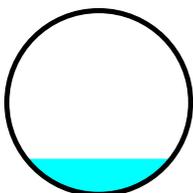
Summary for Reach P2: 78"

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 0.71" for 2-Year event
Inflow = 53.35 cfs @ 12.15 hrs, Volume= 5.130 af
Outflow = 53.32 cfs @ 12.15 hrs, Volume= 5.129 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.86 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.95 fps, Avg. Travel Time= 0.1 min

Peak Storage= 112 cf @ 12.15 hrs
Average Depth at Peak Storage= 1.26'
Bank-Full Depth= 6.50' Flow Area= 33.2 sf, Capacity= 653.15 cfs

78.0" Round Pipe
n= 0.014
Length= 25.0' Slope= 0.0180 '/'
Inlet Invert= 34.57', Outlet Invert= 34.12'



Summary for Reach POA 2: POA 2

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 0.71" for 2-Year event
 Inflow = 53.32 cfs @ 12.15 hrs, Volume= 5.129 af
 Outflow = 53.32 cfs @ 12.15 hrs, Volume= 5.129 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 10P: (new Pond)

Inflow Area = 18.875 ac, 96.32% Impervious, Inflow Depth > 2.59" for 2-Year event
 Inflow = 56.57 cfs @ 12.07 hrs, Volume= 4.080 af
 Outflow = 15.74 cfs @ 12.41 hrs, Volume= 4.076 af, Atten= 72%, Lag= 20.3 min
 Discarded = 7.47 cfs @ 12.41 hrs, Volume= 3.643 af
 Primary = 8.27 cfs @ 12.41 hrs, Volume= 0.433 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 50.59' @ 12.41 hrs Surf.Area= 37,000 sf Storage= 49,244 cf

Plug-Flow detention time= 32.7 min calculated for 4.076 af (100% of inflow)
 Center-of-Mass det. time= 32.3 min (776.6 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	45,500 cf	Custom Stage Data (Prismatic) Listed below Inside #2
#2	48.00'	78,000 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			240,500 cf Overall - 45,500 cf Embedded = 195,000 cf x 40.0% Voids
		123,500 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	7,000	0	0
49.00	7,000	7,000	7,000
50.00	7,000	7,000	14,000
51.00	7,000	7,000	21,000
52.00	7,000	7,000	28,000
53.00	7,000	7,000	35,000
54.00	7,000	7,000	42,000
54.50	7,000	3,500	45,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	37,000	0	0
49.00	37,000	37,000	37,000
50.00	37,000	37,000	74,000
51.00	37,000	37,000	111,000
52.00	37,000	37,000	148,000
53.00	37,000	37,000	185,000
54.00	37,000	37,000	222,000
54.50	37,000	18,500	240,500

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Type III 24-hr 2-Year Rainfall=3.20"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	48.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.50'	36.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=7.47 cfs @ 12.41 hrs HW=50.59' (Free Discharge)

↳ **1=Exfiltration** (Controls 7.47 cfs)

Primary OutFlow Max=8.24 cfs @ 12.41 hrs HW=50.59' (Free Discharge)

↳ **2=Orifice/Grate** (Orifice Controls 8.24 cfs @ 3.55 fps)

Summary for Pond 11P: (new Pond)

Inflow Area = 20.573 ac, 84.88% Impervious, Inflow Depth > 2.01" for 2-Year event
 Inflow = 49.60 cfs @ 12.07 hrs, Volume= 3.450 af
 Outflow = 9.82 cfs @ 12.51 hrs, Volume= 3.448 af, Atten= 80%, Lag= 26.3 min
 Discarded = 8.83 cfs @ 12.51 hrs, Volume= 3.413 af
 Primary = 0.99 cfs @ 12.51 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 49.86' @ 12.51 hrs Surf.Area= 44,400 sf Storage= 42,431 cf

Plug-Flow detention time= 30.0 min calculated for 3.448 af (100% of inflow)
 Center-of-Mass det. time= 29.7 min (793.6 - 763.9)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	46,200 cf	Custom Stage Data (Prismatic) Listed below Inside #2
#2	48.00'	79,200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			244,200 cf Overall - 46,200 cf Embedded = 198,000 cf x 40.0% Voids
		125,400 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	8,400	0	0
49.00	8,400	8,400	8,400
50.00	8,400	8,400	16,800
51.00	8,400	8,400	25,200
52.00	8,400	8,400	33,600
53.00	8,400	8,400	42,000
53.50	8,400	4,200	46,200

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	44,400	0	0
49.00	44,400	44,400	44,400
50.00	44,400	44,400	88,800
51.00	44,400	44,400	133,200
52.00	44,400	44,400	177,600
53.00	44,400	44,400	222,000
53.50	44,400	22,200	244,200

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Type III 24-hr 2-Year Rainfall=3.20"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	48.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.50'	36.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=8.83 cfs @ 12.51 hrs HW=49.86' (Free Discharge)

↳ **1=Exfiltration** (Controls 8.83 cfs)

Primary OutFlow Max=0.98 cfs @ 12.51 hrs HW=49.86' (Free Discharge)

↳ **2=Orifice/Grate** (Orifice Controls 0.98 cfs @ 2.04 fps)

Summary for Pond 42.1P:

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 0.71" for 2-Year event
 Inflow = 54.24 cfs @ 12.12 hrs, Volume= 5.131 af
 Outflow = 53.46 cfs @ 12.14 hrs, Volume= 5.131 af, Atten= 1%, Lag= 1.3 min
 Primary = 53.46 cfs @ 12.14 hrs, Volume= 5.131 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 39.06' @ 12.14 hrs Surf.Area= 1,912 sf Storage= 2,246 cf

Plug-Flow detention time= 0.3 min calculated for 5.118 af (100% of inflow)
 Center-of-Mass det. time= 0.3 min (786.0 - 785.7)

Volume	Invert	Avail.Storage	Storage Description
#1	36.10'	83,475 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.10	0	0	0
36.56	36	8	8
37.02	71	25	33
37.52	628	175	208
38.02	1,185	453	661
38.52	1,515	675	1,336
39.02	1,845	840	2,176
39.52	2,750	1,149	3,325
40.02	3,654	1,601	4,926
40.52	6,082	2,434	7,360
41.02	8,510	3,648	11,008
41.52	9,847	4,589	15,597
42.02	11,185	5,258	20,855
42.52	12,262	5,862	26,717
43.02	13,340	6,401	33,117
43.52	14,672	7,003	40,120
44.02	16,005	7,669	47,789
44.52	17,355	8,340	56,129
45.02	18,705	9,015	65,144
46.00	18,705	18,331	83,475

Device	Routing	Invert	Outlet Devices
#1	Primary	36.11'	72.0" Round Culvert L= 1.0' Ke= 0.500

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Inlet / Outlet Invert= 36.11' / 36.10' S= 0.0100 1/ S= 0.0100 1/ Cc= 0.900
 n= 0.014, Flow Area= 28.27 sf

Primary OutFlow Max=53.03 cfs @ 12.14 hrs HW=39.04' (Free Discharge)

↑1=Culvert (Barrel Controls 53.03 cfs @ 5.64 fps)

Summary for Pond 47P:

Inflow Area = 4.096 ac, 27.93% Impervious, Inflow Depth > 0.16" for 2-Year event
 Inflow = 0.23 cfs @ 12.57 hrs, Volume= 0.055 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.13' @ 20.00 hrs Surf.Area= 19,016 sf Storage= 2,386 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	277,477 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	17,860	0	0
44.50	22,325	10,046	10,046
45.00	26,789	12,279	22,325
45.50	31,254	14,511	36,836
46.00	35,719	16,743	53,579
46.50	42,471	19,548	73,126
47.00	49,223	22,924	96,050
47.50	55,975	26,300	122,349
48.00	62,726	29,675	152,025
50.00	62,726	125,452	277,477

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	165.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 51P:

Inflow Area = 1.508 ac, 1.15% Impervious, Inflow Depth > 0.10" for 2-Year event
 Inflow = 0.03 cfs @ 13.09 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

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Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 45.53' @ 20.00 hrs Surf.Area= 1,505 sf Storage= 541 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	77,839 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	537	0	0
46.00	2,365	1,451	1,451
47.00	6,927	4,646	6,097
48.00	17,254	12,091	18,188
49.00	31,195	24,225	42,412
50.00	39,658	35,427	77,839

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	75.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.00' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S10: Retail Core South	Runoff Area=602,783 sf 94.98% Impervious Runoff Depth>3.82" Tc=5.0 min CN=95 Runoff=60.64 cfs 4.411 af
Subcatchment S11: Retail Core North	Runoff Area=503,750 sf 87.10% Impervious Runoff Depth>3.30" Tc=5.0 min CN=90 Runoff=46.18 cfs 3.179 af
Subcatchment S13:	Runoff Area=165,913 sf 64.60% Impervious Runoff Depth>2.46" Tc=5.0 min CN=81 Runoff=11.77 cfs 0.781 af
Subcatchment S14:	Runoff Area=212,773 sf 68.78% Impervious Runoff Depth>2.64" Tc=5.0 min CN=83 Runoff=16.08 cfs 1.073 af
Subcatchment S35:	Runoff Area=58,042 sf 78.43% Impervious Runoff Depth>3.01" Tc=5.0 min CN=87 Runoff=4.94 cfs 0.334 af
Subcatchment S40:	Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>2.55" Tc=5.0 min CN=82 Runoff=8.52 cfs 0.567 af
Subcatchment S40.1:	Runoff Area=2.328 ac 45.53% Impervious Runoff Depth>1.63" Tc=63.2 min CN=71 Runoff=1.84 cfs 0.317 af
Subcatchment S40.2:	Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>4.16" Tc=5.0 min CN=98 Runoff=14.48 cfs 1.110 af
Subcatchment S41:	Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>2.05" Tc=5.0 min CN=76 Runoff=2.79 cfs 0.184 af
Subcatchment S41.1:	Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>0.69" Tc=16.7 min CN=55 Runoff=1.00 cfs 0.117 af
Subcatchment S42:	Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>2.82" Tc=5.0 min CN=85 Runoff=5.06 cfs 0.338 af
Subcatchment S42.1:	Runoff Area=86,725 sf 19.44% Impervious Runoff Depth>0.65" Tc=5.0 min CN=54 Runoff=1.24 cfs 0.107 af
Subcatchment S44:	Runoff Area=62,267 sf 91.99% Impervious Runoff Depth>3.72" Tc=5.0 min CN=94 Runoff=6.17 cfs 0.443 af
Subcatchment S47:	Runoff Area=178,425 sf 27.93% Impervious Runoff Depth>0.59" Tc=18.7 min CN=53 Runoff=1.54 cfs 0.203 af
Subcatchment S48:	Runoff Area=48,433 sf 68.30% Impervious Runoff Depth>2.53" Tc=26.2 min CN=82 Runoff=2.13 cfs 0.234 af
Subcatchment S49:	Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>3.01" Tc=5.0 min CN=87 Runoff=11.58 cfs 0.781 af

Subcatchment S50:	Runoff Area=227,716 sf 10.33% Impervious Runoff Depth>0.65" Tc=5.0 min CN=54 Runoff=3.26 cfs 0.282 af
Subcatchment S51:	Runoff Area=65,668 sf 1.15% Impervious Runoff Depth>0.46" Tc=26.2 min CN=50 Runoff=0.34 cfs 0.057 af
Subcatchment S56.2:	Runoff Area=39,128 sf 44.81% Impervious Runoff Depth>2.21" Tc=5.0 min CN=78 Runoff=2.50 cfs 0.165 af
Subcatchment S57:	Runoff Area=33,373 sf 74.54% Impervious Runoff Depth>2.89" Tc=26.2 min CN=86 Runoff=1.66 cfs 0.185 af
Subcatchment S58:	Runoff Area=185,794 sf 85.51% Impervious Runoff Depth>3.20" Tc=5.0 min CN=89 Runoff=16.64 cfs 1.137 af
Subcatchment S7: Retail Core North	Runoff Area=194,544 sf 63.77% Impervious Runoff Depth>2.13" Tc=5.0 min CN=77 Runoff=12.00 cfs 0.792 af
Subcatchment S8: Retail Core South	Runoff Area=219,409 sf 100.00% Impervious Runoff Depth>4.16" Tc=5.0 min CN=98 Runoff=22.79 cfs 1.748 af
Subcatchment S9: Retail Core North	Runoff Area=197,875 sf 100.00% Impervious Runoff Depth>4.16" Tc=5.0 min CN=98 Runoff=20.55 cfs 1.576 af
Reach 1R: 60"	Avg. Flow Depth=1.73' Max Vel=8.37 fps Inflow=50.49 cfs 4.157 af 60.0" Round Pipe n=0.014 L=480.0' S=0.0066 '/ Capacity=196.22 cfs Outflow=50.23 cfs 4.154 af
Reach L113: 72"	Avg. Flow Depth=1.87' Max Vel=13.97 fps Inflow=105.45 cfs 10.431 af 72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/ Capacity=498.08 cfs Outflow=105.34 cfs 10.429 af
Reach L123:	Avg. Flow Depth=1.97' Max Vel=6.20 fps Inflow=38.55 cfs 3.404 af 48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/ Capacity=78.83 cfs Outflow=37.24 cfs 3.399 af
Reach L157:	Avg. Flow Depth=1.64' Max Vel=4.95 fps Inflow=24.05 cfs 1.680 af 48.0" Round Pipe n=0.014 L=138.0' S=0.0026 '/ Capacity=68.13 cfs Outflow=23.55 cfs 1.679 af
Reach L158:	Avg. Flow Depth=1.60' Max Vel=5.55 fps Inflow=26.42 cfs 2.179 af 48.0" Round Pipe n=0.014 L=254.0' S=0.0034 '/ Capacity=77.61 cfs Outflow=25.45 cfs 2.176 af
Reach L159:	Avg. Flow Depth=0.39' Max Vel=2.95 fps Inflow=1.84 cfs 0.317 af 48.0" Round Pipe n=0.014 L=340.0' S=0.0050 '/ Capacity=94.32 cfs Outflow=1.83 cfs 0.316 af
Reach L69: 60"	Avg. Flow Depth=1.99' Max Vel=9.03 fps Inflow=65.88 cfs 6.589 af 60.0" Round Pipe n=0.014 L=127.0' S=0.0066 '/ Capacity=196.68 cfs Outflow=65.84 cfs 6.587 af
Reach L76:	Avg. Flow Depth=1.25' Max Vel=4.97 fps Inflow=16.68 cfs 1.115 af 48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/ Capacity=78.83 cfs Outflow=15.90 cfs 1.113 af
Reach L81:	Avg. Flow Depth=1.51' Max Vel=8.22 fps Inflow=41.16 cfs 3.737 af 60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/ Capacity=207.41 cfs Outflow=40.97 cfs 3.736 af
Reach P2: 78"	Avg. Flow Depth=1.77' Max Vel=14.45 fps Inflow=105.34 cfs 10.429 af 78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/ Capacity=653.15 cfs Outflow=105.31 cfs 10.429 af

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Reach POA 2: POA 2

Inflow=105.31 cfs 10.429 af
Outflow=105.31 cfs 10.429 af

Pond 10P: (new Pond)

Peak Elev=51.57' Storage=67,843 cf Inflow=83.43 cfs 6.158 af
Discarded=7.61 cfs 4.717 af Primary=25.50 cfs 1.437 af Outflow=33.11 cfs 6.154 af

Pond 11P: (new Pond)

Peak Elev=50.98' Storage=68,037 cf Inflow=78.73 cfs 5.548 af
Discarded=9.03 cfs 4.690 af Primary=14.46 cfs 0.854 af Outflow=23.49 cfs 5.544 af

Pond 42.1P:

Peak Elev=40.41' Storage=6,702 cf Inflow=107.77 cfs 10.431 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/' Outflow=105.45 cfs 10.431 af

Pond 47P:

Peak Elev=44.44' Storage=8,827 cf Inflow=1.54 cfs 0.203 af
Outflow=0.00 cfs 0.000 af

Pond 51P:

Peak Elev=46.33' Storage=2,498 cf Inflow=0.34 cfs 0.057 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 86.635 ac Runoff Volume = 20.123 af Average Runoff Depth = 2.79"
28.78% Pervious = 24.933 ac 71.22% Impervious = 61.703 ac

Summary for Subcatchment S10: Retail Core South

Runoff = 60.64 cfs @ 12.07 hrs, Volume= 4.411 af, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
30,244	39	>75% Grass cover, Good, HSG A
572,539	98	Paved parking, HSG A
602,783	95	Weighted Average
30,244		5.02% Pervious Area
572,539		94.98% Impervious Area

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

Summary for Subcatchment S11: Retail Core North

Runoff = 46.18 cfs @ 12.07 hrs, Volume= 3.179 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
64,972	39	>75% Grass cover, Good, HSG A
438,778	98	Paved parking, HSG A
503,750	90	Weighted Average
64,972		12.90% Pervious Area
438,778		87.10% Impervious Area

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

Summary for Subcatchment S13:

Runoff = 11.77 cfs @ 12.08 hrs, Volume= 0.781 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 58,740	49	
* 107,173	98	
165,913	81	Weighted Average
58,740		35.40% Pervious Area
107,173		64.60% Impervious Area

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

Summary for Subcatchment S14:

Runoff = 16.08 cfs @ 12.08 hrs, Volume= 1.073 af, Depth> 2.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 66,423	49	
* 146,350	98	
212,773	83	Weighted Average
66,423		31.22% Pervious Area
146,350		68.78% Impervious Area

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

Summary for Subcatchment S35:

Runoff = 4.94 cfs @ 12.07 hrs, Volume= 0.334 af, Depth> 3.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 12,520	49	
* 45,522	98	
58,042	87	Weighted Average
12,520		21.57% Pervious Area
45,522		78.43% Impervious Area

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

Summary for Subcatchment S40:

Runoff = 8.52 cfs @ 12.08 hrs, Volume= 0.567 af, Depth> 2.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
* 0.870	49	
* 1.800	98	
2.670	82	Weighted Average
0.870		32.58% Pervious Area
1.800		67.42% Impervious Area

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

Summary for Subcatchment S40.1:

Runoff = 1.84 cfs @ 12.88 hrs, Volume= 0.317 af, Depth> 1.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.268	49	
* 1.060	98	
2.328	71	Weighted Average
1.268		54.47% Pervious Area
1.060		45.53% Impervious Area

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

Summary for Subcatchment S40.2:

Runoff = 14.48 cfs @ 12.07 hrs, Volume= 1.110 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 3.200	98	
3.200		100.00% Impervious Area

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

Summary for Subcatchment S41:

Runoff = 2.79 cfs @ 12.08 hrs, Volume= 0.184 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.460	49	
* 0.020	36	
* 0.600	98	
1.080	76	Weighted Average
0.480		44.44% Pervious Area
0.600		55.56% Impervious Area

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

Summary for Subcatchment S41.1:

Runoff = 1.00 cfs @ 12.30 hrs, Volume= 0.117 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 1.510	49	
* 0.220	36	
* 0.300	98	
2.030	55	Weighted Average
1.730		85.22% Pervious Area
0.300		14.78% Impervious Area

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

Summary for Subcatchment S42:

Runoff = 5.06 cfs @ 12.07 hrs, Volume= 0.338 af, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
* 0.380	49	
* 1.060	98	
1.440	85	Weighted Average
0.380		26.39% Pervious Area
1.060		73.61% Impervious Area

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

Summary for Subcatchment S42.1:

Runoff = 1.24 cfs @ 12.11 hrs, Volume= 0.107 af, Depth> 0.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 69,866	43	
* 16,859	98	
86,725	54	Weighted Average
69,866		80.56% Pervious Area
16,859		19.44% Impervious Area

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

Summary for Subcatchment S44:

Runoff = 6.17 cfs @ 12.07 hrs, Volume= 0.443 af, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 4,988	49	
* 57,279	98	
62,267	94	Weighted Average
4,988		8.01% Pervious Area
57,279		91.99% Impervious Area

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

Summary for Subcatchment S47:

Runoff = 1.54 cfs @ 12.36 hrs, Volume= 0.203 af, Depth> 0.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	128,596	36	
*	49,829	98	
	178,425	53	Weighted Average
	128,596		72.07% Pervious Area
	49,829		27.93% Impervious Area

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

Summary for Subcatchment S48:

Runoff = 2.13 cfs @ 12.36 hrs, Volume= 0.234 af, Depth> 2.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	15,352	49	
*	33,081	98	
	48,433	82	Weighted Average
	15,352		31.70% Pervious Area
	33,081		68.30% Impervious Area

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

Summary for Subcatchment S49:

Runoff = 11.58 cfs @ 12.07 hrs, Volume= 0.781 af, Depth> 3.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
*	0.730	49	
*	2.390	98	
	3.120	87	Weighted Average
	0.730		23.40% Pervious Area
	2.390		76.60% Impervious Area

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

Summary for Subcatchment S50:

Runoff = 3.26 cfs @ 12.11 hrs, Volume= 0.282 af, Depth> 0.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	204,204	49	
*	23,512	98	
	227,716	54	Weighted Average
	204,204		89.67% Pervious Area
	23,512		10.33% Impervious Area

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

Summary for Subcatchment S51:

Runoff = 0.34 cfs @ 12.54 hrs, Volume= 0.057 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	64,916	49	
*	752	98	
	65,668	50	Weighted Average
	64,916		98.85% Pervious Area
	752		1.15% Impervious Area

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

Summary for Subcatchment S56.2:

Runoff = 2.50 cfs @ 12.08 hrs, Volume= 0.165 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
21,593	61	>75% Grass cover, Good, HSG B
17,535	98	Paved parking & roofs
39,128	78	Weighted Average
21,593		55.19% Pervious Area
17,535		44.81% Impervious Area

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

Summary for Subcatchment S57:

Runoff = 1.66 cfs @ 12.36 hrs, Volume= 0.185 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 8,496	49	
* 24,877	98	
33,373	86	Weighted Average
8,496		25.46% Pervious Area
24,877		74.54% Impervious Area

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

Summary for Subcatchment S58:

Runoff = 16.64 cfs @ 12.07 hrs, Volume= 1.137 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
26,919	39	>75% Grass cover, Good, HSG A
* 158,875	98	
185,794	89	Weighted Average
26,919		14.49% Pervious Area
158,875		85.51% Impervious Area

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

Summary for Subcatchment S7: Retail Core North Loading

Runoff = 12.00 cfs @ 12.08 hrs, Volume= 0.792 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
70,484	39	>75% Grass cover, Good, HSG A
124,060	98	Paved parking, HSG A
194,544	77	Weighted Average
70,484		36.23% Pervious Area
124,060		63.77% Impervious Area

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

Summary for Subcatchment S8: Retail Core South Roof

Runoff = 22.79 cfs @ 12.07 hrs, Volume= 1.748 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
219,409	98	Roofs, HSG A
219,409		100.00% Impervious Area

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

Summary for Subcatchment S9: Retail Core North Roof

Runoff = 20.55 cfs @ 12.07 hrs, Volume= 1.576 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
197,875	98	Roofs, HSG A
197,875		100.00% Impervious Area

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

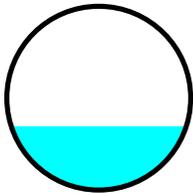
Summary for Reach 1R: 60"

Inflow Area = 47.427 ac, 87.07% Impervious, Inflow Depth > 1.05" for 10-Year event
Inflow = 50.49 cfs @ 12.29 hrs, Volume= 4.157 af
Outflow = 50.23 cfs @ 12.32 hrs, Volume= 4.154 af, Atten= 1%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 8.37 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 2.44 fps, Avg. Travel Time= 3.3 min

Peak Storage= 2,889 cf @ 12.30 hrs
Average Depth at Peak Storage= 1.73'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.22 cfs

60.0" Round Pipe
n= 0.014
Length= 480.0' Slope= 0.0066 '/'
Inlet Invert= 42.00', Outlet Invert= 38.84'



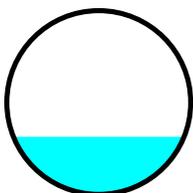
Summary for Reach L113: 72"

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 1.44" for 10-Year event
Inflow = 105.45 cfs @ 12.18 hrs, Volume= 10.431 af
Outflow = 105.34 cfs @ 12.19 hrs, Volume= 10.429 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 13.97 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.55 fps, Avg. Travel Time= 0.4 min

Peak Storage= 724 cf @ 12.18 hrs
Average Depth at Peak Storage= 1.87'
Bank-Full Depth= 6.00' Flow Area= 28.3 sf, Capacity= 498.08 cfs

72.0" Round Pipe
n= 0.014
Length= 96.0' Slope= 0.0160 '/'
Inlet Invert= 36.11', Outlet Invert= 34.57'



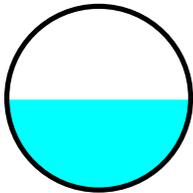
Summary for Reach L123:

Inflow Area = 16.449 ac, 63.62% Impervious, Inflow Depth > 2.48" for 10-Year event
Inflow = 38.55 cfs @ 12.11 hrs, Volume= 3.404 af
Outflow = 37.24 cfs @ 12.14 hrs, Volume= 3.399 af, Atten= 3%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.20 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 2.16 fps, Avg. Travel Time= 2.7 min

Peak Storage= 2,182 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.97'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



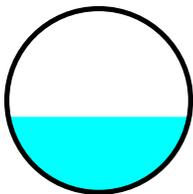
Summary for Reach L157:

Inflow Area = 7.811 ac, 67.92% Impervious, Inflow Depth > 2.58" for 10-Year event
Inflow = 24.05 cfs @ 12.10 hrs, Volume= 1.680 af
Outflow = 23.55 cfs @ 12.11 hrs, Volume= 1.679 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.95 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.74 fps, Avg. Travel Time= 1.3 min

Peak Storage= 670 cf @ 12.11 hrs
Average Depth at Peak Storage= 1.64'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 68.13 cfs

48.0" Round Pipe
n= 0.014
Length= 138.0' Slope= 0.0026 '/'
Inlet Invert= 42.06', Outlet Invert= 41.70'



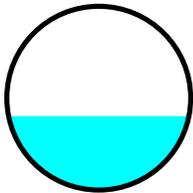
Summary for Reach L158:

Inflow Area = 11.219 ac, 62.08% Impervious, Inflow Depth > 2.33" for 10-Year event
Inflow = 26.42 cfs @ 12.11 hrs, Volume= 2.179 af
Outflow = 25.45 cfs @ 12.13 hrs, Volume= 2.176 af, Atten= 4%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.55 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.07 fps, Avg. Travel Time= 2.0 min

Peak Storage= 1,195 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.60'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 77.61 cfs

48.0" Round Pipe
n= 0.014
Length= 254.0' Slope= 0.0034 '/'
Inlet Invert= 41.60', Outlet Invert= 40.74'



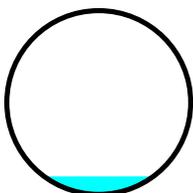
Summary for Reach L159:

Inflow Area = 2.328 ac, 45.53% Impervious, Inflow Depth > 1.63" for 10-Year event
Inflow = 1.84 cfs @ 12.88 hrs, Volume= 0.317 af
Outflow = 1.83 cfs @ 12.94 hrs, Volume= 0.316 af, Atten= 0%, Lag= 3.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.95 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 1.63 fps, Avg. Travel Time= 3.5 min

Peak Storage= 212 cf @ 12.91 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 340.0' Slope= 0.0050 '/'
Inlet Invert= 43.40', Outlet Invert= 41.70'



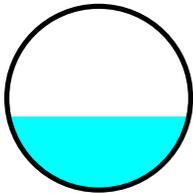
Summary for Reach L69: 60"

Inflow Area = 65.247 ac, 76.28% Impervious, Inflow Depth > 1.21" for 10-Year event
Inflow = 65.88 cfs @ 12.15 hrs, Volume= 6.589 af
Outflow = 65.84 cfs @ 12.15 hrs, Volume= 6.587 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.03 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.00 fps, Avg. Travel Time= 0.7 min

Peak Storage= 928 cf @ 12.15 hrs
Average Depth at Peak Storage= 1.99'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.68 cfs

60.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0066 '/'
Inlet Invert= 38.84', Outlet Invert= 38.00'



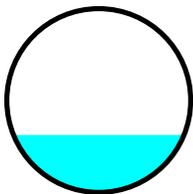
Summary for Reach L76:

Inflow Area = 5.141 ac, 68.18% Impervious, Inflow Depth > 2.60" for 10-Year event
Inflow = 16.68 cfs @ 12.08 hrs, Volume= 1.115 af
Outflow = 15.90 cfs @ 12.11 hrs, Volume= 1.113 af, Atten= 5%, Lag= 2.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.97 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.72 fps, Avg. Travel Time= 3.4 min

Peak Storage= 1,186 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.25'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



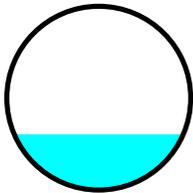
Summary for Reach L81:

Inflow Area = 17.889 ac, 64.43% Impervious, Inflow Depth > 2.51" for 10-Year event
Inflow = 41.16 cfs @ 12.13 hrs, Volume= 3.737 af
Outflow = 40.97 cfs @ 12.14 hrs, Volume= 3.736 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.22 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.79 fps, Avg. Travel Time= 0.7 min

Peak Storage= 606 cf @ 12.13 hrs
Average Depth at Peak Storage= 1.51'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 207.41 cfs

60.0" Round Pipe
n= 0.014
Length= 121.0' Slope= 0.0074 '/'
Inlet Invert= 38.80', Outlet Invert= 37.91'



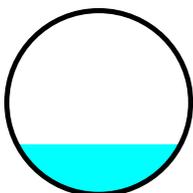
Summary for Reach P2: 78"

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 1.44" for 10-Year event
Inflow = 105.34 cfs @ 12.19 hrs, Volume= 10.429 af
Outflow = 105.31 cfs @ 12.19 hrs, Volume= 10.429 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 14.45 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.70 fps, Avg. Travel Time= 0.1 min

Peak Storage= 182 cf @ 12.19 hrs
Average Depth at Peak Storage= 1.77'
Bank-Full Depth= 6.50' Flow Area= 33.2 sf, Capacity= 653.15 cfs

78.0" Round Pipe
n= 0.014
Length= 25.0' Slope= 0.0180 '/'
Inlet Invert= 34.57', Outlet Invert= 34.12'



Summary for Reach POA 2: POA 2

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 1.44" for 10-Year event
 Inflow = 105.31 cfs @ 12.19 hrs, Volume= 10.429 af
 Outflow = 105.31 cfs @ 12.19 hrs, Volume= 10.429 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 10P: (new Pond)

Inflow Area = 18.875 ac, 96.32% Impervious, Inflow Depth > 3.92" for 10-Year event
 Inflow = 83.43 cfs @ 12.07 hrs, Volume= 6.158 af
 Outflow = 33.11 cfs @ 12.28 hrs, Volume= 6.154 af, Atten= 60%, Lag= 12.7 min
 Discarded = 7.61 cfs @ 12.28 hrs, Volume= 4.717 af
 Primary = 25.50 cfs @ 12.28 hrs, Volume= 1.437 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 51.57' @ 12.28 hrs Surf.Area= 37,000 sf Storage= 67,843 cf

Plug-Flow detention time= 31.6 min calculated for 6.154 af (100% of inflow)
 Center-of-Mass det. time= 31.3 min (766.8 - 735.6)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	45,500 cf	Custom Stage Data (Prismatic) Listed below Inside #2
#2	48.00'	78,000 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			240,500 cf Overall - 45,500 cf Embedded = 195,000 cf x 40.0% Voids
		123,500 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	7,000	0	0
49.00	7,000	7,000	7,000
50.00	7,000	7,000	14,000
51.00	7,000	7,000	21,000
52.00	7,000	7,000	28,000
53.00	7,000	7,000	35,000
54.00	7,000	7,000	42,000
54.50	7,000	3,500	45,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	37,000	0	0
49.00	37,000	37,000	37,000
50.00	37,000	37,000	74,000
51.00	37,000	37,000	111,000
52.00	37,000	37,000	148,000
53.00	37,000	37,000	185,000
54.00	37,000	37,000	222,000
54.50	37,000	18,500	240,500

3659-12003C-Proposed Conditions POA 2-01

Type III 24-hr 10-Year Rainfall=4.60"

Prepared by {enter your company name here}

Printed 10/8/2012

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Device	Routing	Invert	Outlet Devices
#1	Discarded	48.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.50'	36.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=7.61 cfs @ 12.28 hrs HW=51.57' (Free Discharge)

↳ **1=Exfiltration** (Controls 7.61 cfs)

Primary OutFlow Max=25.41 cfs @ 12.28 hrs HW=51.57' (Free Discharge)

↳ **2=Orifice/Grate** (Orifice Controls 25.41 cfs @ 4.89 fps)

Summary for Pond 11P: (new Pond)

Inflow Area = 20.573 ac, 84.88% Impervious, Inflow Depth > 3.24" for 10-Year event
 Inflow = 78.73 cfs @ 12.07 hrs, Volume= 5.548 af
 Outflow = 23.49 cfs @ 12.40 hrs, Volume= 5.544 af, Atten= 70%, Lag= 19.6 min
 Discarded = 9.03 cfs @ 12.40 hrs, Volume= 4.690 af
 Primary = 14.46 cfs @ 12.40 hrs, Volume= 0.854 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 50.98' @ 12.40 hrs Surf.Area= 44,400 sf Storage= 68,037 cf

Plug-Flow detention time= 35.4 min calculated for 5.544 af (100% of inflow)
 Center-of-Mass det. time= 35.0 min (790.4 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	46,200 cf	Custom Stage Data (Prismatic) Listed below Inside #2
#2	48.00'	79,200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			244,200 cf Overall - 46,200 cf Embedded = 198,000 cf x 40.0% Voids
		125,400 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	8,400	0	0
49.00	8,400	8,400	8,400
50.00	8,400	8,400	16,800
51.00	8,400	8,400	25,200
52.00	8,400	8,400	33,600
53.00	8,400	8,400	42,000
53.50	8,400	4,200	46,200

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	44,400	0	0
49.00	44,400	44,400	44,400
50.00	44,400	44,400	88,800
51.00	44,400	44,400	133,200
52.00	44,400	44,400	177,600
53.00	44,400	44,400	222,000
53.50	44,400	22,200	244,200

3659-12003C-Proposed Conditions POA 2-01

Type III 24-hr 10-Year Rainfall=4.60"

Prepared by {enter your company name here}

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Device	Routing	Invert	Outlet Devices
#1	Discarded	48.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.50'	36.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=9.03 cfs @ 12.40 hrs HW=50.98' (Free Discharge)
 ↳ **1=Exfiltration** (Controls 9.03 cfs)

Primary OutFlow Max=14.46 cfs @ 12.40 hrs HW=50.98' (Free Discharge)
 ↳ **2=Orifice/Grate** (Orifice Controls 14.46 cfs @ 4.15 fps)

Summary for Pond 42.1P:

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 1.44" for 10-Year event
 Inflow = 107.77 cfs @ 12.15 hrs, Volume= 10.431 af
 Outflow = 105.45 cfs @ 12.18 hrs, Volume= 10.431 af, Atten= 2%, Lag= 2.1 min
 Primary = 105.45 cfs @ 12.18 hrs, Volume= 10.431 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.41' @ 12.18 hrs Surf.Area= 5,532 sf Storage= 6,702 cf

Plug-Flow detention time= 0.5 min calculated for 10.405 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (775.4 - 774.9)

Volume	Invert	Avail.Storage	Storage Description
#1	36.10'	83,475 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.10	0	0	0
36.56	36	8	8
37.02	71	25	33
37.52	628	175	208
38.02	1,185	453	661
38.52	1,515	675	1,336
39.02	1,845	840	2,176
39.52	2,750	1,149	3,325
40.02	3,654	1,601	4,926
40.52	6,082	2,434	7,360
41.02	8,510	3,648	11,008
41.52	9,847	4,589	15,597
42.02	11,185	5,258	20,855
42.52	12,262	5,862	26,717
43.02	13,340	6,401	33,117
43.52	14,672	7,003	40,120
44.02	16,005	7,669	47,789
44.52	17,355	8,340	56,129
45.02	18,705	9,015	65,144
46.00	18,705	18,331	83,475

Device	Routing	Invert	Outlet Devices
#1	Primary	36.11'	72.0" Round Culvert L= 1.0' Ke= 0.500

Inlet / Outlet Invert= 36.11' / 36.10' S= 0.0100 1/ S= 0.0100 1/ Cc= 0.900
 n= 0.014, Flow Area= 28.27 sf

Primary OutFlow Max=104.85 cfs @ 12.18 hrs HW=40.39' (Free Discharge)

↑1=Culvert (Barrel Controls 104.85 cfs @ 6.80 fps)

Summary for Pond 47P:

Inflow Area = 4.096 ac, 27.93% Impervious, Inflow Depth > 0.59" for 10-Year event
 Inflow = 1.54 cfs @ 12.36 hrs, Volume= 0.203 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.44' @ 20.00 hrs Surf.Area= 21,832 sf Storage= 8,827 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	277,477 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	17,860	0	0
44.50	22,325	10,046	10,046
45.00	26,789	12,279	22,325
45.50	31,254	14,511	36,836
46.00	35,719	16,743	53,579
46.50	42,471	19,548	73,126
47.00	49,223	22,924	96,050
47.50	55,975	26,300	122,349
48.00	62,726	29,675	152,025
50.00	62,726	125,452	277,477

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	165.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 51P:

Inflow Area = 1.508 ac, 1.15% Impervious, Inflow Depth > 0.46" for 10-Year event
 Inflow = 0.34 cfs @ 12.54 hrs, Volume= 0.057 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

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Type III 24-hr 10-Year Rainfall=4.60"

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Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 46.33' @ 20.00 hrs Surf.Area= 3,891 sf Storage= 2,498 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	77,839 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	537	0	0
46.00	2,365	1,451	1,451
47.00	6,927	4,646	6,097
48.00	17,254	12,091	18,188
49.00	31,195	24,225	42,412
50.00	39,658	35,427	77,839

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	75.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.00' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S10: Retail Core South	Runoff Area=602,783 sf 94.98% Impervious Runoff Depth>4.68" Tc=5.0 min CN=95 Runoff=73.26 cfs 5.393 af
Subcatchment S11: Retail Core North	Runoff Area=503,750 sf 87.10% Impervious Runoff Depth>4.13" Tc=5.0 min CN=90 Runoff=57.01 cfs 3.977 af
Subcatchment S13:	Runoff Area=165,913 sf 64.60% Impervious Runoff Depth>3.22" Tc=5.0 min CN=81 Runoff=15.26 cfs 1.021 af
Subcatchment S14:	Runoff Area=212,773 sf 68.78% Impervious Runoff Depth>3.41" Tc=5.0 min CN=83 Runoff=20.73 cfs 1.388 af
Subcatchment S35:	Runoff Area=58,042 sf 78.43% Impervious Runoff Depth>3.81" Tc=5.0 min CN=87 Runoff=6.20 cfs 0.423 af
Subcatchment S40:	Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>3.31" Tc=5.0 min CN=82 Runoff=10.98 cfs 0.737 af
Subcatchment S40.1:	Runoff Area=2.328 ac 45.53% Impervious Runoff Depth>2.26" Tc=63.2 min CN=71 Runoff=2.57 cfs 0.439 af
Subcatchment S40.2:	Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>5.02" Tc=5.0 min CN=98 Runoff=17.35 cfs 1.339 af
Subcatchment S41:	Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>2.75" Tc=5.0 min CN=76 Runoff=3.74 cfs 0.248 af
Subcatchment S41.1:	Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>1.11" Tc=16.7 min CN=55 Runoff=1.80 cfs 0.187 af
Subcatchment S42:	Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>3.61" Tc=5.0 min CN=85 Runoff=6.41 cfs 0.433 af
Subcatchment S42.1:	Runoff Area=86,725 sf 19.44% Impervious Runoff Depth>1.05" Tc=5.0 min CN=54 Runoff=2.31 cfs 0.174 af
Subcatchment S44:	Runoff Area=62,267 sf 91.99% Impervious Runoff Depth>4.56" Tc=5.0 min CN=94 Runoff=7.48 cfs 0.544 af
Subcatchment S47:	Runoff Area=178,425 sf 27.93% Impervious Runoff Depth>0.98" Tc=18.7 min CN=53 Runoff=2.94 cfs 0.333 af
Subcatchment S48:	Runoff Area=48,433 sf 68.30% Impervious Runoff Depth>3.29" Tc=26.2 min CN=82 Runoff=2.75 cfs 0.305 af
Subcatchment S49:	Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>3.81" Tc=5.0 min CN=87 Runoff=14.52 cfs 0.991 af

Subcatchment S50:	Runoff Area=227,716 sf 10.33% Impervious Runoff Depth>1.05" Tc=5.0 min CN=54 Runoff=6.06 cfs 0.456 af
Subcatchment S51:	Runoff Area=65,668 sf 1.15% Impervious Runoff Depth>0.79" Tc=26.2 min CN=50 Runoff=0.72 cfs 0.099 af
Subcatchment S56.2:	Runoff Area=39,128 sf 44.81% Impervious Runoff Depth>2.93" Tc=5.0 min CN=78 Runoff=3.31 cfs 0.220 af
Subcatchment S57:	Runoff Area=33,373 sf 74.54% Impervious Runoff Depth>3.69" Tc=26.2 min CN=86 Runoff=2.09 cfs 0.235 af
Subcatchment S58:	Runoff Area=185,794 sf 85.51% Impervious Runoff Depth>4.02" Tc=5.0 min CN=89 Runoff=20.65 cfs 1.429 af
Subcatchment S7: Retail Core North	Runoff Area=194,544 sf 63.77% Impervious Runoff Depth>2.84" Tc=5.0 min CN=77 Runoff=15.97 cfs 1.058 af
Subcatchment S8: Retail Core South	Runoff Area=219,409 sf 100.00% Impervious Runoff Depth>5.02" Tc=5.0 min CN=98 Runoff=27.31 cfs 2.108 af
Subcatchment S9: Retail Core North	Runoff Area=197,875 sf 100.00% Impervious Runoff Depth>5.02" Tc=5.0 min CN=98 Runoff=24.63 cfs 1.901 af
Reach 1R: 60"	Avg. Flow Depth=2.18' Max Vel=9.41 fps Inflow=77.68 cfs 6.122 af 60.0" Round Pipe n=0.014 L=480.0' S=0.0066 '/ Capacity=196.22 cfs Outflow=77.41 cfs 6.119 af
Reach L113: 72"	Avg. Flow Depth=2.25' Max Vel=15.37 fps Inflow=148.46 cfs 14.285 af 72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/ Capacity=498.08 cfs Outflow=148.41 cfs 14.283 af
Reach L123:	Avg. Flow Depth=2.29' Max Vel=6.59 fps Inflow=49.64 cfs 4.386 af 48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/ Capacity=78.83 cfs Outflow=47.92 cfs 4.381 af
Reach L157:	Avg. Flow Depth=1.90' Max Vel=5.30 fps Inflow=31.06 cfs 2.179 af 48.0" Round Pipe n=0.014 L=138.0' S=0.0026 '/ Capacity=68.13 cfs Outflow=30.48 cfs 2.177 af
Reach L158:	Avg. Flow Depth=1.86' Max Vel=5.96 fps Inflow=34.44 cfs 2.863 af 48.0" Round Pipe n=0.014 L=254.0' S=0.0034 '/ Capacity=77.61 cfs Outflow=33.13 cfs 2.860 af
Reach L159:	Avg. Flow Depth=0.45' Max Vel=3.26 fps Inflow=2.57 cfs 0.439 af 48.0" Round Pipe n=0.014 L=340.0' S=0.0050 '/ Capacity=94.32 cfs Outflow=2.57 cfs 0.438 af
Reach L69: 60"	Avg. Flow Depth=2.55' Max Vel=10.10 fps Inflow=101.78 cfs 9.300 af 60.0" Round Pipe n=0.014 L=127.0' S=0.0066 '/ Capacity=196.68 cfs Outflow=101.81 cfs 9.299 af
Reach L76:	Avg. Flow Depth=1.42' Max Vel=5.33 fps Inflow=21.55 cfs 1.444 af 48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/ Capacity=78.83 cfs Outflow=20.51 cfs 1.442 af
Reach L81:	Avg. Flow Depth=1.72' Max Vel=8.81 fps Inflow=52.96 cfs 4.814 af 60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/ Capacity=207.41 cfs Outflow=52.71 cfs 4.813 af
Reach P2: 78"	Avg. Flow Depth=2.11' Max Vel=15.93 fps Inflow=148.41 cfs 14.283 af 78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/ Capacity=653.15 cfs Outflow=148.40 cfs 14.283 af

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Reach POA 2: POA 2

Inflow=148.40 cfs 14.283 af
Outflow=148.40 cfs 14.283 af

Pond 10P: (new Pond)

Peak Elev=52.19' Storage=79,590 cf Inflow=100.57 cfs 7.501 af
Discarded=7.70 cfs 5.329 af Primary=37.29 cfs 2.167 af Outflow=44.99 cfs 7.496 af

Pond 11P: (new Pond)

Peak Elev=51.57' Storage=81,363 cf Inflow=97.64 cfs 6.936 af
Discarded=9.13 cfs 5.363 af Primary=25.45 cfs 1.569 af Outflow=34.59 cfs 6.932 af

Pond 42.1P:

Peak Elev=41.37' Storage=14,133 cf Inflow=155.67 cfs 14.285 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/ Outflow=148.46 cfs 14.285 af

Pond 47P:

Peak Elev=44.69' Storage=14,498 cf Inflow=2.94 cfs 0.333 af
Outflow=0.00 cfs 0.000 af

Pond 51P:

Peak Elev=46.72' Storage=4,323 cf Inflow=0.72 cfs 0.099 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 86.635 ac Runoff Volume = 25.439 af Average Runoff Depth = 3.52"
28.78% Pervious = 24.933 ac 71.22% Impervious = 61.703 ac

Summary for Subcatchment S10: Retail Core South

Runoff = 73.26 cfs @ 12.07 hrs, Volume= 5.393 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
30,244	39	>75% Grass cover, Good, HSG A
572,539	98	Paved parking, HSG A
602,783	95	Weighted Average
30,244		5.02% Pervious Area
572,539		94.98% Impervious Area

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

Summary for Subcatchment S11: Retail Core North

Runoff = 57.01 cfs @ 12.07 hrs, Volume= 3.977 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
64,972	39	>75% Grass cover, Good, HSG A
438,778	98	Paved parking, HSG A
503,750	90	Weighted Average
64,972		12.90% Pervious Area
438,778		87.10% Impervious Area

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

Summary for Subcatchment S13:

Runoff = 15.26 cfs @ 12.08 hrs, Volume= 1.021 af, Depth> 3.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 58,740	49	
* 107,173	98	
165,913	81	Weighted Average
58,740		35.40% Pervious Area
107,173		64.60% Impervious Area

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

Summary for Subcatchment S14:

Runoff = 20.73 cfs @ 12.07 hrs, Volume= 1.388 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 66,423	49	
* 146,350	98	
212,773	83	Weighted Average
66,423		31.22% Pervious Area
146,350		68.78% Impervious Area

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

Summary for Subcatchment S35:

Runoff = 6.20 cfs @ 12.07 hrs, Volume= 0.423 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 12,520	49	
* 45,522	98	
58,042	87	Weighted Average
12,520		21.57% Pervious Area
45,522		78.43% Impervious Area

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

Summary for Subcatchment S40:

Runoff = 10.98 cfs @ 12.08 hrs, Volume= 0.737 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (ac)	CN	Description
* 0.870	49	
* 1.800	98	
2.670	82	Weighted Average
0.870		32.58% Pervious Area
1.800		67.42% Impervious Area

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

Summary for Subcatchment S40.1:

Runoff = 2.57 cfs @ 12.87 hrs, Volume= 0.439 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.268	49	
* 1.060	98	
2.328	71	Weighted Average
1.268		54.47% Pervious Area
1.060		45.53% Impervious Area

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

Summary for Subcatchment S40.2:

Runoff = 17.35 cfs @ 12.07 hrs, Volume= 1.339 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 3.200	98	
3.200		100.00% Impervious Area

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

Summary for Subcatchment S41:

Runoff = 3.74 cfs @ 12.08 hrs, Volume= 0.248 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.460	49	
* 0.020	36	
* 0.600	98	
1.080	76	Weighted Average
0.480		44.44% Pervious Area
0.600		55.56% Impervious Area

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

Summary for Subcatchment S41.1:

Runoff = 1.80 cfs @ 12.27 hrs, Volume= 0.187 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 1.510	49	
* 0.220	36	
* 0.300	98	
2.030	55	Weighted Average
1.730		85.22% Pervious Area
0.300		14.78% Impervious Area

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

Summary for Subcatchment S42:

Runoff = 6.41 cfs @ 12.07 hrs, Volume= 0.433 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (ac)	CN	Description
* 0.380	49	
* 1.060	98	
1.440	85	Weighted Average
0.380		26.39% Pervious Area
1.060		73.61% Impervious Area

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

Summary for Subcatchment S42.1:

Runoff = 2.31 cfs @ 12.10 hrs, Volume= 0.174 af, Depth> 1.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 69,866	43	
* 16,859	98	
86,725	54	Weighted Average
69,866		80.56% Pervious Area
16,859		19.44% Impervious Area

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

Summary for Subcatchment S44:

Runoff = 7.48 cfs @ 12.07 hrs, Volume= 0.544 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 4,988	49	
* 57,279	98	
62,267	94	Weighted Average
4,988		8.01% Pervious Area
57,279		91.99% Impervious Area

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

Summary for Subcatchment S47:

Runoff = 2.94 cfs @ 12.32 hrs, Volume= 0.333 af, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

	Area (sf)	CN	Description
*	128,596	36	
*	49,829	98	
	178,425	53	Weighted Average
	128,596		72.07% Pervious Area
	49,829		27.93% Impervious Area

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

Summary for Subcatchment S48:

Runoff = 2.75 cfs @ 12.36 hrs, Volume= 0.305 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

	Area (sf)	CN	Description
*	15,352	49	
*	33,081	98	
	48,433	82	Weighted Average
	15,352		31.70% Pervious Area
	33,081		68.30% Impervious Area

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

Summary for Subcatchment S49:

Runoff = 14.52 cfs @ 12.07 hrs, Volume= 0.991 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

	Area (ac)	CN	Description
*	0.730	49	
*	2.390	98	
	3.120	87	Weighted Average
	0.730		23.40% Pervious Area
	2.390		76.60% Impervious Area

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

Summary for Subcatchment S50:

Runoff = 6.06 cfs @ 12.10 hrs, Volume= 0.456 af, Depth> 1.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 204,204	49	
* 23,512	98	
227,716	54	Weighted Average
204,204		89.67% Pervious Area
23,512		10.33% Impervious Area

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

Summary for Subcatchment S51:

Runoff = 0.72 cfs @ 12.47 hrs, Volume= 0.099 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 64,916	49	
* 752	98	
65,668	50	Weighted Average
64,916		98.85% Pervious Area
752		1.15% Impervious Area

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

Summary for Subcatchment S56.2:

Runoff = 3.31 cfs @ 12.08 hrs, Volume= 0.220 af, Depth> 2.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
21,593	61	>75% Grass cover, Good, HSG B
17,535	98	Paved parking & roofs
39,128	78	Weighted Average
21,593		55.19% Pervious Area
17,535		44.81% Impervious Area

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

Summary for Subcatchment S57:

Runoff = 2.09 cfs @ 12.35 hrs, Volume= 0.235 af, Depth> 3.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 8,496	49	
* 24,877	98	
33,373	86	Weighted Average
8,496		25.46% Pervious Area
24,877		74.54% Impervious Area

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

Summary for Subcatchment S58:

Runoff = 20.65 cfs @ 12.07 hrs, Volume= 1.429 af, Depth> 4.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
26,919	39	>75% Grass cover, Good, HSG A
* 158,875	98	
185,794	89	Weighted Average
26,919		14.49% Pervious Area
158,875		85.51% Impervious Area

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

Summary for Subcatchment S7: Retail Core North Loading

Runoff = 15.97 cfs @ 12.08 hrs, Volume= 1.058 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
70,484	39	>75% Grass cover, Good, HSG A
124,060	98	Paved parking, HSG A
194,544	77	Weighted Average
70,484		36.23% Pervious Area
124,060		63.77% Impervious Area

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

Summary for Subcatchment S8: Retail Core South Roof

Runoff = 27.31 cfs @ 12.07 hrs, Volume= 2.108 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
219,409	98	Roofs, HSG A
219,409		100.00% Impervious Area

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

Summary for Subcatchment S9: Retail Core North Roof

Runoff = 24.63 cfs @ 12.07 hrs, Volume= 1.901 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
197,875	98	Roofs, HSG A
197,875		100.00% Impervious Area

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

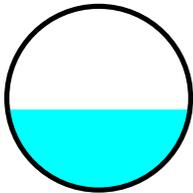
Summary for Reach 1R: 60"

Inflow Area = 47.427 ac, 87.07% Impervious, Inflow Depth > 1.55" for 25-Year event
Inflow = 77.68 cfs @ 12.24 hrs, Volume= 6.122 af
Outflow = 77.41 cfs @ 12.26 hrs, Volume= 6.119 af, Atten= 0%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 9.41 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 2.65 fps, Avg. Travel Time= 3.0 min

Peak Storage= 3,957 cf @ 12.25 hrs
Average Depth at Peak Storage= 2.18'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.22 cfs

60.0" Round Pipe
n= 0.014
Length= 480.0' Slope= 0.0066 '/'
Inlet Invert= 42.00', Outlet Invert= 38.84'



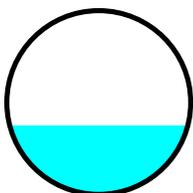
Summary for Reach L113: 72"

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 1.98" for 25-Year event
Inflow = 148.46 cfs @ 12.21 hrs, Volume= 14.285 af
Outflow = 148.41 cfs @ 12.21 hrs, Volume= 14.283 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.37 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.94 fps, Avg. Travel Time= 0.3 min

Peak Storage= 928 cf @ 12.21 hrs
Average Depth at Peak Storage= 2.25'
Bank-Full Depth= 6.00' Flow Area= 28.3 sf, Capacity= 498.08 cfs

72.0" Round Pipe
n= 0.014
Length= 96.0' Slope= 0.0160 '/'
Inlet Invert= 36.11', Outlet Invert= 34.57'



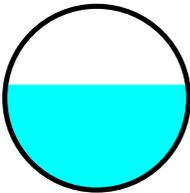
Summary for Reach L123:

Inflow Area = 16.449 ac, 63.62% Impervious, Inflow Depth > 3.20" for 25-Year event
Inflow = 49.64 cfs @ 12.11 hrs, Volume= 4.386 af
Outflow = 47.92 cfs @ 12.14 hrs, Volume= 4.381 af, Atten= 3%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.59 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 2.32 fps, Avg. Travel Time= 2.6 min

Peak Storage= 2,643 cf @ 12.12 hrs
Average Depth at Peak Storage= 2.29'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/
Inlet Invert= 43.30', Outlet Invert= 42.06'



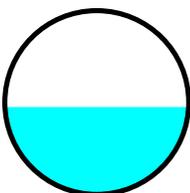
Summary for Reach L157:

Inflow Area = 7.811 ac, 67.92% Impervious, Inflow Depth > 3.35" for 25-Year event
Inflow = 31.06 cfs @ 12.10 hrs, Volume= 2.179 af
Outflow = 30.48 cfs @ 12.11 hrs, Volume= 2.177 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.30 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.85 fps, Avg. Travel Time= 1.2 min

Peak Storage= 810 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.90'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 68.13 cfs

48.0" Round Pipe
n= 0.014
Length= 138.0' Slope= 0.0026 '/
Inlet Invert= 42.06', Outlet Invert= 41.70'



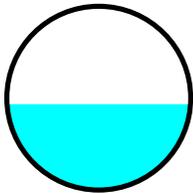
Summary for Reach L158:

Inflow Area = 11.219 ac, 62.08% Impervious, Inflow Depth > 3.06" for 25-Year event
Inflow = 34.44 cfs @ 12.11 hrs, Volume= 2.863 af
Outflow = 33.13 cfs @ 12.13 hrs, Volume= 2.860 af, Atten= 4%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.96 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.21 fps, Avg. Travel Time= 1.9 min

Peak Storage= 1,454 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.86'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 77.61 cfs

48.0" Round Pipe
n= 0.014
Length= 254.0' Slope= 0.0034 '/'
Inlet Invert= 41.60', Outlet Invert= 40.74'



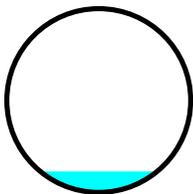
Summary for Reach L159:

Inflow Area = 2.328 ac, 45.53% Impervious, Inflow Depth > 2.26" for 25-Year event
Inflow = 2.57 cfs @ 12.87 hrs, Volume= 0.439 af
Outflow = 2.57 cfs @ 12.92 hrs, Volume= 0.438 af, Atten= 0%, Lag= 3.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.26 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.73 fps, Avg. Travel Time= 3.3 min

Peak Storage= 268 cf @ 12.89 hrs
Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 340.0' Slope= 0.0050 '/'
Inlet Invert= 43.40', Outlet Invert= 41.70'



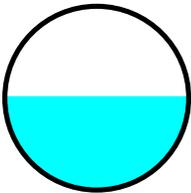
Summary for Reach L69: 60"

Inflow Area = 65.247 ac, 76.28% Impervious, Inflow Depth > 1.71" for 25-Year event
Inflow = 101.78 cfs @ 12.16 hrs, Volume= 9.300 af
Outflow = 101.81 cfs @ 12.17 hrs, Volume= 9.299 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.10 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.25 fps, Avg. Travel Time= 0.7 min

Peak Storage= 1,281 cf @ 12.16 hrs
Average Depth at Peak Storage= 2.55'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.68 cfs

60.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0066 '/'
Inlet Invert= 38.84', Outlet Invert= 38.00'



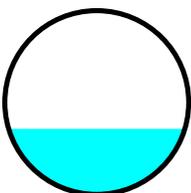
Summary for Reach L76:

Inflow Area = 5.141 ac, 68.18% Impervious, Inflow Depth > 3.37" for 25-Year event
Inflow = 21.55 cfs @ 12.07 hrs, Volume= 1.444 af
Outflow = 20.51 cfs @ 12.11 hrs, Volume= 1.442 af, Atten= 5%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.33 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 3.3 min

Peak Storage= 1,422 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.42'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



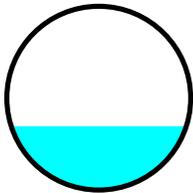
Summary for Reach L81:

Inflow Area = 17.889 ac, 64.43% Impervious, Inflow Depth > 3.23" for 25-Year event
Inflow = 52.96 cfs @ 12.13 hrs, Volume= 4.814 af
Outflow = 52.71 cfs @ 12.14 hrs, Volume= 4.813 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.81 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.01 fps, Avg. Travel Time= 0.7 min

Peak Storage= 726 cf @ 12.13 hrs
Average Depth at Peak Storage= 1.72'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 207.41 cfs

60.0" Round Pipe
n= 0.014
Length= 121.0' Slope= 0.0074 '/'
Inlet Invert= 38.80', Outlet Invert= 37.91'



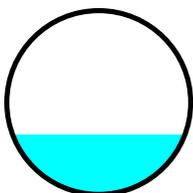
Summary for Reach P2: 78"

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 1.98" for 25-Year event
Inflow = 148.41 cfs @ 12.21 hrs, Volume= 14.283 af
Outflow = 148.40 cfs @ 12.21 hrs, Volume= 14.283 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.93 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 5.10 fps, Avg. Travel Time= 0.1 min

Peak Storage= 233 cf @ 12.21 hrs
Average Depth at Peak Storage= 2.11'
Bank-Full Depth= 6.50' Flow Area= 33.2 sf, Capacity= 653.15 cfs

78.0" Round Pipe
n= 0.014
Length= 25.0' Slope= 0.0180 '/'
Inlet Invert= 34.57', Outlet Invert= 34.12'



Summary for Reach POA 2: POA 2

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 1.98" for 25-Year event
 Inflow = 148.40 cfs @ 12.21 hrs, Volume= 14.283 af
 Outflow = 148.40 cfs @ 12.21 hrs, Volume= 14.283 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 10P: (new Pond)

Inflow Area = 18.875 ac, 96.32% Impervious, Inflow Depth > 4.77" for 25-Year event
 Inflow = 100.57 cfs @ 12.07 hrs, Volume= 7.501 af
 Outflow = 44.99 cfs @ 12.24 hrs, Volume= 7.496 af, Atten= 55%, Lag= 10.3 min
 Discarded = 7.70 cfs @ 12.24 hrs, Volume= 5.329 af
 Primary = 37.29 cfs @ 12.24 hrs, Volume= 2.167 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 52.19' @ 12.24 hrs Surf.Area= 37,000 sf Storage= 79,590 cf

Plug-Flow detention time= 31.0 min calculated for 7.496 af (100% of inflow)
 Center-of-Mass det. time= 30.7 min (762.3 - 731.7)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	45,500 cf	Custom Stage Data (Prismatic) Listed below Inside #2
#2	48.00'	78,000 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			240,500 cf Overall - 45,500 cf Embedded = 195,000 cf x 40.0% Voids
		123,500 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	7,000	0	0
49.00	7,000	7,000	7,000
50.00	7,000	7,000	14,000
51.00	7,000	7,000	21,000
52.00	7,000	7,000	28,000
53.00	7,000	7,000	35,000
54.00	7,000	7,000	42,000
54.50	7,000	3,500	45,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	37,000	0	0
49.00	37,000	37,000	37,000
50.00	37,000	37,000	74,000
51.00	37,000	37,000	111,000
52.00	37,000	37,000	148,000
53.00	37,000	37,000	185,000
54.00	37,000	37,000	222,000
54.50	37,000	18,500	240,500

3659-12003C-Proposed Conditions POA 2-01

Type III 24-hr 25-Year Rainfall=5.50"

Prepared by {enter your company name here}

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Device	Routing	Invert	Outlet Devices
#1	Discarded	48.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.50'	36.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=7.70 cfs @ 12.24 hrs HW=52.18' (Free Discharge)

↳ **1=Exfiltration** (Controls 7.70 cfs)

Primary OutFlow Max=37.23 cfs @ 12.24 hrs HW=52.18' (Free Discharge)

↳ **2=Orifice/Grate** (Orifice Controls 37.23 cfs @ 5.58 fps)

Summary for Pond 11P: (new Pond)

Inflow Area = 20.573 ac, 84.88% Impervious, Inflow Depth > 4.05" for 25-Year event
 Inflow = 97.64 cfs @ 12.07 hrs, Volume= 6.936 af
 Outflow = 34.59 cfs @ 12.34 hrs, Volume= 6.932 af, Atten= 65%, Lag= 15.8 min
 Discarded = 9.13 cfs @ 12.34 hrs, Volume= 5.363 af
 Primary = 25.45 cfs @ 12.34 hrs, Volume= 1.569 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 51.57' @ 12.34 hrs Surf.Area= 44,400 sf Storage= 81,363 cf

Plug-Flow detention time= 34.9 min calculated for 6.914 af (100% of inflow)
 Center-of-Mass det. time= 34.5 min (785.7 - 751.2)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	46,200 cf	Custom Stage Data (Prismatic) Listed below Inside #2
#2	48.00'	79,200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			244,200 cf Overall - 46,200 cf Embedded = 198,000 cf x 40.0% Voids
		125,400 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	8,400	0	0
49.00	8,400	8,400	8,400
50.00	8,400	8,400	16,800
51.00	8,400	8,400	25,200
52.00	8,400	8,400	33,600
53.00	8,400	8,400	42,000
53.50	8,400	4,200	46,200

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	44,400	0	0
49.00	44,400	44,400	44,400
50.00	44,400	44,400	88,800
51.00	44,400	44,400	133,200
52.00	44,400	44,400	177,600
53.00	44,400	44,400	222,000
53.50	44,400	22,200	244,200

3659-12003C-Proposed Conditions POA 2-01

Type III 24-hr 25-Year Rainfall=5.50"

Prepared by {enter your company name here}

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Device	Routing	Invert	Outlet Devices
#1	Discarded	48.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.50'	36.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=9.13 cfs @ 12.34 hrs HW=51.57' (Free Discharge)
 ↳1=Exfiltration (Controls 9.13 cfs)

Primary OutFlow Max=25.39 cfs @ 12.34 hrs HW=51.57' (Free Discharge)
 ↳2=Orifice/Grate (Orifice Controls 25.39 cfs @ 4.89 fps)

Summary for Pond 42.1P:

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 1.98" for 25-Year event
 Inflow = 155.67 cfs @ 12.15 hrs, Volume= 14.285 af
 Outflow = 148.46 cfs @ 12.21 hrs, Volume= 14.285 af, Atten= 5%, Lag= 3.5 min
 Primary = 148.46 cfs @ 12.21 hrs, Volume= 14.285 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.37' @ 12.21 hrs Surf.Area= 9,441 sf Storage= 14,133 cf

Plug-Flow detention time= 0.7 min calculated for 14.249 af (100% of inflow)
 Center-of-Mass det. time= 0.7 min (771.4 - 770.6)

Volume	Invert	Avail.Storage	Storage Description
#1	36.10'	83,475 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.10	0	0	0
36.56	36	8	8
37.02	71	25	33
37.52	628	175	208
38.02	1,185	453	661
38.52	1,515	675	1,336
39.02	1,845	840	2,176
39.52	2,750	1,149	3,325
40.02	3,654	1,601	4,926
40.52	6,082	2,434	7,360
41.02	8,510	3,648	11,008
41.52	9,847	4,589	15,597
42.02	11,185	5,258	20,855
42.52	12,262	5,862	26,717
43.02	13,340	6,401	33,117
43.52	14,672	7,003	40,120
44.02	16,005	7,669	47,789
44.52	17,355	8,340	56,129
45.02	18,705	9,015	65,144
46.00	18,705	18,331	83,475

Device	Routing	Invert	Outlet Devices
#1	Primary	36.11'	72.0" Round Culvert L= 1.0' Ke= 0.500

Inlet / Outlet Invert= 36.11' / 36.10' S= 0.0100 1/ S= 0.0100 1/ Cc= 0.900
 n= 0.014, Flow Area= 28.27 sf

Primary OutFlow Max=147.82 cfs @ 12.21 hrs HW=41.35' (Free Discharge)

↑1=Culvert (Barrel Controls 147.82 cfs @ 7.52 fps)

Summary for Pond 47P:

Inflow Area = 4.096 ac, 27.93% Impervious, Inflow Depth > 0.98" for 25-Year event
 Inflow = 2.94 cfs @ 12.32 hrs, Volume= 0.333 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.69' @ 20.00 hrs Surf.Area= 24,040 sf Storage= 14,498 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	277,477 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	17,860	0	0
44.50	22,325	10,046	10,046
45.00	26,789	12,279	22,325
45.50	31,254	14,511	36,836
46.00	35,719	16,743	53,579
46.50	42,471	19,548	73,126
47.00	49,223	22,924	96,050
47.50	55,975	26,300	122,349
48.00	62,726	29,675	152,025
50.00	62,726	125,452	277,477

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	165.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 51P:

Inflow Area = 1.508 ac, 1.15% Impervious, Inflow Depth > 0.79" for 25-Year event
 Inflow = 0.72 cfs @ 12.47 hrs, Volume= 0.099 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

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Type III 24-hr 25-Year Rainfall=5.50"

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Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 46.72' @ 20.00 hrs Surf.Area= 5,639 sf Storage= 4,323 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	77,839 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	537	0	0
46.00	2,365	1,451	1,451
47.00	6,927	4,646	6,097
48.00	17,254	12,091	18,188
49.00	31,195	24,225	42,412
50.00	39,658	35,427	77,839

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	75.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.00' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S10: Retail Core South	Runoff Area=602,783 sf 94.98% Impervious Runoff Depth>5.77" Tc=5.0 min CN=95 Runoff=89.31 cfs 6.652 af
Subcatchment S11: Retail Core North	Runoff Area=503,750 sf 87.10% Impervious Runoff Depth>5.20" Tc=5.0 min CN=90 Runoff=70.76 cfs 5.008 af
Subcatchment S13:	Runoff Area=165,913 sf 64.60% Impervious Runoff Depth>4.21" Tc=5.0 min CN=81 Runoff=19.91 cfs 1.337 af
Subcatchment S14:	Runoff Area=212,773 sf 68.78% Impervious Runoff Depth>4.43" Tc=5.0 min CN=83 Runoff=26.61 cfs 1.802 af
Subcatchment S35:	Runoff Area=58,042 sf 78.43% Impervious Runoff Depth>4.86" Tc=5.0 min CN=87 Runoff=7.80 cfs 0.540 af
Subcatchment S40:	Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>4.32" Tc=5.0 min CN=82 Runoff=14.25 cfs 0.961 af
Subcatchment S40.1:	Runoff Area=2.328 ac 45.53% Impervious Runoff Depth>3.12" Tc=63.2 min CN=71 Runoff=3.57 cfs 0.606 af
Subcatchment S40.2:	Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>6.12" Tc=5.0 min CN=98 Runoff=21.01 cfs 1.632 af
Subcatchment S41:	Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>3.69" Tc=5.0 min CN=76 Runoff=4.99 cfs 0.332 af
Subcatchment S41.1:	Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>1.72" Tc=16.7 min CN=55 Runoff=2.99 cfs 0.291 af
Subcatchment S42:	Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>4.64" Tc=5.0 min CN=85 Runoff=8.15 cfs 0.557 af
Subcatchment S42.1:	Runoff Area=86,725 sf 19.44% Impervious Runoff Depth>1.65" Tc=5.0 min CN=54 Runoff=3.89 cfs 0.273 af
Subcatchment S44:	Runoff Area=62,267 sf 91.99% Impervious Runoff Depth>5.65" Tc=5.0 min CN=94 Runoff=9.15 cfs 0.673 af
Subcatchment S47:	Runoff Area=178,425 sf 27.93% Impervious Runoff Depth>1.55" Tc=18.7 min CN=53 Runoff=5.09 cfs 0.530 af
Subcatchment S48:	Runoff Area=48,433 sf 68.30% Impervious Runoff Depth>4.29" Tc=26.2 min CN=82 Runoff=3.55 cfs 0.398 af
Subcatchment S49:	Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>4.86" Tc=5.0 min CN=87 Runoff=18.26 cfs 1.264 af

- Subcatchment S50:** Runoff Area=227,716 sf 10.33% Impervious Runoff Depth>1.65"
Tc=5.0 min CN=54 Runoff=10.23 cfs 0.717 af
- Subcatchment S51:** Runoff Area=65,668 sf 1.15% Impervious Runoff Depth>1.31"
Tc=26.2 min CN=50 Runoff=1.33 cfs 0.164 af
- Subcatchment S56.2:** Runoff Area=39,128 sf 44.81% Impervious Runoff Depth>3.90"
Tc=5.0 min CN=78 Runoff=4.36 cfs 0.292 af
- Subcatchment S57:** Runoff Area=33,373 sf 74.54% Impervious Runoff Depth>4.72"
Tc=26.2 min CN=86 Runoff=2.65 cfs 0.302 af
- Subcatchment S58:** Runoff Area=185,794 sf 85.51% Impervious Runoff Depth>5.08"
Tc=5.0 min CN=89 Runoff=25.74 cfs 1.807 af
- Subcatchment S7: Retail Core North** Runoff Area=194,544 sf 63.77% Impervious Runoff Depth>3.79"
Tc=5.0 min CN=77 Runoff=21.17 cfs 1.412 af
- Subcatchment S8: Retail Core South** Runoff Area=219,409 sf 100.00% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=33.07 cfs 2.569 af
- Subcatchment S9: Retail Core North** Runoff Area=197,875 sf 100.00% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=29.82 cfs 2.317 af
- Reach 1R: 60"** Avg. Flow Depth=2.68' Max Vel=10.28 fps Inflow=111.24 cfs 8.832 af
60.0" Round Pipe n=0.014 L=480.0' S=0.0066 '/' Capacity=196.22 cfs Outflow=110.11 cfs 8.828 af
- Reach L113: 72"** Avg. Flow Depth=2.67' Max Vel=16.71 fps Inflow=203.17 cfs 19.524 af
72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/' Capacity=498.08 cfs Outflow=203.02 cfs 19.522 af
- Reach L123:** Avg. Flow Depth=2.72' Max Vel=6.96 fps Inflow=64.10 cfs 5.690 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/' Capacity=78.83 cfs Outflow=61.85 cfs 5.684 af
- Reach L157:** Avg. Flow Depth=2.21' Max Vel=5.64 fps Inflow=40.11 cfs 2.835 af
48.0" Round Pipe n=0.014 L=138.0' S=0.0026 '/' Capacity=68.13 cfs Outflow=39.43 cfs 2.834 af
- Reach L158:** Avg. Flow Depth=2.17' Max Vel=6.38 fps Inflow=44.83 cfs 3.771 af
48.0" Round Pipe n=0.014 L=254.0' S=0.0034 '/' Capacity=77.61 cfs Outflow=43.39 cfs 3.767 af
- Reach L159:** Avg. Flow Depth=0.53' Max Vel=3.60 fps Inflow=3.57 cfs 0.606 af
48.0" Round Pipe n=0.014 L=340.0' S=0.0050 '/' Capacity=94.32 cfs Outflow=3.55 cfs 0.604 af
- Reach L69: 60"** Avg. Flow Depth=3.25' Max Vel=11.01 fps Inflow=148.63 cfs 13.014 af
60.0" Round Pipe n=0.014 L=127.0' S=0.0066 '/' Capacity=196.68 cfs Outflow=148.53 cfs 13.012 af
- Reach L76:** Avg. Flow Depth=1.63' Max Vel=5.70 fps Inflow=27.71 cfs 1.877 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0035 '/' Capacity=78.83 cfs Outflow=26.45 cfs 1.874 af
- Reach L81:** Avg. Flow Depth=1.98' Max Vel=9.44 fps Inflow=68.32 cfs 6.241 af
60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/' Capacity=207.41 cfs Outflow=68.00 cfs 6.240 af
- Reach P2: 78"** Avg. Flow Depth=2.49' Max Vel=17.36 fps Inflow=203.02 cfs 19.522 af
78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/' Capacity=653.15 cfs Outflow=202.98 cfs 19.522 af

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Type III 24-hr 100-Year Rainfall=6.65"

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Reach POA 2: POA 2

Inflow=202.98 cfs 19.522 af
Outflow=202.98 cfs 19.522 af

Pond 10P: (new Pond)

Peak Elev=53.06' Storage=96,053 cf Inflow=122.37 cfs 9.222 af
Discarded=7.83 cfs 6.035 af Primary=48.79 cfs 3.180 af Outflow=56.62 cfs 9.215 af

Pond 11P: (new Pond)

Peak Elev=52.33' Storage=98,786 cf Inflow=121.85 cfs 8.737 af
Discarded=9.27 cfs 6.148 af Primary=39.61 cfs 2.584 af Outflow=48.88 cfs 8.731 af

Pond 42.1P:

Peak Elev=42.55' Storage=27,064 cf Inflow=219.60 cfs 19.524 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/ Outflow=203.17 cfs 19.524 af

Pond 47P:

Peak Elev=45.03' Storage=23,065 cf Inflow=5.09 cfs 0.530 af
Outflow=0.00 cfs 0.000 af

Pond 51P:

Peak Elev=47.14' Storage=7,152 cf Inflow=1.33 cfs 0.164 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 86.635 ac Runoff Volume = 32.437 af Average Runoff Depth = 4.49"
28.78% Pervious = 24.933 ac 71.22% Impervious = 61.703 ac

Summary for Subcatchment S10: Retail Core South

Runoff = 89.31 cfs @ 12.07 hrs, Volume= 6.652 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
30,244	39	>75% Grass cover, Good, HSG A
572,539	98	Paved parking, HSG A
602,783	95	Weighted Average
30,244		5.02% Pervious Area
572,539		94.98% Impervious Area

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

Summary for Subcatchment S11: Retail Core North

Runoff = 70.76 cfs @ 12.07 hrs, Volume= 5.008 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
64,972	39	>75% Grass cover, Good, HSG A
438,778	98	Paved parking, HSG A
503,750	90	Weighted Average
64,972		12.90% Pervious Area
438,778		87.10% Impervious Area

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

Summary for Subcatchment S13:

Runoff = 19.91 cfs @ 12.07 hrs, Volume= 1.337 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 58,740	49	
* 107,173	98	
165,913	81	Weighted Average
58,740		35.40% Pervious Area
107,173		64.60% Impervious Area

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

Summary for Subcatchment S14:

Runoff = 26.61 cfs @ 12.07 hrs, Volume= 1.802 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 66,423	49	
* 146,350	98	
212,773	83	Weighted Average
66,423		31.22% Pervious Area
146,350		68.78% Impervious Area

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

Summary for Subcatchment S35:

Runoff = 7.80 cfs @ 12.07 hrs, Volume= 0.540 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 12,520	49	
* 45,522	98	
58,042	87	Weighted Average
12,520		21.57% Pervious Area
45,522		78.43% Impervious Area

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

Summary for Subcatchment S40:

Runoff = 14.25 cfs @ 12.07 hrs, Volume= 0.961 af, Depth> 4.32"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (ac)	CN	Description
* 0.870	49	
* 1.800	98	
2.670	82	Weighted Average
0.870		32.58% Pervious Area
1.800		67.42% Impervious Area

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

Summary for Subcatchment S40.1:

Runoff = 3.57 cfs @ 12.86 hrs, Volume= 0.606 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.268	49	
* 1.060	98	
2.328	71	Weighted Average
1.268		54.47% Pervious Area
1.060		45.53% Impervious Area

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

Summary for Subcatchment S40.2:

Runoff = 21.01 cfs @ 12.07 hrs, Volume= 1.632 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 3.200	98	
3.200		100.00% Impervious Area

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

Summary for Subcatchment S41:

Runoff = 4.99 cfs @ 12.08 hrs, Volume= 0.332 af, Depth> 3.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.460	49	
* 0.020	36	
* 0.600	98	
1.080	76	Weighted Average
0.480		44.44% Pervious Area
0.600		55.56% Impervious Area

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

Summary for Subcatchment S41.1:

Runoff = 2.99 cfs @ 12.26 hrs, Volume= 0.291 af, Depth> 1.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 1.510	49	
* 0.220	36	
* 0.300	98	
2.030	55	Weighted Average
1.730		85.22% Pervious Area
0.300		14.78% Impervious Area

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

Summary for Subcatchment S42:

Runoff = 8.15 cfs @ 12.07 hrs, Volume= 0.557 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
*	0.380	49
*	1.060	98
1.440	85	Weighted Average
0.380		26.39% Pervious Area
1.060		73.61% Impervious Area

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

Summary for Subcatchment S42.1:

Runoff = 3.89 cfs @ 12.09 hrs, Volume= 0.273 af, Depth> 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
*	69,866	43
*	16,859	98
86,725	54	Weighted Average
69,866		80.56% Pervious Area
16,859		19.44% Impervious Area

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

Summary for Subcatchment S44:

Runoff = 9.15 cfs @ 12.07 hrs, Volume= 0.673 af, Depth> 5.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
*	4,988	49
*	57,279	98
62,267	94	Weighted Average
4,988		8.01% Pervious Area
57,279		91.99% Impervious Area

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

Summary for Subcatchment S47:

Runoff = 5.09 cfs @ 12.29 hrs, Volume= 0.530 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

	Area (sf)	CN	Description
*	128,596	36	
*	49,829	98	
	178,425	53	Weighted Average
	128,596		72.07% Pervious Area
	49,829		27.93% Impervious Area

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

Summary for Subcatchment S48:

Runoff = 3.55 cfs @ 12.36 hrs, Volume= 0.398 af, Depth> 4.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

	Area (sf)	CN	Description
*	15,352	49	
*	33,081	98	
	48,433	82	Weighted Average
	15,352		31.70% Pervious Area
	33,081		68.30% Impervious Area

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

Summary for Subcatchment S49:

Runoff = 18.26 cfs @ 12.07 hrs, Volume= 1.264 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

	Area (ac)	CN	Description
*	0.730	49	
*	2.390	98	
	3.120	87	Weighted Average
	0.730		23.40% Pervious Area
	2.390		76.60% Impervious Area

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

Summary for Subcatchment S50:

Runoff = 10.23 cfs @ 12.09 hrs, Volume= 0.717 af, Depth> 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 204,204	49	
* 23,512	98	
227,716	54	Weighted Average
204,204		89.67% Pervious Area
23,512		10.33% Impervious Area

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

Summary for Subcatchment S51:

Runoff = 1.33 cfs @ 12.43 hrs, Volume= 0.164 af, Depth> 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 64,916	49	
* 752	98	
65,668	50	Weighted Average
64,916		98.85% Pervious Area
752		1.15% Impervious Area

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

Summary for Subcatchment S56.2:

Runoff = 4.36 cfs @ 12.08 hrs, Volume= 0.292 af, Depth> 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (sf)	CN	Description
21,593	61	>75% Grass cover, Good, HSG B
17,535	98	Paved parking & roofs
39,128	78	Weighted Average
21,593		55.19% Pervious Area
17,535		44.81% Impervious Area

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

Summary for Subcatchment S57:

Runoff = 2.65 cfs @ 12.35 hrs, Volume= 0.302 af, Depth> 4.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 8,496	49	
* 24,877	98	
33,373	86	Weighted Average
8,496		25.46% Pervious Area
24,877		74.54% Impervious Area

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

Summary for Subcatchment S58:

Runoff = 25.74 cfs @ 12.07 hrs, Volume= 1.807 af, Depth> 5.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
26,919	39	>75% Grass cover, Good, HSG A
* 158,875	98	
185,794	89	Weighted Average
26,919		14.49% Pervious Area
158,875		85.51% Impervious Area

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

Summary for Subcatchment S7: Retail Core North Loading

Runoff = 21.17 cfs @ 12.08 hrs, Volume= 1.412 af, Depth> 3.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
70,484	39	>75% Grass cover, Good, HSG A
124,060	98	Paved parking, HSG A
194,544	77	Weighted Average
70,484		36.23% Pervious Area
124,060		63.77% Impervious Area

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

Summary for Subcatchment S8: Retail Core South Roof

Runoff = 33.07 cfs @ 12.07 hrs, Volume= 2.569 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
219,409	98	Roofs, HSG A
219,409		100.00% Impervious Area

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

Summary for Subcatchment S9: Retail Core North Roof

Runoff = 29.82 cfs @ 12.07 hrs, Volume= 2.317 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
197,875	98	Roofs, HSG A
197,875		100.00% Impervious Area

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

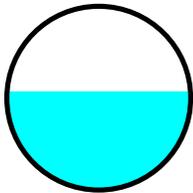
Summary for Reach 1R: 60"

Inflow Area = 47.427 ac, 87.07% Impervious, Inflow Depth > 2.23" for 100-Year event
Inflow = 111.24 cfs @ 12.17 hrs, Volume= 8.832 af
Outflow = 110.11 cfs @ 12.21 hrs, Volume= 8.828 af, Atten= 1%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 10.28 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.88 fps, Avg. Travel Time= 2.8 min

Peak Storage= 5,143 cf @ 12.19 hrs
Average Depth at Peak Storage= 2.68'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.22 cfs

60.0" Round Pipe
n= 0.014
Length= 480.0' Slope= 0.0066 '/'
Inlet Invert= 42.00', Outlet Invert= 38.84'



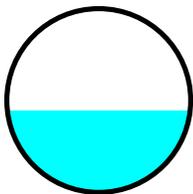
Summary for Reach L113: 72"

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 2.70" for 100-Year event
Inflow = 203.17 cfs @ 12.21 hrs, Volume= 19.524 af
Outflow = 203.02 cfs @ 12.21 hrs, Volume= 19.522 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 16.71 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 5.38 fps, Avg. Travel Time= 0.3 min

Peak Storage= 1,167 cf @ 12.21 hrs
Average Depth at Peak Storage= 2.67'
Bank-Full Depth= 6.00' Flow Area= 28.3 sf, Capacity= 498.08 cfs

72.0" Round Pipe
n= 0.014
Length= 96.0' Slope= 0.0160 '/'
Inlet Invert= 36.11', Outlet Invert= 34.57'



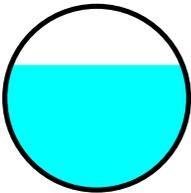
Summary for Reach L123:

Inflow Area = 16.449 ac, 63.62% Impervious, Inflow Depth > 4.15" for 100-Year event
Inflow = 64.10 cfs @ 12.11 hrs, Volume= 5.690 af
Outflow = 61.85 cfs @ 12.14 hrs, Volume= 5.684 af, Atten= 4%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.96 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.51 fps, Avg. Travel Time= 2.4 min

Peak Storage= 3,233 cf @ 12.12 hrs
Average Depth at Peak Storage= 2.72'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



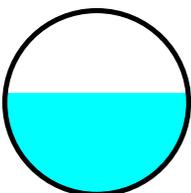
Summary for Reach L157:

Inflow Area = 7.811 ac, 67.92% Impervious, Inflow Depth > 4.36" for 100-Year event
Inflow = 40.11 cfs @ 12.10 hrs, Volume= 2.835 af
Outflow = 39.43 cfs @ 12.11 hrs, Volume= 2.834 af, Atten= 2%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.64 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.97 fps, Avg. Travel Time= 1.2 min

Peak Storage= 982 cf @ 12.10 hrs
Average Depth at Peak Storage= 2.21'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 68.13 cfs

48.0" Round Pipe
n= 0.014
Length= 138.0' Slope= 0.0026 '/'
Inlet Invert= 42.06', Outlet Invert= 41.70'



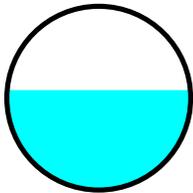
Summary for Reach L158:

Inflow Area = 11.219 ac, 62.08% Impervious, Inflow Depth > 4.03" for 100-Year event
Inflow = 44.83 cfs @ 12.10 hrs, Volume= 3.771 af
Outflow = 43.39 cfs @ 12.12 hrs, Volume= 3.767 af, Atten= 3%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.38 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.35 fps, Avg. Travel Time= 1.8 min

Peak Storage= 1,773 cf @ 12.11 hrs
Average Depth at Peak Storage= 2.17'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 77.61 cfs

48.0" Round Pipe
n= 0.014
Length= 254.0' Slope= 0.0034 '/'
Inlet Invert= 41.60', Outlet Invert= 40.74'



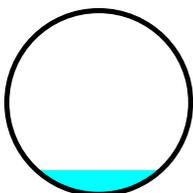
Summary for Reach L159:

Inflow Area = 2.328 ac, 45.53% Impervious, Inflow Depth > 3.12" for 100-Year event
Inflow = 3.57 cfs @ 12.86 hrs, Volume= 0.606 af
Outflow = 3.55 cfs @ 12.91 hrs, Volume= 0.604 af, Atten= 0%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.60 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.85 fps, Avg. Travel Time= 3.1 min

Peak Storage= 336 cf @ 12.88 hrs
Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 94.32 cfs

48.0" Round Pipe
n= 0.014
Length= 340.0' Slope= 0.0050 '/'
Inlet Invert= 43.40', Outlet Invert= 41.70'



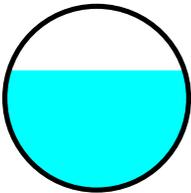
Summary for Reach L69: 60"

Inflow Area = 65.247 ac, 76.28% Impervious, Inflow Depth > 2.39" for 100-Year event
Inflow = 148.63 cfs @ 12.13 hrs, Volume= 13.014 af
Outflow = 148.53 cfs @ 12.15 hrs, Volume= 13.012 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.01 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.52 fps, Avg. Travel Time= 0.6 min

Peak Storage= 1,717 cf @ 12.14 hrs
Average Depth at Peak Storage= 3.25'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 196.68 cfs

60.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0066 '/'
Inlet Invert= 38.84', Outlet Invert= 38.00'



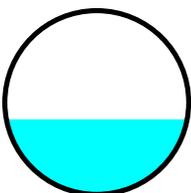
Summary for Reach L76:

Inflow Area = 5.141 ac, 68.18% Impervious, Inflow Depth > 4.38" for 100-Year event
Inflow = 27.71 cfs @ 12.07 hrs, Volume= 1.877 af
Outflow = 26.45 cfs @ 12.11 hrs, Volume= 1.874 af, Atten= 5%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.70 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.93 fps, Avg. Travel Time= 3.1 min

Peak Storage= 1,708 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.63'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 78.83 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0035 '/'
Inlet Invert= 43.30', Outlet Invert= 42.06'



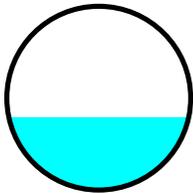
Summary for Reach L81:

Inflow Area = 17.889 ac, 64.43% Impervious, Inflow Depth > 4.19" for 100-Year event
Inflow = 68.32 cfs @ 12.13 hrs, Volume= 6.241 af
Outflow = 68.00 cfs @ 12.13 hrs, Volume= 6.240 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.44 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.25 fps, Avg. Travel Time= 0.6 min

Peak Storage= 873 cf @ 12.13 hrs
Average Depth at Peak Storage= 1.98'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 207.41 cfs

60.0" Round Pipe
n= 0.014
Length= 121.0' Slope= 0.0074 '/'
Inlet Invert= 38.80', Outlet Invert= 37.91'



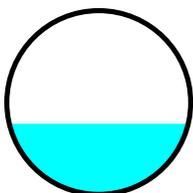
Summary for Reach P2: 78"

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 2.70" for 100-Year event
Inflow = 203.02 cfs @ 12.21 hrs, Volume= 19.522 af
Outflow = 202.98 cfs @ 12.22 hrs, Volume= 19.522 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 17.36 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 5.56 fps, Avg. Travel Time= 0.1 min

Peak Storage= 292 cf @ 12.21 hrs
Average Depth at Peak Storage= 2.49'
Bank-Full Depth= 6.50' Flow Area= 33.2 sf, Capacity= 653.15 cfs

78.0" Round Pipe
n= 0.014
Length= 25.0' Slope= 0.0180 '/'
Inlet Invert= 34.57', Outlet Invert= 34.12'



Summary for Reach POA 2: POA 2

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 2.70" for 100-Year event
 Inflow = 202.98 cfs @ 12.22 hrs, Volume= 19.522 af
 Outflow = 202.98 cfs @ 12.22 hrs, Volume= 19.522 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 10P: (new Pond)

Inflow Area = 18.875 ac, 96.32% Impervious, Inflow Depth > 5.86" for 100-Year event
 Inflow = 122.37 cfs @ 12.07 hrs, Volume= 9.222 af
 Outflow = 56.62 cfs @ 12.23 hrs, Volume= 9.215 af, Atten= 54%, Lag= 9.5 min
 Discarded = 7.83 cfs @ 12.23 hrs, Volume= 6.035 af
 Primary = 48.79 cfs @ 12.23 hrs, Volume= 3.180 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 53.06' @ 12.23 hrs Surf.Area= 37,000 sf Storage= 96,053 cf

Plug-Flow detention time= 31.0 min calculated for 9.192 af (100% of inflow)
 Center-of-Mass det. time= 30.6 min (758.4 - 727.8)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	45,500 cf	Custom Stage Data (Prismatic) Listed below Inside #2
#2	48.00'	78,000 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			240,500 cf Overall - 45,500 cf Embedded = 195,000 cf x 40.0% Voids
		123,500 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	7,000	0	0
49.00	7,000	7,000	7,000
50.00	7,000	7,000	14,000
51.00	7,000	7,000	21,000
52.00	7,000	7,000	28,000
53.00	7,000	7,000	35,000
54.00	7,000	7,000	42,000
54.50	7,000	3,500	45,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	37,000	0	0
49.00	37,000	37,000	37,000
50.00	37,000	37,000	74,000
51.00	37,000	37,000	111,000
52.00	37,000	37,000	148,000
53.00	37,000	37,000	185,000
54.00	37,000	37,000	222,000
54.50	37,000	18,500	240,500

3659-12003C-Proposed Conditions POA 2-01

Type III 24-hr 100-Year Rainfall=6.65"

Prepared by {enter your company name here}

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Device	Routing	Invert	Outlet Devices
#1	Discarded	48.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.50'	36.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=7.83 cfs @ 12.23 hrs HW=53.05' (Free Discharge)

↳ **1=Exfiltration** (Controls 7.83 cfs)

Primary OutFlow Max=48.69 cfs @ 12.23 hrs HW=53.05' (Free Discharge)

↳ **2=Orifice/Grate** (Orifice Controls 48.69 cfs @ 6.89 fps)

Summary for Pond 11P: (new Pond)

Inflow Area = 20.573 ac, 84.88% Impervious, Inflow Depth > 5.10" for 100-Year event
 Inflow = 121.85 cfs @ 12.07 hrs, Volume= 8.737 af
 Outflow = 48.88 cfs @ 12.29 hrs, Volume= 8.731 af, Atten= 60%, Lag= 12.8 min
 Discarded = 9.27 cfs @ 12.29 hrs, Volume= 6.148 af
 Primary = 39.61 cfs @ 12.29 hrs, Volume= 2.584 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 52.33' @ 12.29 hrs Surf.Area= 44,400 sf Storage= 98,786 cf

Plug-Flow detention time= 34.2 min calculated for 8.710 af (100% of inflow)
 Center-of-Mass det. time= 33.8 min (780.7 - 746.9)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	46,200 cf	Custom Stage Data (Prismatic) Listed below Inside #2
#2	48.00'	79,200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			244,200 cf Overall - 46,200 cf Embedded = 198,000 cf x 40.0% Voids
		125,400 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	8,400	0	0
49.00	8,400	8,400	8,400
50.00	8,400	8,400	16,800
51.00	8,400	8,400	25,200
52.00	8,400	8,400	33,600
53.00	8,400	8,400	42,000
53.50	8,400	4,200	46,200

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	44,400	0	0
49.00	44,400	44,400	44,400
50.00	44,400	44,400	88,800
51.00	44,400	44,400	133,200
52.00	44,400	44,400	177,600
53.00	44,400	44,400	222,000
53.50	44,400	22,200	244,200

3659-12003C-Proposed Conditions POA 2-01

Type III 24-hr 100-Year Rainfall=6.65"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	48.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.50'	36.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=9.27 cfs @ 12.29 hrs HW=52.33' (Free Discharge)
 ↳1=Exfiltration (Controls 9.27 cfs)

Primary OutFlow Max=39.54 cfs @ 12.29 hrs HW=52.33' (Free Discharge)
 ↳2=Orifice/Grate (Orifice Controls 39.54 cfs @ 5.73 fps)

Summary for Pond 42.1P:

Inflow Area = 86.635 ac, 71.22% Impervious, Inflow Depth > 2.70" for 100-Year event
 Inflow = 219.60 cfs @ 12.14 hrs, Volume= 19.524 af
 Outflow = 203.17 cfs @ 12.21 hrs, Volume= 19.524 af, Atten= 7%, Lag= 4.4 min
 Primary = 203.17 cfs @ 12.21 hrs, Volume= 19.524 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 42.55' @ 12.21 hrs Surf.Area= 12,323 sf Storage= 27,064 cf

Plug-Flow detention time= 1.0 min calculated for 19.475 af (100% of inflow)
 Center-of-Mass det. time= 1.0 min (767.9 - 766.9)

Volume	Invert	Avail.Storage	Storage Description
#1	36.10'	83,475 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.10	0	0	0
36.56	36	8	8
37.02	71	25	33
37.52	628	175	208
38.02	1,185	453	661
38.52	1,515	675	1,336
39.02	1,845	840	2,176
39.52	2,750	1,149	3,325
40.02	3,654	1,601	4,926
40.52	6,082	2,434	7,360
41.02	8,510	3,648	11,008
41.52	9,847	4,589	15,597
42.02	11,185	5,258	20,855
42.52	12,262	5,862	26,717
43.02	13,340	6,401	33,117
43.52	14,672	7,003	40,120
44.02	16,005	7,669	47,789
44.52	17,355	8,340	56,129
45.02	18,705	9,015	65,144
46.00	18,705	18,331	83,475

Device	Routing	Invert	Outlet Devices
#1	Primary	36.11'	72.0" Round Culvert L= 1.0' Ke= 0.500

Inlet / Outlet Invert= 36.11' / 36.10' S= 0.0100 1/ S= 0.0100 1/ Cc= 0.900
 n= 0.014, Flow Area= 28.27 sf

Primary OutFlow Max=202.09 cfs @ 12.21 hrs HW=42.52' (Free Discharge)

↑1=Culvert (Barrel Controls 202.09 cfs @ 8.32 fps)

Summary for Pond 47P:

Inflow Area = 4.096 ac, 27.93% Impervious, Inflow Depth > 1.55" for 100-Year event
 Inflow = 5.09 cfs @ 12.29 hrs, Volume= 0.530 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 45.03' @ 20.00 hrs Surf.Area= 27,035 sf Storage= 23,065 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	277,477 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	17,860	0	0
44.50	22,325	10,046	10,046
45.00	26,789	12,279	22,325
45.50	31,254	14,511	36,836
46.00	35,719	16,743	53,579
46.50	42,471	19,548	73,126
47.00	49,223	22,924	96,050
47.50	55,975	26,300	122,349
48.00	62,726	29,675	152,025
50.00	62,726	125,452	277,477

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	165.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 51P:

Inflow Area = 1.508 ac, 1.15% Impervious, Inflow Depth > 1.31" for 100-Year event
 Inflow = 1.33 cfs @ 12.43 hrs, Volume= 0.164 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

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Type III 24-hr 100-Year Rainfall=6.65"

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Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 47.14' @ 20.00 hrs Surf.Area= 8,353 sf Storage= 7,152 cf

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

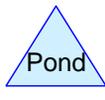
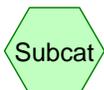
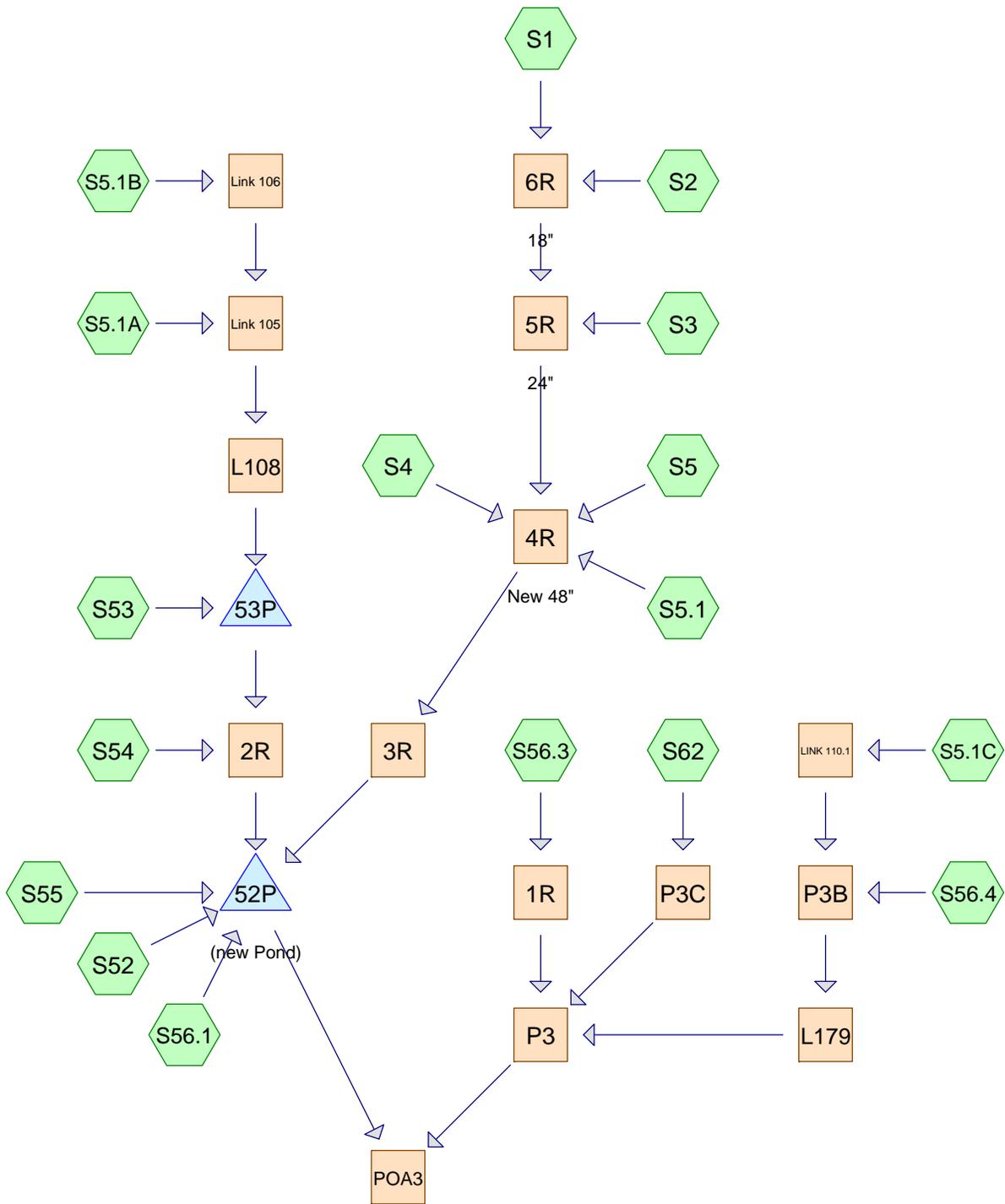
Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	77,839 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	537	0	0
46.00	2,365	1,451	1,451
47.00	6,927	4,646	6,097
48.00	17,254	12,091	18,188
49.00	31,195	24,225	42,412
50.00	39,658	35,427	77,839

Device	Routing	Invert	Outlet Devices
#1	Primary	49.50'	75.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.00' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Routing Diagram for 3659-12003C-Proposed Conditions POA 3-01
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
9.794	43	(S1, S2)
0.530	65	(S1)
14.389	98	(S1, S2, S3, S4, S5, S5.1)
3.960	69	(S3, S4, S5.1)
10.622	49	(S4, S5)
0.710	60	(S5.1)
27.850	49	50-75% Grass cover, Fair, HSG A (S5.1A, S5.1B, S5.1C)
11.681	69	50-75% Grass cover, Fair, HSG B (S5.1C, S56.1, S56.3)
3.200	79	50-75% Grass cover, Fair, HSG C (S5.1B)
1.303	39	>75% Grass cover, Good, HSG A (S55, S56.4)
4.508	98	Paved Areas & Roofs, HSG A (S52, S55)
10.983	98	Paved parking & roofs (S5.1A, S5.1B, S5.1C, S56.1, S56.3, S56.4, S62)
22.869	65	Woods/grass comb., Fair, HSG B (S52, S53, S54)
122.398	67	TOTAL AREA

Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment S1:** Runoff Area=9.020 ac 3.55% Impervious Runoff Depth>0.04"
Tc=30.2 min CN=46 Runoff=0.07 cfs 0.029 af
- Subcatchment S2:** Runoff Area=218,770 sf 67.66% Impervious Runoff Depth>1.29"
Tc=14.8 min CN=80 Runoff=6.18 cfs 0.540 af
- Subcatchment S3:** Runoff Area=3.380 ac 75.74% Impervious Runoff Depth>2.13"
Tc=5.0 min CN=91 Runoff=9.00 cfs 0.599 af
- Subcatchment S4:** Runoff Area=13.930 ac 10.84% Impervious Runoff Depth>0.29"
Tc=25.6 min CN=58 Runoff=1.92 cfs 0.335 af
- Subcatchment S5:** Runoff Area=222,263 sf 79.00% Impervious Runoff Depth>1.87"
Tc=5.0 min CN=88 Runoff=12.18 cfs 0.796 af
- Subcatchment S5.1:** Runoff Area=3.550 ac 72.39% Impervious Runoff Depth>1.86"
Tc=16.7 min CN=88 Runoff=6.00 cfs 0.552 af
- Subcatchment S5.1A:** Runoff Area=15.250 ac 12.00% Impervious Runoff Depth>0.21"
Tc=16.7 min CN=55 Runoff=1.40 cfs 0.265 af
- Subcatchment S5.1B:** Runoff Area=16.990 ac 17.83% Impervious Runoff Depth>0.45"
Tc=25.4 min CN=63 Runoff=4.63 cfs 0.641 af
- Subcatchment S5.1C:** Runoff Area=17.500 ac 13.43% Impervious Runoff Depth>0.70"
Tc=14.3 min CN=69 Runoff=10.62 cfs 1.019 af
- Subcatchment S52:** Runoff Area=704,290 sf 5.21% Impervious Runoff Depth>0.61"
Flow Length=1,830' Tc=19.7 min CN=67 Runoff=7.32 cfs 0.822 af
- Subcatchment S53:** Runoff Area=217,428 sf 0.00% Impervious Runoff Depth>0.53"
Tc=15.8 min CN=65 Runoff=2.00 cfs 0.221 af
- Subcatchment S54:** Runoff Area=111,170 sf 0.00% Impervious Runoff Depth>0.53"
Tc=14.0 min CN=65 Runoff=1.07 cfs 0.113 af
- Subcatchment S55:** Runoff Area=214,123 sf 74.57% Impervious Runoff Depth>1.49"
Flow Length=1,830' Tc=19.7 min CN=83 Runoff=6.26 cfs 0.609 af
- Subcatchment S56.1:** Runoff Area=57,317 sf 85.18% Impervious Runoff Depth>2.41"
Tc=5.0 min CN=94 Runoff=3.84 cfs 0.264 af
- Subcatchment S56.3:** Runoff Area=59,738 sf 99.59% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=4.35 cfs 0.323 af
- Subcatchment S56.4:** Runoff Area=31,118 sf 92.60% Impervious Runoff Depth>2.40"
Flow Length=915' Tc=20.1 min CN=94 Runoff=1.38 cfs 0.143 af

Subcatchment S62:	Runoff Area=27,209 sf	100.00% Impervious	Runoff Depth>2.83"
	Tc=5.0 min	CN=98	Runoff=1.98 cfs 0.147 af
Reach 1R:	Avg. Flow Depth=0.70'	Max Vel=3.98 fps	Inflow=4.35 cfs 0.323 af
24.0" Round Pipe	n=0.014 L=850.0'	S=0.0050 '/	Capacity=14.85 cfs Outflow=3.83 cfs 0.322 af
Reach 2R:	Avg. Flow Depth=0.29'	Max Vel=3.60 fps	Inflow=4.30 cfs 0.996 af
	n=0.030 L=750.0'	S=0.0373 '/	Capacity=208.76 cfs Outflow=4.25 cfs 0.987 af
Reach 3R:	Avg. Flow Depth=0.97'	Max Vel=5.61 fps	Inflow=27.62 cfs 2.848 af
	n=0.030 L=760.0'	S=0.0263 '/	Capacity=136.35 cfs Outflow=26.89 cfs 2.838 af
Reach 4R: New 48"	Avg. Flow Depth=1.55'	Max Vel=6.16 fps	Inflow=28.11 cfs 2.850 af
48.0" Round Pipe	n=0.014 L=140.0'	S=0.0043 '/	Capacity=87.32 cfs Outflow=27.62 cfs 2.848 af
Reach 5R: 24"	Avg. Flow Depth=0.72'	Max Vel=12.19 fps	Inflow=12.38 cfs 1.168 af
24.0" Round Pipe	n=0.014 L=330.0'	S=0.0461 '/	Capacity=45.08 cfs Outflow=12.13 cfs 1.167 af
Reach 6R: 18"	Avg. Flow Depth=0.63'	Max Vel=8.73 fps	Inflow=6.18 cfs 0.569 af
18.0" Round Pipe	n=0.014 L=428.0'	S=0.0294 '/	Capacity=16.74 cfs Outflow=6.10 cfs 0.568 af
Reach L108:	Avg. Flow Depth=0.07'	Max Vel=2.11 fps	Inflow=6.00 cfs 0.904 af
	n=0.030 L=774.0'	S=0.0646 '/	Capacity=1,762.00 cfs Outflow=5.77 cfs 0.890 af
Reach L179:	Avg. Flow Depth=0.83'	Max Vel=7.08 fps	Inflow=8.69 cfs 1.160 af
24.0" Round Pipe	n=0.014 L=60.0'	S=0.0133 '/	Capacity=24.26 cfs Outflow=8.69 cfs 1.160 af
Reach Link 105:	Avg. Flow Depth=0.59'	Max Vel=7.79 fps	Inflow=6.01 cfs 0.906 af
24.0" Round Pipe	n=0.014 L=350.0'	S=0.0230 '/	Capacity=31.86 cfs Outflow=6.00 cfs 0.904 af
Reach Link 106:	Avg. Flow Depth=0.48'	Max Vel=10.60 fps	Inflow=4.63 cfs 0.641 af
15.0" Round Pipe	n=0.014 L=5.0'	S=0.0600 '/	Capacity=14.69 cfs Outflow=4.63 cfs 0.641 af
Reach LINK 110.1:	Avg. Flow Depth=1.16'	Max Vel=7.24 fps	Inflow=10.62 cfs 1.019 af
18.0" Round Pipe	n=0.014 L=260.0'	S=0.0133 '/	Capacity=11.25 cfs Outflow=10.56 cfs 1.018 af
Reach P3:	Avg. Flow Depth=1.25'	Max Vel=6.67 fps	Inflow=13.79 cfs 1.629 af
24.0" Round Pipe	n=0.014 L=52.0'	S=0.0085 '/	Capacity=19.32 cfs Outflow=13.74 cfs 1.629 af
Reach P3B:	Avg. Flow Depth=1.50'	Max Vel=5.54 fps	Inflow=11.94 cfs 1.161 af
18.0" Round Pipe	n=0.014 L=63.0'	S=0.0079 '/	Capacity=8.69 cfs Outflow=8.69 cfs 1.160 af
Reach P3C:	Avg. Flow Depth=0.40'	Max Vel=5.25 fps	Inflow=1.98 cfs 0.147 af
18.0" Round Pipe	n=0.014 L=127.0'	S=0.0172 '/	Capacity=12.78 cfs Outflow=1.95 cfs 0.147 af
Reach POA3:			Inflow=15.46 cfs 5.411 af
			Outflow=15.46 cfs 5.411 af
Pond 52P: (new Pond)	Peak Elev=48.27'	Storage=116,813 cf	Inflow=40.38 cfs 5.520 af
			Outflow=6.61 cfs 3.783 af
Pond 53P:	Peak Elev=79.25'	Storage=12,323 cf	Inflow=6.76 cfs 1.111 af
			Outflow=4.05 cfs 0.884 af

Total Runoff Area = 122.398 ac Runoff Volume = 7.418 af Average Runoff Depth = 0.73"
75.59% Pervious = 92.519 ac 24.41% Impervious = 29.879 ac

Summary for Subcatchment S1:

Runoff = 0.07 cfs @ 15.41 hrs, Volume= 0.029 af, Depth> 0.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 8.170	43	
* 0.530	65	
* 0.320	98	
9.020	46	Weighted Average
8.700		96.45% Pervious Area
0.320		3.55% Impervious Area

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

Summary for Subcatchment S2:

Runoff = 6.18 cfs @ 12.21 hrs, Volume= 0.540 af, Depth> 1.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 70,760	43	
* 148,010	98	
218,770	80	Weighted Average
70,760		32.34% Pervious Area
148,010		67.66% Impervious Area

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

Summary for Subcatchment S3:

Runoff = 9.00 cfs @ 12.08 hrs, Volume= 0.599 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 0.820	69	
* 2.560	98	
3.380	91	Weighted Average
0.820		24.26% Pervious Area
2.560		75.74% Impervious Area

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

Summary for Subcatchment S4:

Runoff = 1.92 cfs @ 12.56 hrs, Volume= 0.335 af, Depth> 0.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
* 9.550	49	
* 2.870	69	
* 1.510	98	
13.930	58	Weighted Average
12.420		89.16% Pervious Area
1.510		10.84% Impervious Area

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

Summary for Subcatchment S5:

Runoff = 12.18 cfs @ 12.08 hrs, Volume= 0.796 af, Depth> 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
* 46,677	49	
* 175,586	98	
222,263	88	Weighted Average
46,677		21.00% Pervious Area
175,586		79.00% Impervious Area

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

Summary for Subcatchment S5.1:

Runoff = 6.00 cfs @ 12.23 hrs, Volume= 0.552 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Type III 24-hr 2-Year Rainfall=3.20"

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Area (ac)	CN	Description
* 0.270	69	
* 0.710	60	
* 2.570	98	
3.550	88	Weighted Average
0.980		27.61% Pervious Area
2.570		72.39% Impervious Area

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

Summary for Subcatchment S5.1A:

Runoff = 1.40 cfs @ 12.50 hrs, Volume= 0.265 af, Depth> 0.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
13.420	49	50-75% Grass cover, Fair, HSG A
1.830	98	Paved parking & roofs
15.250	55	Weighted Average
13.420		88.00% Pervious Area
1.830		12.00% Impervious Area

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

Summary for Subcatchment S5.1B:

Runoff = 4.63 cfs @ 12.46 hrs, Volume= 0.641 af, Depth> 0.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
10.760	49	50-75% Grass cover, Fair, HSG A
3.200	79	50-75% Grass cover, Fair, HSG C
3.030	98	Paved parking & roofs
16.990	63	Weighted Average
13.960		82.17% Pervious Area
3.030		17.83% Impervious Area

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

Summary for Subcatchment S5.1C:

Runoff = 10.62 cfs @ 12.22 hrs, Volume= 1.019 af, Depth> 0.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (ac)	CN	Description
3.670	49	50-75% Grass cover, Fair, HSG A
11.480	69	50-75% Grass cover, Fair, HSG B
2.350	98	Paved parking & roofs
17.500	69	Weighted Average
15.150		86.57% Pervious Area
2.350		13.43% Impervious Area

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

Summary for Subcatchment S52:

Runoff = 7.32 cfs @ 12.33 hrs, Volume= 0.822 af, Depth> 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
667,589	65	Woods/grass comb., Fair, HSG B
* 36,701	98	Paved Areas & Roofs, HSG A
704,290	67	Weighted Average
667,589		94.79% Pervious Area
36,701		5.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0800	0.14		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.20"
7.4	1,730	0.0580	3.88		Shallow Concentrated Flow, Shallow Conc Unpaved Kv= 16.1 fps
19.7	1,830	Total			

Summary for Subcatchment S53:

Runoff = 2.00 cfs @ 12.27 hrs, Volume= 0.221 af, Depth> 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

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Type III 24-hr 2-Year Rainfall=3.20"

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Area (sf)	CN	Description
217,428	65	Woods/grass comb., Fair, HSG B
217,428		100.00% Pervious Area

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

Summary for Subcatchment S54:

Runoff = 1.07 cfs @ 12.24 hrs, Volume= 0.113 af, Depth> 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
111,170	65	Woods/grass comb., Fair, HSG B
111,170		100.00% Pervious Area

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

Summary for Subcatchment S55:

Runoff = 6.26 cfs @ 12.28 hrs, Volume= 0.609 af, Depth> 1.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
54,455	39	>75% Grass cover, Good, HSG A
* 159,668	98	Paved Areas & Roofs, HSG A
214,123	83	Weighted Average
54,455		25.43% Pervious Area
159,668		74.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0800	0.14		Sheet Flow, Sheet
7.4	1,730	0.0580	3.88		Woods: Light underbrush n= 0.400 P2= 3.20"
					Shallow Concentrated Flow, Shallow Conc
					Unpaved Kv= 16.1 fps
19.7	1,830	Total			

Summary for Subcatchment S56.1:

Runoff = 3.84 cfs @ 12.07 hrs, Volume= 0.264 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
8,495	69	50-75% Grass cover, Fair, HSG B
48,822	98	Paved parking & roofs
57,317	94	Weighted Average
8,495		14.82% Pervious Area
48,822		85.18% Impervious Area

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

Summary for Subcatchment S56.3:

Runoff = 4.35 cfs @ 12.07 hrs, Volume= 0.323 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
246	69	50-75% Grass cover, Fair, HSG B
59,492	98	Paved parking & roofs
59,738	98	Weighted Average
246		0.41% Pervious Area
59,492		99.59% Impervious Area

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

Summary for Subcatchment S56.4:

Runoff = 1.38 cfs @ 12.27 hrs, Volume= 0.143 af, Depth> 2.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
2,302	39	>75% Grass cover, Good, HSG A
28,816	98	Paved parking & roofs
31,118	94	Weighted Average
2,302		7.40% Pervious Area
28,816		92.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0400	0.10		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	680	0.0600	3.94		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.9	135	0.0150	2.49		Shallow Concentrated Flow, Paved Paved Kv= 20.3 fps
20.1	915	Total			

Summary for Subcatchment S62:

Runoff = 1.98 cfs @ 12.07 hrs, Volume= 0.147 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
27,209	98	Paved parking & roofs
27,209		100.00% Impervious Area

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

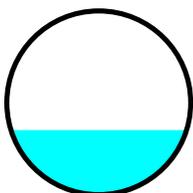
Summary for Reach 1R:

Inflow Area = 1.371 ac, 99.59% Impervious, Inflow Depth > 2.83" for 2-Year event
Inflow = 4.35 cfs @ 12.07 hrs, Volume= 0.323 af
Outflow = 3.83 cfs @ 12.17 hrs, Volume= 0.322 af, Atten= 12%, Lag= 5.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.98 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 1.41 fps, Avg. Travel Time= 10.1 min

Peak Storage= 834 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
n= 0.014
Length= 850.0' Slope= 0.0050 '/'
Inlet Invert= 45.35', Outlet Invert= 41.10'



Summary for Reach 2R:

Inflow Area = 39.784 ac, 12.22% Impervious, Inflow Depth > 0.30" for 2-Year event
Inflow = 4.30 cfs @ 13.05 hrs, Volume= 0.996 af
Outflow = 4.25 cfs @ 13.15 hrs, Volume= 0.987 af, Atten= 1%, Lag= 6.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.60 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 2.42 fps, Avg. Travel Time= 5.2 min

Peak Storage= 888 cf @ 13.09 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 208.76 cfs

3.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.5 '/' Top Width= 17.00'
Length= 750.0' Slope= 0.0373 '/'
Inlet Invert= 79.00', Outlet Invert= 51.00'



Summary for Reach 3R:

Inflow Area = 40.005 ac, 35.97% Impervious, Inflow Depth > 0.85" for 2-Year event
Inflow = 27.62 cfs @ 12.11 hrs, Volume= 2.848 af
Outflow = 26.89 cfs @ 12.18 hrs, Volume= 2.838 af, Atten= 3%, Lag= 4.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.61 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 2.31 fps, Avg. Travel Time= 5.5 min

Peak Storage= 3,616 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.97'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 136.35 cfs

2.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 760.0' Slope= 0.0263 '/'
Inlet Invert= 79.00', Outlet Invert= 59.00'



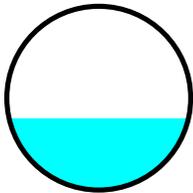
Summary for Reach 4R: New 48"

Inflow Area = 40.005 ac, 35.97% Impervious, Inflow Depth > 0.85" for 2-Year event
Inflow = 28.11 cfs @ 12.10 hrs, Volume= 2.850 af
Outflow = 27.62 cfs @ 12.11 hrs, Volume= 2.848 af, Atten= 2%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.16 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.45 fps, Avg. Travel Time= 1.0 min

Peak Storage= 631 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.55'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 87.32 cfs

48.0" Round Pipe
n= 0.014
Length= 140.0' Slope= 0.0043 '/'
Inlet Invert= 79.60', Outlet Invert= 79.00'



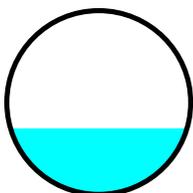
Summary for Reach 5R: 24"

Inflow Area = 17.422 ac, 36.03% Impervious, Inflow Depth > 0.80" for 2-Year event
Inflow = 12.38 cfs @ 12.09 hrs, Volume= 1.168 af
Outflow = 12.13 cfs @ 12.11 hrs, Volume= 1.167 af, Atten= 2%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 12.19 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 4.73 fps, Avg. Travel Time= 1.2 min

Peak Storage= 334 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.72'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 45.08 cfs

24.0" Round Pipe
n= 0.014
Length= 330.0' Slope= 0.0461 '/'
Inlet Invert= 94.80', Outlet Invert= 79.60'



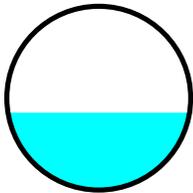
Summary for Reach 6R: 18"

Inflow Area = 14.042 ac, 26.48% Impervious, Inflow Depth > 0.49" for 2-Year event
Inflow = 6.18 cfs @ 12.21 hrs, Volume= 0.569 af
Outflow = 6.10 cfs @ 12.24 hrs, Volume= 0.568 af, Atten= 1%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 8.73 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 3.98 fps, Avg. Travel Time= 1.8 min

Peak Storage= 301 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 16.74 cfs

18.0" Round Pipe
n= 0.014
Length= 428.0' Slope= 0.0294 '/'
Inlet Invert= 107.40', Outlet Invert= 94.80'



Summary for Reach L108:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 0.34" for 2-Year event
Inflow = 6.00 cfs @ 12.49 hrs, Volume= 0.904 af
Outflow = 5.77 cfs @ 12.68 hrs, Volume= 0.890 af, Atten= 4%, Lag= 10.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.11 fps, Min. Travel Time= 6.1 min
Avg. Velocity = 1.15 fps, Avg. Travel Time= 11.2 min

Peak Storage= 2,124 cf @ 12.57 hrs
Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 1,762.00 cfs

40.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 5.0 '/' Top Width= 60.00'
Length= 774.0' Slope= 0.0646 '/'
Inlet Invert= 132.00', Outlet Invert= 82.00'



‡

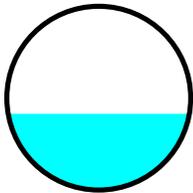
Summary for Reach L179:

Inflow Area = 18.214 ac, 16.53% Impervious, Inflow Depth > 0.76" for 2-Year event
Inflow = 8.69 cfs @ 12.20 hrs, Volume= 1.160 af
Outflow = 8.69 cfs @ 12.28 hrs, Volume= 1.160 af, Atten= 0%, Lag= 4.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.08 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.70 fps, Avg. Travel Time= 0.4 min

Peak Storage= 74 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.83'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.26 cfs

24.0" Round Pipe
n= 0.014
Length= 60.0' Slope= 0.0133 '/'
Inlet Invert= 41.90', Outlet Invert= 41.10'



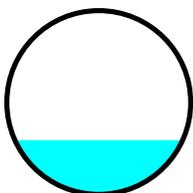
Summary for Reach Link 105:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 0.34" for 2-Year event
Inflow = 6.01 cfs @ 12.47 hrs, Volume= 0.906 af
Outflow = 6.00 cfs @ 12.49 hrs, Volume= 0.904 af, Atten= 0%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.79 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 4.70 fps, Avg. Travel Time= 1.2 min

Peak Storage= 270 cf @ 12.48 hrs
Average Depth at Peak Storage= 0.59'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 31.86 cfs

24.0" Round Pipe
n= 0.014
Length= 350.0' Slope= 0.0230 '/'
Inlet Invert= 140.75', Outlet Invert= 132.70'



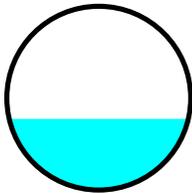
Summary for Reach Link 106:

Inflow Area = 16.990 ac, 17.83% Impervious, Inflow Depth > 0.45" for 2-Year event
Inflow = 4.63 cfs @ 12.46 hrs, Volume= 0.641 af
Outflow = 4.63 cfs @ 12.46 hrs, Volume= 0.641 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 10.60 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 6.22 fps, Avg. Travel Time= 0.0 min

Peak Storage= 2 cf @ 12.46 hrs
Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 14.69 cfs

15.0" Round Pipe
n= 0.014
Length= 5.0' Slope= 0.0600 1/100
Inlet Invert= 41.80', Outlet Invert= 41.50'



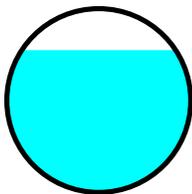
Summary for Reach LINK 110.1:

Inflow Area = 17.500 ac, 13.43% Impervious, Inflow Depth > 0.70" for 2-Year event
Inflow = 10.62 cfs @ 12.22 hrs, Volume= 1.019 af
Outflow = 10.56 cfs @ 12.25 hrs, Volume= 1.018 af, Atten= 1%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.24 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 3.91 fps, Avg. Travel Time= 1.1 min

Peak Storage= 381 cf @ 12.24 hrs
Average Depth at Peak Storage= 1.16'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.25 cfs

18.0" Round Pipe
n= 0.014
Length= 260.0' Slope= 0.0133 1/100
Inlet Invert= 45.96', Outlet Invert= 42.50'



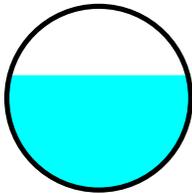
Summary for Reach P3:

Inflow Area = 20.210 ac, 24.75% Impervious, Inflow Depth > 0.97" for 2-Year event
Inflow = 13.79 cfs @ 12.17 hrs, Volume= 1.629 af
Outflow = 13.74 cfs @ 12.18 hrs, Volume= 1.629 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.67 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.56 fps, Avg. Travel Time= 0.3 min

Peak Storage= 107 cf @ 12.17 hrs
Average Depth at Peak Storage= 1.25'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 19.32 cfs

24.0" Round Pipe
n= 0.014
Length= 52.0' Slope= 0.0085 '/'
Inlet Invert= 41.10', Outlet Invert= 40.66'



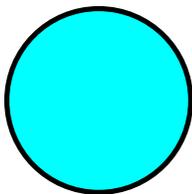
Summary for Reach P3B:

Inflow Area = 18.214 ac, 16.53% Impervious, Inflow Depth > 0.76" for 2-Year event
Inflow = 11.94 cfs @ 12.25 hrs, Volume= 1.161 af
Outflow = 8.69 cfs @ 12.20 hrs, Volume= 1.160 af, Atten= 27%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.54 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.27 fps, Avg. Travel Time= 0.5 min

Peak Storage= 111 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.50'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 8.69 cfs

18.0" Round Pipe
n= 0.014
Length= 63.0' Slope= 0.0079 '/'
Inlet Invert= 42.40', Outlet Invert= 41.90'



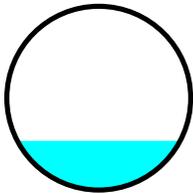
Summary for Reach P3C:

Inflow Area = 0.625 ac, 100.00% Impervious, Inflow Depth > 2.83" for 2-Year event
 Inflow = 1.98 cfs @ 12.07 hrs, Volume= 0.147 af
 Outflow = 1.95 cfs @ 12.08 hrs, Volume= 0.147 af, Atten= 2%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 5.25 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 1.79 fps, Avg. Travel Time= 1.2 min

Peak Storage= 48 cf @ 12.08 hrs
 Average Depth at Peak Storage= 0.40'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 12.78 cfs

18.0" Round Pipe
 n= 0.014
 Length= 127.0' Slope= 0.0172 '/'
 Inlet Invert= 43.38', Outlet Invert= 41.20'



Summary for Reach POA3:

Inflow Area = 122.398 ac, 24.41% Impervious, Inflow Depth > 0.53" for 2-Year event
 Inflow = 15.46 cfs @ 12.20 hrs, Volume= 5.411 af
 Outflow = 15.46 cfs @ 12.20 hrs, Volume= 5.411 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

Summary for Pond 52P: (new Pond)

Inflow Area = 102.188 ac, 24.34% Impervious, Inflow Depth > 0.65" for 2-Year event
 Inflow = 40.38 cfs @ 12.21 hrs, Volume= 5.520 af
 Outflow = 6.61 cfs @ 14.54 hrs, Volume= 3.783 af, Atten= 84%, Lag= 139.4 min
 Primary = 6.61 cfs @ 14.54 hrs, Volume= 3.783 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 48.27' @ 14.54 hrs Surf.Area= 96,890 sf Storage= 116,813 cf

Plug-Flow detention time= 203.4 min calculated for 3.783 af (69% of inflow)
 Center-of-Mass det. time= 126.4 min (955.9 - 829.5)

Volume	Invert	Avail.Storage	Storage Description
#1	47.00'	1,602,939 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

3659-12003C-Proposed Conditions POA 3-01

Type III 24-hr 2-Year Rainfall=3.20"

Prepared by {enter your company name here}

Printed 10/8/2012

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	87,764	0	0
48.00	94,925	91,345	91,345
49.00	102,323	98,624	189,969
50.00	109,961	106,142	296,111
51.00	117,840	113,901	410,011
52.00	125,858	121,849	531,860
53.00	134,420	130,139	661,999
60.00	134,420	940,940	1,602,939

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	12.0" Vert. Orifice/Grate C= 0.600
#2	Primary	47.00'	12.0" Vert. Orifice/Grate C= 0.600
#3	Primary	51.00'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=6.62 cfs @ 14.54 hrs HW=48.27' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 3.31 cfs @ 4.21 fps)
- 2=Orifice/Grate (Orifice Controls 3.31 cfs @ 4.21 fps)
- 3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 53P:

Inflow Area = 37.231 ac, 13.05% Impervious, Inflow Depth > 0.36" for 2-Year event
 Inflow = 6.76 cfs @ 12.64 hrs, Volume= 1.111 af
 Outflow = 4.05 cfs @ 13.05 hrs, Volume= 0.884 af, Atten= 40%, Lag= 24.5 min
 Primary = 4.05 cfs @ 13.05 hrs, Volume= 0.884 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 79.25' @ 13.05 hrs Surf.Area= 13,954 sf Storage= 12,323 cf

Plug-Flow detention time= 94.4 min calculated for 0.884 af (80% of inflow)
 Center-of-Mass det. time= 40.8 min (918.3 - 877.5)

Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	93,245 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	449	0	0
78.00	2,374	1,412	1,412
79.00	12,873	7,624	9,035
80.00	17,283	15,078	24,113
84.00	17,283	69,132	93,245

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	14.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=4.03 cfs @ 13.05 hrs HW=79.24' (Free Discharge)

↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 4.03 cfs @ 1.18 fps)

Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment S1:** Runoff Area=9.020 ac 3.55% Impervious Runoff Depth>0.30"
Tc=30.2 min CN=46 Runoff=0.98 cfs 0.224 af
- Subcatchment S2:** Runoff Area=218,770 sf 67.66% Impervious Runoff Depth>2.37"
Tc=14.8 min CN=80 Runoff=11.38 cfs 0.991 af
- Subcatchment S3:** Runoff Area=3.380 ac 75.74% Impervious Runoff Depth>3.40"
Tc=5.0 min CN=91 Runoff=14.01 cfs 0.958 af
- Subcatchment S4:** Runoff Area=13.930 ac 10.84% Impervious Runoff Depth>0.84"
Tc=25.6 min CN=58 Runoff=7.82 cfs 0.980 af
- Subcatchment S5:** Runoff Area=222,263 sf 79.00% Impervious Runoff Depth>3.10"
Tc=5.0 min CN=88 Runoff=19.75 cfs 1.319 af
- Subcatchment S5.1:** Runoff Area=3.550 ac 72.39% Impervious Runoff Depth>3.09"
Tc=16.7 min CN=88 Runoff=9.76 cfs 0.914 af
- Subcatchment S5.1A:** Runoff Area=15.250 ac 12.00% Impervious Runoff Depth>0.69"
Tc=16.7 min CN=55 Runoff=7.51 cfs 0.880 af
- Subcatchment S5.1B:** Runoff Area=16.990 ac 17.83% Impervious Runoff Depth>1.13"
Tc=25.4 min CN=63 Runoff=13.87 cfs 1.602 af
- Subcatchment S5.1C:** Runoff Area=17.500 ac 13.43% Impervious Runoff Depth>1.53"
Tc=14.3 min CN=69 Runoff=25.34 cfs 2.227 af
- Subcatchment S52:** Runoff Area=704,290 sf 5.21% Impervious Runoff Depth>1.39"
Flow Length=1,830' Tc=19.7 min CN=67 Runoff=18.59 cfs 1.871 af
- Subcatchment S53:** Runoff Area=217,428 sf 0.00% Impervious Runoff Depth>1.26"
Tc=15.8 min CN=65 Runoff=5.58 cfs 0.525 af
- Subcatchment S54:** Runoff Area=111,170 sf 0.00% Impervious Runoff Depth>1.26"
Tc=14.0 min CN=65 Runoff=2.99 cfs 0.268 af
- Subcatchment S55:** Runoff Area=214,123 sf 74.57% Impervious Runoff Depth>2.62"
Flow Length=1,830' Tc=19.7 min CN=83 Runoff=10.97 cfs 1.075 af
- Subcatchment S56.1:** Runoff Area=57,317 sf 85.18% Impervious Runoff Depth>3.72"
Tc=5.0 min CN=94 Runoff=5.76 cfs 0.407 af
- Subcatchment S56.3:** Runoff Area=59,738 sf 99.59% Impervious Runoff Depth>4.16"
Tc=5.0 min CN=98 Runoff=6.29 cfs 0.476 af
- Subcatchment S56.4:** Runoff Area=31,118 sf 92.60% Impervious Runoff Depth>3.70"
Flow Length=915' Tc=20.1 min CN=94 Runoff=2.08 cfs 0.220 af

Subcatchment S62:	Runoff Area=27,209 sf	100.00% Impervious	Runoff Depth>4.16"
	Tc=5.0 min	CN=98	Runoff=2.87 cfs 0.217 af
Reach 1R:	Avg. Flow Depth=0.86'	Max Vel=4.41 fps	Inflow=6.29 cfs 0.476 af
24.0" Round Pipe	n=0.014 L=850.0'	S=0.0050 '/	Capacity=14.85 cfs Outflow=5.62 cfs 0.474 af
Reach 2R:	Avg. Flow Depth=0.72'	Max Vel=5.86 fps	Inflow=23.23 cfs 3.008 af
n=0.030 L=750.0'	S=0.0373 '/	Capacity=208.76 cfs	Outflow=23.10 cfs 2.995 af
Reach 3R:	Avg. Flow Depth=1.25'	Max Vel=6.47 fps	Inflow=47.41 cfs 5.381 af
n=0.030 L=760.0'	S=0.0263 '/	Capacity=136.35 cfs	Outflow=46.51 cfs 5.366 af
Reach 4R: New 48"	Avg. Flow Depth=2.11'	Max Vel=7.09 fps	Inflow=48.12 cfs 5.384 af
48.0" Round Pipe	n=0.014 L=140.0'	S=0.0043 '/	Capacity=87.32 cfs Outflow=47.41 cfs 5.381 af
Reach 5R: 24"	Avg. Flow Depth=0.95'	Max Vel=14.00 fps	Inflow=20.78 cfs 2.172 af
24.0" Round Pipe	n=0.014 L=330.0'	S=0.0461 '/	Capacity=45.08 cfs Outflow=20.43 cfs 2.170 af
Reach 6R: 18"	Avg. Flow Depth=0.91'	Max Vel=10.17 fps	Inflow=11.43 cfs 1.215 af
18.0" Round Pipe	n=0.014 L=428.0'	S=0.0294 '/	Capacity=16.74 cfs Outflow=11.30 cfs 1.214 af
Reach L108:	Avg. Flow Depth=0.15'	Max Vel=3.46 fps	Inflow=20.89 cfs 2.479 af
n=0.030 L=774.0'	S=0.0646 '/	Capacity=1,762.00 cfs	Outflow=20.61 cfs 2.457 af
Reach L179:	Avg. Flow Depth=0.84'	Max Vel=7.11 fps	Inflow=9.03 cfs 2.445 af
24.0" Round Pipe	n=0.014 L=60.0'	S=0.0133 '/	Capacity=24.26 cfs Outflow=8.79 cfs 2.444 af
Reach Link 105:	Avg. Flow Depth=1.18'	Max Vel=10.82 fps	Inflow=20.94 cfs 2.482 af
24.0" Round Pipe	n=0.014 L=350.0'	S=0.0230 '/	Capacity=31.86 cfs Outflow=20.89 cfs 2.479 af
Reach Link 106:	Avg. Flow Depth=0.97'	Max Vel=13.62 fps	Inflow=13.87 cfs 1.602 af
15.0" Round Pipe	n=0.014 L=5.0'	S=0.0600 '/	Capacity=14.69 cfs Outflow=13.87 cfs 1.602 af
Reach LINK 110.1:	Avg. Flow Depth=1.50'	Max Vel=7.26 fps	Inflow=25.34 cfs 2.227 af
18.0" Round Pipe	n=0.014 L=260.0'	S=0.0133 '/	Capacity=11.25 cfs Outflow=11.25 cfs 2.225 af
Reach P3:	Avg. Flow Depth=1.42'	Max Vel=6.90 fps	Inflow=16.47 cfs 3.135 af
24.0" Round Pipe	n=0.014 L=52.0'	S=0.0085 '/	Capacity=19.32 cfs Outflow=16.45 cfs 3.134 af
Reach P3B:	Avg. Flow Depth=1.50'	Max Vel=5.59 fps	Inflow=13.33 cfs 2.445 af
18.0" Round Pipe	n=0.014 L=63.0'	S=0.0079 '/	Capacity=8.69 cfs Outflow=9.03 cfs 2.445 af
Reach P3C:	Avg. Flow Depth=0.48'	Max Vel=5.83 fps	Inflow=2.87 cfs 0.217 af
18.0" Round Pipe	n=0.014 L=127.0'	S=0.0172 '/	Capacity=12.78 cfs Outflow=2.82 cfs 0.217 af
Reach POA3:			Inflow=21.19 cfs 10.261 af
			Outflow=21.19 cfs 10.261 af
Pond 52P: (new Pond)	Peak Elev=49.85'	Storage=279,425 cf	Inflow=77.62 cfs 11.714 af
			Outflow=11.59 cfs 7.126 af
Pond 53P:	Peak Elev=79.70'	Storage=19,086 cf	Inflow=24.28 cfs 2.981 af
			Outflow=21.96 cfs 2.740 af

**Total Runoff Area = 122.398 ac Runoff Volume = 15.153 af Average Runoff Depth = 1.49"
75.59% Pervious = 92.519 ac 24.41% Impervious = 29.879 ac**

Summary for Subcatchment S1:

Runoff = 0.98 cfs @ 12.69 hrs, Volume= 0.224 af, Depth> 0.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 8.170	43	
* 0.530	65	
* 0.320	98	
9.020	46	Weighted Average
8.700		96.45% Pervious Area
0.320		3.55% Impervious Area

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

Summary for Subcatchment S2:

Runoff = 11.38 cfs @ 12.21 hrs, Volume= 0.991 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 70,760	43	
* 148,010	98	
218,770	80	Weighted Average
70,760		32.34% Pervious Area
148,010		67.66% Impervious Area

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

Summary for Subcatchment S3:

Runoff = 14.01 cfs @ 12.07 hrs, Volume= 0.958 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 0.820	69	
* 2.560	98	
3.380	91	Weighted Average
0.820		24.26% Pervious Area
2.560		75.74% Impervious Area

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

Summary for Subcatchment S4:

Runoff = 7.82 cfs @ 12.43 hrs, Volume= 0.980 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
* 9.550	49	
* 2.870	69	
* 1.510	98	
13.930	58	Weighted Average
12.420		89.16% Pervious Area
1.510		10.84% Impervious Area

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

Summary for Subcatchment S5:

Runoff = 19.75 cfs @ 12.08 hrs, Volume= 1.319 af, Depth> 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
* 46,677	49	
* 175,586	98	
222,263	88	Weighted Average
46,677		21.00% Pervious Area
175,586		79.00% Impervious Area

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

Summary for Subcatchment S5.1:

Runoff = 9.76 cfs @ 12.22 hrs, Volume= 0.914 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (ac)	CN	Description
* 0.270	69	
* 0.710	60	
* 2.570	98	
3.550	88	Weighted Average
0.980		27.61% Pervious Area
2.570		72.39% Impervious Area

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

Summary for Subcatchment S5.1A:

Runoff = 7.51 cfs @ 12.30 hrs, Volume= 0.880 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
13.420	49	50-75% Grass cover, Fair, HSG A
1.830	98	Paved parking & roofs
15.250	55	Weighted Average
13.420		88.00% Pervious Area
1.830		12.00% Impervious Area

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

Summary for Subcatchment S5.1B:

Runoff = 13.87 cfs @ 12.40 hrs, Volume= 1.602 af, Depth> 1.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
10.760	49	50-75% Grass cover, Fair, HSG A
3.200	79	50-75% Grass cover, Fair, HSG C
3.030	98	Paved parking & roofs
16.990	63	Weighted Average
13.960		82.17% Pervious Area
3.030		17.83% Impervious Area

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

Summary for Subcatchment S5.1C:

Runoff = 25.34 cfs @ 12.21 hrs, Volume= 2.227 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
3.670	49	50-75% Grass cover, Fair, HSG A
11.480	69	50-75% Grass cover, Fair, HSG B
2.350	98	Paved parking & roofs
17.500	69	Weighted Average
15.150		86.57% Pervious Area
2.350		13.43% Impervious Area

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

Summary for Subcatchment S52:

Runoff = 18.59 cfs @ 12.29 hrs, Volume= 1.871 af, Depth> 1.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
667,589	65	Woods/grass comb., Fair, HSG B
* 36,701	98	Paved Areas & Roofs, HSG A
704,290	67	Weighted Average
667,589		94.79% Pervious Area
36,701		5.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0800	0.14		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.20"
7.4	1,730	0.0580	3.88		Shallow Concentrated Flow, Shallow Conc Unpaved Kv= 16.1 fps
19.7	1,830	Total			

Summary for Subcatchment S53:

Runoff = 5.58 cfs @ 12.24 hrs, Volume= 0.525 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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Area (sf)	CN	Description
217,428	65	Woods/grass comb., Fair, HSG B
217,428		100.00% Pervious Area

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

Summary for Subcatchment S54:

Runoff = 2.99 cfs @ 12.21 hrs, Volume= 0.268 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
111,170	65	Woods/grass comb., Fair, HSG B
111,170		100.00% Pervious Area

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

Summary for Subcatchment S55:

Runoff = 10.97 cfs @ 12.27 hrs, Volume= 1.075 af, Depth> 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
54,455	39	>75% Grass cover, Good, HSG A
* 159,668	98	Paved Areas & Roofs, HSG A
214,123	83	Weighted Average
54,455		25.43% Pervious Area
159,668		74.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0800	0.14		Sheet Flow, Sheet
7.4	1,730	0.0580	3.88		Woods: Light underbrush n= 0.400 P2= 3.20"
					Shallow Concentrated Flow, Shallow Conc
					Unpaved Kv= 16.1 fps
19.7	1,830	Total			

Summary for Subcatchment S56.1:

Runoff = 5.76 cfs @ 12.07 hrs, Volume= 0.407 af, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
8,495	69	50-75% Grass cover, Fair, HSG B
48,822	98	Paved parking & roofs
57,317	94	Weighted Average
8,495		14.82% Pervious Area
48,822		85.18% Impervious Area

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

Summary for Subcatchment S56.3:

Runoff = 6.29 cfs @ 12.07 hrs, Volume= 0.476 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
246	69	50-75% Grass cover, Fair, HSG B
59,492	98	Paved parking & roofs
59,738	98	Weighted Average
246		0.41% Pervious Area
59,492		99.59% Impervious Area

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

Summary for Subcatchment S56.4:

Runoff = 2.08 cfs @ 12.26 hrs, Volume= 0.220 af, Depth> 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
2,302	39	>75% Grass cover, Good, HSG A
28,816	98	Paved parking & roofs
31,118	94	Weighted Average
2,302		7.40% Pervious Area
28,816		92.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0400	0.10		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	680	0.0600	3.94		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.9	135	0.0150	2.49		Shallow Concentrated Flow, Paved Paved Kv= 20.3 fps
20.1	915	Total			

Summary for Subcatchment S62:

Runoff = 2.87 cfs @ 12.07 hrs, Volume= 0.217 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
27,209	98	Paved parking & roofs
27,209		100.00% Impervious Area

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

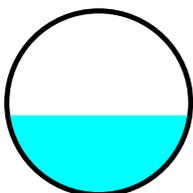
Summary for Reach 1R:

Inflow Area = 1.371 ac, 99.59% Impervious, Inflow Depth > 4.16" for 10-Year event
Inflow = 6.29 cfs @ 12.07 hrs, Volume= 0.476 af
Outflow = 5.62 cfs @ 12.16 hrs, Volume= 0.474 af, Atten= 11%, Lag= 5.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.41 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 1.58 fps, Avg. Travel Time= 9.0 min

Peak Storage= 1,101 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.86'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
n= 0.014
Length= 850.0' Slope= 0.0050 '/'
Inlet Invert= 45.35', Outlet Invert= 41.10'



Summary for Reach 2R:

Inflow Area = 39.784 ac, 12.22% Impervious, Inflow Depth > 0.91" for 10-Year event
Inflow = 23.23 cfs @ 12.59 hrs, Volume= 3.008 af
Outflow = 23.10 cfs @ 12.65 hrs, Volume= 2.995 af, Atten= 1%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.86 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 3.08 fps, Avg. Travel Time= 4.1 min

Peak Storage= 2,956 cf @ 12.62 hrs
Average Depth at Peak Storage= 0.72'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 208.76 cfs

3.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.5 '/' Top Width= 17.00'
Length= 750.0' Slope= 0.0373 '/'
Inlet Invert= 79.00', Outlet Invert= 51.00'



Summary for Reach 3R:

Inflow Area = 40.005 ac, 35.97% Impervious, Inflow Depth > 1.61" for 10-Year event
Inflow = 47.41 cfs @ 12.11 hrs, Volume= 5.381 af
Outflow = 46.51 cfs @ 12.18 hrs, Volume= 5.366 af, Atten= 2%, Lag= 3.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.47 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 2.67 fps, Avg. Travel Time= 4.7 min

Peak Storage= 5,439 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.25'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 136.35 cfs

2.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 760.0' Slope= 0.0263 '/'
Inlet Invert= 79.00', Outlet Invert= 59.00'



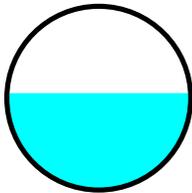
Summary for Reach 4R: New 48"

Inflow Area = 40.005 ac, 35.97% Impervious, Inflow Depth > 1.61" for 10-Year event
Inflow = 48.12 cfs @ 12.10 hrs, Volume= 5.384 af
Outflow = 47.41 cfs @ 12.11 hrs, Volume= 5.381 af, Atten= 1%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.09 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.84 fps, Avg. Travel Time= 0.8 min

Peak Storage= 940 cf @ 12.10 hrs
Average Depth at Peak Storage= 2.11'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 87.32 cfs

48.0" Round Pipe
n= 0.014
Length= 140.0' Slope= 0.0043 '/'
Inlet Invert= 79.60', Outlet Invert= 79.00'



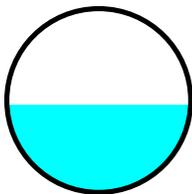
Summary for Reach 5R: 24"

Inflow Area = 17.422 ac, 36.03% Impervious, Inflow Depth > 1.50" for 10-Year event
Inflow = 20.78 cfs @ 12.10 hrs, Volume= 2.172 af
Outflow = 20.43 cfs @ 12.11 hrs, Volume= 2.170 af, Atten= 2%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 14.00 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.51 fps, Avg. Travel Time= 1.0 min

Peak Storage= 488 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.95'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 45.08 cfs

24.0" Round Pipe
n= 0.014
Length= 330.0' Slope= 0.0461 '/'
Inlet Invert= 94.80', Outlet Invert= 79.60'



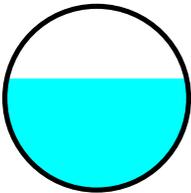
Summary for Reach 6R: 18"

Inflow Area = 14.042 ac, 26.48% Impervious, Inflow Depth > 1.04" for 10-Year event
Inflow = 11.43 cfs @ 12.21 hrs, Volume= 1.215 af
Outflow = 11.30 cfs @ 12.23 hrs, Volume= 1.214 af, Atten= 1%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 10.17 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 4.73 fps, Avg. Travel Time= 1.5 min

Peak Storage= 479 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.91'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 16.74 cfs

18.0" Round Pipe
n= 0.014
Length= 428.0' Slope= 0.0294 '/'
Inlet Invert= 107.40', Outlet Invert= 94.80'



Summary for Reach L108:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 0.92" for 10-Year event
Inflow = 20.89 cfs @ 12.39 hrs, Volume= 2.479 af
Outflow = 20.61 cfs @ 12.49 hrs, Volume= 2.457 af, Atten= 1%, Lag= 6.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.46 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 1.56 fps, Avg. Travel Time= 8.3 min

Peak Storage= 4,617 cf @ 12.43 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 1,762.00 cfs

40.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 5.0 '/' Top Width= 60.00'
Length= 774.0' Slope= 0.0646 '/'
Inlet Invert= 132.00', Outlet Invert= 82.00'



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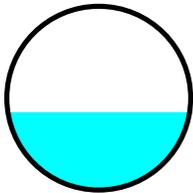
Summary for Reach L179:

Inflow Area = 18.214 ac, 16.53% Impervious, Inflow Depth > 1.61" for 10-Year event
Inflow = 9.03 cfs @ 12.02 hrs, Volume= 2.445 af
Outflow = 8.79 cfs @ 12.04 hrs, Volume= 2.444 af, Atten= 3%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.11 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.25 fps, Avg. Travel Time= 0.3 min

Peak Storage= 76 cf @ 12.02 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.26 cfs

24.0" Round Pipe
n= 0.014
Length= 60.0' Slope= 0.0133 '/
Inlet Invert= 41.90', Outlet Invert= 41.10'



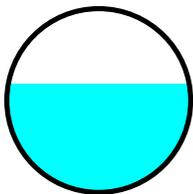
Summary for Reach Link 105:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 0.92" for 10-Year event
Inflow = 20.94 cfs @ 12.37 hrs, Volume= 2.482 af
Outflow = 20.89 cfs @ 12.39 hrs, Volume= 2.479 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 10.82 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 5.88 fps, Avg. Travel Time= 1.0 min

Peak Storage= 677 cf @ 12.38 hrs
Average Depth at Peak Storage= 1.18'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 31.86 cfs

24.0" Round Pipe
n= 0.014
Length= 350.0' Slope= 0.0230 '/
Inlet Invert= 140.75', Outlet Invert= 132.70'



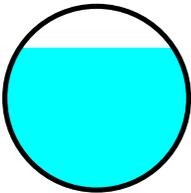
Summary for Reach Link 106:

Inflow Area = 16.990 ac, 17.83% Impervious, Inflow Depth > 1.13" for 10-Year event
Inflow = 13.87 cfs @ 12.40 hrs, Volume= 1.602 af
Outflow = 13.87 cfs @ 12.40 hrs, Volume= 1.602 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 13.62 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 7.60 fps, Avg. Travel Time= 0.0 min

Peak Storage= 5 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.97'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 14.69 cfs

15.0" Round Pipe
n= 0.014
Length= 5.0' Slope= 0.0600 1/100'
Inlet Invert= 41.80', Outlet Invert= 41.50'



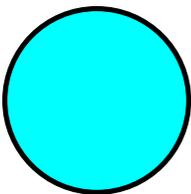
Summary for Reach LINK 110.1:

Inflow Area = 17.500 ac, 13.43% Impervious, Inflow Depth > 1.53" for 10-Year event
Inflow = 25.34 cfs @ 12.21 hrs, Volume= 2.227 af
Outflow = 11.25 cfs @ 12.12 hrs, Volume= 2.225 af, Atten= 56%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.26 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 4.44 fps, Avg. Travel Time= 1.0 min

Peak Storage= 459 cf @ 12.08 hrs
Average Depth at Peak Storage= 1.50'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.25 cfs

18.0" Round Pipe
n= 0.014
Length= 260.0' Slope= 0.0133 1/100'
Inlet Invert= 45.96', Outlet Invert= 42.50'



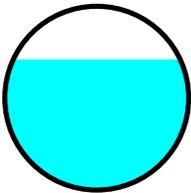
Summary for Reach P3:

Inflow Area = 20.210 ac, 24.75% Impervious, Inflow Depth > 1.86" for 10-Year event
Inflow = 16.47 cfs @ 12.13 hrs, Volume= 3.135 af
Outflow = 16.45 cfs @ 12.14 hrs, Volume= 3.134 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.90 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.05 fps, Avg. Travel Time= 0.3 min

Peak Storage= 124 cf @ 12.13 hrs
Average Depth at Peak Storage= 1.42'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 19.32 cfs

24.0" Round Pipe
n= 0.014
Length= 52.0' Slope= 0.0085 '/
Inlet Invert= 41.10', Outlet Invert= 40.66'



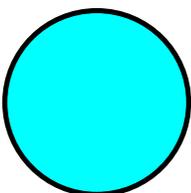
Summary for Reach P3B:

Inflow Area = 18.214 ac, 16.53% Impervious, Inflow Depth > 1.61" for 10-Year event
Inflow = 13.33 cfs @ 12.26 hrs, Volume= 2.445 af
Outflow = 9.03 cfs @ 12.02 hrs, Volume= 2.445 af, Atten= 32%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.59 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.64 fps, Avg. Travel Time= 0.4 min

Peak Storage= 111 cf @ 12.04 hrs
Average Depth at Peak Storage= 1.50'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 8.69 cfs

18.0" Round Pipe
n= 0.014
Length= 63.0' Slope= 0.0079 '/
Inlet Invert= 42.40', Outlet Invert= 41.90'



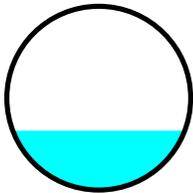
Summary for Reach P3C:

Inflow Area = 0.625 ac, 100.00% Impervious, Inflow Depth > 4.16" for 10-Year event
 Inflow = 2.87 cfs @ 12.07 hrs, Volume= 0.217 af
 Outflow = 2.82 cfs @ 12.08 hrs, Volume= 0.217 af, Atten= 2%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 5.83 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.01 fps, Avg. Travel Time= 1.1 min

Peak Storage= 62 cf @ 12.08 hrs
 Average Depth at Peak Storage= 0.48'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 12.78 cfs

18.0" Round Pipe
 n= 0.014
 Length= 127.0' Slope= 0.0172 '/'
 Inlet Invert= 43.38', Outlet Invert= 41.20'



Summary for Reach POA3:

Inflow Area = 122.398 ac, 24.41% Impervious, Inflow Depth > 1.01" for 10-Year event
 Inflow = 21.19 cfs @ 12.17 hrs, Volume= 10.261 af
 Outflow = 21.19 cfs @ 12.17 hrs, Volume= 10.261 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

Summary for Pond 52P: (new Pond)

Inflow Area = 102.188 ac, 24.34% Impervious, Inflow Depth > 1.38" for 10-Year event
 Inflow = 77.62 cfs @ 12.24 hrs, Volume= 11.714 af
 Outflow = 11.59 cfs @ 14.90 hrs, Volume= 7.126 af, Atten= 85%, Lag= 160.1 min
 Primary = 11.59 cfs @ 14.90 hrs, Volume= 7.126 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 49.85' @ 14.90 hrs Surf.Area= 108,796 sf Storage= 279,425 cf

Plug-Flow detention time= 223.5 min calculated for 7.126 af (61% of inflow)
 Center-of-Mass det. time= 140.0 min (958.8 - 818.8)

Volume	Invert	Avail.Storage	Storage Description
#1	47.00'	1,602,939 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

3659-12003C-Proposed Conditions POA 3-01

Type III 24-hr 10-Year Rainfall=4.60"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	87,764	0	0
48.00	94,925	91,345	91,345
49.00	102,323	98,624	189,969
50.00	109,961	106,142	296,111
51.00	117,840	113,901	410,011
52.00	125,858	121,849	531,860
53.00	134,420	130,139	661,999
60.00	134,420	940,940	1,602,939

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	12.0" Vert. Orifice/Grate C= 0.600
#2	Primary	47.00'	12.0" Vert. Orifice/Grate C= 0.600
#3	Primary	51.00'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=11.59 cfs @ 14.90 hrs HW=49.85' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 5.79 cfs @ 7.38 fps)
- 2=Orifice/Grate (Orifice Controls 5.79 cfs @ 7.38 fps)
- 3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 53P:

Inflow Area = 37.231 ac, 13.05% Impervious, Inflow Depth > 0.96" for 10-Year event
 Inflow = 24.28 cfs @ 12.47 hrs, Volume= 2.981 af
 Outflow = 21.96 cfs @ 12.60 hrs, Volume= 2.740 af, Atten= 10%, Lag= 7.9 min
 Primary = 21.96 cfs @ 12.60 hrs, Volume= 2.740 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 79.70' @ 12.60 hrs Surf.Area= 15,949 sf Storage= 19,086 cf

Plug-Flow detention time= 42.0 min calculated for 2.734 af (92% of inflow)
 Center-of-Mass det. time= 16.9 min (866.0 - 849.0)

Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	93,245 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	449	0	0
78.00	2,374	1,412	1,412
79.00	12,873	7,624	9,035
80.00	17,283	15,078	24,113
84.00	17,283	69,132	93,245

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	14.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=21.94 cfs @ 12.60 hrs HW=79.70' (Free Discharge)

↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 21.94 cfs @ 2.25 fps)

Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment S1:** Runoff Area=9.020 ac 3.55% Impervious Runoff Depth>0.57"
Tc=30.2 min CN=46 Runoff=2.49 cfs 0.427 af
- Subcatchment S2:** Runoff Area=218,770 sf 67.66% Impervious Runoff Depth>3.11"
Tc=14.8 min CN=80 Runoff=14.88 cfs 1.302 af
- Subcatchment S3:** Runoff Area=3.380 ac 75.74% Impervious Runoff Depth>4.23"
Tc=5.0 min CN=91 Runoff=17.21 cfs 1.193 af
- Subcatchment S4:** Runoff Area=13.930 ac 10.84% Impervious Runoff Depth>1.30"
Tc=25.6 min CN=58 Runoff=12.91 cfs 1.510 af
- Subcatchment S5:** Runoff Area=222,263 sf 79.00% Impervious Runoff Depth>3.92"
Tc=5.0 min CN=88 Runoff=24.62 cfs 1.665 af
- Subcatchment S5.1:** Runoff Area=3.550 ac 72.39% Impervious Runoff Depth>3.90"
Tc=16.7 min CN=88 Runoff=12.19 cfs 1.155 af
- Subcatchment S5.1A:** Runoff Area=15.250 ac 12.00% Impervious Runoff Depth>1.11"
Tc=16.7 min CN=55 Runoff=13.49 cfs 1.404 af
- Subcatchment S5.1B:** Runoff Area=16.990 ac 17.83% Impervious Runoff Depth>1.66"
Tc=25.4 min CN=63 Runoff=21.07 cfs 2.351 af
- Subcatchment S5.1C:** Runoff Area=17.500 ac 13.43% Impervious Runoff Depth>2.14"
Tc=14.3 min CN=69 Runoff=36.05 cfs 3.121 af
- Subcatchment S52:** Runoff Area=704,290 sf 5.21% Impervious Runoff Depth>1.97"
Flow Length=1,830' Tc=19.7 min CN=67 Runoff=26.97 cfs 2.660 af
- Subcatchment S53:** Runoff Area=217,428 sf 0.00% Impervious Runoff Depth>1.82"
Tc=15.8 min CN=65 Runoff=8.28 cfs 0.757 af
- Subcatchment S54:** Runoff Area=111,170 sf 0.00% Impervious Runoff Depth>1.82"
Tc=14.0 min CN=65 Runoff=4.44 cfs 0.387 af
- Subcatchment S55:** Runoff Area=214,123 sf 74.57% Impervious Runoff Depth>3.39"
Flow Length=1,830' Tc=19.7 min CN=83 Runoff=14.09 cfs 1.391 af
- Subcatchment S56.1:** Runoff Area=57,317 sf 85.18% Impervious Runoff Depth>4.56"
Tc=5.0 min CN=94 Runoff=6.99 cfs 0.500 af
- Subcatchment S56.3:** Runoff Area=59,738 sf 99.59% Impervious Runoff Depth>5.02"
Tc=5.0 min CN=98 Runoff=7.54 cfs 0.574 af
- Subcatchment S56.4:** Runoff Area=31,118 sf 92.60% Impervious Runoff Depth>4.55"
Flow Length=915' Tc=20.1 min CN=94 Runoff=2.52 cfs 0.271 af

Subcatchment S62:	Runoff Area=27,209 sf	100.00% Impervious	Runoff Depth>5.02"
	Tc=5.0 min	CN=98	Runoff=3.43 cfs 0.261 af
Reach 1R:	Avg. Flow Depth=0.96'	Max Vel=4.63 fps	Inflow=7.54 cfs 0.574 af
24.0" Round Pipe	n=0.014 L=850.0'	S=0.0050 '/'	Capacity=14.85 cfs Outflow=6.78 cfs 0.572 af
Reach 2R:	Avg. Flow Depth=0.86'	Max Vel=6.50 fps	Inflow=33.89 cfs 4.620 af
	n=0.030 L=750.0'	S=0.0373 '/'	Capacity=208.76 cfs Outflow=33.71 cfs 4.604 af
Reach 3R:	Avg. Flow Depth=1.40'	Max Vel=6.93 fps	Inflow=61.61 cfs 7.245 af
	n=0.030 L=760.0'	S=0.0263 '/'	Capacity=136.35 cfs Outflow=60.63 cfs 7.227 af
Reach 4R: New 48"	Avg. Flow Depth=2.49'	Max Vel=7.53 fps	Inflow=62.42 cfs 7.248 af
48.0" Round Pipe	n=0.014 L=140.0'	S=0.0043 '/'	Capacity=87.32 cfs Outflow=61.61 cfs 7.245 af
Reach 5R: 24"	Avg. Flow Depth=1.09'	Max Vel=14.85 fps	Inflow=26.35 cfs 2.920 af
24.0" Round Pipe	n=0.014 L=330.0'	S=0.0461 '/'	Capacity=45.08 cfs Outflow=25.95 cfs 2.918 af
Reach 6R: 18"	Avg. Flow Depth=1.13'	Max Vel=10.73 fps	Inflow=15.36 cfs 1.729 af
18.0" Round Pipe	n=0.014 L=428.0'	S=0.0294 '/'	Capacity=16.74 cfs Outflow=15.20 cfs 1.727 af
Reach L108:	Avg. Flow Depth=0.18'	Max Vel=3.88 fps	Inflow=28.11 cfs 3.752 af
	n=0.030 L=774.0'	S=0.0646 '/'	Capacity=1,762.00 cfs Outflow=27.69 cfs 3.725 af
Reach L179:	Avg. Flow Depth=0.85'	Max Vel=7.16 fps	Inflow=9.61 cfs 3.389 af
24.0" Round Pipe	n=0.014 L=60.0'	S=0.0133 '/'	Capacity=24.26 cfs Outflow=9.48 cfs 3.388 af
Reach Link 105:	Avg. Flow Depth=1.46'	Max Vel=11.45 fps	Inflow=28.18 cfs 3.755 af
24.0" Round Pipe	n=0.014 L=350.0'	S=0.0230 '/'	Capacity=31.86 cfs Outflow=28.11 cfs 3.752 af
Reach Link 106:	Avg. Flow Depth=1.25'	Max Vel=13.65 fps	Inflow=21.07 cfs 2.351 af
15.0" Round Pipe	n=0.014 L=5.0'	S=0.0600 '/'	Capacity=14.69 cfs Outflow=14.69 cfs 2.351 af
Reach LINK 110.1:	Avg. Flow Depth=1.50'	Max Vel=7.26 fps	Inflow=36.05 cfs 3.121 af
18.0" Round Pipe	n=0.014 L=260.0'	S=0.0133 '/'	Capacity=11.25 cfs Outflow=11.25 cfs 3.119 af
Reach P3:	Avg. Flow Depth=1.53'	Max Vel=6.99 fps	Inflow=18.07 cfs 4.222 af
24.0" Round Pipe	n=0.014 L=52.0'	S=0.0085 '/'	Capacity=19.32 cfs Outflow=18.04 cfs 4.221 af
Reach P3B:	Avg. Flow Depth=1.50'	Max Vel=5.60 fps	Inflow=13.77 cfs 3.389 af
18.0" Round Pipe	n=0.014 L=63.0'	S=0.0079 '/'	Capacity=8.69 cfs Outflow=9.61 cfs 3.389 af
Reach P3C:	Avg. Flow Depth=0.53'	Max Vel=6.13 fps	Inflow=3.43 cfs 0.261 af
18.0" Round Pipe	n=0.014 L=127.0'	S=0.0172 '/'	Capacity=12.78 cfs Outflow=3.38 cfs 0.261 af
Reach POA3:			Inflow=24.40 cfs 13.223 af
			Outflow=24.40 cfs 13.223 af
Pond 52P: (new Pond)	Peak Elev=51.04'	Storage=415,216 cf	Inflow=116.75 cfs 16.381 af
			Outflow=14.39 cfs 9.002 af
Pond 53P:	Peak Elev=79.89'	Storage=22,223 cf	Inflow=34.25 cfs 4.482 af
			Outflow=31.47 cfs 4.233 af

Total Runoff Area = 122.398 ac Runoff Volume = 20.929 af Average Runoff Depth = 2.05"
75.59% Pervious = 92.519 ac 24.41% Impervious = 29.879 ac

Summary for Subcatchment S1:

Runoff = 2.49 cfs @ 12.59 hrs, Volume= 0.427 af, Depth> 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 8.170	43	
* 0.530	65	
* 0.320	98	
9.020	46	Weighted Average
8.700		96.45% Pervious Area
0.320		3.55% Impervious Area

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

Summary for Subcatchment S2:

Runoff = 14.88 cfs @ 12.20 hrs, Volume= 1.302 af, Depth> 3.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 70,760	43	
* 148,010	98	
218,770	80	Weighted Average
70,760		32.34% Pervious Area
148,010		67.66% Impervious Area

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

Summary for Subcatchment S3:

Runoff = 17.21 cfs @ 12.07 hrs, Volume= 1.193 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 0.820	69	
* 2.560	98	
3.380	91	Weighted Average
0.820		24.26% Pervious Area
2.560		75.74% Impervious Area

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

Summary for Subcatchment S4:

Runoff = 12.91 cfs @ 12.40 hrs, Volume= 1.510 af, Depth> 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
* 9.550	49	
* 2.870	69	
* 1.510	98	
13.930	58	Weighted Average
12.420		89.16% Pervious Area
1.510		10.84% Impervious Area

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

Summary for Subcatchment S5:

Runoff = 24.62 cfs @ 12.07 hrs, Volume= 1.665 af, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
* 46,677	49	
* 175,586	98	
222,263	88	Weighted Average
46,677		21.00% Pervious Area
175,586		79.00% Impervious Area

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

Summary for Subcatchment S5.1:

Runoff = 12.19 cfs @ 12.22 hrs, Volume= 1.155 af, Depth> 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (ac)	CN	Description
* 0.270	69	
* 0.710	60	
* 2.570	98	
3.550	88	Weighted Average
0.980		27.61% Pervious Area
2.570		72.39% Impervious Area

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

Summary for Subcatchment S5.1A:

Runoff = 13.49 cfs @ 12.27 hrs, Volume= 1.404 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
13.420	49	50-75% Grass cover, Fair, HSG A
1.830	98	Paved parking & roofs
15.250	55	Weighted Average
13.420		88.00% Pervious Area
1.830		12.00% Impervious Area

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

Summary for Subcatchment S5.1B:

Runoff = 21.07 cfs @ 12.38 hrs, Volume= 2.351 af, Depth> 1.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
10.760	49	50-75% Grass cover, Fair, HSG A
3.200	79	50-75% Grass cover, Fair, HSG C
3.030	98	Paved parking & roofs
16.990	63	Weighted Average
13.960		82.17% Pervious Area
3.030		17.83% Impervious Area

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

Summary for Subcatchment S5.1C:

Runoff = 36.05 cfs @ 12.21 hrs, Volume= 3.121 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
3.670	49	50-75% Grass cover, Fair, HSG A
11.480	69	50-75% Grass cover, Fair, HSG B
2.350	98	Paved parking & roofs
17.500	69	Weighted Average
15.150		86.57% Pervious Area
2.350		13.43% Impervious Area

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

Summary for Subcatchment S52:

Runoff = 26.97 cfs @ 12.29 hrs, Volume= 2.660 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
667,589	65	Woods/grass comb., Fair, HSG B
* 36,701	98	Paved Areas & Roofs, HSG A
704,290	67	Weighted Average
667,589		94.79% Pervious Area
36,701		5.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0800	0.14		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.20"
7.4	1,730	0.0580	3.88		Shallow Concentrated Flow, Shallow Conc Unpaved Kv= 16.1 fps
19.7	1,830	Total			

Summary for Subcatchment S53:

Runoff = 8.28 cfs @ 12.23 hrs, Volume= 0.757 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

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Type III 24-hr 25-Year Rainfall=5.50"

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Area (sf)	CN	Description
217,428	65	Woods/grass comb., Fair, HSG B
217,428		100.00% Pervious Area

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

Summary for Subcatchment S54:

Runoff = 4.44 cfs @ 12.21 hrs, Volume= 0.387 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
111,170	65	Woods/grass comb., Fair, HSG B
111,170		100.00% Pervious Area

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

Summary for Subcatchment S55:

Runoff = 14.09 cfs @ 12.27 hrs, Volume= 1.391 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
54,455	39	>75% Grass cover, Good, HSG A
* 159,668	98	Paved Areas & Roofs, HSG A
214,123	83	Weighted Average
54,455		25.43% Pervious Area
159,668		74.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0800	0.14		Sheet Flow, Sheet
7.4	1,730	0.0580	3.88		Woods: Light underbrush n= 0.400 P2= 3.20"
					Shallow Concentrated Flow, Shallow Conc
					Unpaved Kv= 16.1 fps
19.7	1,830	Total			

Summary for Subcatchment S56.1:

Runoff = 6.99 cfs @ 12.07 hrs, Volume= 0.500 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
8,495	69	50-75% Grass cover, Fair, HSG B
48,822	98	Paved parking & roofs
57,317	94	Weighted Average
8,495		14.82% Pervious Area
48,822		85.18% Impervious Area

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

Summary for Subcatchment S56.3:

Runoff = 7.54 cfs @ 12.07 hrs, Volume= 0.574 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
246	69	50-75% Grass cover, Fair, HSG B
59,492	98	Paved parking & roofs
59,738	98	Weighted Average
246		0.41% Pervious Area
59,492		99.59% Impervious Area

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

Summary for Subcatchment S56.4:

Runoff = 2.52 cfs @ 12.26 hrs, Volume= 0.271 af, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
2,302	39	>75% Grass cover, Good, HSG A
28,816	98	Paved parking & roofs
31,118	94	Weighted Average
2,302		7.40% Pervious Area
28,816		92.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0400	0.10		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	680	0.0600	3.94		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.9	135	0.0150	2.49		Shallow Concentrated Flow, Paved Paved Kv= 20.3 fps
20.1	915	Total			

Summary for Subcatchment S62:

Runoff = 3.43 cfs @ 12.07 hrs, Volume= 0.261 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
27,209	98	Paved parking & roofs
27,209		100.00% Impervious Area

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

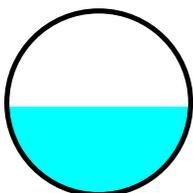
Summary for Reach 1R:

Inflow Area = 1.371 ac, 99.59% Impervious, Inflow Depth > 5.02" for 25-Year event
Inflow = 7.54 cfs @ 12.07 hrs, Volume= 0.574 af
Outflow = 6.78 cfs @ 12.16 hrs, Volume= 0.572 af, Atten= 10%, Lag= 5.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.63 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 1.67 fps, Avg. Travel Time= 8.5 min

Peak Storage= 1,262 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.96'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
n= 0.014
Length= 850.0' Slope= 0.0050 '/
Inlet Invert= 45.35', Outlet Invert= 41.10'



Summary for Reach 2R:

Inflow Area = 39.784 ac, 12.22% Impervious, Inflow Depth > 1.39" for 25-Year event
Inflow = 33.89 cfs @ 12.48 hrs, Volume= 4.620 af
Outflow = 33.71 cfs @ 12.54 hrs, Volume= 4.604 af, Atten= 1%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.50 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 3.30 fps, Avg. Travel Time= 3.8 min

Peak Storage= 3,896 cf @ 12.51 hrs
Average Depth at Peak Storage= 0.86'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 208.76 cfs

3.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.5 '/' Top Width= 17.00'
Length= 750.0' Slope= 0.0373 '/'
Inlet Invert= 79.00', Outlet Invert= 51.00'



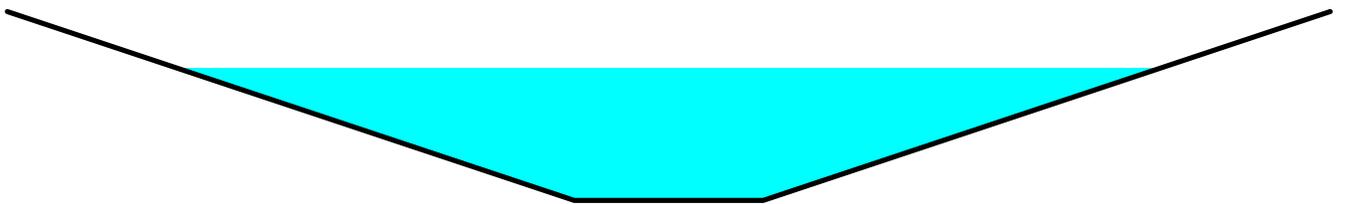
Summary for Reach 3R:

Inflow Area = 40.005 ac, 35.97% Impervious, Inflow Depth > 2.17" for 25-Year event
Inflow = 61.61 cfs @ 12.12 hrs, Volume= 7.245 af
Outflow = 60.63 cfs @ 12.18 hrs, Volume= 7.227 af, Atten= 2%, Lag= 3.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.93 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 2.87 fps, Avg. Travel Time= 4.4 min

Peak Storage= 6,629 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.40'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 136.35 cfs

2.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 760.0' Slope= 0.0263 '/'
Inlet Invert= 79.00', Outlet Invert= 59.00'



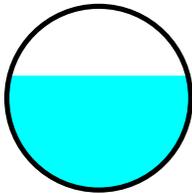
Summary for Reach 4R: New 48"

Inflow Area = 40.005 ac, 35.97% Impervious, Inflow Depth > 2.17" for 25-Year event
Inflow = 62.42 cfs @ 12.10 hrs, Volume= 7.248 af
Outflow = 61.61 cfs @ 12.12 hrs, Volume= 7.245 af, Atten= 1%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.53 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.05 fps, Avg. Travel Time= 0.8 min

Peak Storage= 1,149 cf @ 12.11 hrs
Average Depth at Peak Storage= 2.49'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 87.32 cfs

48.0" Round Pipe
n= 0.014
Length= 140.0' Slope= 0.0043 '/'
Inlet Invert= 79.60', Outlet Invert= 79.00'



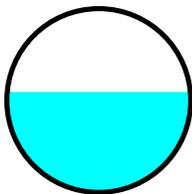
Summary for Reach 5R: 24"

Inflow Area = 17.422 ac, 36.03% Impervious, Inflow Depth > 2.01" for 25-Year event
Inflow = 26.35 cfs @ 12.10 hrs, Volume= 2.920 af
Outflow = 25.95 cfs @ 12.11 hrs, Volume= 2.918 af, Atten= 2%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 14.85 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.93 fps, Avg. Travel Time= 0.9 min

Peak Storage= 579 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.09'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 45.08 cfs

24.0" Round Pipe
n= 0.014
Length= 330.0' Slope= 0.0461 '/'
Inlet Invert= 94.80', Outlet Invert= 79.60'



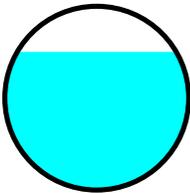
Summary for Reach 6R: 18"

Inflow Area = 14.042 ac, 26.48% Impervious, Inflow Depth > 1.48" for 25-Year event
Inflow = 15.36 cfs @ 12.21 hrs, Volume= 1.729 af
Outflow = 15.20 cfs @ 12.24 hrs, Volume= 1.727 af, Atten= 1%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 10.73 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 5.08 fps, Avg. Travel Time= 1.4 min

Peak Storage= 609 cf @ 12.22 hrs
Average Depth at Peak Storage= 1.13'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 16.74 cfs

18.0" Round Pipe
n= 0.014
Length= 428.0' Slope= 0.0294 '/'
Inlet Invert= 107.40', Outlet Invert= 94.80'



Summary for Reach L108:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 1.40" for 25-Year event
Inflow = 28.11 cfs @ 12.29 hrs, Volume= 3.752 af
Outflow = 27.69 cfs @ 12.40 hrs, Volume= 3.725 af, Atten= 2%, Lag= 6.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.88 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 1.75 fps, Avg. Travel Time= 7.4 min

Peak Storage= 5,537 cf @ 12.34 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 1,762.00 cfs

40.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 5.0 '/' Top Width= 60.00'
Length= 774.0' Slope= 0.0646 '/'
Inlet Invert= 132.00', Outlet Invert= 82.00'



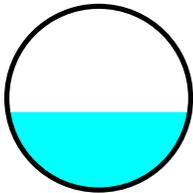
Summary for Reach L179:

Inflow Area = 18.214 ac, 16.53% Impervious, Inflow Depth > 2.23" for 25-Year event
Inflow = 9.61 cfs @ 15.34 hrs, Volume= 3.389 af
Outflow = 9.48 cfs @ 15.34 hrs, Volume= 3.388 af, Atten= 1%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.16 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.58 fps, Avg. Travel Time= 0.3 min

Peak Storage= 76 cf @ 15.36 hrs
Average Depth at Peak Storage= 0.85'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.26 cfs

24.0" Round Pipe
n= 0.014
Length= 60.0' Slope= 0.0133 '/
Inlet Invert= 41.90', Outlet Invert= 41.10'



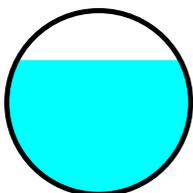
Summary for Reach Link 105:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 1.40" for 25-Year event
Inflow = 28.18 cfs @ 12.27 hrs, Volume= 3.755 af
Outflow = 28.11 cfs @ 12.29 hrs, Volume= 3.752 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 11.45 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 6.36 fps, Avg. Travel Time= 0.9 min

Peak Storage= 860 cf @ 12.26 hrs
Average Depth at Peak Storage= 1.46'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 31.86 cfs

24.0" Round Pipe
n= 0.014
Length= 350.0' Slope= 0.0230 '/
Inlet Invert= 140.75', Outlet Invert= 132.70'



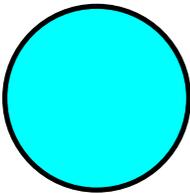
Summary for Reach Link 106:

Inflow Area = 16.990 ac, 17.83% Impervious, Inflow Depth > 1.66" for 25-Year event
Inflow = 21.07 cfs @ 12.38 hrs, Volume= 2.351 af
Outflow = 14.69 cfs @ 12.28 hrs, Volume= 2.351 af, Atten= 30%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 13.65 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 8.01 fps, Avg. Travel Time= 0.0 min

Peak Storage= 6 cf @ 12.24 hrs
Average Depth at Peak Storage= 1.25'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 14.69 cfs

15.0" Round Pipe
n= 0.014
Length= 5.0' Slope= 0.0600 '/'
Inlet Invert= 41.80', Outlet Invert= 41.50'



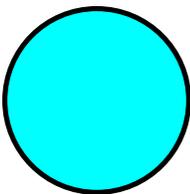
Summary for Reach LINK 110.1:

Inflow Area = 17.500 ac, 13.43% Impervious, Inflow Depth > 2.14" for 25-Year event
Inflow = 36.05 cfs @ 12.21 hrs, Volume= 3.121 af
Outflow = 11.25 cfs @ 12.04 hrs, Volume= 3.119 af, Atten= 69%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.26 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 4.71 fps, Avg. Travel Time= 0.9 min

Peak Storage= 459 cf @ 12.00 hrs
Average Depth at Peak Storage= 1.50'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.25 cfs

18.0" Round Pipe
n= 0.014
Length= 260.0' Slope= 0.0133 '/'
Inlet Invert= 45.96', Outlet Invert= 42.50'



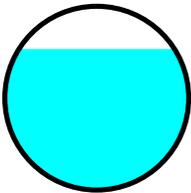
Summary for Reach P3:

Inflow Area = 20.210 ac, 24.75% Impervious, Inflow Depth > 2.51" for 25-Year event
Inflow = 18.07 cfs @ 12.13 hrs, Volume= 4.222 af
Outflow = 18.04 cfs @ 12.14 hrs, Volume= 4.221 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.99 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.34 fps, Avg. Travel Time= 0.3 min

Peak Storage= 134 cf @ 12.13 hrs
Average Depth at Peak Storage= 1.53'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 19.32 cfs

24.0" Round Pipe
n= 0.014
Length= 52.0' Slope= 0.0085 '/
Inlet Invert= 41.10', Outlet Invert= 40.66'



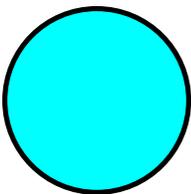
Summary for Reach P3B:

Inflow Area = 18.214 ac, 16.53% Impervious, Inflow Depth > 2.23" for 25-Year event
Inflow = 13.77 cfs @ 12.26 hrs, Volume= 3.389 af
Outflow = 9.61 cfs @ 15.34 hrs, Volume= 3.389 af, Atten= 30%, Lag= 184.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.60 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.84 fps, Avg. Travel Time= 0.4 min

Peak Storage= 111 cf @ 11.92 hrs
Average Depth at Peak Storage= 1.50'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 8.69 cfs

18.0" Round Pipe
n= 0.014
Length= 63.0' Slope= 0.0079 '/
Inlet Invert= 42.40', Outlet Invert= 41.90'



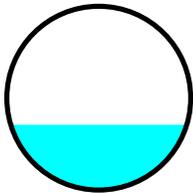
Summary for Reach P3C:

Inflow Area = 0.625 ac, 100.00% Impervious, Inflow Depth > 5.02" for 25-Year event
 Inflow = 3.43 cfs @ 12.07 hrs, Volume= 0.261 af
 Outflow = 3.38 cfs @ 12.08 hrs, Volume= 0.261 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 6.13 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 2.13 fps, Avg. Travel Time= 1.0 min

Peak Storage= 71 cf @ 12.08 hrs
 Average Depth at Peak Storage= 0.53'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 12.78 cfs

18.0" Round Pipe
 n= 0.014
 Length= 127.0' Slope= 0.0172 '/
 Inlet Invert= 43.38', Outlet Invert= 41.20'



Summary for Reach POA3:

Inflow Area = 122.398 ac, 24.41% Impervious, Inflow Depth > 1.30" for 25-Year event
 Inflow = 24.40 cfs @ 12.16 hrs, Volume= 13.223 af
 Outflow = 24.40 cfs @ 12.16 hrs, Volume= 13.223 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

Summary for Pond 52P: (new Pond)

Inflow Area = 102.188 ac, 24.34% Impervious, Inflow Depth > 1.92" for 25-Year event
 Inflow = 116.75 cfs @ 12.36 hrs, Volume= 16.381 af
 Outflow = 14.39 cfs @ 15.18 hrs, Volume= 9.002 af, Atten= 88%, Lag= 169.1 min
 Primary = 14.39 cfs @ 15.18 hrs, Volume= 9.002 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 51.04' @ 15.18 hrs Surf.Area= 118,194 sf Storage= 415,216 cf

Plug-Flow detention time= 231.3 min calculated for 9.002 af (55% of inflow)
 Center-of-Mass det. time= 144.1 min (957.9 - 813.8)

Volume	Invert	Avail.Storage	Storage Description
#1	47.00'	1,602,939 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type III 24-hr 25-Year Rainfall=5.50"

Prepared by {enter your company name here}

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	87,764	0	0
48.00	94,925	91,345	91,345
49.00	102,323	98,624	189,969
50.00	109,961	106,142	296,111
51.00	117,840	113,901	410,011
52.00	125,858	121,849	531,860
53.00	134,420	130,139	661,999
60.00	134,420	940,940	1,602,939

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	12.0" Vert. Orifice/Grate C= 0.600
#2	Primary	47.00'	12.0" Vert. Orifice/Grate C= 0.600
#3	Primary	51.00'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=14.36 cfs @ 15.18 hrs HW=51.04' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 7.12 cfs @ 9.06 fps)
- 2=Orifice/Grate (Orifice Controls 7.12 cfs @ 9.06 fps)
- 3=Sharp-Crested Rectangular Weir (Weir Controls 0.12 cfs @ 0.69 fps)

Summary for Pond 53P:

Inflow Area = 37.231 ac, 13.05% Impervious, Inflow Depth > 1.44" for 25-Year event
 Inflow = 34.25 cfs @ 12.37 hrs, Volume= 4.482 af
 Outflow = 31.47 cfs @ 12.50 hrs, Volume= 4.233 af, Atten= 8%, Lag= 7.9 min
 Primary = 31.47 cfs @ 12.50 hrs, Volume= 4.233 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 79.89' @ 12.50 hrs Surf.Area= 16,794 sf Storage= 22,223 cf

Plug-Flow detention time= 31.1 min calculated for 4.224 af (94% of inflow)
 Center-of-Mass det. time= 13.0 min (853.1 - 840.1)

Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	93,245 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	449	0	0
78.00	2,374	1,412	1,412
79.00	12,873	7,624	9,035
80.00	17,283	15,078	24,113
84.00	17,283	69,132	93,245

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	14.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=31.37 cfs @ 12.50 hrs HW=79.89' (Free Discharge)

↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 31.37 cfs @ 2.52 fps)

Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment S1:** Runoff Area=9.020 ac 3.55% Impervious Runoff Depth>1.01"
Tc=30.2 min CN=46 Runoff=5.28 cfs 0.756 af
- Subcatchment S2:** Runoff Area=218,770 sf 67.66% Impervious Runoff Depth>4.09"
Tc=14.8 min CN=80 Runoff=19.43 cfs 1.714 af
- Subcatchment S3:** Runoff Area=3.380 ac 75.74% Impervious Runoff Depth>5.31"
Tc=5.0 min CN=91 Runoff=21.26 cfs 1.495 af
- Subcatchment S4:** Runoff Area=13.930 ac 10.84% Impervious Runoff Depth>1.97"
Tc=25.6 min CN=58 Runoff=20.32 cfs 2.282 af
- Subcatchment S5:** Runoff Area=222,263 sf 79.00% Impervious Runoff Depth>4.97"
Tc=5.0 min CN=88 Runoff=30.81 cfs 2.114 af
- Subcatchment S5.1:** Runoff Area=3.550 ac 72.39% Impervious Runoff Depth>4.96"
Tc=16.7 min CN=88 Runoff=15.27 cfs 1.466 af
- Subcatchment S5.1A:** Runoff Area=15.250 ac 12.00% Impervious Runoff Depth>1.72"
Tc=16.7 min CN=55 Runoff=22.51 cfs 2.184 af
- Subcatchment S5.1B:** Runoff Area=16.990 ac 17.83% Impervious Runoff Depth>2.41"
Tc=25.4 min CN=63 Runoff=31.21 cfs 3.413 af
- Subcatchment S5.1C:** Runoff Area=17.500 ac 13.43% Impervious Runoff Depth>2.99"
Tc=14.3 min CN=69 Runoff=50.62 cfs 4.354 af
- Subcatchment S52:** Runoff Area=704,290 sf 5.21% Impervious Runoff Depth>2.79"
Flow Length=1,830' Tc=19.7 min CN=67 Runoff=38.50 cfs 3.757 af
- Subcatchment S53:** Runoff Area=217,428 sf 0.00% Impervious Runoff Depth>2.60"
Tc=15.8 min CN=65 Runoff=12.03 cfs 1.083 af
- Subcatchment S54:** Runoff Area=111,170 sf 0.00% Impervious Runoff Depth>2.61"
Tc=14.0 min CN=65 Runoff=6.45 cfs 0.554 af
- Subcatchment S55:** Runoff Area=214,123 sf 74.57% Impervious Runoff Depth>4.41"
Flow Length=1,830' Tc=19.7 min CN=83 Runoff=18.11 cfs 1.805 af
- Subcatchment S56.1:** Runoff Area=57,317 sf 85.18% Impervious Runoff Depth>5.65"
Tc=5.0 min CN=94 Runoff=8.54 cfs 0.620 af
- Subcatchment S56.3:** Runoff Area=59,738 sf 99.59% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=9.13 cfs 0.699 af
- Subcatchment S56.4:** Runoff Area=31,118 sf 92.60% Impervious Runoff Depth>5.63"
Flow Length=915' Tc=20.1 min CN=94 Runoff=3.08 cfs 0.335 af

Subcatchment S62:	Runoff Area=27,209 sf	100.00% Impervious	Runoff Depth>6.12"
	Tc=5.0 min	CN=98	Runoff=4.16 cfs 0.319 af
Reach 1R:	Avg. Flow Depth=1.07'	Max Vel=4.86 fps	Inflow=9.13 cfs 0.699 af
24.0" Round Pipe	n=0.014 L=850.0'	S=0.0050 '/	Capacity=14.85 cfs Outflow=8.26 cfs 0.697 af
Reach 2R:	Avg. Flow Depth=0.98'	Max Vel=6.97 fps	Inflow=44.08 cfs 6.938 af
n=0.030 L=750.0'	S=0.0373 '/	Capacity=208.76 cfs	Outflow=43.97 cfs 6.918 af
Reach 3R:	Avg. Flow Depth=1.59'	Max Vel=7.42 fps	Inflow=80.69 cfs 9.821 af
n=0.030 L=760.0'	S=0.0263 '/	Capacity=136.35 cfs	Outflow=79.33 cfs 9.799 af
Reach 4R: New 48"	Avg. Flow Depth=3.05'	Max Vel=7.89 fps	Inflow=80.91 cfs 9.824 af
48.0" Round Pipe	n=0.014 L=140.0'	S=0.0043 '/	Capacity=87.32 cfs Outflow=80.69 cfs 9.821 af
Reach 5R: 24"	Avg. Flow Depth=1.29'	Max Vel=15.71 fps	Inflow=33.77 cfs 3.963 af
24.0" Round Pipe	n=0.014 L=330.0'	S=0.0461 '/	Capacity=45.08 cfs Outflow=33.40 cfs 3.961 af
Reach 6R: 18"	Avg. Flow Depth=1.50'	Max Vel=10.79 fps	Inflow=21.31 cfs 2.470 af
18.0" Round Pipe	n=0.014 L=428.0'	S=0.0294 '/	Capacity=16.74 cfs Outflow=16.99 cfs 2.468 af
Reach L108:	Avg. Flow Depth=0.19'	Max Vel=4.13 fps	Inflow=33.95 cfs 5.593 af
n=0.030 L=774.0'	S=0.0646 '/	Capacity=1,762.00 cfs	Outflow=32.35 cfs 5.560 af
Reach L179:	Avg. Flow Depth=0.84'	Max Vel=7.10 fps	Inflow=8.99 cfs 4.686 af
24.0" Round Pipe	n=0.014 L=60.0'	S=0.0133 '/	Capacity=24.26 cfs Outflow=8.78 cfs 4.685 af
Reach Link 105:	Avg. Flow Depth=2.00'	Max Vel=11.54 fps	Inflow=37.20 cfs 5.597 af
24.0" Round Pipe	n=0.014 L=350.0'	S=0.0230 '/	Capacity=31.86 cfs Outflow=33.95 cfs 5.593 af
Reach Link 106:	Avg. Flow Depth=1.25'	Max Vel=13.62 fps	Inflow=31.21 cfs 3.413 af
15.0" Round Pipe	n=0.014 L=5.0'	S=0.0600 '/	Capacity=14.69 cfs Outflow=15.32 cfs 3.413 af
Reach LINK 110.1:	Avg. Flow Depth=1.50'	Max Vel=7.25 fps	Inflow=50.62 cfs 4.354 af
18.0" Round Pipe	n=0.014 L=260.0'	S=0.0133 '/	Capacity=11.25 cfs Outflow=11.82 cfs 4.351 af
Reach P3:	Avg. Flow Depth=1.73'	Max Vel=7.01 fps	Inflow=20.16 cfs 5.701 af
24.0" Round Pipe	n=0.014 L=52.0'	S=0.0085 '/	Capacity=19.32 cfs Outflow=20.12 cfs 5.700 af
Reach P3B:	Avg. Flow Depth=1.50'	Max Vel=5.59 fps	Inflow=14.33 cfs 4.687 af
18.0" Round Pipe	n=0.014 L=63.0'	S=0.0079 '/	Capacity=8.69 cfs Outflow=8.99 cfs 4.686 af
Reach P3C:	Avg. Flow Depth=0.59'	Max Vel=6.46 fps	Inflow=4.16 cfs 0.319 af
18.0" Round Pipe	n=0.014 L=127.0'	S=0.0172 '/	Capacity=12.78 cfs Outflow=4.10 cfs 0.318 af
Reach POA3:			Inflow=40.12 cfs 19.670 af
			Outflow=40.12 cfs 19.670 af
Pond 52P: (new Pond)	Peak Elev=52.11'	Storage=545,827 cf	Inflow=167.25 cfs 22.899 af
			Outflow=30.71 cfs 13.970 af
Pond 53P:	Peak Elev=80.04'	Storage=24,881 cf	Inflow=42.86 cfs 6.643 af
			Outflow=40.00 cfs 6.384 af

Total Runoff Area = 122.398 ac Runoff Volume = 28.953 af Average Runoff Depth = 2.84"
75.59% Pervious = 92.519 ac 24.41% Impervious = 29.879 ac

Summary for Subcatchment S1:

Runoff = 5.28 cfs @ 12.53 hrs, Volume= 0.756 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 8.170	43	
* 0.530	65	
* 0.320	98	
9.020	46	Weighted Average
8.700		96.45% Pervious Area
0.320		3.55% Impervious Area

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

Summary for Subcatchment S2:

Runoff = 19.43 cfs @ 12.20 hrs, Volume= 1.714 af, Depth> 4.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 70,760	43	
* 148,010	98	
218,770	80	Weighted Average
70,760		32.34% Pervious Area
148,010		67.66% Impervious Area

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

Summary for Subcatchment S3:

Runoff = 21.26 cfs @ 12.07 hrs, Volume= 1.495 af, Depth> 5.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 0.820	69	
* 2.560	98	
3.380	91	Weighted Average
0.820		24.26% Pervious Area
2.560		75.74% Impervious Area

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

Summary for Subcatchment S4:

Runoff = 20.32 cfs @ 12.39 hrs, Volume= 2.282 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
* 9.550	49	
* 2.870	69	
* 1.510	98	
13.930	58	Weighted Average
12.420		89.16% Pervious Area
1.510		10.84% Impervious Area

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

Summary for Subcatchment S5:

Runoff = 30.81 cfs @ 12.07 hrs, Volume= 2.114 af, Depth> 4.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
* 46,677	49	
* 175,586	98	
222,263	88	Weighted Average
46,677		21.00% Pervious Area
175,586		79.00% Impervious Area

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

Summary for Subcatchment S5.1:

Runoff = 15.27 cfs @ 12.22 hrs, Volume= 1.466 af, Depth> 4.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (ac)	CN	Description
* 0.270	69	
* 0.710	60	
* 2.570	98	
3.550	88	Weighted Average
0.980		27.61% Pervious Area
2.570		72.39% Impervious Area

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

Summary for Subcatchment S5.1A:

Runoff = 22.51 cfs @ 12.25 hrs, Volume= 2.184 af, Depth> 1.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
13.420	49	50-75% Grass cover, Fair, HSG A
1.830	98	Paved parking & roofs
15.250	55	Weighted Average
13.420		88.00% Pervious Area
1.830		12.00% Impervious Area

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

Summary for Subcatchment S5.1B:

Runoff = 31.21 cfs @ 12.37 hrs, Volume= 3.413 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
10.760	49	50-75% Grass cover, Fair, HSG A
3.200	79	50-75% Grass cover, Fair, HSG C
3.030	98	Paved parking & roofs
16.990	63	Weighted Average
13.960		82.17% Pervious Area
3.030		17.83% Impervious Area

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

Summary for Subcatchment S5.1C:

Runoff = 50.62 cfs @ 12.20 hrs, Volume= 4.354 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (ac)	CN	Description
3.670	49	50-75% Grass cover, Fair, HSG A
11.480	69	50-75% Grass cover, Fair, HSG B
2.350	98	Paved parking & roofs
17.500	69	Weighted Average
15.150		86.57% Pervious Area
2.350		13.43% Impervious Area

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

Summary for Subcatchment S52:

Runoff = 38.50 cfs @ 12.28 hrs, Volume= 3.757 af, Depth> 2.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
667,589	65	Woods/grass comb., Fair, HSG B
* 36,701	98	Paved Areas & Roofs, HSG A
704,290	67	Weighted Average
667,589		94.79% Pervious Area
36,701		5.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0800	0.14		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.20"
7.4	1,730	0.0580	3.88		Shallow Concentrated Flow, Shallow Conc Unpaved Kv= 16.1 fps
19.7	1,830	Total			

Summary for Subcatchment S53:

Runoff = 12.03 cfs @ 12.23 hrs, Volume= 1.083 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

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Type III 24-hr 100-Year Rainfall=6.65"

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Area (sf)	CN	Description
217,428	65	Woods/grass comb., Fair, HSG B
217,428		100.00% Pervious Area

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

Summary for Subcatchment S54:

Runoff = 6.45 cfs @ 12.20 hrs, Volume= 0.554 af, Depth> 2.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
111,170	65	Woods/grass comb., Fair, HSG B
111,170		100.00% Pervious Area

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

Summary for Subcatchment S55:

Runoff = 18.11 cfs @ 12.26 hrs, Volume= 1.805 af, Depth> 4.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
54,455	39	>75% Grass cover, Good, HSG A
* 159,668	98	Paved Areas & Roofs, HSG A
214,123	83	Weighted Average
54,455		25.43% Pervious Area
159,668		74.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0800	0.14		Sheet Flow, Sheet
7.4	1,730	0.0580	3.88		Woods: Light underbrush n= 0.400 P2= 3.20"
					Shallow Concentrated Flow, Shallow Conc
					Unpaved Kv= 16.1 fps
19.7	1,830	Total			

Summary for Subcatchment S56.1:

Runoff = 8.54 cfs @ 12.07 hrs, Volume= 0.620 af, Depth> 5.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
8,495	69	50-75% Grass cover, Fair, HSG B
48,822	98	Paved parking & roofs
57,317	94	Weighted Average
8,495		14.82% Pervious Area
48,822		85.18% Impervious Area

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

Summary for Subcatchment S56.3:

Runoff = 9.13 cfs @ 12.07 hrs, Volume= 0.699 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
246	69	50-75% Grass cover, Fair, HSG B
59,492	98	Paved parking & roofs
59,738	98	Weighted Average
246		0.41% Pervious Area
59,492		99.59% Impervious Area

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

Summary for Subcatchment S56.4:

Runoff = 3.08 cfs @ 12.26 hrs, Volume= 0.335 af, Depth> 5.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
2,302	39	>75% Grass cover, Good, HSG A
28,816	98	Paved parking & roofs
31,118	94	Weighted Average
2,302		7.40% Pervious Area
28,816		92.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0400	0.10		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	680	0.0600	3.94		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.9	135	0.0150	2.49		Shallow Concentrated Flow, Paved Paved Kv= 20.3 fps
20.1	915	Total			

Summary for Subcatchment S62:

Runoff = 4.16 cfs @ 12.07 hrs, Volume= 0.319 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
27,209	98	Paved parking & roofs
27,209		100.00% Impervious Area

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

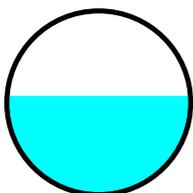
Summary for Reach 1R:

Inflow Area = 1.371 ac, 99.59% Impervious, Inflow Depth > 6.12" for 100-Year event
 Inflow = 9.13 cfs @ 12.07 hrs, Volume= 0.699 af
 Outflow = 8.26 cfs @ 12.15 hrs, Volume= 0.697 af, Atten= 9%, Lag= 4.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 4.86 fps, Min. Travel Time= 2.9 min
 Avg. Velocity = 1.78 fps, Avg. Travel Time= 8.0 min

Peak Storage= 1,462 cf @ 12.11 hrs
 Average Depth at Peak Storage= 1.07'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
 n= 0.014
 Length= 850.0' Slope= 0.0050 '/'
 Inlet Invert= 45.35', Outlet Invert= 41.10'



Summary for Reach 2R:

Inflow Area = 39.784 ac, 12.22% Impervious, Inflow Depth > 2.09" for 100-Year event
Inflow = 44.08 cfs @ 12.40 hrs, Volume= 6.938 af
Outflow = 43.97 cfs @ 12.46 hrs, Volume= 6.918 af, Atten= 0%, Lag= 3.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.97 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 3.53 fps, Avg. Travel Time= 3.5 min

Peak Storage= 4,730 cf @ 12.43 hrs
Average Depth at Peak Storage= 0.98'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 208.76 cfs

3.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.5 '/' Top Width= 17.00'
Length= 750.0' Slope= 0.0373 '/'
Inlet Invert= 79.00', Outlet Invert= 51.00'



Summary for Reach 3R:

Inflow Area = 40.005 ac, 35.97% Impervious, Inflow Depth > 2.95" for 100-Year event
Inflow = 80.69 cfs @ 12.12 hrs, Volume= 9.821 af
Outflow = 79.33 cfs @ 12.17 hrs, Volume= 9.799 af, Atten= 2%, Lag= 3.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.42 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 3.09 fps, Avg. Travel Time= 4.1 min

Peak Storage= 8,162 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.59'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 136.35 cfs

2.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 760.0' Slope= 0.0263 '/'
Inlet Invert= 79.00', Outlet Invert= 59.00'



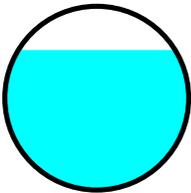
Summary for Reach 4R: New 48"

Inflow Area = 40.005 ac, 35.97% Impervious, Inflow Depth > 2.95" for 100-Year event
Inflow = 80.91 cfs @ 12.10 hrs, Volume= 9.824 af
Outflow = 80.69 cfs @ 12.12 hrs, Volume= 9.821 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.89 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.29 fps, Avg. Travel Time= 0.7 min

Peak Storage= 1,438 cf @ 12.11 hrs
Average Depth at Peak Storage= 3.05'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 87.32 cfs

48.0" Round Pipe
n= 0.014
Length= 140.0' Slope= 0.0043 '/'
Inlet Invert= 79.60', Outlet Invert= 79.00'



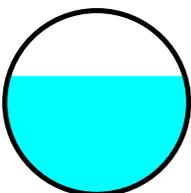
Summary for Reach 5R: 24"

Inflow Area = 17.422 ac, 36.03% Impervious, Inflow Depth > 2.73" for 100-Year event
Inflow = 33.77 cfs @ 12.10 hrs, Volume= 3.963 af
Outflow = 33.40 cfs @ 12.11 hrs, Volume= 3.961 af, Atten= 1%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 15.71 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 6.40 fps, Avg. Travel Time= 0.9 min

Peak Storage= 705 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.29'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 45.08 cfs

24.0" Round Pipe
n= 0.014
Length= 330.0' Slope= 0.0461 '/'
Inlet Invert= 94.80', Outlet Invert= 79.60'



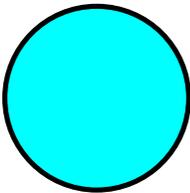
Summary for Reach 6R: 18"

Inflow Area = 14.042 ac, 26.48% Impervious, Inflow Depth > 2.11" for 100-Year event
Inflow = 21.31 cfs @ 12.22 hrs, Volume= 2.470 af
Outflow = 16.99 cfs @ 12.64 hrs, Volume= 2.468 af, Atten= 20%, Lag= 25.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 10.79 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 5.38 fps, Avg. Travel Time= 1.3 min

Peak Storage= 756 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.50'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 16.74 cfs

18.0" Round Pipe
n= 0.014
Length= 428.0' Slope= 0.0294 '/'
Inlet Invert= 107.40', Outlet Invert= 94.80'



Summary for Reach L108:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 2.08" for 100-Year event
Inflow = 33.95 cfs @ 12.63 hrs, Volume= 5.593 af
Outflow = 32.35 cfs @ 12.67 hrs, Volume= 5.560 af, Atten= 5%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.13 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 1.95 fps, Avg. Travel Time= 6.6 min

Peak Storage= 6,100 cf @ 12.63 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 2.00' Flow Area= 100.0 sf, Capacity= 1,762.00 cfs

40.00' x 2.00' deep channel, n= 0.030
Side Slope Z-value= 5.0 '/' Top Width= 60.00'
Length= 774.0' Slope= 0.0646 '/'
Inlet Invert= 132.00', Outlet Invert= 82.00'



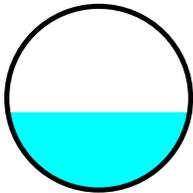
Summary for Reach L179:

Inflow Area = 18.214 ac, 16.53% Impervious, Inflow Depth > 3.09" for 100-Year event
Inflow = 8.99 cfs @ 11.82 hrs, Volume= 4.686 af
Outflow = 8.78 cfs @ 11.84 hrs, Volume= 4.685 af, Atten= 2%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.10 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.00 fps, Avg. Travel Time= 0.3 min

Peak Storage= 75 cf @ 11.82 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 24.26 cfs

24.0" Round Pipe
n= 0.014
Length= 60.0' Slope= 0.0133 '/
Inlet Invert= 41.90', Outlet Invert= 41.10'



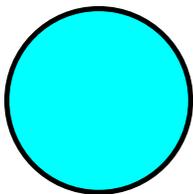
Summary for Reach Link 105:

Inflow Area = 32.240 ac, 15.07% Impervious, Inflow Depth > 2.08" for 100-Year event
Inflow = 37.20 cfs @ 12.25 hrs, Volume= 5.597 af
Outflow = 33.95 cfs @ 12.63 hrs, Volume= 5.593 af, Atten= 9%, Lag= 22.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 11.54 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 6.81 fps, Avg. Travel Time= 0.9 min

Peak Storage= 1,100 cf @ 12.20 hrs
Average Depth at Peak Storage= 2.00'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 31.86 cfs

24.0" Round Pipe
n= 0.014
Length= 350.0' Slope= 0.0230 '/
Inlet Invert= 140.75', Outlet Invert= 132.70'



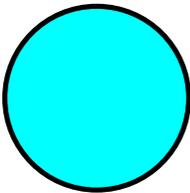
Summary for Reach Link 106:

Inflow Area = 16.990 ac, 17.83% Impervious, Inflow Depth > 2.41" for 100-Year event
Inflow = 31.21 cfs @ 12.37 hrs, Volume= 3.413 af
Outflow = 15.32 cfs @ 12.14 hrs, Volume= 3.413 af, Atten= 51%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 13.62 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 8.51 fps, Avg. Travel Time= 0.0 min

Peak Storage= 6 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.25'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 14.69 cfs

15.0" Round Pipe
n= 0.014
Length= 5.0' Slope= 0.0600 '/'
Inlet Invert= 41.80', Outlet Invert= 41.50'



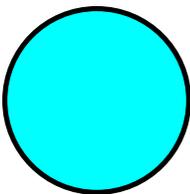
Summary for Reach LINK 110.1:

Inflow Area = 17.500 ac, 13.43% Impervious, Inflow Depth > 2.99" for 100-Year event
Inflow = 50.62 cfs @ 12.20 hrs, Volume= 4.354 af
Outflow = 11.82 cfs @ 11.90 hrs, Volume= 4.351 af, Atten= 77%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.25 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 4.97 fps, Avg. Travel Time= 0.9 min

Peak Storage= 459 cf @ 11.92 hrs
Average Depth at Peak Storage= 1.50'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.25 cfs

18.0" Round Pipe
n= 0.014
Length= 260.0' Slope= 0.0133 '/'
Inlet Invert= 45.96', Outlet Invert= 42.50'



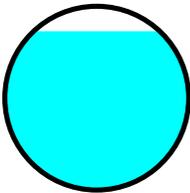
Summary for Reach P3:

Inflow Area = 20.210 ac, 24.75% Impervious, Inflow Depth > 3.38" for 100-Year event
Inflow = 20.16 cfs @ 12.13 hrs, Volume= 5.701 af
Outflow = 20.12 cfs @ 12.14 hrs, Volume= 5.700 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.01 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.69 fps, Avg. Travel Time= 0.2 min

Peak Storage= 150 cf @ 12.13 hrs
Average Depth at Peak Storage= 1.73'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 19.32 cfs

24.0" Round Pipe
n= 0.014
Length= 52.0' Slope= 0.0085 '/'
Inlet Invert= 41.10', Outlet Invert= 40.66'



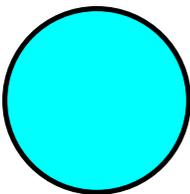
Summary for Reach P3B:

Inflow Area = 18.214 ac, 16.53% Impervious, Inflow Depth > 3.09" for 100-Year event
Inflow = 14.33 cfs @ 12.26 hrs, Volume= 4.687 af
Outflow = 8.99 cfs @ 11.82 hrs, Volume= 4.686 af, Atten= 37%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.59 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.08 fps, Avg. Travel Time= 0.3 min

Peak Storage= 111 cf @ 11.84 hrs
Average Depth at Peak Storage= 1.50'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 8.69 cfs

18.0" Round Pipe
n= 0.014
Length= 63.0' Slope= 0.0079 '/'
Inlet Invert= 42.40', Outlet Invert= 41.90'



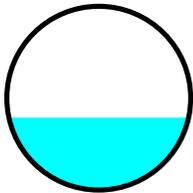
Summary for Reach P3C:

Inflow Area = 0.625 ac, 100.00% Impervious, Inflow Depth > 6.12" for 100-Year event
 Inflow = 4.16 cfs @ 12.07 hrs, Volume= 0.319 af
 Outflow = 4.10 cfs @ 12.08 hrs, Volume= 0.318 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Max. Velocity= 6.46 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 2.25 fps, Avg. Travel Time= 0.9 min

Peak Storage= 82 cf @ 12.08 hrs
 Average Depth at Peak Storage= 0.59'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 12.78 cfs

18.0" Round Pipe
 n= 0.014
 Length= 127.0' Slope= 0.0172 '/'
 Inlet Invert= 43.38', Outlet Invert= 41.20'



Summary for Reach POA3:

Inflow Area = 122.398 ac, 24.41% Impervious, Inflow Depth > 1.93" for 100-Year event
 Inflow = 40.12 cfs @ 13.98 hrs, Volume= 19.670 af
 Outflow = 40.12 cfs @ 13.98 hrs, Volume= 19.670 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

Summary for Pond 52P: (new Pond)

Inflow Area = 102.188 ac, 24.34% Impervious, Inflow Depth > 2.69" for 100-Year event
 Inflow = 167.25 cfs @ 12.32 hrs, Volume= 22.899 af
 Outflow = 30.71 cfs @ 13.99 hrs, Volume= 13.970 af, Atten= 82%, Lag= 100.4 min
 Primary = 30.71 cfs @ 13.99 hrs, Volume= 13.970 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 52.11' @ 13.99 hrs Surf.Area= 126,805 sf Storage= 545,827 cf

Plug-Flow detention time= 204.2 min calculated for 13.970 af (61% of inflow)
 Center-of-Mass det. time= 124.8 min (934.4 - 809.6)

Volume	Invert	Avail.Storage	Storage Description
#1	47.00'	1,602,939 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

3659-12003C-Proposed Conditions POA 3-01

Type III 24-hr 100-Year Rainfall=6.65"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	87,764	0	0
48.00	94,925	91,345	91,345
49.00	102,323	98,624	189,969
50.00	109,961	106,142	296,111
51.00	117,840	113,901	410,011
52.00	125,858	121,849	531,860
53.00	134,420	130,139	661,999
60.00	134,420	940,940	1,602,939

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	12.0" Vert. Orifice/Grate C= 0.600
#2	Primary	47.00'	12.0" Vert. Orifice/Grate C= 0.600
#3	Primary	51.00'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=30.69 cfs @ 13.99 hrs HW=52.11' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 8.12 cfs @ 10.34 fps)
- 2=Orifice/Grate (Orifice Controls 8.12 cfs @ 10.34 fps)
- 3=Sharp-Crested Rectangular Weir (Weir Controls 14.45 cfs @ 3.45 fps)

Summary for Pond 53P:

Inflow Area = 37.231 ac, 13.05% Impervious, Inflow Depth > 2.14" for 100-Year event
 Inflow = 42.86 cfs @ 12.29 hrs, Volume= 6.643 af
 Outflow = 40.00 cfs @ 12.44 hrs, Volume= 6.384 af, Atten= 7%, Lag= 9.1 min
 Primary = 40.00 cfs @ 12.44 hrs, Volume= 6.384 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs
 Peak Elev= 80.04' @ 12.44 hrs Surf.Area= 17,283 sf Storage= 24,881 cf

Plug-Flow detention time= 24.1 min calculated for 6.371 af (96% of inflow)
 Center-of-Mass det. time= 11.0 min (845.8 - 834.8)

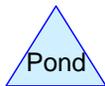
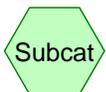
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	93,245 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	449	0	0
78.00	2,374	1,412	1,412
79.00	12,873	7,624	9,035
80.00	17,283	15,078	24,113
84.00	17,283	69,132	93,245

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	14.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=39.98 cfs @ 12.44 hrs HW=80.04' (Free Discharge)

↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 39.98 cfs @ 2.73 fps)



Routing Diagram for 3659-12003C-Proposed Conditions POA 4-01
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
13.805	98	(S59)
4.058	39	>75% Grass cover, Good, HSG A (S59)
17.863	85	TOTAL AREA

3659-12003C-Proposed Conditions POA 4-01

Type III 24-hr 2-Year Rainfall=3.20"

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Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S59:

Runoff Area=778,120 sf 77.28% Impervious Runoff Depth>1.64"
Tc=5.0 min CN=85 Runoff=36.84 cfs 2.440 af

Reach P4:

Avg. Flow Depth=0.77' Max Vel=2.75 fps Inflow=4.94 cfs 0.212 af
48.0" Round Pipe n=0.014 L=835.0' S=0.0019 '/ Capacity=57.47 cfs Outflow=4.62 cfs 0.212 af

Reach POA 4:

Inflow=4.62 cfs 0.212 af
Outflow=4.62 cfs 0.212 af

Pond 59P:

Peak Elev=49.13' Storage=32,103 cf Inflow=36.84 cfs 2.440 af
Discarded=5.36 cfs 2.222 af Primary=4.94 cfs 0.212 af Outflow=10.29 cfs 2.434 af

Total Runoff Area = 17.863 ac Runoff Volume = 2.440 af Average Runoff Depth = 1.64"
22.72% Pervious = 4.058 ac 77.28% Impervious = 13.805 ac

Summary for Subcatchment S59:

Runoff = 36.84 cfs @ 12.08 hrs, Volume= 2.440 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
176,758	39	>75% Grass cover, Good, HSG A
* 601,362	98	
778,120	85	Weighted Average
176,758		22.72% Pervious Area
601,362		77.28% Impervious Area

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

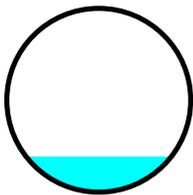
Summary for Reach P4:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth = 0.14" for 2-Year event
Inflow = 4.94 cfs @ 12.45 hrs, Volume= 0.212 af
Outflow = 4.62 cfs @ 12.60 hrs, Volume= 0.212 af, Atten= 6%, Lag= 9.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.75 fps, Min. Travel Time= 5.1 min
Avg. Velocity = 0.83 fps, Avg. Travel Time= 16.8 min

Peak Storage= 1,415 cf @ 12.51 hrs
Average Depth at Peak Storage= 0.77'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 57.47 cfs

48.0" Round Pipe
n= 0.014
Length= 835.0' Slope= 0.0019 '/'
Inlet Invert= 36.90', Outlet Invert= 35.35'



Summary for Reach POA 4:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth = 0.14" for 2-Year event
Inflow = 4.62 cfs @ 12.60 hrs, Volume= 0.212 af
Outflow = 4.62 cfs @ 12.60 hrs, Volume= 0.212 af, Atten= 0%, Lag= 0.0 min

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Type III 24-hr 2-Year Rainfall=3.20"

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Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 59P:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth > 1.64" for 2-Year event
 Inflow = 36.84 cfs @ 12.08 hrs, Volume= 2.440 af
 Outflow = 10.29 cfs @ 12.45 hrs, Volume= 2.434 af, Atten= 72%, Lag= 22.1 min
 Discarded = 5.36 cfs @ 12.45 hrs, Volume= 2.222 af
 Primary = 4.94 cfs @ 12.45 hrs, Volume= 0.212 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 49.13' @ 12.45 hrs Surf.Area= 26,780 sf Storage= 32,103 cf

Plug-Flow detention time= 37.9 min calculated for 2.434 af (100% of inflow)
 Center-of-Mass det. time= 36.9 min (826.7 - 789.7)

Volume	Invert	Avail.Storage	Storage Description
#1	47.00'	94,640 cf	Custom Stage Data (Prismatic) Listed below x 2 Inside #2
#2	47.00'	101,400 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			348,140 cf Overall - 94,640 cf Embedded = 253,500 cf x 40.0% Voids
		196,040 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	3,640	0	0
48.00	3,640	3,640	3,640
49.00	3,640	3,640	7,280
50.00	3,640	3,640	10,920
51.00	3,640	3,640	14,560
52.00	3,640	3,640	18,200
52.50	3,640	1,820	20,020
60.00	3,640	27,300	47,320

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	26,780	0	0
48.00	26,780	26,780	26,780
49.00	26,780	26,780	53,560
50.00	26,780	26,780	80,340
51.00	26,780	26,780	107,120
52.00	26,780	26,780	133,900
52.50	26,780	13,390	147,290
60.00	26,780	200,850	348,140

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	48.50'	30.0" Vert. Orifice/Grate C= 0.600
#3	Primary	48.50'	24.0" Vert. Orifice/Grate C= 0.600

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Type III 24-hr 2-Year Rainfall=3.20"

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Discarded OutFlow Max=5.36 cfs @ 12.45 hrs HW=49.13' (Free Discharge)

└─**1=Exfiltration** (Controls 5.36 cfs)

Primary OutFlow Max=4.89 cfs @ 12.45 hrs HW=49.13' (Free Discharge)

└─**2=Orifice/Grate** (Orifice Controls 2.61 cfs @ 2.70 fps)

└─**3=Orifice/Grate** (Orifice Controls 2.28 cfs @ 2.70 fps)

3659-12003C-Proposed Conditions POA 4-01

Type III 24-hr 10-Year Rainfall=4.60"

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Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S59:

Runoff Area=778,120 sf 77.28% Impervious Runoff Depth>2.82"
Tc=5.0 min CN=85 Runoff=62.75 cfs 4.194 af

Reach P4:

Avg. Flow Depth=1.80' Max Vel=4.36 fps Inflow=24.47 cfs 1.161 af
48.0" Round Pipe n=0.014 L=835.0' S=0.0019 '/ Capacity=57.47 cfs Outflow=23.81 cfs 1.161 af

Reach POA 4:

Inflow=23.81 cfs 1.161 af
Outflow=23.81 cfs 1.161 af

Pond 59P:

Peak Elev=50.04' Storage=45,898 cf Inflow=62.75 cfs 4.194 af
Discarded=5.46 cfs 3.024 af Primary=24.47 cfs 1.161 af Outflow=29.92 cfs 4.185 af

Total Runoff Area = 17.863 ac Runoff Volume = 4.194 af Average Runoff Depth = 2.82"
22.72% Pervious = 4.058 ac 77.28% Impervious = 13.805 ac

Summary for Subcatchment S59:

Runoff = 62.75 cfs @ 12.07 hrs, Volume= 4.194 af, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
176,758	39	>75% Grass cover, Good, HSG A
* 601,362	98	
778,120	85	Weighted Average
176,758		22.72% Pervious Area
601,362		77.28% Impervious Area

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

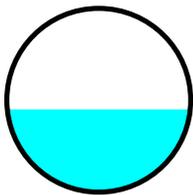
Summary for Reach P4:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth = 0.78" for 10-Year event
Inflow = 24.47 cfs @ 12.24 hrs, Volume= 1.161 af
Outflow = 23.81 cfs @ 12.35 hrs, Volume= 1.161 af, Atten= 3%, Lag= 6.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.36 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 1.21 fps, Avg. Travel Time= 11.5 min

Peak Storage= 4,567 cf @ 12.30 hrs
Average Depth at Peak Storage= 1.80'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 57.47 cfs

48.0" Round Pipe
n= 0.014
Length= 835.0' Slope= 0.0019 '/'
Inlet Invert= 36.90', Outlet Invert= 35.35'



Summary for Reach POA 4:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth = 0.78" for 10-Year event
Inflow = 23.81 cfs @ 12.35 hrs, Volume= 1.161 af
Outflow = 23.81 cfs @ 12.35 hrs, Volume= 1.161 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 59P:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth > 2.82" for 10-Year event
 Inflow = 62.75 cfs @ 12.07 hrs, Volume= 4.194 af
 Outflow = 29.92 cfs @ 12.24 hrs, Volume= 4.185 af, Atten= 52%, Lag= 10.0 min
 Discarded = 5.46 cfs @ 12.24 hrs, Volume= 3.024 af
 Primary = 24.47 cfs @ 12.24 hrs, Volume= 1.161 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 50.04' @ 12.24 hrs Surf.Area= 26,780 sf Storage= 45,898 cf

Plug-Flow detention time= 34.8 min calculated for 4.175 af (100% of inflow)
 Center-of-Mass det. time= 33.9 min (811.0 - 777.1)

Volume	Invert	Avail.Storage	Storage Description
#1	47.00'	94,640 cf	Custom Stage Data (Prismatic) Listed below x 2 Inside #2
#2	47.00'	101,400 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			348,140 cf Overall - 94,640 cf Embedded = 253,500 cf x 40.0% Voids
		196,040 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	3,640	0	0
48.00	3,640	3,640	3,640
49.00	3,640	3,640	7,280
50.00	3,640	3,640	10,920
51.00	3,640	3,640	14,560
52.00	3,640	3,640	18,200
52.50	3,640	1,820	20,020
60.00	3,640	27,300	47,320

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	26,780	0	0
48.00	26,780	26,780	26,780
49.00	26,780	26,780	53,560
50.00	26,780	26,780	80,340
51.00	26,780	26,780	107,120
52.00	26,780	26,780	133,900
52.50	26,780	13,390	147,290
60.00	26,780	200,850	348,140

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	48.50'	30.0" Vert. Orifice/Grate C= 0.600
#3	Primary	48.50'	24.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=5.46 cfs @ 12.24 hrs HW=50.04' (Free Discharge)

└─**1=Exfiltration** (Controls 5.46 cfs)

Primary OutFlow Max=24.38 cfs @ 12.24 hrs HW=50.04' (Free Discharge)

└─**2=Orifice/Grate** (Orifice Controls 13.41 cfs @ 4.23 fps)

└─**3=Orifice/Grate** (Orifice Controls 10.97 cfs @ 4.23 fps)

3659-12003C-Proposed Conditions POA 4-01

Type III 24-hr 25-Year Rainfall=5.50"

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Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S59:

Runoff Area=778,120 sf 77.28% Impervious Runoff Depth>3.61"
Tc=5.0 min CN=85 Runoff=79.55 cfs 5.372 af

Reach P4:

Avg. Flow Depth=2.35' Max Vel=4.87 fps Inflow=38.42 cfs 1.871 af
48.0" Round Pipe n=0.014 L=835.0' S=0.0019 '/ Capacity=57.47 cfs Outflow=37.43 cfs 1.871 af

Reach POA 4:

Inflow=37.43 cfs 1.871 af
Outflow=37.43 cfs 1.871 af

Pond 59P:

Peak Elev=50.64' Storage=54,884 cf Inflow=79.55 cfs 5.372 af
Discarded=5.52 cfs 3.490 af Primary=38.42 cfs 1.871 af Outflow=43.95 cfs 5.362 af

Total Runoff Area = 17.863 ac Runoff Volume = 5.372 af Average Runoff Depth = 3.61"
22.72% Pervious = 4.058 ac 77.28% Impervious = 13.805 ac

Summary for Subcatchment S59:

Runoff = 79.55 cfs @ 12.07 hrs, Volume= 5.372 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
176,758	39	>75% Grass cover, Good, HSG A
* 601,362	98	
778,120	85	Weighted Average
176,758		22.72% Pervious Area
601,362		77.28% Impervious Area

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

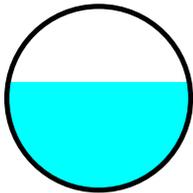
Summary for Reach P4:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth = 1.26" for 25-Year event
 Inflow = 38.42 cfs @ 12.20 hrs, Volume= 1.871 af
 Outflow = 37.43 cfs @ 12.30 hrs, Volume= 1.871 af, Atten= 3%, Lag= 6.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.87 fps, Min. Travel Time= 2.9 min
 Avg. Velocity = 1.35 fps, Avg. Travel Time= 10.3 min

Peak Storage= 6,424 cf @ 12.25 hrs
 Average Depth at Peak Storage= 2.35'
 Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 57.47 cfs

48.0" Round Pipe
 n= 0.014
 Length= 835.0' Slope= 0.0019 '/'
 Inlet Invert= 36.90', Outlet Invert= 35.35'



Summary for Reach POA 4:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth = 1.26" for 25-Year event
 Inflow = 37.43 cfs @ 12.30 hrs, Volume= 1.871 af
 Outflow = 37.43 cfs @ 12.30 hrs, Volume= 1.871 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 59P:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth > 3.61" for 25-Year event
 Inflow = 79.55 cfs @ 12.07 hrs, Volume= 5.372 af
 Outflow = 43.95 cfs @ 12.20 hrs, Volume= 5.362 af, Atten= 45%, Lag= 7.8 min
 Discarded = 5.52 cfs @ 12.20 hrs, Volume= 3.490 af
 Primary = 38.42 cfs @ 12.20 hrs, Volume= 1.871 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 50.64' @ 12.20 hrs Surf.Area= 26,780 sf Storage= 54,884 cf

Plug-Flow detention time= 33.3 min calculated for 5.362 af (100% of inflow)
 Center-of-Mass det. time= 32.4 min (803.6 - 771.2)

Volume	Invert	Avail.Storage	Storage Description
#1	47.00'	94,640 cf	Custom Stage Data (Prismatic) Listed below x 2 Inside #2
#2	47.00'	101,400 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			348,140 cf Overall - 94,640 cf Embedded = 253,500 cf x 40.0% Voids
		196,040 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	3,640	0	0
48.00	3,640	3,640	3,640
49.00	3,640	3,640	7,280
50.00	3,640	3,640	10,920
51.00	3,640	3,640	14,560
52.00	3,640	3,640	18,200
52.50	3,640	1,820	20,020
60.00	3,640	27,300	47,320

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	26,780	0	0
48.00	26,780	26,780	26,780
49.00	26,780	26,780	53,560
50.00	26,780	26,780	80,340
51.00	26,780	26,780	107,120
52.00	26,780	26,780	133,900
52.50	26,780	13,390	147,290
60.00	26,780	200,850	348,140

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	48.50'	30.0" Vert. Orifice/Grate C= 0.600
#3	Primary	48.50'	24.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=5.52 cfs @ 12.20 hrs HW=50.64' (Free Discharge)

└─**1=Exfiltration** (Controls 5.52 cfs)

Primary OutFlow Max=38.33 cfs @ 12.20 hrs HW=50.64' (Free Discharge)

└─**2=Orifice/Grate** (Orifice Controls 22.21 cfs @ 4.98 fps)

└─**3=Orifice/Grate** (Orifice Controls 16.12 cfs @ 5.13 fps)

3659-12003C-Proposed Conditions POA 4-01

Type III 24-hr 100-Year Rainfall=6.65"

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Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S59:

Runoff Area=778,120 sf 77.28% Impervious Runoff Depth>4.64"

Tc=5.0 min CN=85 Runoff=101.04 cfs 6.911 af

Reach P4:

Avg. Flow Depth=2.94' Max Vel=5.17 fps Inflow=51.96 cfs 2.871 af

48.0" Round Pipe n=0.014 L=835.0' S=0.0019 '/ Capacity=57.47 cfs Outflow=50.98 cfs 2.871 af

Reach POA 4:

Inflow=50.98 cfs 2.871 af

Outflow=50.98 cfs 2.871 af

Pond 59P:

Peak Elev=51.45' Storage=67,135 cf Inflow=101.04 cfs 6.911 af

Discarded=5.61 cfs 4.027 af Primary=51.96 cfs 2.871 af Outflow=57.57 cfs 6.898 af

Total Runoff Area = 17.863 ac Runoff Volume = 6.911 af Average Runoff Depth = 4.64"
22.72% Pervious = 4.058 ac 77.28% Impervious = 13.805 ac

Summary for Subcatchment S59:

Runoff = 101.04 cfs @ 12.07 hrs, Volume= 6.911 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
176,758	39	>75% Grass cover, Good, HSG A
* 601,362	98	
778,120	85	Weighted Average
176,758		22.72% Pervious Area
601,362		77.28% Impervious Area

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

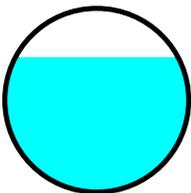
Summary for Reach P4:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth = 1.93" for 100-Year event
Inflow = 51.96 cfs @ 12.19 hrs, Volume= 2.871 af
Outflow = 50.98 cfs @ 12.29 hrs, Volume= 2.871 af, Atten= 2%, Lag= 5.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.17 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 1.51 fps, Avg. Travel Time= 9.2 min

Peak Storage= 8,254 cf @ 12.24 hrs
Average Depth at Peak Storage= 2.94'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 57.47 cfs

48.0" Round Pipe
n= 0.014
Length= 835.0' Slope= 0.0019 '/'
Inlet Invert= 36.90', Outlet Invert= 35.35'



Summary for Reach POA 4:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth = 1.93" for 100-Year event
Inflow = 50.98 cfs @ 12.29 hrs, Volume= 2.871 af
Outflow = 50.98 cfs @ 12.29 hrs, Volume= 2.871 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 59P:

Inflow Area = 17.863 ac, 77.28% Impervious, Inflow Depth > 4.64" for 100-Year event
 Inflow = 101.04 cfs @ 12.07 hrs, Volume= 6.911 af
 Outflow = 57.57 cfs @ 12.19 hrs, Volume= 6.898 af, Atten= 43%, Lag= 7.3 min
 Discarded = 5.61 cfs @ 12.19 hrs, Volume= 4.027 af
 Primary = 51.96 cfs @ 12.19 hrs, Volume= 2.871 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 51.45' @ 12.19 hrs Surf.Area= 26,780 sf Storage= 67,135 cf

Plug-Flow detention time= 32.1 min calculated for 6.898 af (100% of inflow)
 Center-of-Mass det. time= 31.3 min (796.5 - 765.1)

Volume	Invert	Avail.Storage	Storage Description
#1	47.00'	94,640 cf	Custom Stage Data (Prismatic) Listed below x 2 Inside #2
#2	47.00'	101,400 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			348,140 cf Overall - 94,640 cf Embedded = 253,500 cf x 40.0% Voids
		196,040 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	3,640	0	0
48.00	3,640	3,640	3,640
49.00	3,640	3,640	7,280
50.00	3,640	3,640	10,920
51.00	3,640	3,640	14,560
52.00	3,640	3,640	18,200
52.50	3,640	1,820	20,020
60.00	3,640	27,300	47,320

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	26,780	0	0
48.00	26,780	26,780	26,780
49.00	26,780	26,780	53,560
50.00	26,780	26,780	80,340
51.00	26,780	26,780	107,120
52.00	26,780	26,780	133,900
52.50	26,780	13,390	147,290
60.00	26,780	200,850	348,140

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.00'	8.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	48.50'	30.0" Vert. Orifice/Grate C= 0.600
#3	Primary	48.50'	24.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=5.61 cfs @ 12.19 hrs HW=51.44' (Free Discharge)

└─**1=Exfiltration** (Controls 5.61 cfs)

Primary OutFlow Max=51.85 cfs @ 12.19 hrs HW=51.44' (Free Discharge)

└─**2=Orifice/Grate** (Orifice Controls 30.76 cfs @ 6.27 fps)

└─**3=Orifice/Grate** (Orifice Controls 21.09 cfs @ 6.71 fps)

Appendix C
Stormwater Management Checklist



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
 - Credit 1
 - Credit 2
 - Credit 3
- Use of “country drainage” versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): Re-use of existing on site soil materials.

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does **not** cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
 - Redevelopment Project
 - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - Name of the stormwater management system owners;
 - Party responsible for operation and maintenance;
 - Schedule for implementation of routine and non-routine maintenance tasks;
 - Plan showing the location of all stormwater BMPs maintenance access areas;
 - Description and delineation of public safety features;
 - Estimated operation and maintenance budget; and
 - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

Appendix D

**TSS Removal, BMP Sizing/Performance/NRCS Soils Data, Infiltration
Data**

Tetra Tech Rizzo

Project: Univsersity Station

By: NHC

Date: 10/9/2012

Location: Westwood, MA

Chkd: AFT

Date: 10/9/2012

Watershed Area: **Point of Analysis 1**

	A	B	C	D	E
	BMP	TSS Removal Rate	Starting TSS Load*	Amount Removed (BxC)	Remaining Load (C-D)
TSS Removal Calculation Worksheet	Street Sweeping	0.05	1.00	0.050	0.95
	Deep Sump/Hooded Catchbasins	0.25	0.95	0.238	0.71
	Water Quality Structures	0.50	0.71	0.356	0.36
	Extended Dry Detention Basin with Sediment Forebay	0.50	0.36	0.178	0.18

* Equals remaining load from previous BMP

Total TSS Removal = 82.2%

Source: Volume Two: Massachusetts Stormwater Handbook, Dated January 2009
prepared by MADEP, Section VI Case studies.



Project: University Station
City: Westwood
State: MA

Proj. No: 127-3659-12003
Date: 10/9/2012
Comp: MKM
Check : AFT

Sediment Forebay Volume

Sediment Forebay Volume Required

**Based on MADEP requirement*

Calculation Summary

Required Sediment Forebay Volume

Forebay	Required Runoff Depth (in)	Proposed Impervious Area (AC)	Required Sediment Forebay Volume (CF)	Sediment Forebay Volume Provided (CF)
30F	0.10	19.77	7,177	7,340
52F	0.10	24.88	9,031	9,217
Total			16,208	16,557

Storage Provided

- (1) Total storage volume provided in Sediment Forebay 30F below overflow weir (elev=52.10) = 7,340 CF
- (2) Total storage volume provided in Sediment Forebay 52F below overflow weir (elev=50.75) = 9,217 CF
- (3) Cumulative storage volumes calculated using HydroCAD[®] watershed modeling program.

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Stage-Area-Storage for Pond 30F:

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
49.00	1,520	0	51.65	3,021	5,915
49.05	1,545	77	51.70	3,053	6,067
49.10	1,571	155	51.75	3,085	6,221
49.15	1,596	234	51.80	3,117	6,376
49.20	1,621	314	51.85	3,149	6,532
49.25	1,647	396	51.90	3,182	6,691
49.30	1,672	479	51.95	3,214	6,851
49.35	1,697	563	52.00	3,246	7,012
49.40	1,723	649	52.05	3,282	7,175
49.45	1,748	735	52.10	3,317	7,340
49.50	1,774	823	52.15	3,353	7,507
49.55	1,799	913	52.20	3,388	7,675
49.60	1,824	1,003	52.25	3,424	7,846
49.65	1,850	1,095	52.30	3,460	8,018
49.70	1,875	1,188	52.35	3,495	8,192
49.75	1,900	1,283	52.40	3,531	8,367
49.80	1,926	1,378	52.45	3,566	8,545
49.85	1,951	1,475	52.50	3,602	8,724
49.90	1,976	1,573	52.55	3,638	8,905
49.95	2,002	1,673	52.60	3,673	9,088
50.00	2,027	1,774	52.65	3,709	9,272
50.05	2,056	1,876	52.70	3,744	9,459
50.10	2,085	1,979	52.75	3,780	9,647
50.15	2,113	2,084	52.80	3,816	9,837
50.20	2,142	2,190	52.85	3,851	10,028
50.25	2,171	2,298	52.90	3,887	10,222
50.30	2,199	2,407	52.95	3,922	10,417
50.35	2,228	2,518	53.00	3,958	10,614
50.40	2,257	2,630			
50.45	2,286	2,744			
50.50	2,315	2,859			
50.55	2,343	2,975			
50.60	2,372	3,093			
50.65	2,401	3,213			
50.70	2,430	3,333			
50.75	2,458	3,455			
50.80	2,487	3,579			
50.85	2,516	3,704			
50.90	2,544	3,831			
50.95	2,573	3,959			
51.00	2,602	4,088			
51.05	2,634	4,219			
51.10	2,666	4,351			
51.15	2,699	4,486			
51.20	2,731	4,621			
51.25	2,763	4,759			
51.30	2,795	4,898			
51.35	2,827	5,038			
51.40	2,860	5,180			
51.45	2,892	5,324			
51.50	2,924	5,470			
51.55	2,956	5,617			
51.60	2,988	5,765			

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Stage-Area-Storage for Pond 52F:

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
47.00	1,245	0	47.53	1,555	742
47.01	1,251	12	47.54	1,561	758
47.02	1,257	25	47.55	1,567	773
47.03	1,263	38	47.56	1,573	789
47.04	1,268	50	47.57	1,578	805
47.05	1,274	63	47.58	1,584	820
47.06	1,280	76	47.59	1,590	836
47.07	1,286	89	47.60	1,596	852
47.08	1,292	101	47.61	1,602	868
47.09	1,298	114	47.62	1,608	884
47.10	1,304	127	47.63	1,614	900
47.11	1,309	140	47.64	1,619	917
47.12	1,315	154	47.65	1,625	933
47.13	1,321	167	47.66	1,631	949
47.14	1,327	180	47.67	1,637	965
47.15	1,333	193	47.68	1,643	982
47.16	1,339	207	47.69	1,649	998
47.17	1,344	220	47.70	1,655	1,015
47.18	1,350	234	47.71	1,660	1,031
47.19	1,356	247	47.72	1,666	1,048
47.20	1,362	261	47.73	1,672	1,065
47.21	1,368	274	47.74	1,678	1,081
47.22	1,374	288	47.75	1,684	1,098
47.23	1,380	302	47.76	1,690	1,115
47.24	1,385	316	47.77	1,695	1,132
47.25	1,391	330	47.78	1,701	1,149
47.26	1,397	343	47.79	1,707	1,166
47.27	1,403	357	47.80	1,713	1,183
47.28	1,409	372	47.81	1,719	1,200
47.29	1,415	386	47.82	1,725	1,218
47.30	1,420	400	47.83	1,731	1,235
47.31	1,426	414	47.84	1,736	1,252
47.32	1,432	428	47.85	1,742	1,270
47.33	1,438	443	47.86	1,748	1,287
47.34	1,444	457	47.87	1,754	1,305
47.35	1,450	472	47.88	1,760	1,322
47.36	1,456	486	47.89	1,766	1,340
47.37	1,461	501	47.90	1,771	1,357
47.38	1,467	515	47.91	1,777	1,375
47.39	1,473	530	47.92	1,783	1,393
47.40	1,479	545	47.93	1,789	1,411
47.41	1,485	560	47.94	1,795	1,429
47.42	1,491	574	47.95	1,801	1,447
47.43	1,497	589	47.96	1,807	1,465
47.44	1,502	604	47.97	1,812	1,483
47.45	1,508	619	47.98	1,818	1,501
47.46	1,514	635	47.99	1,824	1,519
47.47	1,520	650	48.00	1,830	1,538
47.48	1,526	665	48.01	1,837	1,556
47.49	1,532	680	48.02	1,843	1,574
47.50	1,538	696	48.03	1,850	1,593
47.51	1,543	711	48.04	1,856	1,611
47.52	1,549	726	48.05	1,863	1,630

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Stage-Area-Storage for Pond 52F: (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
48.06	1,870	1,648	48.59	2,221	2,732
48.07	1,876	1,667	48.60	2,227	2,755
48.08	1,883	1,686	48.61	2,234	2,777
48.09	1,890	1,705	48.62	2,240	2,799
48.10	1,896	1,724	48.63	2,247	2,822
48.11	1,903	1,743	48.64	2,254	2,844
48.12	1,909	1,762	48.65	2,260	2,867
48.13	1,916	1,781	48.66	2,267	2,889
48.14	1,923	1,800	48.67	2,274	2,912
48.15	1,929	1,819	48.68	2,280	2,935
48.16	1,936	1,839	48.69	2,287	2,958
48.17	1,943	1,858	48.70	2,293	2,981
48.18	1,949	1,878	48.71	2,300	3,004
48.19	1,956	1,897	48.72	2,307	3,027
48.20	1,962	1,917	48.73	2,313	3,050
48.21	1,969	1,936	48.74	2,320	3,073
48.22	1,976	1,956	48.75	2,327	3,096
48.23	1,982	1,976	48.76	2,333	3,119
48.24	1,989	1,996	48.77	2,340	3,143
48.25	1,996	2,016	48.78	2,346	3,166
48.26	2,002	2,036	48.79	2,353	3,190
48.27	2,009	2,056	48.80	2,360	3,213
48.28	2,015	2,076	48.81	2,366	3,237
48.29	2,022	2,096	48.82	2,373	3,261
48.30	2,029	2,116	48.83	2,379	3,284
48.31	2,035	2,137	48.84	2,386	3,308
48.32	2,042	2,157	48.85	2,393	3,332
48.33	2,048	2,177	48.86	2,399	3,356
48.34	2,055	2,198	48.87	2,406	3,380
48.35	2,062	2,219	48.88	2,413	3,404
48.36	2,068	2,239	48.89	2,419	3,428
48.37	2,075	2,260	48.90	2,426	3,453
48.38	2,082	2,281	48.91	2,432	3,477
48.39	2,088	2,302	48.92	2,439	3,501
48.40	2,095	2,322	48.93	2,446	3,526
48.41	2,101	2,343	48.94	2,452	3,550
48.42	2,108	2,364	48.95	2,459	3,575
48.43	2,115	2,386	48.96	2,466	3,599
48.44	2,121	2,407	48.97	2,472	3,624
48.45	2,128	2,428	48.98	2,479	3,649
48.46	2,135	2,449	48.99	2,485	3,674
48.47	2,141	2,471	49.00	2,492	3,699
48.48	2,148	2,492	49.01	2,499	3,723
48.49	2,154	2,514	49.02	2,507	3,748
48.50	2,161	2,535	49.03	2,514	3,774
48.51	2,168	2,557	49.04	2,522	3,799
48.52	2,174	2,579	49.05	2,529	3,824
48.53	2,181	2,600	49.06	2,536	3,849
48.54	2,187	2,622	49.07	2,544	3,875
48.55	2,194	2,644	49.08	2,551	3,900
48.56	2,201	2,666	49.09	2,559	3,926
48.57	2,207	2,688	49.10	2,566	3,951
48.58	2,214	2,710	49.11	2,574	3,977

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Stage-Area-Storage for Pond 52F: (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
49.12	2,581	4,003	49.65	2,974	5,475
49.13	2,588	4,029	49.66	2,981	5,505
49.14	2,596	4,055	49.67	2,988	5,534
49.15	2,603	4,081	49.68	2,996	5,564
49.16	2,611	4,107	49.69	3,003	5,594
49.17	2,618	4,133	49.70	3,011	5,624
49.18	2,625	4,159	49.71	3,018	5,655
49.19	2,633	4,185	49.72	3,026	5,685
49.20	2,640	4,212	49.73	3,033	5,715
49.21	2,648	4,238	49.74	3,040	5,745
49.22	2,655	4,265	49.75	3,048	5,776
49.23	2,662	4,291	49.76	3,055	5,806
49.24	2,670	4,318	49.77	3,063	5,837
49.25	2,677	4,345	49.78	3,070	5,868
49.26	2,685	4,371	49.79	3,077	5,898
49.27	2,692	4,398	49.80	3,085	5,929
49.28	2,699	4,425	49.81	3,092	5,960
49.29	2,707	4,452	49.82	3,100	5,991
49.30	2,714	4,479	49.83	3,107	6,022
49.31	2,722	4,507	49.84	3,114	6,053
49.32	2,729	4,534	49.85	3,122	6,084
49.33	2,737	4,561	49.86	3,129	6,116
49.34	2,744	4,589	49.87	3,137	6,147
49.35	2,751	4,616	49.88	3,144	6,178
49.36	2,759	4,644	49.89	3,151	6,210
49.37	2,766	4,671	49.90	3,159	6,241
49.38	2,774	4,699	49.91	3,166	6,273
49.39	2,781	4,727	49.92	3,174	6,305
49.40	2,788	4,755	49.93	3,181	6,337
49.41	2,796	4,783	49.94	3,189	6,368
49.42	2,803	4,810	49.95	3,196	6,400
49.43	2,811	4,839	49.96	3,203	6,432
49.44	2,818	4,867	49.97	3,211	6,464
49.45	2,825	4,895	49.98	3,218	6,496
49.46	2,833	4,923	49.99	3,226	6,529
49.47	2,840	4,952	50.00	3,233	6,561
49.48	2,848	4,980	50.01	3,241	6,593
49.49	2,855	5,009	50.02	3,249	6,626
49.50	2,863	5,037	50.03	3,258	6,658
49.51	2,870	5,066	50.04	3,266	6,691
49.52	2,877	5,095	50.05	3,274	6,724
49.53	2,885	5,123	50.06	3,282	6,756
49.54	2,892	5,152	50.07	3,291	6,789
49.55	2,900	5,181	50.08	3,299	6,822
49.56	2,907	5,210	50.09	3,307	6,855
49.57	2,914	5,239	50.10	3,315	6,888
49.58	2,922	5,268	50.11	3,324	6,922
49.59	2,929	5,298	50.12	3,332	6,955
49.60	2,937	5,327	50.13	3,340	6,988
49.61	2,944	5,356	50.14	3,348	7,022
49.62	2,951	5,386	50.15	3,356	7,055
49.63	2,959	5,416	50.16	3,365	7,089
49.64	2,966	5,445	50.17	3,373	7,123

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Rainfall not specified

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Stage-Area-Storage for Pond 52F: (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
50.18	3,381	7,156	50.71	3,817	9,064
50.19	3,389	7,190	50.72	3,826	9,102
50.20	3,398	7,224	50.73	3,834	9,140
50.21	3,406	7,258	50.74	3,842	9,179
50.22	3,414	7,292	50.75	3,850	9,217
50.23	3,422	7,326	50.76	3,858	9,256
50.24	3,431	7,361	50.77	3,867	9,294
50.25	3,439	7,395	50.78	3,875	9,333
50.26	3,447	7,429	50.79	3,883	9,372
50.27	3,455	7,464	50.80	3,891	9,411
50.28	3,463	7,499	50.81	3,900	9,450
50.29	3,472	7,533	50.82	3,908	9,489
50.30	3,480	7,568	50.83	3,916	9,528
50.31	3,488	7,603	50.84	3,924	9,567
50.32	3,496	7,638	50.85	3,933	9,606
50.33	3,505	7,673	50.86	3,941	9,646
50.34	3,513	7,708	50.87	3,949	9,685
50.35	3,521	7,743	50.88	3,957	9,725
50.36	3,529	7,778	50.89	3,965	9,764
50.37	3,538	7,814	50.90	3,974	9,804
50.38	3,546	7,849	50.91	3,982	9,844
50.39	3,554	7,884	50.92	3,990	9,884
50.40	3,562	7,920	50.93	3,998	9,924
50.41	3,570	7,956	50.94	4,007	9,964
50.42	3,579	7,991	50.95	4,015	10,004
50.43	3,587	8,027	50.96	4,023	10,044
50.44	3,595	8,063	50.97	4,031	10,084
50.45	3,603	8,099	50.98	4,040	10,125
50.46	3,612	8,135	50.99	4,048	10,165
50.47	3,620	8,171	51.00	4,056	10,206
50.48	3,628	8,208			
50.49	3,636	8,244			
50.50	3,645	8,280			
50.51	3,653	8,317			
50.52	3,661	8,353			
50.53	3,669	8,390			
50.54	3,677	8,427			
50.55	3,686	8,464			
50.56	3,694	8,501			
50.57	3,702	8,538			
50.58	3,710	8,575			
50.59	3,719	8,612			
50.60	3,727	8,649			
50.61	3,735	8,686			
50.62	3,743	8,724			
50.63	3,751	8,761			
50.64	3,760	8,799			
50.65	3,768	8,836			
50.66	3,776	8,874			
50.67	3,784	8,912			
50.68	3,793	8,950			
50.69	3,801	8,988			
50.70	3,809	9,026			

Calc. By: NHC
 Chk. By: _____

Date: 5-Oct-12
 Date: _____

**University Station
 Westwood, MA**

Groundwater Recharge Calculations

Required Recharge Volume¹

Rv = F x impervious area

Where: Rv = required recharge volume (acre-feet)

F = target depth factor associated with each hydrologic soil group (inches)

Impervious Area = pavement, gravel and rooftop area on site (acres)

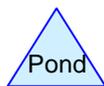
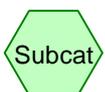
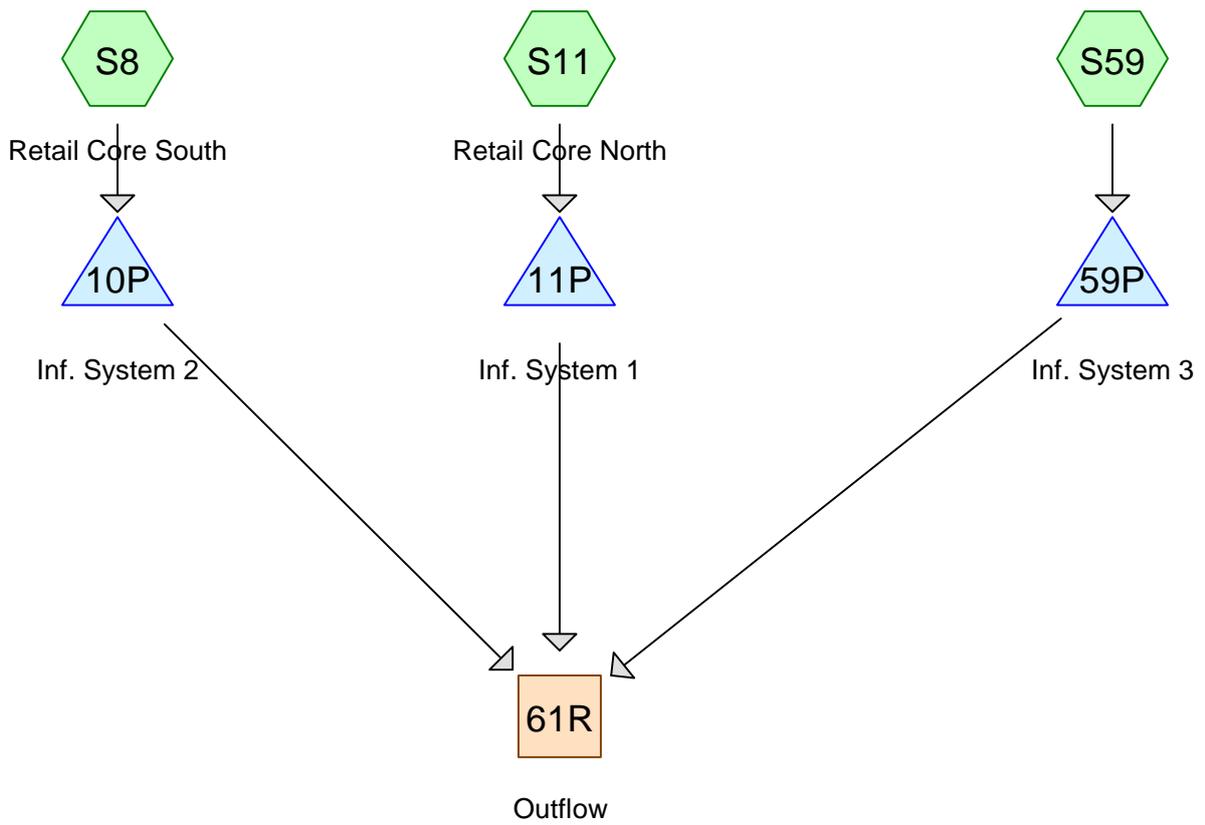
NRCS Hydrologic Soil Type	Approx. Soil Texture	Target Depth Factor (inches)	Impervious Area (acre)	Rv (acre-feet)	Rv (cf)
A	sand	0.60	82.06	4.103	178,727
B	loam	0.35	0.00	0.000	0
C	silty loam	0.25	0.00	0.000	0
D	clay	0.10	0.00	0.000	0
Total =				4.103	178,727

Provided Recharge Volume²

Subsurface Infiltration Basin	Dynamic Recharge Volume (acre-feet)	Dynamic Recharge Volume (cf)
1	1.450	63,162
2	1.509	65,732
3	1.146	49,920
Total =	4.105	178,814

Notes:

- 1.) Refer to Massachusetts Stormwater Handbook Volume 3, Chapter 1, page 15 dated February 2008.
- 2.) Provided recharge volume is based on the Simple Dynamic Method, refer to Massachusetts Stormwater Handbook Volume 3, Chapter 1, page 19 dated February 2008.



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
13.805	98	(S59)
35.644	98	Impervious (S11, S8)
49.450	98	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
49.450	Other	S11, S59, S8
49.450		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	13.805	13.805		S59
0.000	0.000	0.000	0.000	35.644	35.644	Impervious	S11, S8
0.000	0.000	0.000	0.000	49.450	49.450	TOTAL AREA	

3659-12003C-Proposed Conditions Infiltration Basin Type III 24-hr Recharge Rainfall=1.32"

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Time span=6.00-18.00 hrs, dt=0.05 hrs, 241 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S11: Retail Core North Runoff Area=760,713 sf 100.00% Impervious Runoff Depth>1.00"
Tc=5.0 min CN=98 Runoff=21.40 cfs 1.453 af

Subcatchment S59: Runoff Area=601,362 sf 100.00% Impervious Runoff Depth>1.00"
Tc=5.0 min CN=98 Runoff=16.92 cfs 1.149 af

Subcatchment S8: Retail Core South Runoff Area=791,948 sf 100.00% Impervious Runoff Depth>1.00"
Tc=5.0 min CN=98 Runoff=22.28 cfs 1.513 af

Reach 61R: Outflow Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 10P: Inf. System 2 Peak Elev=49.10' Storage=20,985 cf Inflow=22.28 cfs 1.513 af
Discarded=3.62 cfs 1.509 af Primary=0.00 cfs 0.000 af Outflow=3.62 cfs 1.509 af

Pond 11P: Inf. System 1 Peak Elev=48.77' Storage=17,610 cf Inflow=21.40 cfs 1.453 af
Discarded=4.31 cfs 1.450 af Primary=0.00 cfs 0.000 af Outflow=4.31 cfs 1.450 af

Pond 59P: Inf. System 3 Peak Elev=48.08' Storage=16,281 cf Inflow=16.92 cfs 1.149 af
Discarded=2.62 cfs 1.146 af Primary=0.00 cfs 0.000 af Outflow=2.62 cfs 1.146 af

Total Runoff Area = 49.450 ac Runoff Volume = 4.114 af Average Runoff Depth = 1.00"
0.00% Pervious = 0.000 ac 100.00% Impervious = 49.450 ac

Summary for Subcatchment S11: Retail Core North

Runoff = 21.40 cfs @ 12.07 hrs, Volume= 1.453 af, Depth> 1.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-18.00 hrs, dt= 0.05 hrs
 Type III 24-hr Recharge Rainfall=1.32"

Area (sf)	CN	Description
* 760,713	98	Impervious
760,713		100.00% Impervious Area

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

Summary for Subcatchment S59:

Runoff = 16.92 cfs @ 12.07 hrs, Volume= 1.149 af, Depth> 1.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-18.00 hrs, dt= 0.05 hrs
 Type III 24-hr Recharge Rainfall=1.32"

Area (sf)	CN	Description
* 601,362	98	
601,362		100.00% Impervious Area

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

Summary for Subcatchment S8: Retail Core South

Runoff = 22.28 cfs @ 12.07 hrs, Volume= 1.513 af, Depth> 1.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 6.00-18.00 hrs, dt= 0.05 hrs
 Type III 24-hr Recharge Rainfall=1.32"

Area (sf)	CN	Description
* 791,948	98	Impervious
791,948		100.00% Impervious Area

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

Summary for Reach 61R: Outflow

Inflow Area = 49.450 ac, 100.00% Impervious, Inflow Depth = 0.00" for Recharge event
 Inflow = 0.00 cfs @ 6.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 6.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 6.00-18.00 hrs, dt= 0.05 hrs

Summary for Pond 10P: Inf. System 2

Inflow Area = 18.181 ac, 100.00% Impervious, Inflow Depth > 1.00" for Recharge event
 Inflow = 22.28 cfs @ 12.07 hrs, Volume= 1.513 af
 Outflow = 3.62 cfs @ 12.54 hrs, Volume= 1.509 af, Atten= 84%, Lag= 28.3 min
 Discarded = 3.62 cfs @ 12.54 hrs, Volume= 1.509 af
 Primary = 0.00 cfs @ 6.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 6.00-18.00 hrs, dt= 0.05 hrs
 Peak Elev= 49.10' @ 12.54 hrs Surf.Area= 37,000 sf Storage= 20,985 cf

Plug-Flow detention time= 40.3 min calculated for 1.503 af (99% of inflow)
 Center-of-Mass det. time= 39.3 min (778.5 - 739.2)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	45,500 cf	Custom Stage Data (Prismatic) Listed below Inside #2
#2	48.00'	78,000 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			240,500 cf Overall - 45,500 cf Embedded = 195,000 cf x 40.0% Voids
			123,500 cf Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	7,000	0	0
49.00	7,000	7,000	7,000
50.00	7,000	7,000	14,000
51.00	7,000	7,000	21,000
52.00	7,000	7,000	28,000
53.00	7,000	7,000	35,000
54.00	7,000	7,000	42,000
54.50	7,000	3,500	45,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	37,000	0	0
49.00	37,000	37,000	37,000
50.00	37,000	37,000	74,000
51.00	37,000	37,000	111,000
52.00	37,000	37,000	148,000
53.00	37,000	37,000	185,000
54.00	37,000	37,000	222,000
54.50	37,000	18,500	240,500

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.00'	4.130 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.50'	36.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=3.62 cfs @ 12.54 hrs HW=49.10' (Free Discharge)
 ↑1=Exfiltration (Controls 3.62 cfs)

Primary OutFlow Max=0.00 cfs @ 6.00 hrs HW=48.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 11P: Inf. System 1

Inflow Area = 17.464 ac, 100.00% Impervious, Inflow Depth > 1.00" for Recharge event
 Inflow = 21.40 cfs @ 12.07 hrs, Volume= 1.453 af
 Outflow = 4.31 cfs @ 12.49 hrs, Volume= 1.450 af, Atten= 80%, Lag= 25.4 min
 Discarded = 4.31 cfs @ 12.49 hrs, Volume= 1.450 af
 Primary = 0.00 cfs @ 6.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 6.00-18.00 hrs, dt= 0.05 hrs
 Peak Elev= 48.77' @ 12.49 hrs Surf.Area= 44,400 sf Storage= 17,610 cf

Plug-Flow detention time= 26.5 min calculated for 1.444 af (99% of inflow)
 Center-of-Mass det. time= 25.7 min (764.9 - 739.2)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	46,200 cf	Custom Stage Data (Prismatic) Listed below Inside #2
#2	48.00'	79,200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			244,200 cf Overall - 46,200 cf Embedded = 198,000 cf x 40.0% Voids
		125,400 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	8,400	0	0
49.00	8,400	8,400	8,400
50.00	8,400	8,400	16,800
51.00	8,400	8,400	25,200
52.00	8,400	8,400	33,600
53.00	8,400	8,400	42,000
53.50	8,400	4,200	46,200

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	44,400	0	0
49.00	44,400	44,400	44,400
50.00	44,400	44,400	88,800
51.00	44,400	44,400	133,200
52.00	44,400	44,400	177,600
53.00	44,400	44,400	222,000
53.50	44,400	22,200	244,200

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.00'	4.130 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.50'	36.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=4.31 cfs @ 12.49 hrs HW=48.77' (Free Discharge)
 ↑1=Exfiltration (Controls 4.31 cfs)

Primary OutFlow Max=0.00 cfs @ 6.00 hrs HW=48.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 59P: Inf. System 3

Inflow Area = 13.805 ac, 100.00% Impervious, Inflow Depth > 1.00" for Recharge event
 Inflow = 16.92 cfs @ 12.07 hrs, Volume= 1.149 af
 Outflow = 2.62 cfs @ 12.55 hrs, Volume= 1.146 af, Atten= 85%, Lag= 29.0 min
 Discarded = 2.62 cfs @ 12.55 hrs, Volume= 1.146 af
 Primary = 0.00 cfs @ 6.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 6.00-18.00 hrs, dt= 0.05 hrs
 Peak Elev= 48.08' @ 12.55 hrs Surf.Area= 26,780 sf Storage= 16,281 cf

Plug-Flow detention time= 43.4 min calculated for 1.146 af (100% of inflow)
 Center-of-Mass det. time= 42.7 min (781.9 - 739.2)

Volume	Invert	Avail.Storage	Storage Description
#1	47.00'	40,040 cf	Custom Stage Data (Prismatic) Listed below x 2 Inside #2
#2	47.00'	42,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			147,290 cf Overall - 40,040 cf Embedded = 107,250 cf x 40.0% Voids
		82,940 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	3,640	0	0
48.00	3,640	3,640	3,640
49.00	3,640	3,640	7,280
50.00	3,640	3,640	10,920
51.00	3,640	3,640	14,560
52.00	3,640	3,640	18,200
52.50	3,640	1,820	20,020

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	26,780	0	0
48.00	26,780	26,780	26,780
49.00	26,780	26,780	53,560
50.00	26,780	26,780	80,340
51.00	26,780	26,780	107,120
52.00	26,780	26,780	133,900
52.50	26,780	13,390	147,290

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.00'	4.130 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	48.50'	30.0" Vert. Orifice/Grate C= 0.600
#3	Primary	48.50'	24.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=2.62 cfs @ 12.55 hrs HW=48.08' (Free Discharge)
 ↑1=Exfiltration (Controls 2.62 cfs)

Primary OutFlow Max=0.00 cfs @ 6.00 hrs HW=47.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)
 ↑3=Orifice/Grate (Controls 0.00 cfs)

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NRCS

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A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Norfolk and Suffolk Counties, Massachusetts



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://soils.usda.gov/sqi/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

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individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

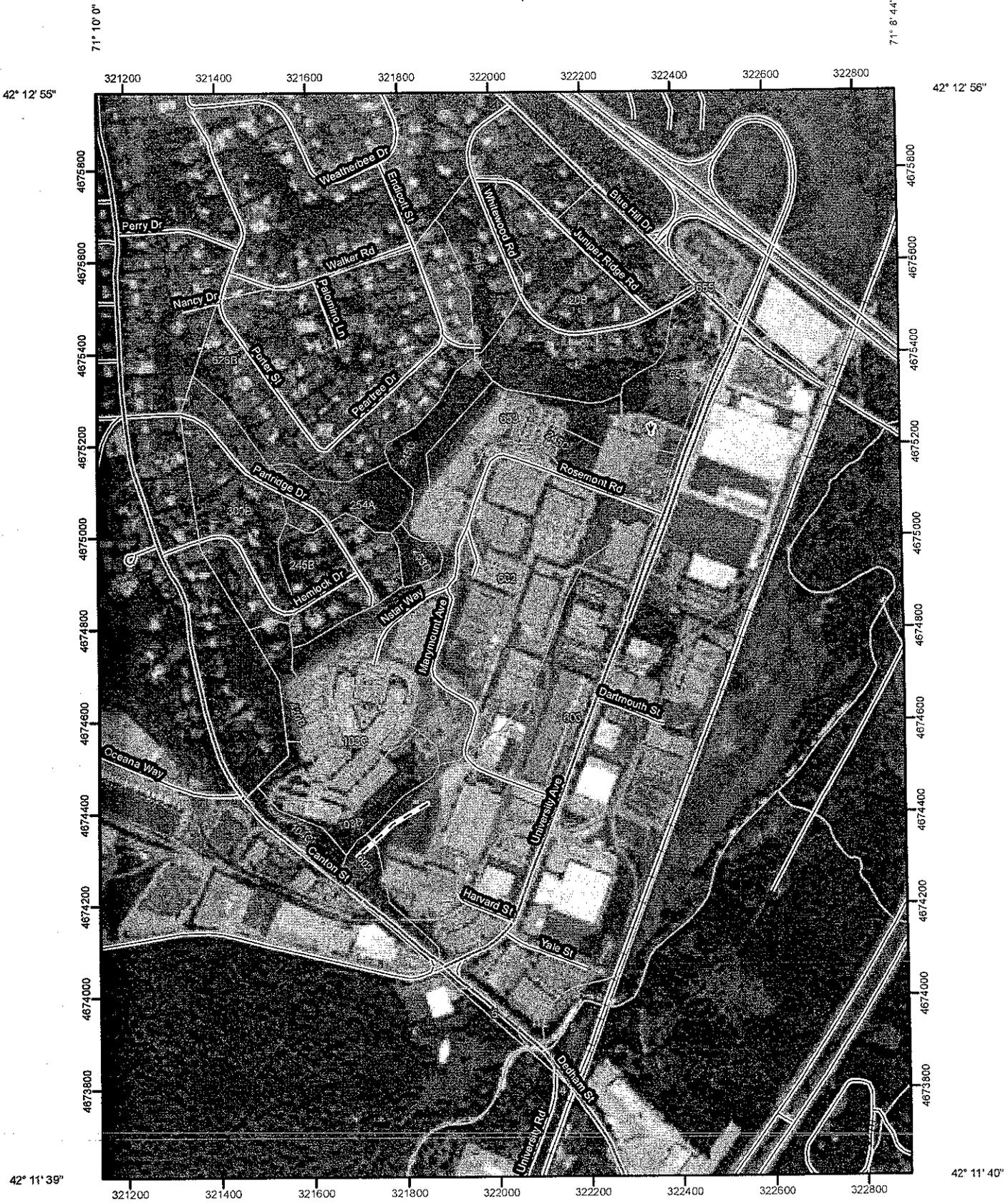
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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Soil Map



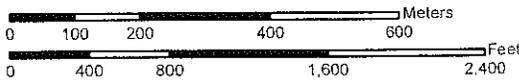
42° 11' 39"

42° 11' 40"

71° 8' 58"



Map Scale: 1:11,300 if printed on A size (8.5" x 11") sheet



71° 8' 42"

MAP INFORMATION

Map Scale: 1:11,300 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 19N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
 Survey Area Data: Version 8, Jul 23, 2010

Date(s) aerial images were photographed: 7/10/2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

MAP LEGEND

- | | | | |
|--|------------------------|------------------------------|---------------------|
| | Area of Interest (AOI) | | Very Stony Spot |
| | Soils | | Wet Spot |
| | Soil Map Units | | Other |
| | Blowout | Special Line Features | |
| | Borrow Pit | | Gully |
| | Clay Spot | | Short Steep Slope |
| | Closed Depression | | Other |
| | Gravel Pit | Political Features | |
| | Gravelly Spot | | Cities |
| | Landfill | Water Features | |
| | Lava Flow | | Streams and Canals |
| | Marsh or swamp | Transportation | |
| | Mine or Quarry | | Rails |
| | Miscellaneous Water | | Interstate Highways |
| | Perennial Water | | US Routes |
| | Rock Outcrop | | Major Roads |
| | Saline Spot | | Local Roads |
| | Sandy Spot | | |
| | Severely Eroded Spot | | |
| | Sinkhole | | |
| | Slide or Slip | | |
| | Sodic Spot | | |
| | Spoil Area | | |
| | Stony Spot | | |

Map Unit Legend

Norfolk and Suffolk Counties, Massachusetts (MA616)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4	Rippowam silt loam, 0 to 3 percent slopes	0.3	0.1%
5	Saco silt loam, 0 to 3 percent slopes	6.6	1.5%
103C	Charlton-Hollis-Rock outcrop complex, 8 to 15 percent slopes	8.5	2.0%
103D	Charlton-Hollis-Rock outcrop complex, 15 to 25 percent slopes	10.6	2.5%
104C	Hollis-Rock outcrop-Charlton complex, 3 to 15 percent slopes	3.4	0.8%
245B	Hinckley sandy loam, 3 to 8 percent slopes	12.5	2.9%
245C	Hinckley sandy loam, 8 to 15 percent slopes	10.1	2.4%
253D	Hinckley loamy sand, 15 to 35 percent slopes	2.2	0.5%
254A	Merrimac fine sandy loam, 0 to 3 percent slopes	7.8	1.8%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	9.4	2.2%
300B	Montauk fine sandy loam, 3 to 8 percent slopes	19.6	4.6%
420B	Canton fine sandy loam, 3 to 8 percent slopes	41.9	9.9%
602	Urban land, 0 to 15 percent slopes	67.4	15.8%
603	Urban land, wet substratum, 0 to 3 percent slopes	148.8	35.0%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	52.8	12.4%
653	Udorthents, sandy	11.1	2.6%
654	Udorthents, loamy	11.8	2.8%
655	Udorthents, wet substratum	0.4	0.1%
Totals for Area of Interest		425.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas

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for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of

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the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Norfolk and Suffolk Counties, Massachusetts

4—Rippowam silt loam, 0 to 3 percent slopes

Map Unit Setting

Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days

Map Unit Composition

Rippowam and similar soils: 80 percent
Minor components: 20 percent

Description of Rippowam

Setting

Landform: Alluvial flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Friable coarse-loamy alluvium over loose sandy alluvium

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 45 inches to strongly contrasting textural stratification
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability (nonirrigated): 4w

Typical profile

0 to 10 inches: Fine sandy loam
10 to 18 inches: Fine sandy loam
18 to 60 inches: Stratified coarse sand to loamy fine sand

Minor Components

Saco

Percent of map unit: 10 percent
Landform: Alluvial flats

Occum

Percent of map unit: 5 percent

Winooski

Percent of map unit: 5 percent

5—Saco silt loam, 0 to 3 percent slopes

Map Unit Setting

Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days

Map Unit Composition

Saco and similar soils: 85 percent
Minor components: 15 percent

Description of Saco

Setting

Landform: Alluvial flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Soft coarse-silty alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 40 to 80 inches to strongly contrasting textural stratification
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water capacity: Very high (about 13.2 inches)

Interpretive groups

Land capability (nonirrigated): 6w

Typical profile

0 to 26 inches: Silt loam
26 to 58 inches: Silt loam
58 to 60 inches: Stratified coarse sand to loamy fine sand

Minor Components

Freetown

Percent of map unit: 5 percent
Landform: Bogs

Rippowam

Percent of map unit: 4 percent
Landform: Alluvial flats

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Swansea

Percent of map unit: 4 percent

Landform: Bogs

Scarboro

Percent of map unit: 2 percent

Landform: Terraces

103C—Charlton-Hollis-Rock outcrop complex, 8 to 15 percent slopes

Map Unit Setting

Mean annual precipitation: 32 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 120 to 240 days

Map Unit Composition

Charlton and similar soils: 47 percent

Hollis and similar soils: 18 percent

Rock outcrop: 10 percent

Minor components: 25 percent

Description of Charlton

Setting

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Friable coarse-loamy ablation till derived from granite

Properties and qualities

Slope: 8 to 15 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 6.00 in/hr)*

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 7.8 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Typical profile

0 to 6 inches: Fine sandy loam

6 to 36 inches: Fine sandy loam

36 to 60 inches: Fine sandy loam

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Description of Hollis

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Shallow, friable loamy ablation till derived from igneous rock

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.8 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Typical profile

0 to 3 inches: Fine sandy loam
3 to 14 inches: Gravelly fine sandy loam
14 to 18 inches: Unweathered bedrock

Description of Rock Outcrop

Setting

Parent material: Igneous and metamorphic rock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability (nonirrigated): 8s

Minor Components

Canton

Percent of map unit: 10 percent

Chatfield

Percent of map unit: 6 percent

Scituate

Percent of map unit: 5 percent

Montauk

Percent of map unit: 2 percent

Whitman

Percent of map unit: 2 percent

Landform: Depressions

103D—Charlton-Hollis-Rock outcrop complex, 15 to 25 percent slopes

Map Unit Setting

Mean annual precipitation: 32 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 120 to 240 days

Map Unit Composition

Charlton and similar soils: 35 percent
Hollis and similar soils: 25 percent
Rock outcrop: 20 percent
Minor components: 20 percent

Description of Charlton

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Friable coarse-loamy ablation till derived from granite

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.8 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Typical profile

0 to 6 inches: Fine sandy loam
6 to 36 inches: Fine sandy loam
36 to 60 inches: Fine sandy loam

Description of Hollis

Setting

Landform: Hills
Landform position (two-dimensional): Backslope

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Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Shallow, friable loamy ablation till derived from igneous rock

Properties and qualities

Slope: 15 to 25 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Very low (about 1.8 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Typical profile

0 to 3 inches: Fine sandy loam

3 to 14 inches: Gravelly fine sandy loam

14 to 18 inches: Unweathered bedrock

Description of Rock Outcrop

Setting

Parent material: Igneous and metamorphic rock

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability (nonirrigated): 8s

Minor Components

Canton

Percent of map unit: 8 percent

Chatfield

Percent of map unit: 8 percent

Montauk

Percent of map unit: 4 percent

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104C—Hollis-Rock outcrop-Charlton complex, 3 to 15 percent slopes

Map Unit Setting

Mean annual precipitation: 32 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 120 to 240 days

Map Unit Composition

Hollis and similar soils: 40 percent
Charlton and similar soils: 25 percent
Rock outcrop: 25 percent
Minor components: 10 percent

Description of Hollis

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Shallow, friable loamy ablation till derived from igneous and metamorphic rock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.8 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Typical profile

0 to 3 inches: Fine sandy loam
3 to 14 inches: Gravelly fine sandy loam
14 to 18 inches: Unweathered bedrock

Description of Rock Outcrop

Setting

Parent material: Igneous and metamorphic rock

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Properties and qualities

Slope: 3 to 15 percent

Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability (nonirrigated): 8s

Description of Charlton

Setting

Landform: Hills

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Friable coarse-loamy ablation till derived from granite

Properties and qualities

Slope: 3 to 15 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 7.8 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Typical profile

0 to 6 inches: Fine sandy loam

6 to 36 inches: Fine sandy loam

36 to 60 inches: Fine sandy loam

Minor Components

Canton

Percent of map unit: 5 percent

Chatfield

Percent of map unit: 5 percent

245B—Hinckley sandy loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 0 to 1,000 feet

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Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days

Map Unit Composition

Hinckley and similar soils: 80 percent
Minor components: 20 percent

Description of Hinckley

Setting

Landform: Outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loose sandy and gravelly glaciofluvial deposits

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.6 inches)

Interpretive groups

Land capability (nonirrigated): 3s

Typical profile

0 to 10 inches: Sandy loam
10 to 14 inches: Gravelly loamy sand
14 to 60 inches: Stratified very gravelly loamy fine sand to cobbly coarse sand

Minor Components

Windsor

Percent of map unit: 10 percent

Merrimac

Percent of map unit: 5 percent

Sudbury

Percent of map unit: 5 percent

245C—Hinckley sandy loam, 8 to 15 percent slopes

Map Unit Setting

Elevation: 0 to 1,000 feet

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Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days

Map Unit Composition

Hinckley and similar soils: 80 percent
Minor components: 20 percent

Description of Hinckley

Setting

Landform: Kame terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loose sandy and gravelly glaciofluvial deposits

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.6 inches)

Interpretive groups

Land capability (nonirrigated): 4s

Typical profile

0 to 10 inches: Sandy loam
10 to 14 inches: Gravelly loamy sand
14 to 60 inches: Stratified very gravelly loamy fine sand to cobbly coarse sand

Minor Components

Merrimac

Percent of map unit: 7 percent

Windsor

Percent of map unit: 7 percent

Canton

Percent of map unit: 4 percent

Sudbury

Percent of map unit: 2 percent

253D—Hinckley loamy sand, 15 to 35 percent slopes

Map Unit Setting

Elevation: 0 to 1,000 feet

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Map Unit Composition

Hinckley and similar soils: 85 percent

Minor components: 15 percent

Description of Hinckley

Setting

Landform: Kames

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Riser

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Loose sandy and gravelly glaciofluvial deposits

Properties and qualities

Slope: 15 to 35 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 3.2 inches)

Interpretive groups

Land capability (nonirrigated): 7s

Typical profile

0 to 10 inches: Loamy sand

10 to 14 inches: Gravelly loamy sand

14 to 60 inches: Stratified very gravelly loamy fine sand to cobbly coarse sand

Minor Components

Windsor

Percent of map unit: 10 percent

Merrimac

Percent of map unit: 5 percent

254A—Merrimac fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days

Map Unit Composition

Merrimac and similar soils: 90 percent
Minor components: 10 percent

Description of Merrimac

Setting

Landform: Outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Friable coarse-loamy eolian deposits over loose sandy glaciofluvial deposits

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 30 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.5 inches)

Interpretive groups

Land capability (nonirrigated): 2s

Typical profile

0 to 19 inches: Fine sandy loam
19 to 23 inches: Gravelly loamy sand
23 to 60 inches: Stratified sand to very gravelly coarse sand

Minor Components

Hinckley

Percent of map unit: 5 percent

Sudbury

Percent of map unit: 3 percent

Udorthents

Percent of map unit: 2 percent

254B—Merrimac fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days

Map Unit Composition

Merrimac and similar soils: 85 percent
Minor components: 15 percent

Description of Merrimac

Setting

Landform: Outwash plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Friable coarse-loamy eolian deposits over loose sandy glaciofluvial deposits

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 30 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.5 inches)

Interpretive groups

Land capability (nonirrigated): 2s

Typical profile

0 to 19 inches: Fine sandy loam
19 to 23 inches: Gravelly loamy sand
23 to 60 inches: Stratified sand to very gravelly coarse sand

Minor Components

Sudbury

Percent of map unit: 8 percent

Hinckley

Percent of map unit: 5 percent

Udorthents

Percent of map unit: 2 percent

300B—Montauk fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days

Map Unit Composition

Montauk and similar soils: 85 percent
Minor components: 15 percent

Description of Montauk

Setting

Landform: Drumlins
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Friable coarse-loamy eolian deposits over dense sandy lodgment till derived from granite and gneiss

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 38 inches to dense material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.02 to 0.06 in/hr)
Depth to water table: About 24 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.2 inches)

Interpretive groups

Land capability (nonirrigated): 2e

Typical profile

0 to 9 inches: Sandy loam
9 to 29 inches: Fine sandy loam
29 to 60 inches: Loamy sand

Minor Components

Canton

Percent of map unit: 7 percent

Paxton

Percent of map unit: 6 percent

Scituate

Percent of map unit: 2 percent

420B—Canton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 0 to 1,000 feet

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Map Unit Composition

Canton and similar soils: 80 percent

Minor components: 20 percent

Description of Canton

Setting

Landform: Ice-contact slopes

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Friable coarse-loamy eolian deposits over loose sandy and gravelly ablation till

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability (nonirrigated): 2e

Typical profile

0 to 3 inches: Fine sandy loam

3 to 18 inches: Fine sandy loam

18 to 60 inches: Gravelly loamy sand

Minor Components

Charlton

Percent of map unit: 5 percent

Merrimac

Percent of map unit: 5 percent

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Montauk

Percent of map unit: 5 percent

Scituate

Percent of map unit: 5 percent

602—Urban land, 0 to 15 percent slopes

Map Unit Setting

Mean annual precipitation: 32 to 50 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 120 to 200 days

Map Unit Composition

Urban land: 99 percent

Minor components: 1 percent

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Rock outcrops

Percent of map unit: 1 percent

603—Urban land, wet substratum, 0 to 3 percent slopes

Map Unit Setting

Mean annual precipitation: 32 to 50 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 120 to 200 days

Map Unit Composition

Urban land: 85 percent

Minor components: 15 percent

Description of Urban Land

Setting

Parent material: Excavated and filled land over herbaceous organic material and/or alluvium and/or marine deposits

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Minor Components

Udorthents

Percent of map unit: 13 percent

Beaches

Percent of map unit: 2 percent

626B—Merrimac-Urban land complex, 0 to 8 percent slopes

Map Unit Setting

Mean annual precipitation: 32 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 120 to 240 days

Map Unit Composition

Merrimac and similar soils: 50 percent

Urban land: 30 percent

Minor components: 20 percent

Description of Merrimac

Setting

Landform: Outwash plains

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Riser

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Friable coarse-loamy eolian deposits over loose sandy glaciofluvial deposits

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 18 to 30 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 3.5 inches)

Interpretive groups

Land capability (nonirrigated): 2s

Typical profile

0 to 19 inches: Fine sandy loam

19 to 23 inches: Gravelly loamy sand

23 to 60 inches: Stratified sand to very gravelly coarse sand

Custom Soil Resource Report

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Windsor

Percent of map unit: 10 percent

Hinckley

Percent of map unit: 7 percent

Sudbury

Percent of map unit: 3 percent

653—Udorthents, sandy

Map Unit Setting

Elevation: 0 to 3,000 feet

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Map Unit Composition

Udorthents and similar soils: 85 percent

Minor components: 15 percent

Description of Udorthents

Setting

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Tread, riser

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Excavated and filled sandy glaciofluvial deposits

Properties and qualities

Slope: 0 to 25 percent

Depth to restrictive feature: More than 80 inches

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Interpretive groups

Land capability (nonirrigated): 6s

Typical profile

0 to 6 inches: Variable

Custom Soil Resource Report

6 to 60 inches: Variable

Minor Components

Udorthents

Percent of map unit: 8 percent

Urban land

Percent of map unit: 5 percent

Swansea

Percent of map unit: 2 percent

Landform: Bogs

654—Udorthents, loamy

Map Unit Setting

Elevation: 0 to 3,000 feet

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Map Unit Composition

Udorthents and similar soils: 80 percent

Minor components: 20 percent

Description of Udorthents

Setting

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Tread, riser

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Excavated and filled coarse-loamy human transported material

Properties and qualities

Slope: 0 to 25 percent

Depth to restrictive feature: More than 80 inches

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Interpretive groups

Land capability (nonirrigated): 6s

Typical profile

0 to 6 inches: Variable

6 to 60 inches: Variable

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Minor Components

Udorthents,sandy

Percent of map unit: 8 percent

Udorthents,wet substr.

Percent of map unit: 8 percent

Urban land

Percent of map unit: 4 percent

655—Udorthents, wet substratum

Map Unit Setting

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Map Unit Composition

Udorthents and similar soils: 95 percent

Minor components: 5 percent

Description of Udorthents

Setting

Landform position (two-dimensional): Foothlope, shoulder

Landform position (three-dimensional): Tread, riser

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Excavated and filled sandy and gravelly human transported material over highly-decomposed herbaceous organic material

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Minor Components

Urban land

Percent of map unit: 3 percent

Ipswich

Percent of map unit: 2 percent

Landform: Marshes

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Appendix E

Long Term Operations and Maintenance Plan

Drainage Operations and Maintenance Plan

**University Station
University Avenue
Westwood, MA**

This long-term Drainage Operations and Maintenance (O&M) Plan shall be implemented at University Station to ensure that the stormwater management system functions as designed. This Operations and Maintenance Plan is intended to cover all on-site drainage structures. The Property Owner, Westwood Marketplace Holdings LLC, possesses the primary responsibility for overseeing and implementing the O&M Plan and designating a person who will be responsible for the proper operation and maintenance of the stormwater structures. In case of transfer of property ownership, future property owners shall be notified of the presence of the stormwater management system and the requirements for proper implementation of the O&M Plan.

O&M Plan Implementation Manager Contact Information:

TBD, Property Manager
Westwood Marketplace Holdings LLC
1 Wells Avenue
Newton, MA 02459

Components of the Operations and Maintenance Plan include:

- Removal of all trash and litter debris from entire site, particularly parking areas, service areas, landscaped areas, wooded areas, drainage basin areas;
- Pavement sweeping of driveways, parking areas and service areas;
- Removal of sediment and pollutants trapped in swales, catch basins, water quality treatment units, sediment forebays and basins;
- Prohibition on high-phosphorous content fertilizers.
- Prohibition on the use of road salt for winter deicing purposes.

Stormwater Runoff Quality

The stormwater management system protects and enhances the stormwater runoff water quality through the removal of sediment and pollutants, and source control significantly reduces the amount of pollutants entering the system. Preventive maintenance of the system will include a comprehensive source reduction program of regular sweeping and litter removal, prohibitions on the use of pesticides, and maintenance of trash areas. These measures are described below.

Drainage System

Stormwater runoff is collected in hooded catch basins with sumps and conveyed via closed drain pipe network to a water quality unit. The units provide water quality treatment by removing large sediment particulate, absorbed pollutants and floating contaminants from runoff prior to discharge to the sediment forebays for further settling of sediment and onto detention or subsurface infiltration basins. Maintenance and cleaning of catch basins, drain manholes, water quality units, forebays and detention and subsurface infiltration basins will assure adequate performance.

Maintenance Program

The Property Manager and maintenance staff will conduct the operation and maintenance program set forth in this document. The Manager will ensure that inspections and record keeping are timely and accurate and that cleaning and maintenance are performed at least on a bi-annual basis. Inspection & Maintenance Log Forms (attached) shall include the date and the amount of the last significant storm event in excess of 1" of rain in a 24-hour period, physical conditions of the structures, depth of sediment in structures, evidence of overtopping or debris blockage and maintenance required of each structure. *Records of maintenance will be kept on file at the Property Manager's office and copies of Inspection & Maintenance Log sheets indicating all work and inspections will be available to the Town upon request.*

All stormwater management structures will be inspected and cleaned two times per year, with cleaning typically occurring in April and October and possibly more often, as site conditions warrant. Concurrent with inspection and cleaning, all litter shall be picked up and removed from the parking areas, service areas, grass, landscaped and wooded areas.

Quarterly Inspections

1. Inspect catch basin inlet grates and remove any debris; inspect catch basin sumps and bottom of drain manholes; if depth of sediment in sumps exceeds 50% capacity, sediment must be removed. Excessive sediment shall be removed and properly disposed by a licensed drainage cleaning company;

Bi-Annual Inspections (performed in April and October)

1. Inspect sediment depth near discharge pipe in basin forebays. If depth of sediment exceeds $\frac{1}{4}$ of pipe diameter, accumulated sediment must be removed. Excessive sediment shall be removed and properly disposed by a licensed drainage cleaning company;
2. Inspect water quality units. Accumulated sediment must be removed if depth of sediment exceeds 15% of the unit's storage capacity during either of the bi-annual inspections and at least once per year;
3. Inspect detention basins and remove wind-blown trash and debris. The

basins, as well as forebays, side slopes and bottom areas shall be mowed twice per year to prevent growth of wetland plant species and maintain their function as stormwater structures. Grass clippings shall be removed from the basin/forebays;

4. Inspect subsurface infiltration systems for standing water. If standing water is observed for longer than 72 hours, a pump should be placed in the basin and discharged through the outlet pipe. After a system is dewatered, it should be observed by a Professional Engineer. A Professional Engineer should provide an opinion as to why the infiltration system is not draining and provide recommendations to restore infiltration capacity to the system. **Note: When the subsurface infiltration systems are first constructed, this inspection should occur after every major storm for the first 3 months. A major storm shall be any storm that produces 1" or more of rain;**
5. Inspect Flared End Sections and remove any litter, sediment or debris;
7. Inspect all vegetated areas and remove litter and debris as necessary;
8. Inspection of trash and recycling enclosures for spillage and scattered litter must be performed on a regular basis to prevent the spread of pollutants into the stormwater management system.
9. Inspect subsurface infiltration systems. Remove accumulated sediment if it exceeds a depth of 4 inches.

Pavement Sweeping Program

Long-term management practices include monthly sweeping of driveways and parking areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilized during rain events and transported to the drainage system. Pavement sweeping is a highly effective source control measure for reducing pollutant loading in stormwater. All sweepings will be disposed of in a legal manner.

Winter Maintenance Program

Ensure that drainage structures are not blocked by ice, snow, debris or trash during winter months. Sand shall be the primary agent used for driveway and parking lot safety during ice and snow conditions. The use of road salt is prohibited by the Order of Conditions and shall not be used on-site. No deicing materials shall be stored on site.

Fertilizer Use

Only slow-release organic low-phosphorous fertilizers will be used in any landscaped areas in order to limit the amount of nutrients that could enter the stormwater system.

Maintenance Schedule

The following is a general maintenance schedule that can be used as a reference by the Property Manager. This schedule includes the maintenance action to be taken and when the action is to occur.

Site Component	Action to be Taken	Timeline for Completion
Catch Basins/Manholes	Quarterly inspections with cleaning, removal of sediments, oils, and floatables	Quarterly
Water Quality Units	Cleaning, removal of sediments, oils, and floatables	April October
Pavement Areas	Sweeping of paved areas, disposal of sweepings in a legal manner; removal of trash and litter from pavement	Monthly
Swales, Forebays, Detention Basins & Landscape Areas	Removal of wind-blown trash and litter from entire property	April October
Subsurface Infiltration Basins	Inspect for accumulated sediment	April October
Subsurface Infiltration Basins	Inspect for standing water for periods in excess of 72 hours.	After each storm greater than 1" for 3 months after construction. Then biannually in April and October
Drainage Flared End Outlets	Removal of trash and sediment from drainage outlets	April October

Illicit Discharge Compliance Statement

Per Standard No. 10 of the MassDEP Stormwater Management Standards, there shall be no illicit discharges to the stormwater management system. The Property Manager is responsible for implementing the Operation and Maintenance Plan and overseeing activities at the facility to prevent illicit discharges to the drainage system from occurring.

It is strictly prohibited to discharge any products or substances onto the ground surface or into any drainage structures, such as catch basin inlets, manholes, water quality units, forebays, basin or drainage outlets.

Should a spill occur, immediate action steps must be implemented to contain the spill, cordon off the area, clean it up immediately and dispose of it properly to prevent an illicit discharge to the stormwater management system.

Drainage Operation and Maintenance Log

Site Maintenance Supervisor: _____ Date: _____

Routine Response to Rainfall Event _____ in Other _____

BMP	Frequency	Date Performed	Comments
Catch Basins and Drain Manholes	Quarterly Inspections		
	Maintenance as necessary		
Water Quality Units	Bi-Annual Inspections		
	Maintenance when 15% storage capacity is reached (min. once/year)		
	Immediate Oil/Hazardous Material Removal		
Pavement Areas (parking, driveways, service areas)	Monthly Sweeping		
	Trash & Litter Removal as necessary		
Landscaped & Vegetated Areas	Maintenance as necessary		
Sediment Forebays	Inspect monthly. Clean when sediment depth reaches ¼ of inlet pipe diameter.		
	Maintenance as necessary		
	Bi-Annual Mowing		
Detention Basins*	Bi-Annual Inspections		
	Bi-Annual Mowing		
Subsurface Infiltration Systems*	Bi-Annual Inspections		

Inspection Form

***Inspect detention basins and subsurface infiltration systems after each 1" rainfall for the first 3 months after construction.**