

Chicopee, MA
Former Uniroyal &
Facemate Properties
May 2021

STORMWATER MANAGEMENT REPORT

ACOE PERMIT REVIEW ONLY



BETA

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Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
 - Credit 1
 - Credit 2
 - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): _____

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the proprietary 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.

1.0 OVERVIEW

1.1 PROJECT PURPOSE

Under this project, the City proposes to backfill a portion of the Chicopee Falls Local Protection Project easement and adjacent upland areas in order to facilitate future redevelopment of the former Uniroyal and Facemate properties (the "Site"). As a result of these proposed measures, existing stormwater runoff characteristics will be altered. In accordance with the Massachusetts Stormwater Handbook and best engineering practices, this Stormwater Management Report will outline the proposed modifications to the Site's stormwater management systems implemented to maintain the integrity of the Flood Control System and the Chicopee River.

1.2 CONTACT INFORMATION

City Chicopee
274 Front Street, 4th Floor City Hall Annex, Chicopee, MA 01013
Attn: Lee Pouliot, AICP, ASLA, Director of Planning & Development
Tel: (413) 594-1515

1.3 PROJECT DESCRIPTION

The project site is a portion of the former Uniroyal Site, located at 154 Grove Street, and the former Facemate Site (also known as the "Baskin Parcel") located at 75 West Main Street, both located in the City of Chicopee, MA (the "Site"). The City of Chicopee Assessor's Office identifies the properties as Lots 124-00003, 124-00012, 143-00001, 147-00006, 147-00009, 147-00010, and 202-0015A. The properties are generally zoned as Industrial with a small strip of land zoned as Residential A (Refer to Figure 1: Site Locus).

The Site is situated along the Chicopee River, bounded by the river to the west and Front Street, Grove Street, Oak Street, and West Main Street to the east. Historic use at the Site primarily included mill buildings used for various manufacturing operations since the late 1800s. Since acquisition of the lots by the City of Chicopee circa 2009, the majority of the former mill buildings have been demolished and environmental clean-up operations are currently being conducted throughout the Site. As of July 2020, seven large buildings remain at the Site, of which two (Buildings 15 and 29) are proposed to be demolished while the rest are to be retained.

This stormwater analysis has been prepared to support a fill operation along the western boundary of the Site. The fill area is a low-lying portion of the Site adjacent to an existing flood control levee. Constructed circa 1938-1942, the levee is a portion of the "Chicopee Falls Local Protection Project" and mitigates risk of flooding from the Chicopee River. The top-of-levee elevations range from 98' +/- to 100' +/- in this area. A flood control easement is present directly east of the levee, where several drainage systems are in place to control stormwater behind the levee. Catch basins, drain inlets, interceptor drains, and a toe drain collect runoff from this low-lying area and divert it to either the Main Street Pump Station (from the Facemate Property) or the Oak Street Pump Station (from the Uniroyal Property). Both pump stations discharge stormwater runoff to the Chicopee River.

1.4 ADDITIONAL DATA SOURCES

- Report entitled "Chicopee Falls Local Protection Project," Design Memoranda No. 1 through 6. Prepared by US Army Engineer Division, New England Corps of Engineers, dated December 1962.
- Letter entitled "Chicopee Levee Slope Stability" prepared by O'Reilly, Talbot, & Okun Associates (OTO), dated May 12, 2021.

2.0 EXISTING CONDITIONS DESCRIPTION

The existing Site is currently vacant, apart from Lot 124-00012 which is used as a business and “Building C” on Lot 143-0001 which is used as storage by the Chicopee Police Department. The majority of the Site’s land area beyond the vacant buildings is bare soil, grass, or limited vegetation. Former buildings have been remediated, demolished, and their footprints backfilled. Paved and unpaved driveways provide access to various portions of the Site. Miscellaneous site features include utility poles with overhead wire, a perimeter fence, and erosion controls.

Stormwater management is accomplished generally through several closed drainage systems throughout the Site, and include four primary discharge points:

- The Oak Street Pump Station, located on the southwestern portion of the Uniroyal Property
- The Main Street Pump Station, located approximately 570 ft. north of the Facemate Property.
- An outfall located at the southwestern corner of the Uniroyal Property which discharges to the Chicopee River (Hereafter referred to as the “South Outfall”)
- An outfall located on Lot 0202-0015A just south of the Facemate Property which discharges to the Chicopee River (Hereafter referred to as the “North Outfall”)

Stormwater runoff from the eastern (“Upper”) portions of the Uniroyal property are conveyed through a catch basin – manhole system and directed to the South Outfall. Stormwater runoff from the western (“Lower” and “Middle”) portions of the Uniroyal property is conveyed via overland flow to the area adjacent to the flood control levee. This stormwater is then collected either by catch basins associated with the “interceptor drain,” or an underground toe drain that collects groundwater. Both the toe drain and interceptor drain convey stormwater to the Oak Street Pump Station where it is discharged to the Chicopee River. Stormwater runoff from Uniroyal Buildings 26 and 27 is collected via a roof drain system and conveyed to the Oak Street Pump Station as well. Stormwater runoff in the northeastern portion of the Uniroyal property is conveyed via catch basin connections to the drainage system beneath Oak Street, but this area is outside the limit of work for this project.

Stormwater runoff from the Facemate property is conveyed via overland flow to the area adjacent to the flood control levee. This stormwater is then collected either by catch basins associated with the “interceptor drain,” or an underground toe drain that collects groundwater. Both the toe drain and interceptor drain convey runoff to the Main Street Pump Station, where it is discharged to the Chicopee River. Some stormwater runoff from the eastern portions of the Facemate property may also be captured by a series of catch basins that convey flow to the North Outfall. However, the Site is generally not graded towards these drain inlets and no alterations are proposed to their catchment area.

A further description of the stormwater runoff characteristics with respect to the HydroCAD model and Watershed Plans is provided in Section 4.4 below.

Topography at the Site is generally graded to the west towards the low-lying area adjacent to the flood control levee. Due to ongoing demolition and remediation work, several areas of uneven grading are present throughout the property; however long-term grading is assumed to result in these areas being backfilled and graded westward. A portion of the Site is within the 200’ Riverfront Area associated with the Chicopee River. The area west of the levee is classified as a regulatory floodway. No wetlands or other resource areas are known to exist on the property (Refer to Figures 2 and 3).

Natural Resources Conservation Service soil maps indicate soils in the project area are considered Urban land and is not designated a Hydrologic Soil Group (HSG). As a conservative measure, HSG D has been applied to the hydrologic calculations. This ensures that proposed basins are sized to reflect a worst-case scenario. Refer to Appendix C for relevant NRCS Soil Maps.

3.0 PROPOSED CONDITIONS WITH MITIGATION

This project proposes to backfill a portion of the low-lying area behind the flood control levee in order to facilitate future redevelopment of the Site. Backfill material may include contaminated soils or other materials in accordance with the City's Fill Management Plan, to be overseen by a Licensed Site Professional (LSP). Backfill material will be "Capped" with geotextile fabric and 3' of clean fill, except where deemed unnecessary by the LSP. Clean fill material will include loam and seed to establish turf for stability and erosion control.

The Oak Street Pump Station and its associated discharge pipe are proposed to be decommissioned, partially demolished, and abandoned in place. The existing interceptor and toe drains will be abandoned in place with existing inverts plugged. The abandonment of these systems is based on the results of a geotechnical analysis by OTO indicating that levee stability will be maintained without a functioning toe drain.

To manage stormwater, the interceptor drain will be replaced with several infiltration basins proposed along the western side of the properties, generally 3' – 5' below the top of the levee. These infiltration basins will retain stormwater runoff and discharge into a new catch basin to manhole drainage system. Stormwater runoff collected within the Uniroyal Property will be conveyed to the South Outfall, while that collected within the Facemate Property will be conveyed to the Main Street Pump Station. No alterations are proposed to the upgradient portions of the Uniroyal and Facemate Properties, and the existing drainage systems in these areas will continue to function. However, stormwater runoff previously conveyed to the Oak Street Pump Station will instead be directed to the new drainage system.

Proposed perforated drain pipes connecting the manholes will be located within crushed stone. These pipes and the crushed stone are intended to capture any groundwater that may build up behind the levee per geotechnical engineer recommendations. Note that a full evaluation of pre- and post-development levee stability is to be conducted under a separate report.

The proposed system also includes the abandonment of a 24" RCP "Bypass" drain pipe located between the Facemate and Uniroyal Sites. Per discussions with the City and record plans, this pipe was used to convey process water to the Uniroyal Site. At the time of this report, the pipe has not been during the preceding 19 years and it is anticipated that the North Outfall will be sufficient to discharge any flows in the Facemate drainage system.

4.0 CALCULATIONS AND ASSUMPTIONS

4.1 OBJECTIVES

The calculations presented in this report are an analysis of site hydrology and stormwater runoff, including scenarios for both Pre- and Post-Development conditions. The project is considered a redevelopment project and the objective of this analysis is to demonstrate that measures have been implemented to comply with the Massachusetts Stormwater Management Standards and City of Chicopee Stormwater requirements to the maximum extent practicable. Analysis of the Existing and Proposed Conditions is included for the one (1), two (2), ten (10), twenty-five (25), and one hundred (100) year rainfall events. A description of the project and how it relates to the ten Stormwater Management Standards is included.

4.2 CALCULATION METHODS

Stormwater runoff is analyzed using the following:

- "HydroCAD™ Stormwater Modeling System," by Applied Microcomputer Systems based upon SCS Technical Releases No. 55 and 20 for generating hydraulic calculations including peak flows and runoff volumes

4.3 EQUATIONS AND SOURCES OF DATA USED

Rainfall for the Pre-development Facemate parcel obtained via Technical Paper 40 (TP-40 Hampden County) to reflect original design calculations for the Main Street Pumping Station

1 yr. = 2.50 in. 2 yr. = 3.00 in. 10 yr. = 4.60 in. 25 yr. = 5.30 in. 100 yr. = 6.50 in.

For all other calculations, rainfall data obtained via NOAA Atlas-14, Volume 10, Version 3: Chicopee, MA

1 yr. = 2.48 in. 2 yr. = 3.12 in. 10 yr. = 5.04 in. 25 yr. = 6.23 in. 100 yr. = 8.07 in.

Refer to Appendix G for rainfall data.

4.4 POINTS OF ANALYSIS

POA1L – Into an existing Interceptor Drain, towards the Main St. Pump Station.

- Receives runoff from the Facemate property (Watershed 1S or 1Sa and 1Sb).
- In the pre-development conditions, runoff is collected in a low-lying area with drain inlets (Pond 1P).
- In the post-development conditions, runoff is collected in two new infiltration basins with catch basins (Ponds 1Pa and 1Pb) and directed through a new run of HDPE pipe (Reaches 1Ra, 1Rb, and 1R).

POA2L – Into the Chicopee River, west of the Uniroyal Property

- Receives stormwater runoff from the lower/middle Uniroyal property (Watershed 2S or 2Sa, 2Sb, and 2Sc), the Upper Uniroyal property (Watershed 3S), and Buildings 26/27 (Watershed B26, B27).
- In the pre-development conditions, stormwater from Watershed 2S is collected in a low-lying area with drain inlets (Pond 2P) then directed to the Oak Street Pump Station (POA 2La) for discharge to the Chicopee River (POA 2L). Watersheds B26 and B27 convey stormwater through roof leaders and drain pipes directly to POA 2La. Watershed 3S is collected by a closed drainage system and directed through a 30" RCP outfall (Reach 3R) to the Chicopee River (POA 2L).
- In the post-development conditions, stormwater from Watershed 2Sa, 2Sb, and 2Sc is collected in three new infiltration basins (Ponds 2Pa, 2Pb, and 2Pc) then directed through new drain pipes (Reaches 2Ra, 2Rb, 2Rc) to a new discharge pipe (Reach 2R). Stormwater runoff from B26 and B27 is also directed to Reach 2R. Stormwater from Reach 2R as well as Watershed 3S (unchanged) is directed to the existing 30" RCP outfall (Reach 3R) for discharge to the Chicopee River (POA 2L).

4.5 CALCULATIONS

Refer to Appendix D for figures showing the pre- and post- development watersheds. Refer to Appendices E and F for copies of the pre- and post-development HydroCAD calculations. Additional calculations relating to the design are provided in Appendix G.

4.6 SOIL CHARACTERISTICS

The proposed design will include the construction of infiltration basins atop a newly backfilled area. As such, the soil directly beneath the infiltration basins will be entirely new material and existing soil characteristics cannot be used to evaluate infiltration potential.

Volume 3, Chapter 1, Page 22 of the Massachusetts Stormwater Handbook identifies the "Rawl's Rates," standard infiltration rates associated with common soil classifications. These soil classifications are detailed in the USDA soil textural triangle, provided on Volume 3, Chapter 1, Page 14 of the Massachusetts Stormwater Handbook.

The design of the infiltration basins stipulates that the basin subbase will contain a maximum clay composition of 20% and a maximum silt concentration of 50%. Based on the textural triangle, this will result in a soil classification of Sandy Loam, Loamy Sand, or Sand with infiltration rates of 1.02 in/hr. or greater.

In addition, basin drawdown will primarily be accomplished via the catch basin inlet provided in each infiltration basin, rather than depending on soil infiltration.

4.7 ASSUMPTIONS AND LIMITATIONS

This stormwater analysis includes only the aforementioned backfill activities and associated alterations. It does not include any future redevelopment of the Sites which would require a separate analysis.

This analysis also includes several conservative design assumptions. Firstly, it was assumed that many upgradient areas would drain into the proposed basin areas, even though they may instead be captured by local low points or catch basins. This ensures that the design will function in the event of future, minor grading activities. Secondly, the flowpaths were considered only for the portion of the Site that will be altered, as existing grading would otherwise result in a long, sinuous flowpath that may not reflect future conditions.

5.0 SUMMARY OF RESULTS

Peak Rate of Runoff		Flow (cubic feet per second)									
		1-Year Storm		2 Year Storm		10 Year Storm		25 Year Storm		100 Year Storm	
Outlet To:		Exist	Prop	Exist	Prop	Exist	Prop	Exist	Prop	Exist	Prop
POA1	Main St. Pump Sta	5.76	3.38	6.76	4.87	9.42	7.75	10.38	9.13	11.81	10.87
POA2	Chicopee River	15.73	10.40	19.41	15.36	29.98	28.13	36.17	34.72	45.39	44.38
Project Total:		21.49	13.74	26.17	20.21	39.40	35.87	46.55	43.84	57.20	55.26

Runoff Volume		Runoff Volume (Acre-Feet)									
		1-Year Storm		2 Year Storm		10 Year Storm		25 Year Storm		100 Year Storm	
Outlet To:		Exist	Prop	Exist	Prop	Exist	Prop	Exist	Prop	Exist	Prop
POA1	Main St. Pump Sta	0.606	0.420	0.792	0.626	1.413	1.313	1.692	1.766	2.176	2.486
POA2	Chicopee River	2.417	1.699	3.302	2.466	6.056	4.987	7.798	6.636	10.513	9.251
Project Total:		3.02	2.12	4.09	3.09	7.47	6.30	9.49	8.40	12.69	11.74

*Increase in runoff volume is the result of the increased precipitation rates used in the post-development model to better reflect actual site conditions (Refer to Section 4.3). If Atlas-14 rates are used for the pre-development model, the runoff volumes for these storm events are 2.067 acre-feet and 2.816 acre-feet for the 25- and 100-year storm events, respectively.

Supplemental Calculations:

(Refer to Appendix G)

Recharge Volume Required = 0 cu. ft. (No loss of recharge as no new impervious area proposed)

Recharge Volume Provided = 0 cu. ft. (Infiltration in basins assumed to be captured by perforated pipe)

Water Quality Volume Required:

Facemate Property: 709 cu. ft.
Uniroyal Property: 2,745 cu. ft.

Water Quality Volume Provided:

Facemate Property: 1,865 cu. ft.
Uniroyal Property: 3,235 cu. ft.

Existing TSS Removal Rate = 0 %

Proposed TSS Removal Rate = 44% (Refer to Section 7.0)

6.0 COMMENTS AND CONCLUSIONS

As a result of the proposed mitigation measures, stormwater runoff will be captured, peak flows will be controlled, and water quality volume will be provided. The provided analysis has demonstrated that there will be no adverse impacts as a result of the project. The proposed stormwater management Best Management Practices have been designed to meet the DEP's Stormwater Management Policy to the maximum extent practicable. Summaries of compliance with the ten DEP Stormwater Management Standards and City of Chicopee's Stormwater Management Rules are provided in the following sections.

7.0 SUMMARY OF COMPLIANCE WITH TEN STORMWATER MANAGEMENT STANDARDS

The City of Chicopee is proposing alterations at the Former Uniroyal and Facemate Properties in Chicopee, MA. The following summary has been prepared to illustrate the project's conformance with MassDEP's Stormwater Management Standards. Note that the project is a redevelopment project and need only meet certain standards the maximum extent practicable.

Standard 1: No New Untreated Discharges

No new stormwater conveyances (e.g., outfalls) may discharge directly untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth

No new untreated discharges to wetlands are created as part of this project. Existing site conditions currently allow runoff to flow, untreated, into the Chicopee River. The redevelopment proposes to capture and provide limited treatment of this runoff within infiltration basins and deep sump catch basins. Runoff discharged from the Uniroyal property will be conveyed to an existing outfall with outlet control protection that discharges to the Chicopee River. Runoff discharged from the Facemate property will be conveyed to the Main Street Pump Station.– project complies.

Standard 2: Peak Rate Attenuation

Stormwater management systems shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates.

The proposed design results in a net decrease to impervious area to prevent an increase in peak discharge rates, and many barren areas on the Site will be revegetated. The proposed infiltration basins are designed to capture and control the release of stormwater runoff. A net decrease in peak runoff rate and runoff volume is anticipated as part of the project – project complies.

Standard 3: Recharge

Loss of annual recharge to groundwater shall be eliminated or minimized. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type.

As no new impervious areas are proposed, there will be no loss in annual recharge from the post-development site compared to pre-development conditions. The re-vegetation of existing impervious area will improve the Site's ability to infiltrate runoff. – project complies.

Standard 4: Water Quality

Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids.

In accordance with this standard, the project is required to store a "water quality volume" equal to 0.5-inches of runoff times the total impervious area of the post-development site. The catch basins within the

proposed infiltration basins have been designed to be up to 6 inches above the basin bottom to provide the required water quality volume. Appendix B includes a Long-Term Pollution Prevention Plan.

The proposed treatment train includes deep sump drainage structures to provide limited TSS removal that does not currently exist. Although infiltration basins are proposed, they have been modeled as sediment forebays in the TSS Removal Calculations as no pretreatment has been provided.

While a TSS removal of 80% has not been achieved, the post-development project site will remain vacant, and no vehicle traffic areas will discharge to the proposed BMPs. Sedimentation potential is thus limited. Future site redevelopment activities will be required to meet the 80% TSS removal requirement. – project complies to the maximum extent practicable.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

Land use with high potential pollutant loads must have source control and pollution prevention measures implemented in accordance with the Massachusetts Stormwater Handbook.

The Site includes former mill buildings known to contain potentially hazardous substances. Ongoing remediation efforts may involve handling of these materials, and measures to prevent spills or exposure will be required of each remediation plan. Backfill operations under this project may include contaminated materials which will be handled in accordance with the Massachusetts Contingency Plan (MCP) and other local, state, and federal guidelines. These pollutant sources are anticipated only during the construction period, and in the long-term the project Site will not be classified as a LUHPPL. A basic Spill control and prevention plan is included in Appendix B. - project complies to the maximum extent practicable

Standard 6: Critical Areas

Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of specific source control, pollution prevention measures.

The project does not propose discharges to a critical area. - project complies

Standard 7: Redevelopment

A redevelopment project is required to meet certain Stormwater Management Standards only to the maximum extent practicable.

The project is a redevelopment project under the definition of (2): "Development, rehabilitation, expansion, and phased projects on previously developed sites, provided the redevelopment results in no net increase in impervious area." Certain standards have been met only to the maximum extent practicable as noted in previous sections.

Standard 8: Construction Period Pollution Prevention and Erosion and Sediment Control

A plan to control construction related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities shall be developed and implemented.

The project will disturb greater than one acre and thus will require the development of a Stormwater Pollution Prevention Plan (SWPPP) prior to construction. Note that SWPPPs have been previously prepared and submitted for the project Sites under NDPE ID MAR1000LL and MAR1000XS. These SWPPP's may need to be updated to reflect current site conditions and proposed improvements. A Construction Period Pollution Prevention and Sediment Control Plan has been provided as Appendix A of this report.

Standard 9: Long Term Operation and Maintenance Plan

A Long-Term Operation and Maintenance Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

Operations and Maintenance of Stormwater management systems will be the responsibility of the City of Chicopee. Therefore, inspection and maintenance of the stormwater management system will be in accordance with a Regulator-Approved version of the attached Operation and Maintenance Plan.

Standard 10: Prohibition of Illicit Discharges

All illicit discharges to the stormwater management system are prohibited.

There are currently no known non-stormwater illicit discharges within the project limits and new discharges are prohibited. An illicit discharge compliance statement is attached.

8.0 SUMMARY OF COMPLIANCE WITH STORMWATER MANAGEMENT RULES

The following summary has been prepared to illustrate the project's conformance with the fourteen objectives detailed in Chapter 231 of the City of Chicopee bylaw.

Objective 1: Reduce the adverse water quality impacts of stormwater and combined sewer overflow discharges to rivers, lakes, reservoirs, and streams in order to attain federal water quality standards.

Existing stormwater is currently directed to the Chicopee River and the Main Street Pump Station. The proposed design will continue to discharge to these locations. A net decrease in runoff volume and peak discharge rate is anticipated. The project has been designed to maintain the required water quality volume, and TSS removal will be improved compared to existing conditions.– project complies.

Objective 2: Prevent the Discharge of Pollutants, including hazardous chemicals into stormwater runoff.

The proposed design incorporates deep sump, hooded drainage structures and infiltration basins to minimize the risk of pollution to stormwater runoff from the Site. No hazardous chemicals are anticipated to be present at the Site during normal operation. Refer to the Illicit Discharge Compliance Statement. – project complies.

Objective 3: Minimize the volume and rate of stormwater which is discharged to rivers, streams, reservoirs, lakes, and combined sewers.

The proposed design incorporates several infiltration basins to capture, store, and control runoff coupled with a decrease in impervious area. A net decrease in peak runoff rate and volume from all watersheds up to the 100-year storm is anticipated as part of the project – project complies.

Objective 4: Prevent erosion and sedimentation from improper land development, and reduce stream channel erosion caused by increased runoff.

The proposed design incorporates basic erosion controls consisting of straw wattles, stabilized construction entrance, and inlet protection minimize sedimentation and erosion from the Site. The project will disturb greater than one acre and will require the development of a detailed Stormwater Pollution Prevention Plan (SWPPP) prior to construction. – project complies.

Objective 5: Provide for recharge of groundwater aquifers and maintain the base flow of streams.

The project proposes a reduction in impervious area. As a result, an improvement in recharge potential is anticipated. – project complies.

Objective 6: Provide stormwater facilities that are attractive, maintain the natural integrity of the environment, and are designed to protect public safety.

Proposed infiltration basins are intended to blend in with proposed topography and minimize visual impact. Basin depths are typically no greater than 4' below surrounding grades to mitigate public safety concerns – project complies.

Objective 7: Maintain or reduce predevelopment runoff characteristics after development to the extent feasible.

Both pre- and post-development runoff characteristics are directed to a low-lying area behind the flood control levee. – project complies.

Objective 8: Minimize damage to public and private property from flooding.

The proposed infiltration basins have been designed to capture the 100-year storm with a 1' freeboard. A net decrease in peak runoff rate and runoff volume is anticipated from all watersheds.– project complies.

Objective 9: To prevent pollutants from entering Chicopee's municipal separate storm sewer system (MS4).

The project does not propose any alterations near to the City's MS4 system. Inlet protection is proposed at existing catch basins near the Site. – project complies.

Objective 10: To prohibit illicit connections and unauthorized discharges to the MS4 and;

Objective 11: To require the removal of all such illicit connections.

There are currently no known non-stormwater illicit discharges within the project limits and new discharges are prohibited. Refer to attached Illicit Discharge Compliance Statement. – project complies.

Objective 12: To comply with state and federal statutes and regulations relating to stormwater discharges.

The proposed stormwater management Best Management Practices have been designed to fully meet the DEP's Stormwater Management Policy as detailed in Section 6.0. – project complies.

Objective 13: To establish the legal authority to ensure compliance through inspection, monitoring, and enforcement.

The responsible party for operation and maintenance of the stormwater design is The City of Chicopee. A long-term operation and maintenance plan is provided as Appendix B. – project complies.

Objective 14: To prevent contamination to drinking water supplies

No private drinking water wells are located within 500 feet of the Site. The Site is not within an Interim Wellhead Protection Area, Zone II, or Potentially Productive Aquifer. No risk of contamination to drinking water supplies is anticipated as part of this project. – project complies.

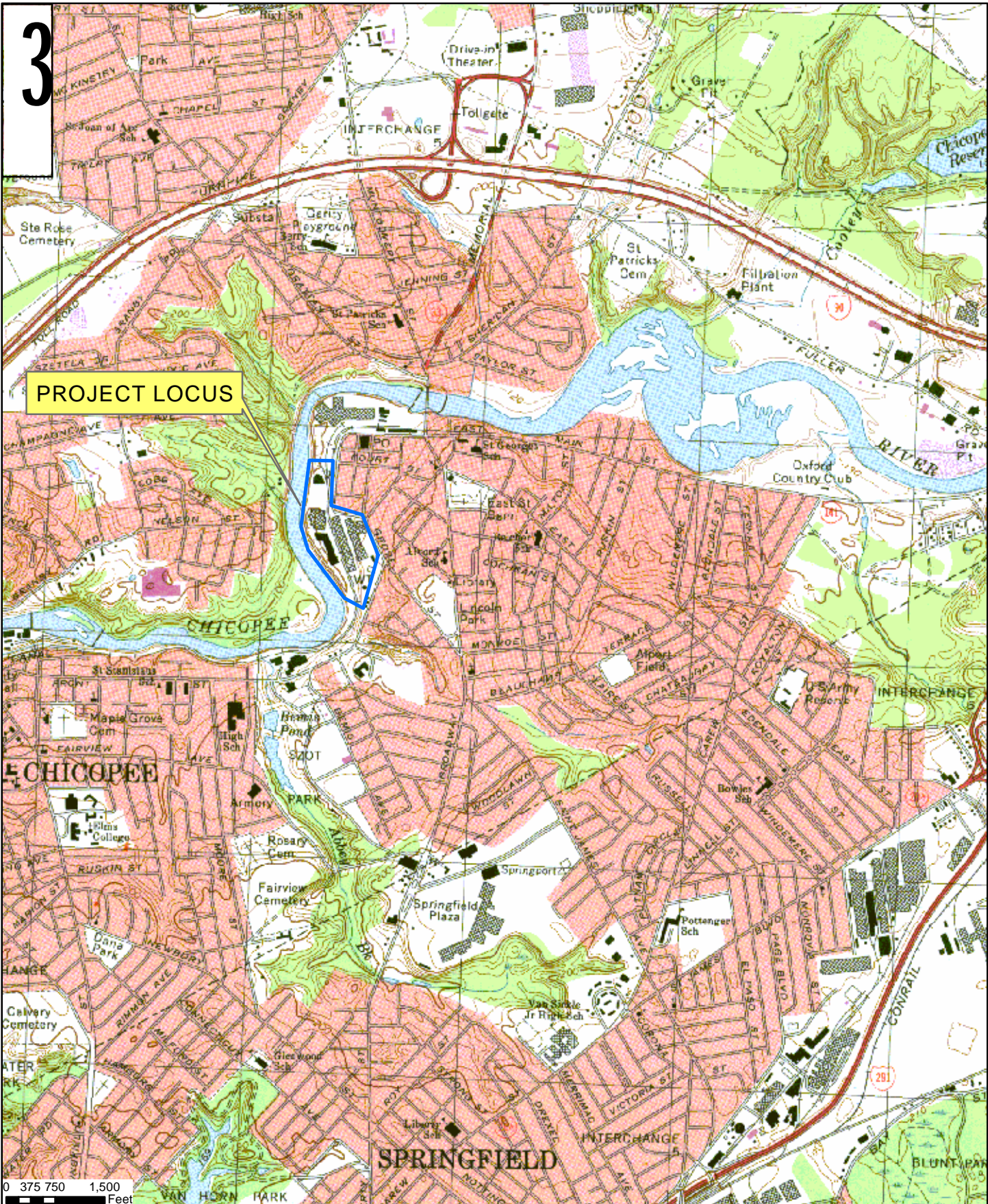
Illicit Discharge Compliance Statement

It is the intent of the Owner, the City of Chicopee to prevent illicit discharges to the stormwater management system, including wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease. To the extent of my knowledge, the proposed project does not create any illicit discharges and all illicit discharges are prohibited in the future.

City of Chicopee

FIGURES

3



PROJECT LOCUS



Former Uniroyal
and Facemate Properties

Chicopee, MA

Figure 1

Site Locus Map

MassDEP - Bureau of Waste Site Cleanup

Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:

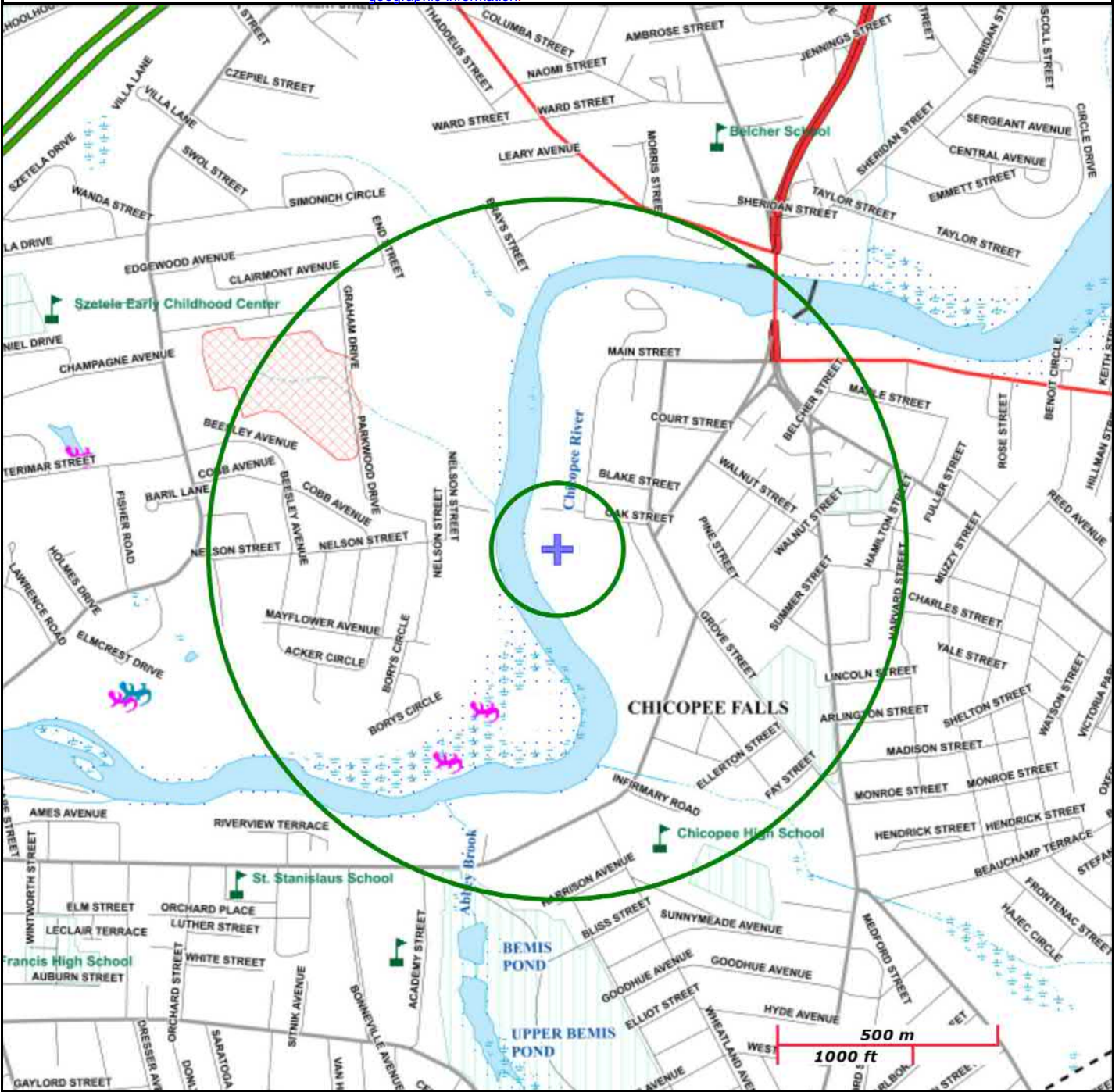
CHICOPEE, MA

NAD83 UTM Meters:
4669758mN, 699281mE (Zone: 18)
July 17, 2020

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: <https://www.mass.gov/orgs/massgis-bureau-of-geographic-information>.



MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

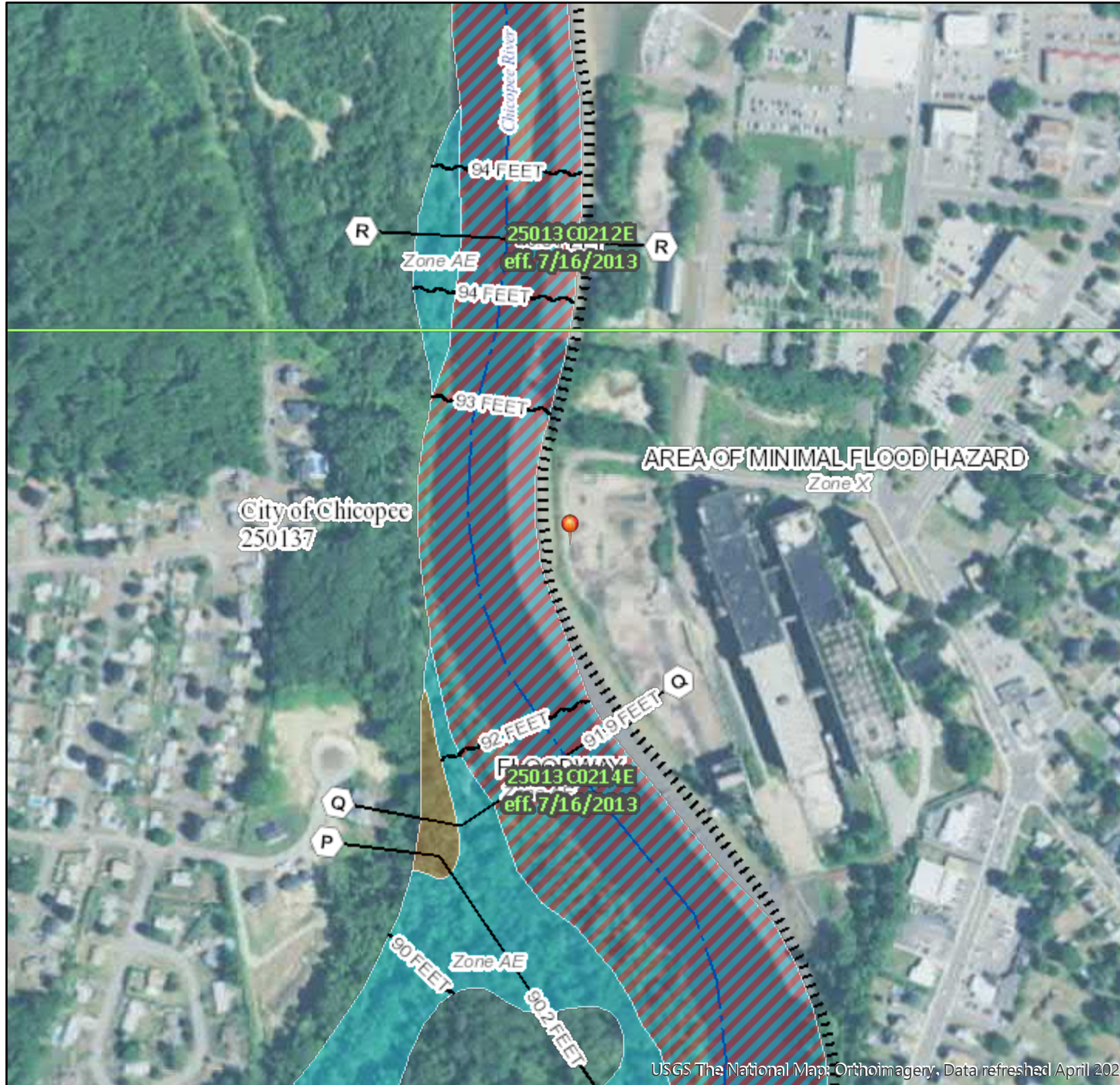


Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail	PWS Protection Areas: Zone II, IWPA, Zone A		
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct	Hydrography: Open Water, PWS Reservoir, Tidal Flat		
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam	Wetlands: Freshwater, Saltwater, Cranberry Bog		
Aquifers: Medium Yield, High Yield, EPA Sole Source	FEMA 100yr Floodplain; Protected Open Space; ACEC		
Non Potential Drinking Water Source Area: Medium, High (Yield)	Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential		
	Solid Waste Landfill; PWS: Com. GW, SW, Emerg., Non-Com.		

National Flood Hazard Layer FIRMMette



72°35'37"W 42°9'31"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes, Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS

- NO SCREEN Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
- 17.5 Coastal Transect
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/17/2020 at 12:48 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

***APPENDIX A – CONSTRUCTION PERIOD
POLLUTION PREVENTION AND EROSION AND
SEDIMENTATION CONTROL PLAN***

Construction Period Pollution Prevention and Erosion Control Plan

Former Uniroyal and Facemate Properties – Chicopee MA
ACOE Permit Review Only

Introduction

The anticipated area of disturbance during this project is greater than one acre; therefore, filing a notice of intent with EPA and development of a Stormwater Pollution Prevention Plan (SWPPP) is required. The following plan provides general guidance for the prevention of pollution and erosion and sedimentation during construction.

Potential Erosion and Sedimentation

Portions of the project involve soil disturbance; therefore, site preparation, scheduling, and construction practices need to be carefully planned to prevent construction debris and erosion from adversely impacting downstream resources. Although it is not always possible to avoid all impacts, the following guidelines shall be followed:

- Minimize land disturbance area and soil exposure to stormwater and wind erosion.
- Minimize time that area is disturbed.
- Avoid routing stormwater runoff or dewatering flows through disturbed areas.
- Inspect and maintain erosion controls until all soils are stabilized.
- Maintain good housekeeping practices.
- Stabilize disturbed soils as soon as possible to limit exposure.

Erosion and Sedimentation Plan

This Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan have been prepared in accordance with the Department of Environmental Protection's Massachusetts Erosion and Sedimentation Guidelines for Urban and Suburban Areas.

Pre-Construction and Site Preparation

- Contractor shall install all erosion control barriers in accordance with the construction documents prior to commencing any land disturbance activity.
- Inspect and maintain erosion controls until all soils are stabilized.
- Monitor weather reports daily and stabilize/prepare site if storm event in excess of the 2-year storm is expected.

Good Housekeeping

- Avoid stockpiling of soil within 100 feet of wetland resources and wellhead protection areas. If necessary, provide sufficient erosion controls to prevent migration of sediments.
- Minimize hazardous materials stored on site. All materials stored on site shall be stored in original containers and sealed.
- Refuel construction equipment off-site.
- Any spills of hazardous materials shall be reported, contained, and removed in accordance with local, State, and Federal regulations.



Construction Period Pollution Prevention and Erosion Control Plan

Former Uniroyal and Facemate Properties – Chicopee MA
ACOE Permit Review Only

Inspection and Maintenance of Erosion Controls during Construction

Inspect erosion controls weekly and after every storm event until all soils are stabilized.

- Erosion Control Barrier: Check for sedimentation accumulation, removing sediments when they reach excessive volumes (approximately 1/3 the height of the barrier). Also remove sediments when runoff ponds for 24 or more hours to prevent potential mosquito breeding habitat. Restake/replace tubes and silt fence as necessary to maintain their effectiveness.
- Stabilized Construction Entrance: Check to observe overall integrity and effectiveness of crushed stone entrance. Reshape pad as needed for drainage and runoff control, and top dress with clean stone if needed. Remove tracked-out sediment by the end of each workday.
- Catch basin Inlet Protection: Check for sedimentation accumulation, removing sediments when they reach excessive volumes.

Plans

See proposed construction drawings for locations of all proposed erosion and sedimentation controls.

Potential Construction Site Pollutants

Pollutant-Generating Activity	Pollutants or Pollutant Constituents	Location on Site
Equipment Re-fueling	Diesel Fuel, Gasoline	Staging Area*
Leaking or Broken Hydraulic Lines	Hydraulic Oil	Building Work Areas and Laydown Area
Minor Equipment Maintenance	Diesel Fuel, Gasoline, Hydraulic Oil, Motor Oil, Anti-Freeze	Staging Area*
Applying Fertilizer	Nitrogen, Phosphorous	Newly Seeded Areas
Portable Sanitary Toilets	Bacteria, Parasites and Viruses	Staging Area*
Vehicle Accident	Diesel Fuel, Gasoline	Entire Site
Trash Containers/Dumpsters	Paper, Plastic, and Food Waste	Staging Area*

*All vehicle and equipment staging to be conducted within the central and lower areas of Site.

***APPENDIX B – LONG TERM OPERATION
AND MAINTENANCE PLAN***

Long Term Operation & Maintenance Plan Stormwater Management Systems

Former Uniroyal and Facemate Properties – Chicopee, MA
ACOE Permit Review Only

General Information

Project Name: Former Uniroyal and Facemate Properties
Project Type: Site Redevelopment
Address: 154 Grove Street & 75 West Main Street, Chicopee MA
SWMS Owner: City of Chicopee
274 Front Street, 4th Floor City Hall Annex
Chicopee, MA 01013
(413) 594-1515
Responsible Party: City of Chicopee
Contact: Lee Pouliot, AICP, ASLA
Signature: _____

This stormwater management system (SWMS) operations and maintenance plan has been prepared in accordance with the Massachusetts Department of Environmental Protection's Stormwater Management Standards.

It shall be the responsibility of the Owner to provide a revised plan indicating any change of ownership or responsible party.

Long Term Operation & Maintenance Plan Stormwater Management Systems

Former Uniroyal and Facemate Properties – Chicopee, MA
ACOE Permit Review Only

Long-Term Pollution Prevention

The following measures and good housekeeping practices shall be followed at the Site to mitigate risk of pollution.

Material Storage and Handling

- Avoid stockpiling of soil or materials within 100 feet of wetland resources and wellhead protection areas. If necessary, provide sufficient erosion controls to prevent migration of sediments.
- All materials shall be stored or disposed in accordance with all local, state, and federal regulations.
- All sand piles shall be contained and stabilized to prevent the discharge of sand to wetlands or water bodies and, where feasible, covered.
- Minimize hazardous materials stored on site. All materials stored on site shall be stored in original containers and sealed.
- All solid waste, if encountered, shall be handled and disposed of in accordance with all local, state, and federal regulations.
- No snow shall be stored within waterbodies, resource areas, wellhead protection areas, or associated buffer zones.

Stormwater BMPs

- Refer to Inspection and Maintenance Procedures
- Refer to Illicit Discharge Compliance Statement

Spill Prevention and Response

- Refuel construction equipment off-site.
- Any spills of hazardous materials shall be reported, contained, and removed in accordance with local, State, and Federal regulations.
- Review on-site equipment and activities to ensure no illicit discharges are created.

Vegetation and Landscaping

- Refer to Inspection and Maintenance Procedures
- No fertilizers, pesticides, and/or herbicides shall be used at the Site.
- No road salt or sand for ice management shall be used or stored at the Site.

Long Term Operation & Maintenance Plan Stormwater Management Systems

Former Uniroyal and Facemate Properties – Chicopee, MA
ACOE Permit Review Only

Spill Prevention Plan

Remediation activities conducted at the Uniroyal and Facemate properties may involve the handling of hazardous waste materials or other pollutant sources. The purpose of this plan is to outline the source control and pollution prevention measures to minimize the risk of pollution to stormwater runoff.

Predicted Release

Any potential spills at the Site are anticipated to be during remediation activities relating to the existing mill buildings. During these activities, materials will be handled and either re-used on-site or removed from the Site for disposal. Spills in this area could be conveyed via overland flow towards the proposed Infiltration Basins.

Oil and Pollutant Control

The proposed drainage system will include hoods at all proposed catch basins to control accidental releases of oil into the system. Regular maintenance will be required to remove and legally dispose of any captured oil.

Sorbent Materials, Spill Response Supplies, and Equipment

During the proposed work, spill response supplies shall be maintained within the staging area. These supplies shall include sorbent pads, booms, and granular material (i.e., Speedy Dry), and a shovel, all stored within a covered over-pack drum or similar container. The supplies shall be made readily available to be deployed during a fuel spill or release.

Inspections and recordkeeping of the spill response equipment supplies must be maintained as part of this plan, and training shall be conducted to inform the employees on where the equipment is located and the procedure for using the material as part of the oil spill response training curriculum.

Additional Requirements

All remediation activities conducted at the Site shall be conducted by workers licensed to do such work in the state of Massachusetts. Remediation shall be in accordance with local, state, and federal law including all required measures to prevent spread of hazardous materials.

Long Term Operation & Maintenance Plan Stormwater Management Systems

Former Uniroyal and Facemate Properties – Chicopee, MA
ACOE Permit Review Only

BMP Inspection and Maintenance Procedures

Effectiveness of Best Management Practices (BMPs) is maximized when properly maintained. The following inspections schedule and maintenance required of BMPs for this project (see attached plan) shall be as outlined and documented below.

- Catch basins (CB) and Manholes (MH): Inspect and maintain after the first several rainfall events, after all major storms, and at least once every 3 months.
 - Check grates periodically and following heavy rainfall to verify that the inlet openings are not clogged by debris. Remove debris from grate.
 - Remove all accumulated debris.
 - Clean sump if it is greater than 50% full.
 - Note condition of frames, grates, concrete bricks, and hoods. Repair or replace damaged materials.
- Infiltration Basin: Inspect and maintain basin after the first several rainfall events, after all major storms, and at least once every 6 months.
 - Remove accumulated sediment, trash, debris, leaves, and grass clippings, particularly in area of trash racks.
 - Mow the buffer area, side slopes, and basin bottom.
 - Rake basin floor and remove tree or other plant seedlings before they become established.
 - Check for ponding within basin.
 - Check for erosion along basin slopes.
 - Inspect to ensure proper functioning.
- Vegetation: Monitor establishment and health of vegetation in fill area at least once a month for the first several months, then at least once every 6 months.
 - Check vegetation growth rate, health, and stability.
 - Note presence of any failing vegetation.
 - Reseed low-growth areas as necessary.

Approximate Maintenance Budget

Inspection and maintenance for this site is estimated as follows.

1. Inspections	\$400
2. Infiltration Basins	\$300
3. Deep Sump Catch Basin	\$300
<u>Annual Total</u>	\$1,000

Public Safety and Features

1. Provide police detail for extended occupation of roadway if traffic dictates.
2. All excavations and entry into closed structures will be completed in accordance with OSHA requirements.



Long Term Operation & Maintenance Plan Stormwater Management Systems

Former Uniroyal and Facemate Properties – Chicopee, MA
ACOE Permit Review Only

BMP Inspection and Maintenance Documentation Form

Inspection No.: _____ Date: _____ Weather: _____

Date & Amount of Last Precipitation Event: _____

Inspector Name: _____ Inspection Signature: _____

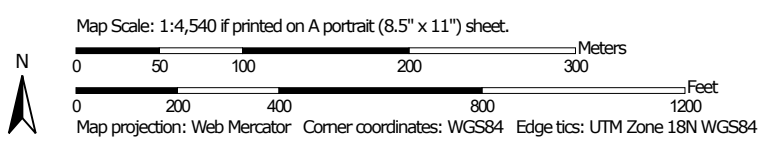
BMP	Condition/Stability	Comment & Recommendations	Date Corrected
Catch Basins			
Manholes			
Infiltration Basins			
Vegetation			
Other			
Additional Comments			

APPENDIX C – SOILS DATA

Hydrologic Soil Group—Hampden County, Massachusetts, Central Part



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines


 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points






 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hampden County, Massachusetts, Central Part
 Survey Area Data: Version 14, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 25, 2013—Sep 9, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Water		5.0	11.7%
602	Urban land		32.8	76.2%
739C	Urban land-Hinckley-Windsor association, 0 to 15 percent slopes	D	5.2	12.2%
Totals for Area of Interest			43.1	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

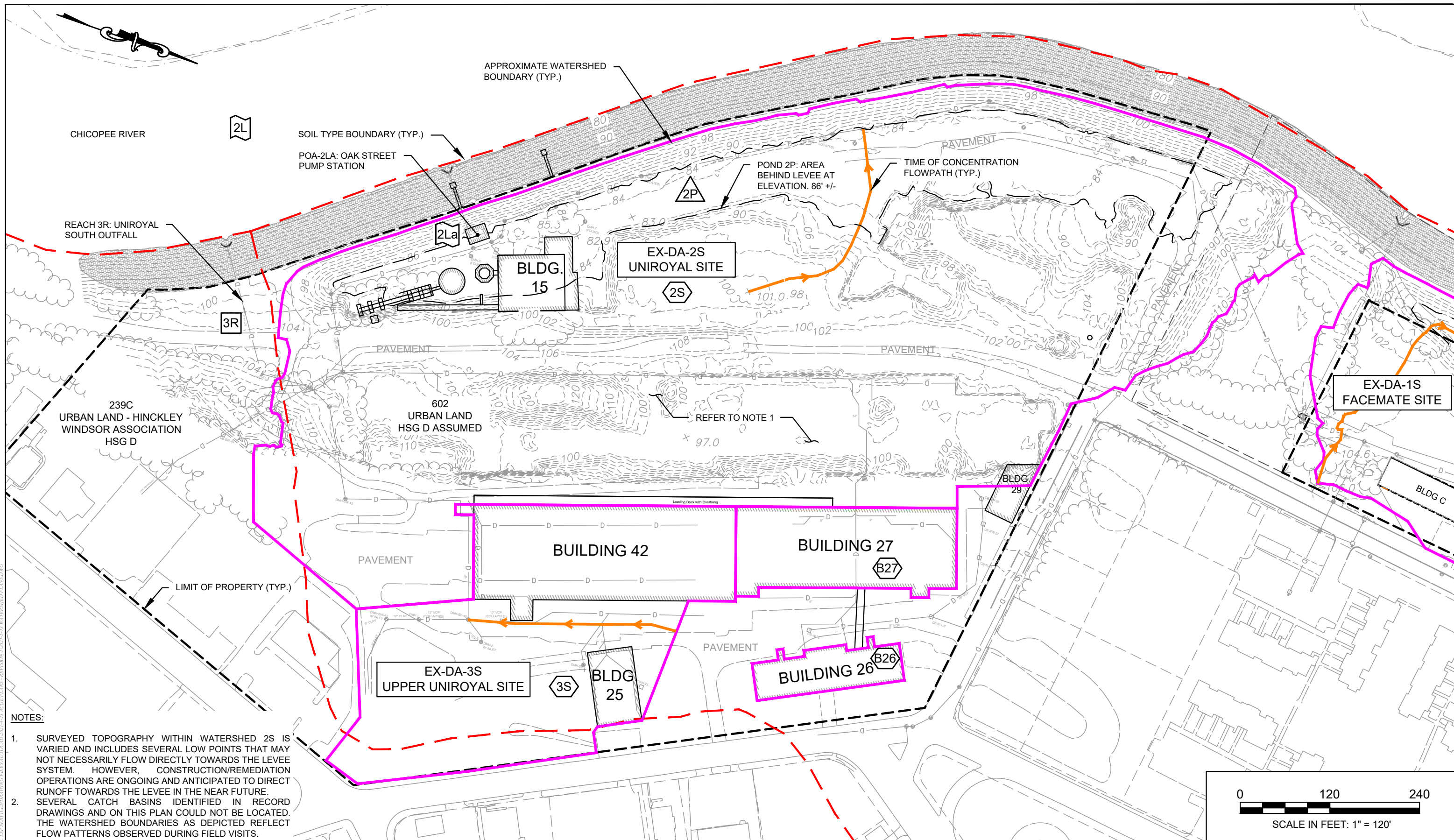
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

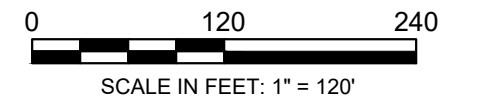
Tie-break Rule: Higher

APPENDIX D – WATERSHED PLANS



NOTES:

1. SURVEYED TOPOGRAPHY WITHIN WATERSHED 2S IS VARIED AND INCLUDES SEVERAL LOW POINTS THAT MAY NOT NECESSARILY FLOW DIRECTLY TOWARDS THE LEVEE SYSTEM. HOWEVER, CONSTRUCTION/REMEDATION OPERATIONS ARE ONGOING AND ANTICIPATED TO DIRECT RUNOFF TOWARDS THE LEVEE IN THE NEAR FUTURE.
2. SEVERAL CATCH BASINS IDENTIFIED IN RECORD DRAWINGS AND ON THIS PLAN COULD NOT BE LOCATED. THE WATERSHED BOUNDARIES AS DEPICTED REFLECT FLOW PATTERNS OBSERVED DURING FIELD VISITS.

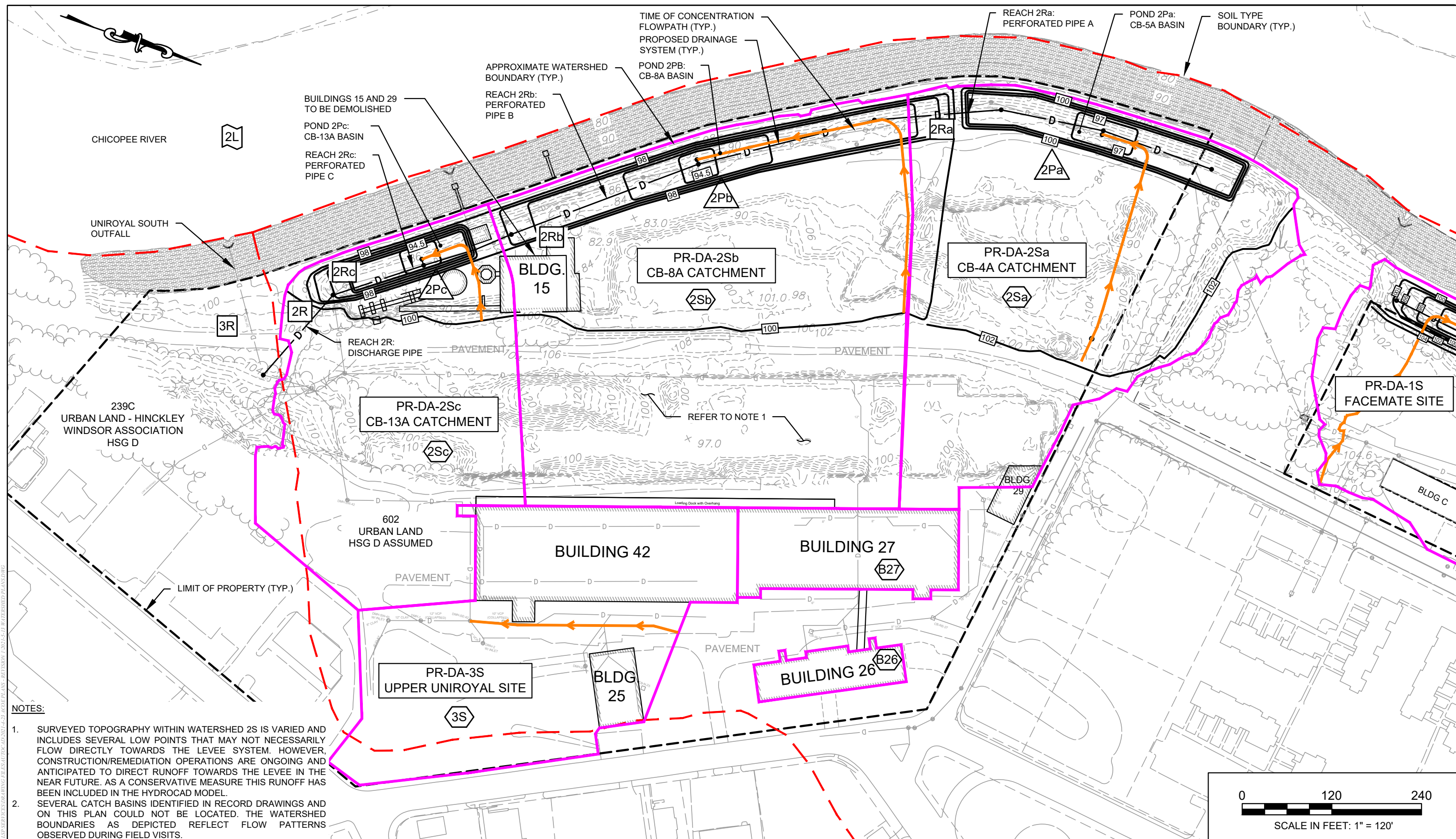


Former Uniroyal & Facemate Properties

ACOE Permit Review Only
 154 Grove Street & 75 West Main Street
 Chicopee, MA

Issue Date: 5-13-2021

Watershed Plan
Existing Conditions
Uniroyal Property



- NOTES:**
1. SURVEYED TOPOGRAPHY WITHIN WATERSHED 2S IS VARIED AND INCLUDES SEVERAL LOW POINTS THAT MAY NOT NECESSARILY FLOW DIRECTLY TOWARDS THE LEVEE SYSTEM. HOWEVER, CONSTRUCTION/REMEDATION OPERATIONS ARE ONGOING AND ANTICIPATED TO DIRECT RUNOFF TOWARDS THE LEVEE IN THE NEAR FUTURE. AS A CONSERVATIVE MEASURE THIS RUNOFF HAS BEEN INCLUDED IN THE HYDROCAD MODEL.
 2. SEVERAL CATCH BASINS IDENTIFIED IN RECORD DRAWINGS AND ON THIS PLAN COULD NOT BE LOCATED. THE WATERSHED BOUNDARIES AS DEPICTED REFLECT FLOW PATTERNS OBSERVED DURING FIELD VISITS.

Former Uniroyal & Facemate Properties
 ACOE Permit Review Only
 154 Grove Street & 75 West Main Street
 Chicopee, MA



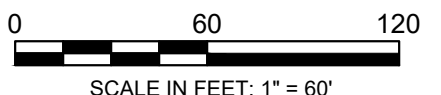
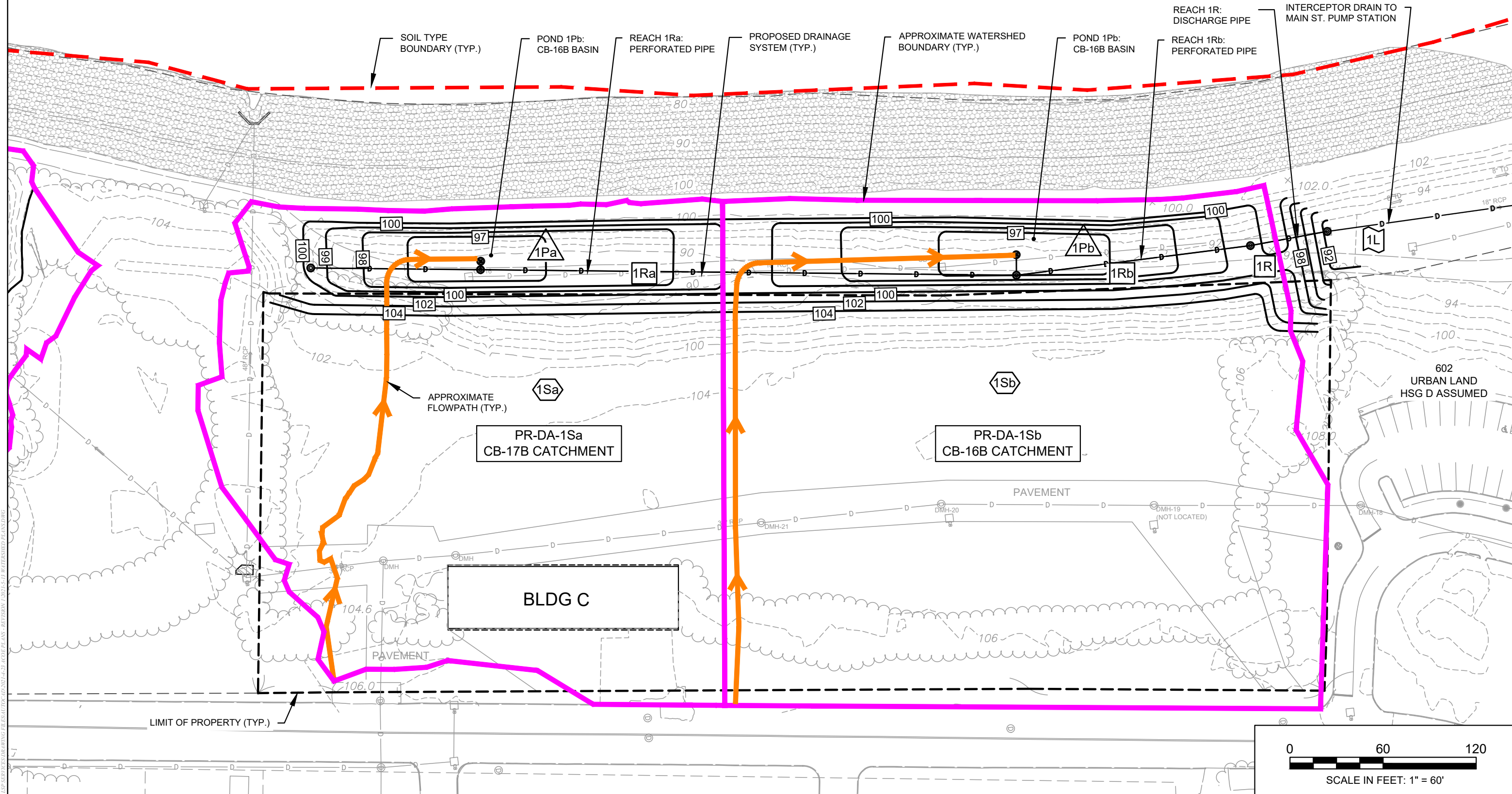
Watershed Plan
Proposed Conditions
Uniroyal Property

Issue Date: 5-13-2021

03/18/2021 - CHICOPÉE - UNIROYAL - FACEMATE - WATERSHED PLAN - 154 GROVE STREET & 75 WEST MAIN STREET - CHICOPÉE, MA - ACOE PERMIT REVIEW ONLY - 154 GROVE STREET & 75 WEST MAIN STREET - CHICOPÉE, MA - ACOE PERMIT REVIEW ONLY



CHICOPEE RIVER

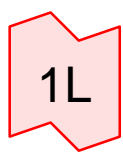


Former Uniroyal & Facemate Properties
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 154 Grove Street & 75 West Main Street
 Chicopee, MA

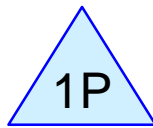
Issue Date: 5-13-2021

Watershed Plan
Proposed Conditions
Facemate Property

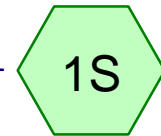
***APPENDIX E – EXISTING CONDITIONS
CALCULATIONS***



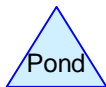
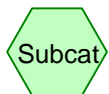
Facemate Interceptor
Drain



Area Behind Levee -
Facemate



EX-DA-1S - Facemate
Site



Routing Diagram for Existing Conditions - Facemate - TP40
Prepared by BETA Group, Inc, Printed 3/10/2021
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Summary for Subcatchment 1S: EX-DA-1S - Facemate Site

Runoff = 8.36 cfs @ 12.09 hrs, Volume= 0.606 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.50"

Area (sf)	CN	Description
173,521	89	<50% Grass cover, Poor, HSG D
17,024	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
21,109	79	Woods, Fair, HSG D
217,891	89	Weighted Average
194,630		89.32% Pervious Area
23,261		10.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		Sheet Flow, Sheet Flow Smooth surfaces n= 0.011 P2= 3.00"
3.7	190	0.0150	0.86		Shallow Concentrated Flow, Shallow Conc. 1 Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1360	2.58		Shallow Concentrated Flow, Shallow Conc. 2 Short Grass Pasture Kv= 7.0 fps
1.1					Direct Entry, Minimum TC
6.0	326				Total

Summary for Pond 1P: Area Behind Levee - Facemate

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 1.45" for 1-Year event
 Inflow = 8.36 cfs @ 12.09 hrs, Volume= 0.606 af
 Outflow = 5.76 cfs @ 12.18 hrs, Volume= 0.606 af, Atten= 31%, Lag= 5.4 min
 Primary = 5.76 cfs @ 12.18 hrs, Volume= 0.606 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 90.36' @ 12.18 hrs Surf.Area= 8,424 sf Storage= 2,605 cf

Plug-Flow detention time= 9.9 min calculated for 0.606 af (100% of inflow)
 Center-of-Mass det. time= 10.0 min (831.3 - 821.3)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Summary for Subcatchment 1S: EX-DA-1S - Facemate Site

Runoff = 10.86 cfs @ 12.09 hrs, Volume= 0.792 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
173,521	89	<50% Grass cover, Poor, HSG D
17,024	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
21,109	79	Woods, Fair, HSG D
217,891	89	Weighted Average
194,630		89.32% Pervious Area
23,261		10.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		Sheet Flow, Sheet Flow Smooth surfaces n= 0.011 P2= 3.00"
3.7	190	0.0150	0.86		Shallow Concentrated Flow, Shallow Conc. 1 Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1360	2.58		Shallow Concentrated Flow, Shallow Conc. 2 Short Grass Pasture Kv= 7.0 fps
1.1					Direct Entry, Minimum TC
6.0	326				Total

Summary for Pond 1P: Area Behind Levee - Facemate

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 1.90" for 2-Year event
 Inflow = 10.86 cfs @ 12.09 hrs, Volume= 0.792 af
 Outflow = 6.76 cfs @ 12.20 hrs, Volume= 0.792 af, Atten= 38%, Lag= 6.7 min
 Primary = 6.76 cfs @ 12.20 hrs, Volume= 0.792 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 90.49' @ 12.20 hrs Surf.Area= 9,286 sf Storage= 3,801 cf

Plug-Flow detention time= 9.8 min calculated for 0.791 af (100% of inflow)
 Center-of-Mass det. time= 9.9 min (823.5 - 813.7)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	90.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=5.74 cfs @ 12.18 hrs HW=90.35' (Free Discharge)
 1=Catch Basin (Orifice Controls 2.87 cfs @ 2.87 fps)
 2=Catch Basin (Orifice Controls 2.87 cfs @ 2.87 fps)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 1.45" for 1-Year event
 Inflow = 5.76 cfs @ 12.18 hrs, Volume= 0.606 af
 Primary = 5.76 cfs @ 12.18 hrs, Volume= 0.606 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	90.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=6.75 cfs @ 12.20 hrs HW=90.49' (Free Discharge)
 1=Catch Basin (Orifice Controls 3.38 cfs @ 3.38 fps)
 2=Catch Basin (Orifice Controls 3.38 cfs @ 3.38 fps)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 1.90" for 2-Year event
 Inflow = 6.76 cfs @ 12.20 hrs, Volume= 0.792 af
 Primary = 6.76 cfs @ 12.20 hrs, Volume= 0.792 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1S: EX-DA-1S - Facemate Site

Runoff = 18.98 cfs @ 12.09 hrs, Volume= 1.413 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
173,521	89	<50% Grass cover, Poor, HSG D
17,024	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
21,109	79	Woods, Fair, HSG D
217,891	89	Weighted Average
194,630		89.32% Pervious Area
23,261		10.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		Sheet Flow, Sheet Flow Smooth surfaces n= 0.011 P2= 3.00"
3.7	190	0.0150	0.86		Shallow Concentrated Flow, Shallow Conc. 1 Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1360	2.58		Shallow Concentrated Flow, Shallow Conc. 2 Short Grass Pasture Kv= 7.0 fps
1.1					Direct Entry, Minimum TC
6.0	326				Total

Summary for Pond 1P: Area Behind Levee - Facemate

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 3.39" for 10-Year event
 Inflow = 18.98 cfs @ 12.09 hrs, Volume= 1.413 af
 Outflow = 9.42 cfs @ 12.25 hrs, Volume= 1.413 af, Atten= 50%, Lag= 9.6 min
 Primary = 9.42 cfs @ 12.25 hrs, Volume= 1.413 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 90.96' @ 12.25 hrs Surf.Area= 12,250 sf Storage= 8,799 cf

Plug-Flow detention time= 10.8 min calculated for 1.412 af (100% of inflow)
 Center-of-Mass det. time= 10.8 min (808.2 - 797.3)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Summary for Pond 1P: Area Behind Levee - Facemate

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 4.06" for 25-Year event
 Inflow = 22.52 cfs @ 12.09 hrs, Volume= 1.692 af
 Outflow = 10.38 cfs @ 12.27 hrs, Volume= 1.692 af, Atten= 54%, Lag= 10.8 min
 Primary = 10.38 cfs @ 12.27 hrs, Volume= 1.692 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 91.16' @ 12.27 hrs Surf.Area= 13,565 sf Storage= 11,457 cf

Plug-Flow detention time= 11.5 min calculated for 1.691 af (100% of inflow)
 Center-of-Mass det. time= 11.5 min (803.9 - 792.4)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	90.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=9.42 cfs @ 12.25 hrs HW=90.96' (Free Discharge)
 1=Catch Basin (Orifice Controls 4.71 cfs @ 4.71 fps)
 2=Catch Basin (Orifice Controls 4.71 cfs @ 4.71 fps)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 3.39" for 10-Year event
 Inflow = 9.42 cfs @ 12.25 hrs, Volume= 1.413 af
 Primary = 9.42 cfs @ 12.25 hrs, Volume= 1.413 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1S: EX-DA-1S - Facemate Site

Runoff = 22.52 cfs @ 12.09 hrs, Volume= 1.692 af, Depth= 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
173,521	89	<50% Grass cover, Poor, HSG D
17,024	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
21,109	79	Woods, Fair, HSG D
217,891	89	Weighted Average
194,630		89.32% Pervious Area
23,261		10.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		Sheet Flow, Sheet Flow Smooth surfaces n= 0.011 P2= 3.00"
3.7	190	0.0150	0.86		Shallow Concentrated Flow, Shallow Conc. 1 Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1360	2.58		Shallow Concentrated Flow, Shallow Conc. 2 Short Grass Pasture Kv= 7.0 fps
1.1					Direct Entry, Minimum TC
6.0	326				Total

Summary for Pond 1P: Area Behind Levee - Facemate

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 4.06" for 25-Year event
 Inflow = 22.52 cfs @ 12.09 hrs, Volume= 1.692 af
 Outflow = 10.38 cfs @ 12.27 hrs, Volume= 1.692 af, Atten= 54%, Lag= 10.8 min
 Primary = 10.38 cfs @ 12.27 hrs, Volume= 1.692 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 91.16' @ 12.27 hrs Surf.Area= 13,565 sf Storage= 11,457 cf

Plug-Flow detention time= 11.5 min calculated for 1.691 af (100% of inflow)
 Center-of-Mass det. time= 11.5 min (803.9 - 792.4)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	90.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=10.37 cfs @ 12.27 hrs HW=91.16' (Free Discharge)
 1=Catch Basin (Orifice Controls 5.19 cfs @ 5.19 fps)
 2=Catch Basin (Orifice Controls 5.19 cfs @ 5.19 fps)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 4.06" for 25-Year event
 Inflow = 10.38 cfs @ 12.27 hrs, Volume= 1.692 af
 Primary = 10.38 cfs @ 12.27 hrs, Volume= 1.692 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Existing Conditions - Facemate - TP40

Type III 24-hr 100-Year Rainfall=6.50"

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Summary for Subcatchment 1S: EX-DA-1S - Facemate Site

Runoff = 28.57 cfs @ 12.09 hrs, Volume= 2.176 af, Depth= 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
173,521	89	<50% Grass cover, Poor, HSG D
17,024	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
21,109	79	Woods, Fair, HSG D
217,891	89	Weighted Average
194,630		89.32% Pervious Area
23,261		10.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		Sheet Flow, Sheet Flow Smooth surfaces n= 0.011 P2= 3.00"
3.7	190	0.0150	0.86		Shallow Concentrated Flow, Shallow Conc. 1 Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1360	2.58		Shallow Concentrated Flow, Shallow Conc. 2 Short Grass Pasture Kv= 7.0 fps
1.1					Direct Entry, Minimum TC
6.0	326				Total

Summary for Pond 1P: Area Behind Levee - Facemate

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 5.22" for 100-Year event
Inflow = 28.57 cfs @ 12.09 hrs, Volume= 2.176 af
Outflow = 11.81 cfs @ 12.30 hrs, Volume= 2.176 af, Atten= 59%, Lag= 12.9 min
Primary = 11.81 cfs @ 12.30 hrs, Volume= 2.176 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 91.50' @ 12.30 hrs Surf.Area= 15,747 sf Storage= 16,465 cf

Plug-Flow detention time= 12.9 min calculated for 2.175 af (100% of inflow)
Center-of-Mass det. time= 12.9 min (798.4 - 785.6)

Volume	Invert	Avail.Storage	Storage	Description
#1	90.00'	25,050 cf		Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Existing Conditions - Facemate - TP40

Type III 24-hr 100-Year Rainfall=6.50"

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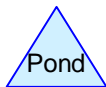
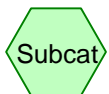
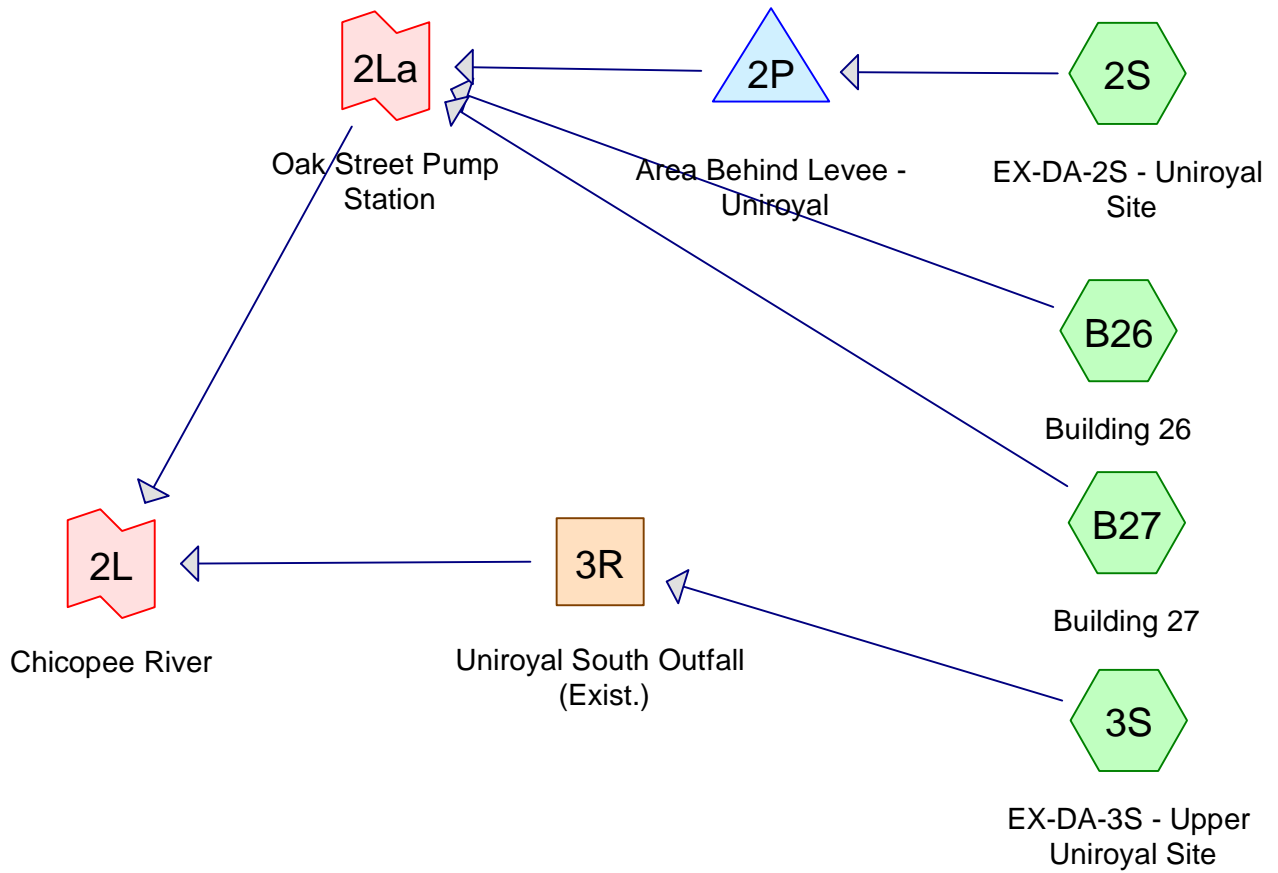
Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	90.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=11.81 cfs @ 12.30 hrs HW=91.50' (Free Discharge)
1=Catch Basin (Orifice Controls 5.90 cfs @ 5.90 fps)
2=Catch Basin (Orifice Controls 5.90 cfs @ 5.90 fps)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 5.22" for 100-Year event
Inflow = 11.81 cfs @ 12.30 hrs, Volume= 2.176 af
Primary = 11.81 cfs @ 12.30 hrs, Volume= 2.176 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs



Routing Diagram for Existing Conditions - Uniroyal - Atlas 14
 Prepared by BETA Group, Inc, Printed 3/10/2021
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Summary for Subcatchment 2S: EX-DA-2S - Uniroyal Site

Runoff = 24.02 cfs @ 12.10 hrs, Volume= 1.759 af, Depth= 1.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
496,843	89	<50% Grass cover, Poor, HSG D
67,169	98	Paved parking, HSG D
12,351	98	Roofs, HSG D
31,364	79	Woods, Fair, HSG D
607,728	90	Weighted Average
528,208		86.92% Pervious Area
79,520		13.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0520	0.21		
2.3	245	0.0650	1.78		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00" Shallow Concentrated Flow, Shallow Conc. 1 Short Grass Pasture Kv= 7.0 fps
6.3	295	Total			

Summary for Subcatchment 3S: EX-DA-3S - Upper Uniroyal Site

Runoff = 6.32 cfs @ 12.09 hrs, Volume= 0.472 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
64,274	89	<50% Grass cover, Poor, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	94	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 0.046 af, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 1.74 cfs @ 12.09 hrs, Volume= 0.140 af, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

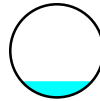
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 3.058 ac, 51.76% Impervious, Inflow Depth = 1.85" for 1-Year event
 Inflow = 6.32 cfs @ 12.09 hrs, Volume= 0.472 af
 Outflow = 6.26 cfs @ 12.10 hrs, Volume= 0.472 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 11.48 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 3.80 fps, Avg. Travel Time= 0.8 min

Peak Storage= 96 cf @ 12.09 hrs
 Average Depth at Peak Storage= 0.42'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 101.22 cfs

30.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 175.0' Slope= 0.0436 /'
 Inlet Invert= 85.85', Outlet Invert= 78.22'



Summary for Pond 2P: Area Behind Levee - Uniroyal

Inflow Area = 13.952 ac, 13.08% Impervious, Inflow Depth = 1.51" for 1-Year event
 Inflow = 24.02 cfs @ 12.10 hrs, Volume= 1.759 af
 Outflow = 8.33 cfs @ 12.40 hrs, Volume= 1.759 af, Atten= 65%, Lag= 18.1 min
 Primary = 8.33 cfs @ 12.40 hrs, Volume= 1.759 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 84.33' @ 12.40 hrs Surf.Area= 71,240 sf Storage= 22,614 cf

Plug-Flow detention time= 58.1 min calculated for 1.758 af (100% of inflow)
 Center-of-Mass det. time= 58.4 min (875.8 - 817.4)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	168,115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	64,860	0	0
86.00	103,255	168,115	168,115

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	2.0' x 2.0' Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	84.00'	2.0' x 2.0' Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#3	Primary	84.00'	2.0' x 2.0' Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=8.33 cfs @ 12.40 hrs HW=84.33' (Free Discharge)
 1=Catch Basin (Orifice Controls 2.78 cfs @ 2.78 fps)
 2=Catch Basin (Orifice Controls 2.78 cfs @ 2.78 fps)
 3=Catch Basin (Orifice Controls 2.78 cfs @ 2.78 fps)

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 24.44% Impervious, Inflow Depth = 1.61" for 1-Year event
 Inflow = 15.73 cfs @ 12.11 hrs, Volume= 2.417 af
 Primary = 15.73 cfs @ 12.11 hrs, Volume= 2.417 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2La: Oak Street Pump Station

Inflow Area = 14.943 ac, 18.85% Impervious, Inflow Depth = 1.56" for 1-Year event
 Inflow = 9.44 cfs @ 12.14 hrs, Volume= 1.945 af
 Primary = 9.44 cfs @ 12.14 hrs, Volume= 1.945 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 2S: EX-DA-2S - Uniroyal Site

Runoff = 32.97 cfs @ 12.09 hrs, Volume= 2.435 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
496,843	89	<50% Grass cover, Poor, HSG D
67,169	98	Paved parking, HSG D
12,351	98	Roofs, HSG D
31,364	79	Woods, Fair, HSG D
607,728	90	Weighted Average
528,208		86.92% Pervious Area
79,520		13.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0520	0.21		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
2.3	245	0.0650	1.78		Shallow Concentrated Flow, Shallow Conc. 1 Short Grass Pasture Kv= 7.0 fps
6.3	295				Total

Summary for Subcatchment 3S: EX-DA-3S - Upper Uniroyal Site

Runoff = 8.29 cfs @ 12.09 hrs, Volume= 0.629 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
64,274	89	<50% Grass cover, Poor, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	94	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.059 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 2.21 cfs @ 12.09 hrs, Volume= 0.180 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

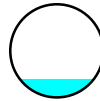
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 3.058 ac, 51.76% Impervious, Inflow Depth = 2.47" for 2-Year event
 Inflow = 8.29 cfs @ 12.09 hrs, Volume= 0.629 af
 Outflow = 8.23 cfs @ 12.09 hrs, Volume= 0.629 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 12.43 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 4.08 fps, Avg. Travel Time= 0.7 min

Peak Storage= 117 cf @ 12.09 hrs
 Average Depth at Peak Storage= 0.48'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 101.22 cfs

30.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 175.0' Slope= 0.0436'
 Inlet Invert= 85.85', Outlet Invert= 78.22'



Summary for Pond 2P: Area Behind Levee - Uniroyal

Inflow Area = 13.952 ac, 13.08% Impervious, Inflow Depth = 2.09" for 2-Year event
 Inflow = 32.97 cfs @ 12.09 hrs, Volume= 2.435 af
 Outflow = 9.91 cfs @ 12.43 hrs, Volume= 2.435 af, Atten= 70%, Lag= 20.4 min
 Primary = 9.91 cfs @ 12.43 hrs, Volume= 2.435 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 84.47' @ 12.43 hrs Surf.Area= 73,889 sf Storage= 32,626 cf

Plug-Flow detention time= 57.1 min calculated for 2.434 af (100% of inflow)
 Center-of-Mass det. time= 57.4 min (865.6 - 808.2)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	168,115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	64,860	0	0
86.00	103,255	168,115	168,115

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#3	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=9.90 cfs @ 12.43 hrs HW=84.47' (Free Discharge)
 1=Catch Basin (Orifice Controls 3.30 cfs @ 3.30 fps)
 2=Catch Basin (Orifice Controls 3.30 cfs @ 3.30 fps)
 3=Catch Basin (Orifice Controls 3.30 cfs @ 3.30 fps)

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 24.44% Impervious, Inflow Depth = 2.20" for 2-Year event
 Inflow = 19.41 cfs @ 12.10 hrs, Volume= 3.302 af
 Primary = 19.41 cfs @ 12.10 hrs, Volume= 3.302 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2La: Oak Street Pump Station

Inflow Area = 14.943 ac, 18.85% Impervious, Inflow Depth = 2.15" for 2-Year event
 Inflow = 11.23 cfs @ 12.13 hrs, Volume= 2.674 af
 Primary = 11.23 cfs @ 12.13 hrs, Volume= 2.674 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 2S: EX-DA-2S - Uniroyal Site

Runoff = 59.95 cfs @ 12.09 hrs, Volume= 4.552 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
496,843	89	<50% Grass cover, Poor, HSG D
67,169	98	Paved parking, HSG D
12,351	98	Roofs, HSG D
31,364	79	Woods, Fair, HSG D
607,728	90	Weighted Average
528,208		86.92% Pervious Area
79,520		13.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0520	0.21		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
2.3	245	0.0650	1.78		Shallow Concentrated Flow, Shallow Conc. 1 Short Grass Pasture Kv= 7.0 fps
6.3	295	Total			

Summary for Subcatchment 3S: EX-DA-3S - Upper Uniroyal Site

Runoff = 14.15 cfs @ 12.09 hrs, Volume= 1.108 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
64,274	89	<50% Grass cover, Poor, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	94	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 1.18 cfs @ 12.09 hrs, Volume= 0.098 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 3.60 cfs @ 12.09 hrs, Volume= 0.299 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

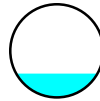
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 3.058 ac, 51.76% Impervious, Inflow Depth = 4.35" for 10-Year event
 Inflow = 14.15 cfs @ 12.09 hrs, Volume= 1.108 af
 Outflow = 14.06 cfs @ 12.09 hrs, Volume= 1.108 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 14.52 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 4.74 fps, Avg. Travel Time= 0.6 min

Peak Storage= 171 cf @ 12.09 hrs
 Average Depth at Peak Storage= 0.63'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 101.22 cfs

30.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 175.0' Slope= 0.0436 /'
 Inlet Invert= 85.85', Outlet Invert= 78.22'



Summary for Pond 2P: Area Behind Levee - Uniroyal

Inflow Area = 13.952 ac, 13.08% Impervious, Inflow Depth = 3.91" for 10-Year event
 Inflow = 59.95 cfs @ 12.09 hrs, Volume= 4.552 af
 Outflow = 13.71 cfs @ 12.50 hrs, Volume= 4.552 af, Atten= 77%, Lag= 24.3 min
 Primary = 13.71 cfs @ 12.50 hrs, Volume= 4.552 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 84.90' @ 12.50 hrs Surf.Area= 82,142 sf Storage= 66,166 cf

Plug-Flow detention time= 61.8 min calculated for 4.549 af (100% of inflow)
 Center-of-Mass det. time= 62.1 min (852.8 - 790.7)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	168,115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	64,860	0	0
86.00	103,255	168,115	168,115

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#3	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary Outflow Max=13.70 cfs @ 12.50 hrs HW=84.90' (Free Discharge)
 1=Catch Basin (Orifice Controls 4.57 cfs @ 4.57 fps)
 2=Catch Basin (Orifice Controls 4.57 cfs @ 4.57 fps)
 3=Catch Basin (Orifice Controls 4.57 cfs @ 4.57 fps)

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 24.44% Impervious, Inflow Depth = 4.04" for 10-Year event
 Inflow = 29.98 cfs @ 12.10 hrs, Volume= 6.056 af
 Primary = 29.98 cfs @ 12.10 hrs, Volume= 6.056 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2La: Oak Street Pump Station

Inflow Area = 14.943 ac, 18.85% Impervious, Inflow Depth = 3.97" for 10-Year event
 Inflow = 16.09 cfs @ 12.12 hrs, Volume= 4.948 af
 Primary = 16.09 cfs @ 12.12 hrs, Volume= 4.948 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 2S: EX-DA-2S - Uniroyal Site

Runoff = 76.54 cfs @ 12.09 hrs, Volume= 5.895 af, Depth= 5.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
496,843	89	<50% Grass cover, Poor, HSG D
67,169	98	Paved parking, HSG D
12,351	98	Roofs, HSG D
31,364	79	Woods, Fair, HSG D
607,728	90	Weighted Average
528,208		86.92% Pervious Area
79,520		13.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0520	0.21		
2.3	245	0.0650	1.78		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00" Shallow Concentrated Flow, Shallow Conc. 1 Short Grass Pasture Kv= 7.0 fps
6.3	295	Total			

Summary for Subcatchment 3S: EX-DA-3S - Upper Uniroyal Site

Runoff = 17.74 cfs @ 12.09 hrs, Volume= 1.408 af, Depth= 5.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
64,274	89	<50% Grass cover, Poor, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	94	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 0.122 af, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 4.46 cfs @ 12.09 hrs, Volume= 0.373 af, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

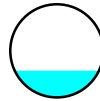
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 3.058 ac, 51.76% Impervious, Inflow Depth = 5.52" for 25-Year event
 Inflow = 17.74 cfs @ 12.09 hrs, Volume= 1.408 af
 Outflow = 17.64 cfs @ 12.09 hrs, Volume= 1.408 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 15.49 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 5.07 fps, Avg. Travel Time= 0.6 min

Peak Storage= 201 cf @ 12.09 hrs
 Average Depth at Peak Storage= 0.71'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 101.22 cfs

30.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 175.0' Slope= 0.0436'
 Inlet Invert= 85.85', Outlet Invert= 78.22'



Summary for Pond 2P: Area Behind Levee - Uniroyal

Inflow Area = 13.952 ac, 13.08% Impervious, Inflow Depth = 5.07" for 25-Year event
 Inflow = 76.54 cfs @ 12.09 hrs, Volume= 5.895 af
 Outflow = 15.59 cfs @ 12.52 hrs, Volume= 5.895 af, Atten= 80%, Lag= 25.8 min
 Primary = 15.59 cfs @ 12.52 hrs, Volume= 5.895 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 85.16' @ 12.52 hrs Surf.Area= 87,220 sf Storage= 88,569 cf

Plug-Flow detention time= 66.7 min calculated for 5.891 af (100% of inflow)
 Center-of-Mass det. time= 67.0 min (850.8 - 783.8)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	168,115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	64,860	0	0
86.00	103,255	168,115	168,115

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#3	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary Outflow Max=15.58 cfs @ 12.52 hrs HW=85.16' (Free Discharge)
 1=Catch Basin (Orifice Controls 5.19 cfs @ 5.19 fps)
 2=Catch Basin (Orifice Controls 5.19 cfs @ 5.19 fps)
 3=Catch Basin (Orifice Controls 5.19 cfs @ 5.19 fps)

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 24.44% Impervious, Inflow Depth = 5.20" for 25-Year event
 Inflow = 36.17 cfs @ 12.10 hrs, Volume= 7.798 af
 Primary = 36.17 cfs @ 12.10 hrs, Volume= 7.798 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2La: Oak Street Pump Station

Inflow Area = 14.943 ac, 18.85% Impervious, Inflow Depth = 5.13" for 25-Year event
 Inflow = 18.70 cfs @ 12.12 hrs, Volume= 6.390 af
 Primary = 18.70 cfs @ 12.12 hrs, Volume= 6.390 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 2S: EX-DA-2S - Uniroyal Site

Runoff = 101.97 cfs @ 12.09 hrs, Volume= 7.992 af, Depth= 6.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
496,843	89	<50% Grass cover, Poor, HSG D
67,169	98	Paved parking, HSG D
12,351	98	Roofs, HSG D
31,364	79	Woods, Fair, HSG D
607,728	90	Weighted Average
528,208		86.92% Pervious Area
79,520		13.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0520	0.21		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
2.3	245	0.0650	1.78		Shallow Concentrated Flow, Shallow Conc. 1 Short Grass Pasture Kv= 7.0 fps
6.3	295				Total

Summary for Subcatchment 3S: EX-DA-3S - Upper Uniroyal Site

Runoff = 23.25 cfs @ 12.09 hrs, Volume= 1.874 af, Depth= 7.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
64,274	89	<50% Grass cover, Poor, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	94	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 1.89 cfs @ 12.09 hrs, Volume= 0.159 af, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 5.78 cfs @ 12.09 hrs, Volume= 0.488 af, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

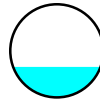
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 3.058 ac, 51.76% Impervious, Inflow Depth = 7.35" for 100-Year event
 Inflow = 23.25 cfs @ 12.09 hrs, Volume= 1.874 af
 Outflow = 23.12 cfs @ 12.09 hrs, Volume= 1.874 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 16.72 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 5.49 fps, Avg. Travel Time= 0.5 min

Peak Storage= 243 cf @ 12.09 hrs
 Average Depth at Peak Storage= 0.82'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 101.22 cfs

30.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 175.0' Slope= 0.0436'
 Inlet Invert= 85.85', Outlet Invert= 78.22'



Summary for Pond 2P: Area Behind Levee - Uniroyal

Inflow Area = 13.952 ac, 13.08% Impervious, Inflow Depth = 6.87" for 100-Year event
 Inflow = 101.97 cfs @ 12.09 hrs, Volume= 7.992 af
 Outflow = 18.06 cfs @ 12.55 hrs, Volume= 7.992 af, Atten= 82%, Lag= 27.7 min
 Primary = 18.06 cfs @ 12.55 hrs, Volume= 7.992 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 85.56' @ 12.55 hrs Surf.Area= 94,872 sf Storage= 124,854 cf

Plug-Flow detention time= 75.2 min calculated for 7.987 af (100% of inflow)
 Center-of-Mass det. time= 75.4 min (851.3 - 775.9)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	168,115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	64,860	0	0
86.00	103,255	168,115	168,115

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#3	Primary	84.00'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary Outflow Max=18.06 cfs @ 12.55 hrs HW=85.56' (Free Discharge)
 1=Catch Basin (Orifice Controls 6.02 cfs @ 6.02 fps)
 2=Catch Basin (Orifice Controls 6.02 cfs @ 6.02 fps)
 3=Catch Basin (Orifice Controls 6.02 cfs @ 6.02 fps)

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 24.44% Impervious, Inflow Depth = 7.01" for 100-Year event
 Inflow = 45.39 cfs @ 12.10 hrs, Volume= 10.513 af
 Primary = 45.39 cfs @ 12.10 hrs, Volume= 10.513 af, Atten= 0%, Lag= 0.0 min

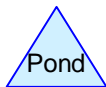
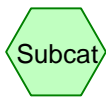
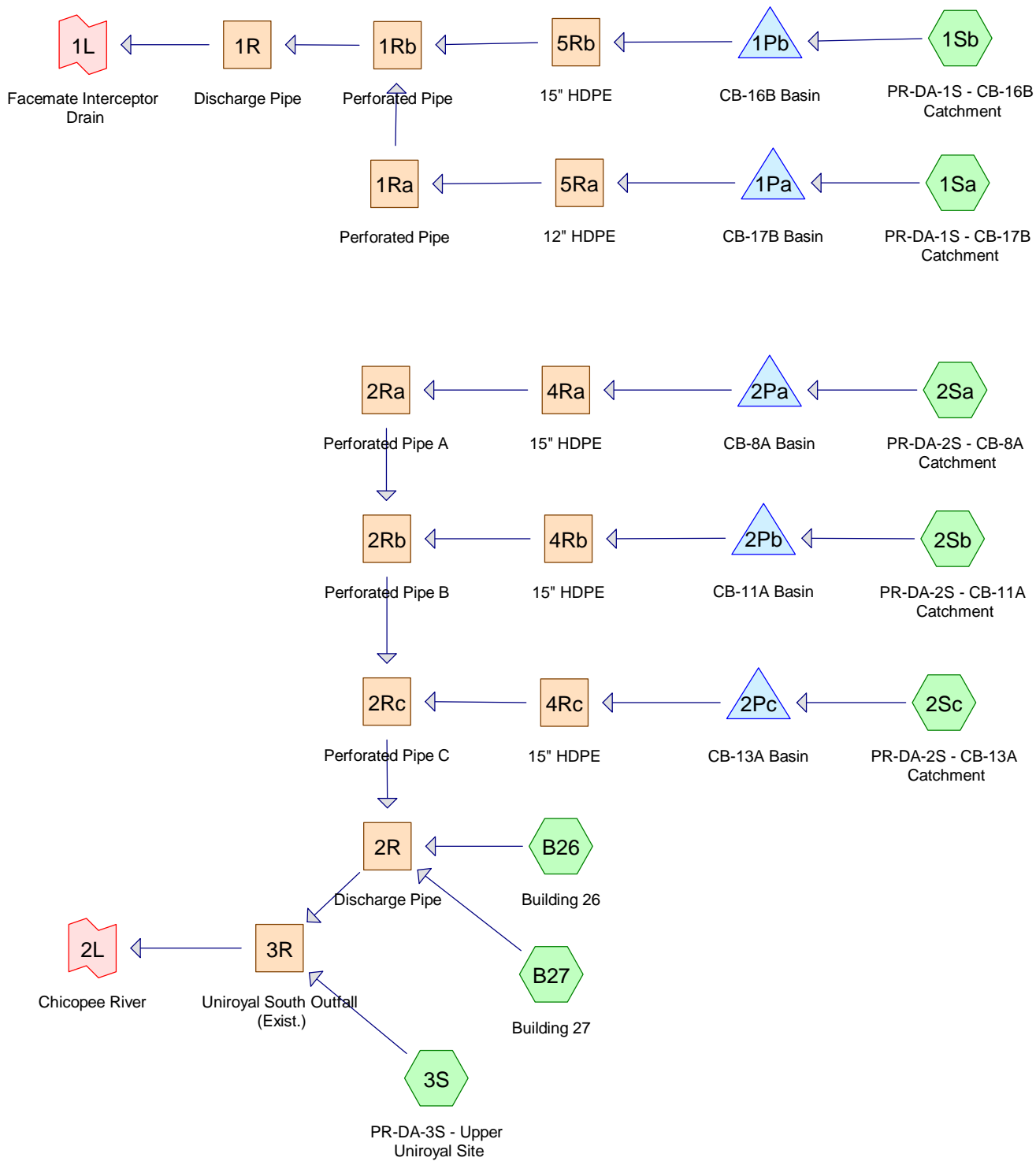
Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2La: Oak Street Pump Station

Inflow Area = 14.943 ac, 18.85% Impervious, Inflow Depth = 6.94" for 100-Year event
 Inflow = 22.43 cfs @ 12.11 hrs, Volume= 8.639 af
 Primary = 22.43 cfs @ 12.11 hrs, Volume= 8.639 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

***APPENDIX F – PROPOSED CONDITIONS
CALCULATIONS***



Routing Diagram for Proposed Conditions - Uniroyal and Facemate - Atlas 14

Prepared by BETA Group, Inc., Printed 5/18/2021

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Summary for Subcatchment 1Sa: PR-DA-1S - CB-17B Catchment

Runoff = 2.69 cfs @ 12.10 hrs, Volume= 0.197 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description			
74,164	80	>75% Grass cover, Good, HSG D			
6,867	98	Paved parking, HSG D			
6,237	98	Roofs, HSG D			
2,569	98	Water Surface, HSG D			
9,314	79	Woods, Fair, HSG D			
99,151	83	Weighted Average			
83,478		84.19% Pervious Area			
15,674		15.81% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		Sheet Flow, Sheet Flow Smooth surfaces n= 0.011 P2= 3.00"
2.6	190	0.0150	1.22		Shallow Concentrated Flow, Shallow Conc. 1 Nearly Bare & Untilled Kv= 10.0 fps
0.7	96	0.0490	2.21		Shallow Concentrated Flow, Shallow Conc. 2 Nearly Bare & Untilled Kv= 10.0 fps
2.1					Direct Entry, Minimum TC
6.0	336				Total

Summary for Subcatchment 1Sb: PR-DA-1S - CB-16B Catchment

Runoff = 3.01 cfs @ 12.10 hrs, Volume= 0.222 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description			
93,694	80	>75% Grass cover, Good, HSG D			
10,157	98	Paved parking, HSG D			
2,498	98	Water Surface, HSG D			
11,795	79	Woods, Fair, HSG D			
118,144	82	Weighted Average			
105,489		89.29% Pervious Area			
12,655		10.71% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Minimum TC

Summary for Subcatchment 2Sc: PR-DA-2S - CB-13A Catchment

Runoff = 4.22 cfs @ 12.10 hrs, Volume= 0.309 af, Depth= 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description			
108,361	80	>75% Grass cover, Good, HSG D			
30,845	98	Paved parking, HSG D			
1,607	98	Water Surface, HSG D			
5,822	79	Woods, Fair, HSG D			
146,635	84	Weighted Average			
114,183		77.87% Pervious Area			
32,452		22.13% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0220	0.15		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.0220	2.22		Shallow Concentrated Flow, Shallow Conc. Grassed Waterway Kv= 15.0 fps
0.1					Direct Entry, Minimum TC
6.0	90				Total

Summary for Subcatchment 3S: PR-DA-3S - Upper Uniroyal Site

Runoff = 5.30 cfs @ 12.09 hrs, Volume= 0.386 af, Depth= 1.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description			
8,648	89	<50% Grass cover, Poor, HSG D			
55,625	80	>75% Grass cover, Good, HSG D			
17,187	98	Paved parking, HSG D			
51,767	98	Roofs, HSG D			
133,228	90	Weighted Average			
64,274		48.24% Pervious Area			
68,954		51.76% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Minimum TC

Summary for Subcatchment 2Sa: PR-DA-2S - CB-8A Catchment

Runoff = 3.63 cfs @ 12.17 hrs, Volume= 0.326 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description			
165,088	80	>75% Grass cover, Good, HSG D			
5,904	98	Paved parking, HSG D			
1,265	98	Roofs, HSG D			
3,083	98	Water Surface, HSG D			
8,216	79	Woods, Fair, HSG D			
183,555	81	Weighted Average			
173,304		94.42% Pervious Area			
10,251		5.58% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	50	0.0070	0.09		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
3.1	235	0.0070	1.25		Shallow Concentrated Flow, Shallow Conc. 1 Grassed Waterway Kv= 15.0 fps
11.9	285				Total

Summary for Subcatchment 2Sb: PR-DA-2S - CB-11A Catchment

Runoff = 5.81 cfs @ 12.15 hrs, Volume= 0.493 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description			
265,478	80	>75% Grass cover, Good, HSG D			
10,628	98	Paved parking, HSG D			
1,422	98	Water Surface, HSG D			
277,528	81	Weighted Average			
265,478		95.66% Pervious Area			
12,050		4.34% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0090	0.10		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
2.0	175	0.0090	1.42		Shallow Concentrated Flow, Shallow Conc. 1 Grassed Waterway Kv= 15.0 fps
10.0	225				Total

Summary for Subcatchment B26: Building 26

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 0.046 af, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description			
10,635	98	Roofs, HSG D			
10,635		100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Minimum TC

Summary for Subcatchment B27: Building 27

Runoff = 1.74 cfs @ 12.09 hrs, Volume= 0.140 af, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description			
32,552	98	Roofs, HSG D			
32,552		100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Minimum TC

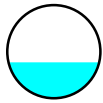
Summary for Reach 1R: Discharge Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.01" for 1-Year event
 Inflow = 3.43 cfs @ 12.27 hrs, Volume= 0.420 af
 Outflow = 3.38 cfs @ 12.28 hrs, Volume= 0.420 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.08 fps, Min. Travel Time= 0.3 min
 Avg. Velocity= 1.23 fps, Avg. Travel Time= 0.7 min

Peak Storage= 56 cf @ 12.27 hrs
 Average Depth at Peak Storage= 0.77'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
 n= 0.012
 Length= 50.0' Slope= 0.0020 '
 Inlet Invert= 85.35', Outlet Invert= 85.25'



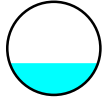
Summary for Reach 1Ra: Perforated Pipe

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.04" for 1-Year event
 Inflow = 1.54 cfs @ 12.24 hrs, Volume= 0.197 af
 Outflow = 1.53 cfs @ 12.30 hrs, Volume= 0.197 af, Atten= 1%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.92 fps, Min. Travel Time= 2.0 min
 Avg. Velocity = 1.19 fps, Avg. Travel Time= 4.9 min

Peak Storage= 184 cf @ 12.26 hrs
 Average Depth at Peak Storage= 0.51'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.23 cfs

18.0" Round Pipe
 n= 0.012
 Length= 350.0' Slope= 0.0030 '/
 Inlet Invert= 87.20', Outlet Invert= 86.15'



Summary for Reach 1Rb: Perforated Pipe

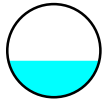
Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.01" for 1-Year event
 Inflow = 3.44 cfs @ 12.24 hrs, Volume= 0.420 af
 Outflow = 3.43 cfs @ 12.27 hrs, Volume= 0.420 af, Atten= 0%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.09 fps, Min. Travel Time= 0.8 min
 Avg. Velocity = 1.23 fps, Avg. Travel Time= 2.0 min

Peak Storage= 167 cf @ 12.25 hrs
 Average Depth at Peak Storage= 0.77'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
 n= 0.012
 Length= 150.0' Slope= 0.0020 '/
 Inlet Invert= 85.65', Outlet Invert= 85.35'

18.0" Round Pipe
 n= 0.012
 Length= 555.0' Slope= 0.0036 '/
 Inlet Invert= 92.00', Outlet Invert= 90.00'



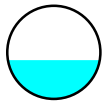
Summary for Reach 2Rb: Perforated Pipe B

Inflow Area = 10.585 ac, 4.84% Impervious, Inflow Depth = 0.93" for 1-Year event
 Inflow = 5.33 cfs @ 12.46 hrs, Volume= 0.819 af
 Outflow = 5.29 cfs @ 12.51 hrs, Volume= 0.819 af, Atten= 1%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 4.33 fps, Min. Travel Time= 1.5 min
 Avg. Velocity = 1.77 fps, Avg. Travel Time= 3.7 min

Peak Storage= 484 cf @ 12.47 hrs
 Average Depth at Peak Storage= 0.83'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
 n= 0.012
 Length= 395.0' Slope= 0.0037 '/
 Inlet Invert= 89.50', Outlet Invert= 88.05'

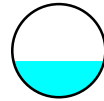


Summary for Reach 2Rc: Perforated Pipe C

Inflow Area = 13.951 ac, 9.01% Impervious, Inflow Depth = 0.97" for 1-Year event
 Inflow = 7.38 cfs @ 12.44 hrs, Volume= 1.127 af
 Outflow = 7.34 cfs @ 12.45 hrs, Volume= 1.128 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 4.38 fps, Min. Travel Time= 0.5 min
 Avg. Velocity = 1.74 fps, Avg. Travel Time= 1.2 min

Peak Storage= 218 cf @ 12.44 hrs
 Average Depth at Peak Storage= 0.94'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 24.65 cfs



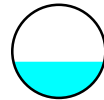
Summary for Reach 2R: Discharge Pipe

Inflow Area = 14.943 ac, 15.05% Impervious, Inflow Depth = 1.05" for 1-Year event
 Inflow = 7.96 cfs @ 12.43 hrs, Volume= 1.313 af
 Outflow = 7.92 cfs @ 12.44 hrs, Volume= 1.314 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
 Max. Velocity= 4.55 fps, Min. Travel Time= 0.5 min
 Avg. Velocity = 1.59 fps, Avg. Travel Time= 1.5 min

Peak Storage= 245 cf @ 12.44 hrs
 Average Depth at Peak Storage= 0.96'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 25.19 cfs

30.0" Round Pipe
 n= 0.012
 Length= 140.0' Slope= 0.0032 '/
 Inlet Invert= 87.15', Outlet Invert= 86.70'



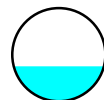
Summary for Reach 2Ra: Perforated Pipe A

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 0.93" for 1-Year event
 Inflow = 2.23 cfs @ 12.39 hrs, Volume= 0.326 af
 Outflow = 2.20 cfs @ 12.47 hrs, Volume= 0.326 af, Atten= 1%, Lag= 5.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 3.44 fps, Min. Travel Time= 2.7 min
 Avg. Velocity = 1.46 fps, Avg. Travel Time= 6.3 min

Peak Storage= 354 cf @ 12.43 hrs
 Average Depth at Peak Storage= 0.58'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.83 cfs

30.0" Round Pipe
 n= 0.012
 Length= 130.0' Slope= 0.0031 '/
 Inlet Invert= 87.55', Outlet Invert= 87.15'



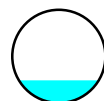
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 1.13" for 1-Year event
 Inflow = 10.75 cfs @ 12.12 hrs, Volume= 1.699 af
 Outflow = 10.40 cfs @ 12.13 hrs, Volume= 1.699 af, Atten= 3%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
 Max. Velocity= 11.82 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 4.10 fps, Avg. Travel Time= 0.7 min

Peak Storage= 157 cf @ 12.12 hrs
 Average Depth at Peak Storage= 0.60'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 85.65 cfs

30.0" Round Pipe
 n= 0.013
 Length= 175.0' Slope= 0.0436 '/
 Inlet Invert= 85.85', Outlet Invert= 78.22'



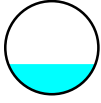
Summary for Reach 4Ra: 15" HDPE

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 0.93" for 1-Year event
 Inflow = 2.23 cfs @ 12.39 hrs, Volume= 0.326 af
 Outflow = 2.23 cfs @ 12.39 hrs, Volume= 0.326 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.51 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.86 fps, Avg. Travel Time= 0.0 min

Peak Storage= 2 cf @ 12.39 hrs
 Average Depth at Peak Storage= 0.40'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 5.0' Slope= 0.0200 '/
 Inlet Invert= 93.50', Outlet Invert= 93.40'



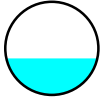
Summary for Reach 4Rb: 15" HDPE

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 0.93" for 1-Year event
 Inflow = 3.17 cfs @ 12.38 hrs, Volume= 0.493 af
 Outflow = 3.17 cfs @ 12.37 hrs, Volume= 0.493 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.17 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 2.99 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.37 hrs
 Average Depth at Peak Storage= 0.49'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0200 '/
 Inlet Invert= 91.00', Outlet Invert= 90.80'



Summary for Reach 4Rc: 15" HDPE

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 1.10" for 1-Year event
 Inflow = 2.62 cfs @ 12.21 hrs, Volume= 0.309 af
 Outflow = 2.62 cfs @ 12.21 hrs, Volume= 0.309 af, Atten= 0%, Lag= 0.0 min

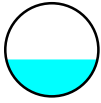
Summary for Reach 5Rb: 15" HDPE

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 0.98" for 1-Year event
 Inflow = 2.02 cfs @ 12.21 hrs, Volume= 0.222 af
 Outflow = 2.01 cfs @ 12.21 hrs, Volume= 0.222 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.48 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 1.80 fps, Avg. Travel Time= 0.1 min

Peak Storage= 6 cf @ 12.21 hrs
 Average Depth at Peak Storage= 0.49'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.14 cfs

15.0" Round Pipe
 n= 0.012
 Length= 13.0' Slope= 0.0077 '/
 Inlet Invert= 93.60', Outlet Invert= 93.50'



Summary for Pond 1Pa: CB-17B Basin

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.04" for 1-Year event
 Inflow = 2.69 cfs @ 12.10 hrs, Volume= 0.197 af
 Outflow = 1.54 cfs @ 12.23 hrs, Volume= 0.197 af, Atten= 43%, Lag= 8.3 min
 Primary = 1.54 cfs @ 12.23 hrs, Volume= 0.197 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 97.51' @ 12.23 hrs Surf.Area= 4,853 sf Storage= 1,881 cf

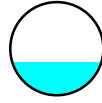
Plug-Flow detention time= 80.9 min calculated for 0.197 af (100% of inflow)
 Center-of-Mass det. time= 81.0 min (926.6 - 845.7)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	25,350 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,500	0	0
98.00	7,100	4,800	4,800
99.00	10,500	8,800	13,600
100.00	13,000	11,750	25,350

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.81 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 2.63 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.21 hrs
 Average Depth at Peak Storage= 0.44'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0200 '/
 Inlet Invert= 91.00', Outlet Invert= 90.80'



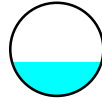
Summary for Reach 5Ra: 12" HDPE

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.04" for 1-Year event
 Inflow = 1.54 cfs @ 12.23 hrs, Volume= 0.197 af
 Outflow = 1.54 cfs @ 12.24 hrs, Volume= 0.197 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.98 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 2.50 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.24 hrs
 Average Depth at Peak Storage= 0.36'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
 n= 0.012
 Length= 5.0' Slope= 0.0200 '/
 Inlet Invert= 93.60', Outlet Invert= 93.50'



Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 5.00 columns X 5 rows C= 0.600 in 24.0" x 24.0" Grate (17% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=1.54 cfs @ 12.23 hrs HW=97.51' (Free Discharge)
 1=Catch Basin (Orifice Controls 1.42 cfs @ 2.05 fps)
 2=Exfiltration (Controls 0.12 cfs)

Summary for Pond 1Pb: CB-16B Basin

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 0.98" for 1-Year event
 Inflow = 3.01 cfs @ 12.10 hrs, Volume= 0.222 af
 Outflow = 2.02 cfs @ 12.21 hrs, Volume= 0.222 af, Atten= 33%, Lag= 6.5 min
 Primary = 2.02 cfs @ 12.21 hrs, Volume= 0.222 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 97.50' @ 12.21 hrs Surf.Area= 5,052 sf Storage= 2,014 cf

Plug-Flow detention time= 83.0 min calculated for 0.222 af (100% of inflow)
 Center-of-Mass det. time= 83.0 min (932.4 - 849.4)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	27,653 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,945	0	0
98.00	7,130	5,038	5,038
99.00	11,400	9,265	14,303
100.00	15,300	13,350	27,653

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=2.00 cfs @ 12.21 hrs HW=97.50' (Free Discharge)
 1=Catch Basin (Weir Controls 1.88 cfs @ 1.36 fps)
 2=Exfiltration (Controls 0.12 cfs)

Summary for Pond 2Pa: CB-8A Basin

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 0.93" for 1-Year event
 Inflow = 3.63 cfs @ 12.17 hrs, Volume= 0.326 af
 Outflow = 2.23 cfs @ 12.39 hrs, Volume= 0.326 af, Atten= 39%, Lag= 12.9 min
 Primary = 2.23 cfs @ 12.39 hrs, Volume= 0.326 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 97.51' @ 12.39 hrs Surf.Area= 9,837 sf Storage= 3,270 cf

Plug-Flow detention time= 78.8 min calculated for 0.326 af (100% of inflow)
 Center-of-Mass det. time= 78.8 min (937.4 - 858.6)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	47,780 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,000	0	0
98.00	16,420	9,710	9,710
99.00	19,000	17,710	27,420
100.00	21,720	20,360	47,780

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.0'

Primary OutFlow Max=2.22 cfs @ 12.39 hrs HW=97.51' (Free Discharge)
 1=Catch Basin (Weir Controls 1.98 cfs @ 1.38 fps)
 2=Exfiltration (Controls 0.24 cfs)

Summary for Pond 2Pb: CB-11A Basin

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 0.93" for 1-Year event
 Inflow = 5.81 cfs @ 12.15 hrs, Volume= 0.493 af
 Outflow = 3.17 cfs @ 12.38 hrs, Volume= 0.493 af, Atten= 45%, Lag= 13.8 min
 Primary = 3.17 cfs @ 12.38 hrs, Volume= 0.493 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 95.19' @ 12.38 hrs Surf.Area= 11,022 sf Storage= 4,250 cf

Plug-Flow detention time= 56.7 min calculated for 0.493 af (100% of inflow)
 Center-of-Mass det. time= 56.6 min (913.4 - 856.8)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	78,798 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Primary OutFlow Max=2.62 cfs @ 12.21 hrs HW=95.09' (Free Discharge)
 1=Catch Basin (Orifice Controls 2.46 cfs @ 2.46 fps)
 2=Exfiltration (Controls 0.16 cfs)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.01" for 1-Year event
 Inflow = 3.38 cfs @ 12.28 hrs, Volume= 0.420 af
 Primary = 3.38 cfs @ 12.28 hrs, Volume= 0.420 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 1.13" for 1-Year event
 Inflow = 10.40 cfs @ 12.13 hrs, Volume= 1.699 af
 Primary = 10.40 cfs @ 12.13 hrs, Volume= 1.699 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,720	0	0
95.00	7,950	2,418	2,418
96.00	23,855	15,903	18,320
97.00	30,550	27,203	45,523
98.00	36,000	33,275	78,798

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=3.17 cfs @ 12.38 hrs HW=95.19' (Free Discharge)
 1=Catch Basin (Orifice Controls 2.90 cfs @ 2.90 fps)
 2=Exfiltration (Controls 0.27 cfs)

Summary for Pond 2Pc: CB-13A Basin

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 1.10" for 1-Year event
 Inflow = 4.22 cfs @ 12.10 hrs, Volume= 0.309 af
 Outflow = 2.62 cfs @ 12.21 hrs, Volume= 0.309 af, Atten= 38%, Lag= 7.0 min
 Primary = 2.62 cfs @ 12.21 hrs, Volume= 0.309 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 95.09' @ 12.21 hrs Surf.Area= 6,482 sf Storage= 2,557 cf

Plug-Flow detention time= 61.4 min calculated for 0.309 af (100% of inflow)
 Center-of-Mass det. time= 61.3 min (903.2 - 841.9)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	31,216 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,580	0	0
95.00	6,285	1,966	1,966
96.00	8,420	7,353	9,319
97.00	10,550	9,485	18,804
98.00	14,275	12,413	31,216

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.50'

Summary for Subcatchment 1Sa: PR-DA-1S - CB-17B Catchment

Runoff = 4.03 cfs @ 12.09 hrs, Volume= 0.293 af, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description			
74,164	80	>75% Grass cover, Good, HSG D			
6,867	98	Paved parking, HSG D			
6,237	98	Roofs, HSG D			
2,569	98	Water Surface, HSG D			
9,314	79	Woods, Fair, HSG D			
99,151	83	Weighted Average			
83,478		84.19% Pervious Area			
15,674		15.81% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		Sheet Flow, Sheet Flow Smooth surfaces n= 0.011 P2= 3.00"
2.6	190	0.0150	1.22		Shallow Concentrated Flow, Shallow Conc. 1 Nearly Bare & Untilled K _v = 10.0 fps
0.7	96	0.0490	2.21		Shallow Concentrated Flow, Shallow Conc. 2 Nearly Bare & Untilled K _v = 10.0 fps
2.1					Direct Entry, Minimum TC
6.0	336	Total			

Summary for Subcatchment 1Sb: PR-DA-1S - CB-16B Catchment

Runoff = 4.58 cfs @ 12.09 hrs, Volume= 0.333 af, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description			
93,694	80	>75% Grass cover, Good, HSG D			
10,157	98	Paved parking, HSG D			
2,498	98	Water Surface, HSG D			
11,795	79	Woods, Fair, HSG D			
118,144	82	Weighted Average			
105,489		89.29% Pervious Area			
12,655		10.71% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Minimum TC

Summary for Subcatchment 2Sa: PR-DA-2S - CB-8A Catchment

Runoff = 5.63 cfs @ 12.17 hrs, Volume= 0.494 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
165,088	80	>75% Grass cover, Good, HSG D
5,904	98	Paved parking, HSG D
1,265	98	Roofs, HSG D
3,083	98	Water Surface, HSG D
8,216	79	Woods, Fair, HSG D
183,555	81	Weighted Average
173,304		94.42% Pervious Area
10,251		5.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	50	0.0070	0.09		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
3.1	235	0.0070	1.25		Shallow Concentrated Flow, Shallow Conc. 1 Grassed Waterway Kv= 15.0 fps
11.9	285				Total

Summary for Subcatchment 2Sb: PR-DA-2S - CB-11A Catchment

Runoff = 8.99 cfs @ 12.15 hrs, Volume= 0.747 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
265,478	80	>75% Grass cover, Good, HSG D
10,628	98	Paved parking, HSG D
1,422	98	Water Surface, HSG D
277,528	81	Weighted Average
265,478		95.66% Pervious Area
12,050		4.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0090	0.10		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
2.0	175	0.0090	1.42		Shallow Concentrated Flow, Shallow Conc. 1 Grassed Waterway Kv= 15.0 fps
10.0	225				Total

Summary for Subcatchment B26: Building 26

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.059 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 2.21 cfs @ 12.09 hrs, Volume= 0.180 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

Summary for Reach 1R: Discharge Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.51" for 2-Year event
 Inflow = 4.87 cfs @ 12.28 hrs, Volume= 0.626 af
 Outflow = 4.87 cfs @ 12.29 hrs, Volume= 0.626 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.39 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.30 fps, Avg. Travel Time= 0.6 min

Peak Storage= 72 cf @ 12.28 hrs
 Average Depth at Peak Storage= 0.93'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
 n= 0.012
 Length= 50.0' Slope= 0.0020 /'
 Inlet Invert= 85.35', Outlet Invert= 85.25'

Summary for Subcatchment 2Sc: PR-DA-2S - CB-13A Catchment

Runoff = 6.25 cfs @ 12.09 hrs, Volume= 0.453 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
108,361	80	>75% Grass cover, Good, HSG D
30,845	98	Paved parking, HSG D
1,607	98	Water Surface, HSG D
5,822	79	Woods, Fair, HSG D
146,635	84	Weighted Average
114,183		77.87% Pervious Area
32,452		22.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0220	0.15		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.0220	2.22		Shallow Concentrated Flow, Shallow Conc. Grassed Waterway Kv= 15.0 fps
0.1					Direct Entry, Minimum TC
6.0	90				Total

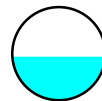
Summary for Subcatchment 3S: PR-DA-3S - Upper Uniroyal Site

Runoff = 7.28 cfs @ 12.09 hrs, Volume= 0.534 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
8,648	89	<50% Grass cover, Poor, HSG D
55,625	80	>75% Grass cover, Good, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	90	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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



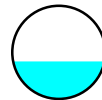
Summary for Reach 1Ra: Perforated Pipe

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.54" for 2-Year event
 Inflow = 2.11 cfs @ 12.26 hrs, Volume= 0.293 af
 Outflow = 2.11 cfs @ 12.31 hrs, Volume= 0.293 af, Atten= 0%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.18 fps, Min. Travel Time= 1.8 min
 Avg. Velocity = 1.26 fps, Avg. Travel Time= 4.6 min

Peak Storage= 232 cf @ 12.28 hrs
 Average Depth at Peak Storage= 0.60'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.23 cfs

18.0" Round Pipe
 n= 0.012
 Length= 350.0' Slope= 0.0030 /'
 Inlet Invert= 87.20', Outlet Invert= 86.15'



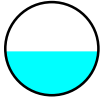
Summary for Reach 1Rb: Perforated Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.51" for 2-Year event
 Inflow = 4.88 cfs @ 12.26 hrs, Volume= 0.626 af
 Outflow = 4.87 cfs @ 12.28 hrs, Volume= 0.626 af, Atten= 0%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.39 fps, Min. Travel Time= 0.7 min
 Avg. Velocity = 1.30 fps, Avg. Travel Time= 1.9 min

Peak Storage= 216 cf @ 12.27 hrs
 Average Depth at Peak Storage= 0.94'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
 n= 0.012
 Length= 150.0' Slope= 0.0020 /'
 Inlet Invert= 85.65', Outlet Invert= 85.35'



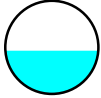
Summary for Reach 2R: Discharge Pipe

Inflow Area = 14.943 ac, 15.05% Impervious, Inflow Depth = 1.55" for 2-Year event
 Inflow = 10.97 cfs @ 12.39 hrs, Volume= 1.932 af
 Outflow = 10.95 cfs @ 12.41 hrs, Volume= 1.932 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
 Max. Velocity= 4.95 fps, Min. Travel Time= 0.5 min
 Avg. Velocity= 1.72 fps, Avg. Travel Time= 1.4 min

Peak Storage= 310 cf @ 12.40 hrs
 Average Depth at Peak Storage= 1.15'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 25.19 cfs

30.0" Round Pipe
 n= 0.012
 Length= 140.0' Slope= 0.0032 '/
 Inlet Invert= 87.15', Outlet Invert= 86.70'



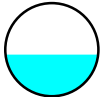
Summary for Reach 2Ra: Perforated Pipe A

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 1.41" for 2-Year event
 Inflow = 3.06 cfs @ 12.42 hrs, Volume= 0.494 af
 Outflow = 3.05 cfs @ 12.49 hrs, Volume= 0.494 af, Atten= 0%, Lag= 4.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 3.76 fps, Min. Travel Time= 2.5 min
 Avg. Velocity= 1.55 fps, Avg. Travel Time= 6.0 min

Peak Storage= 451 cf @ 12.45 hrs
 Average Depth at Peak Storage= 0.70'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.83 cfs

30.0" Round Pipe
 n= 0.012
 Length= 130.0' Slope= 0.0031 '/
 Inlet Invert= 87.55', Outlet Invert= 87.15'



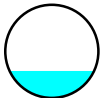
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 1.64" for 2-Year event
 Inflow = 15.57 cfs @ 12.11 hrs, Volume= 2.466 af
 Outflow = 15.36 cfs @ 12.11 hrs, Volume= 2.466 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
 Max. Velocity= 13.22 fps, Min. Travel Time= 0.2 min
 Avg. Velocity= 4.46 fps, Avg. Travel Time= 0.7 min

Peak Storage= 204 cf @ 12.11 hrs
 Average Depth at Peak Storage= 0.72'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 85.65 cfs

30.0" Round Pipe
 n= 0.013
 Length= 175.0' Slope= 0.0436 '/
 Inlet Invert= 85.85', Outlet Invert= 78.22'

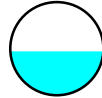


Summary for Reach 4Ra: 15" HDPE

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 1.41" for 2-Year event
 Inflow = 3.06 cfs @ 12.42 hrs, Volume= 0.494 af
 Outflow = 3.06 cfs @ 12.42 hrs, Volume= 0.494 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.11 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 3.04 fps, Avg. Travel Time= 0.0 min

18.0" Round Pipe
 n= 0.012
 Length= 555.0' Slope= 0.0036 '/
 Inlet Invert= 92.00', Outlet Invert= 90.00'



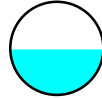
Summary for Reach 2Rb: Perforated Pipe B

Inflow Area = 10.585 ac, 4.84% Impervious, Inflow Depth = 1.41" for 2-Year event
 Inflow = 7.11 cfs @ 12.47 hrs, Volume= 1.241 af
 Outflow = 7.10 cfs @ 12.51 hrs, Volume= 1.241 af, Atten= 0%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 4.67 fps, Min. Travel Time= 1.4 min
 Avg. Velocity= 1.91 fps, Avg. Travel Time= 3.4 min

Peak Storage= 600 cf @ 12.49 hrs
 Average Depth at Peak Storage= 0.97'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
 n= 0.012
 Length= 395.0' Slope= 0.0037 '/
 Inlet Invert= 89.50', Outlet Invert= 88.05'



Summary for Reach 2Rc: Perforated Pipe C

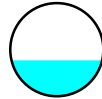
Inflow Area = 13.951 ac, 9.01% Impervious, Inflow Depth = 1.46" for 2-Year event
 Inflow = 10.13 cfs @ 12.43 hrs, Volume= 1.694 af
 Outflow = 10.12 cfs @ 12.44 hrs, Volume= 1.694 af, Atten= 0%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 4.77 fps, Min. Travel Time= 0.5 min
 Avg. Velocity= 1.87 fps, Avg. Travel Time= 1.2 min

Peak Storage= 276 cf @ 12.43 hrs
 Average Depth at Peak Storage= 1.12'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 24.65 cfs

Peak Storage= 2 cf @ 12.42 hrs
 Average Depth at Peak Storage= 0.48'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 5.0' Slope= 0.0200 '/
 Inlet Invert= 93.50', Outlet Invert= 93.40'



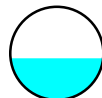
Summary for Reach 4Rb: 15" HDPE

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 1.41" for 2-Year event
 Inflow = 4.07 cfs @ 12.44 hrs, Volume= 0.747 af
 Outflow = 4.07 cfs @ 12.44 hrs, Volume= 0.747 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.67 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 3.22 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.44 hrs
 Average Depth at Peak Storage= 0.56'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0200 '/
 Inlet Invert= 91.00', Outlet Invert= 90.80'



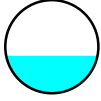
Summary for Reach 4Rc: 15" HDPE

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 1.62" for 2-Year event
 Inflow = 3.36 cfs @ 12.24 hrs, Volume= 0.453 af
 Outflow = 3.37 cfs @ 12.25 hrs, Volume= 0.453 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.29 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.79 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.24 hrs
 Average Depth at Peak Storage= 0.50'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0200 '/'
 Inlet Invert= 91.00', Outlet Invert= 90.80'



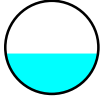
Summary for Reach 5Ra: 12" HDPE

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.54" for 2-Year event
 Inflow = 2.11 cfs @ 12.26 hrs, Volume= 0.293 af
 Outflow = 2.11 cfs @ 12.26 hrs, Volume= 0.293 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.51 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.65 fps, Avg. Travel Time= 0.0 min

Peak Storage= 2 cf @ 12.25 hrs
 Average Depth at Peak Storage= 0.43'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
 n= 0.012
 Length= 5.0' Slope= 0.0200 '/'
 Inlet Invert= 93.60', Outlet Invert= 93.50'



Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 5.00 columns X 5 rows C= 0.600 in 24.0" x 24.0" Grate (17% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=2.11 cfs @ 12.26 hrs HW=97.68' (Free Discharge)
 1=Catch Basin (Orifice Controls 1.97 cfs @ 2.84 fps)
 2=Exfiltration (Controls 0.14 cfs)

Summary for Pond 1Pb: CB-16B Basin

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 1.47" for 2-Year event
 Inflow = 4.58 cfs @ 12.09 hrs, Volume= 0.333 af
 Outflow = 2.84 cfs @ 12.21 hrs, Volume= 0.333 af, Atten= 38%, Lag= 7.0 min
 Primary = 2.84 cfs @ 12.21 hrs, Volume= 0.333 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 97.65' @ 12.21 hrs Surf.Area= 5,648 sf Storage= 2,776 cf

Plug-Flow detention time= 69.0 min calculated for 0.333 af (100% of inflow)
 Center-of-Mass det. time= 69.1 min (906.6 - 837.5)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	27,653 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,945	0	0
98.00	7,130	5,038	5,038
99.00	11,400	9,265	14,303
100.00	15,300	13,350	27,653

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=2.84 cfs @ 12.21 hrs HW=97.64' (Free Discharge)
 1=Catch Basin (Orifice Controls 2.70 cfs @ 2.70 fps)
 2=Exfiltration (Controls 0.14 cfs)

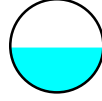
Summary for Reach 5Rb: 15" HDPE

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 1.47" for 2-Year event
 Inflow = 4.03 cfs @ 12.21 hrs, Volume= 0.333 af
 Outflow = 2.85 cfs @ 12.21 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.91 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 1.90 fps, Avg. Travel Time= 0.1 min

Peak Storage= 8 cf @ 12.21 hrs
 Average Depth at Peak Storage= 0.60'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.14 cfs

15.0" Round Pipe
 n= 0.012
 Length= 13.0' Slope= 0.0077 '/'
 Inlet Invert= 93.60', Outlet Invert= 93.50'



Summary for Pond 1Pa: CB-17B Basin

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.54" for 2-Year event
 Inflow = 4.03 cfs @ 12.09 hrs, Volume= 0.293 af
 Outflow = 2.11 cfs @ 12.26 hrs, Volume= 0.293 af, Atten= 48%, Lag= 9.7 min
 Primary = 2.11 cfs @ 12.26 hrs, Volume= 0.293 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 97.68' @ 12.26 hrs Surf.Area= 5,624 sf Storage= 2,758 cf

Plug-Flow detention time= 69.0 min calculated for 0.293 af (100% of inflow)
 Center-of-Mass det. time= 69.1 min (903.2 - 834.1)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	25,350 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,500	0	0
98.00	7,100	4,800	4,800
99.00	10,500	8,800	13,600
100.00	13,000	11,750	25,350

Summary for Pond 2Pa: CB-8A Basin

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 1.41" for 2-Year event
 Inflow = 5.63 cfs @ 12.17 hrs, Volume= 0.494 af
 Outflow = 3.06 cfs @ 12.42 hrs, Volume= 0.494 af, Atten= 46%, Lag= 14.9 min
 Primary = 3.06 cfs @ 12.42 hrs, Volume= 0.494 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 97.66' @ 12.42 hrs Surf.Area= 11,885 sf Storage= 4,928 cf

Plug-Flow detention time= 67.5 min calculated for 0.494 af (100% of inflow)
 Center-of-Mass det. time= 67.4 min (913.7 - 846.3)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	47,780 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,000	0	0
98.00	16,420	9,710	9,710
99.00	19,000	17,710	27,420
100.00	21,720	20,360	47,780

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.00'

Primary OutFlow Max=3.06 cfs @ 12.42 hrs HW=97.66' (Free Discharge)
 1=Catch Basin (Orifice Controls 2.77 cfs @ 2.77 fps)
 2=Exfiltration (Controls 0.29 cfs)

Summary for Pond 2Pb: CB-11A Basin

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 1.41" for 2-Year event
 Inflow = 8.99 cfs @ 12.15 hrs, Volume= 0.747 af
 Outflow = 4.07 cfs @ 12.44 hrs, Volume= 0.747 af, Atten= 55%, Lag= 17.2 min
 Primary = 4.07 cfs @ 12.44 hrs, Volume= 0.747 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 95.42' @ 12.44 hrs Surf.Area= 14,680 sf Storage= 7,206 cf

Plug-Flow detention time= 47.1 min calculated for 0.746 af (100% of inflow)
 Center-of-Mass det. time= 47.2 min (891.7 - 844.5)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	78,798 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,720	0	0
95.00	7,950	2,418	2,418
96.00	23,855	15,903	18,320
97.00	30,550	27,203	45,523
98.00	36,000	33,275	78,798

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=4.06 cfs @ 12.44 hrs HW=95.42' (Free Discharge)
 1=Catch Basin (Orifice Controls 3.71 cfs @ 3.71 fps)
 2=Exfiltration (Controls 0.36 cfs)

Summary for Pond 2Pc: CB-13A Basin

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 1.62' for 2-Year event
 Inflow = 6.25 cfs @ 12.09 hrs, Volume= 0.453 af
 Outflow = 3.36 cfs @ 12.24 hrs, Volume= 0.453 af, Atten= 46%, Lag= 9.0 min
 Primary = 3.36 cfs @ 12.24 hrs, Volume= 0.453 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 95.27' @ 12.24 hrs Surf.Area= 6,863 sf Storage= 3,746 cf

Plug-Flow detention time= 52.1 min calculated for 0.453 af (100% of inflow)
 Center-of-Mass det. time= 52.2 min (883.0 - 830.7)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	31,216 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,580	0	0
95.00	6,285	1,966	1,966
96.00	8,420	7,353	9,319
97.00	10,550	9,485	18,804
98.00	14,275	12,413	31,216

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.50'

Summary for Subcatchment 1Sa: PR-DA-1S - CB-17B Catchment

Runoff = 8.35 cfs @ 12.09 hrs, Volume= 0.609 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
74,164	80	>75% Grass cover, Good, HSG D
6,867	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
2,569	98	Water Surface, HSG D
9,314	79	Woods, Fair, HSG D
99,151	83	Weighted Average
83,478	84	19% Pervious Area
15,674	15.81%	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		Sheet Flow, Sheet Flow Smooth surfaces n= 0.011 P2= 3.00"
2.6	190	0.0150	1.22		Shallow Concentrated Flow, Shallow Conc. 1 Nearly Bare & Untilled Kv= 10.0 fps
0.7	96	0.0490	2.21		Shallow Concentrated Flow, Shallow Conc. 2 Nearly Bare & Untilled Kv= 10.0 fps
2.1					Direct Entry, Minimum TC
6.0	336				Total

Summary for Subcatchment 1Sb: PR-DA-1S - CB-16B Catchment

Runoff = 9.67 cfs @ 12.09 hrs, Volume= 0.704 af, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
93,694	80	>75% Grass cover, Good, HSG D
10,157	98	Paved parking, HSG D
2,498	98	Water Surface, HSG D
11,795	79	Woods, Fair, HSG D
118,144	82	Weighted Average
105,489	89.29%	Pervious Area
12,655	10.71%	Impervious Area

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

Primary OutFlow Max=3.36 cfs @ 12.24 hrs HW=95.27' (Free Discharge)
 1=Catch Basin (Orifice Controls 3.19 cfs @ 3.19 fps)
 2=Exfiltration (Controls 0.17 cfs)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.51' for 2-Year event
 Inflow = 4.87 cfs @ 12.29 hrs, Volume= 0.626 af
 Primary = 4.87 cfs @ 12.29 hrs, Volume= 0.626 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 1.64' for 2-Year event
 Inflow = 15.36 cfs @ 12.11 hrs, Volume= 2.466 af
 Primary = 15.36 cfs @ 12.11 hrs, Volume= 2.466 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 2Sa: PR-DA-2S - CB-8A Catchment

Runoff = 12.21 cfs @ 12.17 hrs, Volume= 1.061 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
165,088	80	>75% Grass cover, Good, HSG D
5,904	98	Paved parking, HSG D
1,265	98	Roofs, HSG D
3,083	98	Water Surface, HSG D
8,216	79	Woods, Fair, HSG D
183,555	81	Weighted Average
173,304	94.42%	Pervious Area
10,251	5.58%	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	50	0.0070	0.09		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
3.1	235	0.0070	1.25		Shallow Concentrated Flow, Shallow Conc. 1 Grassed Waterway Kv= 15.0 fps
11.9	285				Total

Summary for Subcatchment 2Sb: PR-DA-2S - CB-11A Catchment

Runoff = 19.46 cfs @ 12.14 hrs, Volume= 1.604 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
265,478	80	>75% Grass cover, Good, HSG D
10,628	98	Paved parking, HSG D
1,422	98	Water Surface, HSG D
277,528	81	Weighted Average
265,478	95.66%	Pervious Area
12,050	4.34%	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0090	0.10		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
2.0	175	0.0090	1.42		Shallow Concentrated Flow, Shallow Conc. 1 Grassed Waterway Kv= 15.0 fps
10.0	225				Total

Summary for Subcatchment 2Sc: PR-DA-2S - CB-13A Catchment

Runoff = 12.68 cfs @ 12.09 hrs, Volume= 0.928 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
108,361	80	>75% Grass cover, Good, HSG D
30,845	98	Paved parking, HSG D
1,607	98	Water Surface, HSG D
5,822	79	Woods, Fair, HSG D
146,635	84	Weighted Average
114,183		77.87% Pervious Area
32,452		22.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0220	0.15		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.0220	2.22		Shallow Concentrated Flow, Shallow Conc. Grassed Waterway Kv= 15.0 fps
0.1					Direct Entry, Minimum TC
6.0	90				Total

Summary for Subcatchment 3S: PR-DA-3S - Upper Uniroyal Site

Runoff = 13.23 cfs @ 12.09 hrs, Volume= 0.998 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
8,648	89	<50% Grass cover, Poor, HSG D
55,625	80	>75% Grass cover, Good, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	90	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 1.18 cfs @ 12.09 hrs, Volume= 0.098 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 3.60 cfs @ 12.09 hrs, Volume= 0.299 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

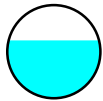
Summary for Reach 1R: Discharge Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 3.16" for 10-Year event
 Inflow = 7.76 cfs @ 12.34 hrs, Volume= 1.313 af
 Outflow = 7.75 cfs @ 12.35 hrs, Volume= 1.313 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.78 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.48 fps, Avg. Travel Time= 0.6 min

Peak Storage= 103 cf @ 12.35 hrs
 Average Depth at Peak Storage= 1.24'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
 n= 0.012
 Length= 50.0' Slope= 0.0020 /'
 Inlet Invert= 85.35', Outlet Invert= 85.25'



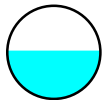
Summary for Reach 1Ra: Perforated Pipe

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 3.21" for 10-Year event
 Inflow = 3.28 cfs @ 12.34 hrs, Volume= 0.609 af
 Outflow = 3.28 cfs @ 12.39 hrs, Volume= 0.609 af, Atten= 0%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.57 fps, Min. Travel Time= 1.6 min
 Avg. Velocity = 1.43 fps, Avg. Travel Time= 4.1 min

Peak Storage= 322 cf @ 12.36 hrs
 Average Depth at Peak Storage= 0.77'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.23 cfs

18.0" Round Pipe
 n= 0.012
 Length= 350.0' Slope= 0.0030 /'
 Inlet Invert= 87.20', Outlet Invert= 86.15'



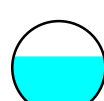
Summary for Reach 1Rb: Perforated Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 3.16" for 10-Year event
 Inflow = 7.77 cfs @ 12.32 hrs, Volume= 1.313 af
 Outflow = 7.76 cfs @ 12.34 hrs, Volume= 1.313 af, Atten= 0%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.78 fps, Min. Travel Time= 0.7 min
 Avg. Velocity = 1.48 fps, Avg. Travel Time= 1.7 min

Peak Storage= 308 cf @ 12.33 hrs
 Average Depth at Peak Storage= 1.24'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
 n= 0.012
 Length= 150.0' Slope= 0.0020 /'
 Inlet Invert= 85.65', Outlet Invert= 85.35'



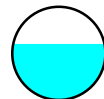
Summary for Reach 2R: Discharge Pipe

Inflow Area = 14.943 ac, 15.05% Impervious, Inflow Depth = 3.20" for 10-Year event
 Inflow = 16.83 cfs @ 12.40 hrs, Volume= 3.989 af
 Outflow = 16.82 cfs @ 12.41 hrs, Volume= 3.989 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
 Max. Velocity= 5.50 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.06 fps, Avg. Travel Time= 1.1 min

Peak Storage= 428 cf @ 12.40 hrs
 Average Depth at Peak Storage= 1.49'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 25.19 cfs

30.0" Round Pipe
 n= 0.012
 Length= 140.0' Slope= 0.0032 /'
 Inlet Invert= 87.15', Outlet Invert= 86.70'



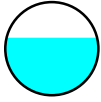
Summary for Reach 2Ra: Perforated Pipe A

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 3.02" for 10-Year event
 Inflow = 4.77 cfs @ 12.51 hrs, Volume= 1.061 af
 Outflow = 4.76 cfs @ 12.58 hrs, Volume= 1.061 af, Atten= 0%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 4.18 fps, Min. Travel Time= 2.2 min
 Avg. Velocity = 1.77 fps, Avg. Travel Time= 5.2 min

Peak Storage= 633 cf @ 12.54 hrs
 Average Depth at Peak Storage= 0.92'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.83 cfs

18.0" Round Pipe
 n= 0.012
 Length= 555.0' Slope= 0.0036 '/
 Inlet Invert= 92.00', Outlet Invert= 90.00'



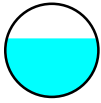
Summary for Reach 2Rb: Perforated Pipe B

Inflow Area = 10.585 ac, 4.84% Impervious, Inflow Depth = 3.02" for 10-Year event
 Inflow = 10.68 cfs @ 12.56 hrs, Volume= 2.665 af
 Outflow = 10.67 cfs @ 12.60 hrs, Volume= 2.665 af, Atten= 0%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 5.14 fps, Min. Travel Time= 1.3 min
 Avg. Velocity= 2.22 fps, Avg. Travel Time= 3.0 min

Peak Storage= 820 cf @ 12.57 hrs
 Average Depth at Peak Storage= 1.26'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
 n= 0.012
 Length= 395.0' Slope= 0.0037 '/
 Inlet Invert= 89.50', Outlet Invert= 88.05'



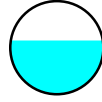
Summary for Reach 2Rc: Perforated Pipe C

Inflow Area = 13.951 ac, 9.01% Impervious, Inflow Depth = 3.09" for 10-Year event
 Inflow = 15.59 cfs @ 12.49 hrs, Volume= 3.592 af
 Outflow = 15.58 cfs @ 12.50 hrs, Volume= 3.592 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 5.31 fps, Min. Travel Time= 0.4 min
 Avg. Velocity= 2.17 fps, Avg. Travel Time= 1.0 min

Peak Storage= 381 cf @ 12.49 hrs
 Average Depth at Peak Storage= 1.44'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 24.65 cfs

30.0" Round Pipe
 n= 0.012
 Length= 130.0' Slope= 0.0031 '/
 Inlet Invert= 87.55', Outlet Invert= 87.15'



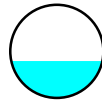
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 3.32" for 10-Year event
 Inflow = 28.43 cfs @ 12.10 hrs, Volume= 4.987 af
 Outflow = 28.13 cfs @ 12.11 hrs, Volume= 4.987 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
 Max. Velocity= 15.65 fps, Min. Travel Time= 0.2 min
 Avg. Velocity= 5.32 fps, Avg. Travel Time= 0.5 min

Peak Storage= 316 cf @ 12.10 hrs
 Average Depth at Peak Storage= 0.99'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 85.65 cfs

30.0" Round Pipe
 n= 0.013
 Length= 175.0' Slope= 0.0436 '/
 Inlet Invert= 85.85', Outlet Invert= 78.22'



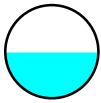
Summary for Reach 4Ra: 15" HDPE

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 3.02" for 10-Year event
 Inflow = 4.77 cfs @ 12.51 hrs, Volume= 1.061 af
 Outflow = 4.77 cfs @ 12.51 hrs, Volume= 1.061 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.99 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 3.47 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.51 hrs
 Average Depth at Peak Storage= 0.61'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 5.0' Slope= 0.0200 '/
 Inlet Invert= 93.50', Outlet Invert= 93.40'



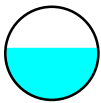
Summary for Reach 4Rb: 15" HDPE

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 3.02" for 10-Year event
 Inflow = 5.92 cfs @ 12.53 hrs, Volume= 1.604 af
 Outflow = 5.92 cfs @ 12.53 hrs, Volume= 1.604 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.42 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 3.80 fps, Avg. Travel Time= 0.0 min

Peak Storage= 7 cf @ 12.53 hrs
 Average Depth at Peak Storage= 0.70'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0200 '/
 Inlet Invert= 91.00', Outlet Invert= 90.80'



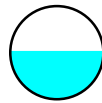
Summary for Reach 4Rc: 15" HDPE

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 3.31" for 10-Year event
 Inflow = 5.21 cfs @ 12.32 hrs, Volume= 0.928 af
 Outflow = 5.21 cfs @ 12.32 hrs, Volume= 0.928 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.17 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 3.22 fps, Avg. Travel Time= 0.1 min

Peak Storage= 6 cf @ 12.32 hrs
 Average Depth at Peak Storage= 0.64'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0200 '/
 Inlet Invert= 91.00', Outlet Invert= 90.80'



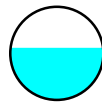
Summary for Reach 5Ra: 12" HDPE

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 3.21" for 10-Year event
 Inflow = 3.28 cfs @ 12.34 hrs, Volume= 0.609 af
 Outflow = 3.28 cfs @ 12.34 hrs, Volume= 0.609 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.27 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 3.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 2 cf @ 12.34 hrs
 Average Depth at Peak Storage= 0.56'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
 n= 0.012
 Length= 5.0' Slope= 0.0200 '/
 Inlet Invert= 93.60', Outlet Invert= 93.50'



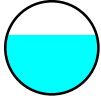
Summary for Reach 5Rb: 15" HDPE

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 3.11" for 10-Year event
 Inflow = 4.52 cfs @ 12.28 hrs, Volume= 0.704 af
 Outflow = 4.52 cfs @ 12.28 hrs, Volume= 0.704 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.47 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.15 fps, Avg. Travel Time= 0.1 min

Peak Storage= 11 cf @ 12.28 hrs
 Average Depth at Peak Storage= 0.80'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.14 cfs

15.0" Round Pipe
 n= 0.012
 Length= 13.0' Slope= 0.00777'
 Inlet Invert= 93.60', Outlet Invert= 93.50'



Summary for Pond 1Pa: CB-17B Basin

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 3.21" for 10-Year event
 Inflow = 8.35 cfs @ 12.09 hrs, Volume= 0.609 af
 Outflow = 3.28 cfs @ 12.34 hrs, Volume= 0.609 af, Atten= 61%, Lag= 14.9 min
 Primary = 3.28 cfs @ 12.34 hrs, Volume= 0.609 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 98.19' @ 12.34 hrs Surf.Area= 7,729 sf Storage= 6,172 cf

Plug-Flow detention time= 51.1 min calculated for 0.609 af (100% of inflow)
 Center-of-Mass det. time= 51.2 min (864.3 - 813.1)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	25,350 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,500	0	0
98.00	7,100	4,800	4,800
99.00	10,500	8,800	13,600
100.00	13,000	11,750	25,350

Summary for Pond 2Pa: CB-8A Basin

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 3.02" for 10-Year event
 Inflow = 12.21 cfs @ 12.17 hrs, Volume= 1.061 af
 Outflow = 4.77 cfs @ 12.51 hrs, Volume= 1.061 af, Atten= 61%, Lag= 20.5 min
 Primary = 4.77 cfs @ 12.51 hrs, Volume= 1.061 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 98.15' @ 12.51 hrs Surf.Area= 16,802 sf Storage= 12,172 cf

Plug-Flow detention time= 54.0 min calculated for 1.061 af (100% of inflow)
 Center-of-Mass det. time= 53.9 min (878.1 - 824.2)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	47,780 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,000	0	0
98.00	16,420	9,710	9,710
99.00	19,000	17,710	27,420
100.00	21,720	20,360	47,780

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.00'

Primary OutFlow Max=4.77 cfs @ 12.51 hrs HW=98.15' (Free Discharge)
 1=Catch Basin (Orifice Controls 4.35 cfs @ 4.35 fps)
 2=Exfiltration (Controls 0.41 cfs)

Summary for Pond 2Pb: CB-11A Basin

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 3.02" for 10-Year event
 Inflow = 19.46 cfs @ 12.14 hrs, Volume= 1.604 af
 Outflow = 5.92 cfs @ 12.53 hrs, Volume= 1.604 af, Atten= 70%, Lag= 23.4 min
 Primary = 5.92 cfs @ 12.53 hrs, Volume= 1.604 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 96.05' @ 12.53 hrs Surf.Area= 24,189 sf Storage= 19,517 cf

Plug-Flow detention time= 43.5 min calculated for 1.604 af (100% of inflow)
 Center-of-Mass det. time= 43.3 min (865.8 - 822.4)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	78,798 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 5.00 columns X 5 rows C= 0.600 in 24.0" x 24.0" Grate (17% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=3.28 cfs @ 12.34 hrs HW=98.18' (Free Discharge)
 1=Catch Basin (Orifice Controls 3.09 cfs @ 4.45 fps)
 2=Exfiltration (Controls 0.19 cfs)

Summary for Pond 1Pb: CB-16B Basin

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 3.11" for 10-Year event
 Inflow = 9.67 cfs @ 12.09 hrs, Volume= 0.704 af
 Outflow = 4.52 cfs @ 12.28 hrs, Volume= 0.704 af, Atten= 53%, Lag= 11.1 min
 Primary = 4.52 cfs @ 12.28 hrs, Volume= 0.704 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 98.14' @ 12.28 hrs Surf.Area= 7,713 sf Storage= 6,050 cf

Plug-Flow detention time= 47.2 min calculated for 0.704 af (100% of inflow)
 Center-of-Mass det. time= 47.0 min (863.0 - 816.0)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	27,653 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,945	0	0
98.00	7,130	5,038	5,038
99.00	11,400	9,265	14,303
100.00	15,300	13,350	27,653

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=4.51 cfs @ 12.28 hrs HW=98.13' (Free Discharge)
 1=Catch Basin (Orifice Controls 4.32 cfs @ 4.32 fps)
 2=Exfiltration (Controls 0.19 cfs)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,720	0	0
95.00	7,950	2,418	2,418
96.00	23,855	15,903	18,320
97.00	30,550	27,203	45,523
98.00	36,000	33,275	78,798

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=5.92 cfs @ 12.53 hrs HW=96.05' (Free Discharge)
 1=Catch Basin (Orifice Controls 5.32 cfs @ 5.32 fps)
 2=Exfiltration (Controls 0.60 cfs)

Summary for Pond 2Pc: CB-13A Basin

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 3.31" for 10-Year event
 Inflow = 12.68 cfs @ 12.09 hrs, Volume= 0.928 af
 Outflow = 5.21 cfs @ 12.32 hrs, Volume= 0.928 af, Atten= 59%, Lag= 13.8 min
 Primary = 5.21 cfs @ 12.32 hrs, Volume= 0.928 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 95.91' @ 12.32 hrs Surf.Area= 8,228 sf Storage= 8,572 cf

Plug-Flow detention time= 38.4 min calculated for 0.927 af (100% of inflow)
 Center-of-Mass det. time= 38.5 min (848.7 - 810.2)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	31,216 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,580	0	0
95.00	6,285	1,966	1,966
96.00	8,420	7,353	9,319
97.00	10,550	9,485	18,804
98.00	14,275	12,413	31,216

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=5.21 cfs @ 12.32 hrs HW=95.91' (Free Discharge)
 1=Catch Basin (Orifice Controls 5.00 cfs @ 5.00 fps)
 2=Exfiltration (Controls 0.21 cfs)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 3.16" for 10-Year event
 Inflow = 7.75 cfs @ 12.35 hrs, Volume= 1.313 af
 Primary = 7.75 cfs @ 12.35 hrs, Volume= 1.313 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 3.32" for 10-Year event
 Inflow = 28.13 cfs @ 12.11 hrs, Volume= 4.987 af
 Primary = 28.13 cfs @ 12.11 hrs, Volume= 4.987 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1Sa: PR-DA-1S - CB-17B Catchment

Runoff = 11.09 cfs @ 12.09 hrs, Volume= 0.817 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description			
74,164	80	>75% Grass cover, Good, HSG D			
6,867	98	Paved parking, HSG D			
6,237	98	Roofs, HSG D			
2,569	98	Water Surface, HSG D			
9,314	79	Woods, Fair, HSG D			
99,151	83	Weighted Average			
83,478		84.19% Pervious Area			
15,674		15.81% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		Sheet Flow, Sheet Flow Smooth surfaces n= 0.011 P2= 3.00"
2.6	190	0.0150	1.22		Shallow Concentrated Flow, Shallow Conc. 1 Nearly Bare & Untilled Kv= 10.0 fps
0.7	96	0.0490	2.21		Shallow Concentrated Flow, Shallow Conc. 2 Nearly Bare & Untilled Kv= 10.0 fps
2.1					Direct Entry, Minimum TC
6.0	336	Total			

Summary for Subcatchment 1Sb: PR-DA-1S - CB-16B Catchment

Runoff = 12.93 cfs @ 12.09 hrs, Volume= 0.949 af, Depth= 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description			
93,694	80	>75% Grass cover, Good, HSG D			
10,157	98	Paved parking, HSG D			
2,498	98	Water Surface, HSG D			
11,795	79	Woods, Fair, HSG D			
118,144	82	Weighted Average			
105,489		89.29% Pervious Area			
12,655		10.71% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Minimum TC

Summary for Subcatchment 2Sa: PR-DA-2S - CB-8A Catchment

Runoff = 16.47 cfs @ 12.16 hrs, Volume= 1.438 af, Depth= 4.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description			
165,088	80	>75% Grass cover, Good, HSG D			
5,904	98	Paved parking, HSG D			
1,265	98	Roofs, HSG D			
3,083	98	Water Surface, HSG D			
8,216	79	Woods, Fair, HSG D			
183,555	81	Weighted Average			
173,304		94.42% Pervious Area			
10,251		5.58% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	50	0.0070	0.09		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
3.1	235	0.0070	1.25		Shallow Concentrated Flow, Shallow Conc. 1 Grassed Waterway Kv= 15.0 fps
11.9	285	Total			

Summary for Subcatchment 2Sb: PR-DA-2S - CB-11A Catchment

Runoff = 26.22 cfs @ 12.14 hrs, Volume= 2.174 af, Depth= 4.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description			
265,478	80	>75% Grass cover, Good, HSG D			
10,628	98	Paved parking, HSG D			
1,422	98	Water Surface, HSG D			
277,528	81	Weighted Average			
265,478		95.66% Pervious Area			
12,050		4.34% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0090	0.10		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
2.0	175	0.0090	1.42		Shallow Concentrated Flow, Shallow Conc. 1 Grassed Waterway Kv= 15.0 fps
10.0	225	Total			

Summary for Subcatchment 2Sc: PR-DA-2S - CB-13A Catchment

Runoff = 16.74 cfs @ 12.09 hrs, Volume= 1.238 af, Depth= 4.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description			
108,361	80	>75% Grass cover, Good, HSG D			
30,845	98	Paved parking, HSG D			
1,607	98	Water Surface, HSG D			
5,822	79	Woods, Fair, HSG D			
146,635	84	Weighted Average			
114,183		77.87% Pervious Area			
32,452		22.13% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0220	0.15		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.0220	2.22		Shallow Concentrated Flow, Shallow Conc. Grassed Waterway Kv= 15.0 fps
0.1					Direct Entry, Minimum TC
6.0	90	Total			

Summary for Subcatchment 3S: PR-DA-3S - Upper Uniroyal Site

Runoff = 16.89 cfs @ 12.09 hrs, Volume= 1.292 af, Depth= 5.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description			
8,648	89	<50% Grass cover, Poor, HSG D			
55,625	80	>75% Grass cover, Good, HSG D			
17,187	98	Paved parking, HSG D			
51,767	98	Roofs, HSG D			
133,228	90	Weighted Average			
64,274		48.24% Pervious Area			
68,954		51.76% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Minimum TC

Summary for Subcatchment B26: Building 26

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 0.122 af, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 4.46 cfs @ 12.09 hrs, Volume= 0.373 af, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

Summary for Reach 1R: Discharge Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 4.25" for 25-Year event
 Inflow = 9.13 cfs @ 12.38 hrs, Volume= 1.766 af
 Outflow = 9.13 cfs @ 12.39 hrs, Volume= 1.766 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.90 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.58 fps, Avg. Travel Time= 0.5 min

Peak Storage= 117 cf @ 12.38 hrs
 Average Depth at Peak Storage= 1.39'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
 n= 0.012
 Length= 50.0' Slope= 0.0020 '/'
 Inlet Invert= 85.35', Outlet Invert= 85.25'

Summary for Reach 1Ra: Perforated Pipe

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 4.31" for 25-Year event
 Inflow = 3.84 cfs @ 12.38 hrs, Volume= 0.817 af
 Outflow = 3.84 cfs @ 12.43 hrs, Volume= 0.817 af, Atten= 0%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.71 fps, Min. Travel Time= 1.6 min
 Avg. Velocity = 1.52 fps, Avg. Travel Time= 3.8 min

Peak Storage= 362 cf @ 12.40 hrs
 Average Depth at Peak Storage= 0.85'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.23 cfs

18.0" Round Pipe
 n= 0.012
 Length= 350.0' Slope= 0.0030 '/'
 Inlet Invert= 87.20', Outlet Invert= 86.15'

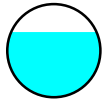
Summary for Reach 1Rb: Perforated Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 4.25" for 25-Year event
 Inflow = 9.13 cfs @ 12.36 hrs, Volume= 1.766 af
 Outflow = 9.13 cfs @ 12.38 hrs, Volume= 1.766 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.90 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 1.58 fps, Avg. Travel Time= 1.6 min

Peak Storage= 351 cf @ 12.37 hrs
 Average Depth at Peak Storage= 1.40'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
 n= 0.012
 Length= 150.0' Slope= 0.0020 '/'
 Inlet Invert= 85.65', Outlet Invert= 85.35'



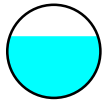
Summary for Reach 2R: Discharge Pipe

Inflow Area = 14.943 ac, 15.05% Impervious, Inflow Depth = 4.29" for 25-Year event
 Inflow = 19.57 cfs @ 12.40 hrs, Volume= 5.344 af
 Outflow = 19.55 cfs @ 12.42 hrs, Volume= 5.344 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
 Max. Velocity= 5.67 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.23 fps, Avg. Travel Time= 1.0 min

Peak Storage= 483 cf @ 12.41 hrs
 Average Depth at Peak Storage= 1.66'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 25.19 cfs

30.0" Round Pipe
 n= 0.012
 Length= 140.0' Slope= 0.0032 '/'
 Inlet Invert= 87.15', Outlet Invert= 86.70'



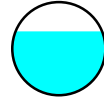
Summary for Reach 2Ra: Perforated Pipe A

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 4.09" for 25-Year event
 Inflow = 5.57 cfs @ 12.54 hrs, Volume= 1.438 af
 Outflow = 5.56 cfs @ 12.61 hrs, Volume= 1.438 af, Atten= 0%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 4.31 fps, Min. Travel Time= 2.1 min
 Avg. Velocity = 1.90 fps, Avg. Travel Time= 4.9 min

Peak Storage= 716 cf @ 12.57 hrs
 Average Depth at Peak Storage= 1.03'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.83 cfs

18.0" Round Pipe
 n= 0.012
 Length= 555.0' Slope= 0.0036 '/'
 Inlet Invert= 92.00', Outlet Invert= 90.00'



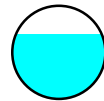
Summary for Reach 2Rb: Perforated Pipe B

Inflow Area = 10.585 ac, 4.84% Impervious, Inflow Depth = 4.09" for 25-Year event
 Inflow = 12.29 cfs @ 12.59 hrs, Volume= 3.611 af
 Outflow = 12.28 cfs @ 12.63 hrs, Volume= 3.611 af, Atten= 0%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 5.28 fps, Min. Travel Time= 1.2 min
 Avg. Velocity = 2.37 fps, Avg. Travel Time= 2.8 min

Peak Storage= 919 cf @ 12.61 hrs
 Average Depth at Peak Storage= 1.39'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
 n= 0.012
 Length= 395.0' Slope= 0.0037 '/'
 Inlet Invert= 89.50', Outlet Invert= 88.05'



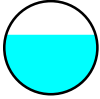
Summary for Reach 2Rc: Perforated Pipe C

Inflow Area = 13.951 ac, 9.01% Impervious, Inflow Depth = 4.17" for 25-Year event
 Inflow = 18.14 cfs @ 12.52 hrs, Volume= 4.849 af
 Outflow = 18.13 cfs @ 12.54 hrs, Volume= 4.849 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 5.49 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.31 fps, Avg. Travel Time= 0.9 min

Peak Storage= 429 cf @ 12.53 hrs
 Average Depth at Peak Storage= 1.59'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 24.65 cfs

30.0" Round Pipe
 n= 0.012
 Length= 130.0' Slope= 0.0031 '/
 Inlet Invert= 87.55', Outlet Invert= 87.15'



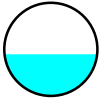
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 4.42" for 25-Year event
 Inflow = 35.08 cfs @ 12.10 hrs, Volume= 6.636 af
 Outflow = 34.72 cfs @ 12.10 hrs, Volume= 6.636 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
 Max. Velocity= 16.56 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 5.78 fps, Avg. Travel Time= 0.5 min

Peak Storage= 369 cf @ 12.10 hrs
 Average Depth at Peak Storage= 1.11'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 85.65 cfs

30.0" Round Pipe
 n= 0.013
 Length= 175.0' Slope= 0.0436 '/
 Inlet Invert= 85.85', Outlet Invert= 78.22'



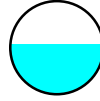
Summary for Reach 4Ra: 15" HDPE

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 4.09" for 25-Year event
 Inflow = 5.57 cfs @ 12.54 hrs, Volume= 1.438 af
 Outflow = 5.57 cfs @ 12.54 hrs, Volume= 1.438 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.30 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 3.70 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.54 hrs
 Average Depth at Peak Storage= 0.67'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 5.0' Slope= 0.0200 '/
 Inlet Invert= 93.50', Outlet Invert= 93.40'



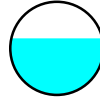
Summary for Reach 4Rb: 15" HDPE

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 4.09" for 25-Year event
 Inflow = 6.74 cfs @ 12.57 hrs, Volume= 2.174 af
 Outflow = 6.74 cfs @ 12.57 hrs, Volume= 2.174 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.67 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 4.08 fps, Avg. Travel Time= 0.0 min

Peak Storage= 8 cf @ 12.57 hrs
 Average Depth at Peak Storage= 0.76'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0200 '/
 Inlet Invert= 91.00', Outlet Invert= 90.80'



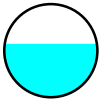
Summary for Reach 4Rc: 15" HDPE

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 4.41" for 25-Year event
 Inflow = 6.14 cfs @ 12.36 hrs, Volume= 1.238 af
 Outflow = 6.14 cfs @ 12.36 hrs, Volume= 1.238 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.50 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 3.44 fps, Avg. Travel Time= 0.0 min

Peak Storage= 7 cf @ 12.36 hrs
 Average Depth at Peak Storage= 0.71'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0200 '/
 Inlet Invert= 91.00', Outlet Invert= 90.80'



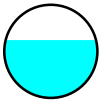
Summary for Reach 5Ra: 12" HDPE

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 4.31" for 25-Year event
 Inflow = 3.84 cfs @ 12.38 hrs, Volume= 0.817 af
 Outflow = 3.84 cfs @ 12.38 hrs, Volume= 0.817 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.53 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 3.19 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.38 hrs
 Average Depth at Peak Storage= 0.62'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
 n= 0.012
 Length= 5.0' Slope= 0.0200 '/
 Inlet Invert= 93.60', Outlet Invert= 93.50'



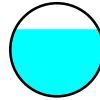
Summary for Reach 5Rb: 15" HDPE

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 4.20" for 25-Year event
 Inflow = 5.33 cfs @ 12.32 hrs, Volume= 0.949 af
 Outflow = 5.33 cfs @ 12.32 hrs, Volume= 0.949 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.63 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 2.30 fps, Avg. Travel Time= 0.1 min

Peak Storage= 12 cf @ 12.32 hrs
 Average Depth at Peak Storage= 0.90'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.14 cfs

15.0" Round Pipe
 n= 0.012
 Length= 13.0' Slope= 0.0077 '/
 Inlet Invert= 93.60', Outlet Invert= 93.50'



Summary for Pond 1Pa: CB-17B Basin

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 4.31" for 25-Year event
 Inflow = 11.09 cfs @ 12.09 hrs, Volume= 0.817 af
 Outflow = 3.84 cfs @ 12.38 hrs, Volume= 0.817 af, Atten= 65%, Lag= 17.3 min
 Primary = 3.84 cfs @ 12.38 hrs, Volume= 0.817 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 98.50' @ 12.38 hrs Surf.Area= 8,803 sf Storage= 8,762 cf

Plug-Flow detention time= 46.2 min calculated for 0.816 af (100% of inflow)
 Center-of-Mass det. time= 46.4 min (851.2 - 804.8)

Volume #1	Invert	Avail.Storage	Storage Description
	97.00'	25,350 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,500	0	0
98.00	7,100	4,800	4,800
99.00	10,500	8,800	13,600
100.00	13,000	11,750	25,350

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 5.00 columns X 5 rows C= 0.600 in 24.0" x 24.0" Grate (17% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=3.84 cfs @ 12.38 hrs HW=98.50' (Free Discharge)
 1=Catch Basin (Orifice Controls 3.62 cfs @ 5.21 fps)
 2=Exfiltration (Controls 0.22 cfs)

Summary for Pond 1Pb: CB-16B Basin

Inflow Area = 2,712 ac, 10.71% Impervious, Inflow Depth = 4.20' for 25-Year event
 Inflow = 12.93 cfs @ 12.09 hrs, Volume= 0.949 af
 Outflow = 5.33 cfs @ 12.32 hrs, Volume= 0.949 af, Atten= 59%, Lag= 13.6 min
 Primary = 5.33 cfs @ 12.32 hrs, Volume= 0.949 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 98.45' @ 12.32 hrs Surf.Area= 9,060 sf Storage= 8,696 cf

Plug-Flow detention time= 41.1 min calculated for 0.949 af (100% of inflow)
 Center-of-Mass det. time= 41.3 min (848.7 - 807.5)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	27,653 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,945	0	0
98.00	7,130	5,038	5,038
99.00	11,400	9,265	14,303
100.00	15,300	13,350	27,653

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=5.32 cfs @ 12.32 hrs HW=98.45' (Free Discharge)
 1=Catch Basin (Orifice Controls 5.10 cfs @ 5.10 fps)
 2=Exfiltration (Controls 0.23 cfs)

Summary for Pond 2Pa: CB-8A Basin

Inflow Area = 4,214 ac, 5.58% Impervious, Inflow Depth = 4.09' for 25-Year event
 Inflow = 16.47 cfs @ 12.16 hrs, Volume= 1.438 af
 Outflow = 5.57 cfs @ 12.54 hrs, Volume= 1.438 af, Atten= 66%, Lag= 22.7 min
 Primary = 5.57 cfs @ 12.54 hrs, Volume= 1.438 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 98.46' @ 12.54 hrs Surf.Area= 17,617 sf Storage= 17,609 cf

Plug-Flow detention time= 51.5 min calculated for 1.437 af (100% of inflow)
 Center-of-Mass det. time= 51.6 min (867.1 - 815.5)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	47,780 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,000	0	0
98.00	16,420	9,710	9,710
99.00	19,000	17,710	27,420
100.00	21,720	20,360	47,780

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.00'

Primary OutFlow Max=5.57 cfs @ 12.54 hrs HW=98.46' (Free Discharge)
 1=Catch Basin (Orifice Controls 5.13 cfs @ 5.13 fps)
 2=Exfiltration (Controls 0.44 cfs)

Summary for Pond 2Pb: CB-11A Basin

Inflow Area = 6,371 ac, 4.34% Impervious, Inflow Depth = 4.09' for 25-Year event
 Inflow = 26.22 cfs @ 12.14 hrs, Volume= 2.174 af
 Outflow = 6.74 cfs @ 12.57 hrs, Volume= 2.174 af, Atten= 74%, Lag= 25.6 min
 Primary = 6.74 cfs @ 12.57 hrs, Volume= 2.174 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 96.42' @ 12.57 hrs Surf.Area= 26,637 sf Storage= 28,812 cf

Plug-Flow detention time= 47.3 min calculated for 2.172 af (100% of inflow)
 Center-of-Mass det. time= 47.4 min (861.2 - 813.8)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	78,798 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,720	0	0
95.00	7,950	2,418	2,418
96.00	23,855	15,903	18,320
97.00	30,550	27,203	45,523
98.00	36,000	33,275	78,798

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=6.74 cfs @ 12.57 hrs HW=96.41' (Free Discharge)
 1=Catch Basin (Orifice Controls 6.06 cfs @ 6.06 fps)
 2=Exfiltration (Controls 0.67 cfs)

Summary for Pond 2Pc: CB-13A Basin

Inflow Area = 3,366 ac, 22.13% Impervious, Inflow Depth = 4.41' for 25-Year event
 Inflow = 16.74 cfs @ 12.09 hrs, Volume= 1.238 af
 Outflow = 6.14 cfs @ 12.36 hrs, Volume= 1.238 af, Atten= 63%, Lag= 16.0 min
 Primary = 6.14 cfs @ 12.36 hrs, Volume= 1.238 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 96.34' @ 12.36 hrs Surf.Area= 9,134 sf Storage= 12,260 cf

Plug-Flow detention time= 35.7 min calculated for 1.237 af (100% of inflow)
 Center-of-Mass det. time= 35.9 min (837.9 - 802.1)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	31,216 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,580	0	0
95.00	6,285	1,966	1,966
96.00	8,420	7,353	9,319
97.00	10,550	9,485	18,804
98.00	14,275	12,413	31,216

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=6.14 cfs @ 12.36 hrs HW=96.33' (Free Discharge)
 1=Catch Basin (Orifice Controls 5.91 cfs @ 5.91 fps)
 2=Exfiltration (Controls 0.24 cfs)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 4,988 ac, 13.04% Impervious, Inflow Depth = 4.25' for 25-Year event
 Inflow = 9.13 cfs @ 12.39 hrs, Volume= 1.766 af
 Primary = 9.13 cfs @ 12.39 hrs, Volume= 1.766 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Chicopee River

Inflow Area = 18,001 ac, 21.28% Impervious, Inflow Depth = 4.42' for 25-Year event
 Inflow = 34.72 cfs @ 12.10 hrs, Volume= 6.636 af
 Primary = 34.72 cfs @ 12.10 hrs, Volume= 6.636 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1Sa: PR-DA-1S - CB-17B Catchment

Runoff = 15.34 cfs @ 12.09 hrs, Volume= 1.146 af, Depth= 6.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
74,164	80	>75% Grass cover, Good, HSG D
6,867	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
2,569	98	Water Surface, HSG D
9,314	79	Woods, Fair, HSG D
99,151	83	Weighted Average
83,478		84.19% Pervious Area
15,674		15.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		Sheet Flow, Sheet Flow Smooth surfaces n= 0.011 P2= 3.00"
2.6	190	0.0150	1.22		Shallow Concentrated Flow, Shallow Conc. 1 Nearly Bare & Untilled Kv= 10.0 fps
0.7	96	0.0490	2.21		Shallow Concentrated Flow, Shallow Conc. 2 Nearly Bare & Untilled Kv= 10.0 fps
2.1					Direct Entry, Minimum TC
6.0	336				Total

Summary for Subcatchment 1Sb: PR-DA-1S - CB-16B Catchment

Runoff = 18.00 cfs @ 12.09 hrs, Volume= 1.339 af, Depth= 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
93,694	80	>75% Grass cover, Good, HSG D
10,157	98	Paved parking, HSG D
2,498	98	Water Surface, HSG D
11,795	79	Woods, Fair, HSG D
118,144	82	Weighted Average
105,489		89.29% Pervious Area
12,655		10.71% Impervious Area

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

Summary for Subcatchment 2Sc: PR-DA-2S - CB-13A Catchment

Runoff = 23.02 cfs @ 12.09 hrs, Volume= 1.729 af, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
108,361	80	>75% Grass cover, Good, HSG D
30,845	98	Paved parking, HSG D
1,607	98	Water Surface, HSG D
5,822	79	Woods, Fair, HSG D
146,635	84	Weighted Average
114,183		77.87% Pervious Area
32,452		22.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0220	0.15		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.0220	2.22		Shallow Concentrated Flow, Shallow Conc. Grassed Waterway Kv= 15.0 fps
0.1					Direct Entry, Minimum TC
6.0	90				Total

Summary for Subcatchment 3S: PR-DA-3S - Upper Uniroyal Site

Runoff = 22.50 cfs @ 12.09 hrs, Volume= 1.752 af, Depth= 6.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
8,648	89	<50% Grass cover, Poor, HSG D
55,625	80	>75% Grass cover, Good, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	90	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment 2Sa: PR-DA-2S - CB-8A Catchment

Runoff = 23.11 cfs @ 12.16 hrs, Volume= 2.040 af, Depth= 5.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
165,088	80	>75% Grass cover, Good, HSG D
5,904	98	Paved parking, HSG D
1,265	98	Roofs, HSG D
3,083	98	Water Surface, HSG D
8,216	79	Woods, Fair, HSG D
183,555	81	Weighted Average
173,304		94.42% Pervious Area
10,251		5.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	50	0.0070	0.09		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
3.1	235	0.0070	1.25		Shallow Concentrated Flow, Shallow Conc. 1 Grassed Waterway Kv= 15.0 fps
11.9	285				Total

Summary for Subcatchment 2Sb: PR-DA-2S - CB-11A Catchment

Runoff = 36.75 cfs @ 12.14 hrs, Volume= 3.084 af, Depth= 5.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
265,478	80	>75% Grass cover, Good, HSG D
10,628	98	Paved parking, HSG D
1,422	98	Water Surface, HSG D
277,528	81	Weighted Average
265,478		95.66% Pervious Area
12,050		4.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0090	0.10		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.00"
2.0	175	0.0090	1.42		Shallow Concentrated Flow, Shallow Conc. 1 Grassed Waterway Kv= 15.0 fps
10.0	225				Total

Summary for Subcatchment B26: Building 26

Runoff = 1.89 cfs @ 12.09 hrs, Volume= 0.159 af, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 5.78 cfs @ 12.09 hrs, Volume= 0.488 af, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

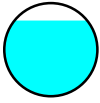
Summary for Reach 1R: Discharge Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 5.98" for 100-Year event
 Inflow = 10.88 cfs @ 12.43 hrs, Volume= 2.486 af
 Outflow = 10.87 cfs @ 12.44 hrs, Volume= 2.486 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.98 fps, Min. Travel Time= 0.2 min
 Avg. Velocity= 1.70 fps, Avg. Travel Time= 0.5 min

Peak Storage= 137 cf @ 12.43 hrs
 Average Depth at Peak Storage= 1.63'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
 n= 0.012
 Length= 50.0' Slope= 0.0020 1"
 Inlet Invert= 85.35', Outlet Invert= 85.25'



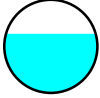
Summary for Reach 1Ra: Perforated Pipe

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 6.04" for 100-Year event
 Inflow = 4.55 cfs @ 12.42 hrs, Volume= 1.146 af
 Outflow = 4.55 cfs @ 12.47 hrs, Volume= 1.146 af, Atten= 0%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.85 fps, Min. Travel Time= 1.5 min
 Avg. Velocity = 1.64 fps, Avg. Travel Time= 3.5 min

Peak Storage= 414 cf @ 12.44 hrs
 Average Depth at Peak Storage= 0.95'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.23 cfs

18.0" Round Pipe
 n= 0.012
 Length= 350.0' Slope= 0.0030 '/
 Inlet Invert= 87.20', Outlet Invert= 86.15'



Summary for Reach 1Rb: Perforated Pipe

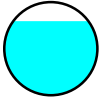
Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 5.98" for 100-Year event
 Inflow = 10.88 cfs @ 12.41 hrs, Volume= 2.486 af
 Outflow = 10.88 cfs @ 12.43 hrs, Volume= 2.486 af, Atten= 0%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.98 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 1.71 fps, Avg. Travel Time= 1.5 min

Peak Storage= 410 cf @ 12.42 hrs
 Average Depth at Peak Storage= 1.63'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
 n= 0.012
 Length= 150.0' Slope= 0.0020 '/
 Inlet Invert= 85.65', Outlet Invert= 85.35'

18.0" Round Pipe
 n= 0.012
 Length= 555.0' Slope= 0.0036 '/
 Inlet Invert= 92.00', Outlet Invert= 90.00'



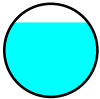
Summary for Reach 2Rb: Perforated Pipe B

Inflow Area = 10.585 ac, 4.84% Impervious, Inflow Depth = 5.81" for 100-Year event
 Inflow = 14.46 cfs @ 12.64 hrs, Volume= 5.123 af
 Outflow = 14.45 cfs @ 12.68 hrs, Volume= 5.123 af, Atten= 0%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 5.39 fps, Min. Travel Time= 1.2 min
 Avg. Velocity = 2.57 fps, Avg. Travel Time= 2.6 min

Peak Storage= 1,060 cf @ 12.66 hrs
 Average Depth at Peak Storage= 1.59'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
 n= 0.012
 Length= 395.0' Slope= 0.0037 '/
 Inlet Invert= 89.50', Outlet Invert= 88.05'

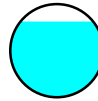


Summary for Reach 2Rc: Perforated Pipe C

Inflow Area = 13.951 ac, 9.01% Impervious, Inflow Depth = 5.89" for 100-Year event
 Inflow = 21.52 cfs @ 12.57 hrs, Volume= 6.852 af
 Outflow = 21.50 cfs @ 12.58 hrs, Volume= 6.852 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 5.66 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.52 fps, Avg. Travel Time= 0.9 min

Peak Storage= 494 cf @ 12.57 hrs
 Average Depth at Peak Storage= 1.81'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 24.65 cfs



Summary for Reach 2R: Discharge Pipe

Inflow Area = 14.943 ac, 15.05% Impervious, Inflow Depth = 6.02" for 100-Year event
 Inflow = 23.23 cfs @ 12.41 hrs, Volume= 7.499 af
 Outflow = 23.21 cfs @ 12.42 hrs, Volume= 7.499 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
 Max. Velocity= 5.82 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.46 fps, Avg. Travel Time= 0.9 min

Peak Storage= 558 cf @ 12.41 hrs
 Average Depth at Peak Storage= 1.89'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 25.19 cfs

30.0" Round Pipe
 n= 0.012
 Length= 140.0' Slope= 0.0032 '/
 Inlet Invert= 87.15', Outlet Invert= 86.70'



Summary for Reach 2Ra: Perforated Pipe A

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 5.81" for 100-Year event
 Inflow = 6.65 cfs @ 12.58 hrs, Volume= 2.040 af
 Outflow = 6.64 cfs @ 12.65 hrs, Volume= 2.040 af, Atten= 0%, Lag= 4.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
 Max. Velocity= 4.40 fps, Min. Travel Time= 2.1 min
 Avg. Velocity = 2.05 fps, Avg. Travel Time= 4.5 min

Peak Storage= 837 cf @ 12.62 hrs
 Average Depth at Peak Storage= 1.19'
 Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.83 cfs

30.0" Round Pipe
 n= 0.012
 Length= 130.0' Slope= 0.0031 '/
 Inlet Invert= 87.55', Outlet Invert= 87.15'



Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 6.17" for 100-Year event
 Inflow = 44.81 cfs @ 12.10 hrs, Volume= 9.251 af
 Outflow = 44.38 cfs @ 12.10 hrs, Volume= 9.251 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
 Max. Velocity= 17.62 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 6.39 fps, Avg. Travel Time= 0.5 min

Peak Storage= 443 cf @ 12.10 hrs
 Average Depth at Peak Storage= 1.28'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 85.65 cfs

30.0" Round Pipe
 n= 0.013
 Length= 175.0' Slope= 0.0436 '/
 Inlet Invert= 85.85', Outlet Invert= 78.22'



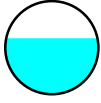
Summary for Reach 4Ra: 15" HDPE

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 5.81" for 100-Year event
 Inflow = 6.65 cfs @ 12.58 hrs, Volume= 2.040 af
 Outflow = 6.65 cfs @ 12.58 hrs, Volume= 2.040 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.65 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 4.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 4 cf @ 12.58 hrs
 Average Depth at Peak Storage= 0.75'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 5.0' Slope= 0.0200 '/
 Inlet Invert= 93.50', Outlet Invert= 93.40'



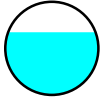
Summary for Reach 4Rb: 15" HDPE

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 5.81" for 100-Year event
 Inflow = 7.83 cfs @ 12.61 hrs, Volume= 3.084 af
 Outflow = 7.83 cfs @ 12.61 hrs, Volume= 3.084 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.94 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 4.44 fps, Avg. Travel Time= 0.0 min

Peak Storage= 9 cf @ 12.61 hrs
 Average Depth at Peak Storage= 0.84'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0200 '/
 Inlet Invert= 91.00', Outlet Invert= 90.80'



Summary for Reach 4Rc: 15" HDPE

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 6.16" for 100-Year event
 Inflow = 7.34 cfs @ 12.40 hrs, Volume= 1.729 af
 Outflow = 7.34 cfs @ 12.40 hrs, Volume= 1.729 af, Atten= 0%, Lag= 0.0 min

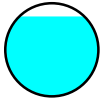
Summary for Reach 5Rb: 15" HDPE

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 5.93" for 100-Year event
 Inflow = 6.36 cfs @ 12.37 hrs, Volume= 1.339 af
 Outflow = 6.36 cfs @ 12.37 hrs, Volume= 1.339 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.70 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 2.48 fps, Avg. Travel Time= 0.1 min

Peak Storage= 15 cf @ 12.37 hrs
 Average Depth at Peak Storage= 1.07'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.14 cfs

15.0" Round Pipe
 n= 0.012
 Length= 13.0' Slope= 0.0077 '/
 Inlet Invert= 93.60', Outlet Invert= 93.50'



Summary for Pond 1Pa: CB-17B Basin

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 6.04" for 100-Year event
 Inflow = 15.34 cfs @ 12.09 hrs, Volume= 1.146 af
 Outflow = 4.55 cfs @ 12.42 hrs, Volume= 1.146 af, Atten= 70%, Lag= 20.0 min
 Primary = 4.55 cfs @ 12.42 hrs, Volume= 1.146 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 98.97' @ 12.42 hrs Surf.Area= 10,404 sf Storage= 13,304 cf

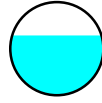
Plug-Flow detention time= 44.2 min calculated for 1.146 af (100% of inflow)
 Center-of-Mass det. time= 44.1 min (839.4 - 795.3)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	25,350 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,500	0	0
98.00	7,100	4,800	4,800
99.00	10,500	8,800	13,600
100.00	13,000	11,750	25,350

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 8.83 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 3.72 fps, Avg. Travel Time= 0.0 min

Peak Storage= 8 cf @ 12.40 hrs
 Average Depth at Peak Storage= 0.80'
 Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0200 '/
 Inlet Invert= 91.00', Outlet Invert= 90.80'



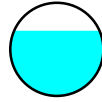
Summary for Reach 5Ra: 12" HDPE

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 6.04" for 100-Year event
 Inflow = 4.55 cfs @ 12.42 hrs, Volume= 1.146 af
 Outflow = 4.55 cfs @ 12.42 hrs, Volume= 1.146 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.78 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 3.44 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.42 hrs
 Average Depth at Peak Storage= 0.70'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
 n= 0.012
 Length= 5.0' Slope= 0.0200 '/
 Inlet Invert= 93.60', Outlet Invert= 93.50'



Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 5.00 columns X 5 rows C= 0.600 in 24.0" x 24.0" Grate (17% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=4.55 cfs @ 12.42 hrs HW=98.97' (Free Discharge)
 1=Catch Basin (Orifice Controls 4.28 cfs @ 6.17 fps)
 2=Exfiltration (Controls 0.27 cfs)

Summary for Pond 1Pb: CB-16B Basin

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 5.93" for 100-Year event
 Inflow = 18.00 cfs @ 12.09 hrs, Volume= 1.339 af
 Outflow = 6.36 cfs @ 12.37 hrs, Volume= 1.339 af, Atten= 65%, Lag= 16.6 min
 Primary = 6.36 cfs @ 12.37 hrs, Volume= 1.339 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 98.92' @ 12.37 hrs Surf.Area= 11,067 sf Storage= 13,425 cf

Plug-Flow detention time= 37.4 min calculated for 1.339 af (100% of inflow)
 Center-of-Mass det. time= 37.6 min (835.4 - 797.8)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	27,653 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,945	0	0
98.00	7,130	5,038	5,038
99.00	11,400	9,265	14,303
100.00	15,300	13,350	27,653

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=6.35 cfs @ 12.37 hrs HW=98.92' (Free Discharge)
 1=Catch Basin (Orifice Controls 6.07 cfs @ 6.07 fps)
 2=Exfiltration (Controls 0.28 cfs)

Summary for Pond 2Pa: CB-8A Basin

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 5.81" for 100-Year event
 Inflow = 23.11 cfs @ 12.16 hrs, Volume= 2,040 af
 Outflow = 6.65 cfs @ 12.58 hrs, Volume= 2,040 af, Atten= 71%, Lag= 25.0 min
 Primary = 6.65 cfs @ 12.58 hrs, Volume= 2,040 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 98.97' @ 12.58 hrs Surf.Area= 18,921 sf Storage= 26,838 cf

Plug-Flow detention time= 52.5 min calculated for 2.038 af (100% of inflow)
 Center-of-Mass det. time= 52.6 min (858.3 - 805.7)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	47,780 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,000	0	0
98.00	16,420	9,710	9,710
99.00	19,000	17,710	27,420
100.00	21,720	20,360	47,780

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.00'

Primary OutFlow Max=6.65 cfs @ 12.58 hrs HW=98.97' (Free Discharge)
 1=Catch Basin (Orifice Controls 6.16 cfs @ 6.16 fps)
 2=Exfiltration (Controls 0.48 cfs)

Summary for Pond 2Pb: CB-11A Basin

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 5.81" for 100-Year event
 Inflow = 36.75 cfs @ 12.14 hrs, Volume= 3,084 af
 Outflow = 7.83 cfs @ 12.61 hrs, Volume= 3,084 af, Atten= 79%, Lag= 28.2 min
 Primary = 7.83 cfs @ 12.61 hrs, Volume= 3,084 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 96.97' @ 12.61 hrs Surf.Area= 30,344 sf Storage= 44,584 cf

Plug-Flow detention time= 56.8 min calculated for 3.084 af (100% of inflow)
 Center-of-Mass det. time= 56.6 min (860.6 - 803.9)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	78,798 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Primary OutFlow Max=7.34 cfs @ 12.40 hrs HW=96.98' (Free Discharge)
 1=Catch Basin (Orifice Controls 7.06 cfs @ 7.06 fps)
 2=Exfiltration (Controls 0.28 cfs)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 5.98" for 100-Year event
 Inflow = 10.87 cfs @ 12.44 hrs, Volume= 2,486 af
 Primary = 10.87 cfs @ 12.44 hrs, Volume= 2,486 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 6.17" for 100-Year event
 Inflow = 44.38 cfs @ 12.10 hrs, Volume= 9,251 af
 Primary = 44.38 cfs @ 12.10 hrs, Volume= 9,251 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,720	0	0
95.00	7,950	2,418	2,418
96.00	23,855	15,903	18,320
97.00	30,550	27,203	45,523
98.00	36,000	33,275	78,798

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=7.83 cfs @ 12.61 hrs HW=96.97' (Free Discharge)
 1=Catch Basin (Orifice Controls 7.04 cfs @ 7.04 fps)
 2=Exfiltration (Controls 0.79 cfs)

Summary for Pond 2Pc: CB-13A Basin

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 6.16" for 100-Year event
 Inflow = 23.02 cfs @ 12.09 hrs, Volume= 1,729 af
 Outflow = 7.34 cfs @ 12.40 hrs, Volume= 1,729 af, Atten= 68%, Lag= 18.6 min
 Primary = 7.34 cfs @ 12.40 hrs, Volume= 1,729 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
 Peak Elev= 96.98' @ 12.40 hrs Surf.Area= 10,512 sf Storage= 18,618 cf

Plug-Flow detention time= 34.9 min calculated for 1.728 af (100% of inflow)
 Center-of-Mass det. time= 35.1 min (827.8 - 792.8)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	31,216 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,580	0	0
95.00	6,285	1,966	1,966
96.00	8,420	7,353	9,319
97.00	10,550	9,485	18,804
98.00	14,275	12,413	31,216

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	2.0" x 2.0" Horiz. Catch Basin X 6.00 columns X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	1.020 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 80.50'

***APPENDIX G – SUPPLEMENTAL
CALCULATIONS***



1 Springfield Street
Suite 4
Chicopee, MA 01013
413.331.5326
www.BETA-Inc.com

JOB Uniroyal & Facemate ACOE

NO. 5100

CALC SLB

DATE 05/13/21

DESC Recharge and Water Quality Volume

SHEET 1 OF 2

Facemate System

Post-Development Impervious Area = **23261** sq. ft.
 Pre-Development Impervious Area = **23261** sq. ft.
 Net New Impervious Area = **0** sq. ft.
 Post-Development Roof Area = **6240** sq. ft.

Required Recharge Volume

Recharge Volume (R_V) Required = New Impervious Area x Runoff Depth (from HSG)

R_V (Urban Land*) = **0.00** sf. x **0.10** in x 0.083 ft/in = **0** cu. ft.

R_V Required = **0 cu. ft.**

Provided Recharge Volume

*Infiltration provided within basins anticipated to be collected via underdrain
 Therefore, no recharge volume provided.*

Required Water Quality Volume

Water Quality Volume (WQ_V) Required = Impervious Area x Runoff Depth (Excluding roof area)

WQ_V Required = **17,021** sf. x **0.5** in x 0.083 ft/in = **709** cu. ft.

WQ_V Required = **709 cu. ft.**

Provided Volumes

Volume Provided : Storage Volume below Lowest Invert

	Basin - CB-16B		Basin - CB-17B	
Invert Elev.	97.33	ft	97.33	ft
Storage Volume @ Invert	910	cu. ft.	955	cu. ft.
Bottom Surface Area (A_s)	2,945	sq. ft.	2,500	sq. ft.

Refer to HydroCAD model for determinaiton of storage volume

WQ_V Provided = **1,865 cu. ft.**

Time to Empty - Drawdown Time

Time to Drawdown = Volume below outlet / Infiltration Rate x Surface Area

Basin 1: T_D = **910 cf. / 0.0142** ft/hr x **2945** sq. ft. = **21.8 hrs**

Basin 2: T_D = **955 cf. / 0.0142** ft/hr x **2,500** sq. ft. = **26.9 hrs**

* Hydrologic Soil Goup (HSG) D assumed for urban land

**0.34 ft/day (0.17 in/hr) inf. rate based on Mass Stormwater Handbook

Uniroyal System

Post-Development Impervious Area* =	160783 sq. ft.
Pre-Development Impervious Area* =	191661
Net New Impervious Area =	-30878 sq. ft.
Post-Development Roof Area* =	94954 sq. ft.

Note: Areas do not include impervipus portions of Watershed 3S, which is beyond the limits of work

Required Recharge Volume

Recharge Volume (R_V) Required = New Impervious Area x Runoff Depth (from HSG)

R_V (Urban Land*) = **-30878** sf. x **0.10** in x 0.083 ft/in = **-257.32** cu. ft.

R_V Required = **-257 cu. ft.**

Provided Recharge Volume

*Infiltration provided within basins anticipated to be collected via underdrain
Therefore, no recharge volume provided.*

Required Water Quality Volume

Water Quality Volume (WQ_V) Required = Impervious Area x Runoff Depth (Excluding roof area)

WQ_V Required = **65,829** sf. x **0.5** in x 0.083 ft/in = **2743** cu. ft.

WQ_V Required = **2743 cu. ft.**

Provided Volumes

Volume Provided : Storage Volume below Lowest Invert

	Basin - CB-8A	Basin - CB-11A	Basin - CB-13A
Invert Elev.	97.33 ft	94.83 ft	94.83 ft
Storage Volume @ Invert	1,460 cu. ft.	945 cu. ft.	830 cu. ft.
Bottom Surface Area (A_s)	3000 sq. ft.	1720 sq. ft.	1580 sq. ft.

Refer to HydroCAD model for determinaiton of storage volume

WQ_V Provided = **3,235 cu. ft.**

Time to Empty - Drawdown Time

Time to Drawdown = Volume below outlet / Infiltration Rate x Surface Area

Basin 1: T_D =	1,460 cf. /	0.0142 ft/hr* x	3000 sq. ft. =	34.3 hrs
Basin 2: T_D =	945 cf. /	0.0142 ft/hr* x	1,720 sq. ft. =	38.8 hrs
Basin 3: T_D =	830 cf. /	0.0142 ft/hr* x	1,580 sq. ft. =	37.1 hrs

* Hydrologic Soil Goup (HSG) D assumed for urban land

**0.34 ft/day (0.17 in/hr) inf. rate based on Mass Stormwater Handbook

Capacities of Outlet Pipes
Project: Uniroyal & Facemate ACOE
Town: Chicopee, MA

Date: 5/13/2021
Job No. 5100
Calc. by: SLB

Facemate Drainage System

Mannings Formula

$$Q = VA = (1.49/n)(A)(r_H)^{4/3}(S)^{1/2}$$

n = roughness coefficient

A = cross section area

S = slope

r_H = hydraulic radius = A/P

P = wetted perimeter

Pipe - CB-17B to CB-16B (1RA)

$$Q=VA=(1.49/n)(A)(r_H)^{4/3}(S)^{1/2}$$

n = 0.012

A = 1.77 sf.

S = 0.0016 ft/ft

18 in HDPE

r_H 0.375

P 4.71

$$Q_{FULL} = 4.56 \text{ cfs}$$

100-yr flow 4.55 cfs

$$V_{FULL} = 2.58$$

OK

Pipe - CB-16B to DM-14 (1R & 1RB)

$$Q=VA=(1.49/n)(A)(r_H)^{4/3}(S)^{1/2}$$

n = 0.012

A = 3.14 sf.

S = 0.0020 ft/ft

24 in HDPE

r_H 0.5

P 6.28

$$Q_{FULL} = 10.99 \text{ cfs}$$

100-yr flow 10.88 cfs

$$V_{FULL} = 3.50$$

OK

Capacities of Outlet Pipes
 Project: Uniroyal & Facemate ACOE
 Town: Chicopee, MA

Date: 5/13/2021
 Job No. 5100
 Calc. by: SLB

Uniroyal Drainage System

Pipe - CB-8A Basin to CB-11A Basin (2Ra)

$$Q=VA=(1.49/n)(A)(r_H)^{4/3}(S)^{1/2} \quad \underline{18} \text{ in HDPE}$$

$$n = 0.012 \quad r_H = 0.375$$

$$A = 1.77 \text{ sf.} \quad P = 4.71$$

$$S = \underline{0.0035} \text{ ft/ft}$$

$$Q_{FULL} = \underline{6.75} \text{ cfs} \quad V_{FULL} = 3.82$$

$$100\text{-yr flow} = \underline{6.64} \text{ cfs} \quad \text{OK}$$

Pipe - CB-11A Basin to CB-13A Basin (2Rb)

$$Q=VA=(1.49/n)(A)(r_H)^{4/3}(S)^{1/2} \quad \underline{24} \text{ in HDPE}$$

$$n = 0.012 \quad r_H = 0.5$$

$$A = 3.14 \text{ sf.} \quad P = 6.28$$

$$S = \underline{0.0035} \text{ ft/ft}$$

$$Q_{FULL} = \underline{14.54} \text{ cfs} \quad V_{FULL} = 4.63$$

$$100\text{-yr flow} = \underline{14.45} \text{ cfs} \quad \text{OK}$$

Pipe - CB-13A Basin to DMH-14 (2Rc)

$$Q=VA=(1.49/n)(A)(r_H)^{4/3}(S)^{1/2} \quad \underline{30} \text{ in HDPE}$$

$$n = 0.012 \quad r_H = 0.625$$

$$A = 4.91 \text{ sf.} \quad P = 7.85$$

$$S = \underline{0.0025} \text{ ft/ft}$$

$$Q_{FULL} = \underline{22.28} \text{ cfs} \quad V_{FULL} = 4.54$$

$$100\text{-yr flow} = \underline{21.50} \text{ cfs} \quad \text{OK}$$

Pipe - DMH-14A to DMH-17 (2R)

$$Q=VA=(1.49/n)(A)(r_H)^{4/3}(S)^{1/2} \quad \underline{30} \text{ in HDPE}$$

$$n = 0.012 \quad r_H = 0.625$$

$$A = 4.91 \text{ sf.} \quad P = 7.85$$

$$S = \underline{0.0032} \text{ ft/ft}$$

$$Q_{FULL} = \underline{25.20} \text{ cfs} \quad V_{FULL} = 5.13$$

$$100\text{-yr flow} = \underline{23.2} \text{ cfs} \quad \text{OK}$$

Capacities of Outlet Pipes
 Project: Uniroyal & Facemate ACOE
 Town: Chicopee, MA

Date: 5/13/2021
 Job No. 5100
 Calc. by: SLB

Find Min Slope to Provide Self Cleaning Velocities (2.0 ft/s)

$Q=VA=(1.49/n)(A)(r_H)^{4/3}(S)^{1/2}$ 15 in HDPE
 HALF FULL n = 0.012 r_H = 0.313
 A = 0.61 sf. P = 1.96
 S = 0.0012 ft/ft

HALF FULL Q_{FULL} = 1.22 cfs V_{FULL} = 1.98 OK

$Q=VA=(1.49/n)(A)(r_H)^{4/3}(S)^{1/2}$ 18 in HDPE
 HALF FULL n = 0.012 r_H = 0.375
 A = 0.88 sf. P = 2.36
 S = 0.001 ft/ft

HALF FULL Q_{FULL} = 1.80 cfs V_{FULL} = 2.04 OK

$Q=VA=(1.49/n)(A)(r_H)^{4/3}(S)^{1/2}$ 24 in HDPE
 HALF FULL n = 0.012 r_H = 0.500
 A = 1.57 sf. P = 3.14
 S = 0.0007 ft/ft

HALF FULL Q_{FULL} = 3.25 cfs V_{FULL} = 2.07 OK

$Q=VA=(1.49/n)(A)(r_H)^{4/3}(S)^{1/2}$ 30 in HDPE
 HALF FULL n = 0.012 r_H = 0.625
 A = 2.45 sf. P = 3.93
 S = 0.0005 ft/ft

HALF FULL Q_{FULL} = 4.98 cfs V_{FULL} = 2.03 OK

INSTRUCTIONS:

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: Stormwater Basins (Facemate and Uniroyal)

	B	C	D	E	F
	BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
TSS Removal Calculation Worksheet	Sediment Forebay	0.25	1.00	0.25	0.75
	Deep Sump and Hooded Catch Basin	0.25	0.75	0.19	0.56
		0.00	0.56	0.00	0.56
		0.00	0.56	0.00	0.56
		0.00	0.56	0.00	0.56

Total TSS Removal =

44%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: Facemate and Uniroyal ACOE
 Prepared By: SLB
 Date: 5/13/2021

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
 1. From MassDEP Stormwater Handbook Vol. 1



NOAA Atlas 14, Volume 10, Version 3
Location name: Chicopee, Massachusetts, USA*
Latitude: 42.1547°, Longitude: -72.5856°
Elevation: 130.77 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aerials](#)

PF tabular

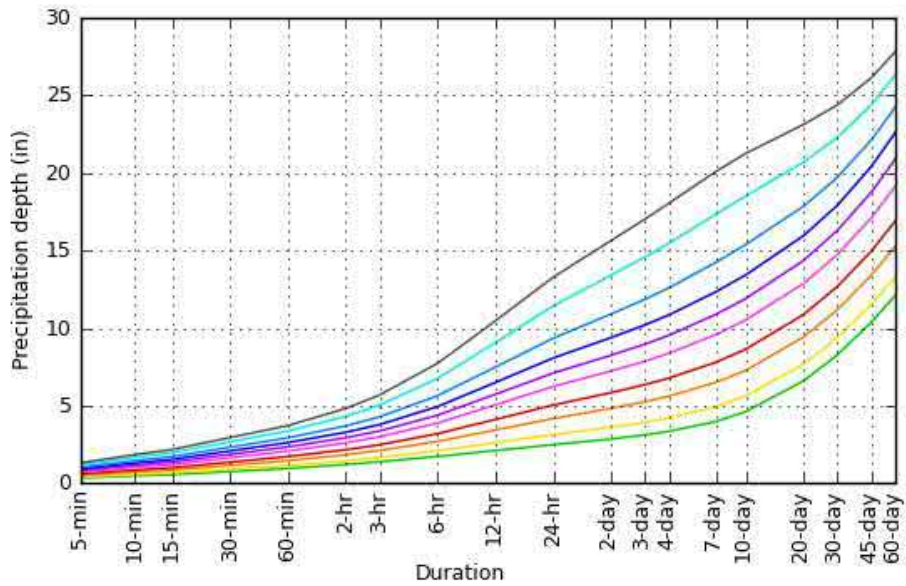
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.333 (0.257-0.427)	0.400 (0.308-0.514)	0.510 (0.391-0.657)	0.601 (0.459-0.779)	0.726 (0.537-0.986)	0.821 (0.596-1.14)	0.919 (0.648-1.33)	1.03 (0.689-1.53)	1.18 (0.763-1.62)	1.30 (0.823-2.05)
10-min	0.472 (0.364-0.605)	0.567 (0.437-0.728)	0.722 (0.554-0.931)	0.851 (0.650-1.10)	1.03 (0.761-1.40)	1.16 (0.843-1.62)	1.30 (0.918-1.88)	1.46 (0.977-2.16)	1.67 (1.08-2.58)	1.84 (1.17-2.91)
15-min	0.555 (0.428-0.712)	0.667 (0.514-0.856)	0.850 (0.652-1.10)	1.00 (0.764-1.30)	1.21 (0.895-1.64)	1.37 (0.993-1.90)	1.53 (1.08-2.21)	1.71 (1.15-2.54)	1.97 (1.27-3.03)	2.17 (1.37-3.42)
30-min	0.751 (0.579-0.963)	0.903 (0.695-1.16)	1.15 (0.883-1.48)	1.36 (1.04-1.76)	1.64 (1.21-2.23)	1.85 (1.35-2.58)	2.08 (1.46-3.00)	2.32 (1.56-3.45)	2.66 (1.73-4.11)	2.94 (1.86-4.64)
60-min	0.947 (0.730-1.21)	1.14 (0.877-1.46)	1.45 (1.11-1.87)	1.71 (1.31-2.22)	2.07 (1.53-2.81)	2.34 (1.70-3.25)	2.62 (1.85-3.78)	2.93 (1.97-4.35)	3.36 (2.18-5.19)	3.71 (2.35-5.86)
2-hr	1.21 (0.940-1.54)	1.45 (1.12-1.84)	1.83 (1.42-2.34)	2.15 (1.66-2.77)	2.60 (1.94-3.51)	2.93 (2.15-4.06)	3.28 (2.34-4.74)	3.69 (2.49-5.45)	4.30 (2.79-6.60)	4.82 (3.06-7.55)
3-hr	1.38 (1.08-1.75)	1.66 (1.30-2.10)	2.11 (1.64-2.67)	2.48 (1.92-3.17)	2.99 (2.25-4.03)	3.37 (2.49-4.66)	3.78 (2.72-5.47)	4.28 (2.89-6.30)	5.04 (3.28-7.70)	5.69 (3.62-8.89)
6-hr	1.72 (1.36-2.16)	2.09 (1.65-2.62)	2.69 (2.11-3.39)	3.19 (2.49-4.04)	3.88 (2.95-5.20)	4.38 (3.27-6.05)	4.94 (3.60-7.16)	5.64 (3.83-8.25)	6.75 (4.41-10.3)	7.72 (4.93-12.0)
12-hr	2.10 (1.68-2.61)	2.61 (2.07-3.24)	3.43 (2.72-4.28)	4.11 (3.24-5.16)	5.05 (3.87-6.74)	5.73 (4.32-7.88)	6.49 (4.79-9.40)	7.48 (5.10-10.9)	9.07 (5.93-13.7)	10.5 (6.70-16.2)
24-hr	2.48 (2.00-3.05)	3.12 (2.51-3.84)	4.17 (3.34-5.15)	5.04 (4.01-6.27)	6.23 (4.82-8.27)	7.10 (5.40-9.71)	8.07 (6.01-11.6)	9.35 (6.40-13.5)	11.4 (7.51-17.2)	13.3 (8.52-20.4)
2-day	2.85 (2.31-3.47)	3.60 (2.92-4.39)	4.82 (3.89-5.91)	5.84 (4.69-7.20)	7.23 (5.65-9.53)	8.25 (6.32-11.2)	9.39 (7.05-13.5)	10.9 (7.50-15.7)	13.4 (8.84-20.0)	15.6 (10.1-23.9)
3-day	3.11 (2.54-3.77)	3.93 (3.20-4.76)	5.25 (4.27-6.40)	6.35 (5.13-7.79)	7.87 (6.17-10.3)	8.96 (6.91-12.1)	10.2 (7.69-14.6)	11.9 (8.17-17.0)	14.6 (9.63-21.7)	17.0 (11.0-25.9)
4-day	3.35 (2.74-4.04)	4.21 (3.44-5.08)	5.61 (4.58-6.81)	6.77 (5.49-8.28)	8.38 (6.59-10.9)	9.54 (7.37-12.9)	10.9 (8.20-15.5)	12.6 (8.70-18.0)	15.5 (10.2-23.0)	18.1 (11.7-27.4)
7-day	3.98 (3.29-4.76)	4.93 (4.07-5.92)	6.50 (5.34-7.83)	7.79 (6.37-9.46)	9.58 (7.58-12.4)	10.9 (8.44-14.5)	12.3 (9.33-17.4)	14.2 (9.88-20.2)	17.3 (11.5-25.6)	20.1 (13.0-30.3)
10-day	4.61 (3.83-5.49)	5.62 (4.66-6.70)	7.27 (6.00-8.71)	8.63 (7.09-10.4)	10.5 (8.35-13.5)	11.9 (9.24-15.8)	13.4 (10.1-18.8)	15.4 (10.7-21.7)	18.5 (12.3-27.2)	21.3 (13.8-32.0)
20-day	6.59 (5.53-7.79)	7.67 (6.42-9.07)	9.42 (7.86-11.2)	10.9 (9.01-13.0)	12.9 (10.3-16.3)	14.4 (11.2-18.7)	16.0 (12.0-21.8)	17.9 (12.5-25.0)	20.7 (13.9-30.2)	23.1 (15.0-34.6)
30-day	8.27 (6.98-9.72)	9.38 (7.90-11.0)	11.2 (9.38-13.2)	12.7 (10.6-15.1)	14.7 (11.8-18.4)	16.3 (12.7-20.9)	17.9 (13.4-24.0)	19.7 (13.9-27.4)	22.3 (15.0-32.3)	24.4 (15.9-36.3)
45-day	10.4 (8.80-12.1)	11.5 (9.76-13.5)	13.4 (11.3-15.7)	15.0 (12.5-17.7)	17.1 (13.7-21.2)	18.8 (14.6-23.8)	20.4 (15.3-27.0)	22.1 (15.7-30.6)	24.4 (16.4-35.2)	26.1 (17.1-38.8)
60-day	12.1 (10.3-14.1)	13.3 (11.3-15.5)	15.3 (12.9-17.9)	16.9 (14.2-19.9)	19.1 (15.4-23.6)	20.9 (16.3-26.4)	22.6 (16.9-29.6)	24.2 (17.2-33.4)	26.3 (17.8-37.9)	27.8 (18.2-41.2)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

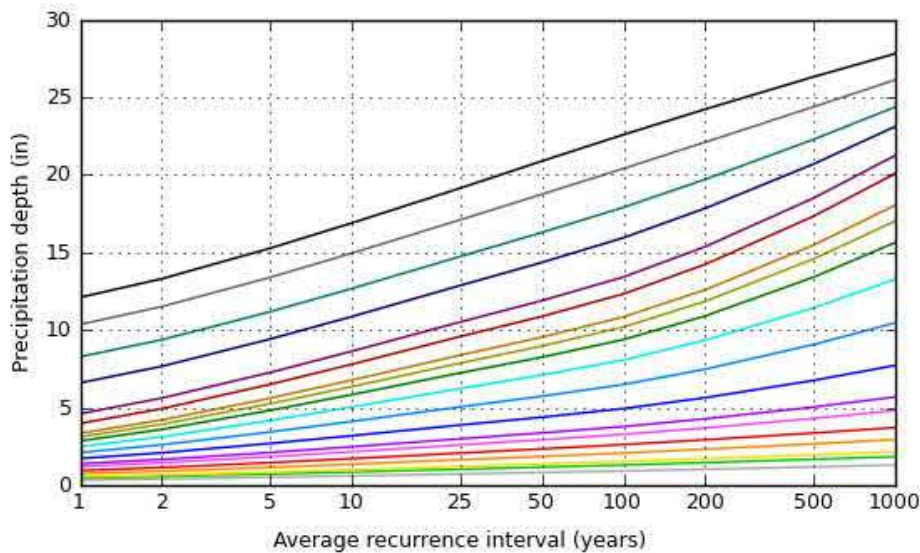
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PF graphical

PDS-based depth-duration-frequency (DDF) curves
 Latitude: 42.1547°, Longitude: -72.5856°



Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000



Duration
5-min
10-min
15-min
30-min
60-min
2-hr
3-hr
6-hr
12-hr
24-hr
2-day
3-day
4-day
7-day
10-day
20-day
30-day
45-day
60-day

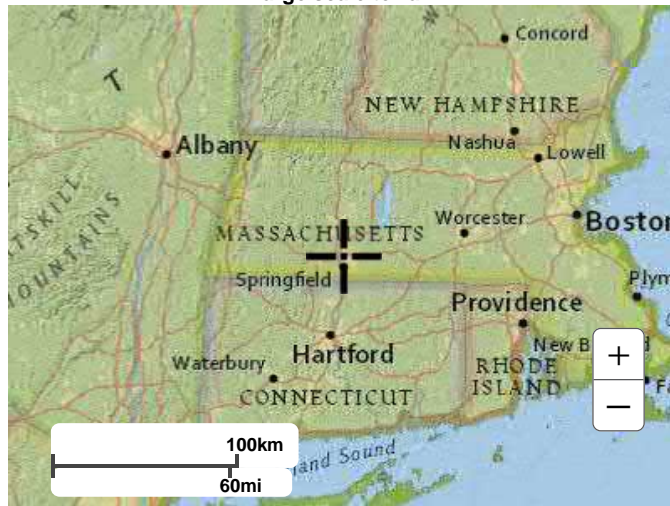
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Maps & aerials

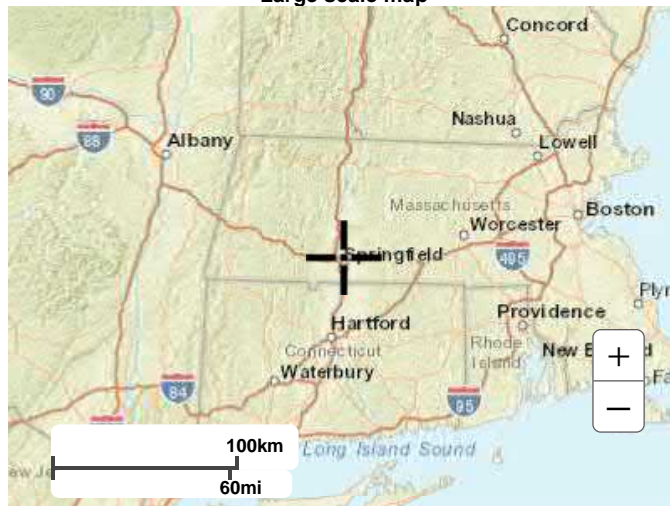
Small scale terrain



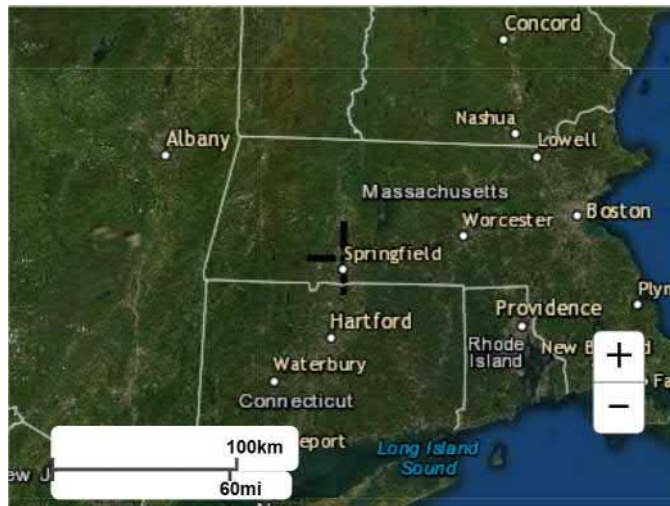
Large scale terrain



Large scale map



Large scale aerial

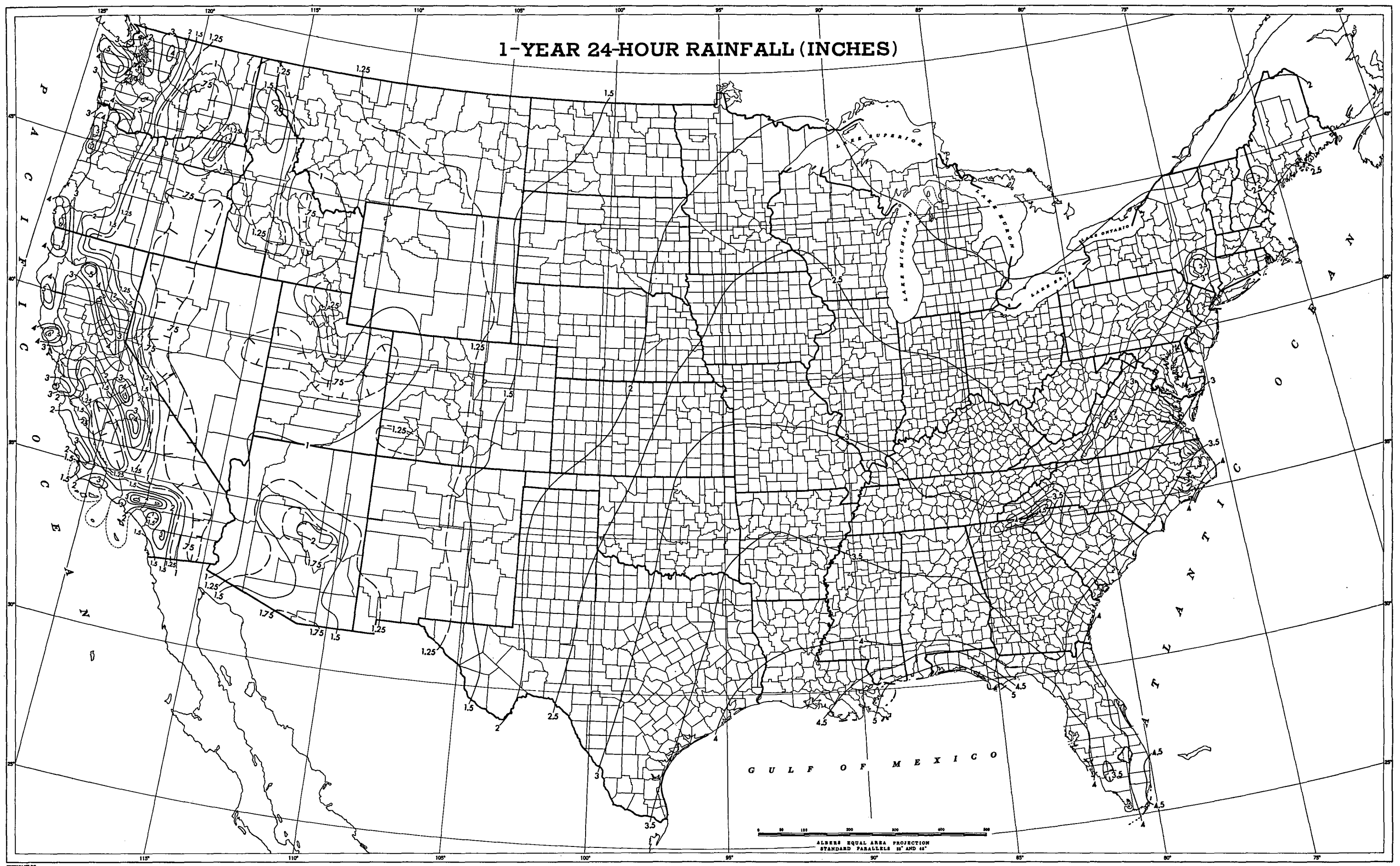


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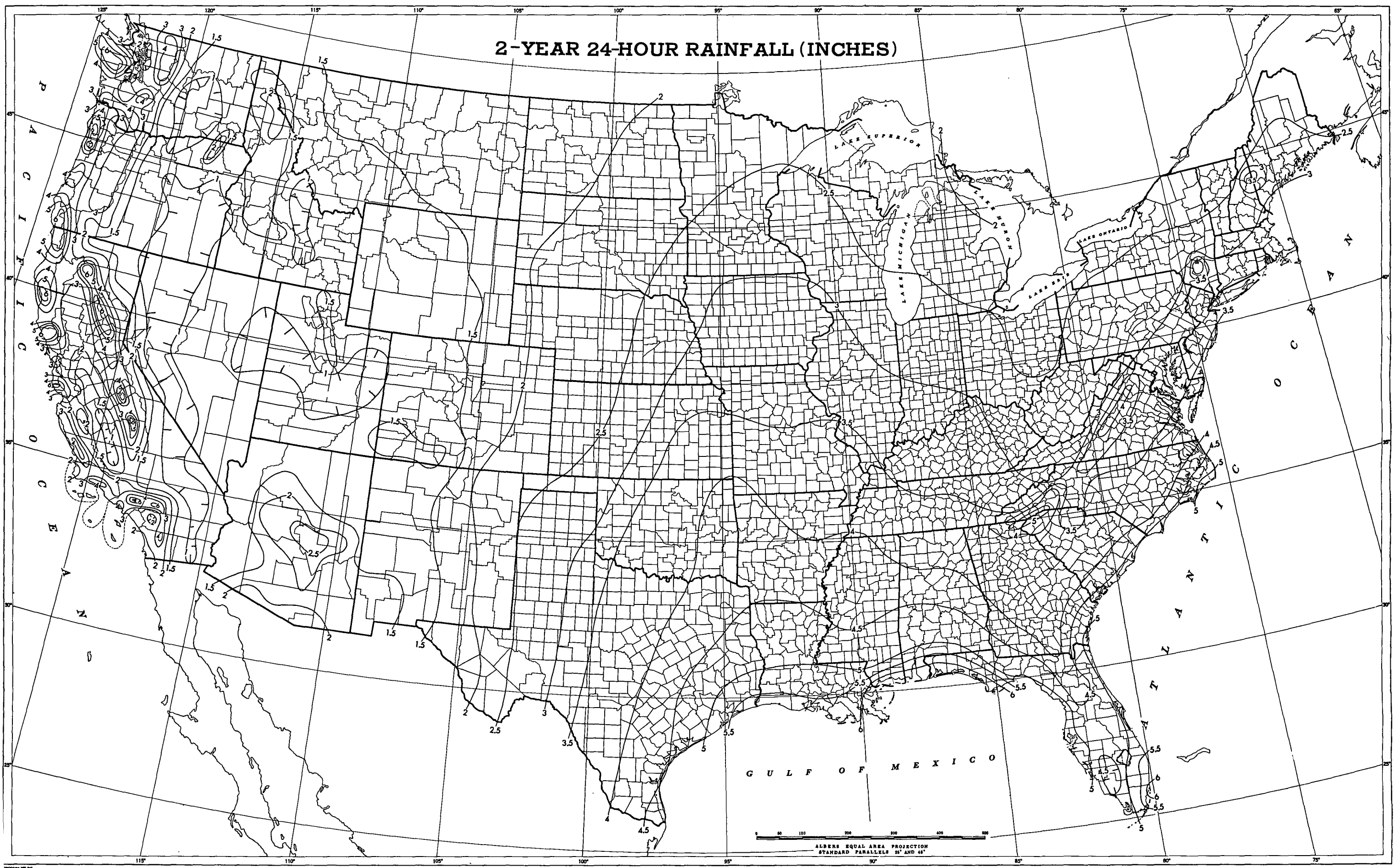
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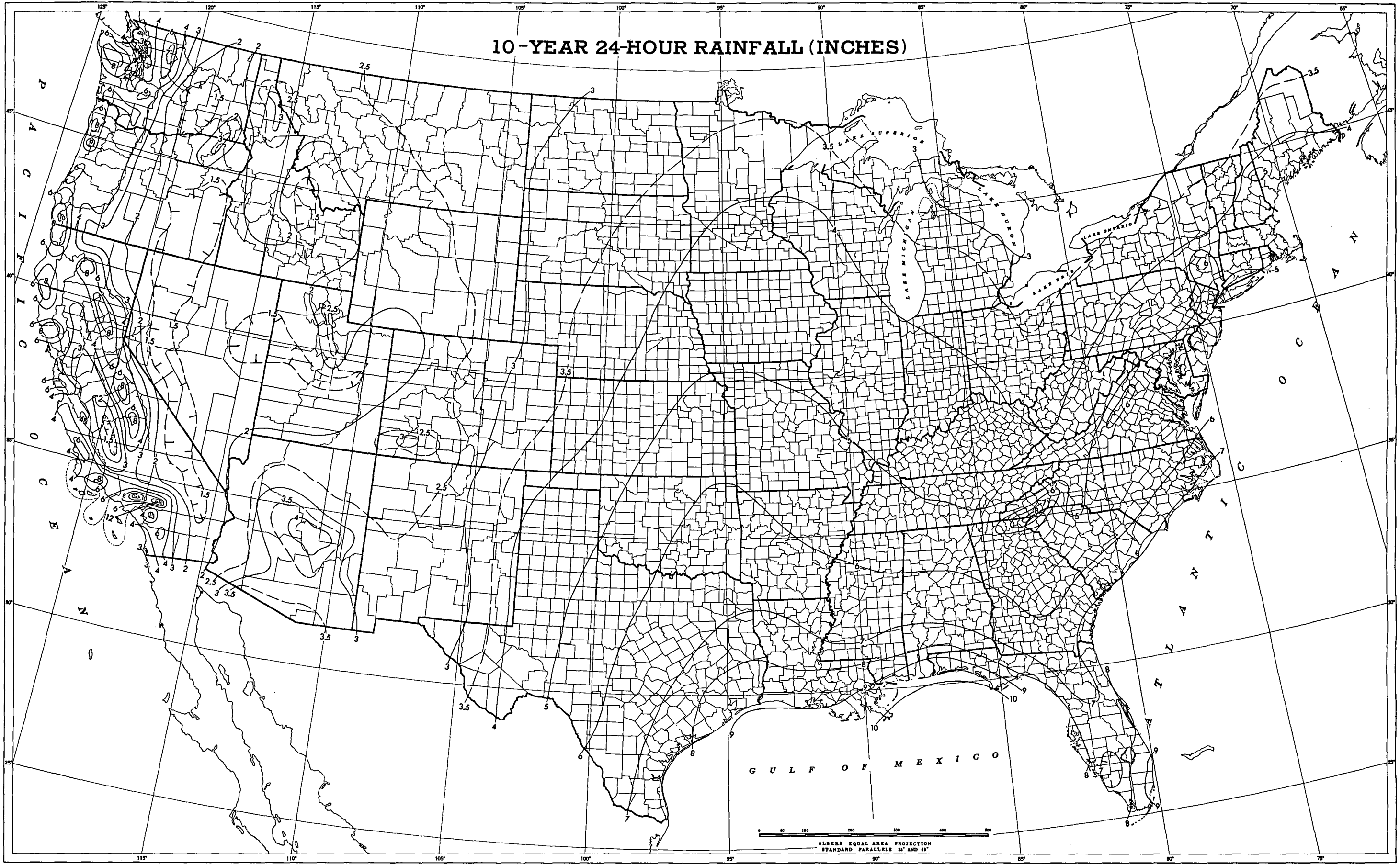
1-YEAR 24-HOUR RAINFALL (INCHES)



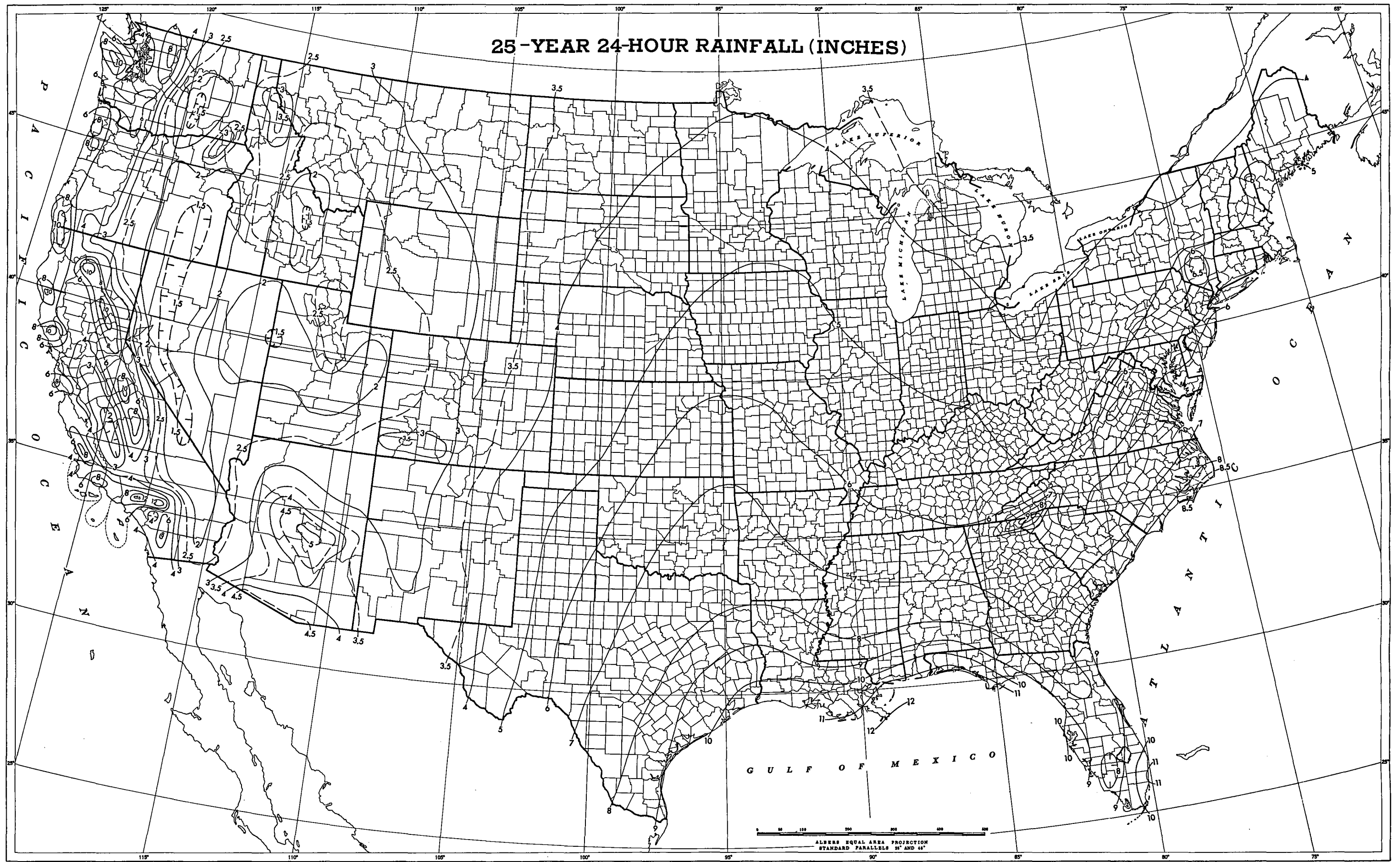
2-YEAR 24-HOUR RAINFALL (INCHES)



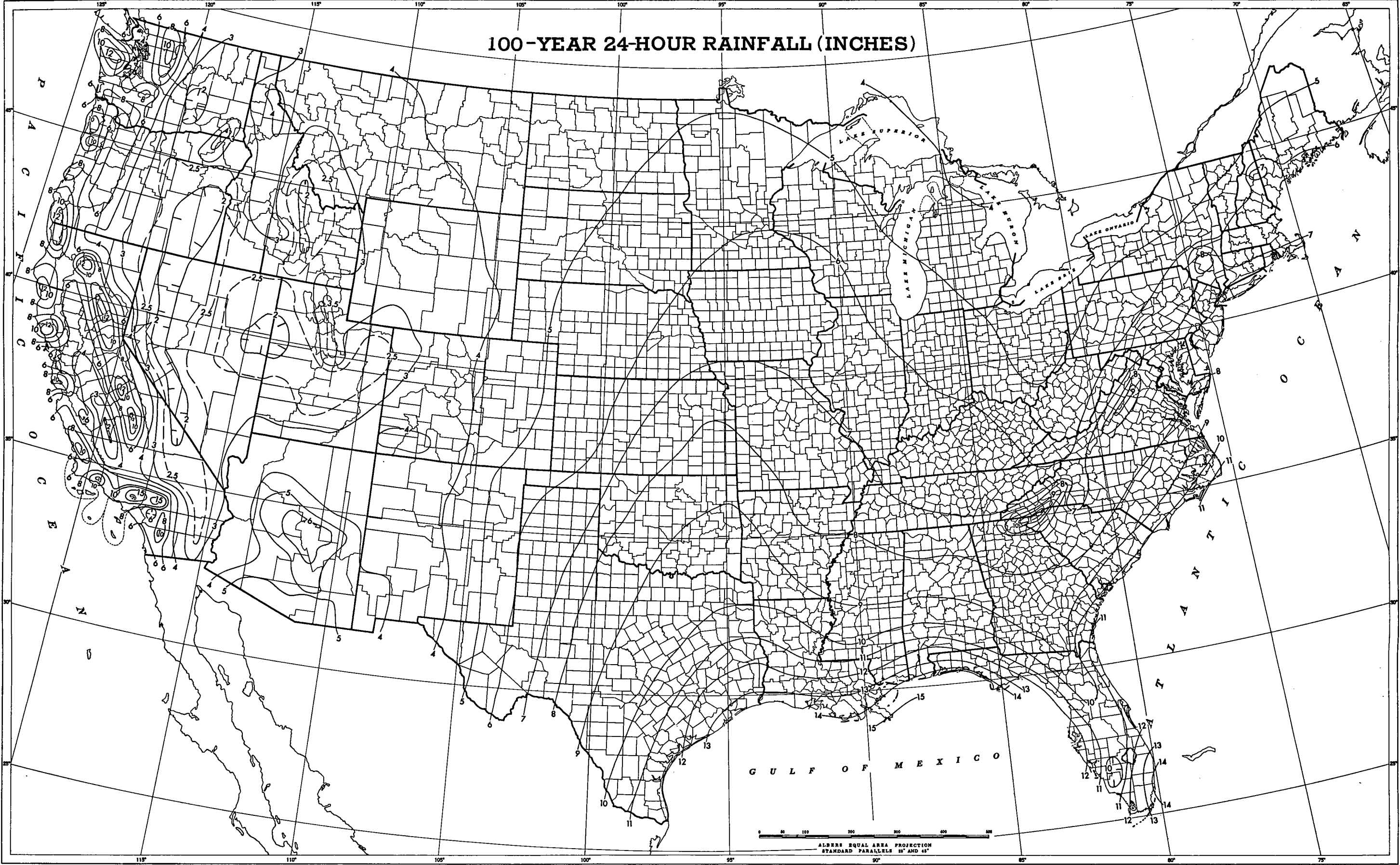
10-YEAR 24-HOUR RAINFALL (INCHES)



25-YEAR 24-HOUR RAINFALL (INCHES)



100-YEAR 24-HOUR RAINFALL (INCHES)



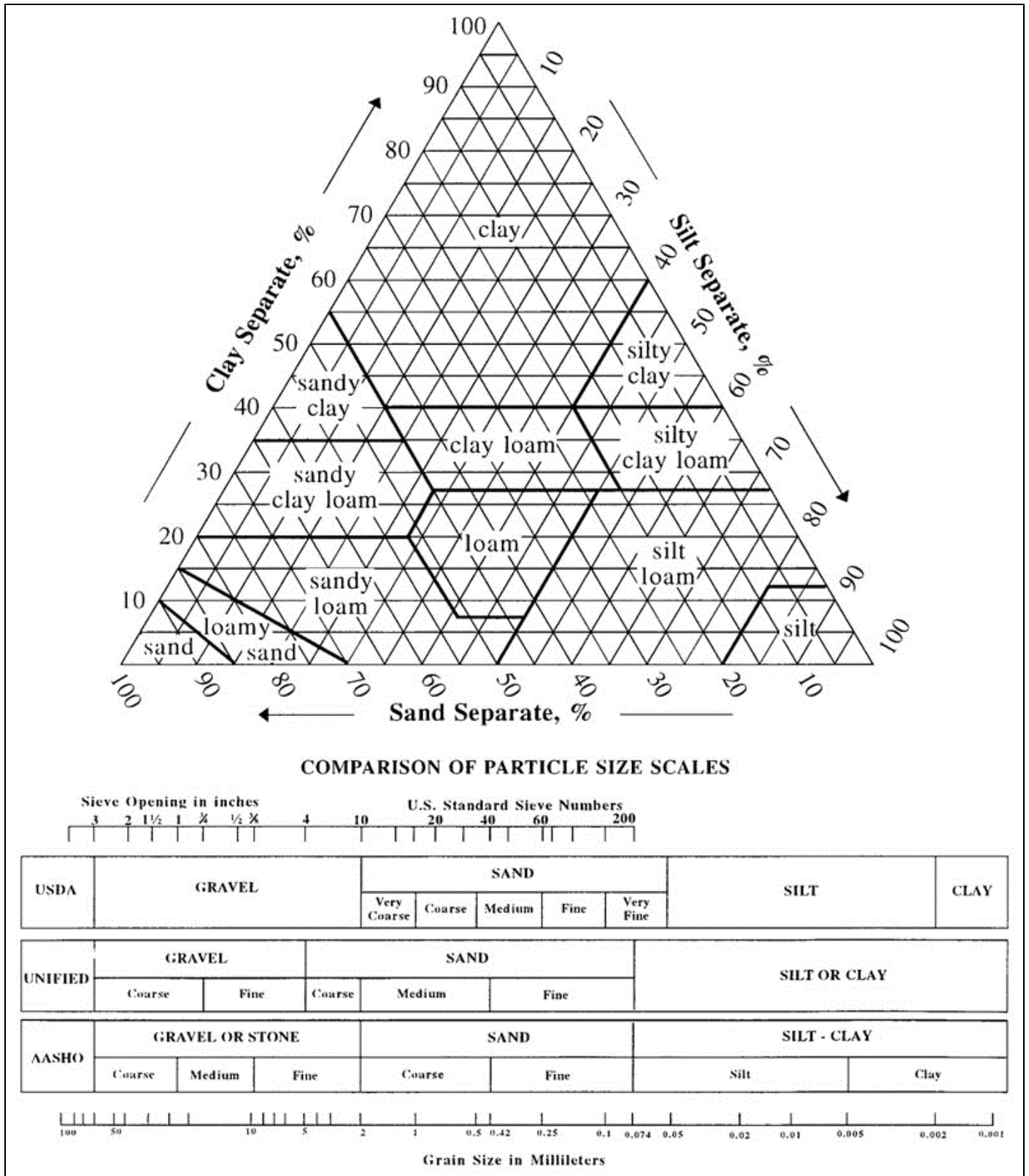


Figure 2.3.2: USDA, NRCS, 2007 National Soil Survey Handbook, Part 618, Exhibit 8, <http://soils.usda.gov/technical/handbook/contents/part618ex.html#ex8>

Table 2.3.3. 1982 Rawls Rates¹⁸

Texture Class	NRCS Hydrologic Soil Group (HSG)	Infiltration Rate Inches/Hour
Sand	A	8.27
Loamy Sand	A	2.41
Sandy Loam	B	1.02
Loam	B	0.52
Silt Loam	C	0.27
Sandy Clay Loam	C	0.17
Clay Loam	D	0.09
Silty Clay Loam	D	0.06
Sandy Clay	D	0.05
Silty Clay	D	0.04
Clay	D	0.02

¹⁸ Rawls, Brakensiek and Saxton, 1982



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