HANCOCK ASSOCIATES

Stormwater Report

In Support of

A Site Plan Approval Application, Special Permit Application and Notice of Intent Filing

for

Forest Ridge Drive

(Parcel ID # 7-10-5-1 & 7-10-5-8, 7-10-8 and 7-14)

Rowley, MA

Prepared By:
Hancock Associates
#26696

Prepared For:
Gateway II Trust of 1997

May 2023
Revised July 2023

Table of Contents

Appendices

Introduction

Gateway II Trust of 1997 proposes to reduce the length of the existing roadway and construct a new 18,000 S.F. footprint industrial/warehousing building on the subject site on Forest Ridge Drive, Rowley, MA. Associated improvements will include paved vehicular and pedestrian areas, 89 parking spaces, landscaped areas, utility services, and additions to the existing stormwater management system. The project area is currently comprised of undeveloped land but is part of a partially completed industrial park.

The industrial park and drainage system were designed by Meridian Associates, Inc. (hereinafter "Meridian") While the entirety of the industrial park has not been constructed, the Best Management Practice (BMP's) of drainage system have been. The drainage system is comprised of deep sump catch basins and drain manholes connected to sediment forebays and infiltration basins, via a network of pipes. The discharge point for the project currently proposed is an infiltration basin called "Pond 3" in the Stormwater Analysis and Calculations for Forest Ridge (hereinafter "the Stormwater Analysis"), dated January 21, 2000, last revised March 15, 2006, by Meridian. This document was also used as the basis of this design.

The stormwater management system was designed to meet the Stormwater Management Standards described in the Massachusetts Stormwater Handbook. The following report describes how the proposed project remains in compliance with these standards.

July 2023 Revision

This report has been revised based on comments from a Peer Review conducted by H.L Graham Associates. Changes made are comprised of including the Stormwater Analysis by Meridian that references Pond 3 calculations, an annotated Post Development Drainage Plan outlining what has, and has not, been constructed and revised undeveloped areas based on As-Built surveys.

Standard 1: No New Untreated Discharges

The Massachusetts Stormwater Handbook states that no new stormwater conveyances may discharge untreated stormwater directly to or cause erosions in wetlands or waters of the Commonwealth. The existing infiltration basin (Pond 3) provides adequate treatment to meet this Standard.

Standard 2: Peak Rate Attenuation

The Massachusetts Stormwater Handbook states that stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. Infiltration basin Pond 3 is designed to reduce peak rates for the industrial park as a whole. Pond 3 was sized to mitigate runoff from 445,719 square feet of impervious area. The sum of impervious area that is still undeveloped equals 325,562 square feet. The currently proposed project will only consume a net of 35,395 square feet of the undeveloped impervious area. Therefore, following construction of the proposed project, there will only be 155,552 square feet of impervious area draining to Pond 3. Because the sum of impervious area routed to Pond 3 is lower than the area it was originally designed for, peak rates of runoff will be lower than originally designed.

Standard 3: Recharge

The Massachusetts Stormwater Handbook states that loss of annual recharge to groundwater shall be eliminated or minimized. The annual recharge from the post-development site shall approximate the annual recharge from the pre-development conditions based on soil type. Recharge volumes are provided for all of the proposed impervious areas.

The Stormwater Analysis by Meridian outlined the following Groundwater Recharge Calculations for the industrial park. These calculations have been updated to reflect current target depth factors:

Total Groundwater Recharge Required:
336,930 square feet (impervious areas) x 0.05 (A-Soils) = 16,847 cubic feet required
13,440 square feet (impervious areas) x 0.03 (B-Soils) = 392 cubic feet required
426,530 square feet (impervious areas) x 0.02 (C-Soils) = 8,886 cubic feet required
Total Required = 26,125 cubic feet required

Total Groundwater Recharge Provided:
Detention/Infiltration Basin #2 is designed to recharge 24,900 cubic feet of stormwater runoff
Detention/Infiltration Basin #3 is designed to recharge 50,200 cubic feet of stormwater runoff
Detention/Infiltration Basin #100 is designed to recharge 2,145 cubic feet of stormwater runoff
Total Provided = 77,245 cubic feet

The currently proposed project has a negligible change in impervious area from the previously proposed project. The provided recharge volume in Basin #3 (Pond 3) is 50,200 cubic feet and the required site recharge volume for the entire site is 26,125 cubic feet, nearly half of what is provided in Basin #3 alone. Therefore, the provided recharge volume greatly exceeds what is required, even after the currently proposed project is built.

Standard 4: Water Quality

The Massachusetts Stormwater Handbook states that systems shall be designed to remove 80% of the average annual post-development construction load of Total Suspended Solids (TSS). The treatment BMP's have been sized to provide at least 80% TSS removal and measures will be taken for long-term pollution prevention.

Stormwater runoff from impervious will be treated for at least 80% TSS removal via catch basins with deep sumps, sediment forebay and an infiltration basin sized for 1" over the proposed impervious areas. Infiltration Basin Pond 3 was designed to accommodate 1" over 445,719 square feet of impervious area, which equates to 36,844 cubic feet. Pond 3 has a provided storage of 50,200 cubic feet below the rim.

As mentioned previously, the sum of impervious area that is still undeveloped equals 325,562 square feet. The currently proposed project will only consume a net of 35,395 square feet of the undeveloped impervious area. Therefore, following construction of the proposed project, there will only be 155,552 square feet of impervious area draining to Pond 3.

Because the provided water quality volume is greater than the required water quality volume Standard 4 is met.

Standard 5: Land Uses with Higher Potential Pollutant Loads

The proposed project is not a Land Use with Higher Potential Pollutant Load (LUHPPL).

Standard 6: Critical Area

The proposed project is not within a Critical Area.

Standard 7: Redevelopment

The proposed project is not a redevelopment.

Standard 8: Construction Period Pollution Prevention and Erosion & Sedimentation Control

Best management practices (BMP) for erosion and sedimentation control are staked straw bales, filter fences, wattles, hydro seeding, and phased development. Many stormwater BMP technologies (e.g., infiltration technologies) are not designed to handle the high concentrations of sediments typically found in construction runoff and must be protected from construction-related sediment loadings. Construction BMP's **must** be maintained. In developing the proposed project certain measures will be implemented to minimize impacts erosion and sedimentation could have on surrounding areas. This section addresses items that involve proper construction techniques, close surveillance of workmanship, and immediate response to emergency situations. The developer must be prepared to provide whatever reasonable measures are necessary to protect the environment during construction and to stabilize all disturbed areas as soon as construction ends. Construction period pollution prevention and erosion and sediment control shall meet the requirements for the 2022 EPA Construction General Permit for all projects requiring coverage under the CGP.

Pre-Construction

1. The contractor shall have a stockpile of materials required to control erosion on-site to be used to supplement or repair erosion control devices. These materials shall include, but are not limited to straw bales, silt fence, wattles and crushed stone.
2. The contractor is responsible for erosion control on site and shall utilize erosion control measures where needed, regardless of whether the measures are specified on the plan or in the order of conditions.

Preliminary Site Work

1. Excavated materials should be stockpiled, separating the topsoil for future use on the site. Erosion control shall be utilized along the down slope side of the piles and side slopes shall not exceed 2:1.
2. If intense rainfall is anticipated, the installation of supplemental straw bale dikes, silt fences, or armored dikes shall be considered.
3. Unsuitable excavated material shall be removed from the site.
4. Construction entrance shall be installed.
5. Existing catch basins shall be protected with silt sacks.

Ongoing Site Work

1. Erosion control measures shall be regularly inspected and replaced as needed.
2. Dewatering shall be done in a manner so as not to transmit silt, sand or particulate matter to the receiving water or existing drainage system.

Landscaping

1. Landscaping shall occur as soon as possible to provide permanent stabilization of disturbed surfaces.

2. If the season or adverse weather conditions do not allow the establishment of vegetation, temporary mulching with straw, wood chips weighted with snow fence or branches, or other methods shall be provided.
3. A minimum of 4 inches of topsoil shall be placed and its surface smoothed to the specified grades.
4. The use of herbicides is strongly discouraged.
5. Hydro seeding is encouraged for steep slopes. Application rates on slopes greater than 3:1 shall have a minimum seeding rate of 5-lbs/1000 SF. A latex or fiber tackifier shall be used on these slopes at a minimum rate of 50 lbs. of tackifier per 500 gallons of water used.

Standard 9: Operations and Maintenance Plan

The information provided herein is intended to provide the base information for operation and maintenance of the site in perpetuity subject to updates and revisions as required at a future date. As such all future property owners must be notified in writing of this plan and be provided with a copy of this plan, a complete set of the design drawings and/or a completed as-built plan showing all the drainage features as they were constructed, which are considered part of this document. Please see the attached Operations and Maintenance Log (Appendix VII).

Stormwater management system owner: Gateway II Trust of 1997
The party responsible for operation and maintenance: Gateway II Trust of 1997

Preliminary Stormwater Operation and Maintenance Budget
Quarterly Inspection and Maintenance x $2,500 per visit = $10,000 annually

Illicit Discharge - Practices to Minimize Storm Water Contamination

- All waste materials will be collected and stored in a securely lidded metal dumpster.
- All trash and debris from the site will be deposited in the dumpster. The dumpster will be emptied on a regular schedule prior to being over full.
- All personnel will be instructed regarding the correct procedure for waste disposal.
- Good housekeeping and spill control practices will be followed to minimize storm water contamination from petroleum products, paints, and cleaning products.
- All site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.
- Spill kits will be provided with any activity that could provide contamination.
- All paint containers and curing compounds will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewers but will be properly disposed according to the manufacturer's instructions.
- All spills will be cleaned up immediately upon discovery. Spills large enough to reach the storm sewers will be reported to the Massachusetts Department of Environmental Protection Northeast Regional Office at 1-888-304-1133.

Deep Sump Hooded Catch Basins
Inspect deep sump catch basins four times per year including the end of the foliage and snow removal seasons. Sediments must also be removed four times per year or when the depth of deposits is greater than or equal to one half the depth of the sump. Vacuum trucks are to be used to remove trapped sediment and supernatant.

Although catch basin debris often contains concentrations of oil and hazardous materials such as petroleum hydrocarbons and metals, MassDEP classifies them as solid waste. Any contaminated materials must be evaluated in accordance with the Hazardous Waste Regulations, 310 CMR 30.00, and

handled as hazardous waste. MassDEP regulations prohibit landfills from accepting materials that contain free draining liquids.

Infiltration Pond

The infiltration basins shall be inspected in early May and the second half of October. Any accumulated silt, trash, or debris shall be removed from the infiltration basins. Outlet control structures should be cleaned as required for proper function. Note any settlement or erosion around drainage inlets, stabilize any eroded areas. The discharge ponds shall be inspected for stability, erosion, siltation and obstructions. Any obstructions including any woody vegetation in the flow path shall be removed.

Roof Drain Leaders

Routine roof inspections shall be performed two times per year. The roof shall be kept clean and free of debris, and the roof drainage systems shall be kept clear. Gutters and downspouts shall be cleaned at least twice per year, or more frequently as necessary.

Vegetated Areas Maintenance

Although not a structural component of the drainage system, the maintenance of vegetated areas may affect the functioning of stormwater management practices. This includes the health/density of vegetative cover and activities such as the application and disposal of lawn and garden care products, disposal of leaves and yard trimmings.

Initial Post-Construction Inspection

During the initial period of vegetation establishment pruning and weeding are required twice in first year by contractor or owner. Any dead vegetation/plantings found after the first year will be replaced. Proper mulching is mandatory and regular watering may be required initially to ensure proper establishment of new vegetation.

Long-Term Maintenance

The planted areas shall be inspected on a semi-annual basis and any litter removed. Weeds and invasive plant species shall be removed by hand. Maintain planted areas adjacent to pavement to prevent soil washout. Immediately clean any soil deposits on pavement. Leaf litter and other detritus shall be removed twice per year. If needed to maintain aesthetic appearance, perennial plantings may be trimmed at the end of the growing season.

Trees and shrubs shall be inspected twice per year to evaluate health and attended to as necessary. Seeded ground cover or grass areas shall not receive mulching. Re-seed bare areas; install appropriate erosion control measures when native soil is exposed or erosion channels are forming. Plant alternative mixtures of grass species in the event of unsuccessful establishment. The grass vegetation should not be cut to a height less than four inches.

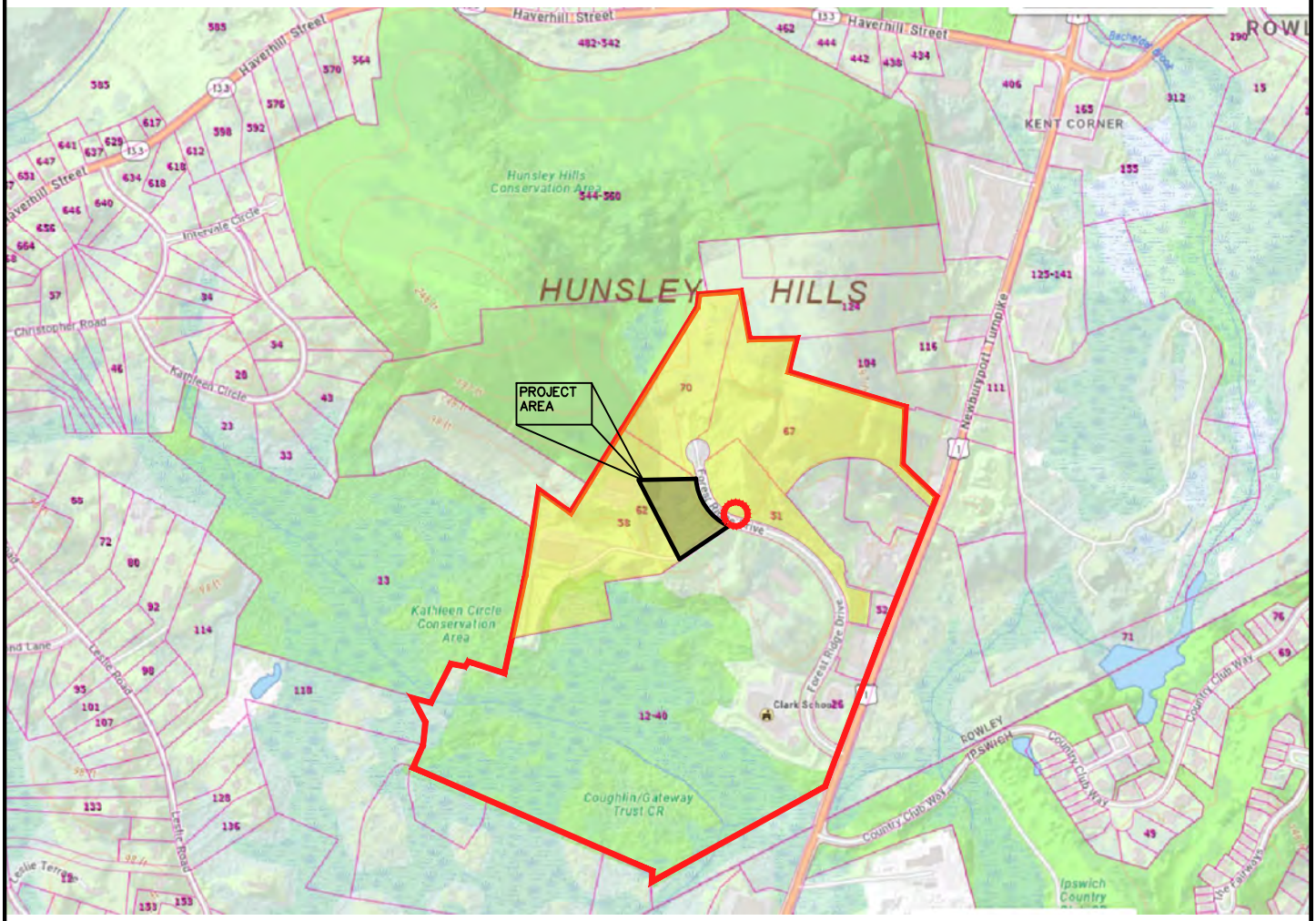
Pesticide/Herbicide Usage

No pesticides are to be used unless a single spot treatment is required for a specific control application.

Standard 10: Prohibition of Illicit Discharges

No illicit discharges currently exist and no future illicit discharges will be allowed including wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, soil, or grease.

Appendix I Locus Map



LOCUS MAP

58–66 FOREST RIDGE DRIVE
ROWLEY, MA 01969

HANCOCK ASSOCIATES
185 CENTRE STREET, DANVERS, MA. 01923
VOICE (978) 777–3050, FAX (978) 774–7816

DATE:	05/27/23
SCALE:	NTS
DESIGN:	CEW
DRAWN:	CFB
LAYOUT:	LOCUS
JOB NO.:	26696

PATH: F:\Civil 3D Projects\26696–Gateway–Rowley\Eng\DWG\ PLOT DATE: May 25, 2023 DWG: 26696psp–upper_ts.dwg

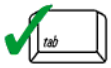
Appendix II Stormwater Checklist

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

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 8[2]
- 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.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

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.

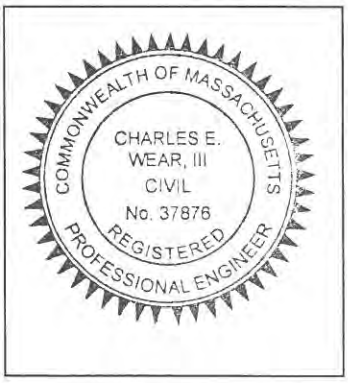
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the 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 5/31/23

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): _____

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 Field[1]

☒ 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 III Operations and Maintenance Log

HANCOCK ASSOCIATES

Forest Ridge Drive

Operations and Maintenance Log

Inspections for Year:_____

Structural Best Management Practice	Action	Date Completed	Completed By	Comments
Deep Sump Hooded Catch Basin– Inspect/clean four times per year. Clean when sump is 50% full.	Inspect/ Clean			
	Inspect/ Clean			
	Inspect/ Clean			
	Inspect/ Clean			
	Inspect/ Clean			
Infiltration Pond and Sediment Forebay– Inspect twice per year. Clean as required	Inspect			
	Inspect			
Roof Drain Leaders – Inspect/clean twice per year.	Inspect/Clean			
	Inspect/Clean			
Vegetated Areas Maintenance – Inspect twice per year. Maintain as required.	Inspect			
	Inspect			

Appendix IV Stormwater Analysis and Calculations (Meridian Associates)

STORMWATER ANALYSIS AND CALCULATIONS
for
FOREST RIDGE
located at
ASSESSOR'S MAP 7, LOTS 7, 8, 9, 10A, 10-2, 10-8-1
ROWLEY, MASSACHUSETTS

Applicant/Owner:

Mr. John Coughlin
Gateway II Trust of 1997
239 Western Avenue
Essex, Massachusetts 01929

Prepared by:

Meridian Associates, Inc.
152 Conant Street
Beverly, Massachusetts 01915
(978) 299-0447

January 21, 2000
(Revised: April 20, 2000)
(Revised: May 24, 2000)
(Revised: October 4, 2005)
(Revised: March 15, 2006)

TABLE OF CONTENTS

CALCULATION METHODS

- TR 20 SCS Unit Hydrograph Procedure
- Runoff Curve Numbers
- Time of Concentration by TR55 Methodology
- Reach and Pond Rating by the Storage-Indication Method
- Manning Equation

SOURCE OF DATA

- Technical Report No. 20
- Technical Report No. 55
- Technical Paper No. 40
- Partial Field survey by MEI

REPORT SUMMARY:

CALCULATION OBJECTIVES:

The purpose of this drainage analysis is to design a stormwater management system that will both; lower pollutant loads in the stormwater runoff before final discharge, and reduce the peak flow of post construction drainage below the existing conditions peak flow at selected design points. Drainage maps have been incorporated into this report to depict existing and proposed watershed areas and subcatchments for the site.

October 4, 2005 Revision

This development was originally approved by the Rowley Planning Board and Conservation Commission in June of 2000. The roadway, utilities and stormwater management system were completed by the summer of 2001. Since then a 20,000 s.f. building with parking and utilities has been constructed on Lot 4. Also, a 15,000 s.f. building with parking and utilities is currently under construction on Lot 4.

The applicant is proposing a more intensive development for the remaining lots. This drainage analysis was prepared to address this more intensive use. For this analysis, pre-development conditions are compared with the final proposed conditions for the entire site. The interim conditions as they exist now were not compared.

March 15, 2006 Revision

Site hydrology was revised to reflect significant reductions in impervious surfaces. The amount of retail space proposed was reduced as well as consideration of actual parking needs for industrial/warehouse facilities, which reduced the number of proposed parking spaces. With the reduction in impervious surfaces, proposed Ponds #4 and #6 were able to be eliminated from the October 4, 2005 revised design. This design was also revised to provide both the rate and volume of runoff closer to pre-conditions. Revisions include adjusting the outlet control structures in the existing stormwater management facilities, as well as redirecting roof runoff from some of the proposed buildings to areas that showed reductions in predicted flows.

SELECTION OF STORM EVENTS:

The storm events have been compiled from the Soil Conservation Service Technical Report No. 55 and the U.S. Department of Commerce Technical Paper No. 40. Rainfall frequency data has been provided as follows:

Frequency (Years)	Rainfall [24 hour event (inches)]
1	2.5"
2	3.1"
10	4.5"
100	6.5"

CLASSIFICATION OF SOILS:

Based on soil testing by MEI and Natural Resource Conservation Service Maps dated May 1984, the existing soil conditions within the limits of the watershed have been categorized as CbC (Canton Very Stony Fine Sandy Loam, 8-15% Slopes), CbD (Canton Very Stony Fine Sandy Loam, 15 to 25% Slopes), De (Deerfield Loamy Fine Sand), HfB (Hinkley Loamy Sand, 3 to 8% Slopes), HfC (Hinkley Loamy Sand, 8 to 15% Slopes), HWE (Hinkley and Windsor Loamy Sands, Steep), MD (Medisaprists, Shallow), PbC (Paxton Very Stony Fine Sandy Loam, 8 to 15% Slopes), PcD (Paxton Extremely Stony Fine Sandy Loam, 15 to 25%), PcE (Paxton Extremely Stony Fine Sandy Loam, 25 to 45% Slopes), Pg (Pits, Gravel), RIB (Ridgebury and Leicester Extremely Stony Fine Sandy Loams, 3 to 8% Slopes), Se (Scarboro Mucky Fine Sandy Loam), WeA (Wareham Loamy Sand, 0 to 3% Slopes), WeB (Wareham Loamy Sand, 3 to 8% Slopes), WhA (Windsor Loamy Sand, 0 to 3% Slopes), WhB (Windsor Loamy Sand, 3 to 8% Slopes), and are a mix between Hydrologic Group A and C, with a small area consisting of Hydrologic Group B (westerly portion of site).

PRE-DEVELOPMENT CONDITIONS OVERVIEW:

The site is located on Newburyport Turnpike (U.S. Route 1) in Rowley, Massachusetts and is depicted on Assessor's map 7 as Lots 9, 10A, 10-2, 10-5, and 10-8. A portion of the site (5.4± ac.) is currently degraded and stripped of top soil/loam due to earlier use as a gravel pit. The remainder of the site is wooded areas in good conditions with gravel paths throughout and wetlands at the low-lying areas of the property. For existing conditions drainage study the site was divided into six (6) drainage areas (to more accurately analyze drainage effects on abutting properties) with corresponding design points as depicted on the pre conditions drainage plan.

Design Points:
(See Pre Development Plans)

Design Point #1: Stormwater from Subcatchment #1 flows overland to the south through wooded areas into a "channel wetland system" and continues to Design Point #1 (wetlands southerly portion of site). Stormwater From Subcatchment #6 is woods, buildings, pavement and grass, which is over land flow through wooded areas and wetland to Design Point #1.

Design Point #2: Stormwater from Subcatchment #2 flows overland through wooded areas to Design Point #2 (existing wetlands northwesterly portion of site).

Design Point #3: Stormwater from Subcatchment #3 flows overland through wooded areas into a "channel wetland system" and then to Design Point #3 (easterly portion of site).

Design Point #4: Stormwater from Subcatchment #4 flows overland through wooded areas to Design Point #4 (easterly portion of site).

Design Point #5: Stormwater from Subcatchment #5 flows overland through wooded areas to Design Point #5 (easterly portion of site).

PROPOSED CONDITIONS OVERVIEW:

This project will include construction of a subdivision, which will consist of retail and industrial buildings totaling about 355,000± S.F. gross floor area, parking lots, subsurface sewage disposal systems, a 2,200' roadway and associated utilities and grading.

The proposed conditions have been divided into 53 subcatchments. Runoff from each subcatchment is collected by catch basins then through underground piping into the constructed wetlands and infiltration basins or flows directly to infiltration basins or to Design Point #10, 20, 30, 40, and 50 which corresponds to Design Point #1, 2, 3, 4, and 5 referenced in the existing conditions above.

DESIGN POINTS:

Design Point 10 (Southerly portion of the Site):

Subcatchment #18, 19, 21-26, 33, 70-74, 77-90, 94 – Stormwater from these subcatchments is overland to catch basins with 4' sumps and underground piping then into sediment trap (Forebay) which will allow solids to settle and then stormwater will flow into Detention/Infiltration Basin #2 and then to Design Point #10.

Subcatchment #11, 12, 13, 14, 16, 17, 36, 37, 39, 41, 42, 43, 44, 45, 46, 47, 48, 49, 51, 61, 62, 63, 64-69 – Stormwater from these subcatchments is overland to catch basins with 4' sumps and underground piping then into sediment trap (Forebay) which will allow solids to settle and then stormwater will flow into Detention/Infiltration Basin #3 and then to Design Point #10.

Subcatchment 28, 29, 31, 32, 34, 59, 60, 91, 92 – Stormwater from these subcatchments will flow overland into catch basins with 4' sumps then it is piped to Constructed Wetland Basin #1 once solids settle the stormwater will be released through a 4" perforated PVC riser to Design Point #10.

Subcatchment #35 – Overland flow from proposed development on Lot 4 (building and parking lot) and grass and wooded areas to Detention/Infiltration Basin #3 then to Design Point #10.

Subcatchment #10 – Overland flow from wooded, wetland, and grass areas which flows to Design Point #10.

Design Point #20:

Stormwater from Subcatchment #20 flows overland through wooded areas to Design Point #20 (existing wetlands northwesterly portion of site).

Design Point #30:

Stormwater from Subcatchment #30 flows overland through wooded areas into a "channel wetland system" and then to Design Point #30 (easterly portion of site).

Design Point #40:

Stormwater from Subcatchment #40 flows overland through wooded areas to Design Point #40 (easterly portion of site).

Design Point #50:

Stormwater from Subcatchment #50 flows overland through wooded areas to Design Point #50 (easterly portion of site).

STORMWATER MANAGEMENT FACILITIES:

Detention Basin #1 (Constructed Wetland Basin):

Detention Basin #1 will have a storage capacity of 4,815 C.F. (100-year storm event) and includes a 4" perforated PVC riser for the outlet of stormwater and a 15' wide broad crested weir (see pond detail on detail sheet). The basin is designed to contain, treat the first 1" of runoff from impervious surfaces, which drain to this basin, and to assist in mitigation for potential increase in the rates of runoff for the 1, 2, 10, and 100-year storm events.

PERFORMANCE OF STORMWATER MANAGEMENT FACILITIES

Constructed Wetland Basin #1

Bottom Elevation: = 61.8
Top Elevation: = 64.0

Storm Event	Peak InFlow (CFS)	Peak Outflow (CFS)	Peak Storage (CF)	Peak Elevation (FT)
1-Year	1.4	0.0	3,521	63.0
2-Year	1.9	0.0	3,758	63.1
10-Year	3.6	0.1	4,322	63.2
100-Year	6.3	0.1	4,819	63.4

Detention Basin #2 (Infiltration Basin):

Detention Basin #2 will have a storage capacity of 59,838 C.F. (100-year storm) and includes an outlet control structure with a 1' x 5' orifice and trash rack (see outlet structure detail on detail sheet). The orifice is set at an elevation to contain, treat and recharge the first 1" of runoff from impervious surfaces flowing to this basin. The detention basin is designed to mitigate for potential increase in the rates of runoff for the 1, 2, 10, and 100-year storm events. Pretreatment includes deep sump catch basins and a sediment forebay.

Detention/Infiltration Basin #2

Bottom Elevation: = 66.5
Top Elevation: = 70.0

Storm Event	Peak InFlow (CFS)	Peak Outflow (CFS)	Peak Storage (CF)	Peak Elevation (FT)
1-Year	8.9	0.0	6,273	66.8
2-Year	13.0	0.0	12,508	67.1
10-Year	24.0	0.5	31,142	68.0
100-Year	38.5	2.5	59,838	69.0

Detention Basin #3 (Infiltration Basin):

Detention Basin #3 will have a storage capacity of 88,685 C.F. (100-year storm) and includes an outlet control structure with a 5' x 1.2' orifice and trash rack (see outlet structure detail on detail sheet). The orifice is set at an elevation to contain, treat and recharge the first 1" of runoff from impervious surfaces that flow to this basin. The detention basin is designed to mitigate for potential increase in the rates of runoff for the 1, 2, 10, and 100-year storm events. Pretreatment includes deep sump catch basins and a sediment forebay.

Detention/Infiltration Basin #3

Bottom Elevation: = 69.5
Top Elevation: = 73.0

Storm Event	Peak InFlow (CFS)	Peak Outflow (CFS)	Peak Storage (CF)	Peak Elevation (FT)
1-Year	18.8	0.0	20,817	70.1
2-Year	25.4	0.0	32,708	70.4
10-Year	41.3	2.4	60,762	71.1
100-Year	64.4	15.7	88,685	71.8

Detention/Infiltration Basin #100 (Infiltration Basin):

Detention Basin #100 is comprised of Cultec Recharger 330 infiltration chambers. It will have a storage capacity of 2,674 C.F. (100-year storm) and includes 6-4" outlets. This basin is designed to mitigate for potential increase in the rates of runoff for the 1, 2, 10, and 100-year storm events. Pretreatment will include deep sump catch basins and a stormceptor unit.

Detention/Infiltration Basin #100

Bottom Elevation: = 63.2
Top Elevation: = 66.2

Storm Event	Peak InFlow (CFS)	Peak Outflow (CFS)	Peak Storage (CF)	Peak Elevation (FT)
1-Year	0.7	0.0	149	63.7
2-Year	1.0	0.0	414	63.9
10-Year	1.7	0.0	1,301	64.6
100-Year	2.6	0.3	2,674	66.0

SUMMARY OF PEAK RATE RUNOFFS:

The table below outlines what the predicted peak stormwater flows from the site, comparing the existing with the proposed condition.

	Design Point #1/10	Design Point #2/20	Design Point #3/30	Design Point #4/40	Design Point #5/50
1-Year: Existing	.7 CFS	1.6 CFS	1.6 CFS	0	0
Proposed	.1 CFS	1.5 CFS	1.4 CFS	0	0
2-Year: Existing	3.7 CFS	3.0 CFS	3.7 CFS	0	0
Proposed	0.9 CFS	2.8 CFS	2.9 CFS	0	0
10-Year: Existing	19.2 CFS	7.0 CFS	10.9 CFS	0	0
Proposed	7.8 CFS	6.5 CFS	7.4 CFS	0	0
100-Year: Existing	55.1 CFS	13.6 CFS	23.7 CFS	0	.6 CFS
Proposed	34.5 CFS	12.6 CFS	15.2 CFS	0	0

SUMMARY OF PEAK VOLUME RUNOFF:

The table below illustrates what the predicted stormwater volume from the site will be comparing the existing with the proposed conditions.

	Design Point #1/10	Design Point #2/20	Design Point #3/30	Design Point #4/40	Design Point #5/50
1-Year: Existing	.4 AF	.2 AF	.3 AF	0	0
Proposed	.1 AF	0.2 AF	0.2 AF	0	0
2-Year: Existing	.9 AF	.3 AF	.5 AF	0	0
Proposed	0.3 AF	0.3 AF	0.3 AF	0	0
10-Year: Existing	2.8 AF	0.7 AF	1.2 AF	0	0
Proposed	1.4 AF	0.7 AF	0.8 AF	0	0
100-Year: Existing	6.7 AF	1.3 AF	2.5 AF	0	0.1 AF
Proposed	5.0 AF	1.2 AF	1.6 AF	0	0

STORMWATER MANAGEMENT (BMP'S):

The Department of Environmental Protection's Stormwater Management Policy requires mitigation not only for stormwater quantity (as discussed above) but also to stormwater quality. This policy requires removal of a minimum of 80% of Total Suspended Solids (TSS). To achieve the standards required by the policy, a number of Best Management Practices (BMP's) have been incorporated into the design of this project. These BMP's will remove the required 80% Total Suspended Solids (TSS) that would typically be found in the stormwater runoff from the proposed project. The removal of TSS mitigates potential impacts to the stormwater quality. The proposed BMP's are as follows:

Deep Sump Catch Basins

Similar to an ordinary catch basin but fitted with a PVC "T" outlet to promote separation of floatables such as oil, grease, trash and debris, they also have a four foot deep sump that acts as a small retention system and promotes the settling of suspended solids. A TSS removal rate of 25% is achieved by this BMP.

Sediment Trap (Forebay)

The sediment traps (forebays) are constructed basins designed to temporarily hold stormwater runoff and settle suspended solids. The TSS Removal Rate for this BMP is 25%.

Detention/Infiltration Basin

This BMP is included in the design in order to meet the groundwater recharge and stormwater treatment requirement of the Stormwater Management Policy. The TSS removal rate for this BMP is 80%.

Constructed Stormwater Wetland Basin

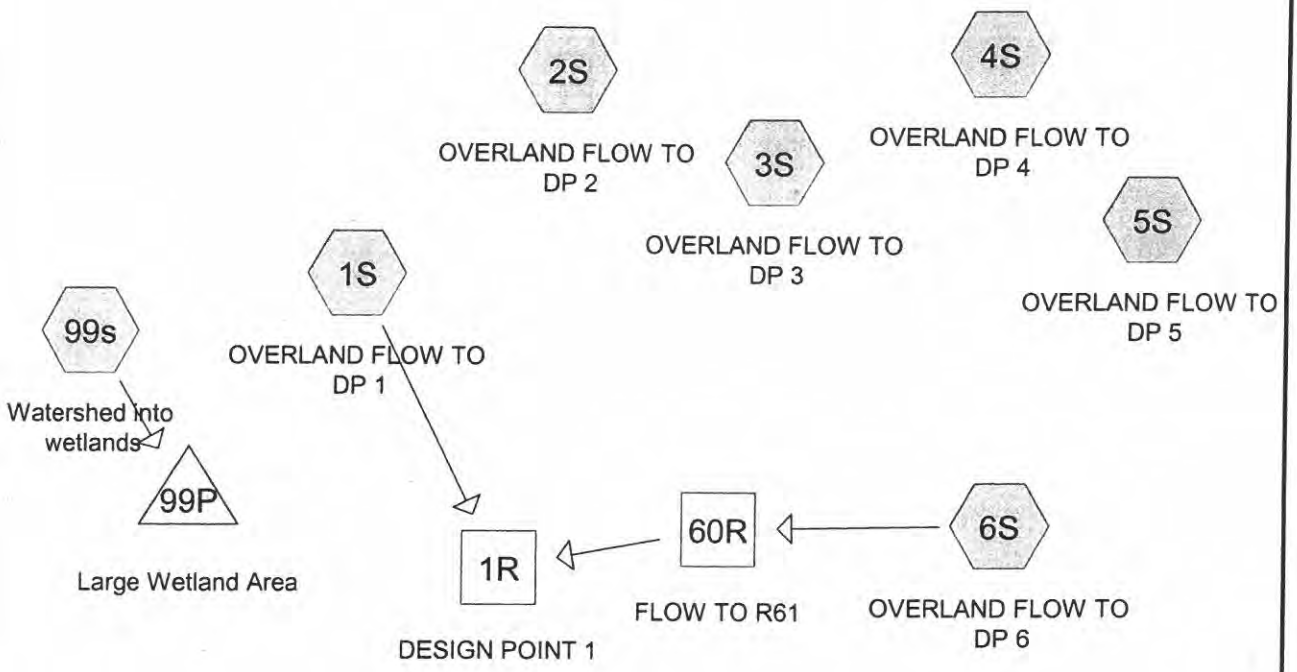
This BMP is included in the design in order to meet the stormwater treatment requirement of the Stormwater Management Policy and to reduce peak flows. The TSS removal rate for this BMP is 80%.

CONCLUSION:

The calculations indicate a decrease in the rate of runoff, as well as a reduction in runoff volume for the 2-year, 10-year and 100-year 24-hour storm events. From this, together with use of a TSS Removal Rate greater than 80% utilizing the BMP's described above, it can be predicted that the construction of the project will result in no adverse impacts to the stormwater quantity or quality flowing from the site.

EXISTING CONDITIONS

WATERSHED ROUTING DIAGRAM



Subcat Reach Pond Link

Drainage Diagram for 3250 pre conditions rev 4-18-00
Prepared by Meridian Engineering, Inc. 3/14/2006

EXISTING CONDITIONS
1-YEAR 24-HOUR STORM EVENT ANALYSIS

Subcatchment 1S: OVERLAND FLOW TO DP 1

Runoff = 0.4 cfs @ 13.94 hrs, Volume= 0.27 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
16.330	30	WOODS GOOD COND GROUP A
2.670	55	WOODS GOOD COND GROUP B
14.320	70	WOODS GOOD COND GROUP C
0.460	76	GRAVEL PATH GROUP A
0.250	89	GRAVEL PATH GROUP C
0.310	98	RTE 1/HSE/DRIVE
0.740	98	WETLANDS
3.810	86	STRIPPED
38.890	55	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	100	0.0200	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.8	333	0.1800	6.8		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.1	805	0.0630	11.7	385.02	**Channel Flow, CHANNEL FLOW THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
23.7	1,238	Total			

Subcatchment 2S: OVERLAND FLOW TO DP 2

Runoff = 1.6 cfs @ 12.26 hrs, Volume= 0.20 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.040	98	WETLANDS
3.870	70	WOODS GOOD COND GROUP C
0.800	74	GRASS GOOD COND GROUP C
0.150	89	GRAVEL PATH GROUP C
4.860	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.6	583	0.1370	6.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
16.7	683	Total			

Subcatchment 3S: OVERLAND FLOW TO DP 3

Runoff = 1.6 cfs @ 12.39 hrs, Volume= 0.27 af, Depth= 0.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
7.600	70	WOODS GOOD COND GROUP C
0.680	74	GRASS GOOD COND GROUP C
0.210	89	GRAVEL PATH GROUP C
0.410	98	WETLANDS
1.850	30	WOODS GOOD COND GROUP A
0.170	76	GRAVEL PATH GROUP A
10.920	65	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.9	615	0.1070	5.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.4	838	0.0480	10.2	336.08	**Channel Flow, CHANNEL FLOW THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
18.4	1,553	Total			

Subcatchment 4S: OVERLAND FLOW TO DP 4

Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.200	39	GRASS/FIELD GROUP A
0.310	30	WOODS GOOD COND GROUP A
0.510	34	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	65	0.2000	7.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
9.3	165	Total			

Subcatchment 5S: OVERLAND FLOW TO DP 5

Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
1.470	39	GRASS/FIELD GROUP A
0.150	76	GRAVEL PATH GROUP A
1.050	30	WOODS GOOD COND GROUP A
2.670	38	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1200	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	490	0.0780	4.5		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
12.5	590	Total			

Subcatchment 6S: OVERLAND FLOW TO DP 6

Runoff = 0.5 cfs @ 12.36 hrs, Volume= 0.09 af, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.050	89	GRAVEL PATH GROUP C
0.200	76	GRAVEL PATH/DRIVE GROUP A
1.660	86	STRIPPED AREAS
0.290	39	GRASS GOOD COND GROUP A
1.270	30	WOODS GROUP A
0.330	98	EXIST. DWELLING/PAVE/RTE 1
3.800	64	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0800	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	414	0.1100	5.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.9	170	0.0050	3.1	56.35	**Channel Flow, Segment ID:** Area= 18.0 sf Perim= 21.3' r= 0.85' n= 0.030
14.7	684	Total			

Subcatchment 99s: Watershed into wetlands

Runoff = 53.7 cfs @ 12.92 hrs, Volume= 14.40 af, Depth= 0.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
580.730	65	average area & CN (see worksheet)

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
10.8	740	0.0050	1.1		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
26.9	5,300	0.0050	3.3	108.47	**Channel Flow,** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
52.8	6,140	Total			

Reach 1R: DESIGN POINT 1

Inflow Area = 42.690 ac, Inflow Depth = 0.10" for 1-yr event
Inflow = 0.7 cfs @ 12.81 hrs, Volume= 0.35 af
Outflow = 0.7 cfs @ 12.81 hrs, Volume= 0.35 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.7 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.9 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.13' @ 12.81 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 60R: FLOW TO R61

Inflow Area = 3.800 ac, Inflow Depth = 0.27" for 1-yr event
Inflow = 0.5 cfs @ 12.36 hrs, Volume= 0.09 af
Outflow = 0.4 cfs @ 12.71 hrs, Volume= 0.09 af, Atten= 14%, Lag= 21.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.5 fps, Min. Travel Time= 11.6 min
Avg. Velocity = 0.2 fps, Avg. Travel Time= 25.5 min

Peak Depth= 0.05' @ 12.52 hrs
Capacity at bank full= 56.3 cfs
15.00' x 1.00' deep channel, n= 0.030 Length= 350.0' Slope= 0.0050 '/'
Side Slope Z-value= 3.0 '/'

Pond 99P: Large Wetland Area

Inflow Area = 580.730 ac, Inflow Depth = 0.30" for 1-yr event
Inflow = 53.7 cfs @ 12.92 hrs, Volume= 14.40 af
Outflow = 23.0 cfs @ 14.44 hrs, Volume= 14.40 af, Atten= 57%, Lag= 91.2 min
Primary = 23.0 cfs @ 14.44 hrs, Volume= 14.40 af
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 60.48' @ 14.44 hrs Surf.Area= 2.887 ac Storage= 2.89 af
Plug-Flow detention time= 57.8 min calculated for 14.40 af (100% of inflow)
Center-of-Mass det. time= 57.6 min (1,024.7 - 967.0)

#	Invert	Avail.Storage	Storage Description
1	59.00'	342.56 af	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
59.00	0.020	0.00	0.00
60.00	0.200	0.11	0.11
62.00	11.500	11.70	11.81
64.00	126.000	137.50	149.31
65.00	130.000	128.00	277.31
65.50	131.000	65.25	342.56

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**4.00' x 3.00' Vert. Orifice/Grate** C= 0.600
2	Secondary	65.00'	**170.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=23.0 cfs @ 14.44 hrs HW=60.48' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 23.0 cfs @ 3.9 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=59.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

EXISTING CONDITIONS
2-YEAR 24-HOUR STORM EVENT ANALYSIS

Subcatchment 1S: OVERLAND FLOW TO DP 1

Runoff = 2.6 cfs @ 12.59 hrs, Volume= 0.72 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
16.330	30	WOODS GOOD COND GROUP A
2.670	55	WOODS GOOD COND GROUP B
14.320	70	WOODS GOOD COND GROUP C
0.460	76	GRAVEL PATH GROUP A
0.250	89	GRAVEL PATH GROUP C
0.310	98	RTE 1/HSE/DRIVE
0.740	98	WETLANDS
3.810	86	STRIPPED
38.890	55	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	100	0.0200	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.8	333	0.1800	6.8		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.1	805	0.0630	11.7	385.02	**Channel Flow, CHANNEL FLOW THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
23.7	1,238	Total			

Subcatchment 2S: OVERLAND FLOW TO DP 2

Runoff = 3.0 cfs @ 12.24 hrs, Volume= 0.33 af, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.040	98	WETLANDS
3.870	70	WOODS GOOD COND GROUP C
0.800	74	GRASS GOOD COND GROUP C
0.150	89	GRAVEL PATH GROUP C
4.860	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.6	583	0.1370	6.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
16.7	683	Total			

Subcatchment 3S: OVERLAND FLOW TO DP 3

Runoff = 3.7 cfs @ 12.30 hrs, Volume= 0.50 af, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
7.600	70	WOODS GOOD COND GROUP C
0.680	74	GRASS GOOD COND GROUP C
0.210	89	GRAVEL PATH GROUP C
0.410	98	WETLANDS
1.850	30	WOODS GOOD COND GROUP A
0.170	76	GRAVEL PATH GROUP A
10.920	65	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.9	615	0.1070	5.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.4	838	0.0480	10.2	336.08	**Channel Flow, CHANNEL FLOW THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
18.4	1,553	Total			

Subcatchment 4S: OVERLAND FLOW TO DP 4

Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.200	39	GRASS/FIELD GROUP A
0.310	30	WOODS GOOD COND GROUP A
0.510	34	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	65	0.2000	7.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
9.3	165	Total			

Subcatchment 5S: OVERLAND FLOW TO DP 5

Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
1.470	39	GRASS/FIELD GROUP A
0.150	76	GRAVEL PATH GROUP A
1.050	30	WOODS GOOD COND GROUP A
2.670	38	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1200	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	490	0.0780	4.5		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
12.5	590	Total			

Subcatchment 6S: OVERLAND FLOW TO DP 6

Runoff = 1.2 cfs @ 12.24 hrs, Volume= 0.16 af, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.050	89	GRAVEL PATH GROUP C
0.200	76	GRAVEL PATH/DRIVE GROUP A
1.660	86	STRIPPED AREAS
0.290	39	GRASS GOOD COND GROUP A
1.270	30	WOODS GROUP A
0.330	98	EXIST. DWELLING/PAVE/RTE 1
3.800	64	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0800	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	414	0.1100	5.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.9	170	0.0050	3.1	56.35	**Channel Flow, Segment ID:** Area= 18.0 sf Perim= 21.3' r= 0.85' n= 0.030
14.7	684	Total			

Subcatchment 99s: Watershed into wetlands

Runoff = 123.5 cfs @ 12.83 hrs, Volume= 26.74 af, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
580.730	65	average area & CN (see worksheet)

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
10.8	740	0.0050	1.1		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
26.9	5,300	0.0050	3.3	108.47	**Channel Flow,** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
52.8	6,140	Total			

Reach 1R: DESIGN POINT 1

Inflow Area = 42.690 ac, Inflow Depth = 0.25" for 2-yr event
Inflow = 3.7 cfs @ 12.57 hrs, Volume= 0.88 af
Outflow = 3.7 cfs @ 12.57 hrs, Volume= 0.88 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.5 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.30' @ 12.57 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 60R: FLOW TO R61

Inflow Area = 3.800 ac, Inflow Depth = 0.51" for 2-yr event
Inflow = 1.2 cfs @ 12.24 hrs, Volume= 0.16 af
Outflow = 1.1 cfs @ 12.51 hrs, Volume= 0.16 af, Atten= 11%, Lag= 16.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.7 fps, Min. Travel Time= 7.9 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 21.4 min

Peak Depth= 0.10' @ 12.37 hrs
Capacity at bank full= 56.3 cfs
15.00' x 1.00' deep channel, n= 0.030 Length= 350.0' Slope= 0.0050 '/'
Side Slope Z-value= 3.0 '/'

Pond 99P: Large Wetland Area

Inflow Area = 580.730 ac, Inflow Depth = 0.55" for 2-yr event
Inflow = 123.5 cfs @ 12.83 hrs, Volume= 26.74 af
Outflow = 43.5 cfs @ 14.22 hrs, Volume= 26.74 af, Atten= 65%, Lag= 83.2 min
Primary = 43.5 cfs @ 14.22 hrs, Volume= 26.74 af
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 61.26' @ 14.22 hrs Surf.Area= 7.301 ac Storage= 7.46 af
Plug-Flow detention time= 96.9 min calculated for 26.74 af (100% of inflow)
Center-of-Mass det. time= 96.8 min (1,037.2 - 940.5)

#	Invert	Avail.Storage	Storage Description
1	59.00'	342.56 af	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
59.00	0.020	0.00	0.00
60.00	0.200	0.11	0.11
62.00	11.500	11.70	11.81
64.00	126.000	137.50	149.31
65.00	130.000	128.00	277.31
65.50	131.000	65.25	342.56

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**4.00' x 3.00' Vert. Orifice/Grate** C= 0.600
2	Secondary	65.00'	**170.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=43.5 cfs @ 14.22 hrs HW=61.26' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 43.5 cfs @ 4.8 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=59.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

EXISTING CONDITIONS
10-YEAR 24-HOUR STORM EVENT ANALYSIS

Subcatchment 1S: OVERLAND FLOW TO DP 1

Runoff = 15.7 cfs @ 12.41 hrs, Volume= 2.41 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
16.330	30	WOODS GOOD COND GROUP A
2.670	55	WOODS GOOD COND GROUP B
14.320	70	WOODS GOOD COND GROUP C
0.460	76	GRAVEL PATH GROUP A
0.250	89	GRAVEL PATH GROUP C
0.310	98	RTE 1/HSE/DRIVE
0.740	98	WETLANDS
3.810	86	STRIPPED
38.890	55	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	100	0.0200	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.8	333	0.1800	6.8		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.1	805	0.0630	11.7	385.02	**Channel Flow, CHANNEL FLOW THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
23.7	1,238	Total			

Subcatchment 2S: OVERLAND FLOW TO DP 2

Runoff = 7.0 cfs @ 12.22 hrs, Volume= 0.71 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.040	98	WETLANDS
3.870	70	WOODS GOOD COND GROUP C
0.800	74	GRASS GOOD COND GROUP C
0.150	89	GRAVEL PATH GROUP C
4.860	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.6	583	0.1370	6.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
16.7	683	Total			

Subcatchment 3S: OVERLAND FLOW TO DP 3

Runoff = 10.9 cfs @ 12.26 hrs, Volume= 1.21 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
7.600	70	WOODS GOOD COND GROUP C
0.680	74	GRASS GOOD COND GROUP C
0.210	89	GRAVEL PATH GROUP C
0.410	98	WETLANDS
1.850	30	WOODS GOOD COND GROUP A
0.170	76	GRAVEL PATH GROUP A
10.920	65	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.9	615	0.1070	5.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.4	838	0.0480	10.2	336.08	**Channel Flow, CHANNEL FLOW THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
18.4	1,553	Total			

Subcatchment 4S: OVERLAND FLOW TO DP 4

Runoff = 0.0 cfs @ 21.50 hrs, Volume= 0.00 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.200	39	GRASS/FIELD GROUP A
0.310	30	WOODS GOOD COND GROUP A
0.510	34	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	65	0.2000	7.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
9.3	165	Total			

Subcatchment 5S: OVERLAND FLOW TO DP 5

Runoff = 0.0 cfs @ 15.05 hrs, Volume= 0.02 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
1.470	39	GRASS/FIELD GROUP A
0.150	76	GRAVEL PATH GROUP A
1.050	30	WOODS GOOD COND GROUP A
2.670	38	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1200	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	490	0.0780	4.5		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
12.5	590	Total			

Subcatchment 6S: OVERLAND FLOW TO DP 6

Runoff = 3.9 cfs @ 12.20 hrs, Volume= 0.40 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.050	89	GRAVEL PATH GROUP C
0.200	76	GRAVEL PATH/DRIVE GROUP A
1.660	86	STRIPPED AREAS
0.290	39	GRASS GOOD COND GROUP A
1.270	30	WOODS GROUP A
0.330	98	EXIST. DWELLING/PAVE/RTE 1
3.800	64	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0800	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	414	0.1100	5.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.9	170	0.0050	3.1	56.35	**Channel Flow, Segment ID:** Area= 18.0 sf Perim= 21.3' r= 0.85' n= 0.030
14.7	684	Total			

Subcatchment 99s: Watershed into wetlands

Runoff = 353.7 cfs @ 12.76 hrs, Volume= 64.38 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
580.730	65	average area & CN (see worksheet)

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
10.8	740	0.0050	1.1		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
26.9	5,300	0.0050	3.3	108.47	**Channel Flow,** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
52.8	6,140	Total			

Reach 1R: DESIGN POINT 1

Inflow Area = 42.690 ac, Inflow Depth = 0.79" for 10-yr event
Inflow = 19.2 cfs @ 12.39 hrs, Volume= 2.81 af
Outflow = 19.2 cfs @ 12.39 hrs, Volume= 2.81 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.8 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.4 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.65' @ 12.39 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 60R: FLOW TO R61

Inflow Area = 3.800 ac, Inflow Depth = 1.27" for 10-yr event
Inflow = 3.9 cfs @ 12.20 hrs, Volume= 0.40 af
Outflow = 3.6 cfs @ 12.35 hrs, Volume= 0.40 af, Atten= 7%, Lag= 9.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.2 fps, Min. Travel Time= 5.0 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 16.7 min

Peak Depth= 0.20' @ 12.27 hrs
Capacity at bank full= 56.3 cfs
15.00' x 1.00' deep channel, n= 0.030 Length= 350.0' Slope= 0.0050 '/'
Side Slope Z-value= 3.0 '/'

Pond 99P: Large Wetland Area

Inflow Area = 580.730 ac, Inflow Depth = 1.33" for 10-yr event
Inflow = 353.7 cfs @ 12.76 hrs, Volume= 64.38 af
Outflow = 72.6 cfs @ 14.85 hrs, Volume= 64.38 af, Atten= 79%, Lag= 125.3 min
Primary = 72.6 cfs @ 14.85 hrs, Volume= 64.38 af
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 62.21' @ 14.85 hrs Surf.Area= 23.442 ac Storage= 26.15 af
Plug-Flow detention time= 182.3 min calculated for 64.38 af (100% of inflow)
Center-of-Mass det. time= 182.2 min (1,091.8 - 909.6)

#	Invert	Avail.Storage	Storage Description
1	59.00'	342.56 af	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
59.00	0.020	0.00	0.00
60.00	0.200	0.11	0.11
62.00	11.500	11.70	11.81
64.00	126.000	137.50	149.31
65.00	130.000	128.00	277.31
65.50	131.000	65.25	342.56

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**4.00' x 3.00' Vert. Orifice/Grate** C= 0.600
2	Secondary	65.00'	**170.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=72.6 cfs @ 14.85 hrs HW=62.21' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 72.6 cfs @ 6.0 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=59.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

EXISTING CONDITIONS
100-YEAR 24-HOUR STORM EVENT ANALYSIS

Subcatchment 1S: OVERLAND FLOW TO DP 1

Runoff = 47.1 cfs @ 12.35 hrs, Volume= 5.88 af, Depth= 1.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
16.330	30	WOODS GOOD COND GROUP A
2.670	55	WOODS GOOD COND GROUP B
14.320	70	WOODS GOOD COND GROUP C
0.460	76	GRAVEL PATH GROUP A
0.250	89	GRAVEL PATH GROUP C
0.310	98	RTE 1/HSE/DRIVE
0.740	98	WETLANDS
3.810	86	STRIPPED
38.890	55	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	100	0.0200	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.8	333	0.1800	6.8		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.1	805	0.0630	11.7	385.02	**Channel Flow, CHANNEL FLOW THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
23.7	1,238	Total			

Subcatchment 2S: OVERLAND FLOW TO DP 2

Runoff = 13.6 cfs @ 12.21 hrs, Volume= 1.34 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.040	98	WETLANDS
3.870	70	WOODS GOOD COND GROUP C
0.800	74	GRASS GOOD COND GROUP C
0.150	89	GRAVEL PATH GROUP C
4.860	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.6	583	0.1370	6.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
16.7	683	Total			

Subcatchment 3S: OVERLAND FLOW TO DP 3

Runoff = 23.7 cfs @ 12.24 hrs, Volume= 2.48 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
7.600	70	WOODS GOOD COND GROUP C
0.680	74	GRASS GOOD COND GROUP C
0.210	89	GRAVEL PATH GROUP C
0.410	98	WETLANDS
1.850	30	WOODS GOOD COND GROUP A
0.170	76	GRAVEL PATH GROUP A
10.920	65	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.9	615	0.1070	5.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.4	838	0.0480	10.2	336.08	**Channel Flow, CHANNEL FLOW THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
18.4	1,553	Total			

Subcatchment 4S: OVERLAND FLOW TO DP 4

Runoff = 0.0 cfs @ 12.46 hrs, Volume= 0.01 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.200	39	GRASS/FIELD GROUP A
0.310	30	WOODS GOOD COND GROUP A
0.510	34	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	65	0.2000	7.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
9.3	165	Total			

Subcatchment 5S: OVERLAND FLOW TO DP 5

Runoff = 0.6 cfs @ 12.40 hrs, Volume= 0.12 af, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
1.470	39	GRASS/FIELD GROUP A
0.150	76	GRAVEL PATH GROUP A
1.050	30	WOODS GOOD COND GROUP A
2.670	38	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1200	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	490	0.0780	4.5		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
12.5	590	Total			

Subcatchment 6S: OVERLAND FLOW TO DP 6

Runoff = 8.6 cfs @ 12.19 hrs, Volume= 0.83 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.050	89	GRAVEL PATH GROUP C
0.200	76	GRAVEL PATH/DRIVE GROUP A
1.660	86	STRIPPED AREAS
0.290	39	GRASS GOOD COND GROUP A
1.270	30	WOODS GROUP A
0.330	98	EXIST. DWELLING/PAVE/RTE 1
3.800	64	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0800	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	414	0.1100	5.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.9	170	0.0050	3.1	56.35	**Channel Flow, Segment ID:** Area= 18.0 sf Perim= 21.3' r= 0.85' n= 0.030
14.7	684	Total			

Subcatchment 99s: Watershed into wetlands

Runoff = 770.4 cfs @ 12.72 hrs, Volume= 131.69 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
580.730	65	average area & CN (see worksheet)

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
10.8	740	0.0050	1.1		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
26.9	5,300	0.0050	3.3	108.47	**Channel Flow,** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
52.8	6,140	Total			

Reach 1R: DESIGN POINT 1

Inflow Area = 42.690 ac, Inflow Depth = 1.89" for 100-yr event
Inflow = 55.1 cfs @ 12.33 hrs, Volume= 6.71 af
Outflow = 55.1 cfs @ 12.33 hrs, Volume= 6.71 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 13.4 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 5.3 fps, Avg. Travel Time= 0.0 min

Peak Depth= 1.07' @ 12.33 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 60R: FLOW TO R61

Inflow Area = 3.800 ac, Inflow Depth = 2.63" for 100-yr event
Inflow = 8.6 cfs @ 12.19 hrs, Volume= 0.83 af
Outflow = 8.3 cfs @ 12.30 hrs, Volume= 0.83 af, Atten= 4%, Lag= 6.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.6 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 13.6 min

Peak Depth= 0.33' @ 12.23 hrs
Capacity at bank full= 56.3 cfs
15.00' x 1.00' deep channel, n= 0.030 Length= 350.0' Slope= 0.0050 '/'
Side Slope Z-value= 3.0 '/'

Pond 99P: Large Wetland Area

Inflow Area =	580.730 ac,	Inflow Depth =	2.72"	for 100-yr event
Inflow =	770.4 cfs @	12.72 hrs, Volume=	131.69 af	
Outflow =	87.5 cfs @	16.23 hrs, Volume=	120.08 af, Atten= 89%, Lag= 210.4 min	
Primary =	87.5 cfs @	16.23 hrs, Volume=	120.08 af	
Secondary =	0.0 cfs @	5.00 hrs, Volume=	0.00 af	

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 62.88' @ 16.23 hrs Surf.Area= 61.798 ac Storage= 72.21 af
Plug-Flow detention time= 398.1 min calculated for 120.08 af (91% of inflow)
Center-of-Mass det. time= 354.0 min (1,241.7 - 887.7)

#	Invert	Avail.Storage	Storage Description
1	59.00'	342.56 af	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
59.00	0.020	0.00	0.00
60.00	0.200	0.11	0.11
62.00	11.500	11.70	11.81
64.00	126.000	137.50	149.31
65.00	130.000	128.00	277.31
65.50	131.000	65.25	342.56

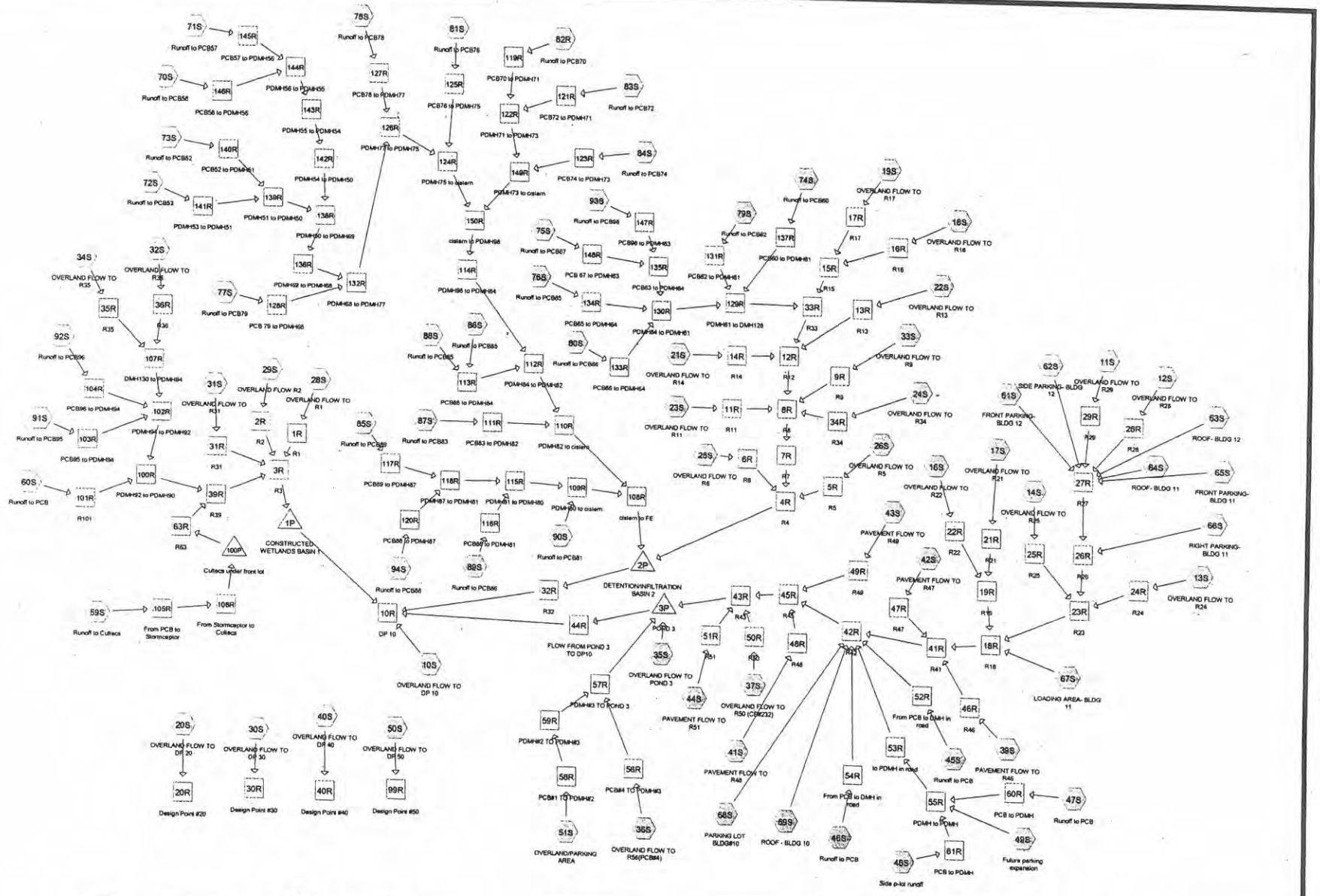
#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**4.00' x 3.00' Vert. Orifice/Grate** C= 0.600
2	Secondary	65.00'	**170.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=87.5 cfs @ 16.23 hrs HW=62.88' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 87.5 cfs @ 7.3 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=59.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

PROPOSED CONDITIONS

WATERSHED ROUTING DIAGRAM



Drainage Diagram for 3250 POST-FEB_2006

Prepared by Meridian Engineering, Inc. 3/14/2006

HydroCAD® 7.00 s/n 000814 © 1986-2003 Applied Microcomputer Systems

PROPOSED CONDITIONS
1-YEAR 24-HOUR STORM EVENT ANALYSIS

Subcatchment 10S: OVERLAND FLOW TO DP 10

Runoff = 0.1 cfs @ 16.78 hrs, Volume= 0.04 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
8.872	30	WOODS GROUP A
1.100	55	WOODS GROUP B
5.512	70	WOODS GROUP C
0.270	76	GRAVEL PATH GROUP A
0.820	98	RTE 1 & WETLANDS .74
0.050	89	PATH C
0.300	86	STRIPPED AREAS GROUP C
0.758	74	GRASS GROUP C
1.523	39	GRASS GROUP A
0.176	98	Parking at base of hill
19.381	50	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.8	238	0.1000	5.1		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.2	80	0.1750	6.7		**Shallow Concentrated Flow, OVERLAND TO WET** Unpaved Kv= 16.1 fps
12.5	418	Total			

Subcatchment 11S: OVERLAND FLOW TO R29

Runoff = 0.4 cfs @ 12.12 hrs, Volume= 0.03 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.170	98	IMPERVIOUS AREAS
0.150	74	GRASS GROUP C
0.320	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 12S: OVERLAND FLOW TO R28

Runoff = 1.7 cfs @ 12.15 hrs, Volume= 0.15 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.800	98	IMPERVIOUS AREAS
0.060	70	WOODS GROUP C
0.400	74	GRASS GROUP C
1.260	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.1700	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	42	0.2400	7.9		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
2.2	294	0.0200	2.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.9	230	0.0400	4.1		**Shallow Concentrated Flow, GUTTER FLOW** Paved Kv= 20.3 fps
12.5	666	Total			

Subcatchment 13S: OVERLAND FLOW TO R24

Runoff = 0.4 cfs @ 12.12 hrs, Volume= 0.03 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.190	74	GRASS GROUP C
0.330	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 14S: OVERLAND FLOW TO R25

Runoff = 0.4 cfs @ 12.12 hrs, Volume= 0.03 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREAS
0.090	74	GRASS GROUP C
0.240	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 16S: OVERLAND FLOW TO R22

Runoff = 0.3 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.030	74	GRASS GROUP C
0.170	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 17S: OVERLAND FLOW TO R21

Runoff = 0.5 cfs @ 12.12 hrs, Volume= 0.04 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREAS
0.320	74	GRASS GROUP C
0.470	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 18S: OVERLAND FLOW TO R16

Runoff = 0.1 cfs @ 12.17 hrs, Volume= 0.01 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.130	98	IMPERVIOUS AREAS
0.140	39	GRASS GROUP A
0.270	67	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 19S: OVERLAND FLOW TO R17

Runoff = 0.0 cfs @ 12.42 hrs, Volume= 0.01 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.273	39	GRASS GROUP A
0.413	59	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 20S: OVERLAND FLOW TO DP 20

Runoff = 1.5 cfs @ 12.25 hrs, Volume= 0.18 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.040	98	WETLANDS
0.100	76	GRAVEL PATH GROUP C
0.400	74	GRASS GROUP C
3.930	70	WOODS GROUP C
4.470	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	495	0.1600	6.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
16.4	595	Total			

Subcatchment 21S: OVERLAND FLOW TO R14

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.01 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.084	39	GRASS GROUP A
0.224	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 22S: OVERLAND FLOW TO R13

Runoff = 0.1 cfs @ 12.15 hrs, Volume= 0.01 af, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.130	98	IMPERVIOUS AREAS
0.120	39	GRASS GROUP A
0.250	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 23S: OVERLAND FLOW TO R11

Runoff = 0.0 cfs @ 15.44 hrs, Volume= 0.00 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.523	39	>75% Grass cover, Good, HSG A
0.663	51	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 24S: OVERLAND FLOW TO R34

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.01 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.100	98	IMPERVIOUS AREAS
0.060	39	GRASS GROUP A
0.160	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 25S: OVERLAND FLOW TO R6

Runoff = 0.2 cfs @ 12.16 hrs, Volume= 0.03 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.140	98	impervious area
0.426	74	grass good c soil
0.238	39	grass good a soil
0.804	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 26S: OVERLAND FLOW TO R5

Runoff = 0.3 cfs @ 12.12 hrs, Volume= 0.02 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.120	98	IMPERVIOUS AREAS
0.070	74	GRASS GROUP C
0.190	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 28S: OVERLAND FLOW TO R1

Runoff = 0.2 cfs @ 12.13 hrs, Volume= 0.02 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.125	98	IMPERVIOUS AREAS
0.050	39	GRASS GROUP A
0.060	74	GRASS GROUP C
0.235	79	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 29S: OVERLAND FLOW R2

Runoff = 0.2 cfs @ 12.12 hrs, Volume= 0.02 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.131	98	IMPERVIOUS AREAS
0.040	39	GRASS GROUP A
0.040	74	GRASS GROUP C
0.211	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 30S: OVERLAND FLOW TO DP 30

Runoff = 1.4 cfs @ 12.34 hrs, Volume= 0.21 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.410	98	WETLANDS
0.090	89	GRAVEL PATH GROUP C
0.030	76	GRAVEL PATH GROUP A
1.000	74	GRASS GROUP C
2.100	70	WOODS GROUP C
1.580	30	WOODS GROUP A
1.150	98	roof area
6.360	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	100	0.0400	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	113	0.0970	5.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.5	252	0.2300	7.7		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.8	202	0.0690	4.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.0	627	0.0480	10.2	336.08	**Channel Flow, CHANNEL THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
19.2	1,294	Total			

Subcatchment 31S: OVERLAND FLOW TO R31

Runoff = 0.0 cfs @ 14.87 hrs, Volume= 0.00 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.033	98	IMPERV AREAS on lot
0.626	39	>75% Grass cover, Good, HSG A
0.156	98	Paved area in Rte. 1
0.815	53	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 32S: OVERLAND FLOW TO R36

Runoff = 0.1 cfs @ 12.14 hrs, Volume= 0.01 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.090	98	IMPERVIOUS AREAS
0.070	74	GRASS GROUP C
0.060	39	GRASS GROUP A
0.220	74	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 33S: OVERLAND FLOW TO R9

Runoff = 0.1 cfs @ 12.11 hrs, Volume= 0.01 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.030	98	impervious area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 34S: OVERLAND FLOW TO R35

Runoff = 0.1 cfs @ 12.11 hrs, Volume= 0.01 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.060	98	IMPERVIOUS AREAS

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 35S: OVERLAND FLOW TO POND 3

Runoff = 2.5 cfs @ 12.12 hrs, Volume= 0.21 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.630	98	IMPERVIOUS AREAS
0.730	98	IMPERVIOUS POND BOTTOM
0.056	39	GRASS GROUP A
0.426	61	GRASS GROUP B
0.024	76	GRAVEL GROUP A
0.031	85	GRAVEL GROUP B
1.897	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, MINIMUM - TO POND 3**

Subcatchment 36S: OVERLAND FLOW TO R56(PCB#4)

Runoff = 0.4 cfs @ 12.19 hrs, Volume= 0.05 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREA
0.035	70	WOODS GROUP C
0.187	74	GRASS GROUP C
0.233	39	GRASS GROUP A
0.246	98	Paved parking & roofs
0.841	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	84	0.1400	6.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.5	132	0.0760	4.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.1	67	0.5000	11.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.6	80	0.0200	2.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.1	54	0.2200	7.6		**Shallow Concentrated Flow, OVERLAND TO DRIVE** Unpaved Kv= 16.1 fps
0.4	71	0.0170	2.6		**Shallow Concentrated Flow, DRIVE TO PCB#4** Paved Kv= 20.3 fps
13.4	588	Total			

Subcatchment 37S: OVERLAND FLOW TO R50 (CB#232)

Runoff = 0.6 cfs @ 12.17 hrs, Volume= 0.05 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREA
0.250	70	WOODS GOOD GROUP C
0.282	74	GRASS GOOD GROUP C
0.050	39	GRASS GOOD GROUP A
0.090	98	Paved parking & roofs
0.822	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1200	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.9	315	0.1200	5.6		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.0	34	0.5000	11.4		**Shallow Concentrated Flow, OVERLAND CUT** Unpaved Kv= 16.1 fps
0.6	80	0.0200	2.3		**Shallow Concentrated Flow, OVERLAND CUT TO ROAD** Unpaved Kv= 16.1 fps
0.8	217	0.0450	4.3		**Shallow Concentrated Flow, ROAD GUTTER FLOW** Paved Kv= 20.3 fps
13.0	746	Total			

Subcatchment 39S: PAVEMENT FLOW TO R46

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.01 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.070	98	PAVEMENT FLOW
0.010	74	GRASS GROUP C
0.080	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 40S: OVERLAND FLOW TO DP 40

Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.200	39	GRASS GROUP A
0.310	30	WOODS GROUP A
0.510	34	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	65	0.2000	7.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.7					**Direct Entry, 10 MINUTE MINIMUM**
10.0	165	Total			

Subcatchment 41S: PAVEMENT FLOW TO R48

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.090	98	PAVEMENT FLOW
0.020	74	GRASS GROUP C
0.110	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 42S: PAVEMENT FLOW TO R47

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.01 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.080	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 43S: PAVEMENT FLOW TO R49

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.100	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 44S: PAVEMENT FLOW TO R51

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.100	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 45S: Runoff to PCB

Runoff = 0.3 cfs @ 12.06 hrs, Volume= 0.02 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.118	98	impervious

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 min. minimum**

Subcatchment 46S: Runoff to PCB

Runoff = 0.3 cfs @ 12.06 hrs, Volume= 0.02 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.123	98	impervious

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 min. minimum**

Subcatchment 47S: Runoff to PCB

Runoff = 1.0 cfs @ 12.16 hrs, Volume= 0.09 af, Depth= 1.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.472	98	impervious
0.105	70	Woods, Good, HSG C
0.187	74	>75% Grass cover, Good, HSG C
0.764	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	130	0.1400	6.0		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	175	0.0250	3.2		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.8	405	Total			

Subcatchment 48S: Side p-lot runoff

Runoff = 0.7 cfs @ 12.06 hrs, Volume= 0.05 af, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.016	74	>75% Grass cover, Good, HSG C
0.265	98	Paved parking & roofs
0.281	97	Weighted Average

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

Subcatchment 49S: Future parking expansion

Runoff = 1.0 cfs @ 12.06 hrs, Volume= 0.08 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.046	70	Woods, Good, HSG C
0.414	98	Paved parking & roofs
0.460	95	Weighted Average

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

Subcatchment 50S: OVERLAND FLOW TO DP 50

Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.190	39	GRASS GROUP A
0.140	30	WOODS GROUP A
0.330	35	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 51S: OVERLAND/PARKING AREA

Runoff = 0.1 cfs @ 12.14 hrs, Volume= 0.01 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.120	98	IMPERVIOUS AREA
0.059	70	WOODS GOOD GROUP C
0.081	39	GRASS GOOD GROUP A
0.260	73	Weighted Average

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

Subcatchment 59S: Runoff to Cultecs

Runoff = 0.7 cfs @ 12.12 hrs, Volume= 0.06 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.297	98	Paved parking & roofs
0.236	74	>75% Grass cover, Good, HSG C
0.533	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 60S: Runoff to PCB

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.174	98	Paved parking & roofs
0.042	74	>75% Grass cover, Good, HSG C
0.216	93	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 61S: FRONT PARKING- BLDG 12

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.190	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 62S: SIDE PARKING- BLDG 12

Runoff = 1.0 cfs @ 12.11 hrs, Volume= 0.09 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 63S: ROOF- BLDG 12

Runoff = 2.4 cfs @ 12.11 hrs, Volume= 0.21 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
1.150	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 64S: ROOF- BLDG 11

Runoff = 1.6 cfs @ 12.11 hrs, Volume= 0.14 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.760	98	Paved roads w/curbs & sewers

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 65S: FRONT PARKING- BLDG 11

Runoff = 0.5 cfs @ 12.12 hrs, Volume= 0.05 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs
0.290	74	>75% Grass cover, Good, HSG C
0.490	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 66S: RIGHT PARKING- BLDG 11

Runoff = 0.7 cfs @ 12.12 hrs, Volume= 0.06 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.280	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
0.580	86	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 67S: LOADING AREA- BLDG 11

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 68S: PARKING LOT BLDG#10

Runoff = 1.3 cfs @ 12.12 hrs, Volume= 0.11 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.520	98	Paved parking & roofs
0.470	74	>75% Grass cover, Good, HSG C
0.990	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 69S: ROOF - BLDG 10

Runoff = 0.5 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.240	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 70S: Runoff to PCB58

Runoff = 0.7 cfs @ 12.12 hrs, Volume= 0.06 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.288	98	Paved parking & roofs
0.241	74	>75% Grass cover, Good, HSG C
0.529	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 71S: Runoff to PCB57

Runoff = 0.2 cfs @ 12.16 hrs, Volume= 0.02 af, Depth= 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.278	98	Paved parking & roofs
0.278	39	>75% Grass cover, Good, HSG A
0.556	69	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 72S: Runoff to PCB53

Runoff = 0.5 cfs @ 12.12 hrs, Volume= 0.04 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.199	98	Paved parking & roofs
0.171	74	>75% Grass cover, Good, HSG C
0.370	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 73S: Runoff to PCB52

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 1.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.231	98	Paved parking & roofs
0.028	39	>75% Grass cover, Good, HSG A
0.259	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 74S: Runoff to PCB60

Runoff = 0.6 cfs @ 12.12 hrs, Volume= 0.05 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.455	98	Paved parking & roofs
0.151	39	>75% Grass cover, Good, HSG A
0.606	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 75S: Runoff to PCB67

Runoff = 0.1 cfs @ 12.15 hrs, Volume= 0.02 af, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.225	98	Paved parking & roofs
0.203	39	>75% Grass cover, Good, HSG A
0.428	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 76S: Runoff to PCB65

Runoff = 0.1 cfs @ 12.14 hrs, Volume= 0.01 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.064	98	Paved parking & roofs
0.043	39	>75% Grass cover, Good, HSG A
0.107	74	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 77S: Runoff to PCB79

Runoff = 0.4 cfs @ 12.12 hrs, Volume= 0.03 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.232	98	Paved parking & roofs
0.052	39	>75% Grass cover, Good, HSG A
0.284	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 78S: Runoff to PCB78

Runoff = 0.3 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.173	98	Paved parking & roofs
0.014	39	>75% Grass cover, Good, HSG A
0.187	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 79S: Runoff to PCB62

Runoff = 0.1 cfs @ 12.16 hrs, Volume= 0.02 af, Depth= 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.232	98	Paved parking & roofs
0.229	39	>75% Grass cover, Good, HSG A
0.461	69	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 80S: Runoff to PCB66

Runoff = 0.5 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 1.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.250	98	Paved parking & roofs
0.028	39	>75% Grass cover, Good, HSG A
0.278	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 81S: Runoff to PCB76

Runoff = 0.3 cfs @ 12.12 hrs, Volume= 0.03 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.198	98	Paved parking & roofs
0.045	39	>75% Grass cover, Good, HSG A
0.243	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 82R: Runoff to PCB70

Runoff = 0.1 cfs @ 12.32 hrs, Volume= 0.01 af, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.212	98	Paved parking & roofs
0.311	39	>75% Grass cover, Good, HSG A
0.523	63	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 83S: Runoff to PCB72

Runoff = 0.3 cfs @ 12.12 hrs, Volume= 0.03 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.224	98	Paved parking & roofs
0.086	39	>75% Grass cover, Good, HSG A
0.310	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 84S: Runoff to PCB74

Runoff = 0.3 cfs @ 12.13 hrs, Volume= 0.03 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.262	98	Paved parking & roofs
0.138	39	>75% Grass cover, Good, HSG A
0.400	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 85S: Runoff to PCB89

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.06 af, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.303	98	Paved parking & roofs
0.014	74	>75% Grass cover, Good, HSG C
0.317	97	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 86S: Runoff to PCB85

Runoff = 0.1 cfs @ 12.16 hrs, Volume= 0.01 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.132	98	Paved parking & roofs
0.135	39	>75% Grass cover, Good, HSG A
0.008	74	grass good c soil
0.275	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 87S: Runoff to PCB83

Runoff = 0.6 cfs @ 12.12 hrs, Volume= 0.05 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.334	98	Paved parking & roofs
0.059	39	>75% Grass cover, Good, HSG A
0.393	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 88S: Runoff to PCB85

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.289	98	Paved parking & roofs
0.036	74	>75% Grass cover, Good, HSG C
0.325	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 89S: Runoff to PCB86

Runoff = 0.5 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.221	98	Paved parking & roofs

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

Subcatchment 90S: Runoff to PCB81

Runoff = 1.1 cfs @ 12.11 hrs, Volume= 0.09 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.493	98	Paved parking & roofs
0.068	74	>75% Grass cover, Good, HSG C
0.561	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 91S: Runoff to PCB95

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.080	98	Paved parking & roofs
0.012	74	>75% Grass cover, Good, HSG C
0.092	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 92S: Runoff to PCB96

Runoff = 0.3 cfs @ 12.12 hrs, Volume= 0.02 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.114	98	Paved parking & roofs
0.062	74	>75% Grass cover, Good, HSG C
0.176	90	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 93S: Runoff to PCB98

Runoff = 0.1 cfs @ 12.15 hrs, Volume= 0.01 af, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.180	98	impervious
0.162	39	>75% Grass cover, Good, HSG A
0.342	70	Weighted Average

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

Subcatchment 94S: Runoff to PCB88

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.102	98	impervious area

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

Reach 10R: DP 10

Inflow Area = 46.946 ac, Inflow Depth = 0.03" for 1-yr event
Inflow = 0.1 cfs @ 15.00 hrs, Volume= 0.11 af
Outflow = 0.1 cfs @ 15.00 hrs, Volume= 0.11 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.05' @ 15.00 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 20R: Design Point #20

Inflow Area = 4.470 ac, Inflow Depth = 0.49" for 1-yr event
Inflow = 1.5 cfs @ 12.25 hrs, Volume= 0.18 af
Outflow = 1.5 cfs @ 12.25 hrs, Volume= 0.18 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.1 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.21' @ 12.25 hrs
Capacity at bank full= 1,287.1 cfs
99.0" Diameter Pipe n= 0.010 Length= 1.0' Slope= 0.0100 '/'

Reach 30R: Design Point #30

Inflow Area = 6.360 ac, Inflow Depth = 0.39" for 1-yr event
Inflow = 1.4 cfs @ 12.34 hrs, Volume= 0.21 af
Outflow = 1.4 cfs @ 12.34 hrs, Volume= 0.21 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.19' @ 12.34 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 40R: Design Point #40

Inflow Area = 0.510 ac, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 5.00 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 99R: Design Point #50

Inflow Area = 0.330 ac, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 5.00 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

PROPOSED CONDITIONS
2-YEAR 24-HOUR STORM EVENT ANALYSIS

Subcatchment 10S: OVERLAND FLOW TO DP 10

Runoff = 0.3 cfs @ 13.71 hrs, Volume= 0.18 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
8.872	30	WOODS GROUP A
1.100	55	WOODS GROUP B
5.512	70	WOODS GROUP C
0.270	76	GRAVEL PATH GROUP A
0.820	98	RTE 1 & WETLANDS .74
0.050	89	PATH C
0.300	86	STRIPPED AREAS GROUP C
0.758	74	GRASS GROUP C
1.523	39	GRASS GROUP A
0.176	98	Parking at base of hill
19.381	50	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.8	238	0.1000	5.1		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.2	80	0.1750	6.7		**Shallow Concentrated Flow, OVERLAND TO WET** Unpaved Kv= 16.1 fps
12.5	418	Total			

Subcatchment 11S: OVERLAND FLOW TO R29

Runoff = 0.6 cfs @ 12.12 hrs, Volume= 0.05 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.170	98	IMPERVIOUS AREAS
0.150	74	GRASS GROUP C
0.320	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 12S: OVERLAND FLOW TO R28

Runoff = 2.4 cfs @ 12.15 hrs, Volume= 0.21 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.800	98	IMPERVIOUS AREAS
0.060	70	WOODS GROUP C
0.400	74	GRASS GROUP C
1.260	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.1700	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	42	0.2400	7.9		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
2.2	294	0.0200	2.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.9	230	0.0400	4.1		**Shallow Concentrated Flow, GUTTER FLOW** Paved Kv= 20.3 fps
12.5	666	Total			

Subcatchment 13S: OVERLAND FLOW TO R24

Runoff = 0.5 cfs @ 12.12 hrs, Volume= 0.04 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.190	74	GRASS GROUP C
0.330	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 14S: OVERLAND FLOW TO R25

Runoff = 0.5 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREAS
0.090	74	GRASS GROUP C
0.240	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 16S: OVERLAND FLOW TO R22

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.030	74	GRASS GROUP C
0.170	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 17S: OVERLAND FLOW TO R21

Runoff = 0.7 cfs @ 12.12 hrs, Volume= 0.06 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREAS
0.320	74	GRASS GROUP C
0.470	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 18S: OVERLAND FLOW TO R16

Runoff = 0.1 cfs @ 12.15 hrs, Volume= 0.01 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.130	98	IMPERVIOUS AREAS
0.140	39	GRASS GROUP A
0.270	67	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 19S: OVERLAND FLOW TO R17

Runoff = 0.1 cfs @ 12.26 hrs, Volume= 0.01 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.273	39	GRASS GROUP A
0.413	59	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 20S: OVERLAND FLOW TO DP 20

Runoff = 2.8 cfs @ 12.23 hrs, Volume= 0.30 af, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.040	98	WETLANDS
0.100	76	GRAVEL PATH GROUP C
0.400	74	GRASS GROUP C
3.930	70	WOODS GROUP C
4.470	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	495	0.1600	6.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
16.4	595	Total			

Subcatchment 21S: OVERLAND FLOW TO R14

Runoff = 0.2 cfs @ 12.13 hrs, Volume= 0.02 af, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.084	39	GRASS GROUP A
0.224	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 22S: OVERLAND FLOW TO R13

Runoff = 0.2 cfs @ 12.14 hrs, Volume= 0.02 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.130	98	IMPERVIOUS AREAS
0.120	39	GRASS GROUP A
0.250	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 23S: OVERLAND FLOW TO R11

Runoff = 0.0 cfs @ 12.51 hrs, Volume= 0.01 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.523	39	>75% Grass cover, Good, HSG A
0.663	51	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 24S: OVERLAND FLOW TO R34

Runoff = 0.2 cfs @ 12.13 hrs, Volume= 0.01 af, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.100	98	IMPERVIOUS AREAS
0.060	39	GRASS GROUP A
0.160	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 25S: OVERLAND FLOW TO R6

Runoff = 0.5 cfs @ 12.14 hrs, Volume= 0.05 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.140	98	impervious area
0.426	74	grass good c soil
0.238	39	grass good a soil
0.804	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 26S: OVERLAND FLOW TO R5

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.120	98	IMPERVIOUS AREAS
0.070	74	GRASS GROUP C
0.190	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 28S: OVERLAND FLOW TO R1

Runoff = 0.3 cfs @ 12.12 hrs, Volume= 0.02 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.125	98	IMPERVIOUS AREAS
0.050	39	GRASS GROUP A
0.060	74	GRASS GROUP C
0.235	79	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 29S: OVERLAND FLOW R2

Runoff = 0.3 cfs @ 12.12 hrs, Volume= 0.03 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.131	98	IMPERVIOUS AREAS
0.040	39	GRASS GROUP A
0.040	74	GRASS GROUP C
0.211	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 30S: OVERLAND FLOW TO DP 30

Runoff = 2.9 cfs @ 12.29 hrs, Volume= 0.36 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.410	98	WETLANDS
0.090	89	GRAVEL PATH GROUP C
0.030	76	GRAVEL PATH GROUP A
1.000	74	GRASS GROUP C
2.100	70	WOODS GROUP C
1.580	30	WOODS GROUP A
1.150	98	roof area
6.360	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	100	0.0400	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	113	0.0970	5.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.5	252	0.2300	7.7		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.8	202	0.0690	4.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.0	627	0.0480	10.2	336.08	**Channel Flow, CHANNEL THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
19.2	1,294	Total			

Subcatchment 31S: OVERLAND FLOW TO R31

Runoff = 0.0 cfs @ 12.44 hrs, Volume= 0.01 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.033	98	IMPERV AREAS on lot
0.626	39	>75% Grass cover, Good, HSG A
0.156	98	Paved area in Rte. 1
0.815	53	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 32S: OVERLAND FLOW TO R36

Runoff = 0.2 cfs @ 12.13 hrs, Volume= 0.02 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.090	98	IMPERVIOUS AREAS
0.070	74	GRASS GROUP C
0.060	39	GRASS GROUP A
0.220	74	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 33S: OVERLAND FLOW TO R9

Runoff = 0.1 cfs @ 12.11 hrs, Volume= 0.01 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.030	98	impervious area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 34S: OVERLAND FLOW TO R35

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.01 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.060	98	IMPERVIOUS AREAS

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 35S: OVERLAND FLOW TO POND 3

Runoff = 3.5 cfs @ 12.12 hrs, Volume= 0.29 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.630	98	IMPERVIOUS AREAS
0.730	98	IMPERVIOUS POND BOTTOM
0.056	39	GRASS GROUP A
0.426	61	GRASS GROUP B
0.024	76	GRAVEL GROUP A
0.031	85	GRAVEL GROUP B
1.897	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, MINIMUM - TO POND 3**

Subcatchment 36S: OVERLAND FLOW TO R56(PCB#4)

Runoff = 0.8 cfs @ 12.17 hrs, Volume= 0.07 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREA
0.035	70	WOODS GROUP C
0.187	74	GRASS GROUP C
0.233	39	GRASS GROUP A
0.246	98	Paved parking & roofs
0.841	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	84	0.1400	6.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.5	132	0.0760	4.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.1	67	0.5000	11.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.6	80	0.0200	2.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.1	54	0.2200	7.6		**Shallow Concentrated Flow, OVERLAND TO DRIVE** Unpaved Kv= 16.1 fps
0.4	71	0.0170	2.6		**Shallow Concentrated Flow, DRIVE TO PCB#4** Paved Kv= 20.3 fps
13.4	588	Total			

Subcatchment 37S: OVERLAND FLOW TO R50 (CB#232)

Runoff = 0.9 cfs @ 12.17 hrs, Volume= 0.08 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREA
0.250	70	WOODS GOOD GROUP C
0.282	74	GRASS GOOD GROUP C
0.050	39	GRASS GOOD GROUP A
0.090	98	Paved parking & roofs
0.822	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1200	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.9	315	0.1200	5.6		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.0	34	0.5000	11.4		**Shallow Concentrated Flow, OVERLAND CUT** Unpaved Kv= 16.1 fps
0.6	80	0.0200	2.3		**Shallow Concentrated Flow, OVERLAND CUT TO ROAD** Unpaved Kv= 16.1 fps
0.8	217	0.0450	4.3		**Shallow Concentrated Flow, ROAD GUTTER FLOW** Paved Kv= 20.3 fps
13.0	746	Total			

Subcatchment 39S: PAVEMENT FLOW TO R46

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.070	98	PAVEMENT FLOW
0.010	74	GRASS GROUP C
0.080	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 40S: OVERLAND FLOW TO DP 40

Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.200	39	GRASS GROUP A
0.310	30	WOODS GROUP A
0.510	34	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	65	0.2000	7.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.7					**Direct Entry, 10 MINUTE MINIMUM**
10.0	165	Total			

Subcatchment 41S: PAVEMENT FLOW TO R48

Runoff = 0.3 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.090	98	PAVEMENT FLOW
0.020	74	GRASS GROUP C
0.110	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 42S: PAVEMENT FLOW TO R47

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.080	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 43S: PAVEMENT FLOW TO R49

Runoff = 0.3 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.100	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 44S: PAVEMENT FLOW TO R51

Runoff = 0.3 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.100	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 45S: Runoff to PCB

Runoff = 0.3 cfs @ 12.06 hrs, Volume= 0.03 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.118	98	impervious

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 min. minimum**

Subcatchment 46S: Runoff to PCB

Runoff = 0.4 cfs @ 12.06 hrs, Volume= 0.03 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.123	98	impervious

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 min. minimum**

Subcatchment 47S: Runoff to PCB

Runoff = 1.4 cfs @ 12.15 hrs, Volume= 0.12 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.472	98	impervious
0.105	70	Woods, Good, HSG C
0.187	74	>75% Grass cover, Good, HSG C
0.764	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	130	0.1400	6.0		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	175	0.0250	3.2		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.8	405	Total			

Subcatchment 48S: Side p-lot runoff

Runoff = 0.8 cfs @ 12.06 hrs, Volume= 0.06 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.016	74	>75% Grass cover, Good, HSG C
0.265	98	Paved parking & roofs
0.281	97	Weighted Average

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

Subcatchment 49S: Future parking expansion

Runoff = 1.3 cfs @ 12.06 hrs, Volume= 0.10 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.046	70	Woods, Good, HSG C
0.414	98	Paved parking & roofs
0.460	95	Weighted Average

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

Subcatchment 50S: OVERLAND FLOW TO DP 50

Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.190	39	GRASS GROUP A
0.140	30	WOODS GROUP A
0.330	35	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 51S: OVERLAND/PARKING AREA

Runoff = 0.2 cfs @ 12.13 hrs, Volume= 0.02 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.120	98	IMPERVIOUS AREA
0.059	70	WOODS GOOD GROUP C
0.081	39	GRASS GOOD GROUP A
0.260	73	Weighted Average

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

Subcatchment 59S: Runoff to Cultecs

Runoff = 1.0 cfs @ 12.12 hrs, Volume= 0.08 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.297	98	Paved parking & roofs
0.236	74	>75% Grass cover, Good, HSG C
0.533	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 60S: Runoff to PCB

Runoff = 0.5 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.174	98	Paved parking & roofs
0.042	74	>75% Grass cover, Good, HSG C
0.216	93	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 61S: FRONT PARKING- BLDG 12

Runoff = 0.5 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.190	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 62S: SIDE PARKING- BLDG 12

Runoff = 1.3 cfs @ 12.11 hrs, Volume= 0.12 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 63S: ROOF- BLDG 12

Runoff = 3.0 cfs @ 12.11 hrs, Volume= 0.27 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
1.150	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 64S: ROOF- BLDG 11

Runoff = 2.0 cfs @ 12.11 hrs, Volume= 0.18 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.760	98	Paved roads w/curbs & sewers

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 65S: FRONT PARKING- BLDG 11

Runoff = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs
0.290	74	>75% Grass cover, Good, HSG C
0.490	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 66S: RIGHT PARKING- BLDG 11

Runoff = 1.0 cfs @ 12.12 hrs, Volume= 0.08 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.280	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
0.580	86	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 67S: LOADING AREA- BLDG 11

Runoff = 0.5 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 68S: PARKING LOT BLDG#10

Runoff = 1.8 cfs @ 12.12 hrs, Volume= 0.15 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.520	98	Paved parking & roofs
0.470	74	>75% Grass cover, Good, HSG C
0.990	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 69S: ROOF - BLDG 10

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.06 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.240	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 70S: Runoff to PCB58

Runoff = 1.0 cfs @ 12.12 hrs, Volume= 0.08 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.288	98	Paved parking & roofs
0.241	74	>75% Grass cover, Good, HSG C
0.529	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 71S: Runoff to PCB57

Runoff = 0.3 cfs @ 12.14 hrs, Volume= 0.03 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.278	98	Paved parking & roofs
0.278	39	>75% Grass cover, Good, HSG A
0.556	69	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 72S: Runoff to PCB53

Runoff = 0.7 cfs @ 12.12 hrs, Volume= 0.06 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.199	98	Paved parking & roofs
0.171	74	>75% Grass cover, Good, HSG C
0.370	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 73S: Runoff to PCB52

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.231	98	Paved parking & roofs
0.028	39	>75% Grass cover, Good, HSG A
0.259	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 74S: Runoff to PCB60

Runoff = 0.9 cfs @ 12.12 hrs, Volume= 0.08 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.455	98	Paved parking & roofs
0.151	39	>75% Grass cover, Good, HSG A
0.606	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 75S: Runoff to PCB67

Runoff = 0.3 cfs @ 12.14 hrs, Volume= 0.03 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.225	98	Paved parking & roofs
0.203	39	>75% Grass cover, Good, HSG A
0.428	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 76S: Runoff to PCB65

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.01 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.064	98	Paved parking & roofs
0.043	39	>75% Grass cover, Good, HSG A
0.107	74	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 77S: Runoff to PCB79

Runoff = 0.5 cfs @ 12.12 hrs, Volume= 0.04 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.232	98	Paved parking & roofs
0.052	39	>75% Grass cover, Good, HSG A
0.284	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 78S: Runoff to PCB78

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.173	98	Paved parking & roofs
0.014	39	>75% Grass cover, Good, HSG A
0.187	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 79S: Runoff to PCB62

Runoff = 0.3 cfs @ 12.14 hrs, Volume= 0.03 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.232	98	Paved parking & roofs
0.229	39	>75% Grass cover, Good, HSG A
0.461	69	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 80S: Runoff to PCB66

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.250	98	Paved parking & roofs
0.028	39	>75% Grass cover, Good, HSG A
0.278	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 81S: Runoff to PCB76

Runoff = 0.5 cfs @ 12.12 hrs, Volume= 0.04 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.198	98	Paved parking & roofs
0.045	39	>75% Grass cover, Good, HSG A
0.243	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 82R: Runoff to PCB70

Runoff = 0.2 cfs @ 12.16 hrs, Volume= 0.02 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.212	98	Paved parking & roofs
0.311	39	>75% Grass cover, Good, HSG A
0.523	63	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 83S: Runoff to PCB72

Runoff = 0.5 cfs @ 12.12 hrs, Volume= 0.04 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.224	98	Paved parking & roofs
0.086	39	>75% Grass cover, Good, HSG A
0.310	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 84S: Runoff to PCB74

Runoff = 0.5 cfs @ 12.12 hrs, Volume= 0.04 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.262	98	Paved parking & roofs
0.138	39	>75% Grass cover, Good, HSG A
0.400	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 85S: Runoff to PCB89

Runoff = 0.8 cfs @ 12.11 hrs, Volume= 0.07 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.303	98	Paved parking & roofs
0.014	74	>75% Grass cover, Good, HSG C
0.317	97	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 86S: Runoff to PCB85

Runoff = 0.2 cfs @ 12.14 hrs, Volume= 0.02 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.132	98	Paved parking & roofs
0.135	39	>75% Grass cover, Good, HSG A
0.008	74	grass good c soil
0.275	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 87S: Runoff to PCB83

Runoff = 0.8 cfs @ 12.11 hrs, Volume= 0.07 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.334	98	Paved parking & roofs
0.059	39	>75% Grass cover, Good, HSG A
0.393	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 88S: Runoff to PCB85

Runoff = 0.8 cfs @ 12.11 hrs, Volume= 0.07 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.289	98	Paved parking & roofs
0.036	74	>75% Grass cover, Good, HSG C
0.325	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 89S: Runoff to PCB86

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.221	98	Paved parking & roofs

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

Subcatchment 90S: Runoff to PCB81

Runoff = 1.4 cfs @ 12.11 hrs, Volume= 0.12 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.493	98	Paved parking & roofs
0.068	74	>75% Grass cover, Good, HSG C
0.561	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 91S: Runoff to PCB95

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.080	98	Paved parking & roofs
0.012	74	>75% Grass cover, Good, HSG C
0.092	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 92S: Runoff to PCB96

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.114	98	Paved parking & roofs
0.062	74	>75% Grass cover, Good, HSG C
0.176	90	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 93S: Runoff to PCB98

Runoff = 0.2 cfs @ 12.14 hrs, Volume= 0.02 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.180	98	impervious
0.162	39	>75% Grass cover, Good, HSG A
0.342	70	Weighted Average

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

Subcatchment 94S: Runoff to PCB88

Runoff = 0.3 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.102	98	impervious area

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

Reach 10R: DP 10

Inflow Area = 46.946 ac, Inflow Depth = 0.08" for 2-yr event
Inflow = 0.9 cfs @ 12.58 hrs, Volume= 0.30 af
Outflow = 0.9 cfs @ 12.58 hrs, Volume= 0.30 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.9 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.15' @ 12.58 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 20R: Design Point #20

Inflow Area = 4.470 ac, Inflow Depth = 0.82" for 2-yr event
Inflow = 2.8 cfs @ 12.23 hrs, Volume= 0.30 af
Outflow = 2.8 cfs @ 12.23 hrs, Volume= 0.30 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.9 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.4 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.28' @ 12.23 hrs
Capacity at bank full= 1,287.1 cfs
99.0" Diameter Pipe n= 0.010 Length= 1.0' Slope= 0.0100 '/'

Reach 30R: Design Point #30

Inflow Area = 6.360 ac, Inflow Depth = 0.68" for 2-yr event
Inflow = 2.9 cfs @ 12.29 hrs, Volume= 0.36 af
Outflow = 2.9 cfs @ 12.29 hrs, Volume= 0.36 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.9 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.27' @ 12.29 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 40R: Design Point #40

Inflow Area = 0.510 ac, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 5.00 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 99R: Design Point #50

Inflow Area = 0.330 ac, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 5.00 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

PROPOSED CONDITIONS
10-YEAR 24-HOUR STORM EVENT ANALYSIS

Subcatchment 10S: OVERLAND FLOW TO DP 10

Runoff = 4.8 cfs @ 12.31 hrs, Volume= 0.81 af, Depth= 0.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
8.872	30	WOODS GROUP A
1.100	55	WOODS GROUP B
5.512	70	WOODS GROUP C
0.270	76	GRAVEL PATH GROUP A
0.820	98	RTE 1 & WETLANDS .74
0.050	89	PATH C
0.300	86	STRIPPED AREAS GROUP C
0.758	74	GRASS GROUP C
1.523	39	GRASS GROUP A
0.176	98	Parking at base of hill
19.381	50	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.8	238	0.1000	5.1		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.2	80	0.1750	6.7		**Shallow Concentrated Flow, OVERLAND TO WET** Unpaved Kv= 16.1 fps
12.5	418	Total			

Subcatchment 11S: OVERLAND FLOW TO R29

Runoff = 1.0 cfs @ 12.11 hrs, Volume= 0.08 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.170	98	IMPERVIOUS AREAS
0.150	74	GRASS GROUP C
0.320	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 12S: OVERLAND FLOW TO R28

Runoff = 3.8 cfs @ 12.15 hrs, Volume= 0.35 af, Depth= 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.800	98	IMPERVIOUS AREAS
0.060	70	WOODS GROUP C
0.400	74	GRASS GROUP C
1.260	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.1700	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	42	0.2400	7.9		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
2.2	294	0.0200	2.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.9	230	0.0400	4.1		**Shallow Concentrated Flow, GUTTER FLOW** Paved Kv= 20.3 fps
12.5	666	Total			

Subcatchment 13S: OVERLAND FLOW TO R24

Runoff = 0.9 cfs @ 12.11 hrs, Volume= 0.08 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.190	74	GRASS GROUP C
0.330	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 14S: OVERLAND FLOW TO R25

Runoff = 0.8 cfs @ 12.11 hrs, Volume= 0.07 af, Depth= 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREAS
0.090	74	GRASS GROUP C
0.240	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 16S: OVERLAND FLOW TO R22

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.030	74	GRASS GROUP C
0.170	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 17S: OVERLAND FLOW TO R21

Runoff = 1.3 cfs @ 12.12 hrs, Volume= 0.10 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREAS
0.320	74	GRASS GROUP C
0.470	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 18S: OVERLAND FLOW TO R16

Runoff = 0.4 cfs @ 12.13 hrs, Volume= 0.03 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.130	98	IMPERVIOUS AREAS
0.140	39	GRASS GROUP A
0.270	67	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 19S: OVERLAND FLOW TO R17

Runoff = 0.3 cfs @ 12.14 hrs, Volume= 0.03 af, Depth= 0.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.273	39	GRASS GROUP A
0.413	59	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 20S: OVERLAND FLOW TO DP 20

Runoff = 6.5 cfs @ 12.21 hrs, Volume= 0.65 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.040	98	WETLANDS
0.100	76	GRAVEL PATH GROUP C
0.400	74	GRASS GROUP C
3.930	70	WOODS GROUP C
4.470	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	495	0.1600	6.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
16.4	595	Total			

Subcatchment 21S: OVERLAND FLOW TO R14

Runoff = 0.5 cfs @ 12.12 hrs, Volume= 0.04 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.084	39	GRASS GROUP A
0.224	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 22S: OVERLAND FLOW TO R13

Runoff = 0.4 cfs @ 12.12 hrs, Volume= 0.03 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.130	98	IMPERVIOUS AREAS
0.120	39	GRASS GROUP A
0.250	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 23S: OVERLAND FLOW TO R11

Runoff = 0.2 cfs @ 12.21 hrs, Volume= 0.03 af, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.523	39	>75% Grass cover, Good, HSG A
0.663	51	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 24S: OVERLAND FLOW TO R34

Runoff = 0.3 cfs @ 12.12 hrs, Volume= 0.03 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.100	98	IMPERVIOUS AREAS
0.060	39	GRASS GROUP A
0.160	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 25S: OVERLAND FLOW TO R6

Runoff = 1.2 cfs @ 12.13 hrs, Volume= 0.10 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.140	98	impervious area
0.426	74	grass good c soil
0.238	39	grass good a soil
0.804	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 26S: OVERLAND FLOW TO R5

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.120	98	IMPERVIOUS AREAS
0.070	74	GRASS GROUP C
0.190	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 28S: OVERLAND FLOW TO R1

Runoff = 0.6 cfs @ 12.12 hrs, Volume= 0.05 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.125	98	IMPERVIOUS AREAS
0.050	39	GRASS GROUP A
0.060	74	GRASS GROUP C
0.235	79	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 29S: OVERLAND FLOW R2

Runoff = 0.6 cfs @ 12.12 hrs, Volume= 0.05 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.131	98	IMPERVIOUS AREAS
0.040	39	GRASS GROUP A
0.040	74	GRASS GROUP C
0.211	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 30S: OVERLAND FLOW TO DP 30

Runoff = 7.4 cfs @ 12.26 hrs, Volume= 0.81 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.410	98	WETLANDS
0.090	89	GRAVEL PATH GROUP C
0.030	76	GRAVEL PATH GROUP A
1.000	74	GRASS GROUP C
2.100	70	WOODS GROUP C
1.580	30	WOODS GROUP A
1.150	98	roof area
6.360	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	100	0.0400	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	113	0.0970	5.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.5	252	0.2300	7.7		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.8	202	0.0690	4.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.0	627	0.0480	10.2	336.08	**Channel Flow, CHANNEL THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
19.2	1,294	Total			

Subcatchment 31S: OVERLAND FLOW TO R31

Runoff = 0.3 cfs @ 12.17 hrs, Volume= 0.04 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.033	98	IMPERV AREAS on lot
0.626	39	>75% Grass cover, Good, HSG A
0.156	98	Paved area in Rte. 1
0.815	53	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 32S: OVERLAND FLOW TO R36

Runoff = 0.4 cfs @ 12.12 hrs, Volume= 0.04 af, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.090	98	IMPERVIOUS AREAS
0.070	74	GRASS GROUP C
0.060	39	GRASS GROUP A
0.220	74	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 33S: OVERLAND FLOW TO R9

Runoff = 0.1 cfs @ 12.11 hrs, Volume= 0.01 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.030	98	impervious area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 34S: OVERLAND FLOW TO R35

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.060	98	IMPERVIOUS AREAS

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 35S: OVERLAND FLOW TO POND 3

Runoff = 5.9 cfs @ 12.11 hrs, Volume= 0.49 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.630	98	IMPERVIOUS AREAS
0.730	98	IMPERVIOUS POND BOTTOM
0.056	39	GRASS GROUP A
0.426	61	GRASS GROUP B
0.024	76	GRAVEL GROUP A
0.031	85	GRAVEL GROUP B
1.897	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, MINIMUM - TO POND 3**

Subcatchment 36S: OVERLAND FLOW TO R56(PCB#4)

Runoff = 1.6 cfs @ 12.17 hrs, Volume= 0.14 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREA
0.035	70	WOODS GROUP C
0.187	74	GRASS GROUP C
0.233	39	GRASS GROUP A
0.246	98	Paved parking & roofs
0.841	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	84	0.1400	6.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.5	132	0.0760	4.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.1	67	0.5000	11.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.6	80	0.0200	2.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.1	54	0.2200	7.6		**Shallow Concentrated Flow, OVERLAND TO DRIVE** Unpaved Kv= 16.1 fps
0.4	71	0.0170	2.6		**Shallow Concentrated Flow, DRIVE TO PCB#4** Paved Kv= 20.3 fps
13.4	588	Total			

Subcatchment 37S: OVERLAND FLOW TO R50 (CB#232)

Runoff = 1.8 cfs @ 12.16 hrs, Volume= 0.16 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREA
0.250	70	WOODS GOOD GROUP C
0.282	74	GRASS GOOD GROUP C
0.050	39	GRASS GOOD GROUP A
0.090	98	Paved parking & roofs
0.822	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1200	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.9	315	0.1200	5.6		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.0	34	0.5000	11.4		**Shallow Concentrated Flow, OVERLAND CUT** Unpaved Kv= 16.1 fps
0.6	80	0.0200	2.3		**Shallow Concentrated Flow, OVERLAND CUT TO ROAD** Unpaved Kv= 16.1 fps
0.8	217	0.0450	4.3		**Shallow Concentrated Flow, ROAD GUTTER FLOW** Paved Kv= 20.3 fps
13.0	746	Total			

Subcatchment 39S: PAVEMENT FLOW TO R46

Runoff = 0.3 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.070	98	PAVEMENT FLOW
0.010	74	GRASS GROUP C
0.080	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 40S: OVERLAND FLOW TO DP 40

Runoff = 0.0 cfs @ 21.50 hrs, Volume= 0.00 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.200	39	GRASS GROUP A
0.310	30	WOODS GROUP A
0.510	34	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	65	0.2000	7.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.7					**Direct Entry, 10 MINUTE MINIMUM**
10.0	165	Total			

Subcatchment 41S: PAVEMENT FLOW TO R48

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.090	98	PAVEMENT FLOW
0.020	74	GRASS GROUP C
0.110	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 42S: PAVEMENT FLOW TO R47

Runoff = 0.3 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.080	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 43S: PAVEMENT FLOW TO R49

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.100	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 44S: PAVEMENT FLOW TO R51

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.100	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 45S: Runoff to PCB

Runoff = 0.5 cfs @ 12.06 hrs, Volume= 0.04 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.118	98	impervious

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 min. minimum**

Subcatchment 46S: Runoff to PCB

Runoff = 0.5 cfs @ 12.06 hrs, Volume= 0.04 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.123	98	impervious

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 min. minimum**

Subcatchment 47S: Runoff to PCB

Runoff = 2.3 cfs @ 12.15 hrs, Volume= 0.20 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.472	98	impervious
0.105	70	Woods, Good, HSG C
0.187	74	>75% Grass cover, Good, HSG C
0.764	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	130	0.1400	6.0		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	175	0.0250	3.2		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.8	405	Total			

Subcatchment 48S: Side p-lot runoff

Runoff = 1.2 cfs @ 12.06 hrs, Volume= 0.10 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.016	74	>75% Grass cover, Good, HSG C
0.265	98	Paved parking & roofs
0.281	97	Weighted Average

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

Subcatchment 49S: Future parking expansion

Runoff = 1.9 cfs @ 12.06 hrs, Volume= 0.15 af, Depth= 3.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.046	70	Woods, Good, HSG C
0.414	98	Paved parking & roofs
0.460	95	Weighted Average

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

Subcatchment 50S: OVERLAND FLOW TO DP 50

Runoff = 0.0 cfs @ 17.15 hrs, Volume= 0.00 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.190	39	GRASS GROUP A
0.140	30	WOODS GROUP A
0.330	35	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 51S: OVERLAND/PARKING AREA

Runoff = 0.5 cfs @ 12.12 hrs, Volume= 0.04 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.120	98	IMPERVIOUS AREA
0.059	70	WOODS GOOD GROUP C
0.081	39	GRASS GOOD GROUP A
0.260	73	Weighted Average

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

Subcatchment 59S: Runoff to Cultecs

Runoff = 1.7 cfs @ 12.11 hrs, Volume= 0.14 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.297	98	Paved parking & roofs
0.236	74	>75% Grass cover, Good, HSG C
0.533	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 60S: Runoff to PCB

Runoff = 0.8 cfs @ 12.11 hrs, Volume= 0.07 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.174	98	Paved parking & roofs
0.042	74	>75% Grass cover, Good, HSG C
0.216	93	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 61S: FRONT PARKING- BLDG 12

Runoff = 0.7 cfs @ 12.11 hrs, Volume= 0.07 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.190	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 62S: SIDE PARKING- BLDG 12

Runoff = 1.9 cfs @ 12.11 hrs, Volume= 0.17 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 63S: ROOF- BLDG 12

Runoff = 4.4 cfs @ 12.11 hrs, Volume= 0.40 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
1.150	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 64S: ROOF- BLDG 11

Runoff = 2.9 cfs @ 12.11 hrs, Volume= 0.26 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.760	98	Paved roads w/curbs & sewers

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 65S: FRONT PARKING- BLDG 11

Runoff = 1.4 cfs @ 12.11 hrs, Volume= 0.12 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs
0.290	74	>75% Grass cover, Good, HSG C
0.490	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 66S: RIGHT PARKING- BLDG 11

Runoff = 1.8 cfs @ 12.11 hrs, Volume= 0.15 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.280	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
0.580	86	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 67S: LOADING AREA- BLDG 11

Runoff = 0.8 cfs @ 12.11 hrs, Volume= 0.07 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 68S: PARKING LOT BLDG#10

Runoff = 3.1 cfs @ 12.11 hrs, Volume= 0.26 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.520	98	Paved parking & roofs
0.470	74	>75% Grass cover, Good, HSG C
0.990	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 69S: ROOF - BLDG 10

Runoff = 0.9 cfs @ 12.11 hrs, Volume= 0.08 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.240	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 70S: Runoff to PCB58

Runoff = 1.6 cfs @ 12.11 hrs, Volume= 0.14 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.288	98	Paved parking & roofs
0.241	74	>75% Grass cover, Good, HSG C
0.529	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 71S: Runoff to PCB57

Runoff = 0.9 cfs @ 12.12 hrs, Volume= 0.07 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.278	98	Paved parking & roofs
0.278	39	>75% Grass cover, Good, HSG A
0.556	69	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 72S: Runoff to PCB53

Runoff = 1.2 cfs @ 12.11 hrs, Volume= 0.10 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.199	98	Paved parking & roofs
0.171	74	>75% Grass cover, Good, HSG C
0.370	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 73S: Runoff to PCB52

Runoff = 0.9 cfs @ 12.11 hrs, Volume= 0.08 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.231	98	Paved parking & roofs
0.028	39	>75% Grass cover, Good, HSG A
0.259	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 74S: Runoff to PCB60

Runoff = 1.7 cfs @ 12.12 hrs, Volume= 0.14 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.455	98	Paved parking & roofs
0.151	39	>75% Grass cover, Good, HSG A
0.606	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 75S: Runoff to PCB67

Runoff = 0.7 cfs @ 12.12 hrs, Volume= 0.06 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.225	98	Paved parking & roofs
0.203	39	>75% Grass cover, Good, HSG A
0.428	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 76S: Runoff to PCB65

Runoff = 0.2 cfs @ 12.12 hrs, Volume= 0.02 af, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.064	98	Paved parking & roofs
0.043	39	>75% Grass cover, Good, HSG A
0.107	74	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 77S: Runoff to PCB79

Runoff = 0.9 cfs @ 12.11 hrs, Volume= 0.07 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.232	98	Paved parking & roofs
0.052	39	>75% Grass cover, Good, HSG A
0.284	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 78S: Runoff to PCB78

Runoff = 0.7 cfs @ 12.11 hrs, Volume= 0.06 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.173	98	Paved parking & roofs
0.014	39	>75% Grass cover, Good, HSG A
0.187	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 79S: Runoff to PCB62

Runoff = 0.7 cfs @ 12.12 hrs, Volume= 0.06 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.232	98	Paved parking & roofs
0.229	39	>75% Grass cover, Good, HSG A
0.461	69	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 80S: Runoff to PCB66

Runoff = 1.0 cfs @ 12.11 hrs, Volume= 0.08 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.250	98	Paved parking & roofs
0.028	39	>75% Grass cover, Good, HSG A
0.278	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 81S: Runoff to PCB76

Runoff = 0.8 cfs @ 12.11 hrs, Volume= 0.06 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.198	98	Paved parking & roofs
0.045	39	>75% Grass cover, Good, HSG A
0.243	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 82R: Runoff to PCB70

Runoff = 0.6 cfs @ 12.13 hrs, Volume= 0.05 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.212	98	Paved parking & roofs
0.311	39	>75% Grass cover, Good, HSG A
0.523	63	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 83S: Runoff to PCB72

Runoff = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.224	98	Paved parking & roofs
0.086	39	>75% Grass cover, Good, HSG A
0.310	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 84S: Runoff to PCB74

Runoff = 0.9 cfs @ 12.12 hrs, Volume= 0.08 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.262	98	Paved parking & roofs
0.138	39	>75% Grass cover, Good, HSG A
0.400	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 85S: Runoff to PCB89

Runoff = 1.2 cfs @ 12.11 hrs, Volume= 0.11 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.303	98	Paved parking & roofs
0.014	74	>75% Grass cover, Good, HSG C
0.317	97	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 86S: Runoff to PCB85

Runoff = 0.4 cfs @ 12.13 hrs, Volume= 0.04 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.132	98	Paved parking & roofs
0.135	39	>75% Grass cover, Good, HSG A
0.008	74	grass good c soil
0.275	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 87S: Runoff to PCB83

Runoff = 1.3 cfs @ 12.11 hrs, Volume= 0.11 af, Depth= 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.334	98	Paved parking & roofs
0.059	39	>75% Grass cover, Good, HSG A
0.393	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 88S: Runoff to PCB85

Runoff = 1.2 cfs @ 12.11 hrs, Volume= 0.11 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.289	98	Paved parking & roofs
0.036	74	>75% Grass cover, Good, HSG C
0.325	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 89S: Runoff to PCB86

Runoff = 0.8 cfs @ 12.11 hrs, Volume= 0.08 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.221	98	Paved parking & roofs

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

Subcatchment 90S: Runoff to PCB81

Runoff = 2.1 cfs @ 12.11 hrs, Volume= 0.18 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.493	98	Paved parking & roofs
0.068	74	>75% Grass cover, Good, HSG C
0.561	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 91S: Runoff to PCB95

Runoff = 0.3 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.080	98	Paved parking & roofs
0.012	74	>75% Grass cover, Good, HSG C
0.092	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 92S: Runoff to PCB96

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.114	98	Paved parking & roofs
0.062	74	>75% Grass cover, Good, HSG C
0.176	90	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 93S: Runoff to PCB98

Runoff = 0.6 cfs @ 12.12 hrs, Volume= 0.05 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.180	98	impervious
0.162	39	>75% Grass cover, Good, HSG A
0.342	70	Weighted Average

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

Subcatchment 94S: Runoff to PCB88

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.50"

Area (ac)	CN	Description
0.102	98	impervious area

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

Reach 10R: DP 10

Inflow Area = 46.946 ac, Inflow Depth = 0.35" for 10-yr event
Inflow = 7.8 cfs @ 12.27 hrs, Volume= 1.35 af
Outflow = 7.8 cfs @ 12.27 hrs, Volume= 1.35 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.3 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.43' @ 12.27 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 20R: Design Point #20

Inflow Area = 4.470 ac, Inflow Depth = 1.75" for 10-yr event
Inflow = 6.5 cfs @ 12.21 hrs, Volume= 0.65 af
Outflow = 6.5 cfs @ 12.21 hrs, Volume= 0.65 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.3 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.42' @ 12.22 hrs
Capacity at bank full= 1,287.1 cfs
99.0" Diameter Pipe n= 0.010 Length= 1.0' Slope= 0.0100 '/'

Reach 30R: Design Point #30

Inflow Area = 6.360 ac, Inflow Depth = 1.53" for 10-yr event
Inflow = 7.4 cfs @ 12.26 hrs, Volume= 0.81 af
Outflow = 7.4 cfs @ 12.26 hrs, Volume= 0.81 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.3 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.2 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.42' @ 12.26 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 40R: Design Point #40

Inflow Area = 0.510 ac, Inflow Depth = 0.02" for 10-yr event
Inflow = 0.0 cfs @ 21.50 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 21.50 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 21.50 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 99R: Design Point #50

Inflow Area = 0.330 ac, Inflow Depth = 0.03" for 10-yr event
Inflow = 0.0 cfs @ 17.15 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 17.15 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 17.15 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

PROPOSED CONDITIONS
100-YEAR 24-HOUR STORM EVENT ANALYSIS

Subcatchment 10S: OVERLAND FLOW TO DP 10

Runoff = 20.9 cfs @ 12.18 hrs, Volume= 2.26 af, Depth= 1.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
8.872	30	WOODS GROUP A
1.100	55	WOODS GROUP B
5.512	70	WOODS GROUP C
0.270	76	GRAVEL PATH GROUP A
0.820	98	RTE 1 & WETLANDS .74
0.050	89	PATH C
0.300	86	STRIPPED AREAS GROUP C
0.758	74	GRASS GROUP C
1.523	39	GRASS GROUP A
0.176	98	Parking at base of hill
19.381	50	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.8	238	0.1000	5.1		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.2	80	0.1750	6.7		**Shallow Concentrated Flow, OVERLAND TO WET** Unpaved Kv= 16.1 fps
12.5	418	Total			

Subcatchment 11S: OVERLAND FLOW TO R29

Runoff = 1.6 cfs @ 12.11 hrs, Volume= 0.13 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.170	98	IMPERVIOUS AREAS
0.150	74	GRASS GROUP C
0.320	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 12S: OVERLAND FLOW TO R28

Runoff = 5.9 cfs @ 12.14 hrs, Volume= 0.55 af, Depth= 5.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.800	98	IMPERVIOUS AREAS
0.060	70	WOODS GROUP C
0.400	74	GRASS GROUP C
1.260	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.1700	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	42	0.2400	7.9		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
2.2	294	0.0200	2.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.9	230	0.0400	4.1		**Shallow Concentrated Flow, GUTTER FLOW** Paved Kv= 20.3 fps
12.5	666	Total			

Subcatchment 13S: OVERLAND FLOW TO R24

Runoff = 1.5 cfs @ 12.11 hrs, Volume= 0.13 af, Depth= 4.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.190	74	GRASS GROUP C
0.330	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 14S: OVERLAND FLOW TO R25

Runoff = 1.2 cfs @ 12.11 hrs, Volume= 0.10 af, Depth= 5.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREAS
0.090	74	GRASS GROUP C
0.240	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 16S: OVERLAND FLOW TO R22

Runoff = 0.9 cfs @ 12.11 hrs, Volume= 0.08 af, Depth= 5.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.030	74	GRASS GROUP C
0.170	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 17S: OVERLAND FLOW TO R21

Runoff = 2.1 cfs @ 12.11 hrs, Volume= 0.17 af, Depth= 4.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREAS
0.320	74	GRASS GROUP C
0.470	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 18S: OVERLAND FLOW TO R16

Runoff = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.130	98	IMPERVIOUS AREAS
0.140	39	GRASS GROUP A
0.270	67	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 19S: OVERLAND FLOW TO R17

Runoff = 0.9 cfs @ 12.13 hrs, Volume= 0.07 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.273	39	GRASS GROUP A
0.413	59	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 20S: OVERLAND FLOW TO DP 20

Runoff = 12.6 cfs @ 12.21 hrs, Volume= 1.23 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.040	98	WETLANDS
0.100	76	GRAVEL PATH GROUP C
0.400	74	GRASS GROUP C
3.930	70	WOODS GROUP C
4.470	71	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	495	0.1600	6.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
16.4	595	Total			

Subcatchment 21S: OVERLAND FLOW TO R14

Runoff = 0.9 cfs @ 12.12 hrs, Volume= 0.07 af, Depth= 3.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.084	39	GRASS GROUP A
0.224	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 22S: OVERLAND FLOW TO R13

Runoff = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.130	98	IMPERVIOUS AREAS
0.120	39	GRASS GROUP A
0.250	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 23S: OVERLAND FLOW TO R11

Runoff = 0.8 cfs @ 12.14 hrs, Volume= 0.08 af, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREAS
0.523	39	>75% Grass cover, Good, HSG A
0.663	51	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 24S: OVERLAND FLOW TO R34

Runoff = 0.6 cfs @ 12.12 hrs, Volume= 0.05 af, Depth= 3.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.100	98	IMPERVIOUS AREAS
0.060	39	GRASS GROUP A
0.160	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 25S: OVERLAND FLOW TO R6

Runoff = 2.4 cfs @ 12.12 hrs, Volume= 0.20 af, Depth= 3.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.140	98	impervious area
0.426	74	grass good c soil
0.238	39	grass good a soil
0.804	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 26S: OVERLAND FLOW TO R5

Runoff = 1.0 cfs @ 12.11 hrs, Volume= 0.08 af, Depth= 5.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.120	98	IMPERVIOUS AREAS
0.070	74	GRASS GROUP C
0.190	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 28S: OVERLAND FLOW TO R1

Runoff = 1.0 cfs @ 12.11 hrs, Volume= 0.08 af, Depth= 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.125	98	IMPERVIOUS AREAS
0.050	39	GRASS GROUP A
0.060	74	GRASS GROUP C
0.235	79	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 29S: OVERLAND FLOW R2

Runoff = 0.9 cfs @ 12.11 hrs, Volume= 0.08 af, Depth= 4.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.131	98	IMPERVIOUS AREAS
0.040	39	GRASS GROUP A
0.040	74	GRASS GROUP C
0.211	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 30S: OVERLAND FLOW TO DP 30

Runoff = 15.2 cfs @ 12.25 hrs, Volume= 1.60 af, Depth= 3.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.410	98	WETLANDS
0.090	89	GRAVEL PATH GROUP C
0.030	76	GRAVEL PATH GROUP A
1.000	74	GRASS GROUP C
2.100	70	WOODS GROUP C
1.580	30	WOODS GROUP A
1.150	98	roof area
6.360	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	100	0.0400	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	113	0.0970	5.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.5	252	0.2300	7.7		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.8	202	0.0690	4.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
1.0	627	0.0480	10.2	336.08	**Channel Flow, CHANNEL THRU WETLANDS** Area= 33.0 sf Perim= 36.3' r= 0.91' n= 0.030
19.2	1,294	Total			

Subcatchment 31S: OVERLAND FLOW TO R31

Runoff = 1.2 cfs @ 12.14 hrs, Volume= 0.11 af, Depth= 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.033	98	IMPERV AREAS on lot
0.626	39	>75% Grass cover, Good, HSG A
0.156	98	Paved area in Rte. 1
0.815	53	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 32S: OVERLAND FLOW TO R36

Runoff = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af, Depth= 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.090	98	IMPERVIOUS AREAS
0.070	74	GRASS GROUP C
0.060	39	GRASS GROUP A
0.220	74	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 33S: OVERLAND FLOW TO R9

Runoff = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.030	98	impervious area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 34S: OVERLAND FLOW TO R35

Runoff = 0.3 cfs @ 12.11 hrs, Volume= 0.03 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.060	98	IMPERVIOUS AREAS

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 35S: OVERLAND FLOW TO POND 3

Runoff = 9.3 cfs @ 12.11 hrs, Volume= 0.79 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.630	98	IMPERVIOUS AREAS
0.730	98	IMPERVIOUS POND BOTTOM
0.056	39	GRASS GROUP A
0.426	61	GRASS GROUP B
0.024	76	GRAVEL GROUP A
0.031	85	GRAVEL GROUP B
1.897	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, MINIMUM - TO POND 3**

Subcatchment 36S: OVERLAND FLOW TO R56(PCB#4)

Runoff = 2.9 cfs @ 12.16 hrs, Volume= 0.26 af, Depth= 3.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.140	98	IMPERVIOUS AREA
0.035	70	WOODS GROUP C
0.187	74	GRASS GROUP C
0.233	39	GRASS GROUP A
0.246	98	Paved parking & roofs
0.841	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	84	0.1400	6.0		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.5	132	0.0760	4.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.1	67	0.5000	11.4		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.6	80	0.0200	2.3		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.1	54	0.2200	7.6		**Shallow Concentrated Flow, OVERLAND TO DRIVE** Unpaved Kv= 16.1 fps
0.4	71	0.0170	2.6		**Shallow Concentrated Flow, DRIVE TO PCB#4** Paved Kv= 20.3 fps
13.4	588	Total			

Subcatchment 37S: OVERLAND FLOW TO R50 (CB#232)

Runoff = 3.1 cfs @ 12.16 hrs, Volume= 0.28 af, Depth= 4.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.150	98	IMPERVIOUS AREA
0.250	70	WOODS GOOD GROUP C
0.282	74	GRASS GOOD GROUP C
0.050	39	GRASS GOOD GROUP A
0.090	98	Paved parking & roofs
0.822	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1200	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.9	315	0.1200	5.6		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.0	34	0.5000	11.4		**Shallow Concentrated Flow, OVERLAND CUT** Unpaved Kv= 16.1 fps
0.6	80	0.0200	2.3		**Shallow Concentrated Flow, OVERLAND CUT TO ROAD** Unpaved Kv= 16.1 fps
0.8	217	0.0450	4.3		**Shallow Concentrated Flow, ROAD GUTTER FLOW** Paved Kv= 20.3 fps
13.0	746	Total			

Subcatchment 39S: PAVEMENT FLOW TO R46

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 5.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.070	98	PAVEMENT FLOW
0.010	74	GRASS GROUP C
0.080	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 40S: OVERLAND FLOW TO DP 40

Runoff = 0.0 cfs @ 12.47 hrs, Volume= 0.01 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.200	39	GRASS GROUP A
0.310	30	WOODS GROUP A
0.510	34	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.2		**Sheet Flow, SHEET FLOW** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	65	0.2000	7.2		**Shallow Concentrated Flow, CONCENTRATED FLOW** Unpaved Kv= 16.1 fps
0.7					**Direct Entry, 10 MINUTE MINIMUM**
10.0	165	Total			

Subcatchment 41S: PAVEMENT FLOW TO R48

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 5.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.090	98	PAVEMENT FLOW
0.020	74	GRASS GROUP C
0.110	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 42S: PAVEMENT FLOW TO R47

Runoff = 0.4 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.080	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 43S: PAVEMENT FLOW TO R49

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.100	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 44S: PAVEMENT FLOW TO R51

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.100	98	PAVEMENT FLOW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 45S: Runoff to PCB

Runoff = 0.7 cfs @ 12.06 hrs, Volume= 0.06 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.118	98	impervious

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 min. minimum**

Subcatchment 46S: Runoff to PCB

Runoff = 0.8 cfs @ 12.06 hrs, Volume= 0.06 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.123	98	impervious

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 min. minimum**

Subcatchment 47S: Runoff to PCB

Runoff = 3.5 cfs @ 12.15 hrs, Volume= 0.32 af, Depth= 5.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.472	98	impervious
0.105	70	Woods, Good, HSG C
0.187	74	>75% Grass cover, Good, HSG C
0.764	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.1000	0.1		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	130	0.1400	6.0		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	175	0.0250	3.2		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.8	405	Total			

Subcatchment 48S: Side p-lot runoff

Runoff = 1.8 cfs @ 12.06 hrs, Volume= 0.14 af, Depth= 6.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.016	74	>75% Grass cover, Good, HSG C
0.265	98	Paved parking & roofs
0.281	97	Weighted Average

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

Subcatchment 49S: Future parking expansion

Runoff = 2.8 cfs @ 12.06 hrs, Volume= 0.22 af, Depth= 5.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.046	70	Woods, Good, HSG C
0.414	98	Paved parking & roofs
0.460	95	Weighted Average

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

Subcatchment 50S: OVERLAND FLOW TO DP 50

Runoff = 0.0 cfs @ 12.44 hrs, Volume= 0.01 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.190	39	GRASS GROUP A
0.140	30	WOODS GROUP A
0.330	35	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MINUTE MINIMUM**

Subcatchment 51S: OVERLAND/PARKING AREA

Runoff = 0.9 cfs @ 12.12 hrs, Volume= 0.08 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.120	98	IMPERVIOUS AREA
0.059	70	WOODS GOOD GROUP C
0.081	39	GRASS GOOD GROUP A
0.260	73	Weighted Average

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

Subcatchment 59S: Runoff to Cultecs

Runoff = 2.6 cfs @ 12.11 hrs, Volume= 0.22 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.297	98	Paved parking & roofs
0.236	74	>75% Grass cover, Good, HSG C
0.533	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 60S: Runoff to PCB

Runoff = 1.2 cfs @ 12.11 hrs, Volume= 0.10 af, Depth= 5.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.174	98	Paved parking & roofs
0.042	74	>75% Grass cover, Good, HSG C
0.216	93	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 61S: FRONT PARKING- BLDG 12

Runoff = 1.1 cfs @ 12.11 hrs, Volume= 0.10 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.190	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 62S: SIDE PARKING- BLDG 12

Runoff = 2.8 cfs @ 12.11 hrs, Volume= 0.25 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 63S: ROOF- BLDG 12

Runoff = 6.4 cfs @ 12.11 hrs, Volume= 0.58 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
1.150	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 64S: ROOF- BLDG 11

Runoff = 4.2 cfs @ 12.11 hrs, Volume= 0.38 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.760	98	Paved roads w/curbs & sewers

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 65S: FRONT PARKING- BLDG 11

Runoff = 2.3 cfs @ 12.11 hrs, Volume= 0.19 af, Depth= 4.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs
0.290	74	>75% Grass cover, Good, HSG C
0.490	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 66S: RIGHT PARKING- BLDG 11

Runoff = 2.8 cfs @ 12.11 hrs, Volume= 0.24 af, Depth= 4.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.280	98	Paved parking & roofs
0.300	74	>75% Grass cover, Good, HSG C
0.580	86	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 67S: LOADING AREA- BLDG 11

Runoff = 1.1 cfs @ 12.11 hrs, Volume= 0.10 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.200	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 68S: PARKING LOT BLDG#10

Runoff = 4.9 cfs @ 12.11 hrs, Volume= 0.41 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.520	98	Paved parking & roofs
0.470	74	>75% Grass cover, Good, HSG C
0.990	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 69S: ROOF - BLDG 10

Runoff = 1.3 cfs @ 12.11 hrs, Volume= 0.12 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.240	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 MIN. MINIMUM**

Subcatchment 70S: Runoff to PCB58

Runoff = 2.6 cfs @ 12.11 hrs, Volume= 0.22 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.288	98	Paved parking & roofs
0.241	74	>75% Grass cover, Good, HSG C
0.529	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 71S: Runoff to PCB57

Runoff = 1.7 cfs @ 12.12 hrs, Volume= 0.14 af, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.278	98	Paved parking & roofs
0.278	39	>75% Grass cover, Good, HSG A
0.556	69	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 72S: Runoff to PCB53

Runoff = 1.8 cfs @ 12.11 hrs, Volume= 0.15 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.199	98	Paved parking & roofs
0.171	74	>75% Grass cover, Good, HSG C
0.370	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 73S: Runoff to PCB52

Runoff = 1.4 cfs @ 12.11 hrs, Volume= 0.12 af, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.231	98	Paved parking & roofs
0.028	39	>75% Grass cover, Good, HSG A
0.259	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 74S: Runoff to PCB60

Runoff = 2.8 cfs @ 12.11 hrs, Volume= 0.23 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.455	98	Paved parking & roofs
0.151	39	>75% Grass cover, Good, HSG A
0.606	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 75S: Runoff to PCB67

Runoff = 1.4 cfs @ 12.12 hrs, Volume= 0.11 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.225	98	Paved parking & roofs
0.203	39	>75% Grass cover, Good, HSG A
0.428	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 76S: Runoff to PCB65

Runoff = 0.4 cfs @ 12.12 hrs, Volume= 0.03 af, Depth= 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.064	98	Paved parking & roofs
0.043	39	>75% Grass cover, Good, HSG A
0.107	74	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 77S: Runoff to PCB79

Runoff = 1.4 cfs @ 12.11 hrs, Volume= 0.12 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.232	98	Paved parking & roofs
0.052	39	>75% Grass cover, Good, HSG A
0.284	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 78S: Runoff to PCB78

Runoff = 1.0 cfs @ 12.11 hrs, Volume= 0.09 af, Depth= 5.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.173	98	Paved parking & roofs
0.014	39	>75% Grass cover, Good, HSG A
0.187	94	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 79S: Runoff to PCB62

Runoff = 1.4 cfs @ 12.12 hrs, Volume= 0.12 af, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.232	98	Paved parking & roofs
0.229	39	>75% Grass cover, Good, HSG A
0.461	69	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 80S: Runoff to PCB66

Runoff = 1.5 cfs @ 12.11 hrs, Volume= 0.13 af, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.250	98	Paved parking & roofs
0.028	39	>75% Grass cover, Good, HSG A
0.278	92	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 81S: Runoff to PCB76

Runoff = 1.2 cfs @ 12.11 hrs, Volume= 0.10 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.198	98	Paved parking & roofs
0.045	39	>75% Grass cover, Good, HSG A
0.243	87	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 82R: Runoff to PCB70

Runoff = 1.3 cfs @ 12.12 hrs, Volume= 0.11 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.212	98	Paved parking & roofs
0.311	39	>75% Grass cover, Good, HSG A
0.523	63	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 83S: Runoff to PCB72

Runoff = 1.4 cfs @ 12.11 hrs, Volume= 0.11 af, Depth= 4.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.224	98	Paved parking & roofs
0.086	39	>75% Grass cover, Good, HSG A
0.310	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 84S: Runoff to PCB74

Runoff = 1.6 cfs @ 12.12 hrs, Volume= 0.13 af, Depth= 4.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.262	98	Paved parking & roofs
0.138	39	>75% Grass cover, Good, HSG A
0.400	78	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 85S: Runoff to PCB89

Runoff = 1.8 cfs @ 12.11 hrs, Volume= 0.16 af, Depth= 6.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.303	98	Paved parking & roofs
0.014	74	>75% Grass cover, Good, HSG C
0.317	97	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 86S: Runoff to PCB85

Runoff = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af, Depth= 3.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.132	98	Paved parking & roofs
0.135	39	>75% Grass cover, Good, HSG A
0.008	74	grass good c soil
0.275	68	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 87S: Runoff to PCB83

Runoff = 2.0 cfs @ 12.11 hrs, Volume= 0.17 af, Depth= 5.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.334	98	Paved parking & roofs
0.059	39	>75% Grass cover, Good, HSG A
0.393	89	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 88S: Runoff to PCB85

Runoff = 1.8 cfs @ 12.11 hrs, Volume= 0.16 af, Depth= 5.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.289	98	Paved parking & roofs
0.036	74	>75% Grass cover, Good, HSG C
0.325	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 89S: Runoff to PCB86

Runoff = 1.2 cfs @ 12.11 hrs, Volume= 0.11 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.221	98	Paved parking & roofs

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

Subcatchment 90S: Runoff to PCB81

Runoff = 3.1 cfs @ 12.11 hrs, Volume= 0.27 af, Depth= 5.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.493	98	Paved parking & roofs
0.068	74	>75% Grass cover, Good, HSG C
0.561	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 91S: Runoff to PCB95

Runoff = 0.5 cfs @ 12.11 hrs, Volume= 0.04 af, Depth= 5.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.080	98	Paved parking & roofs
0.012	74	>75% Grass cover, Good, HSG C
0.092	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 92S: Runoff to PCB96

Runoff = 0.9 cfs @ 12.11 hrs, Volume= 0.08 af, Depth= 5.32"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.114	98	Paved parking & roofs
0.062	74	>75% Grass cover, Good, HSG C
0.176	90	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, 10 min. minimum**

Subcatchment 93S: Runoff to PCB98

Runoff = 1.1 cfs @ 12.12 hrs, Volume= 0.09 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.180	98	impervious
0.162	39	>75% Grass cover, Good, HSG A
0.342	70	Weighted Average

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

Subcatchment 94S: Runoff to PCB88

Runoff = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=6.50"

Area (ac)	CN	Description
0.102	98	impervious area

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

Reach 10R: DP 10

Inflow Area = 46.946 ac, Inflow Depth = 1.26" for 100-yr event
Inflow = 34.5 cfs @ 12.36 hrs, Volume= 4.95 af
Outflow = 34.5 cfs @ 12.36 hrs, Volume= 4.95 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.7 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.86' @ 12.36 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 20R: Design Point #20

Inflow Area = 4.470 ac, Inflow Depth = 3.31" for 100-yr event
Inflow = 12.6 cfs @ 12.21 hrs, Volume= 1.23 af
Outflow = 12.6 cfs @ 12.21 hrs, Volume= 1.23 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.7 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.58' @ 12.21 hrs
Capacity at bank full= 1,287.1 cfs
99.0" Diameter Pipe n= 0.010 Length= 1.0' Slope= 0.0100 '/'

Reach 30R: Design Point #30

Inflow Area = 6.360 ac, Inflow Depth = 3.01" for 100-yr event
Inflow = 15.2 cfs @ 12.25 hrs, Volume= 1.60 af
Outflow = 15.2 cfs @ 12.25 hrs, Volume= 1.60 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.1 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.8 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.58' @ 12.25 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 40R: Design Point #40

Inflow Area = 0.510 ac, Inflow Depth = 0.31" for 100-yr event
Inflow = 0.0 cfs @ 12.47 hrs, Volume= 0.01 af
Outflow = 0.0 cfs @ 12.47 hrs, Volume= 0.01 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.01' @ 12.47 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 99R: Design Point #50

Inflow Area = 0.330 ac, Inflow Depth = 0.36" for 100-yr event
Inflow = 0.0 cfs @ 12.44 hrs, Volume= 0.01 af
Outflow = 0.0 cfs @ 12.44 hrs, Volume= 0.01 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.01' @ 12.44 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

SIZING OF DRAINAGE PIPES
100-YEAR 24-HOUR STORM EVENT

Reach 1R: R1

Inflow Area = 0.235 ac, Inflow Depth = 4.13" for 100-yr event
Inflow = 1.0 cfs @ 12.11 hrs, Volume= 0.08 af
Outflow = 1.0 cfs @ 12.12 hrs, Volume= 0.08 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.2 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.1 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.41' @ 12.12 hrs
Capacity at bank full= 2.7 cfs
12.0" Diameter Pipe n= 0.012 Length= 42.0' Slope= 0.0050 '/'

Reach 2R: R2

Inflow Area = 0.211 ac, Inflow Depth = 4.45" for 100-yr event
Inflow = 0.9 cfs @ 12.11 hrs, Volume= 0.08 af
Outflow = 0.9 cfs @ 12.12 hrs, Volume= 0.08 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.1 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.1 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.41' @ 12.12 hrs
Capacity at bank full= 2.7 cfs
12.0" Diameter Pipe n= 0.012 Length= 42.0' Slope= 0.0050 '/'

Reach 3R: R3

Inflow Area = 2.558 ac, Inflow Depth = 2.80" for 100-yr event
Inflow = 6.3 cfs @ 12.15 hrs, Volume= 0.60 af
Outflow = 6.3 cfs @ 12.15 hrs, Volume= 0.60 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.3 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.73' @ 12.15 hrs
Capacity at bank full= 9.9 cfs
A factor of 2.00 has been applied to the supplied storage and discharge data
15.0" Diameter Pipe n= 0.012 Length= 42.0' Slope= 0.0050 '/'

Reach 4R: R4

Inflow Area = 5.226 ac, Inflow Depth = 3.27" for 100-yr event
Inflow = 13.2 cfs @ 12.14 hrs, Volume= 1.43 af
Outflow = 13.2 cfs @ 12.15 hrs, Volume= 1.43 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.5 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.97' @ 12.15 hrs
Capacity at bank full= 14.0 cfs
A factor of 2.00 has been applied to the supplied storage and discharge data
15.0" Diameter Pipe n= 0.012 Length= 78.0' Slope= 0.0100 '/'

Reach 5R: R5

Inflow Area = 0.190 ac, Inflow Depth = 5.21" for 100-yr event
Inflow = 1.0 cfs @ 12.11 hrs, Volume= 0.08 af
Outflow = 1.0 cfs @ 12.11 hrs, Volume= 0.08 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.2 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.1 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.41' @ 12.11 hrs
Capacity at bank full= 2.7 cfs
12.0" Diameter Pipe n= 0.012 Length= 20.0' Slope= 0.0050 '/'

Reach 6R: R6

Inflow Area = 0.804 ac, Inflow Depth = 3.01" for 100-yr event
Inflow = 2.4 cfs @ 12.12 hrs, Volume= 0.20 af
Outflow = 2.4 cfs @ 12.12 hrs, Volume= 0.20 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.9 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.74' @ 12.12 hrs
Capacity at bank full= 2.7 cfs
12.0" Diameter Pipe n= 0.012 Length= 20.0' Slope= 0.0050 '/'

Reach 7R: R7

Inflow Area = 4.232 ac, Inflow Depth = 3.24" for 100-yr event
Inflow = 10.0 cfs @ 12.15 hrs, Volume= 1.14 af
Outflow = 9.9 cfs @ 12.16 hrs, Volume= 1.14 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.0 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.3 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.86' @ 12.15 hrs
Capacity at bank full= 12.1 cfs
15.0" Diameter Pipe n= 0.012 Length= 144.0' Slope= 0.0300 '/'

Reach 8R: R8

Inflow Area = 4.232 ac, Inflow Depth = 3.24" for 100-yr event
Inflow = 10.0 cfs @ 12.14 hrs, Volume= 1.14 af
Outflow = 10.0 cfs @ 12.15 hrs, Volume= 1.14 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.2 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.0 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.93' @ 12.14 hrs
Capacity at bank full= 11.1 cfs
15.0" Diameter Pipe n= 0.012 Length= 138.0' Slope= 0.0250 '/'

Reach 9R: R9

Inflow Area = 0.030 ac, Inflow Depth = 6.07" for 100-yr event
Inflow = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af
Outflow = 0.2 cfs @ 12.11 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.1 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.2 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.12' @ 12.11 hrs
Capacity at bank full= 5.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 16.0' Slope= 0.0200 '/'

Reach 10R: DP 10

Inflow Area = 46.946 ac, Inflow Depth = 1.26" for 100-yr event
Inflow = 34.5 cfs @ 12.36 hrs, Volume= 4.95 af
Outflow = 34.5 cfs @ 12.36 hrs, Volume= 4.95 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.7 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.86' @ 12.36 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 11R: R11

Inflow Area = 0.663 ac, Inflow Depth = 1.48" for 100-yr event
Inflow = 0.8 cfs @ 12.14 hrs, Volume= 0.08 af
Outflow = 0.8 cfs @ 12.14 hrs, Volume= 0.08 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.0 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.2 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.26' @ 12.14 hrs
Capacity at bank full= 5.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 16.0' Slope= 0.0200 '/'

Reach 12R: R12

Inflow Area = 3.379 ac, Inflow Depth = 3.53" for 100-yr event
Inflow = 8.4 cfs @ 12.13 hrs, Volume= 0.99 af
Outflow = 8.4 cfs @ 12.15 hrs, Volume= 0.99 af, Atten= 0%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 13.2 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.3 fps, Avg. Travel Time= 0.9 min

Peak Depth= 0.76' @ 12.14 hrs
Capacity at bank full= 9.1 cfs
12.0" Diameter Pipe n= 0.012 Length= 294.0' Slope= 0.0559 '/'

Reach 13R: R13

Inflow Area = 0.250 ac, Inflow Depth = 3.21" for 100-yr event
Inflow = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af
Outflow = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.0 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.26' @ 12.12 hrs
Capacity at bank full= 5.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 16.0' Slope= 0.0200 '/'

Reach 14R: R14

Inflow Area = 0.224 ac, Inflow Depth = 3.82" for 100-yr event
Inflow = 0.9 cfs @ 12.12 hrs, Volume= 0.07 af
Outflow = 0.9 cfs @ 12.12 hrs, Volume= 0.07 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.9 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.8 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.25' @ 12.12 hrs
Capacity at bank full= 9.9 cfs
15.0" Diameter Pipe n= 0.012 Length= 16.0' Slope= 0.0200 '/'

Reach 15R: R15

Inflow Area = 0.683 ac, Inflow Depth = 2.46" for 100-yr event
Inflow = 1.6 cfs @ 12.12 hrs, Volume= 0.14 af
Outflow = 1.6 cfs @ 12.14 hrs, Volume= 0.14 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.0 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.4 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.28' @ 12.13 hrs
Capacity at bank full= 9.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 144.0' Slope= 0.0600 '/'

Reach 16R: R16

Inflow Area = 0.270 ac, Inflow Depth = 2.91" for 100-yr event
Inflow = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af
Outflow = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.9 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.26' @ 12.12 hrs
Capacity at bank full= 5.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 16.0' Slope= 0.0200 '/'

Reach 17R: R17

Inflow Area = 0.413 ac, Inflow Depth = 2.17" for 100-yr event
Inflow = 0.9 cfs @ 12.13 hrs, Volume= 0.07 af
Outflow = 0.9 cfs @ 12.13 hrs, Volume= 0.07 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.0 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.0 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.27' @ 12.13 hrs
Capacity at bank full= 5.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 16.0' Slope= 0.0200 '/'

Reach 18R: R18

Inflow Area = 6.660 ac, Inflow Depth = 5.43" for 100-yr event
Inflow = 33.1 cfs @ 12.13 hrs, Volume= 3.01 af
Outflow = 32.8 cfs @ 12.14 hrs, Volume= 3.01 af, Atten= 1%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.9 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.8 fps, Avg. Travel Time= 1.1 min

Peak Depth= 1.29' @ 12.13 hrs
Capacity at bank full= 62.8 cfs
30.0" Diameter Pipe n= 0.012 Length= 304.0' Slope= 0.0200 '/'

Reach 19R: R19

Inflow Area = 0.640 ac, Inflow Depth = 4.79" for 100-yr event
Inflow = 3.0 cfs @ 12.11 hrs, Volume= 0.26 af
Outflow = 2.9 cfs @ 12.13 hrs, Volume= 0.26 af, Atten= 3%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.1 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 1.8 min

Peak Depth= 0.48' @ 12.12 hrs
Capacity at bank full= 13.5 cfs
18.0" Diameter Pipe n= 0.012 Length= 230.0' Slope= 0.0140 '/'

Reach 20R: Design Point #20

Inflow Area = 4.470 ac, Inflow Depth = 3.31" for 100-yr event
Inflow = 12.6 cfs @ 12.21 hrs, Volume= 1.23 af
Outflow = 12.6 cfs @ 12.21 hrs, Volume= 1.23 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.7 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.58' @ 12.21 hrs
Capacity at bank full= 1,287.1 cfs
99.0" Diameter Pipe n= 0.010 Length= 1.0' Slope= 0.0100 '/'

Reach 21R: R21

Inflow Area = 0.470 ac, Inflow Depth = 4.45" for 100-yr event
Inflow = 2.1 cfs @ 12.11 hrs, Volume= 0.17 af
Outflow = 2.1 cfs @ 12.12 hrs, Volume= 0.17 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.5 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.43' @ 12.11 hrs
Capacity at bank full= 5.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 24.0' Slope= 0.0200 '/'

Reach 22R: R22

Inflow Area = 0.170 ac, Inflow Depth = 5.73" for 100-yr event
Inflow = 0.9 cfs @ 12.11 hrs, Volume= 0.08 af
Outflow = 0.9 cfs @ 12.11 hrs, Volume= 0.08 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.1 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.22' @ 12.11 hrs
Capacity at bank full= 8.6 cfs
12.0" Diameter Pipe n= 0.012 Length= 12.0' Slope= 0.0500 '/'

Reach 23R: R23

Inflow Area = 5.820 ac, Inflow Depth = 5.47" for 100-yr event
Inflow = 29.3 cfs @ 12.12 hrs, Volume= 2.65 af
Outflow = 29.0 cfs @ 12.13 hrs, Volume= 2.65 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.3 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.8 fps, Avg. Travel Time= 0.2 min

Peak Depth= 1.41' @ 12.12 hrs
Capacity at bank full= 34.7 cfs
24.0" Diameter Pipe n= 0.012 Length= 52.0' Slope= 0.0200 '/'

Reach 24R: R24

Inflow Area = 0.330 ac, Inflow Depth = 4.67" for 100-yr event
Inflow = 1.5 cfs @ 12.11 hrs, Volume= 0.13 af
Outflow = 1.5 cfs @ 12.11 hrs, Volume= 0.13 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.36' @ 12.11 hrs
Capacity at bank full= 5.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 16.0' Slope= 0.0200 '/'

Reach 25R: R25

Inflow Area = 0.240 ac, Inflow Depth = 5.21" for 100-yr event
Inflow = 1.2 cfs @ 12.11 hrs, Volume= 0.10 af
Outflow = 1.2 cfs @ 12.11 hrs, Volume= 0.10 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.6 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.0 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.32' @ 12.11 hrs
Capacity at bank full= 5.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 16.0' Slope= 0.0200 '/'

Reach 26R: R26

Inflow Area = 5.250 ac, Inflow Depth = 5.54" for 100-yr event
Inflow = 26.7 cfs @ 12.12 hrs, Volume= 2.42 af
Outflow = 26.5 cfs @ 12.12 hrs, Volume= 2.42 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.9 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 5.9 fps, Avg. Travel Time= 0.4 min

Peak Depth= 1.05' @ 12.12 hrs
Capacity at bank full= 49.0 cfs
24.0" Diameter Pipe n= 0.012 Length= 146.0' Slope= 0.0400 '/'

Reach 27R: R27

Inflow Area = 4.670 ac, Inflow Depth = 5.62" for 100-yr event
Inflow = 24.0 cfs @ 12.12 hrs, Volume= 2.19 af
Outflow = 23.9 cfs @ 12.12 hrs, Volume= 2.19 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.5 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 5.8 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.99' @ 12.12 hrs
Capacity at bank full= 49.0 cfs
24.0" Diameter Pipe n= 0.012 Length= 146.0' Slope= 0.0400 '/'

Reach 28R: R28

Inflow Area = 1.260 ac, Inflow Depth = 5.21" for 100-yr event
Inflow = 5.9 cfs @ 12.14 hrs, Volume= 0.55 af
Outflow = 5.9 cfs @ 12.15 hrs, Volume= 0.55 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.7 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.2 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.49' @ 12.14 hrs
Capacity at bank full= 25.4 cfs
18.0" Diameter Pipe n= 0.012 Length= 16.0' Slope= 0.0500 '/'

Reach 29R: R29

Inflow Area = 0.320 ac, Inflow Depth = 5.00" for 100-yr event
Inflow = 1.6 cfs @ 12.11 hrs, Volume= 0.13 af
Outflow = 1.6 cfs @ 12.11 hrs, Volume= 0.13 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.2 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.8 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.27' @ 12.11 hrs
Capacity at bank full= 15.6 cfs
15.0" Diameter Pipe n= 0.012 Length= 16.0' Slope= 0.0500 '/'

Reach 30R: Design Point #30

Inflow Area = 6.360 ac, Inflow Depth = 3.01" for 100-yr event
Inflow = 15.2 cfs @ 12.25 hrs, Volume= 1.60 af
Outflow = 15.2 cfs @ 12.25 hrs, Volume= 1.60 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.1 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.8 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.58' @ 12.25 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 31R: R31

Inflow Area = 0.815 ac, Inflow Depth = 1.64" for 100-yr event
Inflow = 1.2 cfs @ 12.14 hrs, Volume= 0.11 af
Outflow = 1.2 cfs @ 12.14 hrs, Volume= 0.11 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.30' @ 12.14 hrs
Capacity at bank full= 6.1 cfs
12.0" Diameter Pipe n= 0.012 Length= 30.0' Slope= 0.0250 '/'

Reach 32R: R32

Inflow Area = 11.081 ac, Inflow Depth = 0.68" for 100-yr event
Inflow = 2.5 cfs @ 12.89 hrs, Volume= 0.63 af
Outflow = 2.5 cfs @ 12.86 hrs, Volume= 0.63 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.6 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 5.4 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.40' @ 12.86 hrs
Capacity at bank full= 16.1 cfs
18.0" Diameter Pipe n= 0.012 Length= 20.0' Slope= 0.0200 '/'

Reach 33R: R33

Inflow Area = 2.905 ac, Inflow Depth = 3.53" for 100-yr event
Inflow = 6.8 cfs @ 12.14 hrs, Volume= 0.86 af
Outflow = 6.8 cfs @ 12.14 hrs, Volume= 0.86 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 13.9 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 5.5 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.60' @ 12.14 hrs
Capacity at bank full= 10.2 cfs
12.0" Diameter Pipe n= 0.012 Length= 144.0' Slope= 0.0700 '/'

Reach 34R: R34

Inflow Area = 0.160 ac, Inflow Depth = 3.82" for 100-yr event
Inflow = 0.6 cfs @ 12.12 hrs, Volume= 0.05 af
Outflow = 0.6 cfs @ 12.12 hrs, Volume= 0.05 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.6 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.4 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.18' @ 12.12 hrs
Capacity at bank full= 9.1 cfs
12.0" Diameter Pipe n= 0.012 Length= 76.0' Slope= 0.0555 '/'

Reach 35R: R35

Inflow Area = 0.060 ac, Inflow Depth = 6.07" for 100-yr event
Inflow = 0.3 cfs @ 12.11 hrs, Volume= 0.03 af
Outflow = 0.3 cfs @ 12.11 hrs, Volume= 0.03 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.4 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.9 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.24' @ 12.11 hrs
Capacity at bank full= 2.7 cfs
12.0" Diameter Pipe n= 0.012 Length= 26.0' Slope= 0.0050 '/'

Reach 36R: R36

Inflow Area = 0.220 ac, Inflow Depth = 3.61" for 100-yr event
Inflow = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af
Outflow = 0.8 cfs @ 12.12 hrs, Volume= 0.07 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.0 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.1 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.37' @ 12.12 hrs
Capacity at bank full= 2.7 cfs
12.0" Diameter Pipe n= 0.012 Length= 22.0' Slope= 0.0050 '/'

Reach 39R: R39

Inflow Area = 1.297 ac, Inflow Depth = 3.03" for 100-yr event
Inflow = 3.5 cfs @ 12.18 hrs, Volume= 0.33 af
Outflow = 3.4 cfs @ 12.18 hrs, Volume= 0.33 af, Atten= 3%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.2 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 1.5 min

Peak Depth= 0.79' @ 12.18 hrs
Capacity at bank full= 4.7 cfs
15.0" Diameter Pipe n= 0.012 Length= 138.0' Slope= 0.0045 '/'

Reach 40R: Design Point #40

Inflow Area = 0.510 ac, Inflow Depth = 0.31" for 100-yr event
Inflow = 0.0 cfs @ 12.47 hrs, Volume= 0.01 af
Outflow = 0.0 cfs @ 12.47 hrs, Volume= 0.01 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.01' @ 12.47 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 41R: R41

Inflow Area = 6.820 ac, Inflow Depth = 5.44" for 100-yr event
Inflow = 33.6 cfs @ 12.14 hrs, Volume= 3.09 af
Outflow = 33.6 cfs @ 12.14 hrs, Volume= 3.09 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 22.9 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 8.4 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.95' @ 12.14 hrs
Capacity at bank full= 73.5 cfs
24.0" Diameter Pipe n= 0.012 Length= 176.0' Slope= 0.0900 '/'

Reach 42R: R42

Inflow Area = 9.796 ac, Inflow Depth = 5.43" for 100-yr event
Inflow = 47.6 cfs @ 12.13 hrs, Volume= 4.43 af
Outflow = 47.5 cfs @ 12.13 hrs, Volume= 4.43 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 25.8 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 9.7 fps, Avg. Travel Time= 0.4 min

Peak Depth= 1.13' @ 12.13 hrs
Capacity at bank full= 77.3 cfs
24.0" Diameter Pipe n= 0.012 Length= 218.0' Slope= 0.0995 '/'

Reach 43R: R43

Inflow Area = 10.928 ac, Inflow Depth = 5.34" for 100-yr event
Inflow = 52.0 cfs @ 12.14 hrs, Volume= 4.86 af
Outflow = 51.8 cfs @ 12.15 hrs, Volume= 4.86 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.8 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.7 fps, Avg. Travel Time= 0.5 min

Peak Depth= 2.11' @ 12.14 hrs
Capacity at bank full= 50.7 cfs
30.0" Diameter Pipe n= 0.012 Length= 143.0' Slope= 0.0130 '/'

Reach 44R: FLOW FROM POND 3 TO DP10

Inflow Area = 13.926 ac, Inflow Depth = 1.31" for 100-yr event
Inflow = 15.7 cfs @ 12.54 hrs, Volume= 1.52 af
Outflow = 15.7 cfs @ 12.54 hrs, Volume= 1.52 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.8 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 6.6 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.94' @ 12.54 hrs
Capacity at bank full= 34.7 cfs
24.0" Diameter Pipe n= 0.012 Length= 15.0' Slope= 0.0200 '/'

Reach 45R: R45

Inflow Area = 10.006 ac, Inflow Depth = 5.44" for 100-yr event
Inflow = 48.6 cfs @ 12.13 hrs, Volume= 4.54 af
Outflow = 48.5 cfs @ 12.14 hrs, Volume= 4.54 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 17.8 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 7.1 fps, Avg. Travel Time= 0.3 min

Peak Depth= 1.62' @ 12.14 hrs
Capacity at bank full= 49.0 cfs
24.0" Diameter Pipe n= 0.012 Length= 128.0' Slope= 0.0400 '/'

Reach 46R: R46

Inflow Area = 0.080 ac, Inflow Depth = 5.83" for 100-yr event
Inflow = 0.4 cfs @ 12.11 hrs, Volume= 0.04 af
Outflow = 0.4 cfs @ 12.11 hrs, Volume= 0.04 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.7 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.15' @ 12.11 hrs
Capacity at bank full= 8.6 cfs
12.0" Diameter Pipe n= 0.012 Length= 10.0' Slope= 0.0500 '/'

Reach 47R: R47

Inflow Area = 0.080 ac, Inflow Depth = 6.07" for 100-yr event
Inflow = 0.4 cfs @ 12.11 hrs, Volume= 0.04 af
Outflow = 0.4 cfs @ 12.11 hrs, Volume= 0.04 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.8 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.15' @ 12.11 hrs
Capacity at bank full= 8.6 cfs
12.0" Diameter Pipe n= 0.012 Length= 10.0' Slope= 0.0500 '/'

Reach 48R: R48

Inflow Area = 0.110 ac, Inflow Depth = 5.73" for 100-yr event
Inflow = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af
Outflow = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.3 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.18' @ 12.11 hrs
Capacity at bank full= 8.6 cfs
12.0" Diameter Pipe n= 0.012 Length= 15.0' Slope= 0.0500 '/'

Reach 49R: R49

Inflow Area = 0.100 ac, Inflow Depth = 6.07" for 100-yr event
Inflow = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af
Outflow = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.2 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.17' @ 12.11 hrs
Capacity at bank full= 8.6 cfs
12.0" Diameter Pipe n= 0.012 Length= 15.0' Slope= 0.0500 '/'

Reach 50R: R50

Inflow Area = 0.822 ac, Inflow Depth = 4.02" for 100-yr event
Inflow = 3.1 cfs @ 12.16 hrs, Volume= 0.28 af
Outflow = 3.1 cfs @ 12.16 hrs, Volume= 0.28 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.3 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.48' @ 12.16 hrs
Capacity at bank full= 6.7 cfs
12.0" Diameter Pipe n= 0.012 Length= 15.0' Slope= 0.0300 '/'

Reach 51R: R51

Inflow Area = 0.100 ac, Inflow Depth = 6.07" for 100-yr event
Inflow = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af
Outflow = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.1 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.19' @ 12.11 hrs
Capacity at bank full= 6.7 cfs
12.0" Diameter Pipe n= 0.012 Length= 15.0' Slope= 0.0300 '/'

Reach 52R: From PCB to DMH in road

Inflow Area = 0.118 ac, Inflow Depth = 6.07" for 100-yr event
Inflow = 0.7 cfs @ 12.06 hrs, Volume= 0.06 af
Outflow = 0.7 cfs @ 12.06 hrs, Volume= 0.06 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.8 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.7 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.25' @ 12.06 hrs
Capacity at bank full= 5.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 25.0' Slope= 0.0200 '/'

Reach 53R: to PDMH in road

Inflow Area = 1.505 ac, Inflow Depth = 5.49" for 100-yr event
Inflow = 7.4 cfs @ 12.09 hrs, Volume= 0.69 af
Outflow = 7.4 cfs @ 12.10 hrs, Volume= 0.69 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.4 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.8 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.72' @ 12.09 hrs
Capacity at bank full= 8.6 cfs
12.0" Diameter Pipe n= 0.012 Length= 62.0' Slope= 0.0500 '/'

Reach 54R: From PCB to DMH in road

Inflow Area = 0.123 ac, Inflow Depth = 6.07" for 100-yr event
Inflow = 0.8 cfs @ 12.06 hrs, Volume= 0.06 af
Outflow = 0.8 cfs @ 12.06 hrs, Volume= 0.06 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.9 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.7 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.25' @ 12.06 hrs
Capacity at bank full= 5.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 25.0' Slope= 0.0200 '/'

Reach 55R: PDMH to PDMH

Inflow Area = 1.505 ac, Inflow Depth = 5.49" for 100-yr event
Inflow = 7.4 cfs @ 12.09 hrs, Volume= 0.69 af
Outflow = 7.4 cfs @ 12.09 hrs, Volume= 0.69 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.9 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 6.0 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.58' @ 12.09 hrs
Capacity at bank full= 11.8 cfs
12.0" Diameter Pipe n= 0.012 Length= 149.0' Slope= 0.0940 '/'

Reach 56R: PCB#4 TO PDMH#3

Inflow Area = 0.841 ac, Inflow Depth = 3.71" for 100-yr event
Inflow = 2.9 cfs @ 12.16 hrs, Volume= 0.26 af
Outflow = 2.9 cfs @ 12.17 hrs, Volume= 0.26 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.4 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.64' @ 12.17 hrs
Capacity at bank full= 3.9 cfs
12.0" Diameter Pipe n= 0.012 Length= 94.0' Slope= 0.0100 '/'

Reach 57R: PDMH#3 TO POND 3

Inflow Area = 1.101 ac, Inflow Depth = 3.66" for 100-yr event
Inflow = 3.7 cfs @ 12.16 hrs, Volume= 0.34 af
Outflow = 3.7 cfs @ 12.17 hrs, Volume= 0.34 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.5 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.9 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.61' @ 12.17 hrs
Capacity at bank full= 5.5 cfs
12.0" Diameter Pipe n= 0.012 Length= 126.0' Slope= 0.0200 '/'

Reach 58R: PCB#1 TO PDMH#2

Inflow Area = 0.260 ac, Inflow Depth = 3.51" for 100-yr event
Inflow = 0.9 cfs @ 12.12 hrs, Volume= 0.08 af
Outflow = 0.9 cfs @ 12.13 hrs, Volume= 0.08 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.0 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.5 fps, Avg. Travel Time= 1.0 min

Peak Depth= 0.33' @ 12.12 hrs
Capacity at bank full= 3.9 cfs
12.0" Diameter Pipe n= 0.012 Length= 89.0' Slope= 0.0100 '/'

Reach 59R: PDMH#2 TO PDMH#3

Inflow Area = 0.260 ac, Inflow Depth = 3.51" for 100-yr event
Inflow = 0.9 cfs @ 12.13 hrs, Volume= 0.08 af
Outflow = 0.9 cfs @ 12.14 hrs, Volume= 0.08 af, Atten= 1%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.0 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.5 fps, Avg. Travel Time= 1.1 min

Peak Depth= 0.33' @ 12.14 hrs
Capacity at bank full= 3.9 cfs
12.0" Diameter Pipe n= 0.012 Length= 101.0' Slope= 0.0100 '/'

Reach 60R: PCB to PDMH

Inflow Area = 0.764 ac, Inflow Depth = 5.10" for 100-yr event
Inflow = 3.5 cfs @ 12.15 hrs, Volume= 0.32 af
Outflow = 3.5 cfs @ 12.15 hrs, Volume= 0.32 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 14.1 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 5.1 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.35' @ 12.15 hrs
Capacity at bank full= 13.1 cfs
12.0" Diameter Pipe n= 0.012 Length= 34.0' Slope= 0.1150 '/'

Reach 61R: PCB to PDMH

Inflow Area = 0.281 ac, Inflow Depth = 6.00" for 100-yr event
Inflow = 1.8 cfs @ 12.06 hrs, Volume= 0.14 af
Outflow = 1.7 cfs @ 12.06 hrs, Volume= 0.14 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.6 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.4 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.28' @ 12.06 hrs
Capacity at bank full= 10.1 cfs
12.0" Diameter Pipe n= 0.012 Length= 125.0' Slope= 0.0690 '/'

Reach 63R: R63

Inflow Area = 0.533 ac, Inflow Depth = 0.15" for 100-yr event
Inflow = 0.3 cfs @ 12.51 hrs, Volume= 0.01 af
Outflow = 0.3 cfs @ 12.53 hrs, Volume= 0.01 af, Atten= 2%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.5 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 1.3 min

Peak Depth= 0.20' @ 12.52 hrs
Capacity at bank full= 1.6 cfs
8.0" Diameter Pipe n= 0.011 Length= 142.0' Slope= 0.0120 '/'

Reach 99R: Design Point #50

Inflow Area = 0.330 ac, Inflow Depth = 0.36" for 100-yr event
Inflow = 0.0 cfs @ 12.44 hrs, Volume= 0.01 af
Outflow = 0.0 cfs @ 12.44 hrs, Volume= 0.01 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.01' @ 12.44 hrs
Capacity at bank full= 1,516.9 cfs
99.0" Diameter Pipe n= 0.012 Length= 1.0' Slope= 0.0200 '/'

Reach 100R: PDMH92 to PDMH90

Inflow Area = 0.764 ac, Inflow Depth = 5.04" for 100-yr event
Inflow = 3.6 cfs @ 12.14 hrs, Volume= 0.32 af
Outflow = 3.5 cfs @ 12.18 hrs, Volume= 0.32 af, Atten= 2%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.7 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 0.8 min

Peak Depth= 1.00' @ 12.15 hrs
Capacity at bank full= 3.3 cfs
12.0" Diameter Pipe n= 0.011 Length= 90.0' Slope= 0.0060 '/'

Reach 101R: R101

Inflow Area = 0.216 ac, Inflow Depth = 5.63" for 100-yr event
Inflow = 1.2 cfs @ 12.11 hrs, Volume= 0.10 af
Outflow = 1.2 cfs @ 12.11 hrs, Volume= 0.10 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.9 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.30' @ 12.11 hrs
Capacity at bank full= 6.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 35.0' Slope= 0.0200 '/'

Reach 102R: PDMH94 to PDMH92

Inflow Area = 0.548 ac, Inflow Depth = 4.80" for 100-yr event
Inflow = 2.5 cfs @ 12.12 hrs, Volume= 0.22 af
Outflow = 2.5 cfs @ 12.15 hrs, Volume= 0.22 af, Atten= 2%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.2 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 2.0 min

Peak Depth= 0.70' @ 12.14 hrs
Capacity at bank full= 3.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 194.0' Slope= 0.0050 '/'

Reach 103R: PCB95 to PDMH94

Inflow Area = 0.092 ac, Inflow Depth = 5.83" for 100-yr event
Inflow = 0.5 cfs @ 12.11 hrs, Volume= 0.04 af
Outflow = 0.5 cfs @ 12.11 hrs, Volume= 0.04 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.6 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.3 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.23' @ 12.11 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 26.0' Slope= 0.0100 '/'

Reach 104R: PCB96 to PDMH94

Inflow Area = 0.176 ac, Inflow Depth = 5.32" for 100-yr event
Inflow = 0.9 cfs @ 12.11 hrs, Volume= 0.08 af
Outflow = 0.9 cfs @ 12.12 hrs, Volume= 0.08 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.3 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.5 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.32' @ 12.11 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 45.0' Slope= 0.0100 '/'

Reach 105R: From PCB to Stormceptor

Inflow Area = 0.533 ac, Inflow Depth = 5.00" for 100-yr event
Inflow = 2.6 cfs @ 12.11 hrs, Volume= 0.22 af
Outflow = 2.6 cfs @ 12.11 hrs, Volume= 0.22 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.6 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.0 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.57' @ 12.11 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 13.0' Slope= 0.0100 '/'

Reach 106R: From Stormceptor to Cultecs

Inflow Area = 0.533 ac, Inflow Depth = 4.99" for 100-yr event
Inflow = 2.6 cfs @ 12.11 hrs, Volume= 0.22 af
Outflow = 2.6 cfs @ 12.11 hrs, Volume= 0.22 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.6 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.57' @ 12.11 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 5.0' Slope= 0.0100 '/'

Reach 107R: DMH130 to PDMH94

Inflow Area = 0.280 ac, Inflow Depth = 4.14" for 100-yr event
Inflow = 1.1 cfs @ 12.12 hrs, Volume= 0.10 af
Outflow = 1.1 cfs @ 12.13 hrs, Volume= 0.10 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.9 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.4 fps, Avg. Travel Time= 1.0 min

Peak Depth= 0.39' @ 12.12 hrs
Capacity at bank full= 3.5 cfs
12.0" Diameter Pipe n= 0.011 Length= 82.0' Slope= 0.0068 '/'

Reach 108R: cistern to FE

Inflow Area = 5.855 ac, Inflow Depth = 4.71" for 100-yr event
Inflow = 25.4 cfs @ 12.14 hrs, Volume= 2.30 af
Outflow = 25.3 cfs @ 12.15 hrs, Volume= 2.30 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.6 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.8 fps, Avg. Travel Time= 0.3 min

Peak Depth= 1.60' @ 12.15 hrs
Capacity at bank full= 34.3 cfs
30.0" Diameter Pipe n= 0.011 Length= 58.0' Slope= 0.0050 '/'

Reach 109R: PDMH80 to cistern

Inflow Area = 1.201 ac, Inflow Depth = 5.94" for 100-yr event
Inflow = 6.4 cfs @ 12.12 hrs, Volume= 0.59 af
Outflow = 6.4 cfs @ 12.13 hrs, Volume= 0.59 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.9 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.88' @ 12.12 hrs
Capacity at bank full= 7.6 cfs
15.0" Diameter Pipe n= 0.011 Length= 104.0' Slope= 0.0100 '/'

Reach 110R: PDMH82 to cistern

Inflow Area = 4.654 ac, Inflow Depth = 4.39" for 100-yr event
Inflow = 19.1 cfs @ 12.14 hrs, Volume= 1.70 af
Outflow = 19.1 cfs @ 12.15 hrs, Volume= 1.70 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.1 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.3 fps, Avg. Travel Time= 0.4 min

Peak Depth= 1.01' @ 12.15 hrs
Capacity at bank full= 37.8 cfs
24.0" Diameter Pipe n= 0.011 Length= 101.0' Slope= 0.0200 '/'

Reach 111R: PCB83 to PDMH82

Inflow Area = 0.393 ac, Inflow Depth = 5.21" for 100-yr event
Inflow = 2.0 cfs @ 12.11 hrs, Volume= 0.17 af
Outflow = 2.0 cfs @ 12.11 hrs, Volume= 0.17 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.8 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.4 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.40' @ 12.11 hrs
Capacity at bank full= 6.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 20.0' Slope= 0.0200 '/'

Reach 112R: PDMH84 to PDMH82

Inflow Area = 4.261 ac, Inflow Depth = 4.32" for 100-yr event
Inflow = 17.3 cfs @ 12.14 hrs, Volume= 1.53 af
Outflow = 17.2 cfs @ 12.15 hrs, Volume= 1.53 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.7 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.5 fps, Avg. Travel Time= 0.4 min

Peak Depth= 1.10' @ 12.14 hrs
Capacity at bank full= 29.3 cfs
24.0" Diameter Pipe n= 0.011 Length= 93.0' Slope= 0.0120 '/'

Reach 113R: PCB85 to PDMH84

Inflow Area = 0.600 ac, Inflow Depth = 4.54" for 100-yr event
Inflow = 2.6 cfs @ 12.11 hrs, Volume= 0.23 af
Outflow = 2.6 cfs @ 12.11 hrs, Volume= 0.23 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.3 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.46' @ 12.11 hrs
Capacity at bank full= 6.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 11.0' Slope= 0.0200 '/'

Reach 114R: PDMH98 to PDMH84

Inflow Area = 3.661 ac, Inflow Depth = 4.28" for 100-yr event
Inflow = 14.9 cfs @ 12.14 hrs, Volume= 1.31 af
Outflow = 14.8 cfs @ 12.15 hrs, Volume= 1.31 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.7 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 5.8 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.90' @ 12.14 hrs
Capacity at bank full= 17.1 cfs
15.0" Diameter Pipe n= 0.011 Length= 207.0' Slope= 0.0500 '/'

Reach 115R: PDMH81 to PDMH80

Inflow Area = 0.640 ac, Inflow Depth = 6.03" for 100-yr event
Inflow = 3.4 cfs @ 12.13 hrs, Volume= 0.32 af
Outflow = 3.4 cfs @ 12.13 hrs, Volume= 0.32 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.68' @ 12.13 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 47.0' Slope= 0.0100 '/'

Reach 116R: PCB86 to PDMH81

Inflow Area = 0.221 ac, Inflow Depth = 6.07" for 100-yr event
Inflow = 1.2 cfs @ 12.11 hrs, Volume= 0.11 af
Outflow = 1.2 cfs @ 12.11 hrs, Volume= 0.11 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.2 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.31' @ 12.11 hrs
Capacity at bank full= 6.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 21.0' Slope= 0.0200 '/'

Reach 117R: PCB89 to PDMH87

Inflow Area = 0.317 ac, Inflow Depth = 6.00" for 100-yr event
Inflow = 1.8 cfs @ 12.11 hrs, Volume= 0.16 af
Outflow = 1.7 cfs @ 12.12 hrs, Volume= 0.16 af, Atten= 2%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.1 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 1.2 min

Peak Depth= 0.50' @ 12.12 hrs
Capacity at bank full= 2.6 cfs
10.0" Diameter Pipe n= 0.011 Length= 140.0' Slope= 0.0100 '/'

Reach 118R: PDMH87 to PDMH81

Inflow Area = 0.419 ac, Inflow Depth = 6.02" for 100-yr event
Inflow = 2.3 cfs @ 12.12 hrs, Volume= 0.21 af
Outflow = 2.2 cfs @ 12.14 hrs, Volume= 0.21 af, Atten= 2%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.4 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 1.5 min

Peak Depth= 0.52' @ 12.13 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 190.0' Slope= 0.0100 '/'

Reach 119R: PCB70 to PDMH71

Inflow Area = 0.523 ac, Inflow Depth = 2.53" for 100-yr event
Inflow = 1.3 cfs @ 12.12 hrs, Volume= 0.11 af
Outflow = 1.3 cfs @ 12.14 hrs, Volume= 0.11 af, Atten= 2%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.7 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 1.3 min

Peak Depth= 0.38' @ 12.13 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 146.0' Slope= 0.0100 '/'

Reach 120R: PCB88 to PDMH87

Inflow Area = 0.102 ac, Inflow Depth = 6.07" for 100-yr event
Inflow = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af
Outflow = 0.6 cfs @ 12.11 hrs, Volume= 0.05 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.7 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.4 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.25' @ 12.11 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 15.0' Slope= 0.0100 '/'

Reach 121R: PCB72 to PDMH71

Inflow Area = 0.310 ac, Inflow Depth = 4.45" for 100-yr event
Inflow = 1.4 cfs @ 12.11 hrs, Volume= 0.11 af
Outflow = 1.4 cfs @ 12.11 hrs, Volume= 0.11 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.1 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.30' @ 12.11 hrs
Capacity at bank full= 7.3 cfs
12.0" Diameter Pipe n= 0.011 Length= 9.0' Slope= 0.0300 '/'

Reach 122R: PDMH71 to PDMH73

Inflow Area = 0.833 ac, Inflow Depth = 3.25" for 100-yr event
Inflow = 2.6 cfs @ 12.13 hrs, Volume= 0.23 af
Outflow = 2.6 cfs @ 12.14 hrs, Volume= 0.23 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.6 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.0 fps, Avg. Travel Time= 0.9 min

Peak Depth= 0.57' @ 12.13 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 104.0' Slope= 0.0100 '/'

Reach 123R: PCB74 to PDMH73

Inflow Area = 0.400 ac, Inflow Depth = 4.02" for 100-yr event
Inflow = 1.6 cfs @ 12.12 hrs, Volume= 0.13 af
Outflow = 1.6 cfs @ 12.12 hrs, Volume= 0.13 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.4 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.36' @ 12.12 hrs
Capacity at bank full= 6.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 25.0' Slope= 0.0200 '/'

Reach 124R: PDMH75 to cistern

Inflow Area = 2.428 ac, Inflow Depth = 4.68" for 100-yr event
Inflow = 10.7 cfs @ 12.14 hrs, Volume= 0.95 af
Outflow = 10.7 cfs @ 12.14 hrs, Volume= 0.95 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 17.2 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 6.5 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.74' @ 12.14 hrs
Capacity at bank full= 11.9 cfs
12.0" Diameter Pipe n= 0.011 Length= 36.0' Slope= 0.0800 '/'

Reach 125R: PCB76 to PDMH75

Inflow Area = 0.243 ac, Inflow Depth = 5.00" for 100-yr event
Inflow = 1.2 cfs @ 12.11 hrs, Volume= 0.10 af
Outflow = 1.2 cfs @ 12.11 hrs, Volume= 0.10 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.9 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.30' @ 12.11 hrs
Capacity at bank full= 6.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 28.0' Slope= 0.0200 '/'

Reach 126R: PDMH77 to PDMH75

Inflow Area = 2.185 ac, Inflow Depth = 4.64" for 100-yr event
Inflow = 9.6 cfs @ 12.14 hrs, Volume= 0.85 af
Outflow = 9.6 cfs @ 12.14 hrs, Volume= 0.85 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 13.1 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.8 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.72' @ 12.14 hrs
Capacity at bank full= 15.3 cfs
15.0" Diameter Pipe n= 0.011 Length= 143.0' Slope= 0.0400 '/'

Reach 127R: PCB78 to PDMH77

Inflow Area = 0.187 ac, Inflow Depth = 5.73" for 100-yr event
Inflow = 1.0 cfs @ 12.11 hrs, Volume= 0.09 af
Outflow = 1.0 cfs @ 12.11 hrs, Volume= 0.09 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.6 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.0 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.28' @ 12.11 hrs
Capacity at bank full= 6.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 9.0' Slope= 0.0200 '/'

Reach 128R: PCB 79 to PDMH68

Inflow Area = 0.284 ac, Inflow Depth = 5.00" for 100-yr event
Inflow = 1.4 cfs @ 12.11 hrs, Volume= 0.12 af
Outflow = 1.4 cfs @ 12.11 hrs, Volume= 0.12 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.6 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.0 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.26' @ 12.11 hrs
Capacity at bank full= 9.4 cfs
12.0" Diameter Pipe n= 0.011 Length= 12.0' Slope= 0.0500 '/'

Reach 129R: PDMH61 to DMH128

Inflow Area = 2.222 ac, Inflow Depth = 3.86" for 100-yr event
Inflow = 8.4 cfs @ 12.13 hrs, Volume= 0.72 af
Outflow = 5.2 cfs @ 12.10 hrs, Volume= 0.72 af, Atten= 38%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.4 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 3.2 fps, Avg. Travel Time= 0.9 min

Peak Depth= 1.00' @ 12.05 hrs
Capacity at bank full= 5.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 168.0' Slope= 0.0150 '/'

Reach 130R: PDMH64 to PDMH61

Inflow Area = 1.155 ac, Inflow Depth = 3.80" for 100-yr event
Inflow = 4.2 cfs @ 12.13 hrs, Volume= 0.37 af
Outflow = 4.2 cfs @ 12.13 hrs, Volume= 0.37 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.2 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.0 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.62' @ 12.13 hrs
Capacity at bank full= 6.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 89.0' Slope= 0.0200 '/'

Reach 131R: PCB62 to PDMH61

Inflow Area = 0.461 ac, Inflow Depth = 3.11" for 100-yr event
Inflow = 1.4 cfs @ 12.12 hrs, Volume= 0.12 af
Outflow = 1.4 cfs @ 12.12 hrs, Volume= 0.12 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.8 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.32' @ 12.12 hrs
Capacity at bank full= 6.7 cfs
12.0" Diameter Pipe n= 0.011 Length= 37.0' Slope= 0.0251 '/'

Reach 132R: PDMH68 to PDMH77

Inflow Area = 1.998 ac, Inflow Depth = 4.54" for 100-yr event
Inflow = 8.7 cfs @ 12.13 hrs, Volume= 0.76 af
Outflow = 8.6 cfs @ 12.14 hrs, Volume= 0.76 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.6 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.3 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.95' @ 12.14 hrs
Capacity at bank full= 9.4 cfs
15.0" Diameter Pipe n= 0.011 Length= 104.0' Slope= 0.0150 '/'

Reach 133R: PCB66 to PDMH64

Inflow Area = 0.278 ac, Inflow Depth = 5.53" for 100-yr event
Inflow = 1.5 cfs @ 12.11 hrs, Volume= 0.13 af
Outflow = 1.5 cfs @ 12.11 hrs, Volume= 0.13 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.3 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.34' @ 12.11 hrs
Capacity at bank full= 6.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 27.0' Slope= 0.0200 '/'

Reach 134R: PCB65 to PDMH64

Inflow Area = 0.107 ac, Inflow Depth = 3.61" for 100-yr event
Inflow = 0.4 cfs @ 12.12 hrs, Volume= 0.03 af
Outflow = 0.4 cfs @ 12.12 hrs, Volume= 0.03 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.3 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.2 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.21' @ 12.12 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 21.0' Slope= 0.0100 '/'

Reach 135R: PCB63 to PDMH64

Inflow Area = 0.770 ac, Inflow Depth = 3.21" for 100-yr event
Inflow = 2.4 cfs @ 12.13 hrs, Volume= 0.21 af
Outflow = 2.4 cfs @ 12.14 hrs, Volume= 0.21 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.6 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.55' @ 12.13 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 93.0' Slope= 0.0100 '/'

Reach 136R: PDMH69 to PDMH68

Inflow Area = 1.714 ac, Inflow Depth = 4.46" for 100-yr event
Inflow = 7.3 cfs @ 12.14 hrs, Volume= 0.64 af
Outflow = 7.3 cfs @ 12.14 hrs, Volume= 0.64 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.1 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.9 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.88' @ 12.14 hrs
Capacity at bank full= 6.9 cfs
12.0" Diameter Pipe n= 0.011 Length= 31.0' Slope= 0.0271 '/'

Reach 137R: PCB60 to PDMH61

Inflow Area = 0.606 ac, Inflow Depth = 4.56" for 100-yr event
Inflow = 2.8 cfs @ 12.11 hrs, Volume= 0.23 af
Outflow = 2.8 cfs @ 12.12 hrs, Volume= 0.23 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.8 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 5.5 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.27' @ 12.11 hrs
Capacity at bank full= 16.8 cfs
12.0" Diameter Pipe n= 0.011 Length= 102.0' Slope= 0.1600 '/'

Reach 138R: PDMH50 to PDMH69

Inflow Area = 1.714 ac, Inflow Depth = 4.46" for 100-yr event
Inflow = 7.4 cfs @ 12.13 hrs, Volume= 0.64 af
Outflow = 7.3 cfs @ 12.14 hrs, Volume= 0.64 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.4 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.83' @ 12.13 hrs
Capacity at bank full= 9.4 cfs
15.0" Diameter Pipe n= 0.011 Length= 121.0' Slope= 0.0150 '/'

Reach 139R: PDMH51 to PDMH50

Inflow Area = 0.629 ac, Inflow Depth = 5.22" for 100-yr event
Inflow = 3.2 cfs @ 12.12 hrs, Volume= 0.27 af
Outflow = 3.1 cfs @ 12.12 hrs, Volume= 0.27 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.7 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 0.6 min

Peak Depth= 0.58' @ 12.12 hrs
Capacity at bank full= 5.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 86.0' Slope= 0.0140 '/'

Reach 140R: PCB52 to PDMH51

Inflow Area = 0.259 ac, Inflow Depth = 5.53" for 100-yr event
Inflow = 1.4 cfs @ 12.11 hrs, Volume= 0.12 af
Outflow = 1.4 cfs @ 12.11 hrs, Volume= 0.12 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.5 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.26' @ 12.11 hrs
Capacity at bank full= 9.4 cfs
12.0" Diameter Pipe n= 0.011 Length= 17.0' Slope= 0.0500 '/'

Reach 141R: PDMH53 to PDMH51

Inflow Area = 0.370 ac, Inflow Depth = 5.00" for 100-yr event
Inflow = 1.8 cfs @ 12.11 hrs, Volume= 0.15 af
Outflow = 1.8 cfs @ 12.12 hrs, Volume= 0.15 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.6 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 0.9 min

Peak Depth= 0.38' @ 12.12 hrs
Capacity at bank full= 6.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 124.0' Slope= 0.0200 '/'

Reach 142R: PDMH54 to PDMH50

Inflow Area = 1.085 ac, Inflow Depth = 4.03" for 100-yr event
Inflow = 4.3 cfs @ 12.13 hrs, Volume= 0.36 af
Outflow = 4.2 cfs @ 12.13 hrs, Volume= 0.36 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.5 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.4 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.45' @ 12.13 hrs
Capacity at bank full= 10.3 cfs
12.0" Diameter Pipe n= 0.011 Length= 72.0' Slope= 0.0600 '/'

Reach 143R: PDMH55 to PDMH54

Inflow Area = 1.085 ac, Inflow Depth = 4.03" for 100-yr event
Inflow = 4.3 cfs @ 12.13 hrs, Volume= 0.36 af
Outflow = 4.3 cfs @ 12.13 hrs, Volume= 0.36 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 16.5 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 5.8 fps, Avg. Travel Time= 0.2 min

Peak Depth= 0.36' @ 12.13 hrs
Capacity at bank full= 15.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 54.0' Slope= 0.1300 '/'

Reach 144R: PDMH56 to PDMH55

Inflow Area = 1.085 ac, Inflow Depth = 4.03" for 100-yr event
Inflow = 4.3 cfs @ 12.12 hrs, Volume= 0.36 af
Outflow = 4.3 cfs @ 12.13 hrs, Volume= 0.36 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.3 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.70' @ 12.12 hrs
Capacity at bank full= 5.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 65.0' Slope= 0.0151 '/'

Reach 145R: PCB57 to PDMH56

Inflow Area = 0.556 ac, Inflow Depth = 3.11" for 100-yr event
Inflow = 1.7 cfs @ 12.12 hrs, Volume= 0.14 af
Outflow = 1.7 cfs @ 12.12 hrs, Volume= 0.14 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.6 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.37' @ 12.12 hrs
Capacity at bank full= 6.0 cfs
12.0" Diameter Pipe n= 0.011 Length= 11.0' Slope= 0.0200 '/'

Reach 146R: PCB58 to PDMH56

Inflow Area = 0.529 ac, Inflow Depth = 5.00" for 100-yr event
Inflow = 2.6 cfs @ 12.11 hrs, Volume= 0.22 af
Outflow = 2.6 cfs @ 12.12 hrs, Volume= 0.22 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.6 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 1.0 min

Peak Depth= 0.50' @ 12.12 hrs
Capacity at bank full= 5.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 146.0' Slope= 0.0150 '/'

Reach 147R: PCB98 to PDMH63

Inflow Area = 0.342 ac, Inflow Depth = 3.21" for 100-yr event
Inflow = 1.1 cfs @ 12.12 hrs, Volume= 0.09 af
Outflow = 1.1 cfs @ 12.12 hrs, Volume= 0.09 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.5 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.7 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.35' @ 12.12 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 37.0' Slope= 0.0100 '/'

Reach 148R: PCB 67 to PDMH63

Inflow Area = 0.428 ac, Inflow Depth = 3.21" for 100-yr event
Inflow = 1.4 cfs @ 12.12 hrs, Volume= 0.11 af
Outflow = 1.4 cfs @ 12.14 hrs, Volume= 0.11 af, Atten= 2%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.8 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.8 fps, Avg. Travel Time= 1.2 min

Peak Depth= 0.39' @ 12.12 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 131.0' Slope= 0.0100 '/'

Reach 149R: PDMH73 to cistern

Inflow Area = 1.233 ac, Inflow Depth = 3.50" for 100-yr event
Inflow = 4.2 cfs @ 12.13 hrs, Volume= 0.36 af
Outflow = 4.2 cfs @ 12.13 hrs, Volume= 0.36 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.1 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.82' @ 12.13 hrs
Capacity at bank full= 4.2 cfs
12.0" Diameter Pipe n= 0.011 Length= 17.0' Slope= 0.0100 '/'

Reach 150R: cistern to PDMH98

Inflow Area = 3.661 ac, Inflow Depth = 4.28" for 100-yr event
Inflow = 14.9 cfs @ 12.14 hrs, Volume= 1.31 af
Outflow = 14.9 cfs @ 12.14 hrs, Volume= 1.31 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 22.4 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 8.5 fps, Avg. Travel Time= 0.1 min

Peak Depth= 0.79' @ 12.14 hrs
Capacity at bank full= 15.5 cfs
12.0" Diameter Pipe n= 0.011 Length= 51.0' Slope= 0.1351 '/'

INFILTRATION BASIN ANALYSIS

Pond 1P: CONSTRUCTED WETLANDS BASIN 1

Inflow Area = 2.558 ac, Inflow Depth = 0.61" for 1-yr event
Inflow = 1.4 cfs @ 12.18 hrs, Volume= 0.13 af
Outflow = 0.1 cfs @ 14.28 hrs, Volume= 0.07 af, Atten= 92%, Lag= 126.3 min
Primary = 0.0 cfs @ 14.28 hrs, Volume= 0.06 af
Secondary = 0.1 cfs @ 14.28 hrs, Volume= 0.01 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 63.02' @ 14.28 hrs Surf.Area= 3,287 sf Storage= 3,521 cf
Plug-Flow detention time= 462.4 min calculated for 0.07 af (56% of inflow)
Center-of-Mass det. time= 341.4 min (1,177.2 - 835.8)

#	Invert	Avail.Storage	Storage Description
1	61.80'	7,061 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.80	2,489	0	0
62.00	2,617	511	511
63.00	3,275	2,946	3,457
64.00	3,934	3,605	7,061

#	Routing	Invert	Outlet Devices
1	Secondary	63.00'	**15.0' long Broad-Crested Rectangular Weir**
			Head (feet) 0.50 1.00 1.50
			Coef. (English) 1.72 1.88 1.98
2	Primary	61.80'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	62.10'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
4	Primary	62.40'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
5	Primary	62.70'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=0.0 cfs @ 14.28 hrs HW=63.02' (Free Discharge)
- **2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 5.3 fps)
- **3=Orifice/Grate** (Orifice Controls 0.0 cfs @ 4.6 fps)
- **4=Orifice/Grate** (Orifice Controls 0.0 cfs @ 3.7 fps)
- **5=Orifice/Grate** (Orifice Controls 0.0 cfs @ 2.6 fps)

Secondary OutFlow Max=0.1 cfs @ 14.28 hrs HW=63.02' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 0.2 fps)

Pond 2P: DETENTION/INFILTRATION BASIN 2

Inflow Area = 11.081 ac, Inflow Depth = 0.94" for 1-yr event
Inflow = 8.9 cfs @ 12.17 hrs, Volume= 0.87 af
Outflow = 3.4 cfs @ 12.05 hrs, Volume= 0.87 af, Atten= 62%, Lag= 0.0 min
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af
Secondary = 3.4 cfs @ 12.05 hrs, Volume= 0.87 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 66.80' @ 12.55 hrs Surf.Area= 19,239 sf Storage= 6,273 cf
Plug-Flow detention time= 10.8 min calculated for 0.87 af (100% of inflow)
Center-of-Mass det. time= 10.8 min (845.5 - 834.7)

#	Invert	Avail.Storage	Storage Description
1	66.50'	88,413 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.50	18,018	0	0
68.00	24,178	31,647	31,647
70.00	32,588	56,766	88,413

#	Routing	Invert	Outlet Devices
1	Primary	67.70'	**1.00' x 0.50' Vert. Orifice/Grate** C= 0.600
2	Secondary	66.50'	**3.4 cfs Exfiltration when above invert**

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=66.50' (Free Discharge)
↑**1=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=3.4 cfs @ 12.05 hrs HW=66.55' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 3.4 cfs)

Pond 3P: POND 3

Inflow Area = 13.926 ac, Inflow Depth = 1.51" for 1-yr event
Inflow = 18.8 cfs @ 12.15 hrs, Volume= 1.75 af
Outflow = 4.1 cfs @ 11.85 hrs, Volume= 1.75 af, Atten= 78%, Lag= 0.0 min
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af
Secondary = 4.1 cfs @ 11.85 hrs, Volume= 1.75 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 70.08' @ 12.67 hrs Surf.Area= 36,640 sf Storage= 20,817 cf
Plug-Flow detention time= 32.9 min calculated for 1.75 af (100% of inflow)
Center-of-Mass det. time= 32.9 min (843.9 - 811.0)

#	Invert	Avail.Storage	Storage Description
1	69.50'	141,899 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.50	34,771	0	0
70.00	36,388	17,790	17,790
72.00	43,010	79,398	97,188
73.00	46,412	44,711	141,899

#	Routing	Invert	Outlet Devices
1	Primary	70.80'	**5.00' x 1.20' Vert. Orifice/Grate** C= 0.600
2	Secondary	69.50'	**4.1 cfs Exfiltration when above invert**

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=69.50' (Free Discharge)
↑—**1=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=4.1 cfs @ 11.85 hrs HW=69.54' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 4.1 cfs)

Pond 100P: Cultecs under front lot

Inflow Area =	0.533 ac,	Inflow Depth =	1.31"	for 1-yr event
Inflow =	0.7 cfs @	12.12 hrs, Volume=	0.06 af	
Outflow =	0.4 cfs @	12.05 hrs, Volume=	0.06 af,	Atten= 38%, Lag= 0.0 min
Discarded =	0.4 cfs @	12.05 hrs, Volume=	0.06 af	
Primary =	0.0 cfs @	5.00 hrs, Volume=	0.00 af	

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 63.74' @ 12.28 hrs Surf.Area= 470 sf Storage= 149 cf
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	63.20'	2,792 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
63.20	0	0	0
63.70	406	102	102
64.70	2,132	1,269	1,371
65.20	846	745	2,115
65.70	661	377	2,492
66.20	540	300	2,792

#	Routing	Invert	Outlet Devices
1	Discarded	63.20'	**0.4 cfs Exfiltration when above invert**
2	Primary	65.70'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600

Discarded OutFlow Max=0.4 cfs @ 12.05 hrs HW=63.29' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.4 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=63.20' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.0 cfs)

Pond 1P: CONSTRUCTED WETLANDS BASIN 1

Inflow Area = 2.558 ac, Inflow Depth = 0.87" for 2-yr event
Inflow = 1.9 cfs @ 12.17 hrs, Volume= 0.19 af
Outflow = 0.7 cfs @ 12.57 hrs, Volume= 0.13 af, Atten= 65%, Lag= 24.0 min
Primary = 0.0 cfs @ 12.57 hrs, Volume= 0.06 af
Secondary = 0.6 cfs @ 12.57 hrs, Volume= 0.06 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 63.08' @ 12.57 hrs Surf.Area= 3,330 sf Storage= 3,758 cf
Plug-Flow detention time= 311.3 min calculated for 0.13 af (67% of inflow)
Center-of-Mass det. time= 206.2 min (1,038.1 - 831.9)

#	Invert	Avail.Storage	Storage Description
1	61.80'	7,061 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.80	2,489	0	0
62.00	2,617	511	511
63.00	3,275	2,946	3,457
64.00	3,934	3,605	7,061

#	Routing	Invert	Outlet Devices
1	Secondary	63.00'	**15.0' long Broad-Crested Rectangular Weir**
			Head (feet) 0.50 1.00 1.50
			Coef. (English) 1.72 1.88 1.98
2	Primary	61.80'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	62.10'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
4	Primary	62.40'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
5	Primary	62.70'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=0.0 cfs @ 12.57 hrs HW=63.08' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 5.4 fps)
—**3=Orifice/Grate** (Orifice Controls 0.0 cfs @ 4.7 fps)
—**4=Orifice/Grate** (Orifice Controls 0.0 cfs @ 3.9 fps)
└—**5=Orifice/Grate** (Orifice Controls 0.0 cfs @ 2.9 fps)

Secondary OutFlow Max=0.6 cfs @ 12.57 hrs HW=63.08' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.6 cfs @ 0.5 fps)

Pond 2P: DETENTION/INFILTRATION BASIN 2

Inflow Area = 11.081 ac, Inflow Depth = 1.34" for 2-yr event
Inflow = 13.0 cfs @ 12.16 hrs, Volume= 1.24 af
Outflow = 3.4 cfs @ 11.95 hrs, Volume= 1.24 af, Atten= 74%, Lag= 0.0 min
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af
Secondary = 3.4 cfs @ 11.95 hrs, Volume= 1.24 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 67.09' @ 12.64 hrs Surf.Area= 20,453 sf Storage= 12,508 cf
Plug-Flow detention time= 22.3 min calculated for 1.24 af (100% of inflow)
Center-of-Mass det. time= 22.3 min (851.4 - 829.0)

#	Invert	Avail.Storage	Storage Description
1	66.50'	88,413 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.50	18,018	0	0
68.00	24,178	31,647	31,647
70.00	32,588	56,766	88,413

#	Routing	Invert	Outlet Devices
1	Primary	67.70'	**1.00' x 0.50' Vert. Orifice/Grate** C= 0.600
2	Secondary	66.50'	**3.4 cfs Exfiltration when above invert**

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=66.50' (Free Discharge)
↑**1=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=3.4 cfs @ 11.95 hrs HW=66.54' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 3.4 cfs)

Pond 3P: POND 3

Inflow Area = 13.926 ac, Inflow Depth = 2.03" for 2-yr event
Inflow = 25.4 cfs @ 12.15 hrs, Volume= 2.35 af
Outflow = 4.1 cfs @ 11.80 hrs, Volume= 2.35 af, Atten= 84%, Lag= 0.0 min
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af
Secondary = 4.1 cfs @ 11.80 hrs, Volume= 2.35 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 70.38' @ 12.80 hrs Surf.Area= 37,632 sf Storage= 32,708 cf
Plug-Flow detention time= 56.6 min calculated for 2.35 af (100% of inflow)
Center-of-Mass det. time= 56.6 min (862.4 - 805.8)

#	Invert	Avail.Storage	Storage Description
1	69.50'	141,899 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.50	34,771	0	0
70.00	36,388	17,790	17,790
72.00	43,010	79,398	97,188
73.00	46,412	44,711	141,899

#	Routing	Invert	Outlet Devices
1	Primary	70.80'	**5.00' x 1.20' Vert. Orifice/Grate** C= 0.600
2	Secondary	69.50'	**4.1 cfs Exfiltration when above invert**

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=69.50' (Free Discharge)
└**1=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=4.1 cfs @ 11.80 hrs HW=69.54' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 4.1 cfs)

Pond 100P: Cultecs under front lot

Inflow Area = 0.533 ac, Inflow Depth = 1.83" for 2-yr event
Inflow = 1.0 cfs @ 12.12 hrs, Volume= 0.08 af
Outflow = 0.4 cfs @ 12.00 hrs, Volume= 0.08 af, Atten= 55%, Lag= 0.0 min
Discarded = 0.4 cfs @ 12.00 hrs, Volume= 0.08 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 63.95' @ 12.39 hrs Surf.Area= 832 sf Storage= 414 cf
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	63.20'	2,792 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
63.20	0	0	0
63.70	406	102	102
64.70	2,132	1,269	1,371
65.20	846	745	2,115
65.70	661	377	2,492
66.20	540	300	2,792

#	Routing	Invert	Outlet Devices
1	Discarded	63.20'	**0.4 cfs Exfiltration when above invert**
2	Primary	65.70'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600

Discarded OutFlow Max=0.4 cfs @ 12.00 hrs HW=63.29' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.4 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=63.20' (Free Discharge)
└**2=Orifice/Grate** (Controls 0.0 cfs)

Pond 1P: CONSTRUCTED WETLANDS BASIN 1

Inflow Area = 2.558 ac, Inflow Depth = 1.59" for 10-yr event
Inflow = 3.6 cfs @ 12.16 hrs, Volume= 0.34 af
Outflow = 3.1 cfs @ 12.25 hrs, Volume= 0.28 af, Atten= 14%, Lag= 5.5 min
Primary = 0.1 cfs @ 12.25 hrs, Volume= 0.07 af
Secondary = 3.0 cfs @ 12.25 hrs, Volume= 0.21 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 63.24' @ 12.25 hrs Surf.Area= 3,433 sf Storage= 4,322 cf
Plug-Flow detention time= 178.5 min calculated for 0.28 af (82% of inflow)
Center-of-Mass det. time= 104.2 min (927.6 - 823.4)

#	Invert	Avail.Storage	Storage Description
1	61.80'	7,061 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.80	2,489	0	0
62.00	2,617	511	511
63.00	3,275	2,946	3,457
64.00	3,934	3,605	7,061

#	Routing	Invert	Outlet Devices
1	Secondary	63.00'	**15.0' long Broad-Crested Rectangular Weir**
			Head (feet) 0.50 1.00 1.50
			Coef. (English) 1.72 1.88 1.98
2	Primary	61.80'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	62.10'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
4	Primary	62.40'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
5	Primary	62.70'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=0.1 cfs @ 12.25 hrs HW=63.24' (Free Discharge)
- **2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 5.7 fps)
- **3=Orifice/Grate** (Orifice Controls 0.0 cfs @ 5.1 fps)
- **4=Orifice/Grate** (Orifice Controls 0.0 cfs @ 4.4 fps)
- **5=Orifice/Grate** (Orifice Controls 0.0 cfs @ 3.5 fps)

Secondary OutFlow Max=3.0 cfs @ 12.25 hrs HW=63.24' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 3.0 cfs @ 0.8 fps)

Pond 2P: DETENTION/INFILTRATION BASIN 2

Inflow Area = 11.081 ac, Inflow Depth = 2.38" for 10-yr event
Inflow = 24.0 cfs @ 12.16 hrs, Volume= 2.20 af
Outflow = 3.9 cfs @ 12.83 hrs, Volume= 2.20 af, Atten= 84%, Lag= 40.1 min
Primary = 0.5 cfs @ 12.83 hrs, Volume= 0.04 af
Secondary = 3.4 cfs @ 11.75 hrs, Volume= 2.16 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 67.98' @ 12.83 hrs Surf.Area= 24,080 sf Storage= 31,142 cf
Plug-Flow detention time= 66.1 min calculated for 2.19 af (100% of inflow)
Center-of-Mass det. time= 66.0 min (884.9 - 818.9)

#	Invert	Avail.Storage	Storage Description
1	66.50'	88,413 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.50	18,018	0	0
68.00	24,178	31,647	31,647
70.00	32,588	56,766	88,413

#	Routing	Invert	Outlet Devices
1	Primary	67.70'	**1.00' x 0.50' Vert. Orifice/Grate** C= 0.600
2	Secondary	66.50'	**3.4 cfs Exfiltration when above invert**

Primary OutFlow Max=0.5 cfs @ 12.83 hrs HW=67.98' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.5 cfs @ 1.7 fps)

Secondary OutFlow Max=3.4 cfs @ 11.75 hrs HW=66.54' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 3.4 cfs)

Pond 3P: POND 3

Inflow Area = 13.926 ac, Inflow Depth = 3.29" for 10-yr event
Inflow = 41.3 cfs @ 12.14 hrs, Volume= 3.82 af
Outflow = 6.5 cfs @ 12.78 hrs, Volume= 3.82 af, Atten= 84%, Lag= 38.3 min
Primary = 2.4 cfs @ 12.78 hrs, Volume= 0.23 af
Secondary = 4.1 cfs @ 11.50 hrs, Volume= 3.59 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 71.08' @ 12.78 hrs Surf.Area= 39,972 sf Storage= 60,763 cf
Plug-Flow detention time= 103.3 min calculated for 3.81 af (100% of inflow)
Center-of-Mass det. time= 103.1 min (900.1 - 797.0)

#	Invert	Avail.Storage	Storage Description
1	69.50'	141,899 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.50	34,771	0	0
70.00	36,388	17,790	17,790
72.00	43,010	79,398	97,188
73.00	46,412	44,711	141,899

#	Routing	Invert	Outlet Devices
1	Primary	70.80'	**5.00' x 1.20' Vert. Orifice/Grate** C= 0.600
2	Secondary	69.50'	**4.1 cfs Exfiltration when above invert**

Primary OutFlow Max=2.4 cfs @ 12.78 hrs HW=71.08' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 2.4 cfs @ 1.7 fps)

Secondary OutFlow Max=4.1 cfs @ 11.50 hrs HW=69.54' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 4.1 cfs)

Pond 100P: Cultecs under front lot

Inflow Area = 0.533 ac, Inflow Depth = 3.10" for 10-yr event
Inflow = 1.7 cfs @ 12.12 hrs, Volume= 0.14 af
Outflow = 0.4 cfs @ 11.80 hrs, Volume= 0.14 af, Atten= 73%, Lag= 0.0 min
Discarded = 0.4 cfs @ 11.80 hrs, Volume= 0.14 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.00 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 64.65' @ 12.53 hrs Surf.Area= 2,038 sf Storage= 1,301 cf
Plug-Flow detention time= 15.4 min calculated for 0.14 af (100% of inflow)
Center-of-Mass det. time= 15.4 min (822.9 - 807.6)

#	Invert	Avail.Storage	Storage Description
1	63.20'	2,792 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
63.20	0	0	0
63.70	406	102	102
64.70	2,132	1,269	1,371
65.20	846	745	2,115
65.70	661	377	2,492
66.20	540	300	2,792

#	Routing	Invert	Outlet Devices
1	Discarded	63.20'	**0.4 cfs Exfiltration when above invert**
2	Primary	65.70'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600

Discarded OutFlow Max=0.4 cfs @ 11.80 hrs HW=63.23' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.4 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=63.20' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.0 cfs)

Pond 1P: CONSTRUCTED WETLANDS BASIN 1

Inflow Area = 2.558 ac, Inflow Depth = 2.80" for 100-yr event
Inflow = 6.3 cfs @ 12.15 hrs, Volume= 0.60 af
Outflow = 6.1 cfs @ 12.20 hrs, Volume= 0.54 af, Atten= 4%, Lag= 2.9 min
Primary = 0.1 cfs @ 12.20 hrs, Volume= 0.07 af
Secondary = 6.0 cfs @ 12.20 hrs, Volume= 0.47 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 63.38' @ 12.20 hrs Surf.Area= 3,524 sf Storage= 4,819 cf
Plug-Flow detention time= 113.0 min calculated for 0.53 af (89% of inflow)
Center-of-Mass det. time= 63.5 min (877.4 - 814.0)

#	Invert	Avail.Storage	Storage Description
1	61.80'	7,061 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.80	2,489	0	0
62.00	2,617	511	511
63.00	3,275	2,946	3,457
64.00	3,934	3,605	7,061

#	Routing	Invert	Outlet Devices
1	Secondary	63.00'	**15.0' long Broad-Crested Rectangular Weir**
			Head (feet) 0.50 1.00 1.50
			Coef. (English) 1.72 1.88 1.98
2	Primary	61.80'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	62.10'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
4	Primary	62.40'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600
5	Primary	62.70'	**0.5" Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=0.1 cfs @ 12.20 hrs HW=63.38' (Free Discharge)
- **2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 6.0 fps)
- **3=Orifice/Grate** (Orifice Controls 0.0 cfs @ 5.4 fps)
- **4=Orifice/Grate** (Orifice Controls 0.0 cfs @ 4.7 fps)
- **5=Orifice/Grate** (Orifice Controls 0.0 cfs @ 3.9 fps)

Secondary OutFlow Max=6.0 cfs @ 12.20 hrs HW=63.38' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 6.0 cfs @ 1.1 fps)

Pond 2P: DETENTION/INFILTRATION BASIN 2

Inflow Area = 11.081 ac, Inflow Depth = 4.03" for 100-yr event
Inflow = 38.5 cfs @ 12.15 hrs, Volume= 3.72 af
Outflow = 5.9 cfs @ 12.89 hrs, Volume= 3.72 af, Atten= 85%, Lag= 44.2 min
Primary = 2.5 cfs @ 12.89 hrs, Volume= 0.63 af
Secondary = 3.4 cfs @ 11.45 hrs, Volume= 3.09 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 68.99' @ 12.89 hrs Surf.Area= 28,355 sf Storage= 59,838 cf
Plug-Flow detention time= 99.2 min calculated for 3.72 af (100% of inflow)
Center-of-Mass det. time= 99.0 min (908.5 - 809.5)

#	Invert	Avail.Storage	Storage Description
1	66.50'	88,413 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.50	18,018	0	0
68.00	24,178	31,647	31,647
70.00	32,588	56,766	88,413

#	Routing	Invert	Outlet Devices
1	Primary	67.70'	**1.00' x 0.50' Vert. Orifice/Grate** C= 0.600
2	Secondary	66.50'	**3.4 cfs Exfiltration when above invert**

Primary OutFlow Max=2.5 cfs @ 12.89 hrs HW=68.99' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 2.5 cfs @ 4.9 fps)

Secondary OutFlow Max=3.4 cfs @ 11.45 hrs HW=66.54' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 3.4 cfs)

Pond 3P: POND 3

Inflow Area = 13.926 ac, Inflow Depth = 5.16" for 100-yr event
Inflow = 64.4 cfs @ 12.14 hrs, Volume= 5.99 af
Outflow = 19.8 cfs @ 12.54 hrs, Volume= 5.99 af, Atten= 69%, Lag= 23.9 min
Primary = 15.7 cfs @ 12.54 hrs, Volume= 1.52 af
Secondary = 4.1 cfs @ 10.80 hrs, Volume= 4.47 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 71.79' @ 12.54 hrs Surf.Area= 42,301 sf Storage= 88,684 cf
Plug-Flow detention time= 94.6 min calculated for 5.99 af (100% of inflow)
Center-of-Mass det. time= 94.5 min (883.3 - 788.8)

#	Invert	Avail.Storage	Storage Description
1	69.50'	141,899 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.50	34,771	0	0
70.00	36,388	17,790	17,790
72.00	43,010	79,398	97,188
73.00	46,412	44,711	141,899

#	Routing	Invert	Outlet Devices
1	Primary	70.80'	**5.00' x 1.20' Vert. Orifice/Grate** C= 0.600
2	Secondary	69.50'	**4.1 cfs Exfiltration when above invert**

Primary OutFlow Max=15.7 cfs @ 12.54 hrs HW=71.78' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 15.7 cfs @ 3.2 fps)

Secondary OutFlow Max=4.1 cfs @ 10.80 hrs HW=69.54' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 4.1 cfs)

Pond 100P: Cultecs under front lot

Inflow Area =	0.533 ac,	Inflow Depth = 4.99"	for 100-yr event
Inflow =	2.6 cfs @	12.11 hrs, Volume=	0.22 af
Outflow =	0.8 cfs @	12.51 hrs, Volume=	0.22 af, Atten= 71%, Lag= 23.9 min
Discarded =	0.4 cfs @	11.70 hrs, Volume=	0.22 af
Primary =	0.3 cfs @	12.51 hrs, Volume=	0.01 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 66.00' @ 12.51 hrs Surf.Area= 587 sf Storage= 2,674 cf
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	63.20'	2,792 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
63.20	0	0	0
63.70	406	102	102
64.70	2,132	1,269	1,371
65.20	846	745	2,115
65.70	661	377	2,492
66.20	540	300	2,792

#	Routing	Invert	Outlet Devices
1	Discarded	63.20'	**0.4 cfs Exfiltration when above invert**
2	Primary	65.70'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600

Discarded OutFlow Max=0.4 cfs @ 11.70 hrs HW=63.26' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.4 cfs)

Primary OutFlow Max=0.3 cfs @ 12.51 hrs HW=66.00' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 0.3 cfs @ 1.9 fps)

APPENDIX

STORMWATER TREATMENT CALCULATIONS
(100-YEAR ANALYSIS)

STORMWATER TREATMENT CALCULATIONS

Constructed Wetlands Basin #1:

35,153 S.F.(Impervious Areas) x 1"(as required by Planning Board Policy) = 2,929 C.F. Required

2,946 C.F. Provided: (Storage from Elevation 61.8 to Elevation 62.8)

Detention/Infiltration Basin #2:

282,443 S.F.(Impervious Areas) x 1"(as required by Planning Board Policy) = 23,536 C.F. Required

24,900 C.F. Provided: (Storage from Elevation 66.5 to Elevation 67.7)

Infiltration Basin #3:

445,719 S.F.(Impervious Areas) x 1"(as required by Planning Board Policy) = 36,844 C.F. Required

50,200 C.F. Provided: (Storage from Elevation 69.5 to Elevation 70.8)

Infiltration Basin #100:

12,937 S.F.(Impervious Areas) x 1"(as required by Planning Board Policy) = 1,078 C.F. Required

2,145 C.F. Provided: (Storage from Elevation 63.2 to Elevation 65.7)

GROUNDWATER RECHARGE CALCULATIONS

GROUNDWATER RECHARGE CALCULATIONS

Total Groundwater Recharge Required:

336,930 S.F. (impervious areas) x .0333 (A-soils) = 11,220 C.F. Required

13,440 S.F. (impervious areas) x .0208 (B-soils) = 280 C.F. Required

426,530 S.F. (impervious areas) x .00833 (C-soils) = 3,540 C.F. Required

Total Required: 15,040 C.F. Required

Total Groundwater Recharge Provided:

Detention/Infiltration Basin #2 is designed to recharge 24,900 C.F. of stormwater runoff.

Detention/Infiltration Basin #3 is designed to recharge 50,200 C.F. of stormwater runoff.

Detention/Infiltration Basin #100 is designed to recharge 2,145 C.F. of stormwater runoff.

Total Provided: 24,900 + 50,200 + 2,145 = 77,245 C.F.

CEW\ACF\eew\F:\~\3250\WORD\Reports\Stormwater Revisions-060315\Calcs.doc

EXFILTRATION CALCULATIONS

DETENTION/INFILTRATION BASIN #2
EXFILTRATION CALCULATIONS

18,018 S.F. x 1.91 x 10^{-4} FT./SEC. = 3.4 CFS (Bottom)

DETENTION/INFILTRATION BASIN #3
EXFILTRATION CALCULATIONS

21,465 S.F. x 1.91 x 10^{-4} FT./SEC. = 4.1 CFS (Bottom)

DETENTION/INFILTRATION BASIN #100
EXFILTRATION CALCULATIONS

2,005 S.F. x 1.91 x 10^{-4} FT./SEC. = 0.4 CF/SEC

* All exfiltration rates from Stormwater Management Policy Supplemental Guidance Technical Bulletin 00-01: Guidance for Implementing Stormwater Standard #3 (Recharge to groundwater).

CEW\ACF\eew\F:\~\3250\WORD\Reports\Stormwater Revisions-060315\exfiltration.doc

SIZING OF CATCH BASIN GRATES
(100-YEAR STORM EVENT)

SIZING OF CATCH BASIN GRATES (100-YEAR STORM EVENT)

S.C. Flow	CB #	Q In (CFS)	Size of Grate Needed
SC 59	PCB 97	2.6 CFS	Single
SC 60	PCB 93	1.2 CFS	Single
SC 70	PCB 58	2.6 CFS	Single
SC 71	PCB 57	1.7 CFS	Single
SC 72	PCB 53	1.8 CFS	Single
SC 73	PCB 52	1.4 CFS	Single
SC 74	PCB 60	2.8 CFS	Single
SC 75	PCB 67	1.4 CFS	Single
SC 76	PCB 65	0.4 CFS	Single
SC 77	PCB 79	1.4 CFS	Single
SC 78	PCB 78	1.0 CFS	Single
SC 79	PCB 62	1.4 CFS	Single
SC 80	PCB 66	1.5 CFS	Single
SC 81	PCB 76	1.2 CFS	Single (Use Double)
SC 82	PCB 70	1.3 CFS	Single
SC 83	PCB 72	1.4 CFS	Single
SC 84	PCB 74	1.6 CFS	Single
SC 85	PCB 89	1.8 CFS	Single
SC 86	PCB 85	0.8 CFS	W/SC 88
SC 87	PCB 83	2.0 CFS	Single
SC 88	PCB 85	1.8+0.8=2.6	Single
SC 89	PCB 86	1.2	Single
SC 90	PCB 81	3.1	Single
SC 91	PCB 95	0.5	Single
SC 92	PCB 96	0.9	Single
SC 93	PCB 98	1.1	Single
SC 94	PCB 88	0.6	Single

Single Grate: 3.86 CFS (Allowable Q with .1' head)

Double Grate: 7.73 CFS (Allowable Q with .1' head)

See Calculations Provided

CALCULATION FOR Q ALLOWABLE ONTO C.B. GRATE

C.B. DESIGN

Q = cA 2gh x 2/3
c = 0.6
g = 32.2
h = Allowable Head (0.1')
A = Pass Area

CB Neenah R3405 or B (B 3 sided flange to be used as Double Brace)

Pass Areas:

R3405 = 1.5 S.F.

R3405B(Double Basin) = 3.0 S.F.

Q Allowable Single = 3.86 CFS

Q Allowable Double = 7.73 CFS

APPENDIX

INSPECTION AND MAINTENANCE PROGRAM FOR A PROPOSED STORMWATER MANAGEMENT SYSTEM
located at
ASSESSOR'S MAP 7, LOTS 7, 8, 9, 10A, 10-2, 10-8-1
ROWLEY, MASSACHUSETTS

Submitted to:

Rowley Planning Board
Town Hall Annex
39 Central Street
Rowley, Massachusetts 01969

Prepared by:

Meridian Associates, Inc.
152 Conant Street
Beverly, Massachusetts 01915
(978) 299-0447

January 12, 2000
(Revised: April 20, 2000)
(Revised: May 1, 2000)
(Revised: October 4, 2005)
(Revised: March 15, 2006)

Project Description

Construction of 2,200' road for seven lot commercial subdivision and associated stormwater management facility, parking lot, subsurface sewerage disposal system, and other associated utilities and grading.

Responsible Party

Gateway II Trust of 1997
239 Western Avenue
Essex, Massachusetts 01923
Contacts: Jay & Joe Coughlin (978) 768-6929

Short Term Planned Erosion and Sedimentation Control Measures (During Construction Activities)

Haybales

Staked Haybales are proposed to be installed, as shown on the site plan, around the perimeter and upgradient of the bordering vegetated wetlands. The siltation barrier will be installed prior to the commencement of any work on-site and in accordance with the design plans. An additional supply of haybales shall be on-site to replace and/or repair haybale fencing that is disturbed. The lines of haybales shall be inspected and maintained on a weekly basis during construction.

Storm Drain Inlet Protection

A temporary storm inlet protection filter will be placed around all catchbasin inlets. The purpose of the filter is to prevent the inflow of sediments into the closed drainage system. The filter shall remain in place until a permanent vegetative cover is established and the transport of sediment is no longer visibly apparent. The filter shall be inspected and maintained on a weekly basis and after every storm event.

Surface Stabilization

The surface of all disturbed areas shall be stabilized during and after construction. Temporary measures shall be taken during construction to prevent erosion and siltation. All disturbed slopes will be stabilized with a permanent vegetative cover. Some or all of the following measures will be utilized on this project as conditions may warrant.

a. Temporary Seeding
b. Temporary Mulching
c. Permanent Seeding
d. Placement of Sod
e. Hydroseeding
f. Placement of Hay
g. Placement of Jute Netting

Inspection and Maintenance of Deep Sump Catch Basins

The performance of the catch basins shall be checked after every major storm event during construction. Sediment shall be removed if accumulation is within 24"of the outlet pipe.

Long Term Inspection and Maintenance Measures
(Post Construction)

Long Term Inspection and Maintenance/Infiltration Basins

As infiltration basins are prone to failure due to the clogging of porous soils, it is imperative that aggressive maintenance plans and schedules be developed and implemented for these BMP's.

Preventive maintenance should be performed at least twice a year, and ideally sediment should be removed from pretreatment BMP's after every major storm event.

Once the basin has gone online, inspections should occur after every major storm event for the first few months to ensure proper stabilization and function. Attention should be paid to how long water remains standing in the basin after a storm; standing water within the basin 48 to 72 hours after a storm indicates that the infiltration capacity may have been overestimated. Factors responsible for clogging (such as upland sediment erosion, excessive compaction of soils and low spots) should be repaired immediately.

Thereafter, the infiltration basin should be inspected at least twice per year. Important items to check for include: differential settlement, cracking, erosion, leakage, or tree growth on the embankments, condition of riprap, sediment accumulation and the health of the turf.

At least twice a year, the buffer area, side slopes and basin bottom should be mowed. Grass clippings and accumulated organic matter should be removed to prevent the formation of an impervious organic mat. Trash and debris should be removed at this time. Deep tilling can be used to break up a clogged surface area. Any tilled areas should be revegetated immediately.

Sediment should be removed from the basin as necessary. Removal procedures should not take place until the floor of the basin is thoroughly dry. Light equipment, which will not compact the underlying soil, should be used to remove the top layer. The remaining soil should be deeply tilled, and revegetated as soon as possible. Pretreatment devices associated with basins should be inspected and cleaned at least twice a year, and ideally every other month.

Maintenance/Sediment Traps (Forebays)

Maintenance is required for the proper operation of sediment traps. Traps should be cleaned four (4) times a year and inspected monthly. All sediments and hydrocarbons should be handled properly and disposed in accordance with local, state and federal guidelines and regulations.

Constructed Stormwater Wetlands Basin

Stormwater wetlands require considerable routine maintenance, but do not require large, infrequent sediment removal, unlike conventional pond systems that require relatively minor routine maintenance and expensive sediment removal at infrequent intervals.

Careful observation of the system over time is required. In the first three years after construction, twice a year inspections are needed during both the growing and non-growing season. Data gathered during these inspections should be recorded, mapped and assessed. The following observations should be made during the inspections:

- Types and distribution of dominant wetland plants in the marsh;
- The presence and distribution of planted wetland species; presence and distribution of volunteer wetland species; signs that volunteer species are replacing the planted wetland species;
- Percentage of unvegetated standing water (excluding the deep water cells which are not suitable for emergent plant growth);
- The maximum elevation and the vegetative condition in this zone if the design elevation of the normal pool is being maintained for wetlands with extended zones.
- Stability of the original depth zones and the microtopographic features;
- Accumulation of sediment in the forebay and micropool; and
- Survival rate of plants in the wetland buffer.

Regulating the sediment input to the wetland is the priority maintenance activity. The majority of sediments should be trapped and removed before they reach the wetlands either in the forebay or in the pond component. Gradual sediment accumulation in the wetland results in reduced water depth and changes in the growing conditions for the emergent plants. Furthermore, sediment removal within the wetland can destroy the wetland plant community.

Shallow marsh and extended detention wetland designs include forebays to trap sediment before reaching the wetland. These forebays should be cleaned out every year.

Pond/wetland system designs do not include forebays as the wet pond itself acts as an oversized forebay. Sediment cleanout of pond/wetland systems is needed every 10 years.

Debris and Litter Removal

Trash may collect in the BMP's, potentially causing clogging of the facilities. All debris and litter shall be removed when necessary, and after each storm event.

Erosion Control

Eroded sediments can adversely affect the performance of the stormwater management system. Eroding or barren areas should be immediately re-vegetated.

Inspection and Maintenance of Catch Basins

Catch basins and grease/oil separators shall be inspected annually and if necessary, any maintenance shall be performed so that they function as designed. The catch basins shall be inspected on a yearly basis, shall be cleaned four (4) times a year and when the sediment in the bottom of the sump reaches twelve (12") inches below the bottom of the grease/oil separators. Inspection of catch basins, at a minimum, shall be performed during the last week of April and first week of October each year.

Street/Parking Area Sweeping

Sweeping shall be conducted twice a year in March and October. The period immediately following winter snowmelt when roads and other accumulated sediment are washed off shall be swept. Conventional mechanical sweepers or vacuum type sweepers demonstrate higher removal efficiencies and shall be implemented.

Snow Storage Areas

The snow storage areas shall be inspected every year (simultaneously with the catch basin structures) to evaluate sediment accumulation within the snow storage areas. The areas shall be inspected for debris and litter and the vigor and density of the grass surface. All sediment and debris shall be removed as part of the annual inspection. Bare spots shall be seeded as necessary to re-establish vegetation.

Catch Basin Stenciling

All catch basins on site shall be stenciled utilizing white paint to state "NO DUMPING". Stenciling shall be maintained on an annual basis or as needed.

STORMWATER MANAGEMENT
CONSTRUCTION PHASE

INSPECTION SCHEDULE AND EVALUATION CHECKLIST

PROJECT LOCATION: Forest Ridge – Rowley, Massachusetts

Inspection Date	Inspector	Area Inspected	Best Management Practice (yes/no)	Required Inspection Frequency if BMP	Comments	Recommendation	Follow-up Inspection Required (yes/no)
		Haybale and Silt Fence	No				
		Proposed Catch Basin	Yes	Weekly and After Major Storm Events			
		Detention Pond	Yes	After Major Storm Events			
		Soil Stockpile Area	No				

(1) Refer to the Massachusetts Stormwater Management, Volume Two: Stormwater Technical Handbook (March 1997) for recommendations regarding frequency for inspection and maintenance of specific BMP's.

(2) Inspections to be conducted by a qualified professional such as an environmental scientist or civil engineer.

Limited or no use of sodium chloride salts, fertilizers or pesticides recommended.
Other notes: (Include deviations from: Con. Comm. Order of Conditions, PB Approval, Construction Sequence and Approved Plan).

Stormwater Control Manger: _____

ACF\eew\F:\~\3250\WORD\Reports\Stormwater Revisions-060315\chart.doc

STORMWATER MANAGEMENT
POST-CONSTRUCTION PHASE

INSPECTION SCHEDULE AND EVALUATION CHECKLIST

PROJECT LOCATION: Forest Ridge, Rowely, Massachusetts

Inspection Date	Inspector	Area Inspected	Best Management Practice (yes/no)	Required Inspection Frequency if BMP	Comments	Recommendation	Follow-up Inspection Required (yes/no)
		Haybale and Silt Fence	No				
		Proposed Catch Basin	Yes	4 Per Year April (1), October (1)			
		Detention Pond	Yes	1 Per Year and Major Storms >1"			
		Soil Stockpile Area	No				

(1) Refer to the Massachusetts Stormwater Management, Volume Two: Stormwater Technical Handbook (March 1997) for recommendations regarding frequency for inspection and maintenance of specific BMP's.

(2) Inspections to be conducted by a qualified professional such as an environmental scientist or civil engineer.

Limited or no use of sodium chloride salts, fertilizers or pesticides recommended.
Other notes: (Include deviations from: Con. Comm. Order of Conditions, PB Approval, Construction Sequence and Approved Plan).

Stormwater Control Manger: _____

ACF\eew\F:\~\3250\WORD\Reports\Stormwater Revisions-060315\chart2.doc

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Stormwater Management Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A. Property Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

1. The proposed project is:

   a. New development ☒ Yes ☐ No

   b. Redevelopment ☐ Yes ☐ No

   c. Combination ☐ Yes ☐ No (If yes, distinguish redevelopment components from new development components on plans).

2. Stormwater runoff to be treated for water quality is based on the following calculations:

a. ☒ 1 inch of runoff x total impervious area of post-development site for discharge to **critical areas** (Outstanding Resource Waters, recharge areas of public water supplies, shellfish growing areas, swimming beaches, cold water fisheries).

b. ☐ 0.5 inches of runoff x total impervious area of post-development site for other resource areas.

Note: This November 2000 version of the Stormwater Management Form supersedes earlier versions including those contained in DEP's Stormwater Handbooks.

B. Stormwater Management Standards

DEP's Stormwater Management Policy (March 1997) includes nine standards that are listed on the following pages. Check the appropriate boxes for each standard and provide documentation and additional information when applicable.

Standard #1: Untreated stormwater

a. ☒ The project is designed so that new stormwater point discharges do not discharge untreated stormwater into, or cause erosion to, wetlands and waters.

Standard #2: Post-development peak discharges rates

a. ☐ Not applicable – project site contains waters subject to tidal action.

Post-development peak discharge does not exceed pre-development rates on the site at the point of discharge or downgradient property boundary for the 2-yr, 10-yr, and 100-yr, 24-hr storm.

b. ☐ Without stormwater controls

c. ☒ With stormwater controls designed for the 2-yr, and 10-yr storm, 24-hr storm.

d. ☐ The project as designed will not increase off-site flooding impacts from the 100-yr, 24-hr storm.

B. Stormwater Management Standards (cont.)

Standard #3: Recharge to groundwater

Amount of impervious area (sq. ft.) to be infiltrated: 776,900± (a. square feet)

Volume to be recharged is based on:

b. ☒ The following Natural Resources Conservation Service hydrologic soils groups (e.g. A, B, C, D, or UA) or any combination of groups:

43.37% (1. % of impervious area)	A (2. Hydrologic soil group)	54.9% (3. % of impervious area)	C (4. Hydrologic soil group)
1.73% (5. % of impervious area)	B (6. Hydrologic soil group)	(7. % of impervious area)	(8. Hydrologic soil group)

c. ☐ Site specific pre-development conditions: (1. Recharge rate) (2. Volume)

d. Describe how the calculations were determined:

Areas calculated from soils maps.

e. List each BMP or nonstructural measure used to meet Standard #3 (e.g. dry well, infiltration trench).

Infiltration Basins

Does the annual groundwater recharge for the post-development site approximate the annual recharge from existing site conditions?

f. ☒ Yes ☐ No

Standard #4: 80% TSS Removal

a. ☒ The proposed stormwater management system will remove 80% of the post-development site's average annual Total Suspended Solids (TSS) load.

b. Identify the BMP's proposed for the project and describe how the 80% TSS removal will be achieved.

Deep Sump Catch Basins, Infiltration Basins, Constructed Stormwater Wetlands,

Sediment Forebays

B. Stormwater Management Standards (cont.)

c. If the project is redevelopment, explain how much TSS will be removed and briefly explain why 80% removal cannot be achieved.

N/A

Standard #5: Higher potential pollutant loads

See Stormwater Policy Handbook Vol. I, page I-23, for land uses of high pollutant loading (see Instructions).

Does the project site contain land uses with higher potential pollutant loads

a. ☐ Yes ☒ No b. If yes, describe land uses:

c. Identify the BMPs selected to treat stormwater runoff. If infiltration measures are proposed, describe the pretreatment. (Note: If the area of higher potential pollutant loading is upgradient of a critical area, infiltration is not allowed.)

N/A

Standard #6: Protection of critical areas

See Stormwater Policy Handbook Vol. I, page I -25, for critical areas (see Instructions).

Will the project discharge to or affect a critical area?

a. ☒ Yes ☐ No b. If yes, describe areas:

Tributary to the Mill River a designated ORW

c. Identify the BMPs selected for stormwater discharges in these areas and describe how BMPs meet restrictions listed on pages I-27 and I-28 of the Stormwater Policy Handbook – Vol. I:

Deep Sump Catch Basins, Infiltration Basins, Constructed Stormwater Wetlands and Sediment Forebays

B. Stormwater Management Standards (cont.)

Note: components of redevelopment projects which plan to develop previously undeveloped areas do not fall under the scope of Standard 7.

Standard #7: Redevelopment projects

Is the proposed activity a redevelopment project?

a. ☐ Yes ☒ No

b. If yes, the following stormwater management standards have been met:

c. The following stormwater standards have not been met for the following reasons:

All standards met.

d. ☒ The proposed project will reduce the annual pollutant load on the site with new or improved stormwater control.

Standard #8: Erosion/sediment control

a. ☒ Erosion and sediment controls are incorporated into the project design to prevent erosion, control sediments, and stabilize exposed soils during construction or land disturbance.

Standard #9: Operation/maintenance plan

a. ☒ An operation and maintenance plan for the post-development stormwater controls have been developed. The plan includes ownership of the stormwater BMPs, parties responsible for operation and maintenance, schedule for inspection and maintenance, routine and long-term maintenance responsibilities, and provision for appropriate access and maintenance easements extending from a public right-of-way to the stormwater controls.

Inspection and Maintenance Plan	March 15, 2006
b. Plan/Title	c. Date
d. Plan/Title	e. Date

C. Submittal Requirements

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

DEP recommends that applicants submit this form, as well as, supporting documentation and plans, with the Notice of Intent to provide stormwater management information for Commission review consistent with the wetland regulations (310 CMR 10.05 (6)(b)) and DEP's Stormwater Management Policy (March 1997). If a particular stormwater management standard cannot be met, information should be provided to demonstrate how equivalent water quality and water quantity protection will be provided. DEP encourages engineers to use this form to certify that the project meets the stormwater management standards as well as acceptable engineering standards. For more information, consult the Stormwater Management Policy.

D. Signatures

John Coughlin
Applicant Name

Date

Signature John Coughlin (CRW3) 14 March 2006

Charles E. Wear, III for Meridian Associates, Inc.
Representative (if any)

Date

Signature 14 March 2006

Location: Forest Ridge Subdivision, Rowley, MA - Constructed Wetlands #1

TSS Removal Calculation Worksheet

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (BxC)	E Remaining Load (C-D)
Deep Sump Catch Basin	0.25	1.00*	0.25	0.75
Constructed Wetland Basin #1	80%	0.75	0.6	0.15
		Total TSS Removal =	85%	

Project: Forest Ridge - Gateway II Trust of 1997
Prepared By: C. Ryan
Date: 10/04/05

*Equals remaining load from previous BMP (E) which enters the BMP

CAR\ACF\eew\F:\~\3250\word\reports\stormwater revisions-060315\TSS-1.xls

Location: Forest Ridge Subdivision, Rowley, MA - Infiltration Basin #3

TSS Removal Calculation Worksheet

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (BxC)	E Remaining Load (C-D)
Deep Sump Catch Basin	0.25	1.00*	0.25	0.75
Infiltration Basin #3	80%	0.75	0.6	0.15
		Total TSS Removal =	85%	

Project: Forest Ridge - Gateway II Trust of 1997
Prepared By: C. Ryan
Date: 10/04/05

*Equals remaining load from previous BMP (E) which enters the BMP

CAR\ACF\\eew\F:\~\3250\word\reports\stormwater revisions-060315\TSS-3.xls

TSS Removal Calculation Worksheet

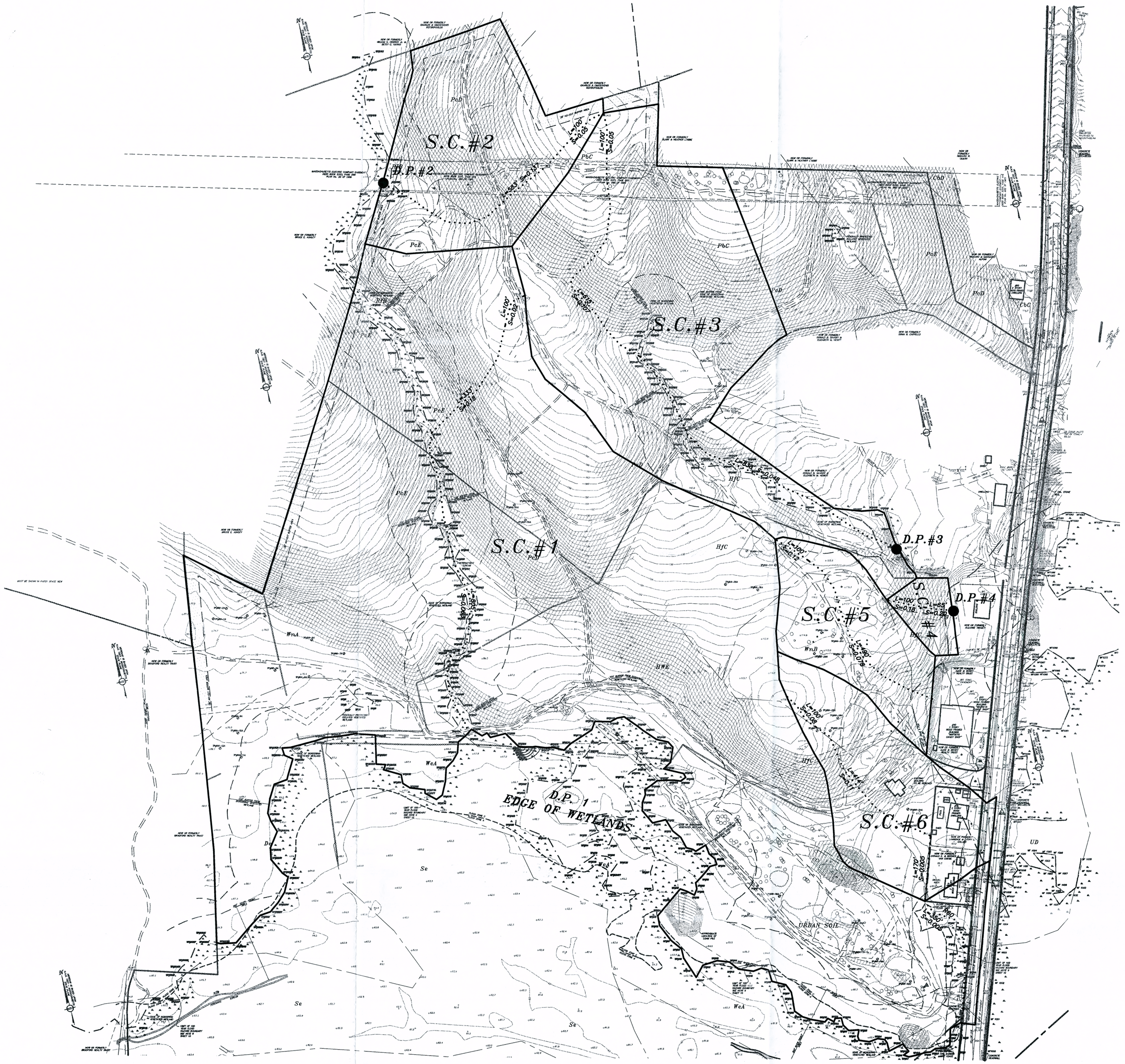
Location: Forest Ridge Subdivision, Rowley, MA - Infiltration Basin #100

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (BxC)	E Remaining Load (C-D)
Deep Sump Catch Basin	25%	1.00*	0.25	0.75
Infiltration Basin #100	80%	0.75	0.6	0.15
Total TSS Removal =			85%	

Project: Forest Ridge - Gateway II Trust of 1997
Prepared By: C. Ryan
Date: 10/04/05, Revised 3/15/06

*Equals remaining load from previous BMP (E) which enters the BMP

CAR\ACF\eew\F:\~\3250\word\reports\stormwater revisions-060315\TSS-100.xls



LEGEND:

- OVERLAND FLOW DIRECTION
- OVERLAND FLOW LINE
- TP#1 TEST PIT LOCATION
- SC2 SUBCATCHMENT
- SgB SOIL TYPE

GRAPHIC SCALE
SCALE: 1"=100'

FEET	100	0	50	100	200		400
METERS	0	25	50		100		200

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D
2	3/15/06	NO REVISIONS TO THIS SHEET	ACF	CEW
1	5/24/00	TECHNICAL REVIEW #1	KPF	CEW

DWG. No. 3250DEFPRE

PRE-DEVELOPMENT DRAINAGE PLAN

LOCATED IN

ROWLEY, MASSACHUSETTS

(ESSEX COUNTY)

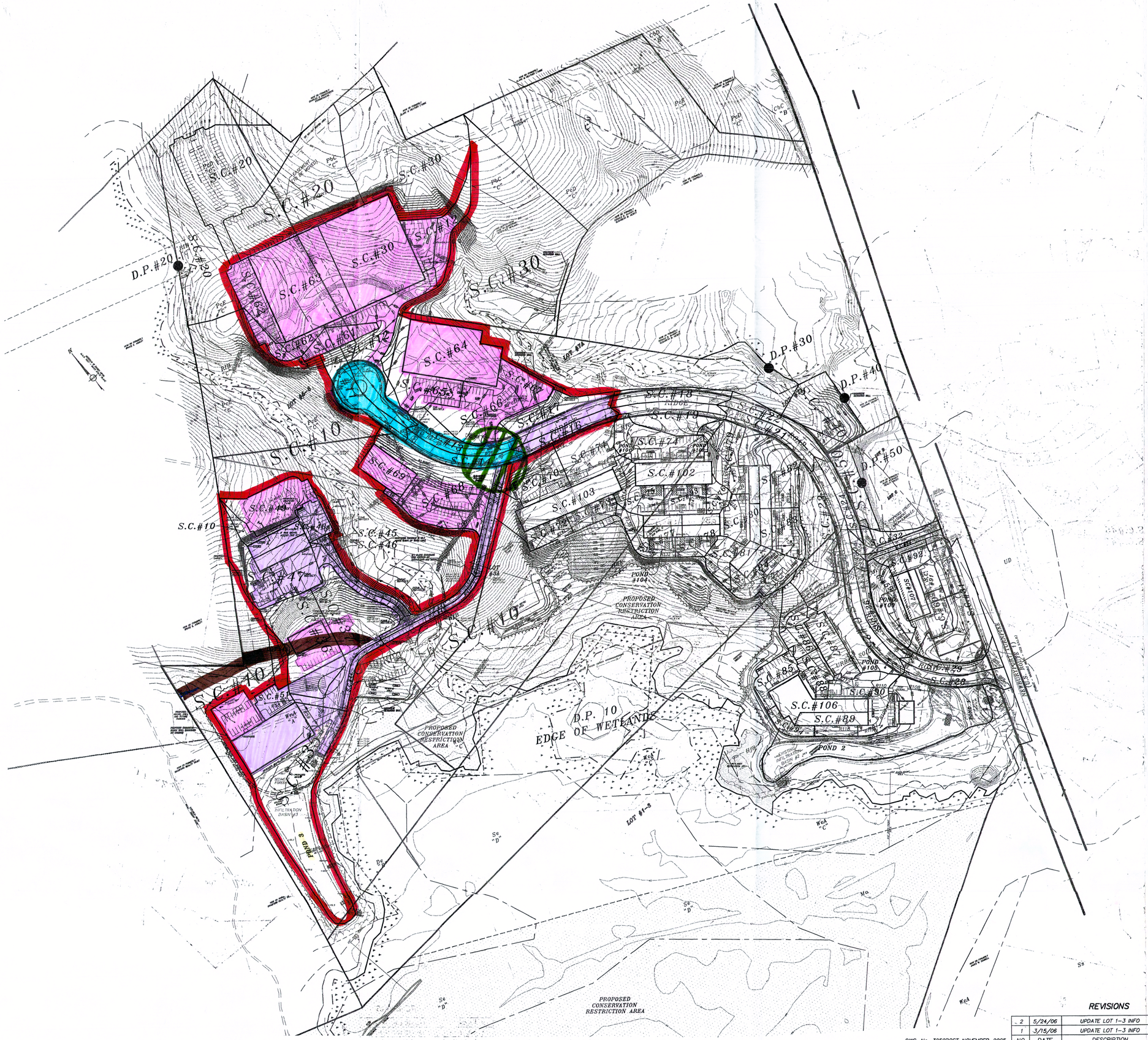
PREPARED FOR

GATEWAY II TRUST OF 1997

SCALE: 1"= 100' DATE: JANUARY 21, 2000

MERIDIAN ENGINEERING, INC.
98 HIGH STREET
DANVERS, MASSACHUSETTS 01923
TELEPHONE: (978) 739-9130

SHEET No. 1 OF 2 PROJECT No. 3250



LEGEND:

- S.C.#30 — SUBCATCHMENT
- PbC "C" — SOIL TYPE
- R19 — REACH NUMBER
- D.P.#50 — DESIGN POINT #50
- SOIL BOUNDARY
- BUILT IMPERVIOUS AREA (123,763SF)
- UNCONSTRUCTED IMPERVIOUS AREA
- IMPERVIOUS AREA TO BE REMOVED (31,168SF)
- APPROX. CIRCLE RELOCATION (14,311SF) (IMPERVIOUS)
- APPROX. ACCESS ROAD (13,251SF) (EXISTING IMPERVIOUS)
- SUBCATCHMENTS ROUTED TO POND 3

TOTAL IMPERVIOUS AREA TO POND 3 = 445,719SF

EX. UNCONSTRUCTED IMPERVIOUS AREA = TOTAL IMP. ARE TO POND 3
- BUILT IMPERVIOUS AREA
- ACCESS ROAD
+ IMPERVIOUS AREA TBR
- CIRCLE RELOCATION
= (325,562 SF)

EX. CONSTRUCTED IMPERVIOUS AREA = 120,157 SF
PROPOSED PROJECT IMPERVIOUS AREA = 35,395SF
PROPOSED IMPERVIOUS AREA = (155,552 SF)

UNCONSTRUCTED IMPERVIOUS AREA REMAINING AFTER PROJECT = UNCONSTRUCTED IMP. AREA
- PROPOSED IMP. AREA
= 290,167SF

GRAPHIC SCALE
SCALE: 1"=100'

FEET	100	0	50	100	200	400			
METERS	0	25	50	100	200				

ASSESSOR'S MAP 7
LOTS 7, 8, 9, 10A, 10-2 & 10-8

POST-DEVELOPMENT DRAINAGE PLAN
LOCATED IN
ROWLEY, MASSACHUSETTS
(ESSEX COUNTY)

PREPARED FOR
GATEWAY II TRUST OF 1997

SCALE: 1"= 100' DATE: NOVEMBER 7, 2005

MERIDIAN ASSOCIATES, INC.
152 CONANT STREET, BEVERLY, MASSACHUSETTS 01915, TELEPHONE: (978) 299-0447
69 MILK STREET, SUITE 302, WESTBOROUGH, MASSACHUSETTS 01581, TELEPHONE: (508) 871-7030
WWW.MERIDIANASSOC.COM

SHEET No. 2 OF 2 PROJECT No. 3250

DWG. No. 3250POST_NOVEMBER_2005

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D
2	5/24/06	UPDATE LOT 1-3 INFO	ACF	CEW
1	3/15/06	UPDATE LOT 1-3 INFO	ACF	CEW