

# ***STORMWATER POLLUTION PREVENTION PLAN (SWPPP)***

*Prepared for:*

**IV2 Rockland Logistics, LLC**

**Proposed Industrial Park at 25 Old Mill Road**

*Section 55.22, Block 1, Lot 1; Section 55.37, Block 1, Lot 31*

*Village of Suffern*

*Section 55.06, Block 1, Lot 1*

*Village of Montebello*

*Old Mill Road and Hemion Road (CR 93)*

*Rockland County, New York*

Prepared by:



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## **I. EXECUTIVE STATEMENT**

The Stormwater Pollution Prevention Plan (SWPPP) has been prepared for the proposed development (Applicant: IV2 Rockland Logistics) located at 25 Old Mill Road in the Village of Suffern and the Village of Montebello, Rockland County, New York. The objective of this document is to comply with the New York Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities, General Permit No. GP-0-20-001 requirements.

Any material conflicts between this plan and the site plans, specifications, or instructions, must be brought to the attention of the design professional. The project may have other permits, and it is the responsibility of the owner and contractor to know and understand all permits, and their applicable requirements.

The operator must file the following information on site in a secure location that is accessible during normal working hours to an individual performing the required compliance inspection:

- Notice of Intent (NOI)
- Compiled MS4 accepted SWPPP
- General Permit (GP-0-20-001)
- MS4 Acceptance Form
- All previous inspection reports

Technical standards are detailed in the “New York State Standards and Specifications for Erosion and Sediment Control (November 2016)”, as well as illustrated on the Soil Erosion and Sediment Control Plan Map included in Appendix E. The design of post-construction stormwater control practices follows the guidance and requirements provided by “New York State Stormwater Management Design Manual”, most recent revision.

The Contractor shall implement and maintain all temporary and permanent erosion control practices as identified in this SWPPP, the Construction Plans or as directed by the SWPPP inspector or municipality. The maximum soil exposure limit is fourteen (14) days without temporary or permanent surface treatment.

## **PROJECT OVERVIEW AND SUMMARY**

The proposed lot has a total area of 7,033,324 SF (161.46 Ac.) and currently consists of an existing pharmaceutical corporation/industrial park previously owned by Novartis with surrounding undeveloped wooded area and brushlands of steep slopes. The existing industrial property includes a pond, parking facilities, lighting and other site amenities. The property is located within two municipalities, the Village of Suffern and the Village of Montebello, although the proposed development is located solely within the Village of Suffern. The existing conditions of the tract have been verified by the ALTA/NSPS Land Title Boundary & Topographic Survey as prepared by Dynamic Survey, dated 09/27/2022.

The proposed project will include the construction of three (3) industrial warehouse buildings, with associated loading bays, parking amenities, as well as other respective site improvements and stormwater management facilities. The site will be fully stabilized and restored upon completion. The land disturbance will be over one (1) acre and will require compliance with the General Permit (GP-0-20-001).

Per the General Permit, the project will be required to mitigate five unified stormwater sizing criteria:

1. Water Quality Volume (WQv) – 90<sup>th</sup> Percentile Rainfall Event
2. Runoff Reduction Volume (RRv) – Reduction of WQv utilized runoff reduction techniques
3. Channel Protection Volume (CPv) – 1-Year Rainfall Event
4. Overbank Flood Volume (Qp) – 10-Year Rainfall Event
5. Extreme Storm Volume (Qf) – 100-Year Rainfall Event

The project proposes the use of one (1) **NYSDEC SMP I-1 Infiltration Trench**, three (3) **NYSDEC SMP I-2 Infiltration Basins**, and seven (7) **NYSDEC SMP I-4 Underground Infiltration Basins**, all designed and developed in conformance with the current New York State Stormwater Management Design Manual (NYS SWDM) to provide adequate mitigation measures to satisfy the requirements of each of the five unified stormwater sizing requirements outlined above.

The WQv storm event runoff is 100% pre-treated for all impervious surfaces (with the exception of the buildings) via the utilization of Hydro International First Defense Hydrodynamic Separators which have all been sized to treat the respective contributing WQv storm event discharge. There is a small portion of driveway (near the northern entrance from Old Mill Road) that is pre-treated in a vault with a sump that has been sized for the requirement pre-treatment volume. The above ground infiltration basins utilize forebays for pre-treatment and the infiltration trench utilizes a 20' wide grass filter strip for pre-treatment.

From the pre-treatment practices, the stormwater discharges into their respective infiltration practices, which have all been sized to fully infiltrate the entire WQv before discharging through outlet control structures. Both WQv and RRv (where required) are being satisfied with the above outlined infiltration techniques. The outlet control structures have been designed to provide the required extended detention and outflow reduction to offset any increases in runoff from the newly created impervious surfaces, to ensure zero net increase in stormwater runoff for the 1, 10 and 100-year rainfall events, satisfying the CPv, Qp, and Qf unified stormwater sizing criteria outlined above.

## **WATER QUALITY (WQv) AND RUNOFF REDUCTION VOLUME (RRv)**

The proposed site utilized both above-ground and underground infiltration practices, which have all been sized to satisfy Water Quality and Runoff Reduction requirements for their respective contributory drainage areas. The subject site is located within a sole-source aquifer, requiring four (4) feet of vertical separation between seasonally high groundwater and the bottom of any infiltration practice.

As per Chapter 9 of the NYSDEC Stormwater Design Manual, Runoff Reduction Volume (RRv) is not required for Re-development activities.

### **AG Infiltration Basin A**

Existing Impervious Coverage	= 60,984 SF (1.40 Ac.)
Proposed Impervious Coverage	= 179,032 SF (4.11 Ac.)
New Impervious Coverage	= 118,048 SF (2.71 Ac.)
Total Site Area	= 228,690 SF (5.25 Ac.)

**WQv Required** = 16,425 CF (refer to Section V for supporting calculations)

**WQv Provided** = 16,568 CF (refer to Section V for supporting calculations)

**\*See Page 314 of Proposed HydroCAD Outputs\***

**RRv Required** = 0 CF (refer to Section V for supporting calculations)  
**RRv Provided** = 16,568 CF (refer to Section V for supporting calculations)  
**\*See Page 314 of Proposed HydroCAD Outputs\***

**AG Infiltration Basin B**

Existing Impervious Coverage = 27,443 SF (0.63 Ac.)  
Proposed Impervious Coverage = 44,867 SF (1.03 Ac.)  
New Impervious Coverage = 17,424 SF (0.40 Ac.)  
Total Site Area = 67,984 SF (1.56 Ac.)

**WQv Required** = 3,157 CF (refer to Section V for supporting calculations)  
**WQv Provided** = 3,350 CF (refer to Section V for supporting calculations)  
**\*See Page 320 of Proposed HydroCAD Outputs\***

**RRv Required** = 966 CF (refer to Section V for supporting calculations)  
**RRv Provided** = 3,350 CF (refer to Section V for supporting calculations)  
**\*See Page 320 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin C**

Existing Impervious Coverage = 237,838 SF (5.46 Ac.)  
Proposed Impervious Coverage = 334,541 SF (7.68 Ac.)  
New Impervious Coverage = 96,703 SF (2.22 Ac.)  
Total Site Area = 352,400 SF (8.09 Ac.)

**WQv Required** = 19,771 CF (refer to Section V for supporting calculations)  
**WQv Provided** = 21,035 CF (refer to Section V for supporting calculations)  
**\*See Page 327 of Proposed HydroCAD Outputs\***

**RRv Required** = 0 CF (refer to Section V for supporting calculations)  
**RRv Provided** = 21,035 CF (refer to Section V for supporting calculations)  
**\*See Page 327 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin D**

Existing Impervious Coverage = 277,913 SF (6.38 Ac.)  
Proposed Impervious Coverage = 342,817 SF (7.87 Ac.)  
New Impervious Coverage = 64,904 SF (1.49 Ac.)  
Total Site Area = 358,934 SF (8.24 Ac.)

**WQv Required** = 17,361 CF (refer to Section V for supporting calculations)  
**WQv Provided** = 18,018 CF (refer to Section V for supporting calculations)  
**\*See Page 334 of Proposed HydroCAD Outputs\***

**RRv Required** = 0 CF (refer to Section V for supporting calculations)  
**RRv Provided** = 18,018 CF (refer to Section V for supporting calculations)  
**\*See Page 334 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin E**

Existing Impervious Coverage = 36,590 SF (0.84 Ac.)  
Proposed Impervious Coverage = 340,639 SF (7.82 Ac.)  
New Impervious Coverage = 304,050 SF (6.98 Ac.)  
Total Site Area = 358,063 SF (8.22 Ac.)

**WQv Required** = 37,472 CF (refer to Section V for supporting calculations)  
**WQv Provided** = 38,107 CF (refer to Section V for supporting calculations)

**\*See Page 341 of Proposed HydroCAD Outputs\***

**RRv Required** = 14,216 CF (refer to Section V for supporting calculations)  
**RRv Provided** = 38,107 CF (refer to Section V for supporting calculations)

**\*See Page 341 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin F**

Existing Impervious Coverage = 195,584 SF (4.49 Ac.)  
Proposed Impervious Coverage = 394,654 SF (9.06 Ac.)  
New Impervious Coverage = 199,069 SF (4.57 Ac.)  
Total Site Area = 520,790 SF (9.66 Ac.)

**WQv Required** = 30,526 CF (refer to Section V for supporting calculations)  
**WQv Provided** = 32,563 CF (refer to Section V for supporting calculations)

**\*See Page 348 of Proposed HydroCAD Outputs\***

**RRv Required** = 0 CF (refer to Section V for supporting calculations)  
**RRv Provided** = 32,563 CF (refer to Section V for supporting calculations)

**\*See Page 348 of Proposed HydroCAD Outputs\***

**AG Infiltration Basin G**

Existing Impervious Coverage = 0 SF (0 Ac.)  
Proposed Impervious Coverage = 18,295 SF (0.42 Ac.)  
New Impervious Coverage = 18,295 SF (0.42 Ac.)  
Total Site Area = 30,492 SF (0.70 Ac.)

**WQv Required** = 2,249 CF (refer to Section V for supporting calculations)  
**WQv Provided** = 2,514 CF (refer to Section V for supporting calculations)

**\*See Page 354 of Proposed HydroCAD Outputs\***

**RRv Required** = 1,195 CF (refer to Section V for supporting calculations)  
**RRv Provided** = 2,514 CF (refer to Section V for supporting calculations)

**\*See Page 354 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin H**

Existing Impervious Coverage = 4,356 SF (0.10 Ac.)  
Proposed Impervious Coverage = 61,420 SF (1.41 Ac.)  
New Impervious Coverage = 57,064 SF (1.31 Ac.)  
Total Site Area = 62,291 SF (1.43 Ac.)

**WQv Required** = 6,931 CF (refer to Section V for supporting calculations)  
**WQv Provided** = 7,048 CF (refer to Section V for supporting calculations)  
**\*See Page 361 of Proposed HydroCAD Outputs\***

**RRv Required** = 0 CF (refer to Section V for supporting calculations)  
**RRv Provided** = 7,048 CF (refer to Section V for supporting calculations)  
**\*See Page 361 of Proposed HydroCAD Outputs\***

**AG Infiltration Trench I**

Existing Impervious Coverage = 15,682 SF (0.36 Ac.)  
Proposed Impervious Coverage = 49,658 SF (1.16 Ac.)  
New Impervious Coverage = 34,848 SF (0.80 Ac.)  
Total Site Area = 84,070 SF (1.93 Ac.)

**WQv Required** = 4,887 CF (refer to Section V for supporting calculations)  
**WQv Provided** = 5,111 CF (refer to Section V for supporting calculations)  
**\*See Page 381 of Proposed HydroCAD Outputs\***

**RRv Required** = 2,066 CF (refer to Section V for supporting calculations)  
**RRv Provided** = 5,111 CF (refer to Section V for supporting calculations)  
**\*See Page 381 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin K**

Existing Impervious Coverage = 8,712 SF (0.20 Ac.)  
Proposed Impervious Coverage = 167,706 SF (3.85 Ac.)  
New Impervious Coverage = 158,994 SF (3.65 Ac.)  
Total Site Area = 167,706 SF (3.85 Ac.)

**WQv Required** = 19,180 CF (refer to Section V for supporting calculations)  
**WQv Provided** = 19,432 CF (refer to Section V for supporting calculations)  
**\*See Page 368 of Proposed HydroCAD Outputs\***

**RRv Required** = 10,176 CF (refer to Section V for supporting calculations)  
**RRv Provided** = 19,432 CF (refer to Section V for supporting calculations)  
**\*See Page 368 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin M**

Existing Impervious Coverage = 0 SF (0 Ac.)  
Proposed Impervious Coverage = 323,215 SF (7.42 Ac.)  
New Impervious Coverage = 323,215 SF (7.42 Ac.)  
Total Site Area = 341,075 SF (7.83 Ac.)

**WQv Required** = 38,493 CF (refer to Section V for supporting calculations)  
**WQv Provided** = 40,720 CF (refer to Section V for supporting calculations)  
**\*See Page 375 of Proposed HydroCAD Outputs\***

**RRv Required** = 7,755 CF (refer to Section V for supporting calculations)  
**RRv Provided** = 40,720 CF (refer to Section V for supporting calculations)  
 \*See Page 375 of Proposed HydroCAD Outputs\*

**OVERALL WQv AND RRv SUMMARY:**

Required Water Quality Volume (WQv)	196,453 CF
Provided Water Quality Volume (WQv)	204,466 CF
Required Runoff Reduction Volume (RRv)	36,374 CF
Provided Runoff Reduction Volume (RRv)	204,466 CF

**PEAK FLOW ATTENUATION RESULTS:**

<b>Study Area Site Runoff Rates (CFS)</b>			
<b>Design Storm</b>	<b>Existing Runoff Rates (CFS)</b>	<b>Proposed Runoff Rates (CFS)</b>	<b>Difference (CFS)</b>
1-YEAR (CPv)	10.99	2.90	-8.09
10-YEAR (Qp)	117.13	50.83	-66.30
100-YEAR (Qf)	367.50	205.02	-162.48

A preliminary geotechnical investigation was performed throughout the site which included infiltration testing in the locations of proposed stormwater management systems. Additional stormwater design testing may be required to comply with Appendix D of the New York State Stormwater Design Manual. The deep holes will be excavated to elevations at least four (4) feet below the bottom of each stormwater management system proposed on site. The infiltration tests will be conducted at elevations 2' below the bottom of each infiltration system proposed on site. Our preliminary test results showed infiltration rates ranging from 0.6 inches per hour to 24 inches per hour, which are greater than the required 0.5 inch per hour for an infiltration practice. Our preliminary design utilized conservative infiltration rates in addition to results that were gathered following a period of heavy rainfall. Infiltration tests vary as illustrated in the Supplemental Stormwater Basin Area Investigation Report enclosed as an appendix of this report.

## II. INTRODUCTION

### BACKGROUND

This SWPPP has been prepared in accordance with the guidelines and technical specifications required to obtain coverage under the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001, effective January 29, 2020).

In accordance with the permit requirements, an owner or operator of a construction activity that is eligible for coverage under the permit must obtain coverage prior to the commencement of construction activity. To obtain coverage under the permit, an owner or operator must first prepare a SWPPP in accordance with all applicable permit requirements. The owner or operator must then submit a completed Notice of Intent (NOI) to the NYSDEC at least five (5) business days prior to the start of *construction activity*. As defined within the permit, construction activity includes any clearing, grading, excavation, filling, demolition, or stockpiling activities that result in soil disturbance.

### SWPPP REQUIREMENTS

The preparation and implementation of the SWPPP provides the framework for reducing soil erosion and minimizing pollutants in stormwater during construction of the project.

- Documents the selection, design, installation, implementation and maintenance of the control measures and practices that will be utilized to control erosion and the release of pollutants in storm water.
- Documents the selection, design, installation, and maintenance of the post-construction stormwater management practices that will be constructed to meet the pre-treatment, runoff reduction, water quality and peak discharge rate criteria of the permit.
- Describes the erosion and sediment control practices and post-construction stormwater management practices that will be used and/or constructed to reduce pollutants in stormwater discharges.
- Identifies potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges.
- Outlines the owner, operator and contractor's responsibility to maintain the erosion control measures and the post-construction stormwater management practices.

The proposed project implements the planning criteria as per Chapter 5: Green Infrastructure Practices and Chapter 9: Redevelopment Activity of the New York State Stormwater Design Manual (NYS SMDM).

The subject site is currently developed and will be developed into a site with multiple warehouse buildings with accompanying truck courts, utilities and stormwater management practices to offset the increase of impervious surfaces.

## **PROJECT CONTACTS**

### **Owner/Operator:**

Name: Louis DiGiacomo  
Brookfield Properties

Address: Brookfield Place, 250 Vespy Street, 15<sup>th</sup> Floor  
New York, NY 10281

Phone: (203) 216-3215

E-mail: [louis.digiacomob@brookfieldproperties.com](mailto:louis.digiacomob@brookfieldproperties.com)

### **Design Engineer:**

Name: Joshua Sewald, P.E.  
Dynamic Engineering

Address: 1904 Main Street  
Lake Como, NJ 07719

Phone: (732) 974-0198

E-mail: [jsewald@dynamiccec.com](mailto:jsewald@dynamiccec.com)

### **General Contractor:**

Name: Jim Wyatt  
ARCO Design/Build

Address: 44 S Broadway, Suite 1003  
White Plains, NY 10601

Phone: (914) 336-1997

E-mail: [jwyatt@arcodb.com](mailto:jwyatt@arcodb.com)

### III. PROJECT DESCRIPTION

The project site is located at 25 Old Mill Road in the Village of Suffern and Village of Montebello, Rockland County, New York. The subject parcel is identified as Section 55.22, Block 1, Lot 1 and Section 55.37, Block 1, Lot 31.

#### **EXISTING SITE CONDITIONS**

Previously the site contained a pharmaceutical manufacturing facility that has been closed service since 2017. The previous facility had multiple buildings with a total area of approximately one-half million square feet. Located south of the existing building is a 2.25-acre pond. The project site is bounded by Old Mill Road and the New York State Thruway to the north. The Village of Montebello municipal boundary to the east. Railroad tracks and New York State Highway Route 59/Lafayette Avenue beyond to the south, and the The Union Hill Quarry to the west. The existing conditions on site are depicted on the ALTA/NSPS Land Title Boundary and Topographic Survey, prepared by Dynamic Survey, LLC, dated September 27, 2022.

#### **TOPOGRAPHY**

The site generally slopes from the east to west, and south to north, following streams and tributaries through wetlands, with a confluence point along the northern portion of the property where a stream passes underneath the New York State thruway and ultimately discharges into the Mahwah River.

#### **SURFACE WATER**

The subject site contains a stream with multiple wetlands, and tributaries that ultimately discharges to the Mahwah River beyond the property limits. The Mahwah River is located north beyond the New York State Thruway (Governor Thomas E. Dewey Thruway).

#### **SOILS**

Based on the USDA NRCS Soil Mapping, the soil types native to the site include:

<b>SOIL TYPE (SYMBOL)</b>	<b>SOIL TYPE (NAME)</b>	<b>HYDROLOGIC SOIL GROUP</b>
Us	Udorthents, smoothed	A
WeB	Wethersfield gravelly silt loam, 3 to 8 percent slopes	C
WeD	Wethersfield gravelly silt loam, 15 to 25 percent slopes	C
HoD	Holyoke-Rock outcrop complex, hilly	D
Ux	Urban land	N/A (D)
Pt	Pits, gravel	N/A (D)
W	Water	-

## **SOIL BORINGS**

Soil borings, test pits and standard penetration tests were completed by Dynamic Earth, LLC, which can be found in the appendix of this report. Additionally, a Stormwater Basin Area Investigation Report was completed by Dynamic Earth, LLC, which can also be found in the appendix of this report.

## **GROUNDWATER**

A geotechnical investigation was performed on site in accordance with Appendix D of the NYSDEC SWDM. The required vertical separation between infiltration practices and the seasonally high groundwater was provided. See Supplemental Stormwater Basin Area Investigation Report enclosed as an appendix for boring logs and location map.

## **PROPOSED SITE CONDITIONS**

The project proposes to demolish the existing pharmaceutical facility for the construction of three (3) one-story warehouse buildings with associated parking, loading bays and access drives. The subject property is approximately 7,033,324 square feet (161.47 acres) where the majority of the property is located within the Village of Suffern at approximately 5,441,754 square feet (124.93 acres) and the remainder in the Village of Montebello, approximately 1,591,570 square feet (36.54 acres). The development area is confined to approximately 2,681,319.26 square feet (61.60 acres) located entirely within the Village of Suffern portion of the property.

## **IV. EROSION AND SEDIMENTATION CONTROLS**

### **EROSION AND SEDIMENTATION CONTROLS**

The Erosion and Stormwater Pollution Prevention Plan (Sheets 101 to 111), depict the specific locations, sizes, and lengths of each erosion and sediment control practice, detailed below. All contractors and sub-contractors will be required to understand the Erosion and Stormwater Pollution Prevention Plan and sign the certification statement. The responsibility for the Erosion and Stormwater Pollution Prevention Plan will be designated to the trained contractor. All erosion and sedimentation controls will be installed, monitored, repaired and replaced in accordance with the New York State Standards and Specifications for Erosion and Sediment Control.

### **STABILIZED CONSTRUCTION ACCESS**

Stabilized construction access points will be used at all points of construction ingress and egress. The construction access point will consist of a stabilized pad of aggregate underlain with geotextile located at any point where traffic will be entering or leaving the Project Site to or from a public right-of-way, street, alley, sidewalk, or parking area. The purpose of stabilized construction access is to reduce or eliminate the tracking of sediment onto public rights-of-way or streets. The stabilized construction access points will be established at two site access points from Old Mill Road. The stabilized construction access points will be constructed in accordance with the 2016 New York State Standards and Specifications for Erosion and Sediment Control.

## **TEMPORARY STOCKPILES**

Materials, such as topsoil, will be temporarily stockpiled, as necessary, on the Project Site during the construction process. Temporary stockpile areas will be located, as depicted on the Erosion and Stormwater Pollution Prevention Plan, in areas away from storm drainage, water bodies and/or drainage courses to the maximum extent practicable. The stockpile areas will be surrounded with silt fencing to prevent runoff sediment laden runoff from exiting these areas. Soils will be stockpiled on, at minimum, double layers of 8-mil minimum sheeting, and will be kept covered when not in use with appropriately anchored plastic tarps. Broken or ripped tarps will be promptly replaced.

## **SILT FENCE**

Silt fencing will be installed, as depicted on the Erosion and Stormwater Pollution Prevention Plan, and in accordance with the New York State Standards and Specifications for Erosion and Sediment Control. These barriers may extend into non-impact areas to provide adequate protection of adjacent lands. Silt fencing will serve to intercept sediment laden runoff from areas with disturbed soils, reduce the runoff velocity and initiate deposition of the transported sediment. Tall stakes will be used for the silt fencing to allow for visibility above potential snowpack.

## **HAYBALES**

A temporary barrier of straw, or similar material, used to intercept sediment laden runoff in areas where it is not feasible to utilize silt fence, as depicted on the Erosion and Stormwater Pollution Prevention Plan. All haybales shall be placed in accordance with the New York State Standards and Specifications for Erosion and Sediment Control.

## **CATCH BASIN INLET PROTECTION**

Catch basins within and surrounding the project site with the potential to receive sediment laden runoff from the site will be protected by a filter fabric drop or manufactured insert inlet protection measures. The filter fabric barriers will be installed around inlets to detain water and thereby reducing the sediment content of sediment laden water by settling thus preventing heavily sediment laden water from entering a storm drain system. The top of the barrier will be maintained to allow overflow to drop into the drop inlet and not bypass the inlet to unprotected lower areas. Support stakes for fabric will be installed in accordance with the New York State Standards and Specifications for Erosion and Sediment Control.

## **GEOTEXTILE FILTER BAG**

In the event that dewatering is required, or stormwater ponding is present, localized dewatering will occur and geotextile bags will be used to trap and retain sediment onsite from pumped water.

## **CONCRETE TRUCK WASHOUT**

A concrete truck washout will be installed nearby the stabilized construction entrances along the access road in accordance with the New York State Standards and Specifications for Erosion and Sediment Control. The concrete truck washout will allow concrete truck mixers and equipment to be washed after delivery and placement has been completed, to prevent highly alkaline runoff from entering storm drainage systems or

leaching into soil. They will be constructed to contain solids, wash water, and rainfall in addition to allowing for the evaporation of such waters.

## **DUST CONTROL**

Dust control measures will be implemented throughout the project site. To the extent practical construction activities will be phased to minimize the amount of area disturbed at one time. For disturbed areas, not subject to traffic, vegetation will be utilized to stabilize the exposed surfaces. For disturbed areas subject to traffic dust control methods utilizing water or wind breakers will be used as necessary.

## **SPRINKLING**

To provide short term dust control the project site may be sprayed with water until the surface is wet. No surface runoff will be generated from spraying activities.

## **WINDBREAKERS**

A silt fence or similar barrier may be used, if deemed necessary by the trained contractor, to control air currents at intervals equal to ten times the barrier height. Preservation of the existing wind barrier vegetation will occur to the maximum extent practical.

## **WINTER STABILIZATION**

Sediment and erosion controls will be modified in the as follows during winter months.

## **SNOW MANAGEMENT**

Snow management locations are depicted on the Site Plan allowing for adequate storage of mounded snow and control of the melt water, while not impacting ongoing construction activities or required parking facilities. Stabilized construction access points will be widened as necessary to allow for snow management and stockpiling. Snow management activities, such as plowing, must not destroy or degrade installed erosion and sediment control practices. A minimum 25-foot buffer will be maintained, to the extent practical, from all perimeter controls such as silt fencing. Drainage structures must be kept open and free of snow and ice dams. All debris, ice dams, or debris from plowing operations, that restrict the flow of runoff and meltwater, shall be removed.

## **EXPOSED SOIL**

Exposed soils will be protected by the use of established vegetation, anchored straw mulch, rolled stabilization matting, or other durable covering. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures as described above will be initiated. Disturbed areas remaining exposed for more than 14 days during construction operations will be stabilized temporarily. Straw or manufactured mulch will be applied at double the typical application rate when mulching is alone used for stabilization. Stone paths will be utilized when deemed necessary by the trained contractor or qualified inspector to stabilize access perimeters of buildings under construction and areas where construction vehicle traffic is anticipated.

## ***EROSION AND SEDIMENTATION CONTROL INSPECTIONS***

### **INSPECTIONS BY QUALIFIED INSPECTOR**

Inspections will be completed by a qualified inspector to fully document each inspection. Site inspection checklists and guidelines can be found in the appendix of this report.

Erosion and sediment control measures will be inspected in accordance with State Pollution Discharge Elimination System (SPDES) requirements as follows:

- Start of construction;
- When soil disturbance activities are on-going, a qualified inspector will conduct a site inspection at least once every seven calendar days;
- When soil disturbance activities have been temporarily suspended and temporary stabilization measures have been applied to all disturbed areas, a qualified inspector will conduct a site inspection at least once every 30 calendar days. The applicant or operator will notify the NYSDEC Regional Office stormwater contact person in writing prior to reducing the frequency of inspections.

The qualified inspector will maintain a record of all inspection reports in a logbook, maintained onsite. Any changes to the proposed SWPPP will be documented. During each inspection, the following information will be recorded:

- Indicate on a site map all areas of the Project Site that have undergone temporary or permanent stabilization.
- Indicate all disturbed areas that have not undergone active work during the previous 14-day period. Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume.
- Inspect all erosion and sediment control practices and document all maintenance activities.
- Document any excessive deposition of sediment or ponding water along barrier or diversion systems.

At a minimum, the qualified inspector shall inspect:

- All erosion and sediment control practices and pollution prevention measures;
- All post-construction stormwater management practices under construction;
- All areas of disturbance that have not achieved final stabilization;
- All points of discharge to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and;
- All points of discharge from the construction site.

### **INSPECTIONS BY TRAINED CONTRACTOR**

Erosion and Sediment Control (ESC) inspections will be conducted daily by a trained contractor to determine when ESC measures need maintenance or repair. The trained contractor will inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily. If deficiencies are identified, the trained contractor shall begin implementing corrective actions within one business day and will complete the corrective actions in a reasonable time frame.

If soil disturbance activities become temporarily suspended and temporary stabilization measures have been applied to all disturbed areas or if soil disturbance activities shut down with partial project completion, the daily inspections will also be suspended until soil disturbance activities resume.

Maintenance and inspection schedules for the contractor(s) have been provided in the appendix of this report.

### **STABILIZED CONSTRUCTION ACCESS POINT**

Periodic inspections and maintenance will be provided after each rainfall event and on an as needed basis at the discretion trained contractor and/or qualified inspector. The entrances will be maintained in a condition which will prevent tracking of sediment onto public rights-of-way.

### **TEMPORARY STOCKPILES**

The stockpiles will be inspected to confirm the integrity of the surrounding silt fencing.

### **SILT FENCE**

Silt fencing will be frequently monitored frequently for degradation and blockage. Maintenance will be performed as needed and material removed when bulges develop in the fencing.

### **HAYBALES**

Haybales will be frequently monitored for degradation and blockage. Replacement will occur promptly when the qualified inspector has determined the straw bale is no longer functioning as intended.

### **CATCH BASIN INLET PROTECTION**

The fabric barrier will be inspected after each rainfall event and removal of sediment and/or repairs will be performed as needed.

### **GEOTEXTILE FILTER BAG**

The geotextile filter bag is considered full and should be replaced when remaining bag flow area has been reduced by 75% of the storage capacity.

### **CONCRETE TRUCK WASHOUT**

The concrete washout areas will be inspected daily for damage or leaks by the trained contractor. Facilities will be repaired or replaced immediately upon the discovery of any leaks or damages. Accumulated hardened material will be removed when 75% of the storage capacity of the structure is filled.

### **DUST CONTROL**

Dust control measures will be maintained through dry weather periods until all disturbed areas are stabilized.

## **WINTER STABILIZATION**

The site will be inspected frequently to ensure that the erosion and sediment control plan is functioning as intended.

Compliance inspections must be performed and reports filed properly in accordance with this SWPPP during a winter shutdown as described above.

## **SOIL STABILIZATION PLAN**

Please refer to the Soil Erosion and Sediment Control Notes & Details (Sheet 112) for detailed information regarding temporary and permanent stabilization.

## **TEMPORARY SOIL STABILIZATION**

Disturbed areas will be stabilized as soon as possible after construction is complete. Temporary seeding or mulching will be used on areas which will be exposed for more than 14 days and maintenance will be performed as necessary to ensure continued stabilization.

## **PERMANENT SOIL STABILIZATION**

Permanent stabilization will be performed as soon as possible after the completion of final grading and utility installation. Permanent seeding will be used on unpaved areas.

## **INSPECTIONS**

Site inspection checklists and guidelines can be found in the appendices of this report.

## ***GOOD HOUSEKEEPING AND POLLUTION PREVENTION MEASURES***

## **VEHICLE AND CONSTRUCTION EQUIPMENT STAGING AND MAINTENANCE**

Vehicle and construction equipment staging and maintenance areas will be located away from all drainage ways. Equipment cleaning, maintenance and repair will be conducted in designated areas with the perimeter of the area protected by silt fencing.

## **EQUIPMENT AND VEHICLE WASHING**

The erosion and sedimentation controls and concrete washout area detailed above, will be maintained as necessary to contain soil and prevent vehicles tracking material off site. Wash waters will consist of clean water only. No soaps, detergents, or solvents will be used to clean construction equipment and vehicle while onsite.

## **CONSTRUCTION MATERIALS AND DEBRIS**

The Project Site will be inspected at the end of each work day for building materials, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials that may be exposed to precipitation and stormwater. Materials identified as having the potential to discharge pollutants

will be protected from precipitation and stormwater. Solid wastes will be disposed of in accordance with local, state and federal laws.

## **SPILL AND LEAK PREVENTION PLAN**

The spill prevention and control plan, detailed below, will be implemented by the trained contractor, as necessary, in accordance with the NYSDEC Spill Guidance Manual.

### **SPILL PREVENTION**

Refueling equipment shall be located at least 100 feet from all wetlands, streams and other surface waters.

All construction vehicles will be inspected daily for visible leaks of automotive fluid. If a leak is identified, immediate actions, as detailed in the spill prevention and control plan, will be taken to contain and clean up spilled fluids.

The trained contractor is responsible for maintaining all necessary Material Safety Data Sheets (MSDS) for all materials to be stored on-site. All state and federal regulations shall be followed for the storage, handling, application, usage, and disposal of pesticides, fertilizers, and petroleum products. All workers on-site will be required to be trained on safe handling and spill prevention procedures for all materials used during construction. Informational material regarding proper handling, spill response, spill kit location, and emergency actions to be taken, will be posted and available to all construction personnel.

### **SPILL REPORTING AND INITIAL NOTIFICATION REQUIREMENTS**

20-gallon spill kits for fast response for emergency oil, water-based and chemical liquid spills will be distributed around active construction areas. Spill kits, will include:

- 15 x 19" Pads
- 3" x 12' Sorbent Socks
- 18 x 18" Pillows
- Nitrile Gloves
- Emergency Handbook
- Goggles
- Disposal Bags

Under New York State law, all petroleum and most hazardous material spills must be reported to Department of Environmental Conservation (DEC) Hotline (**1-800-457-7362**). If a spill is discovered and the responsible party cannot be located, the person who discovers the spill, shall report the spill. Parties responsible for spills will be informed of their responsibilities by the trained contractor. In the event of additional on-scene assistance is required, local authorities shall be contacted.

Petroleum spills must be reported to DEC unless they meet **all** of the following criteria:

- The spill is known to be less than 5 gallons;
- The spill is contained and under the control of the spiller;
- The spill has not and will not reach any State's water or land; and
- The spill is cleaned up within 2 hours of discovery.

For spills not deemed reportable, it is strongly recommended that the facts concerning the incident be documented by the spiller and a record maintained for one year.

#### Steps Following an Accidental Spill

- No party shall place themselves in a hazardous situation;
- Stay upwind and upgrade of the accident site;
- Do not walk in or near the spill, leak, or fire until this can be done safely;
- Treat any unknown substance as a hazardous material until the identity of the substance becomes known;
- Defer to the authority of the response agencies who have the responsibility and resources for taking actions at the emergency scene.

#### **SANITARY FACILITIES**

Sanitary facilities will be provided for onsite personnel by the contractor and must be utilized by all construction personnel.

#### **PROHIBITED DISCHARGES**

The following discharges are prohibited:

- Wastewater from washout of concrete;
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
- Soaps or solvents used in vehicle and equipment washing; and
- Toxic or hazardous substances from a spill or other release.

#### **INSPECTIONS**

Pollution prevention measure inspections within the active work area will be conducted by a qualified professional and trained contractor as described above. If deficiencies are identified, the qualified inspector shall begin implementing corrective actions within one business day and will complete the corrective actions in a reasonable time frame.

## V. STORMWATER MANAGEMENT CONTROLS

### EXISTING DRAINAGE CONDITIONS

#### **Pre-Construction Stormwater**

The pre-construction conditions of the site include a previously active pharmaceutical campus which included parking lots, walkways, office spaces, laboratories and other related site amenities. The site has been evaluated using the TR-55 'Urban Hydrology for Small Watersheds' standards with the following existing drainage sub-watershed area as depicted on the Existing Drainage Area Map which can be found in the appendices of this report.

Ex. Study Area Stream: From the southern, eastern and western portions of the property, the sites topography flows towards the existing wetland pockets on the western portion of the site. Ultimately, the wetland pockets drain north to the Mahwah River via the onsite tributary. The point of analysis utilized for this is the most downstream, or northern point onsite, where the tributary flows beyond to the Mahwah River. This point of analysis is identified as "POI Stream" on the Existing Drainage Area Map.

Ex. Study Area Pond: A smaller drainage area centrally located within the site includes an approximate 2.25-acre pond.

### PROPOSED DRAINAGE CONDITIONS

#### **Post Construction Stormwater**

The proposed project will include the construction of three (3) industrial warehouse buildings, with associated loading bays, parking amenities, as well as other respective site improvements and stormwater management facilities. The site will be fully stabilized and restored upon completion. The land disturbance will be over one (1) acre and will require compliance with the General Permit (GP-0-20-001).

The site has been evaluated using the TR-55 'Urban Hydrology for Small Watersheds' standards and with the following proposed drainage sub-watershed areas as depicted on the Proposed Drainage Area Map. Both existing and proposed conditions utilize the same Point of Interest, allowing for proper evaluation and comparison of both existing and proposed hydraulic models.

Study Area Forebay A1: This area consists of roof runoff from the northwestern portion of Building 1 as well as parking lot runoff.

Study Area Forebay A2: This area consists of roof runoff from the northeastern portion of Building 1 as well as parking lot runoff.

Study Area AG Infiltration Basin B: This area contains majority of the western strip of drive aisle for vehicles bypassing the Building 1 Truck Court. Adjacent landscaped areas contribute as well.

Study Area UG Infiltration Basin C: This area consists of roof leaders from the north western portion of Building 1 and surface runoff from the adjacent truck court and entrance from Old Mill Road.

Study Area UG Infiltration Basin D: This area consists of roof leaders from the north-eastern portion of Building 1 and runoff form the adjacent truck court.

Study Area UG Infiltration Basin E: The contributing area includes roof leaders from the south-western portion of Building 1 along with runoff from the adjacent truck court area.

Study Area UG Infiltration Basin F: This area is comprised of roof leaders from the south-eastern portion of Building 1 along with surface runoff from the surrounding parking lot area.

Study Area AG Infiltration Basin G: The contributing area to AG Basin G includes runoff from the western exterior areas of Building 1.

Study Area UG Infiltration Basin H: The contributing area includes roof leaders from the south-western corner of Building 1 along with runoff from parking areas.

Study Area AG Infiltration Trench I: The contributing drainage area includes surface runoff from parking facilities and driveways south of Building 1 and north of Building 3.

Study Area UG Infiltration Basin K: Basin K receives runoff from Building 3 as well as it's respective truck court and parking facilities.

Study Area UG Infiltration Basin M: Basin M receives runoff from Building 2 as well as it's respective truck court, access driveway and parking facilities.

Study Area Stream Undetained: This drainage area contains portions of the site that are not being modified or remaining undeveloped as part of this project.

## **STORMWATER MANAGEMENT SYSTEM DESIGN**

The stormwater management systems have been designed to provide water quality and quantity controls as required by the NYSDEC) SPDES General Permit for Stormwater Discharges from Construction. The design incorporates sizing for Water Quality Volume Control (WQv), Runoff Reduction Volume (RRv), Channel Protection Storage Volume (CPv), Overbank Flood Control (Qp) and Extreme Storm Flood Control (Qf). These five components of the water quality sizing criteria are further described as follows:

- The Water Quality Volume (WQv) is designed to improve water quality by capturing and treating 90% of the average annual stormwater runoff volume. The WQv is directly related to the amount of impervious cover on a project site. For this project the water quality volume will be treated by the use of storage and infiltration into the native soils.
- The Runoff Reduction Volume (RRv) is designed to control post-development water quality volumes to replicate pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow, and discharge volume as well as minimizing concentrated flow. Runoff Reduction is promoted by use of infiltration, groundwater recharge, reuse and recycling by incorporating green infrastructure techniques and standard stormwater management practices with runoff reducing capacity. For this project, the soils that were present allowed for 100% recharge of the required runoff for WQv which implicitly satisfies the Runoff Reduction criteria.
- The Channel Protection Storage Volume (Cpv) is designed to protect stream channels from erosion. The CPv is accomplished by providing 24 hour extended detention of the one-year, 24-hour storm event.
- The purpose of Overbank Flood Control (Qp) is to prevent an increase in the frequency and magnitude of out-of-bank flooding generated by urban development. Overbank Flood Control is accomplished by

attenuating the post development 10-year, 24-hour peak discharge rate from the site to the pre-development rate.

- The purpose of Extreme Flood Control (Qf) is to prevent an increased risk of flood damage from large storm events, to maintain the boundaries of the pre-development 100-year floodplain, and to protect the physical integrity of stormwater management practices. Extreme Flood Control is accomplished by attenuating the post development 100-year, 24-hour peak discharge rate from the site to the pre-development rate.

The stormwater management system has been designed to provide water quality treatment, infiltration and storage to provide zero net increase in peak discharges to the point of interest for design storms ranging from the 1-year to 100-year frequency.

**WATER QUANTITY (PEAK FLOW ATTENUATION)**

Water quantity control practices for the Channel Protection Volume (CPv), Overbank Flood Control (Qp) and Extreme Flood Control (Qf) mitigation have been provided to ensure zero net increase in stormwater runoff. Shown below are the pre- and post-construction rates. Post-construction rates are combined for all stormwater management systems as the pre- and post-construction analyses utilize the same Point of Interest and allow for direct comparison:

<b>Stormwater Discharge Rates</b>			
<b>Design Storm</b>	<b>Existing Runoff Rates (CFS)</b>	<b>Proposed Runoff Rates (CFS)</b>	<b>Difference (CFS)</b>
1-Year (CPv)	10.99	2.90	-8.09
10-Year (Qp)	117.13	50.74	-66.39
100-Year (Qf)	367.50	194.01	-173.49

**STORMWATER MANAGEMENT PRACTICES (SMP's)**

The drainage design proposes the implementation of multiple Stormwater Management Practices (SMPs) to satisfy the five unified sizing criteria outlined above. All proposed infiltration practices have been designed in accordance with the requirements set forth by Table 6.1 in Chapter 6 of the NYSDEC SWDM. The site is located within a sole source aquifer, requiring a minimum of four (4) feet vertical separation between the seasonally high-water table and the bottom of any infiltration practice. All infiltration basins have been designed to comply with this requirement. The selected SMPs have all been designed to provide the necessary quantity and quality controls to fully satisfy all requirements set forth by the SPDES General Permit for Stormwater Discharges from Construction Activity – GP-0-20-001.

**ABOVE-GROUND INFILTRATION BASIN A DESIGN SUMMARY**

**FOREBAY DESIGN SUMMARY**

Bottom of Forebay A1 @ Elev. 309.80  
 Bottom of Forebay A2 @ Elev. 309.80

Total Dead Storage Provided

**Forebay A1 = 4,596 CF (@ Elev. 311.00) \*See Page 387 of Proposed HydroCAD Outputs\***

**Forebay A2 = 4,278 CF (@ Elev. 310.40) \*See Page 393 of Proposed HydroCAD Outputs\***

Total Storage Provided

**Forebay A1 = 14,500 CF**

**Forebay A2 = 26,127 CF**

**SPILLWAY STRUCTURE**

**Forebay A1** 15' L x 15' W Spillway @ Elev. 311.00

**Forebay A2** 15' L x 15' W Spillway @ Elev. 310.40

**FOREBAY A1 STAGE STORAGE TABLE**

ELEVATION (FEET)	SURFACE AREA (SF)	STORAGE VOLUME (CF)
309.80	2,919	0
310.00	3,398	632
311.00	4,530	4,596
312.00	5,837	9,779
312.75	6,752	14,500

**\*Seasonal High-Water Table was observed at elevation 305.80\***

**FOREBAY A2 STAGE STORAGE TABLE**

ELEVATION (FEET)	SURFACE AREA (SF)	STORAGE VOLUME (CF)
309.80	6,055	0
310.00	7,144	1,320
311.00	8,407	9,095
312.00	9,845	18,221
312.75	11,238	26,127

**\*Seasonal High-Water Table was observed at elevation 305.80\***

**INFILTRATION BASIN DESIGN SUMMARY**

Bottom of Infiltration Basin @ Elev. 309.80

Total Dead Storage Provided 16,568 CF (@ Elev. 311.10)

**\*See Page 314 of Proposed HydroCAD Outputs\***

Total Storage Provided 43,288 CF

**OUTLET CONTROL STRUCTURE**

3' L Rectangular Weir @ Elev. 311.10

4' x 4' Top Grate @ Elev. 312.60

18" HDPE Outlet Pipe @ Elev. 309.00

**STAGE STORAGE TABLE:**

ELEVATION (FEET)	SURFACE AREA (SF)	STORAGE VOLUME (CF)
309.80	10,324	0
310.00	11,848	2,217
311.00	14,026	15,154
312.00	16,335	30,335
312.75	18,208	43,288

**\*Seasonal High-Water Table was observed at elevation 305.80\***

**INFILTRATION SYSTEM WATER SURFACE PEAK ELEVATION**

STORM EVENT	ELEVATION (FEET)	STORAGE VOLUME (CF)
WQv	309.82	200
1-YEAR (CPv)	309.94	1,513
10-YEAR (Qp)	310.98	14,830
100-YEAR (Qf)	311.92	29,090

**\*One (1) foot of free board provided by surrounding elevations minimum 313.00\***

**EMERGENCY SPILLWAY STRUCTURE**

Spillway Structure 48' L x 11' W Spillway @ Elev. 312.75

**\*See Page 314 of Proposed HydroCAD Outputs\***

Water Quality Volume must be fully dewatered in 48 hours

Infiltration Basin Floor = 10,324 SF

WQv Provided = 16,568 CF

Utilize infiltration rate of **9.50 inches per hour\***

WQv below the first orifice will be fully infiltrated in **2.03 hours**

**\*Field infiltration rates of 12 to 24 in/hr were observed and a conservative rate of 9.50 in/hr was utilized\***

**ABOVE-GROUND INFILTRATION BASIN B DESIGN SUMMARY**

**FOREBAY DESIGN SUMMARY**

Bottom of Forebay @ Elev. 304.00

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Total Dead Storage Provided 800 CF (@ Elev. 306.70)

**\*See Page 399 of Proposed HydroCAD Outputs\***

Total Storage Provided 1,720 CF

**CHECKWALL STRUCTURE**

31.50' L Check Wall @ Elev. 306.70

**FOREBAY A1 STAGE STORAGE TABLE**

ELEVATION (FEET)	SURFACE AREA (SF)	STORAGE VOLUME (CF)
304.00	45	0
305.00	192	119
306.00	451	440
307.00	633	982
308.00	842	1,720

**\*Seasonal High-Water Table was observed at elevation 299.70\***

**INFILTRATION BASIN DESIGN SUMMARY**

Bottom of Infiltration Basin @ Elev. 304.00

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Total Dead Storage Provided 3,350 CF (@ Elev. 305.00)

**\*See Page 320 of Proposed HydroCAD Outputs\***

Total Storage Provided 26,598 CF

**OUTLET CONTROL STRUCTURE**

6" Diameter Orifice @ Elev. 305.00

4' x 4' Top Grate @ Elev. 307.00

18" HDPE Outlet Pipe @ Elev. 303.00

**STAGE STORAGE TABLE:**

ELEVATION (FEET)	SURFACE AREA (SF)	STORAGE VOLUME (CF)
304.00	2,100	0
305.00	4,600	3,350
306.00	6,700	9,000
307.00	8,777	16,739
308.00	10,941	26,598

**\*Seasonal High-Water Table was observed at elevation 299.70\***

**INFILTRATION SYSTEM WATER SURFACE PEAK ELEVATION**

STORM EVENT	ELEVATION (FEET)	STORAGE VOLUME (CF)
WQv	304.15	331
1-YEAR (CPv)	304.87	2,781
10-YEAR (Qp)	305.62	6,630
100-YEAR (Qf)	306.69	14,098

Water Quality Volume must be fully dewatered in 48 hours

Infiltration Basin Floor = 2,100 SF

WQv Provided = 3,350 CF

Utilize infiltration rate of **3.50 inches per hour\***

WQv below the first orifice will be fully infiltrated in **5.47 hours**

**\*Field infiltration rates of 5 to 8 in/hr were observed and a conservative rate of 3.50 in/hr was utilized\***

**UNDERGROUND INFILTRATION BASIN C DESIGN SUMMARY**

**INFILTRATION BASIN DESIGN SUMMARY**

Ferguson R-Tank UD

3" Stone Base + UD 4-Stack (53.1" Tall) + 8" Stone Cover = 5.35' Field Height

41.40' Wide x 659.51' Long = 27,300 SF Footprint

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Bottom of Infiltration Basin (Stone Invert)	@ Elev. 303.50
Bottom of R-Tank Chamber	@ Elev. 303.75
Top of R-Tank Chamber	@ Elev. 308.18

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Total Dead Storage Provided 21,001 CF (@ Elev. 304.50)

**\*See Page 327 of Proposed HydroCAD Outputs\***

Total Design Storage Provided 110,839 CF\*

**\*Does not include stone cover storage\***

**OUTLET CONTROL STRUCTURE**

6" Diameter Orifice	@ Elev. 304.50
4' L Rectangular Weir	@ Elev. 307.50
18" HDPE Outlet Pipe	@ Elev. 303.75

**STAGE STORAGE TABLE:**

ELEVATION (FEET)	STORAGE VOLUME (CF)
303.50	0
303.75	2,730
304.00	8,832
305.00	33,238
306.00	57,645
307.00	82,051
308.00	106,458
308.18	110,839

**\*Seasonal High-Water Table was observed at elevation 299.0\***

**INFILTRATION SYSTEM WATER SURFACE PEAK ELEVATION**

STORM EVENT	ELEVATION (FEET)	STORAGE VOLUME (CF)
WQv	303.97	8,220
1-YEAR (CPv)	304.52	21,548
10-YEAR (Qp)	305.57	47,069
100-YEAR (Qf)	307.61	96,927

Water Quality Volume must be fully dewatered in 48 hours

Infiltration Basin Floor = 27,300 SF

WQv Provided = 21,001 CF

Utilize infiltration rate of **2.60 inches per hour**

WQv below the first orifice will be fully infiltrated in **3.55 hours**

**\*Field infiltration rates of 0.60 to 5.20 in/hr were observed and a conservative rate of 2.60 in/hr was utilized\***

**UNDERGROUND INFILTRATION BASIN D DESIGN SUMMARY**

**INFILTRATION BASIN DESIGN SUMMARY**

Ferguson R-Tank UD

3" Stone Base + UD 3-Stack (40.2" Tall) + 8" Stone Cover = 4.26' Field Height

49.28' Wide x 663.45' Long = 32,621 SF Footprint

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Bottom of Infiltration Basin (Stone Invert)	@ Elev. 305.00
Bottom of R-Tank Chamber	@ Elev. 305.25
Top of R-Tank Chamber	@ Elev. 308.60

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Total Dead Storage Provided	18,018 CF (@ Elev. 305.75)
<b>*See Page 334 of Proposed HydroCAD Outputs*</b>	
Total Design Storage Provided	102,029 CF*
<b>*Does not include stone cover storage*</b>	

**OUTLET CONTROL STRUCTURE**

8" Diameter Orifice	@ Elev. 305.75
8" Diameter Orifice	@ Elev. 307.00
4' L Rectangular Weir	@ Elev. 308.25
18" HDPE Outlet Pipe	@ Elev. 305.25

**STAGE STORAGE TABLE:**

ELEVATION (FEET)	STORAGE VOLUME (CF)
305.00	0
305.25	3,269
306.00	25,393
307.00	54,891
308.00	84,389
308.60	102,029

**\*Seasonal High-Water Table was observed at elevation 301.00\***

**INFILTRATION SYSTEM WATER SURFACE PEAK ELEVATION**

STORM EVENT	ELEVATION (FEET)	STORAGE VOLUME (CF)
WQv	305.45	9,081
1-YEAR (CPv)	305.89	22,049
10-YEAR (Qp)	306.70	45,910
100-YEAR (Qf)	308.19	90,041

Water Quality Volume must be fully dewatered in 48 hours

Infiltration Basin Floor = 32,621 SF

WQv Provided = 18,018 CF

Utilize infiltration rate of **2.70 inches per hour**

WQv below the first orifice will be fully infiltrated in **2.45 hours**

**\*Field infiltration rates of 1.4 to 5 in/hr were observed and a conservative rate of 2.70 in/hr was utilized\***

**UNDERGROUND INFILTRATION BASIN E DESIGN SUMMARY**

**INFILTRATION BASIN DESIGN SUMMARY**

Ferguson R-Tank UD

3" Stone Base + UD 4-Stack (53.1" Tall) + 8" Stone Cover = 5.35' Field Height

45.34' Wide x 531.56' Long = 24,096 SF Footprint

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Bottom of Infiltration Basin (Stone Invert) @ Elev. 305.00

Bottom of R-Tank Chamber @ Elev. 305.25

Top of R-Tank Chamber @ Elev. 309.68

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Total Dead Storage Provided 38,107 CF (@ Elev. 306.90)

**\*See Page 341 of Proposed HydroCAD Outputs\***

Total Design Storage Provided 98,242 CF\*

**\*Does not include stone cover storage\***

**OUTLET CONTROL STRUCTURE**

6" Diameter Orifice @ Elev. 306.90

4' L Rectangular Weir @ Elev. 308.50

18" HDPE Outlet Pipe @ Elev. 305.25

**STAGE STORAGE TABLE:**

ELEVATION (FEET)	STORAGE VOLUME (CF)
305.00	0
305.25	2,410
306.00	18,636
307.00	40,271
308.00	61,906
309.00	83,540
309.68	98,242

**\*Seasonal High-Water Table was observed at elevation 300.80\***

**INFILTRATION SYSTEM WATER SURFACE PEAK ELEVATION**

STORM EVENT	ELEVATION (FEET)	STORAGE VOLUME (CF)
WQv	305.48	7,484
1-YEAR (CPv)	306.09	20,512
10-YEAR (Qp)	307.30	46,691
100-YEAR (Qf)	309.14	86,480

Water Quality Volume must be fully dewatered in 48 hours

Infiltration Basin Floor = 24,096 SF

WQv Provided = 38,107 CF

Utilize infiltration rate of **3.50 inches per hour**

WQv below the first orifice will be fully infiltrated in **5.42 hours**

**\*Field infiltration rates up to 4 in/hr were observed and a conservative rate of 3.50 in/hr was utilized\***

**UNDERGROUND INFILTRATION BASIN F DESIGN SUMMARY**

**INFILTRATION BASIN DESIGN SUMMARY**

Ferguson R-Tank UD

3" Stone Base + UD 3-Stack (40.2" Tall) + 8" Stone Cover = 4.26' Field Height

47.31' Wide x 606.36' Long = 26,020 SF Footprint

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Bottom of Infiltration Basin (Stone Invert)	@ Elev. 306.25
Bottom of R-Tank Chamber	@ Elev. 306.50
Top of R-Tank Chamber	@ Elev. 309.85

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Total Dead Storage Provided 32,563 CF (@ Elev. 307.65)

**\*See Page 348 of Proposed HydroCAD Outputs\***

Total Design Storage Provided 89,320 CF\*

**\*Does not include stone cover storage\***

**OUTLET CONTROL STRUCTURE**

6" Diameter Orifice	@ Elev. 307.65
4' L Rectangular Weir	@ Elev. 308.75
24" HDPE Outlet Pipe	@ Elev. 306.50

**STAGE STORAGE TABLE:**

ELEVATION (FEET)	STORAGE VOLUME (CF)
306.25	0
306.50	2,869
307.00	15,779
308.00	41,601
309.00	67,423
309.85	89,320

**\*Seasonal High-Water Table was observed at elevation 302.00\***

**INFILTRATION SYSTEM WATER SURFACE PEAK ELEVATION**

<b>STORM EVENT</b>	<b>ELEVATION (FEET)</b>	<b>STORAGE VOLUME (CF)</b>
WQv	306.47	2,531
1-YEAR (CPv)	306.87	12,320
10-YEAR (Qp)	307.71	34,030
100-YEAR (Qf)	309.28	74,335

Water Quality Volume must be fully dewatered in 48 hours

Infiltration Basin Floor = 26,020 SF

WQv Provided = 32,563 CF

Utilize infiltration rate of **9.75 inches per hour\***

WQv below the first orifice will be fully infiltrated in **1.54 hours**

**\*Field infiltration rates up to 18 in/hr were observed and a conservative rate of 9.75 in/hr was utilized\***

**ABOVE-GROUND INFILTRATION BASIN G DESIGN SUMMARY**

**FOREBAY DESIGN SUMMARY**

Bottom of Forebay @ Elev. 309.50

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Total Dead Storage Provided 1,675 CF (@ Elev. 311.15)

**\*See Page 405 of Proposed HydroCAD Outputs\***

Total Storage Provided 2,956 CF

**CHECKWALL STRUCTURE**

37.00' L Check Wall @ Elev. 311.15

**STAGE STORAGE TABLE**

<b>ELEVATION (FEET)</b>	<b>SURFACE AREA (SF)</b>	<b>STORAGE VOLUME (CF)</b>
309.50	676	0
310.00	890	392
311.00	1,284	1,479
312.00	1,671	2,956

**\*Seasonal High-Water Table was observed at elevation 305.50\***

**INFILTRATION BASIN DESIGN SUMMARY**

Bottom of Infiltration Basin @ Elev. 309.50

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Total Dead Storage Provided 2,514 CF (@ Elev. 309.90)

**\*See Page 354 of Proposed HydroCAD Outputs\***

Total Storage Provided 18,445 CF

**OUTLET CONTROL STRUCTURE**

6" Diameter Orifice @ Elev. 309.90

4' x 4' Top Grate @ Elev. 311.00

18" HDPE Outlet Pipe @ Elev. 308.50

**STAGE STORAGE TABLE:**

ELEVATION (FEET)	SURFACE AREA (SF)	STORAGE VOLUME (CF)
309.50	6,110	0
310.00	6,548	3,165
311.00	7,475	10,176
312.00	8,326	18,077

**\*Seasonal High-Water Table was observed at elevation 305.50\***

**INFILTRATION SYSTEM WATER SURFACE PEAK ELEVATION**

STORM EVENT	ELEVATION (FEET)	STORAGE VOLUME (CF)
WQv	309.50	0
1-YEAR (CPv)	309.50	8
10-YEAR (Qp)	309.60	628
100-YEAR (Qf)	310.17	4,309

Water Quality Volume must be fully dewatered in 48 hours

Infiltration Basin Floor = 6,110 SF

WQv Provided = 2,514 CF

Utilize infiltration rate of **2.50 inches per hour\***

WQv below the first orifice will be fully infiltrated in **1.97 hours**

**\*Field infiltration rate of 5in/hr was observed and a conservative rate of 2.50 in/hr was utilized\***

**UNDERGROUND INFILTRATION BASIN H DESIGN SUMMARY**

**INFILTRATION BASIN DESIGN SUMMARY**

Ferguson R-Tank UD

3" Stone Base + UD 4-Stack (53.1" Tall) + 8" Stone Cover = 5.35' Field Height

Irregular Polygon Footprint = 3,772 SF Footprint

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Bottom of Infiltration Basin (Stone Invert) @ Elev. 307.30

Bottom of R-Tank Chamber @ Elev. 307.55

Top of R-Tank Chamber @ Elev. 311.98

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Total Dead Storage Provided 7,048 CF (@ Elev. 309.60)

**\*See Page 361 of Proposed HydroCAD Outputs\***

Total Design Storage Provided 14,796 CF\*

**\*Does not include stone cover storage\***

**OUTLET CONTROL STRUCTURE**

8" Diameter Orifice @ Elev. 309.60

4' L Rectangular Weir @ Elev. 310.85

18" HDPE Outlet Pipe @ Elev. 307.55

**STAGE STORAGE TABLE:**

ELEVATION (FEET)	STORAGE VOLUME (CF)
307.30	0
307.55	373
308.00	1,838
309.00	5,094
310.00	8,350
311.00	11,606
311.98	14,796

**\*Seasonal High-Water Table was observed at elevation 303.30\***

**INFILTRATION SYSTEM WATER SURFACE PEAK ELEVATION**

STORM EVENT	ELEVATION (FEET)	STORAGE VOLUME (CF)
WQv	307.92	1,575
1-YEAR (CPv)	308.60	3,795
10-YEAR (Qp)	309.90	8,035
100-YEAR (Qf)	311.13	12,014

Water Quality Volume must be fully dewatered in 48 hours

Infiltration Basin Floor = 3,772 SF

WQv Provided = 7,048 CF

Utilize infiltration rate of **4.0 inches per hour\***

WQv below the first orifice will be fully infiltrated in **5.61 hours**

**\*Field infiltration rate of 4 in/hr was observed\***

**ABOVE-GROUND INFILTRATION TRENCH I DESIGN SUMMARY**

**INFILTRATION TRENCH DESIGN SUMMARY**

Bottom of Infiltration Trench @ Elev. 312.50

Total Dead Storage Provided 5,111 CF (@ Elev. 313.45)

**\*See Page 381 of Proposed HydroCAD Outputs\***

Total Storage Provided 8,339 CF

**OUTLET CONTROL STRUCTURE**

3' L Rectangular Weir @ Elev. 313.45

(2) 4' x 4' Top Grates @ Elev. 313.90

18" HDPE Outlet Pipe @ Elev. 309.00

**STAGE STORAGE TABLE:**

ELEVATION (FEET)	SURFACE AREA (SF)	STORAGE VOLUME (CF)
312.50	13,450	0
313.00	13,450	2,690
314.00	13,450	8,070
314.05	13,450	8,339

**\*Seasonal High-Water Table was observed at elevation 308.50\***

**INFILTRATION SYSTEM WATER SURFACE PEAK ELEVATION**

STORM EVENT	ELEVATION (FEET)	STORAGE VOLUME (CF)
WQv	312.50	7
1-YEAR (CPv)	312.51	76
10-YEAR (Qp)	312.81	1,647
100-YEAR (Qf)	313.71	6,485

Water Quality Volume must be fully dewatered in 48 hours

Infiltration Basin Floor = 13,450 SF

WQv Provided = 5,111 CF

Utilize infiltration rate of **6.80 inches per hour\***

WQv below the first orifice will be fully infiltrated in **0.67 hours**

**\*Field infiltration rates up to 24 in/hr were observed and a conservative rate of 6.80 in/hr was utilized\***

**UNDERGROUND INFILTRATION BASIN K DESIGN SUMMARY**

**INFILTRATION BASIN DESIGN SUMMARY**

Ferguson R-Tank UD

3" Stone Base + UD 4-Stack (53.1" Tall) + 8" Stone Cover = 5.35' Field Height

88.65' Wide x 120.14' Long = 10,648 SF Footprint

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Bottom of Infiltration Basin (Stone Invert) @ Elev. 307.70

Bottom of R-Tank Chamber @ Elev. 307.95

Top of R-Tank Chamber @ Elev. 312.38

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Total Dead Storage Provided 19,432 CF (@ Elev. 309.85)

**\*See Page 368 of Proposed HydroCAD Outputs\***

Total Design Storage Provided 43,885 CF\*

**\*Does not include stone cover storage\***

**OUTLET CONTROL STRUCTURE**

6" Diameter Orifice @ Elev. 309.85

3.5' L Rectangular Weir @ Elev. 311.00

18" HDPE Outlet Pipe @ Elev. 307.95

**STAGE STORAGE TABLE:**

ELEVATION (FEET)	STORAGE VOLUME (CF)
307.70	0
307.95	1,065
308.00	1,548
309.00	11,215
310.00	20,882
311.00	30,549
312.00	40,216
312.38	43,885

**\*Seasonal High-Water Table was observed at elevation 303.70\***

**INFILTRATION SYSTEM WATER SURFACE PEAK ELEVATION**

STORM EVENT	ELEVATION (FEET)	STORAGE VOLUME (CF)
WQv	308.20	3,444
1-YEAR (CPv)	308.75	8,767
10-YEAR (Qp)	309.85	19,431
100-YEAR (Qf)	311.41	34,482

Water Quality Volume must be fully dewatered in 48 hours

Infiltration Basin Floor = 10,648 SF

WQv Provided = 19,432 CF

Utilize infiltration rate of **5.50 inches per hour\***

WQv below the first orifice will be fully infiltrated in **3.98 hours**

**\*Field infiltration rate of 5.50 was observed\***

**UNDERGROUND INFILTRATION BASIN M DESIGN SUMMARY**

**INFILTRATION BASIN DESIGN SUMMARY**

Ferguson R-Tank HD

3" Stone Base + HD 4-Stack (50.4" Tall) + 12" Stone Cover = 5.45' Field Height

63.06' Wide x 381.67' Long = 24,037 SF Footprint

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Bottom of Infiltration Basin (Stone Invert)	@ Elev. 303.75
Bottom of R-Tank Chamber	@ Elev. 304.00
Top of R-Tank Chamber	@ Elev. 308.15

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Total Dead Storage Provided 40,720 CF (@ Elev. 305.75)

**\*See Page 375 of Proposed HydroCAD Outputs\***

Total Design Storage Provided 94,353 CF\*

**\*Does not include stone cover storage\***

**OUTLET CONTROL STRUCTURE**

18" W x 12" H Rectangular Orifice	@ Elev. 305.75
4' L Rectangular Weir	@ Elev. 307.75
18" HDPE Outlet Pipe	@ Elev. 304.00

**STAGE STORAGE TABLE:**

ELEVATION (FEET)	STORAGE VOLUME (CF)
303.75	0
304.00	2,407
305.00	24,300
306.00	46,194
307.00	68,087
308.00	89,981
308.15	93,265

**\*Seasonal High-Water Table was Not Encountered\***

**INFILTRATION SYSTEM WATER SURFACE PEAK ELEVATION**

<b>STORM EVENT</b>	<b>ELEVATION (FEET)</b>	<b>STORAGE VOLUME (CF)</b>
WQv	304.34	9,790
1-YEAR (CPv)	305.03	24,946
10-YEAR (Qp)	306.28	52,220
100-YEAR (Qf)	308.00	90,020

Water Quality Volume must be fully dewatered in 48 hours

Infiltration Basin Floor = 24,037 SF

WQv Provided = 40,720 CF

Utilize infiltration rate of **2.00 inches per hour**

WQv below the first orifice will be fully infiltrated in **10.16 hours**

**\*Field infiltration rate of 2.0 in/hr was observed\***

**WATER QUALITY VOLUME (WQv)**

Post-construction stormwater quality was evaluated in accordance with the New York State Stormwater Management Design Manual (NYSDEC SWDM). The stormwater practices for the calculated Water Quality Volume (WQv) are intended to treat overland runoff generated of the water quality storm, which are the storms considered to contain higher pollutant levels. The Water Quality Volumes were determined and confirmed through the calculations below:

**AG Infiltration Basin A:**

The required **WQv** for the contributing drainage area is **16,425 CF (0.38 Ac-ft)** calculated as followed:

Existing Impervious Area = 60,948 SF (1.40 Ac)

25% of Existing Impervious Area = 15,237 SF (0.35 Ac)

Proposed Impervious Area = 179,032 SF (4.11 Ac)

Total Contributing Area = 228,690 SF (5.25 Ac)

Compute Weighted Impervious Cover (I)

New Imp. Area = Proposed Imp. Area – Existing Imp. Area = 118,048 SF (2.71 Ac)

25% Existing Imp. Area + 100% New Imp. Area = 133,294 SF (3.06 Ac)

$I = (133,294) / (228,690) = 0.5829 * 100\% = 58.29\%$

Compute Runoff Coefficient (Rv)

$Rv = 0.05 + (I) (0.009) = 0.05 + (58.29) (0.009) = 0.57$

Compute Water Quality Volume (WQv)

From Figure 4.1 of the NYS SWDM, 90% Rainfall (P) = 1.5"

**WQv = [(P)(Rv)(A)] / 12 = [(1.5") (0.57) (228,690 SF)] / 12 = 16,425 CF (0.38 Ac-ft)**

Based on the design requirement set by the WQv calculation, the lowest set orifice/weir in HydroCAD is at elevation **311.10** which provides **16,568 CF of water quality storage**.

**\*See Page 314 of Proposed HydroCAD Outputs\***

**AG Infiltration Basin B:**

The required **WQv** for the contributing drainage area is **3,157 CF (0.072 Ac-ft)** calculated as followed:

Existing Impervious Area = 27,443 SF (0.63 Ac)  
25% of Existing Impervious Area = 6,861 SF (0.16 Ac)  
Proposed Impervious Area = 44,867 SF (1.03 Ac)  
Total Contributing Area = 67,954 SF (1.56 Ac)

Compute Weighted Impervious Cover (I)

New Imp. Area = Proposed Imp. Area – Existing Imp. Area = 17,424 SF (0.40 Ac)  
25% Existing Imp. Area + 100% New Imp. Area = 24,394 SF (0.56 Ac)  
 $I = (24,394) / (67,954) = 0.3574 * 100\% = 35.74\%$

Compute Runoff Coefficient (Rv)

$Rv = 0.05 + (I) (0.009) = 0.05 + (35.74) (0.009) = 0.45$

Compute Water Quality Volume (WQv)

From Figure 4.1 of the NYS SWDM, 90% Rainfall (P) = 1.5”  
**WQv = [(P)(Rv)(A)] / 12 = [(1.5”) (0.45) (67,954 SF)] / 12 = 3,157 CF (0.072 Ac-ft)**

Based on the design requirement set by the WQv calculation, the lowest set orifice/weir in HydroCAD is at elevation **305.00** which provides **3,350 CF of water quality storage**.

**\*See Page 320 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin C:**

The required **WQv** for the contributing drainage area is **19,771 CF (0.454 Ac-ft)** calculated as followed:

Existing Impervious Area = 237,838 SF (5.46 Ac)  
25% of Existing Impervious Area = 59,677 SF (1.37 Ac)  
Proposed Impervious Area = 334,541 SF (7.68 Ac)  
Total Contributing Area = 352,400 SF (8.09 Ac)

Compute Weighted Impervious Cover (I)

New Imp. Area = Proposed Imp. Area – Existing Imp. Area = 96,703 SF (2.22 Ac)  
25% Existing Imp. Area + 100% New Imp. Area = 156,380 SF (3.59 Ac)  
 $I = (156,380) / (352,400) = 0.4431 * 100\% = 44.31\%$

Compute Runoff Coefficient (Rv)

$Rv = 0.05 + (I) (0.009) = 0.05 + (44.31) (0.009) = 0.45$

Compute Water Quality Volume (WQv)

From Figure 4.1 of the NYS SWDM, 90% Rainfall (P) = 1.5”  
**WQv = [(P)(Rv)(A)] / 12 = [(1.5”) (0.45) (352,400 SF)] / 12 = 19,771 CF (0.454 Ac-ft)**

Based on the design requirement set by the WQv calculation, the lowest set orifice/weir in HydroCAD is at elevation **304.50** which provides **21,001 CF of water quality storage**.

**\*See Page 327 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin D:**

The required **WQv** for the contributing drainage area is **17,361 CF (0.399 Ac-ft)** calculated as followed:

Existing Impervious Area = 277,913 SF (6.38 Ac)  
25% of Existing Impervious Area = 69,696 SF (1.60 Ac)  
Proposed Impervious Area = 342,817 SF (7.87 Ac)  
Total Contributing Area = 358,934 SF (8.24 Ac)

**Compute Weighted Impervious Cover (I)**

New Imp. Area = Proposed Imp. Area – Existing Imp. Area = 64,904 SF (1.49 Ac)  
25% Existing Imp. Area + 100% New Imp. Area = 134,600 SF (3.09 Ac)  
 $I = (134,600) / (358,934) = 0.3744 * 100\% = 37.44\%$

**Compute Runoff Coefficient (Rv)**

$Rv = 0.05 + (I) (0.009) = 0.05 + (37.44) (0.009) = 0.39$

**Compute Water Quality Volume (WQv)**

From Figure 4.1 of the NYS SWDM, 90% Rainfall (P) = 1.5”  
 $WQv = [(P)(Rv)(A)] / 12 = [(1.5”) (0.39) (358,934 SF)] / 12 = 17,361 CF (0.399 Ac-ft)$

Based on the design requirement set by the WQv calculation, the lowest set orifice/weir in HydroCAD is at elevation **305.75** which provides **17,965 CF of water quality storage**.

**\*See Page 334 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin E:**

The required **WQv** for the contributing drainage area is **37,472 CF (0.860 Ac-ft)** calculated as followed:

Existing Impervious Area = 36,590 SF (0.84 Ac)  
25% of Existing Impervious Area = 9,148 SF (0.21 Ac)  
Proposed Impervious Area = 340,639 SF (7.82 Ac)  
Total Contributing Area = 358,063 SF (8.22 Ac)

**Compute Weighted Impervious Cover (I)**

New Imp. Area = Proposed Imp. Area – Existing Imp. Area = 304,049 SF (6.98 Ac)  
25% Existing Imp. Area + 100% New Imp. Area = 313,196 SF (7.19 Ac)  
 $I = (313,196) / (358,063) = 0.8747 * 100\% = 87.47\%$

**Compute Runoff Coefficient (Rv)**

$Rv = 0.05 + (I) (0.009) = 0.05 + (87.47) (0.009) = 0.84$

**Compute Water Quality Volume (WQv)**

From Figure 4.1 of the NYS SWDM, 90% Rainfall (P) = 1.5”  
 $WQv = [(P)(Rv)(A)] / 12 = [(1.5”) (0.84) (358,063 SF)] / 12 = 37,472 CF (0.860 Ac-ft)$

Based on the design requirement set by the WQv calculation, the lowest set orifice/weir in HydroCAD is at elevation **306.90** which provides **37,992 CF of water quality storage**.

**\*See Page 341 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin F:**

The required **WQv** for the contributing drainage area is **30,526 CF (0.701 Ac-ft)** calculated as followed:

Existing Impervious Area = 195,584 SF (4.49 Ac)  
25% of Existing Impervious Area = 48,787 SF (1.12 Ac)  
Proposed Impervious Area = 394,654 SF (9.06 Ac)  
Total Contributing Area = 420,790 SF (9.66 Ac)

Compute Weighted Impervious Cover (I)

New Imp. Area = Proposed Imp. Area – Existing Imp. Area = 199,069 SF (4.57 Ac)  
25% Existing Imp. Area + 100% New Imp. Area = 247,856 SF (5.69 Ac)  
 $I = (247,856) / (420,790) = 0.5893 * 100\% = 58.93 \%$

Compute Runoff Coefficient (Rv)

$Rv = 0.05 + (I) (0.009) = 0.05 + (58.93) (0.009) = 0.58$

Compute Water Quality Volume (WQv)

From Figure 4.1 of the NYS SWDM, 90% Rainfall (P) = 1.5”  
 $WQv = [(P)(Rv)(A)] / 12 = [(1.5”) (0.58) (420,790 SF)] / 12 = 30,526 CF (0.701 Ac-ft)$

Based on the design requirement set by the WQv calculation, the lowest set orifice/weir in HydroCAD is at elevation **307.65** which provides **32,457 CF of water quality storage**.

**\*See Page 348 of Proposed HydroCAD Outputs\***

**AG Infiltration Basin G:**

The required **WQv** for the contributing drainage area is **2,249 CF (0.063 Ac-ft)** calculated as followed:

Existing Impervious Area = 0 SF (0.00 Ac)  
25% of Existing Impervious Area = 0 SF (0.00 Ac)  
Proposed Impervious Area = 18,295 SF (0.42 Ac)  
Total Contributing Area = 30,492 SF (0.70 Ac)

Compute Weighted Impervious Cover (I)

New Imp. Area = Proposed Imp. Area – Existing Imp. Area = 18,295 SF (0.42 Ac)  
25% Existing Imp. Area + 100% New Imp. Area = 18,295 SF (0.42 Ac)  
 $I = (247,856) / (420,790) = 0.60 * 100\% = 60.00 \%$

Compute Runoff Coefficient (Rv)

$Rv = 0.05 + (I) (0.009) = 0.05 + (60.00) (0.009) = 0.59$

Compute Water Quality Volume (WQv)

From Figure 4.1 of the NYS SWDM, 90% Rainfall (P) = 1.5”  
 $WQv = [(P)(Rv)(A)] / 12 = [(1.5”) (0.59) (30,492 SF)] / 12 = 2,739 CF (0.063 Ac-ft)$

Based on the design requirement set by the WQv calculation, the lowest set orifice/weir in HydroCAD is at elevation **309.95** which provides **2,817 CF of water quality storage**.

**\*See Page 354 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin H:**

The required **WQv** for the contributing drainage area is **6,931 CF (0.159 Ac-ft)** calculated as followed:

Existing Impervious Area = 4,356 SF (0.10 Ac)  
25% of Existing Impervious Area = 1,089 SF (0.03 Ac)  
Proposed Impervious Area = 61,420 SF (1.41 Ac)  
Total Contributing Area = 62,291 SF (1.43 Ac)

Compute Weighted Impervious Cover (I)

New Imp. Area = Proposed Imp. Area – Existing Imp. Area = 57,064 SF (1.31 Ac)  
25% Existing Imp. Area + 100% New Imp. Area = 58,370 SF (1.34 Ac)  
 $I = (58,370) / (62,291) = 0.9336 * 100\% = 93.36 \%$

Compute Runoff Coefficient (Rv)

$Rv = 0.05 + (I) (0.009) = 0.05 + (93.36) (0.009) = 0.89$

Compute Water Quality Volume (WQv)

From Figure 4.1 of the NYS SWDM, 90% Rainfall (P) = 1.5”  
 $WQv = [(P)(Rv)(A)] / 12 = [(1.5”) (0.89) (62,291 SF)] / 12 = 6,931 CF (0.159 Ac-ft)$

Based on the design requirement set by the WQv calculation, the lowest set orifice/weir in HydroCAD is at elevation **309.60** which provides **7,048 CF of water quality storage**.

**\*See Page 361 of Proposed HydroCAD Outputs\***

**AG Infiltration Trench I:**

The required **WQv** for the contributing drainage area is **4,887 CF (0.112 Ac-ft)** calculated as followed:

Existing Impervious Area = 15,682 SF (0.36 Ac)  
25% of Existing Impervious Area = 3,920 SF (0.09 Ac)  
Proposed Impervious Area = 50,530 SF (1.16 Ac)  
Total Contributing Area = 84,071 SF (1.93 Ac)

Compute Weighted Impervious Cover (I)

New Imp. Area = Proposed Imp. Area – Existing Imp. Area = 34,848 SF (0.80 Ac)  
25% Existing Imp. Area + 100% New Imp. Area = 37,462 SF (0.86 Ac)  
 $I = (37,462) / (84,071) = 0.4457 * 100\% = 44.57\%$

Compute Runoff Coefficient (Rv)

$Rv = 0.05 + (I) (0.009) = 0.05 + (44.57) (0.009) = 0.47$

Compute Water Quality Volume (WQv)

From Figure 4.1 of the NYS SWDM, 90% Rainfall (P) = 1.5”  
 $WQv = [(P)(Rv)(A)] / 12 = [(1.5”) (0.47) (84,071 SF)] / 12 = 4,887 CF (0.112 Ac-ft)$

Based on the design requirement set by the WQv calculation, the lowest set orifice/weir in HydroCAD is at elevation **313.45** which provides **5,111 CF of water quality storage**.

**\*See Page 381 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin K:**

The required **WQv** for the contributing drainage area is **19,180 CF (0.440 Ac-ft)** calculated as followed:

Existing Impervious Area = 8,712 SF (0.20 Ac)  
25% of Existing Impervious Area = 2,178 SF (0.05 Ac)  
Proposed Impervious Area = 167,706 SF (3.85 Ac)  
Total Contributing Area = 167,706 SF (3.85 Ac)

Compute Weighted Impervious Cover (I)

New Imp. Area = Proposed Imp. Area – Existing Imp. Area = 158,994 SF (3.65 Ac)  
25% Existing Imp. Area + 100% New Imp. Area = 161,172 SF (3.70 Ac)  
 $I = (161,172) / (167,706) = 0.9610 * 100\% = 96.10\%$

Compute Runoff Coefficient (Rv)

$Rv = 0.05 + (I) (0.009) = 0.05 + (96.10) (0.009) = 0.91$

Compute Water Quality Volume (WQv)

From Figure 4.1 of the NYS SWDM, 90% Rainfall (P) = 1.5”  
**WQv = [(P)(Rv)(A)] / 12 = [(1.5”) (0.91) (167,706 SF)] / 12 = 19,180 CF (0.440 Ac-ft)**

Based on the design requirement set by the WQv calculation, the lowest set orifice/weir in HydroCAD is at elevation **309.85** which provides **21,106 CF of water quality storage**.

**\*See Page 368 of Proposed HydroCAD Outputs\***

**UG Infiltration Basin M:**

The required **WQv** for the contributing drainage area is **38,493 CF (0.884 Ac-ft)** calculated as followed:

Existing Impervious Area = 0.00 SF (0.00 Ac)  
25% of Existing Impervious Area = 0.00 SF (0.00 Ac)  
Proposed Impervious Area = 323,215 SF (7.42 Ac)  
Total Contributing Area = 341,075 SF (7.83 Ac)

Compute Weighted Impervious Cover (I)

New Imp. Area = Proposed Imp. Area – Existing Imp. Area = 323,215 SF (7.42 Ac)  
25% Existing Imp. Area + 100% New Imp. Area = 323,215 SF (7.42 Ac)  
 $I = (323,215) / (341,075) = 0.9476 * 100\% = 94.76\%$

Compute Runoff Coefficient (Rv)

$Rv = 0.05 + (I) (0.009) = 0.05 + (94.76) (0.009) = 0.90$

Compute Water Quality Volume (WQv)

From Figure 4.1 of the NYS SWDM, 90% Rainfall (P) = 1.5”  
**WQv = [(P)(Rv)(A)] / 12 = [(1.5”) (0.90) (341,075 SF)] / 12 = 38,493 CF (0.884 Ac-ft)**

Based on the design requirement set by the WQv calculation, the lowest set orifice/weir in HydroCAD is at elevation **306.30** which provides **39,259 CF of water quality storage**.

**\*See Page 375 of Proposed HydroCAD Outputs\***

Summarized below, the table shows that the total on-site Water Quality Volume requirement per the summation of the above calculations for the individual basins are met.

**Water Quality Volume (WQv) Summary**

Required Water Quality Volume (WQv)	196,453 CF
Provided Water Quality Volume (WQv)	204,466 CF

**PRE-TREATMENT**

Pre-treatment is required for newly created impervious surfaces (with the exception of roof runoff) prior to entry into any infiltration facility. The required treatment volume is determined based on the underlying soil characteristics in the area of the proposed practice. Infiltration rates less than 10 inches per hour are required to pre-treat a minimum of 25% WQv, whereas infiltration rates that exceed 10 inches per hour require pre-treatment of at least 50% WQv. Runoff from the contributing drainage areas is collected and routed through the selected pre-treatment practice prior to entry into the infiltration facility. Above-ground infiltration basins utilize forebays, infiltration trenches utilize grass filter strips and underground facilities utilize hydrodynamic separators or sump vaults to satisfy the pre-treatment requirement.

The project has implemented twenty-six (26) Hydro International - First Defense Optimum (FDOs) hydrodynamic separators which have been designed to treat the discharge of the Water Quality Storm (1.5” from Figure 4.1 of the NYS SWDM, 90% Rainfall). The practice is being implemented as 100% treatment for the Water Quality Storm while bypassing higher design storms, including the 100-year storm event. The hydrodynamic separators are types of Manufactured Treatment Devices (MTD) that are considered flow-through. They are sized based on the flow rate from the contributing area of new impervious surfaces to properly remove targeted pollutants, such as coarse and fine particles, trash, floatables, upstream before entering the underground infiltration basin on site. We are using multiple MTD sizes to facilitate proper pre-treatment for the flow rates calculated from the Water Quality Storm from HydroCAD.

Pre-treatment sizing calculations can be found below:

**AG Forebay A1:**

WQv Required: 8,361 CF  
 Infiltration Rate Tested: 12 in/hr\*

**50% WQv Reduction Required**

**\*Note: Although conservative infiltration rates may have been used for design purposes, field tested rates were utilized for determining pre-treatment requirements\***

Pre-Treatment Volume Required: 4,180 CF  
 Pre-Treatment Volume Provided: 4,596 CF @ Elev. 311.00

**AG Forebay A2:**

WQv Required: 8,064 CF  
 Infiltration Rate Tested: 24 in/hr\*

**50% WQv Reduction Required**

**\*Note: Although conservative infiltration rates may have been used for design purposes, field tested rates were utilized for determining pre-treatment requirements\***

Pre-Treatment Volume Required: 4,032 CF  
 Pre-Treatment Volume Provided: 5,440 CF @ Elev. 310.40

**AG Infiltration Basin B:**

**Forebay B**

WQv Required: 3,157 CF  
Infiltration Rate Tested: 7 in/hr\*

**25% WQv Reduction Required**

**\*Note: Although conservative infiltration rates may have been used for design purposes, field tested rates were utilized for determining pre-treatment requirements\***

Pre-Treatment Volume Required: 789 CF  
Pre-Treatment Volume Provided: 800 CF @ Elev. 306.70

**UG Infiltration Basin C:**

**MTD #C-1 - (3' Ø structure)**

Contributing inflow area: 34,952 SF (0.80 Ac.)  
WQv inflow rate: **0.36 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity: **1.02 CFS** (based on manufacturer testing)

**MTD #C-2 - (3' Ø structure)**

Contributing inflow area: 28,177 SF (0.65 Ac.)  
WQv inflow rate: **0.77 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity: **1.02 CFS** (based on manufacturer testing)

**MTD #C-3 - (3' Ø structure)**

Contributing inflow area: 28,556 SF (0.66 Ac.)  
WQv inflow rate: **0.78 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity: **1.02 CFS** (based on manufacturer testing)

**MTD #C-4 - (3' Ø structure)**

Contributing inflow area: 28,777 SF (0.66 Ac.)  
WQv inflow rate: **0.78 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity: **1.02 CFS** (based on manufacturer testing)

**MTD #C-5 - (4' Ø structure)**

Contributing inflow area: 28,945 SF (0.66 Ac.)  
WQv inflow rate: **0.78 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity: **1.02 CFS** (based on manufacturer testing)

**UG Infiltration Basin D:**

**MTD #D-1 - (3' Ø structure)**

Contributing inflow area: 36,492 SF (0.84 Ac.)  
WQv inflow rate **0.92 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #D-2 - (3' Ø structure)**

Contributing inflow area: 29,028 SF (0.67 Ac.)  
WQv inflow rate **0.90 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #D-3 - (3' Ø structure)**

Contributing inflow area: 29,028 SF (0.67 Ac.)  
WQv inflow rate **0.90 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #D-4 - (3' Ø structure)**

Contributing inflow area: 27,872 SF (0.64 Ac.)  
WQv inflow rate **0.86 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #D-5 - (3' Ø structure)**

Contributing inflow area: 30,020 SF (0.69 Ac.)  
WQv inflow rate **0.92 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**UG Infiltration Basin E:**

**MTD #E-1 - (3' Ø structure)**

Contributing inflow area: 28,930 SF (0.66 Ac.)  
WQv inflow rate **0.78 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #E-2 - (3' Ø structure)**

Contributing inflow area: 27,915 SF (0.64 Ac.)  
WQv inflow rate **0.76 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #E-3 - (3' Ø structure)**

Contributing inflow area: 29,542 SF (0.68 Ac.)  
WQv inflow rate **0.80 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #E-4 - (3' Ø structure)**

Contributing inflow area: 28,780 SF (0.66 Ac.)  
WQv inflow rate **0.73 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #E-5 - (3' Ø structure)**

Contributing inflow area: 37,456 SF (0.86 Ac.)  
WQv inflow rate **0.20 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**UG Infiltration Basin F:**

**MTD #F-1 - (3' Ø structure)**

Contributing inflow area: 29,588 SF (0.68 Ac.)  
WQv inflow rate **0.85 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #F-2 - (3' Ø structure)**

Contributing inflow area: 26,776 SF (0.61 Ac.)  
WQv inflow rate **0.76 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #F-3 - (3' Ø structure)**

Contributing inflow area: 31,075 SF (0.71 Ac.)  
WQv inflow rate **0.90 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #F-4 - (3' Ø structure)**

Contributing inflow area: 28,770 SF (0.66 Ac.)  
WQv inflow rate **0.78 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #F-5 - (5' Ø structure)**

Contributing inflow area: 116,970 SF (2.69 Ac.)  
WQv inflow rate **2.27 CFS**  
**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***  
Water quality treatment capacity **2.83 CFS** (based on manufacturer testing)

**AG Infiltration Basin G:**

**Forebay G**

WQv Required: 2,249 CF  
Infiltration Rate Tested: 5 in/hr\*

**25% WQv Reduction Required**

**\* Note: Although conservative infiltration rates may have been used for design purposes, field tested rates were utilized for determining pre-treatment requirements\***

Pre-Treatment Volume Required: 562 CF  
Pre-Treatment Volume Provided: 1407 CF @ Elev. 311.15

**UG Infiltration Basin H:**

**MTD #H-1 - (3' Ø structure)**

Contributing inflow area: 18,144 SF (0.42 Ac.)  
WQv inflow rate **0.54 CFS**

**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***

Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**AG Infiltration Trench I:**

Grass Filter Strip Sizing per Table 6.13 in NYSDEC SWDM

<b>Impervious Parking Lots &amp; Roads</b>	<b>Table 6.13 Requirements</b>	<b>Proposed Grass Strip (Infiltration Trench I)</b>
Max. Inflow Approach Length (ft)	75	60
Grass Filter Strip Slope	≤ 2%	1%
Min. Grass Filter Strip Length (ft)	20	20

**UG Infiltration Basin K:**

**MTD #K-1 - (4' Ø structure)**

Contributing inflow area: 32,601 SF (0.75 Ac.)  
WQv inflow rate **1.14 CFS**

**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***

Water quality treatment capacity **1.83 CFS** (based on manufacturer testing)

**MTD #K-2 - (3' Ø structure)**

Contributing inflow area: 27,655 SF (0.63 Ac.)  
WQv inflow rate **0.88 CFS**

**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***

Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**MTD #K-3 - (3' Ø structure)**

Contributing inflow area: 17,860 SF (0.41 Ac.)  
WQv inflow rate **0.62 CFS**

**\*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'\***

Water quality treatment capacity **1.02 CFS** (based on manufacturer testing)

**UG Infiltration Basin M:**

**MTD #M-1 - (4' Ø structure)**

Contributing inflow area:	72,445 SF (1.66 Ac.)
WQv inflow rate	<b>1.43 CFS</b>
<b>*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'*</b>	
Water quality treatment capacity	<b>1.81 CFS</b> (based on manufacturer testing)

**MTD #M-2 - (5' Ø structure)**

Contributing inflow area:	90,995 SF (2.09 Ac.)
WQv inflow rate	<b>2.44 CFS</b>
<b>*See Appendix 'Proposed MTD Pre-Treatment Hydrographs'*</b>	
Water quality treatment capacity	<b>2.83 CFS</b> (based on manufacturer testing)

**RUNOFF REDUCTION VOLUME (RRv)**

The Runoff Reduction Volume (RRv) is the reduction of the total Water Quality Volume (WQv) and the application of runoff reduction techniques, green infrastructure and Standard Stormwater Management Practices (SMPs), to replicate the pre-development hydrology. It is intended to incorporate runoff reduction techniques to mitigate the potential post-development negative impacts within the site planning process.

The RRv requirement can be achieved by the application of on-site green infrastructure techniques, standard stormwater management practices (SMPs) with runoff reduction capacity, good operation and maintenance. The process is an iterative five-step approach that combines site planning with the use of green infrastructure techniques until the RRv requirement is met.

The five-step process is as follows:

1. Site planning to preserve natural features and reduce impervious cover;
2. Calculation of the Water Quality Volume (WQv) for the site;
3. Incorporation of green infrastructure techniques and standard SMPs with RRv capacity;
4. Use of standard SMPs, where applicable; and
5. Design of volume and peak rate control practices where required.

If by using these techniques the provided RRv treatment volume is greater than the calculated/ required RRv, then the RRv requirement is satisfied.

All stormwater management facilities are infiltration practices. Infiltration was determined to be suitable for the proposed project after considering many factors, including site topography, slopes, soil properties, project layout and maintenance requirements.

Per Section 4.4 of Chapter 4 of the NYSDEC Stormwater Design Manual, the volumetric runoff coefficient, variable Rv, equation is below:

$$R_v = 0.05 + 0.009 (I)$$

Where "I" is 100% impervious (See Section 4.4 of Chapter 4 of NYSDEC SWDM)

Therefore:

$$Rv = 0.05 + 0.009 (100) = 0.95 \text{ in all } RRv \text{ equations below}$$

As per Chapter 9 of the NYSDEC Stormwater Design Manual, RRv is not required for re-development portions of the site.

### **AG Infiltration Basin A**

The required **RRv** for this basin is **0 CF**:

This above-ground infiltration basin is located within a re-development area.

**RRv Provided = 16,569 CF**

**\*See Page 314 of Existing and Proposed HydroCAD Outputs\***

### **AG Infiltration Basin B**

The required **RRv** for this basin is **966 CF**:

$$RRv \text{ min} = [(P) (Aic) (Rv) (S)] / 12$$

$$P = 1.5''$$

$$A = 17,242 \text{ SF (0.40 Ac)}$$

$$Rv = 0.95 \text{ (see calculation on Page 59)}$$

$$S = 0.47 \text{ (see weighted soil data below)}$$

**Soil Data**

<b>Soil Group</b>	<b>Area (SF)</b>	<b>HSG Specific Reduction Factor (S)</b>
A	51,836	55%
B	0	40%
C	0	30%
D	16,117	20%
<b>TOTAL</b>	<b>67,953</b>	<b>47%</b>

$$RRv \text{ min} = [(1.5'') (0.40) (0.95) (0.47)] / 12 = 0.022 \text{ acre-ft} = \mathbf{966 \text{ CF}}$$

**RRv Provided = 3,350 CF**

**\*See Page 320 of Existing and Proposed HydroCAD Outputs\***

### **UG Infiltration Basin C**

The required **RRv** for this basin is **0 CF**:

This above-ground infiltration basin is located within a re-development area.

**RRv Provided = 21,001 CF**

**\*See Page 327 of Existing and Proposed HydroCAD Outputs\***

### **UG Infiltration Basin D**

The required **RRv** for this basin is **0 CF**:

This above-ground infiltration basin is located within a re-development area.

**RRv Provided = 17,965 CF**

**\*See Page 334 of Existing and Proposed HydroCAD Outputs\***

**UG Infiltration Basin E**

The required **RRv** for this basin is **14,216 CF**:

$$RRv \text{ min} = [(P) (Aic) (Rv) (S)] / 12$$

$$P = 1.5''$$

$$Aic = 304,049 \text{ SF (6.98 Ac)}$$

$$Rv = 0.95 \text{ (see calculation on Page 59)}$$

$$S = 0.39 \text{ (see weighted soil data below)}$$

**Soil Data**

Soil Group	Area (SF)	HSG Specific Reduction Factor (S)
A	198,198	55%
B	0	40%
C	0	30%
D	159,865	20%
<b>TOTAL</b>	<b>358,063</b>	<b>39%</b>

$$RRv \text{ min} = [(1.5'') (6.98) (0.95) (0.39)] / 12 = 0.33 \text{ acre-ft} = \mathbf{14,216 \text{ CF}}$$

$$RRv \text{ Provided} = \mathbf{37,992 \text{ CF}}$$

**\*See Page 341 of Existing and Proposed HydroCAD Outputs\***

**UG Infiltration Basin F**

The required **RRv** for this basin is **0 CF**:

This above-ground infiltration basin is located within a re-development area.

$$RRv \text{ Provided} = \mathbf{32,457 \text{ CF}}$$

**\*See Page 348 of Existing and Proposed HydroCAD Outputs\***

**AG Infiltration Basin G**

The required **RRv** for this basin is **1,479 CF**:

$$RRv \text{ min} = [(P) (Aic) (Rv) (S)] / 12$$

$$P = 1.5''$$

$$Aic = 22,651 \text{ SF (0.52 Ac)}$$

$$Rv = 0.95 \text{ (see calculation on Page 59)}$$

$$S = 0.55 \text{ (see weighted soil data below)}$$

**Soil Data**

Soil Group	Area (SF)	HSG Specific Reduction Factor (S)
A	30,492	55%
B	0	40%
C	0	30%
D	0	20%
<b>TOTAL</b>	<b>30,492</b>	<b>55%</b>

$$RRv \text{ min} = [(1.5'') (0.52) (0.95) (0.55)] / 12 = 0.034 \text{ acre-ft} = \mathbf{1,479 \text{ CF}}$$

$$RRv \text{ Provided} = \mathbf{2,817 \text{ CF}}$$

**\*See Page 354 of Existing and Proposed HydroCAD Outputs\***

**UG Infiltration Basin H**

The required **RRv** for this basin is **0 CF**:

This above-ground infiltration basin is located within a re-development area.

**RRv Provided = 7,048 CF**

**\*See Page 361 of Existing and Proposed HydroCAD Outputs\***

**AG Infiltration Basin I**

The required **RRv** for this basin is **2,066 CF**:

$$RRv \text{ min} = [(P) (Aic) (Rv) (S)] / 12$$

$$P = 1.5''$$

$$Aic = 34,848 \text{ SF (0.80 Ac)}$$

$$Rv = 0.95 \text{ (see calculation on Page 59)}$$

$$S = 0.50 \text{ (see weighted soil data below)}$$

**Soil Data**

Soil Group	Area (SF)	HSG Specific Reduction Factor (S)
A	71,874	55%
B	0	40%
C	0	30%
D	12,197	20%
<b>TOTAL</b>	<b>84,071</b>	<b>50%</b>

$$RRv \text{ min} = [(1.5'') (0.80) (0.95) (0.50)] / 12 = 0.047 \text{ acre-ft} = \mathbf{2,066 \text{ CF}}$$

$$RRv \text{ Provided} = \mathbf{5,111 \text{ CF}}$$

**\*See Page 381 of Existing and Proposed HydroCAD Outputs\***

**UG Infiltration Basin K**

The required **RRv** for this basin is **10,176 CF**:

$$RRv \text{ min} = [(P) (Aic) (Rv) (S)] / 12$$

$$P = 1.5''$$

$$Aic = 158,994 \text{ SF (3.65 Ac)}$$

$$Rv = 0.95 \text{ (see calculation on Page 59)}$$

$$S = 0.54 \text{ (see weighted soil data below)}$$

**Soil Data**

Soil Group	Area (SF)	HSG Specific Reduction Factor (S)
A	160,300	55%
B	0	40%
C	7,405	30%
D	0	20%
<b>TOTAL</b>	<b>167,705</b>	<b>54%</b>

$$RRv \text{ min} = [(1.5'') (3.65) (0.95) (0.54)] / 12 = 0.23 \text{ acre-ft} = \mathbf{10,176 \text{ CF}}$$

$$RRv \text{ Provided} = \mathbf{21,106 \text{ CF}}$$

**\*See Page 368 of Existing and Proposed HydroCAD Outputs\***

**AG Infiltration Basin M**

The required **RRv** for this basin is **7,755 CF**:

$$RRv \text{ min} = [(P) (Aic) (Rv) (S)] / 12$$

$$P = 1.5''$$

$$Aic = 323,215 \text{ SF (7.42 Ac)}$$

$$Rv = 0.95 \text{ (see calculation on Page 59)}$$

$$S = 0.20 \text{ (see weighted soil data below)}$$

**Soil Data**

Soil Group	Area (SF)	HSG Specific Reduction Factor (S)
A	0	55%
B	0	40%
C	6,970	30%
D	334,105	20%
<b>TOTAL</b>	<b>341,075</b>	<b>20%</b>

$$RRv \text{ min} = [(1.5'') (7.42) (0.95) (0.20)] / 12 = 0.18 \text{ acre-ft} = \mathbf{7,755 \text{ CF}}$$

$$RRv \text{ Provided} = \mathbf{39,259 \text{ CF}}$$

**\*See Page 375 of Existing and Proposed HydroCAD Outputs\***

**Runoff Reduction Volume (RRv) Summary**

Required Runoff Reduction Volume (RRv)	36,658 CF
Provided Runoff Reduction Volume (RRv)	204,446 CF

**INSPECTION**

During construction, a qualified inspector shall inspect all post-construction stormwater management practices under construction to verify that they are constructed in conformance with all manufacturer specifications.

**OPERATION AND MAINTENANCE PLAN**

A consulting professional engineer should perform regularly scheduled maintenance inspections of the stormwater facilities at least twice each year. The primary purpose of these inspections is to ascertain the operational conditions and safety of the facilities, particularly the conditions of the embankments, pipe beds, outlet structures, conduit outlet protection measures, and other safety-related aspects. Inspections will provide information on the effectiveness of the preventative and aesthetic maintenance procedures as well as determine the need for and timing of corrective maintenance procedures. Preventative maintenance is to ensure that stormwater management aspects of the basins remain operational and safe at all times, and to minimize the need for emergency or corrective maintenance. Aesthetic maintenance is necessary to maintain visual appeal and aesthetic quality of the facilities. Corrective maintenance is necessary in order to repair a facility component that is damaged or failing which results in a negative impact on the performance of the stormwater management facility.

The responsibility for implementation of long-term operation and maintenance of a postconstruction stormwater management practice is the responsibility of the owner. A maintenance agreement will be used to ensure long term operation and maintenance of the stormwater management practices.

## VI. POST CONSTRUCTION CONTROLS

The permanent stormwater management and collection systems shall be maintained in perpetuity for full function and operation. The long-term maintenance of the on-site stormwater management systems is the self-responsibility of the property owner, and a legally binding maintenance agreement will be filed in the Office of the Rockland County Clerk. The mechanism will protect the practices from neglect, adverse alteration and/or unauthorized removal. The Operation and Maintenance (O&M) plan for the post construction stormwater management practices shall include the following:

1. The owner(s) of the stormwater management systems shall erect or post, in the immediate vicinity of the facility, a conspicuous and legible sign of not less than 18 inches by 24 inches bearing the following information

**STORMWATER MANAGEMENT PRACTICE  
(INFILTRATION SYSTEM)**

**Project Identification – (SPDES Construction Permit # \_\_\_\_\_)**

**This facility must be maintained in accordance with O&M Plan**

**DO NOT REMOVE OR ALTER**

2. The owners of the property shall be responsible for the implementation of long-term operation and maintenance of the post-construction stormwater practices. As of the date of the preparation of this SWPPP, the owner identified as:

Newco Suffern Holdings, LLC  
500 Frank W Burr Boulevard, #47  
Teaneck, NJ 07666

3. The long-term operation and maintenance of the stormwater management practices shall be ensured by a legally binding maintenance agreement that is to be filed in the Office of the Rockland County Clerk. The maintenance agreement shall include provisions for any necessary easements.
4. A Soil Erosion and Sediment Control Plan is part of the Site Plan Set prepared by Dynamic Consultants Engineering, LLC. The Site Plan Set is considered a part of this SWPPP, and includes schematics, measurements and specifications for the stormwater management practices on the site.
5. I-1 Infiltration Trench maintenance measures shall include the following:
  - Condition of surrounding vegetative strip to be inspected annually. Trash and debris must be remedied to ensure proper function.
  - Condition of stone surface to be inspected annually. Trash and debris must be remedied to ensure proper function.
  - All structural components must be inspected annually for cracking, subsidence, spalling, erosion and deterioration. Damaged components must be replaced promptly to ensure proper function.
  - Inspect and remove accumulated trash and debris from inside the outlet control structure.
  - Disposal of debris, trash and other waste material must be done at suitable disposal and recycling sites, and in compliance with all applicable local, state and federal regulations.

- If evidence that the I-1 Infiltration Trench is not functioning properly, the owner shall make necessary repairs as soon as reasonably possible to restore proper function of the system.
6. I-2 Infiltration Basin (Above-ground) maintenance measures shall include the following:
- Condition of surrounding earth and berms to be inspected annually. Trash and debris must be remedied to ensure proper function.
  - Condition of inlet pipes to be inspected annually. Trash and debris must be remedied to ensure proper function.
  - Inspect maintenance access into the I-2 Infiltration Basin (Above-ground) to be cleared for maintenance work, if necessary, from inspection.
  - All structural components must be inspected annually for cracking, subsidence, spalling, erosion and deterioration. Damaged components must be replaced promptly to ensure proper function.
  - Inspect and remove accumulated trash and debris from inside the outlet control structure.
  - Inspect all drainage structures annually for accumulation of debris and sediment.
  - Disposal of debris, trash and other waste material must be done at suitable disposal and recycling sites, and in compliance with all applicable local, state and federal regulations.
  - If evidence that the I-2 Infiltration Basin (Above-ground) is not functioning properly, the owner shall make necessary repairs as soon as reasonably possible to restore proper function of the system.
7. I-4 Underground Infiltration (Ferguson – R-Tank) maintenance measures shall include the following:
- Condition of inlet pipes to be inspected annually. Clogs or damaged components must be remedied to ensure proper function.
  - All structural components must be inspected annually for cracking, subsidence, spalling, erosion and deterioration. Damaged components must be replaced promptly to ensure proper function.
  - Inspect all drainage structures annually for accumulation of debris and sediment.
  - Remove accumulated trash and debris from inside the outlet control structure.
  - Inspection of the R-Tank system shall occur one (1) time every six (6) months for the first year. Then inspections will continue annually.
  - Utilize inspection ports at the inlet and outlet connections to check the depth of sediment within the system. When sediment becomes six (6) inches high within the system.
  - Disposal of debris, trash and other waste material must be done at suitable disposal and recycling sites, and in compliance with all applicable local, state and federal regulations.
  - If evidence that the I-2 Infiltration Basin (Above-ground) is not functioning properly, the owner shall make necessary repairs as soon as reasonably possible to restore proper function of the system.
8. Catch basin maintenance shall include the following:
- Catch basins shall be visually inspected annually at the start of spring (or prior to significant snow melt or rain conditions).

- The inspection should include documentation of debris build up in each structure, as well as noting any structural defects that have surfaced, including defects to castings, frames, covers, grates and concrete cracking or spalling.
  - Catch basins shall be cleaned of all debris at a frequency of no less than one fiscal year or in the event that sediment buildup exceeds six (6) inches.
  - Trash and debris shall be removed regardless of buildup depth.
  - Debris or sediment removal shall be done as soon as reasonably possible to avoid impacts to receiving system, and no later than one month after the inspection report.
  - Disposal of debris, trash and other waste material must be done at suitable disposal and recycling sites, and in compliance with all applicable local, state and federal regulations.
  - Cosmetic deficiencies shall be corrected based on the severity of the deficiency. Any deficiency that notes structural imperfections that may cause potential failure shall be corrected immediately and without delay.
9. Hydro International – First Defense Optimum (FDO) maintenance measures shall include the following:
- The FDO unit shall be inspected 6-12 months after installation to monitor sediment levels and floatable accumulation and a maintenance interval should be determined by the end user based on that inspection.
  - The FDO unit shall be cleaned out every 18 months depending on the sediment levels and floatable accumulation.
  - Cleanout and maintenance can be performed from the surface.
  - Floatable accumulations can be removed from the upstream side of the internals manually or with a vacuum hose, and a vacuum hose can be used to remove the standing water and sediment at the bottom of the sump, accessed through the center shaft.

## **POST CONSTRUCTION CONTROLS REPORTING**

The maintenance and inspection records for each fiscal year shall be dutifully retained by the owner as well as submitted to the Village of Suffern, which is the acting enforcement agent for the MS4 program.

The report shall be entitled:

“Newco Suffern Holdings, LLC, Village of Suffern, Rockland County, New York Annual Maintenance and Inspection Report”

The report cover shall also include the following information:

- Name of company who prepared or assisted in compiling information and inspections
- Date
- Name, address and phone number of current owner(s)

The required inspections and reports are to be performed by a New York State licensed Professional Engineer. The reports shall include photographs of each structure and additional photos of any corrective work that is undergone in that fiscal year. If corrective work is conducted, work logs and inventory of materials shall be documented and included within the report.

## **VII. CONCLUSION**

The proposed development has been designed in accordance with the requirements set forth in the New York State Stormwater Design Manual to provide the safe and efficient control of stormwater runoff generated by the proposed development. The proposed stormwater management design will not adversely impact the existing drainage patterns or the abutting stream leading to the Mahwah River north of the site.

The stormwater management design fully addresses the impacts of the proposed development and complies with all local and state stormwater design requirements by satisfying the five unified stormwater criteria outlined throughout the report above.

## **APPENDIX**

**SPDES GENERAL PERMIT (GP-0-20-001)**



Department of  
Environmental  
Conservation

NEW YORK STATE  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT  
FOR STORMWATER DISCHARGES

From

**CONSTRUCTION ACTIVITY**

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70  
of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator



Authorized Signature

1-23-20  
Date

Address: NYS DEC  
Division of Environmental Permits  
625 Broadway, 4th Floor  
Albany, N.Y. 12233-1750

## PREFACE

Pursuant to Section 402 of the Clean Water Act (“CWA”), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System (“NPDES”)* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of “*construction activity*”, as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

**\*Note: The italicized words/phrases within this permit are defined in Appendix A.**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM  
CONSTRUCTION ACTIVITIES**

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## Part 1. PERMIT COVERAGE AND LIMITATIONS

### A. Permit Application

This permit authorizes stormwater *discharges to surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;
2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants to surface waters of the State*.
3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

### B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharges* authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize the discharge of pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

- a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:
- (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharges*;
  - (ii) Control stormwater *discharges*, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;
  - (iii) *Minimize* the amount of soil exposed during *construction activity*;
  - (iv) *Minimize* the disturbance of *steep slopes*;
  - (v) *Minimize* sediment *discharges* from the site;
  - (vi) Provide and maintain *natural buffers* around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharges*, unless *infeasible*;
  - (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;
  - (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and
  - (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.
- b. **Soil Stabilization.** In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

- c. **Dewatering.** *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.
  
- d. **Pollution Prevention Measures.** Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:
  - (i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;
  
  - (ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and
  
  - (iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.
  
- e. **Prohibited Discharges.** The following *discharges* are prohibited:
  - (i) Wastewater from washout of concrete;
  
  - (ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

- (iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;
  - (iv) Soaps or solvents used in vehicle and equipment washing; and
  - (v) Toxic or hazardous substances from a spill or other release.
- f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

### **C. Post-construction Stormwater Management Practice Requirements**

1. The *owner or operator of a construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual (“Design Manual”), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices (“SMPs”) are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. The *owner or operator of a construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

#### **a. Sizing Criteria for New Development**

- (i) Runoff Reduction Volume (“RRv”): Reduce the total Water Quality Volume (“WQv”) by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.
- (ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

**In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual.**

The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (“Cpv”): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
  - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
  - (2) The site discharges directly to tidal waters, or fifth order or larger streams.
  
- (iv) *Overbank* Flood Control Criteria (“Qp”): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
  - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.
  
- (v) Extreme Flood Control Criteria (“Qf”): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
  - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.

**b. Sizing Criteria for New Development in Enhanced Phosphorus Removal Watershed**

- (i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

- (ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

**In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual.** The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
  - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
  - (2) The site *discharges* directly to tidal waters, or fifth order or larger streams.
- (iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.
- (v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.

### c. Sizing Criteria for Redevelopment Activity

- (i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.
- (1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or
  - (2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or
  - (3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or
  - (4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

- (ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

#### **d. Sizing Criteria for Combination of Redevelopment Activity and New Development**

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

#### **D. Maintaining Water Quality**

The Department expects that compliance with the conditions of this permit will control *discharges* necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;
2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and
3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharges* authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharges* authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharges* will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

## **E. Eligibility Under This General Permit**

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.
2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharges*; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.
3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: “Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned”; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharges* from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.
4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

## **F. Activities Which Are Ineligible for Coverage Under This General Permit**

All of the following are **not** authorized by this permit:

1. *Discharges* after *construction activities* have been completed and the site has undergone *final stabilization*;
2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;
3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;
4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

*operator* has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;
6. *Construction activities* for residential, commercial and institutional projects:
  - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
  - b. Which are undertaken on land with no existing *impervious cover*; and
  - c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture (“USDA”) Soil Survey as Soil Slope Phase “D”, (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase “E” or “F” (regardless of the map unit name), or a combination of the three designations.
7. *Construction activities* for linear transportation projects and linear utility projects:
  - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
  - b. Which are undertaken on land with no existing *impervious cover*; and
  - c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase “D” (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase “E” or “F” (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:
- a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.
    - 1-5 acres of disturbance - 20 feet
    - 5-20 acres of disturbance - 50 feet
    - 20+ acres of disturbance - 100 feet, or
  - b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
    - (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
    - (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
    - (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
    - (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or
  - c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

- (i) No Affect
- (ii) No Adverse Affect
- (iii) Executed Memorandum of Agreement, or

d. Documentation that:

- (i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.
9. *Discharges from construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

## Part II. PERMIT COVERAGE

### A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.
2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.
3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

## B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (<http://www.dec.ny.gov/>). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

**NOTICE OF INTENT  
NYS DEC, Bureau of Water Permits  
625 Broadway, 4<sup>th</sup> Floor  
Albany, New York 12233-3505**

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.
3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.
4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

## C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.
2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:
  - a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (<http://www.dec.ny.gov/>) for more information,
  - b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators of construction activities* that are required to obtain *UPA* permits

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

- c. the final SWPPP has been prepared, and
  - d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.
3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:
- a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:
    - (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or
    - (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;
    - (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

- b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:
  - (i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed “MS4 SWPPP Acceptance” form, or
  - (ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed “MS4 SWPPP Acceptance” form.
4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

#### **D. General Requirements For Owners or Operators With Permit Coverage**

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination (“NOT”) has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.
2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor’s or subcontractor’s certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.
3. The *owner or operator of a construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

- use control MS4, the regulated, traditional land use control MS4 (provided the regulated, traditional land use control MS4 is not the owner or operator of the construction activity). At a minimum, the owner or operator must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:*
- a. The *owner or operator* shall have a *qualified inspector* conduct **at least two (2)** site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
  - b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.
  - c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.
  - d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.
  - e. The *owner or operator* shall include the requirements above in their SWPPP.
4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..
  5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.
  6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

*regulated, traditional land use control MS4* in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

#### **E. Permit Coverage for Discharges Authorized Under GP-0-15-002**

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of a *construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

#### **F. Change of Owner or Operator**

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4*, the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.
2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.
3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

*operator* was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

### Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

#### A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.
2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.
3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.
4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:
  - a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

- b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;
  - c. to address issues or deficiencies identified during an inspection by the *qualified inspector*, the Department or other regulatory authority; and
  - d. to document the final construction conditions.
5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.
6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

## **B. Required SWPPP Contents**

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:
  - a. Background information about the scope of the project, including the location, type and size of project

- b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge(s)*;
- c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);
- d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;
- e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;
- f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;
- g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;
- h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;
- i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

- j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;
  - k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and
  - l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

The post-construction stormwater management practice component of the SWPPP shall include the following:

- a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

- b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;
- c. A Stormwater Modeling and Analysis Report that includes:
  - (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;
  - (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;
  - (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;
  - (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;
  - (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and
  - (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;
- d. Soil testing results and locations (test pits, borings);
- e. Infiltration test results, when required; and
- f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria*, Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

### **C. Required SWPPP Components by Project Type**

Unless otherwise notified by the Department, *owners or operators of construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators of the construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

## **Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS**

### **A. General Construction Site Inspection and Maintenance Requirements**

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.
2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

### **B. Contractor Maintenance Inspection Requirements**

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.
3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

### C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
  - Certified Professional in Erosion and Sediment Control (CPESC),
  - New York State Erosion and Sediment Control Certificate Program holder
  - Registered Landscape Architect, or
  - someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].
1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:
    - a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

- b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;
  - c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and
  - d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.
2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:
- a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.
  - b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
  - c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

- d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the “*Final Stabilization*” and “*Post-Construction Stormwater Management Practice*” certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.
  - e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization*, all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.
  4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

- a. Date and time of inspection;
- b. Name and title of person(s) performing inspection;
- c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
- d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
- e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;
- f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;
- g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
- h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;
- i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;
- j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);
- k. Identification and status of all corrective actions that were required by previous inspection; and

- I. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.
5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.
6. All inspection reports shall be signed by the *qualified inspector*. Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

## **Part V. TERMINATION OF PERMIT COVERAGE**

### **A. Termination of Permit Coverage**

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.
2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:
  - a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

- b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;
      - c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.
      - d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.
3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the “*Final Stabilization*” and “*Post-Construction Stormwater Management Practice certification statements*” on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.
4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the “*MS4 Acceptance*” statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector’s* final site inspection certification(s) required in Part V.A.3. of this permit.
5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:
  - a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

- b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),
- c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,
- d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

## **Part VI. REPORTING AND RETENTION RECORDS**

### **A. Record Retention**

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

### **B. Addresses**

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

## **Part VII. STANDARD PERMIT CONDITIONS**

### **A. Duty to Comply**

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

#### **B. Continuation of the Expired General Permit**

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

#### **C. Enforcement**

Failure of the *owner or operator*, its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to \$37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

#### **D. Need to Halt or Reduce Activity Not a Defense**

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

### **E. Duty to Mitigate**

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

### **F. Duty to Provide Information**

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

### **G. Other Information**

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit, or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

### **H. Signatory Requirements**

1. All NOIs and NOTs shall be signed as follows:
  - a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

- (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
    - (ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
  - b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or
  - c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
    - (i) the chief executive officer of the agency, or
    - (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).
2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:
- a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

- c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.
3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.
4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4*, or by a duly authorized representative of that person.

It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

## **I. Property Rights**

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

## **J. Severability**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

## **K. Requirement to Obtain Coverage Under an Alternative Permit**

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge(s)*, the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

#### **L. Proper Operation and Maintenance**

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

#### **M. Inspection and Entry**

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner's or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.
4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

#### **N. Permit Actions**

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

#### **O. Definitions**

Definitions of key terms are included in Appendix A of this permit.

#### **P. Re-Opener Clause**

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.
2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

#### **Q. Penalties for Falsification of Forms and Reports**

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

**R. Other Permits**

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

## **APPENDIX A – Acronyms and Definitions**

### **Acronyms**

APO – Agency Preservation Officer

BMP – Best Management Practice

CPESC – Certified Professional in Erosion and Sediment Control

Cpv – Channel Protection Volume

CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)

DOW – Division of Water

EAF – Environmental Assessment Form

ECL - Environmental Conservation Law

EPA – U. S. Environmental Protection Agency

HSG – Hydrologic Soil Group

MS4 – Municipal Separate Storm Sewer System

NOI – Notice of Intent

NOT – Notice of Termination

NPDES – National Pollutant Discharge Elimination System

OPRHP – Office of Parks, Recreation and Historic Places

Qf – Extreme Flood

Qp – Overbank Flood

RRv – Runoff Reduction Volume

RWE – Regional Water Engineer

SEQR – State Environmental Quality Review

SEQRA - State Environmental Quality Review Act

SHPA – State Historic Preservation Act

SPDES – State Pollutant Discharge Elimination System

SWPPP – Stormwater Pollution Prevention Plan

TMDL – Total Maximum Daily Load

UPA – Uniform Procedures Act

USDA – United States Department of Agriculture

WQv – Water Quality Volume

## Definitions

All definitions in this section are solely for the purposes of this permit.

**Agricultural Building** – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

**Agricultural Property** – means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

**Alter Hydrology from Pre to Post-Development Conditions** - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

**Combined Sewer** - means a sewer that is designed to collect and convey both “sewage” and “stormwater”.

**Commence (Commencement of) Construction Activities** - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for “*Construction Activity(ies)*” also.

**Construction Activity(ies)** - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

**Construction Site** – means the land area where *construction activity(ies)* will occur. See definition for “*Commence (Commencement of) Construction Activities*” and “*Larger Common Plan of Development or Sale*” also.

**Dewatering** – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

**Direct Discharge (to a specific surface waterbody)** - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

**Discharge(s)** - means any addition of any pollutant to waters of the State through an outlet or *point source*.

**Embankment** –means an earthen or rock slope that supports a road/highway.

**Endangered or Threatened Species** – see 6 NYCRR Part 182 of the Department’s rules and regulations for definition of terms and requirements.

**Environmental Conservation Law (ECL)** - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

**Equivalent (Equivalence)** – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

**Final Stabilization** - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

**General SPDES permit** - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

**Groundwater(s)** - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

**Historic Property** – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

**Impervious Area (Cover)** - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

**Infeasible** – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

**Larger Common Plan of Development or Sale** - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

**Minimize** – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

**Municipal Separate Storm Sewer (MS4)** - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
- (ii) Designed or used for collecting or conveying stormwater;
- (iii) Which is not a *combined sewer*, and
- (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

**National Pollutant Discharge Elimination System (NPDES)** - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

**Natural Buffer** –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

**New Development** – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

**New York State Erosion and Sediment Control Certificate Program** – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

**NOI Acknowledgment Letter** - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

**Nonpoint Source** - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

**Overbank** –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

**Owner or Operator** - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

**Performance Criteria** – means the design criteria listed under the “Required Elements” sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf ) in Part I.C.2. of the permit.

**Point Source** - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

**Pollutant** - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

**Qualified Inspector** - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

**Qualified Professional** - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

**Redevelopment Activity(ies)** – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

**Regulated, Traditional Land Use Control MS4** - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

**Routine Maintenance Activity** - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

**Site limitations** – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

**Sizing Criteria** – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank Flood* (Qp), and *Extreme Flood* (Qf).

**State Pollutant Discharge Elimination System (SPDES)** - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

**Steep Slope** – means land area designated on the current United States Department of Agriculture (“USDA”) Soil Survey as Soil Slope Phase “D”, (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

**Streambank** – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

**Stormwater Pollution Prevention Plan (SWPPP)** – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

**Surface Waters of the State** - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

**Temporarily Ceased** – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

**Temporary Stabilization** - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

**Total Maximum Daily Loads (TMDLs)** - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint sources*. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint sources*, and a margin of safety (MOS).

**Trained Contractor** - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

**Uniform Procedures Act (UPA) Permit** - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

**Water Quality Standard** - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

## APPENDIX B – Required SWPPP Components by Project Type

**Table 1**  
**Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls**

<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:</b></p> <ul style="list-style-type: none"><li>• Single family home <u>not</u> located in one of the watersheds listed in Appendix C or <u>not directly discharging</u> to one of the 303(d) segments listed in Appendix E</li><li>• Single family residential subdivisions with 25% or less impervious cover at total site build-out and <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E</li><li>• Construction of a barn or other <i>agricultural building</i>, silo, stock yard or pen.</li></ul>
<p><b>The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:</b></p> <p>All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.</p>
<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land:</b></p> <ul style="list-style-type: none"><li>• Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains</li><li>• Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects</li><li>• Pond construction</li><li>• Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover</li><li>• Cross-country ski trails and walking/hiking trails</li><li>• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;</li><li>• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.</li><li>• Slope stabilization projects</li><li>• Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics</li></ul>

**Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS**

**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State”, excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

**Table 2**  
**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES**  
**POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES**

**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES**

The following construction activities that involve soil disturbances of one (1) or more acres of land:

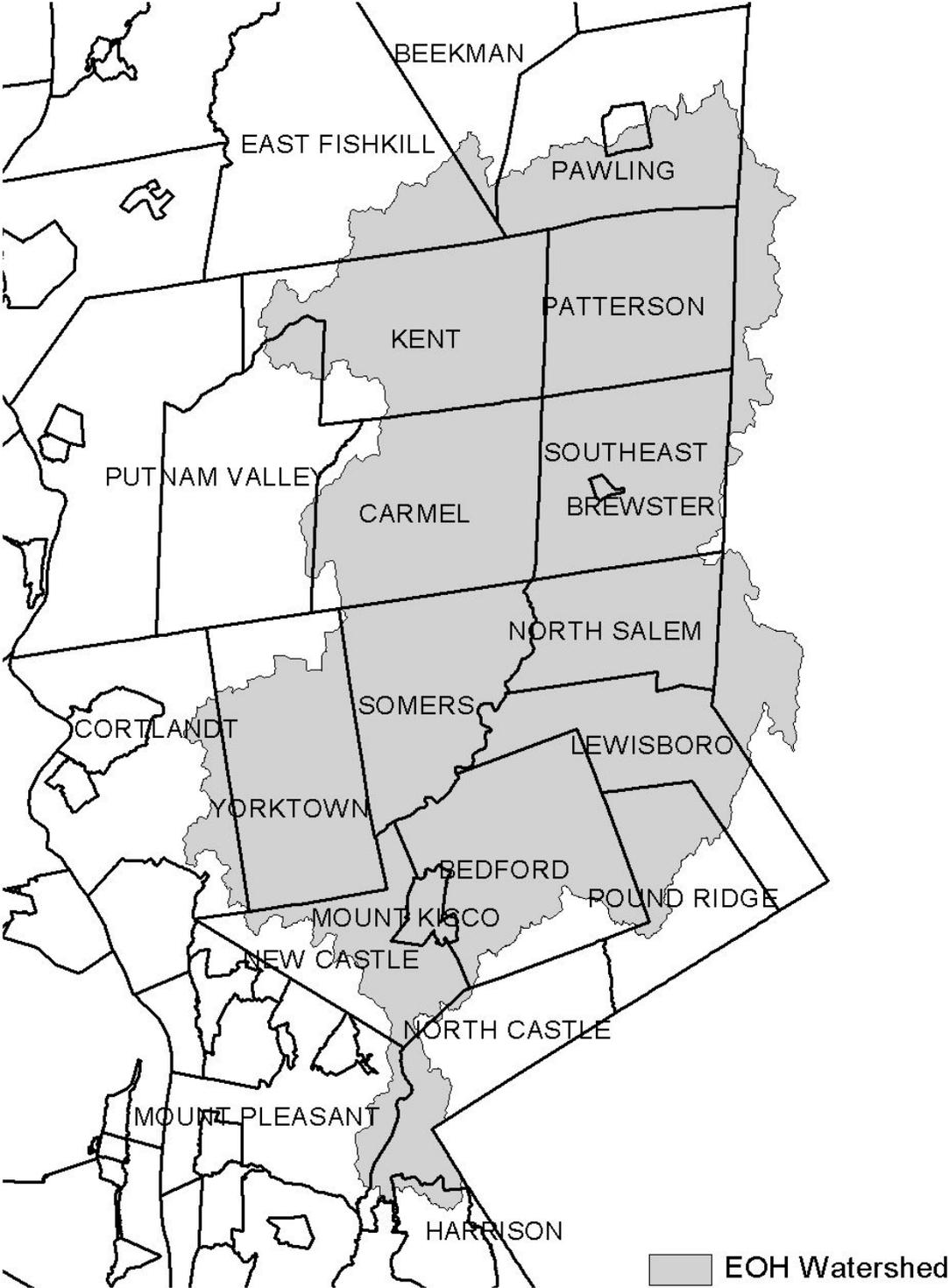
- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover*, and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

## APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

**Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual (“Design Manual”).**

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

**Figure 1 - New York City Watershed East of the Hudson**



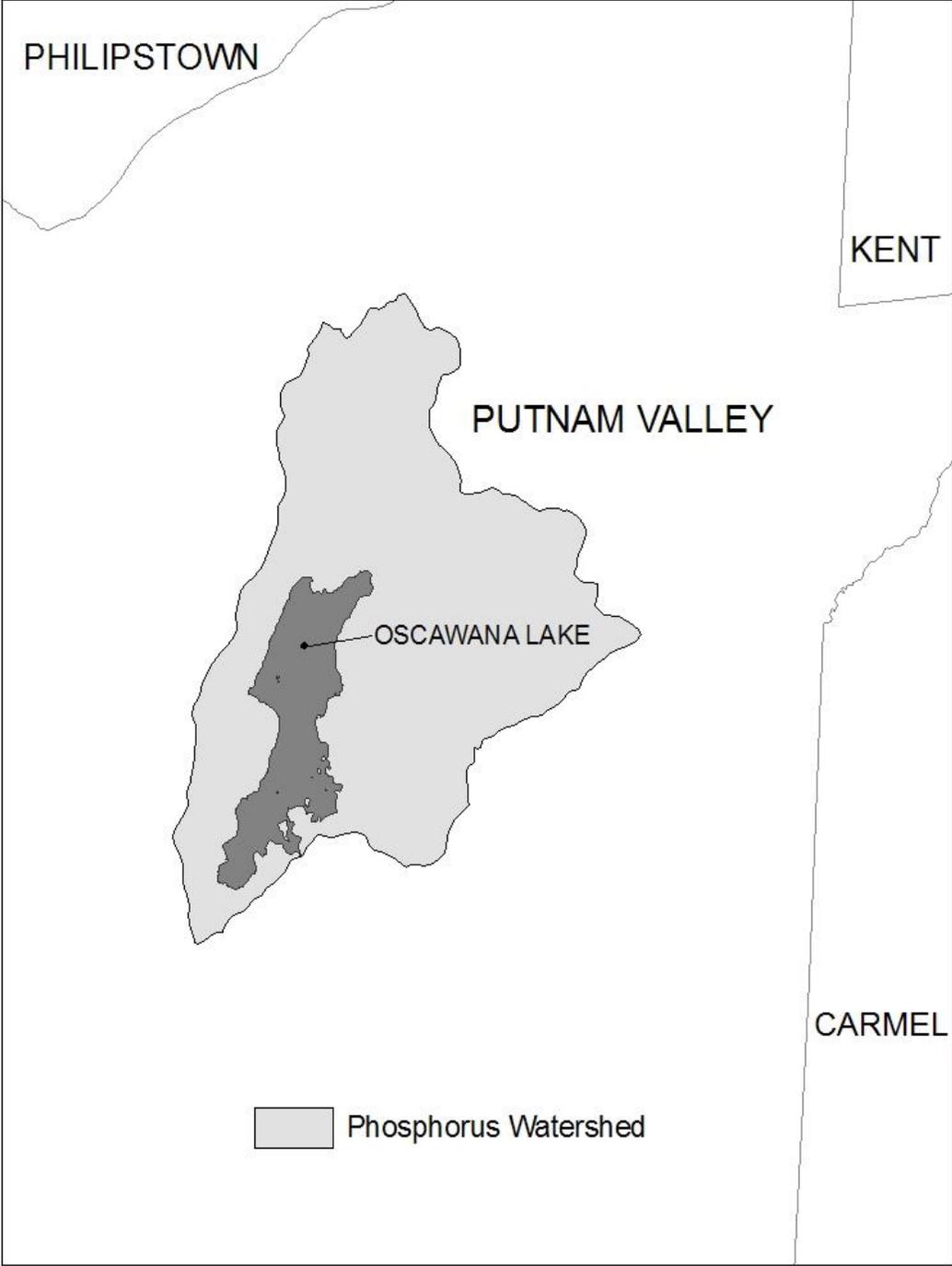
**Figure 2 - Onondaga Lake Watershed**



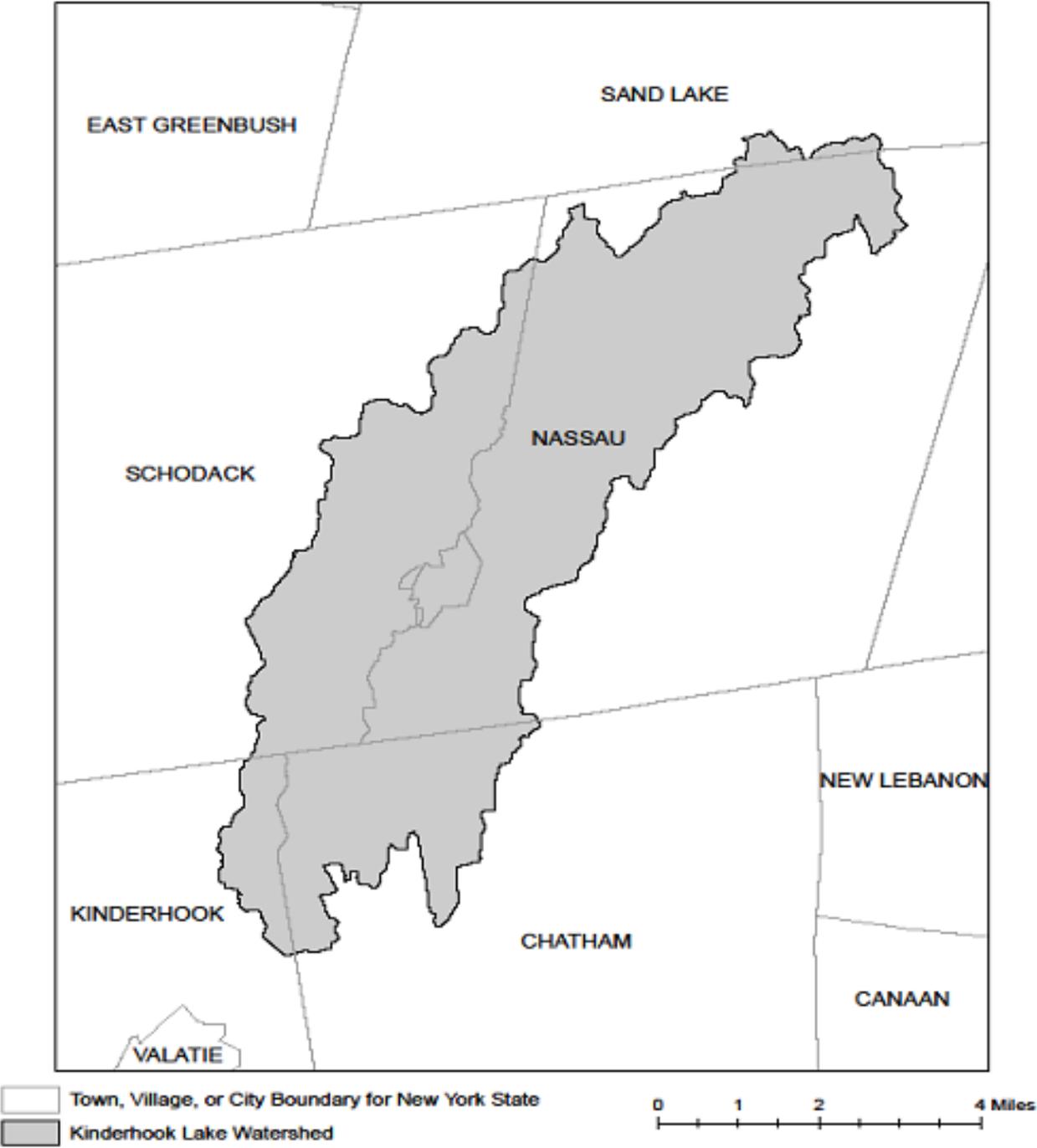
**Figure 3 - Greenwood Lake Watershed**



**Figure 4 - Oscawana Lake Watershed**



**Figure 5 - Kinderhook Lake Watershed**



## **APPENDIX D – Watersheds with Lower Disturbance Threshold**

**Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.**

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

## APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

## APPENDIX F – List of NYS DEC Regional Offices

<u>Region</u>	<u>COVERING THE FOLLOWING COUNTIES:</u>	<u>DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS</u>	<u>DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM</u>
1	NASSAU AND SUFFOLK	50 CIRCLE ROAD STONY BROOK, NY 11790 TEL. (631) 444-0365	50 CIRCLE ROAD STONY BROOK, NY 11790-3409 TEL. (631) 444-0405
2	BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4997	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4933
3	DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER	21 SOUTH PUTT CORNERS ROAD NEW PALTZ, NY 12561-1696 TEL. (845) 256-3059	100 HILLSIDE AVENUE, SUITE 1W WHITE PLAINS, NY 10603 TEL. (914) 428 - 2505
4	ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE	1150 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2069	1130 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2045
5	CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON	1115 STATE ROUTE 86, Po Box 296 RAY BROOK, NY 12977-0296 TEL. (518) 897-1234	232 GOLF COURSE ROAD WARRENSBURG, NY 12885-1172 TEL. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

## **NRCS WEB SOIL SURVEY**



## 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 1:24,000.

**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: Rockland County, New York  
 Survey Area Data: Version 20, Sep 10, 2022

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

Date(s) aerial images were photographed: May 31, 2022—Oct 27, 2022

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
Ad	Alden silt loam	C/D	4.4	2.1%
HoD	Holyoke-Rock outcrop complex, hilly	D	26.0	12.7%
Pt	Pits, gravel		15.7	7.7%
Us	Udorthents, smoothed	A	65.3	31.8%
Ux	Urban land		22.1	10.8%
W	Water		1.3	0.6%
Wc	Watchaug fine sandy loam	C	0.8	0.4%
WeB	Wethersfield gravelly silt loam, 3 to 8 percent slopes	C	41.8	20.4%
WeC	Wethersfield gravelly silt loam, 8 to 15 percent slopes	C	11.8	5.8%
WeD	Wethersfield gravelly silt loam, 15 to 25 percent slopes	C	14.1	6.9%
WuD	Wethersfield-Urban land complex, 15 to 25 percent slopes	C	1.8	0.9%
<b>Totals for Area of Interest</b>			<b>205.3</b>	<b>100.0%</b>

## 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

**SUPPLEMENTAL STORMWATER BASIN AREA  
INVESTIGATION REPORT**

# **SUPPLEMENTAL STORMWATER BASIN AREA INVESTIGATION REPORT**

## **PROPOSED ROCKLAND LOGISTICS CENTER**

**25 Old Mill Road & Hemion Road  
Section 55.22, Block 1, Lot 1  
Village of Suffern, Rockland County, New York**

*Prepared for:*

### **IV2 ROCKLAND LOGISTICS CENTER, LLC C/O BROOKFIELD PROPERTIES**

**1 Meadowlands Plaza, Suite 200  
East Rutherford, NJ 07073**

*Prepared by:*



245 Main Street, Suite 110  
Chester, New Jersey 07930

A handwritten signature in black ink, appearing to read 'P. Granitzki', written over a horizontal line.

**Patrick J. Granitzki, P.E.**  
Senior Principal  
NY PE License No. 99342

A handwritten signature in black ink, appearing to read 'Francis Van Cleve', written over a horizontal line.

**Francis Van Cleve**  
Principal

Project No.: 3709-99-004EC  
January 15, 2024

**SUPPLEMENTAL STORMWATER BASIN AREA INVESTIGATION  
REPORT**

**Proposed Rockland Logistics Center  
25 Old Mill Road & Hemion Road  
Section 55.22, Block 1, Lot 1  
Village of Suffern, Rockland County, New York**

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Infiltration Test Results  
USDA – NRCS Custom Soil Resources Report for Rockland County, New York

## 1.0 INTRODUCTION

Dynamic Earth, LLC (Dynamic Earth) has completed a supplemental subsurface evaluation in support of the proposed stormwater management facilities to be located at 25 Old Mill Road and Hemion Road in the Village of Suffern, Rockland County, New York. The site is further identified as Section 55.22, Block 1, Lot 1. The site of the proposed construction is shown on the attached *Supplemental Test Location Plan* within the appendix of this report.

At the time of Dynamic Earth's supplemental investigation, the existing structures were in the process of being demolished and a remnant concrete slab remained within the eastern portion of the site. The remaining portions of the site included undeveloped grass/landscaped areas, existing pavement areas, and wooded terrain. An aboveground basin/water feature was located within the central/southern portion of the subject site.

The proposed overall site redevelopment will include demolition of the existing structures and construction of an industrial park complex with three warehouse buildings (identified as Building #1 through Building #3). Building 1 will be located within the northern/central portion of the site and will occupy a footprint area of 963,100 square feet; Building 2 will be located within the southwestern portion of the site and will occupy a footprint area of 170,500 square feet; and Building 3 will be located within the southeastern portion of the site and will occupy a footprint area of 88,200 square feet. The site redevelopment will also include new lighting, landscaping, grading, walkways, driveways, utilities, parking. Stormwater management facilities are proposed throughout the site; including three above ground basins (identified as A, B, G) and seven underground basins (identified as C, D, E, F, H, K, and M). An above ground infiltration trench (identified as "I") is proposed within the southern portion of the site (situated between the three warehouse structures). The proposed stormwater management facilities will have bottom of basin elevations ranging between approximately 312.5 feet and 303.5 feet. Proposed site redevelopment details were provided on a January 17, 2024 (latest revision) *Overall Drainage Plan* and *Overall Grading Plan* prepared by Dynamic Engineering Consultants, PC (Dynamic). Based on the grading plan, the majority of the site will include earth fills on the order of two to 15 feet to achieve proposed grades.

Topographic information was provided on an August 16, 2021 *ALTA/NSPS Land Title Survey* prepared by Dynamic Survey, LLC. Based on the survey, the site generally slopes downward from the east to the southwest; with existing site elevations ranging between approximately 432 feet within the eastern portion of the site and 298 feet within the southwestern portion of the site. The elevations included herein reference the North American Vertical Datum of 1988 (NAVD 1988).

The subject site is bound to the north by Old Mill Road and Interstate 287 (NY State Thruway), with residential development beyond; to the east by an undeveloped wooded area and Hemion Road beyond; to the south by an abandoned rail line (Consolidated Rail Corporation), with commercial development beyond; and to the west by the former Union Hill Quarry (filled with water), with commercial and residential development beyond.

Dynamic Earth previously performed a subsurface investigation at the site in support of proposed stormwater management facilities and the results were issued in an August 27, 2021 *Stormwater Basin Area Investigation Report*; a December 9, 2022 (Updated) *Report of Preliminary Geotechnical Investigation*; and a December 9, 2022 (Updated) *Stormwater Basin Area Investigation Report*. The results of the previous investigations are referenced herein, as applicable. Subsequent to our initial investigations, a supplemental stormwater investigation including additional soil profile pits within the proposed stormwater management facilities was requested by the project team.

Environmental conditions were evaluated in separate reports by Dynamic Earth and the results of these evaluations were issued in a July 28, 2020 *Phase II Site Investigation Report*, a June 10, 2022 *Hazardous Materials Survey*, and an October 11, 2022 *Asbestos Survey of Boilers/Spray-On Fireproofing*.

## **2.0 SCOPE OF SERVICES**

Dynamic Earth's scope of services pertaining to this report included evaluating the subsurface conditions at soil profile pits and soil probe locations to estimate the apparent seasonal high groundwater levels, collecting representative samples of the stratum encountered, and in-situ permeability (infiltration) testing. A total of 14 supplemental soil profile pits (identified as SPP-201 through SPP-214) and 14 corresponding infiltration tests (identified as IT-201 through IT-214) were performed at the site using track-mounted excavation equipment. The supplemental investigation was completed in December of 2023, following demolition of the majority of the existing structures at the site. Test locations were located within the areas of potential stormwater management facilities and were backfilled to the surface with excavated soils at completion of the investigation.

The previous testing at the site included twenty-nine soil profile pits (identified as SPP-101 through SPP-129) and 29 infiltration tests (identified as IT-1 through IT-29) performed in October of 2021; and 13 soil profile pits (identified as SPP-1 through SPP-13) and three soil probes (identified as P-1 through P-3) performed in July of 2021.

The soils encountered within the possible area of the proposed stormwater management facilities were classified using the United States Department of Agriculture (USDA) Classification System. Observations were made for groundwater and/or soil mottling and mineral deposits potentially indicative of zones of saturation or seasonal high groundwater. Soil logs are included in the Appendix of the report.

In-situ infiltration testing was performed at soil profile pit locations in general accordance with the January New York State Stormwater Management Design Manual 2015 – Appendix D: Infiltration Testing. Detailed results of the infiltration testing are included herein.

### 3.0 SOIL SURVEY

Based on a review of the United States Department of Agriculture – Natural Resources Conservation Services (USDA-NRCS) soil survey the following soil resources are mapped underlying the site within the area of the proposed site improvements, and are shown on the *NCRS-USDA Custom Soil Report* included in the appendix of this report:

**Holyoke-Rock outcrop complex, hilly (HoD):** This soil series is mapped within the northwestern/western portions of the site. The typical soil profile (as reported in the soil survey) generally consists of slightly decomposed plant material at the surface to a depth of two inches; silt loam to a depth of 18 inches; underlain by unweathered bedrock to a depth of 18 inches to 28 inches below the natural ground surface (limit of the report). Groundwater is reported to be deeper than 80 inches below the natural ground surface.

**Udorthents, smoothed (Us):** This soil series is mapped underlying the majority of the subject site. The typical soil profile (as reported in the survey) generally consists of channery loam to a depth of 20 inches; underlain by very gravelly loam to a depth of 70 inches below the natural ground surface (limit of report). Groundwater is reported to be 36 inches to 72 inches below the natural ground surface.

**Urban land (Ux):** This soils series is mapped within the central portion of the site (within the area of the existing industrial complex). A description of the typical soil profile and depth to groundwater was not included in the survey.

**Water (W):** The aboveground basin/water feature is located within the central/southern portion of the subject site.

**Wethersfield gravelly silt loam, 3 to 8 percent slopes (WeB):** This soil series is mapped within the southern portion of the subject site. The typical soil profile (as reported in the survey) generally consists of gravelly silt loam to a depth of 13 inches; gravelly loam to a depth of 22 inches; underlain by gravelly fine sandy loam to a depth of 60 inches below the natural ground surface (limit of report). Groundwater is reported to be 18 inches to 30 inches below the natural ground surface.

**Wethersfield gravelly silt loam, 15 to 25 percent slopes (WeD):** This soil series is mapped within a relatively small area within the southeastern portion of the subject site. The typical soil profile (as reported in the survey) generally consists of gravelly silt loam to a depth of 13 inches; gravelly

loam to a depth of 22 inches; underlain by gravelly fine sandy loam to a depth of 60 inches below the natural ground surface (limit of report). Groundwater is reported to be 18 inches to 30 inches below the natural ground surface.

## **4.0 RESULTS**

Detailed descriptions of the subsurface conditions encountered at each location are provided on the *Records of Subsurface Exploration* included herein. A summary of the subsurface conditions encountered is included below.

### **4.1 Subsurface Soil Profile**

The subsurface soil conditions encountered during the supplemental stormwater investigation were generally consistent with our previous investigations performed at the site.

The soil profile pits were performed within existing grass covered/open areas and encountered approximately six to 18 inches of topsoil or existing fill material at the surface. At the surface or beneath the surface cover, existing fill material was encountered that generally consisted of loamy sand, loam, sandy loam, silt loam, and silty clay loam with variable amounts of gravel and debris. The debris encountered included concrete, brick, metal, plastic, asphalt, topsoil, glass, and organics. The existing fill material was encountered within the soil profile pits to depths ranging between approximately 1.8 feet and 12.0 feet below the ground surface; corresponding to elevations ranging between 307.0 feet and 297.7 feet. One supplemental soil profile pit within the southeastern portion of the site (SPP-209) encountered existing fill material containing organic debris (topsoil, roots) to a depth of approximately 12 feet below the ground surface; corresponding to elevation 307.0 feet. Beneath the existing fill material, natural organic deposits were encountered during our previous investigation at one location within the southwestern portion of the site (SPP-13) that consisted of silty clay loam with variable amounts of organic matter. Beneath the existing fill material and/or organic deposits (where encountered), natural glacial deposits were encountered that consisted of loamy sand, sandy loam, loam, sand, sandy clay loam, and occasional layers of silt loam and silty clay loam; with variable amounts of gravel, cobbles, and boulders. The natural glacial deposits were encountered within the soil profile pits to termination/refusal depths ranging between approximately six feet and 12.0 feet below the ground surface; corresponding to elevations ranging between 311.0 feet and 293.7 feet. Refusal was generally encountered due to continuous wet cave-in of the excavation. One previous test location within the southern portion of the site (SPP-12) encountered refusal on apparent weathered rock at a depth of approximately 10.3 feet below the ground surface; corresponding to elevation 297.2 feet.

### **4.2 Seasonal High Groundwater and Permeability Results**

Indicators of seasonal high groundwater (i.e., soil mottling) were observed within the supplemental

soil profile pits (SPP-201 through SPP-214) at depths ranging between approximately three feet and 7.2 feet below the ground surface; corresponding to elevations ranging between 314.0 feet and 298.8 feet. Indicators of seasonal high groundwater were observed within the soil profile pits and probes during our previous investigation at depths ranging between approximately one foot and 5.4 feet below the ground surface; corresponding to elevations ranging between 317.8 feet and 299.4 feet. Groundwater was encountered within the soil profile pits at depths ranging between approximately 0.5 feet and nine feet below the ground surface; corresponding to elevations ranging between 314.0 feet and 297.0 feet.

The soil strata tested as part of the supplemental investigation had permeability rates ranging between approximately 0.6 inches per hour (iph) and 24 inches per hour. The strata tested as part of the previous investigations had permeability rates ranging between approximately four inches per hour and 24 inches per hour.

A summary of the seasonal high groundwater levels encountered and infiltration test results is presented in the following table:

<b>MOTTLING, GROUNDWATER AND INFILTRATION SUMMARY</b>							
<b>Location</b>	<b>Approximate Surface Elevation</b>	<b>Mottling</b>		<b>Groundwater</b>		<b>Infiltration Testing</b>	
		<b>Depth (Feet)</b>	<b>Elevation (Feet)</b>	<b>Depth (Feet)</b>	<b>Elevation (Feet)</b>	<b>Depth (inches)</b>	<b>Rate (inches/hour)</b>
SPP-201	306.0	7.0	299.0	7.0	299.0	24	0.6
SPP-202	306.0	7.2	298.8	7.2	298.8	24	5.2
SPP-203	306.0	5.3	300.7	6.2	299.8	36	5.0
SPP-204	306.0	5.2	300.8	6.3	299.7	24	2.0
SPP-205	308.0	7.0	301.0	9.0	299.0	48	4.0
SPP-206	308.0	NE <sup>1</sup>	--	6.0	302.0	24	1.4
SPP-207	308.0	NE <sup>1</sup>	--	6.0	302.0	24	1.5
SPP-208	308.0	NE <sup>1</sup>	--	8.2	299.8	48	18.0
SPP-209	319.0	NE <sup>1</sup>	--	8.3	310.7	24	6.5
SPP-210	317.0	3.0	314.0	6.5	310.5	24	1.8
SPP-211	310.0	NE <sup>1</sup>	--	4.5	305.5	24	6.0
SPP-212	308.0	4.7	303.3	5.3	302.7	24	4.0
SPP-213	309.0	5.3	303.7	5.3	303.7	24	5.5
SPP-214	306.0	NE <sup>1</sup>	--	NE <sup>1</sup>	--	48	2.0
SPP-101	310.0	5.0	305.0	7.5	302.5	48	24.0
SPP-102	308.0	2.2	305.8	6.7	301.3	31	24.0
SPP-103	306.0	4.5	301.5	5.9	300.1	36	24.0
SPP-104	307.0	5.4	301.6	8.6	298.4	36	12.0
SPP-105	307.0	3.7	303.3	6.8	300.2	50	12.0
SPP-106	306.0	3.3	302.7	6.8	299.2	42	18.0

MOTTLING, GROUNDWATER AND INFILTRATION SUMMARY							
Location	Approximate Surface Elevation	Mottling		Groundwater		Infiltration Testing	
		Depth (Feet)	Elevation (Feet)	Depth (Feet)	Elevation (Feet)	Depth (inches)	Rate (inches/hour)
SPP-107	304.0	3.7	300.3	4.3	299.7	10	8.0
SPP-108	302.0	NE <sup>1</sup>	--	4.6	297.4	24	5.0
SPP-109	302.5	2.8	299.7	5.0	297.5	24	8.0
SPP-110	303.0	2.8	300.2	5.0	298.0	19	4.0
SPP-111	305.0	1.3	303.7	4.0	301.0	18	5.0
SPP-112	306.5	1.0	305.5	4.4	302.1	12	5.0
SPP-113	302.0	NE <sup>1</sup>	--	5.0	297.0	36	15.0
SPP-114	304.5	NE <sup>1</sup>	--	6.3	298.2	36	18.0
SPP-115	308.0	NE <sup>1</sup>	--	7.0	301.0	36	15.0
SPP-116	310.0	2.1	307.9	5.8	304.2	24	19.0
SPP-117	310.0	NE <sup>1</sup>	--	7.0	303.0	36	5.0
SPP-118	312.0	NE <sup>1</sup>	--	8.0	304.0	36	24.0
SPP-119	309.0	NE <sup>1</sup>	--	0.5	308.5	12	5.0
SPP-120	313.0	NE <sup>1</sup>	--	6.0	307.0	36	10.0
SPP-121	311.0	4.0	307.0	8.3	302.7	36	15.0
SPP-122	310.0	NE <sup>1</sup>	--	7.3	302.7	36	19.0
SPP-123	311.0	3.3	307.7	6.4	304.6	30	15.0
SPP-124	307.0	NE <sup>1</sup>	--	7.1	299.9	48	12.0
SPP-125	307.0	NE <sup>1</sup>	--	6.0	301.0	30	11.0
SPP-126	317.0	NE <sup>1</sup>	--	NE	--	36	24.0
SPP-127	315.0	NE <sup>1</sup>	--	NE	--	30	24.0
SPP-128	312.5	3.5	309.0	6.5	306.0	36	24.0
SPP-129	308.0	NE <sup>1</sup>	--	NE	--	36	24.0
SPP-1	307.5	4.3	303.2	7.0	300.5	--	--
SPP-2	303.8	4.3	299.5	4.3	299.5	--	--
SPP-3	307.0	4.7	302.3	7.0	300.0	--	--
SPP-4	304.0	1.0	303.0	4.0	300.0	--	--
SPP-5	305.0	2.7	302.3	7.0	298.0	--	--
SPP-6	305.8	1.2	304.6	5.0	300.8	--	--
SPP-7	310.5	4.0	306.5	7.0	303.5	--	--
SPP-8	311.5	4.7	306.8	8.0	303.5	--	--
SPP-9	318.5	2.2	316.3	5.0	313.5	--	--
SPP-10	309.0	1.0	308.0	3.0	306.0	--	--
SPP-11	320.0	2.2	317.8	6.0	314.0	--	--
SPP-12	307.5	4.0	303.5	NE	--	--	--
SPP-13	303.7	4.3	299.4	6.7	297.0	--	--
P-1	307.5	NE <sup>1</sup>	--	NE	--	--	--
P-2	311.5	NE <sup>1</sup>	--	NE	--	--	--
P-3	310.0	NE <sup>1</sup>	--	NE	--	--	--

<sup>1</sup> Not Encountered: Where mottling was not encountered, the depth to the seasonal high groundwater can be estimated based on the published soil series and/or through direct readings during the wet season.

## 5.0 GENERAL COMMENTS AND LIMITATIONS

Supplemental recommendations will be required upon finalization of conceptual site plans or if significant changes are made in the characteristics or location of the proposed stormwater management facilities. Dynamic Earth should be included as a consultant to the design team and should be provided final plans for review to confirm these criteria apply or to modify recommendations as necessary.

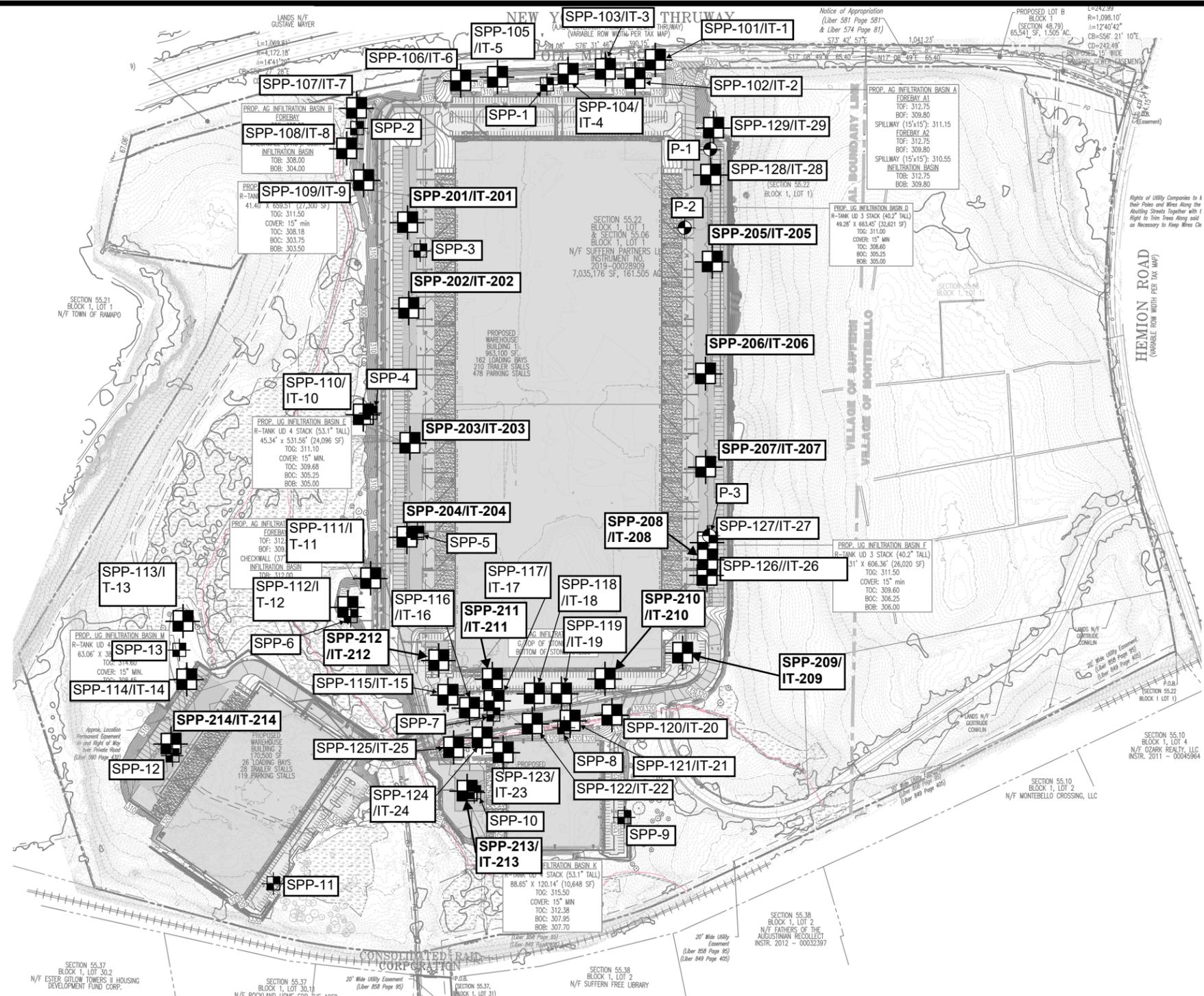
The results presented herein should be utilized by a qualified engineer in preparing preliminary design concepts and site grading. The engineer should consider these results as minimum physical standards that may be superseded by local and regional building codes and structural considerations. These results are prepared for the use of the client for the specific project detailed and should not be used by any third party. These recommendations are relevant to the preliminary design phase and should not be substituted for construction specifications.

The possibility exists that conditions between test locations may differ from those at specific soil profile pit locations, and conditions may not be as anticipated by the designers or contractors. In addition, the construction process may itself alter soil conditions. Therefore, Dynamic Earth Geotechnical Engineers or their representatives should observe and document the final construction procedures used and the conditions encountered, as well as conduct testing and inspection to ensure the design criteria are met or recommendations to address deviations are implemented.

Dynamic Earth assumes that a qualified contractor will be employed to perform the construction work, and that the contractor will be required to exercise care to ensure all excavations are performed in accordance with applicable regulations and good practice. Particular attention should be paid to avoiding damaging or undermining adjacent properties and maintaining slope stability. Deviations from the noted subsurface conditions encountered during construction should be brought to the attention of the geotechnical engineer.

*The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been promulgated after being prepared in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics, and engineering geology. No other warranties are implied or expressed.*

# **Supplemental Test Location Plan**



SCALE: N.T.S.

JOB No:  
3709-99-004EC

SHEET No:

**1**

OF 1

DRAWN BY:  
**BR**  
DESIGNED BY:  
-  
CHECKED BY:  
**FVC**

DATE:  
**1/14/2024**

TITLE:  
**SUPPLEMENTAL TEST LOCATION PLAN**

PROJECT: **IV2 Rockland Logistics, LLC c/o Brookfield Properties, LLC**  
**Proposed Rockland Logistics Center**  
25 Old Mill Road and Hemion Road (CR 93)  
Section 55.22 Block 1, Lot 1; Village of Suffern  
Rockland County, New York

Rev. #      DEC Client Code: **3709**

**LEGEND:**

- SPP-XXX/IT-X
- APPROXIMATE LOCATION OF SUPPLEMENTAL SOIL PROFILE PIT AND INFILTRATION TEST
- APPROXIMATE LOCATION OF SOIL PROFILE PIT
- APPROXIMATE LOCATION OF SOIL PROBE

NOTES:  
1. THIS PLAN IS NOT FOR CONSTRUCTION AND WAS PREPARED TO ILLUSTRATE TEST LOCATIONS ONLY AND MAY NOT REFLECT THE MOST CURRENT REVISION OF THE BASE PLAN.  
2. THIS PLAN HAS BEEN PREPARED BASED ON A JANUARY 17, 2024 (LAST REVISED) OVERALL DRAINAGE PLAN PREPARED BY DYNAMIC ENGINEERING CONSULTANTS, PC.



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# **Records of Subsurface Exploration**



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-201

Page 1 of 1

Project: Proposed Rockland Logistics Center				Project No.: 3709-99-004EC			
Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York				Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC			
Surface Elevation (ft):	305.0	Date Started:	12/18/23	Groundwater Data		Depth (ft)	EL (ft)
Termination Depth (ft):	12.0	Date Completed:	12/18/23			NE	
Proposed Location:	SWM	Logged by:	B. Rawson	Seepage:			
Excavation Method:	Visual Observation	Contractor:	Neighbors Property Management	Groundwater:	7.7	298.3	Mottling (10 YR 6/1) observed between 84" and 92"
		Rig Type:	Bobcat E60	Mottling:	7.0	299.0	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING			LAB RESULTS	
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)	No.		
0-16	FILL Grayish Brown (10YR 5/2)	EXTREMELY GRAVELLY LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	COARSE	MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE	NONE		BAG	8	S-1			
			80	0	0	0																		
16-46	FILL Brown (10YR 5/3)	GRAVELLY SANDY CLAY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	MODERATE	MEDIUM	SLIGHTLY MOIST	FRIABLE	MODERATELY STICKY	SLIGHTLY PLASTIC	GRADUAL <5"	SMOOTH	NONE	NONE		BAG	24	S-2	IT @ 24" = 0.6 IPH		
			35	0	0	0																		
46-84	Brown (10YR 4/3)	LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	GRADUAL <5"	SMOOTH	FEW (5% MAX)	FINE	NONE	BAG	48	S-3			
			10	0	0	0																		
84-92	Brown (10YR 4/3)	SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	MODERATE	MEDIUM	MOIST	FRIABLE	SLIGHTLY STICKY	SLIGHTLY PLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	FINE	MNY >20%	COARSE >15MM	DISTINCT	BAG	90	S-4	
			5	0	0	0																		
92-144	Brownish Yellow (10YR 6/8)	GRAVELLY SAND	GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE	NONE		BAG	120	S-5			
			15	0	0	0	SINGLE GRAIN																	

Additional Remarks: Existing fill material encountered to approximately 46 inches below the ground surface. Soil profile pit SPP-201 was terminated at approximately 12 feet below the ground surface.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-202

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Project: Proposed Rockland Logistics Center				Project No.: 3709-99-004EC			
Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York				Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC			
Surface Elevation (ft): 305.0	Date Started: 12/18/23	Groundwater Data		Depth (ft)	EL (ft)		Groundwater Comments
Termination Depth (ft): 12.0	Date Completed: 12/18/23			NE			
Proposed Location: SWM	Logged by: B. Rawson	Seepage:		7.9		298.1	
Excavation Method: Visual Observation	Contractor: Neighbors Property Management	Groundwater:		7.2		298.8	
	Rig Type: Bobcat E60	Mottling:				Mottling (10 YR 6/1) observed between 86 inches and 95 inches	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING			LAB RESULTS		
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)	No.			
0-18	FILL Dark Grayish Brown (10YR 4/2)	EXTREMELY GRAVELLY LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	ANGULAR BLOCKY	WEAK	COARSE	MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	WAVY	NONE	NONE				BAG	12	S-1		
18-47	FILL Brown (10YR 5/3)	GRAVELLY SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	MODERATE	MEDIUM	SLIGHTLY MOIST	FRIABLE	MODERATELY STICKY	SLIGHTLY PLASTIC	GRADUAL <5"	SMOOTH	NONE	NONE				BAG	36	S-2	IT @ 24" = 5.2 IPH	
47-86	Brown (10YR 4/3)	LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE				BAG	60	S-3	
86-95	Brown (10YR 4/3)	LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	MEDIUM	MNY >20%	COARSE >15MM	DISTINCT	BAG	88	S-4		
95-144	Brownish Yellow (10YR 6/8)	SAND	GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS SINGLE GRAIN			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE	NONE				BAG	132	S-5		

Additional Remarks: Existing fill material encountered to approximately 47 inches below the ground surface. Soil profile pit SPP-202 was terminated at approximately 12 feet below the ground surface.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-203

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Project: Proposed Rockland Logistics Center				Project No.: 3709-99-004EC			
Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York				Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC			
Surface Elevation (ft): 306.0	Date Started: 12/18/23	Groundwater Data		Depth (ft): 6.2	EL (ft): 300.7		Groundwater Comments
Termination Depth (ft): 12.0	Date Completed: 12/18/23			Seepage:			
Proposed Location: SWM	Logged by: B. Rawson			Groundwater:	299.8		
Excavation Method: Visual Observation	Contractor: Neighbors Property Management			Mottling:	5.3		Mottling (10 YR 7/1) from 64" - 76"
	Rig Type: Bobcat E60						

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING		LAB RESULTS		
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)		No.	
0-6	TOPSOIL Brown (7.5YR 4/3)	LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	CLEAR <2.5"	WAVY	FEW (5% MAX)	FINE	NONE			BAG	4	S-1	
6-22	Dark Olive Brown (2.5YR 3/3)	GRAVELLY SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	MODERATE	MEDIUM	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	CLEAR <2.5"	WAVY	FEW (5% MAX)	FINE	NONE			BAG	18	S-2	
22-26	Dark Gray (10YR 4/1)	LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE			BAG	24	S-3	
26-64	Yellowish Brown (10YR 5/4)	GRAVELLY LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	WAVY	NONE	NONE	NONE			BAG	48	S-4	IT @ 36" = 5.0 IPH
64-76	Brown (10YR 4/3)	SANDY CLAY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	STRONG	MEDIUM	SLIGHTLY MOIST	FRIABLE	SLIGHTLY STICKY	SLIGHTLY PLASTIC	CLEAR <2.5"	WAVY	FEW (5% MAX)	VERY FINE	MNY (>20% MAX)	COARSE >15MM	PROMINENT	BAG	72	S-5	
76-144	Brownish Yellow (10YR 6/8)	GRAVELLY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE	NONE				BAG	108		

Additional Remarks: Soil profile pit SPP-203 was terminated at approximately 12 feet below the ground surface.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-204

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Project: Proposed Rockland Logistics Center				Project No.: 3709-99-004EC			
Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York				Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC			
Surface Elevation (ft): 305.0	Date Started: 12/18/23	Groundwater Data		Depth (ft)	EL (ft)		Groundwater Comments
Termination Depth (ft): 12.0	Date Completed: 12/18/23			NE			
Proposed Location: SWM	Logged by: B. Rawson	Seepage:		299.7		Mottling (10 YR 5/1) observed between approximately 62 and 73 inches	
Excavation Method: Visual Observation	Contractor: Neighbors Property Management	Groundwater:		300.8			
	Rig Type: Bobcat E60	Mottling:		5.2			

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
0-13	TOPSOIL Brown (10YR 5/3)	SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	GRANULAR/SPHERIODAL	WEAK	FINE	MOIST	LOOSE	NONSTICKY	NONPLASTIC	GRADUAL <5"	IRREGULAR	CMN (20% MAX)	FINE	NONE			BAG	6	S-1	
13-62	Dark Brown (7.5YR 3/3)	SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	LOOSE	NONSTICKY	NONPLASTIC	GRADUAL <5"	SMOOTH	FEW (5% MAX)	VERY FINE	NONE			BAG	50	S-2	IT @ 24" = 2.0 IPH
62-73	Dark Brown (7.5YR 3/3)	SANDY CLAY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS			MOIST	FIRM	SLIGHTLY STICKY	SLIGHTLY PLASTIC	GRADUAL <5"	SMOOTH	NONE		MNY (>20% MAX)	COARSE >15MM	PROMINENT	BAG	66	S-3	
73-144	Yellowish Brown (10YR 5/6)	SAND	GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	126	S-4	

Additional Remarks: Soil profile pit SPP-204 was terminated at approximately 12 feet below the ground surface.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-205

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Project: Proposed Rockland Logistics Center				Project No.: 3709-99-004EC			
Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York				Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC			
Surface Elevation (ft): 308.0	Date Started: 12/19/23	Groundwater Data		Depth (ft)	EL (ft)		Groundwater Comments
Termination Depth (ft): 12.0	Date Completed: 12/19/23			NE			
Proposed Location: SWM	Logged by: B. Rawson	Seepage		299.0		Mottling (10 YR 7/1) observed between approximately 84 and 144 inches	
Excavation Method: Visual Observation	Contractor: Neighbors Property Management	Groundwater		7.0			
	Rig Type: Bobcat E60	Mottling		301.0			

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING		LAB RESULTS	
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)		No.
0-14	TOPSOIL Yellowish Brown (10YR 5/4)	SILTY CLAY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	MODERATE	MEDIUM	MOIST	FRIABLE	SLIGHTLY STICKY	SLIGHTLY PLASTIC	GRADUAL <5"	WAVY	NONE	NONE		BAG	8	S-1		
15	0	0	0																				
14-21	FILL Gray (10YR 5/1)	GRAVELLY LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE	NONE		BAG	18	S-2		
20	0	0	0																				
21-29	Reddish Brown (5YR 5/4)	SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	GRANULAR/ SPHERIODAL	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	SLIGHTLY PLASTIC	CLEAR <2.5"	SMOOTH	NONE	NONE		BAG	24	S-3		
10	0	0	0																				
29-84	Strong Brown (7.5YR 5/6)	GRAVELLY LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	GRANULAR/ SPHERIODAL	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE	NONE		BAG	48	S-4	IT @ 48" = 4.0 IPH	
15	0	0	0																				
84-108	Dark Gray (7.5YR 4/1)	GRAVELLY SAND	GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS			MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE	FEW (5% MAX)	MEDIUM 5MM-15MM	DISTINCT	BAG	96	S-5	
20	0	0	0	SINGLE GRAIN																			
108-144	Dark Gray (7.5YR 4/1)	GRAVELLY SAND	GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE	FEW (5% MAX)	FINE <5MM	FAINT	BAG	120	S-6	
20	0	0	0	SINGLE GRAIN																			

Additional Remarks: Soil profile pit SPP-205 was terminated at approximately 12 feet below the ground surface.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-206

Project: Proposed Rockland Logistics Center				Project No.: 3709-99-004EC			
Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York				Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC			
Surface Elevation (ft): 308.0	Date Started: 12/20/23	Groundwater Data		Depth (ft):	EL (ft):		Groundwater Comments
Termination Depth (ft): 7.0	Date Completed: 12/20/23			(ft):			
Proposed Location: SWM	Logged by: B. Rawson	Seepage:		Groundwater		302.0	
Excavation Method: Visual Observation	Contractor: Neighbors Property Management	Mottling:		Groundwater			
	Rig Type: Bobcat E60						

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING			LAB RESULTS	
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)	No.		
0-24	FILL Brown (7.5YR 4/4)	SAND	GRAVEL	COBBLES	STONES	BOULDERS	GRANULAR/SPHERIODAL	WEAK	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	GRADUAL <5"	IRREGULAR	NONE	NONE				BAG	10	S-1	
24-64	FILL Gray (10YR 5/1)	SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	VERY FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC			NONE	NONE				BAG	56	S-2	IT @ 24" = 1.4 IPH

Additional Remarks: Apparent remnant PVC water utility encountered at approximately seven feet below the ground surface. Existing fill material encountered to approximately seven feet below the ground surface. Soil profile pit SPP-206 was terminated at approximately seven feet below the ground surface due to excessive water.



SOIL PROFILE PIT LOG

Soil Profile Pit: **SPP-207**

Project: Proposed Rockland Logistics Center				Project No.: 3709-99-004EC			
Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York				Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC			
Surface Elevation (ft): 308.0	Date Started: 12/19/23	Groundwater Data		Depth (ft):	EL (ft):		Groundwater Comments
Termination Depth (ft): 7.0	Date Completed: 12/19/23			(ft):			
Proposed Location: SWM	Logged by: B. Rawson	Seepage:		302.0			
Excavation Method: Visual Observation	Contractor: Neighbors Property Management	Groundwater:		6.0			
	Rig Type: Bobcat E60	Mottling:		NE			

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)	No.	
0-24	FILL Brown (7.5YR 4/4)	SAND	GRAVEL	COBBLES	STONES	BOULDERS	GRANULAR/SPHERIODAL	WEAK	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	GRADUAL <5"	IRREGULAR	NONE	NONE			BAG	12	S-1	
24-64	FILL Gray (10YR 5/1)	SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	VERY FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC			NONE	NONE			BAG	60	S-2	IT @ 24" = 1.5 IPH

Additional Remarks: Apparent remnant PVC water utility encountered at approximately six feet below the ground surface. Existing fill material encountered to approximately seven feet below the ground surface. Soil profile pit SPP-207 was terminated at approximately seven feet below the ground surface due to excessive water.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-208

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Project: Proposed Rockland Logistics Center Project No.: 3709-99-004EC

Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC

Surface Elevation (ft): 308.0	Date Started: 12/19/23	Groundwater Data	Depth (ft): --	EL (ft): --	Groundwater Comments
Termination Depth (ft): 12.0	Date Completed: 12/19/23	Seepage: --	Groundwater: 299.8		
Proposed Location: SWM	Logged by: B. Rawson	Groundwater: --	Mottling: NE		
Excavation / Test Method: Visual Observation	Contractor: Neighbors Property Management				
	Rig Type: Bobcat E60				

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)	No.	
0-4	FILL Brown (10YR 3/2)	LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE	NONE			BAG	2	S-1	
4-7	FILL Gray (10YR 5/1)	EXTREMELY GRAVELLY LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	MEDIUM	MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE	NONE			BAG	6	S-2	
7-21	Pale Brown (10YR 6/3)	VERY GRAVELLY LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	MEDIUM	MOIST	LOOSE	NONSTICKY	NONPLASTIC	ABRUPT <1"	SMOOTH	NONE	NONE			BAG	18	S-3	
21-98	Brown (10YR 4/3)	LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	WAVY	FEW (5% MAX) VERY FINE	NONE			BAG	48	S-4	IT @ 48" = 18.0 IPH
98-144	Brown (10YR 4/3)	GRAVELLY SAND	GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE	NONE			BAG	132	S-5	

Additional Remarks: Soil profile pit SPP-208 was terminated at approximately 12 feet below the ground surface.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-209

Project: Proposed Rockland Logistics Center Project No.: 3709-99-004EC

Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC

Surface Elevation (ft): 319.0	Date Started: 12/19/23	Groundwater Data	Depth (ft):	EL (ft):	Groundwater Comments
Termination Depth (ft): 12.0	Date Completed: 12/19/23	Seepage:	NE	--	
Proposed Location: SWM	Logged by: B. Rawson	Groundwater:	8.3	310.7	
Excavation Method: Visual Observation	Contractor: Neighbors Property Management	Mottling:	NE	--	
	Rig Type: Bobcat E60				

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING			LAB RESULTS	
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)	No.		
0-12	TOPSOIL Dark Grayish Brown (10YR 4/2)	GRAVELLY SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	MEDIUM	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	GRADUAL <5"	WAVY	MNY (>20% MAX)	MEDIUM	NONE	NONE	NONE	BAG	8	S-1	
12-144	FILL Dark Brown (10YR 3/3)	SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	MEDIUM	MOIST	FRIABLE	NONSTICKY	NONPLASTIC			NONE		NONE	NONE	NONE	BAG	128	S-2	IT @ 24" = 6.5 IPH

Additional Remarks: Fill material including debris (roots, topsoil, organic materials) encountered to a depth of 12 feet. Soil profile pit SPP-209 was terminated at approximately 12 feet below the ground surface.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-210

Project: Proposed Rockland Logistics Center				Project No.: 3709-99-004EC				
Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York				Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC				
Surface Elevation (ft): 317.0	Date Started: 12/20/23	Groundwater Data		Depth (ft)	EL (ft)		Groundwater Comments	
Termination Depth (ft): 12.0	Date Completed: 12/20/23			(ft)				
Proposed Location: SWM	Logged by: B. Rawson	Seepage:		6.5	310.5			
Excavation Method: Visual Observation	Contractor: Neighbors Property Management	Groundwater		3.0		314.0		Mottling (10 YR 7/1) observed from 78" to 144"
	Rig Type: Bobcat E60	Mottling						

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING			LAB RESULTS	
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)	No.		
0-36	TOPSOIL Dark Grayish Brown (10YR 4/2)	GRAVELLY SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	GRADUAL <5"	WAVY	MNY (>20% MAX)	MEDIUM	NONE			BAG	18	S-1	
36-78	Yellowish Brown (10YR 5/6)	GRAVELLY SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	FEW (5% MAX)	FINE <SMM	DISTINCT	BAG	60	S-2	IT @ 24" = 1.8 IPH
78-144	Strong Brown (7.5YR 4/6)	SAND	GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	126	S-3	

Additional Remarks: Apparent re-worked topsoil/fill encountered to a depth of three feet. Soil profile pit SPP-210 was terminated at approximately 12 feet below the ground surface.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-211

Project: Proposed Rockland Logistics Center Project No.: 3709-99-004EC

Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC

Surface Elevation (ft): 310.0	Date Started: 12/20/23	Groundwater Data	Depth (ft): --	EL (ft): --	Groundwater Comments
Termination Depth (ft): 12.0	Date Completed: 12/20/23	Seepage: --	Groundwater: 4.5	305.5	
Proposed Location: SWM	Logged by: B. Rawson	Groundwater: --	Mottling: NE	--	
Excavation Method: Visual Observation	Contractor: Neighbors Property Management				
	Rig Type: Bobcat E60				

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING			LAB RESULTS	
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)	No.		
0-13	TOPSOIL Very Dark Gray (7.5YR 3/1)	LOAM	GRAVEL	COBBLES	STONES	BOULDERS	GRANULAR/ SPHERIODAL	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	GRADUAL <5"	IRREGULAR	MNY (>20% MAX)	MEDIUM	NONE			BAG	12	S-1	
13-54	Yellowish Brown (10YR 5/6)	GRAVELLY LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	VERY FINE	NONE			BAG	24	S-2	IT @ 24" = 6.0 IPH
54-144	Strong Brown (7.5YR 5/6)	SAND	GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS			WET	FRIABLE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	72	S-3	

Additional Remarks: Soil profile pit SPP-211 was terminated at approximately 12 feet below the ground surface.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-212

Project: Proposed Rockland Logistics Center				Project No.: 3709-99-004EC			
Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York				Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC			
Surface Elevation (ft): 308.0	Date Started: 12/20/23	Groundwater Data		Depth (ft)	EL (ft)		Groundwater Comments
Termination Depth (ft): 12.0	Date Completed: 12/20/23			NE			
Proposed Location: SWM	Logged by: B. Rawson	Seepage:		302.7		Mottling (10 YR 7/1) observed from 56 inches to 144 inches	
Excavation Method: Visual Observation	Contractor: Neighbors Property Management	Groundwater:		303.3			
	Rig Type: Bobcat E60	Mottling:		4.7			

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING			LAB RESULTS	
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)	No.		
0-8	TOPSOIL Dark Gray (7.5YR 4/1)	LOAM	GRAVEL	COBBLES	STONES	BOULDERS	GRANULAR/ SPHERIODAL	WEAK	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	CLEAR <2.5"	WAVY	CMN (20% MAX)	FINE	NONE			BAG	6	S-1	
8-22	Very Dark Gray (7.5YR 3/1)	SILT LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	GRADUAL <5"	IRREGULAR	FEW (5% MAX)	FINE	NONE			BAG	16	S-2	
22-56	Brownish Yellow (10YR 6/6)	LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	SLIGHTLY MOIST	FRIABLE	NONSTICKY	NONPLASTIC	GRADUAL <5"	SMOOTH	NONE		NONE			BAG	48	S-3	IT @ 24" = 4.0 IPH
56-144	Dark Brown (10YR 3/3)	GRAVELLY SAND	GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS  SINGLE GRAIN			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		CMN (20% MAX)	MEDIUM 5MM-15MM	DISTINCT	BAG	120	S-4	

Additional Remarks: Soil profile pit SPP-212 was terminated at approximately 12 feet below the ground surface.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-213

Project: Proposed Rockland Logistics Center				Project No.: 3709-99-004EC			
Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York				Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC			
Surface Elevation (ft): 309.0	Date Started: 12/20/23	Groundwater Data		Depth (ft)	EL (ft)		Groundwater Comments
Termination Depth (ft): 12.0	Date Completed: 12/20/23			NE			
Proposed Location: SWM	Logged by: B. Rawson	Seepage:					
Excavation Method: Visual Observation	Contractor: Neighbors Property Management	Groundwater:		5.3	303.7		Mottling (10 YR 7/1) observed from 63 inches to 144 inches
	Rig Type: Bobcat E60	Mottling:		5.3	303.7		

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING			LAB RESULTS	
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)	No.		
0-12	TOPSOIL Very Dark Gray (7.5YR 3/1)	LOAM	GRAVEL	COBBLES	STONES	BOULDERS	GRANULAR/ SPHERIODAL	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	WAVY	CMN (20% MAX)	FINE	NONE			BAG	10	S-1	
12-23	Light Brown (7.5YR 6/4)	SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	GRADUAL <5"	SMOOTH	FEW (5% MAX)	FINE	NONE			BAG	18	S-2	
23-43	Brown (7.5YR 5/4)	LOAMY SAND	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	GRADUAL <5"	SMOOTH	NONE	NONE	NONE			BAG	48	S-3	IT @ 24" = 5.5 IPH
63-144	Brown (7.5YR 4/4)	GRAVELLY SAND	GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS  SINGLE GRAIN			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE	NONE	FEW (5% MAX)	FINE <5MM	FAINT	BAG	120	S-4	

Additional Remarks: Soil profile pit SPP-213 was terminated at approximately 12 feet below the ground surface.



SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-214

Project: Proposed Rockland Logistics Center Project No.: 3709-99-004EC

Location: 25 Old Mill Road and Hemlon Road, Village of Suffern, Rockland County, New York Client: IV Rockland Logistics Center, LLC c/o Brookfield Properties, LLC

Surface Elevation (ft): 306.0	Date Started: 12/20/23	Groundwater Data	Depth (ft)	EL (ft)	Groundwater Comments
Termination Depth (ft): 12.0	Date Completed: 12/20/23	Seepage	NE	--	
Proposed Location: SWM	Logged by: B. Rawson	Groundwater	NE	--	
Excavation Method: Visual Observation	Contractor: Neighbors Property Management	Mottling	NE	--	
	Rig Type: Bobcat E60				

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS	MOTTLING			SAMPLING			LAB RESULTS		
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography		Quantity	Size	Contrast	Type	Depth (in)	No.			
0-6	Dark Gray (10YR 4/1)	LOAM	GRAVEL	COBBLES	STONES	BOULDERS	GRANULAR/SPHERIODAL	WEAK	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC	CLEAR <2.5"	WAVY	MNY (>20% MAX)	MEDIUM	NONE				BAG		S-1	
6-24	Brownish Yellow (10YR 6/6)	SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	SLIGHTLY STICKY	SLIGHTLY PLASTIC	CLEAR <2.5"	WAVY	CMN (20% MAX)	FINE	NONE				BAG		S-2	
24-144	Very Dark Gray (10YR 3/1)	GRAVELLY SANDY LOAM	GRAVEL	COBBLES	STONES	BOULDERS	SUBANGULAR BLOCKY	WEAK	FINE	SLIGHTLY MOIST	FRIABLE	SLIGHTLY STICKY	NONPLASTIC			NONE		NONE				BAG		S-3	IT @ 48" = 2.0 IPH

Additional Remarks: Soil profile pit SPP-214 was terminated at approximately 12 feet below the ground surface. Refusal on apparent boulders at 12 feet.

# **Infiltration Test Results**

# INFILTRATION TEST REPORT

**Client:** IV2 Rockland Logistics Center c/o Brookfield Properties, LLC

**Test Hole No.:** SPP-201/IT-201

**Project:** Proposed Industrial Park

**Date:** 12/18/2023

**Location:** Suffern, Rockland County, NY

**Weather:** Clear, 35°F

**Project No.:** 3709-99-004EC

**Project Manager:** F. Van Cleve

**Surface Elevation:** 306.0 feet

**Test Depth:** 24"

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	23.4	0.6	1	0.6
2	24	23.4	0.6	1	0.6
3	24	23.4	0.6	1	0.6
<b>4</b>	<b>24</b>	<b>23.4</b>	<b>0.6</b>	<b>1</b>	<b>0.6</b>

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o  
Brookfield Properties, LLC**

**Test Hole No.: SPP-202/IT-202**

**Project: Proposed Industrial Park**

**Date: 12/18/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 35°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 306.0 feet**

**Test Depth: 24"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	18.8	5.2	1	5.2
2	24	18.8	5.2	1	5.2
3	24	18.8	5.2	1	5.2
4	24	18.8	5.2	1	5.2

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o  
Brookfield Properties, LLC**

**Test Hole No.: SPP-203/IT-203**

**Project: Proposed Industrial Park**

**Date: 12/18/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 35°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 306.0 feet**

**Test Depth: 36"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	19.0	5.0	1	5.0
2	24	19.0	5.0	1	5.0
3	24	19.0	5.0	1	5.0
<b>4</b>	<b>24</b>	<b>19.0</b>	<b>5.0</b>	<b>1</b>	<b>5.0</b>

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o Brookfield Properties, LLC**

**Test Hole No.: SPP-204/IT-204**

**Project: Proposed Industrial Park**

**Date: 12/18/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 35°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 306.0 feet**

**Test Depth: 24"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	22.0	2.0	1	2.0
2	24	22.0	2.0	1	2.0
3	24	22.0	2.0	1	2.0
4	24	22.0	2.0	1	2.0

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o Brookfield Properties, LLC**

**Test Hole No.: SPP-205/IT-205**

**Project: Proposed Industrial Park**

**Date: 12/19/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 33°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 308.0 feet**

**Test Depth: 48"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	20.0	4.0	1	4.0
2	24	20.0	4.0	1	4.0
3	24	20.0	4.0	1	4.0
<b>4</b>	<b>24</b>	<b>20.0</b>	<b>4.0</b>	<b>1</b>	<b>4.0</b>

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o  
Brookfield Properties, LLC**

**Test Hole No.: SPP-206/IT-206**

**Project: Proposed Industrial Park**

**Date: 12/20/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 34°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 308.0 feet**

**Test Depth: 24"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	22.6	1.4	1	1.4
2	24	22.6	1.4	1	1.4
3	24	22.6	1.4	1	1.4
4	24	22.6	1.4	1	1.4

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o Brookfield Properties, LLC**

**Test Hole No.: SPP-207/IT-207**

**Project: Proposed Industrial Park**

**Date: 12/19/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 33°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 308.0 feet**

**Test Depth: 24"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	22.5	1.5	1	1.5
2	24	22.5	1.5	1	1.5
3	24	22.5	1.5	1	1.5
4	24	22.5	1.5	1	1.5

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o Brookfield Properties, LLC**

**Test Hole No.: SPP-208/IT-208**

**Project: Proposed Industrial Park**

**Date: 12/19/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 33°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 308.0 feet**

**Test Depth: 48"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	6.0	18.0	1	18.0
2	24	6.0	18.0	1	18.0
3	24	6.0	18.0	1	18.0
<b>4</b>	<b>24</b>	<b>6.0</b>	<b>18.0</b>	<b>1</b>	<b>18.0</b>

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o  
Brookfield Properties, LLC**

**Test Hole No.: SPP-209/IT-209**

**Project: Proposed Industrial Park**

**Date: 12/19/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 33°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 319.0 feet**

**Test Depth: 24"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	17.5	6.5	1	6.5
2	24	17.5	6.5	1	6.5
3	24	17.5	6.5	1	6.5
4	24	17.5	6.5	1	6.5

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o Brookfield Properties, LLC**

**Test Hole No.: SPP-210/IT-210**

**Project: Proposed Industrial Park**

**Date: 12/20/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 34°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 317.0 feet**

**Test Depth: 24"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	22.2	1.8	1	1.8
2	24	22.2	1.8	1	1.8
3	24	22.2	1.8	1	1.8
4	24	22.2	1.8	1	1.8

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o Brookfield Properties, LLC**

**Test Hole No.: SPP-211/IT-211**

**Project: Proposed Industrial Park**

**Date: 12/20/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 34°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 310.0 feet**

**Test Depth: 24"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	18.0	6.0	1	6.0
2	24	18.0	6.0	1	6.0
3	24	18.0	6.0	1	6.0
<b>4</b>	<b>24</b>	<b>18.0</b>	<b>6.0</b>	<b>1</b>	<b>6.0</b>

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o Brookfield Properties, LLC**

**Test Hole No.: SPP-212/IT-212**

**Project: Proposed Industrial Park**

**Date: 12/20/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 34°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 310.0 feet**

**Test Depth: 24"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	20.0	4.0	1	4.0
2	24	20.0	4.0	1	4.0
3	24	20.0	4.0	1	4.0
<b>4</b>	<b>24</b>	<b>20.0</b>	<b>4.0</b>	<b>1</b>	<b>4.0</b>

# INFILTRATION TEST REPORT

**Client: IV2 Rockland Logistics Center c/o  
Brookfield Properties, LLC**

**Test Hole No.: SPP-213/IT-213**

**Project: Proposed Industrial Park**

**Date: 12/20/2023**

**Location: Suffern, Rockland County, NY**

**Weather: Clear, 34°F**

**Project No.: 3709-99-004EC**

**Project Manager: F. Van Cleve**

**Surface Elevation: 309.0 feet**

**Test Depth: 24"**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	19.5	5.5	1	5.5
2	24	19.5	5.5	1	5.5
3	24	19.5	5.5	1	5.5
4	24	19.5	5.5	1	5.5



**NRCS - USDA Custom Soil Resource Report  
for Rockland County, New York**



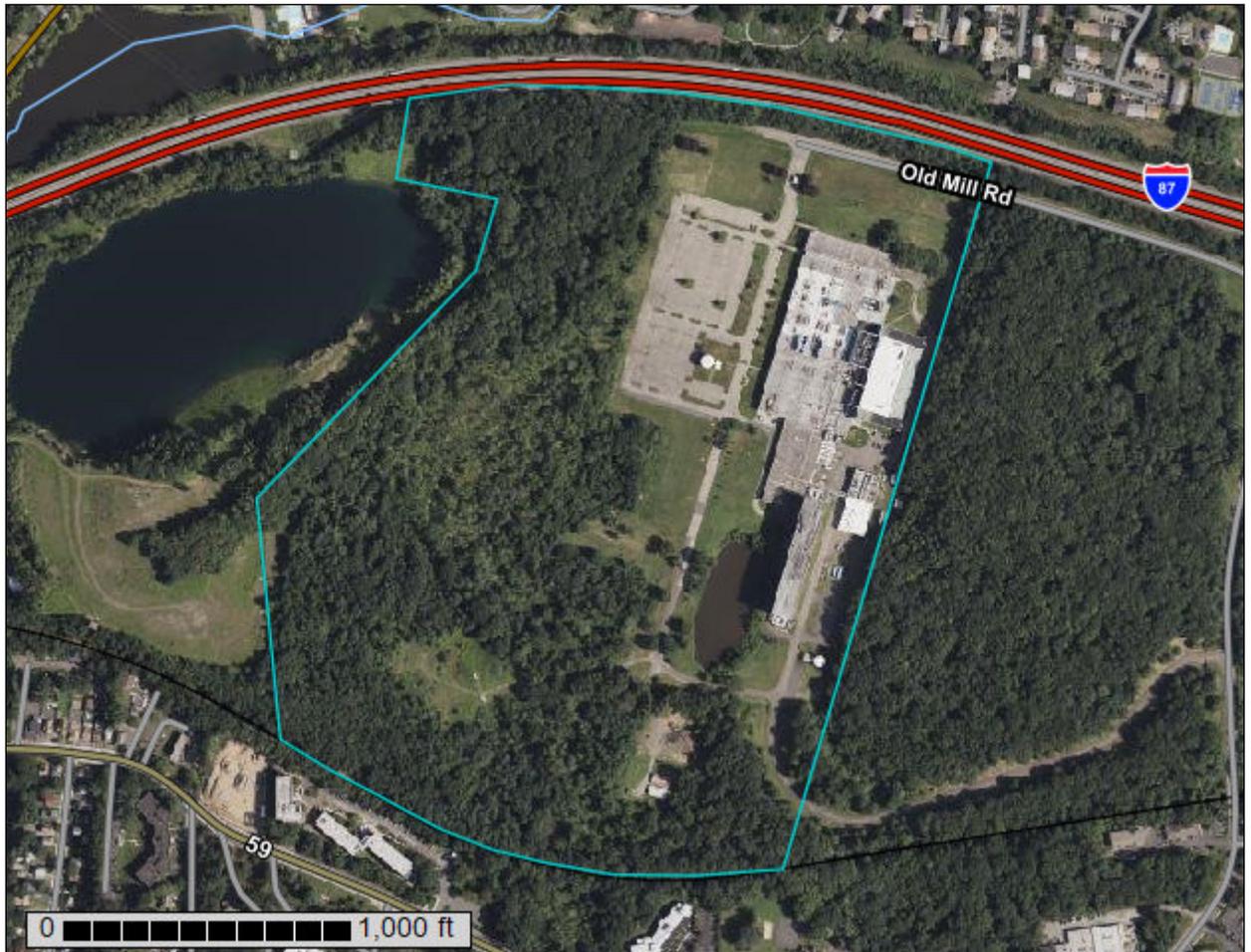
United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for **Rockland County, New York**



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

## Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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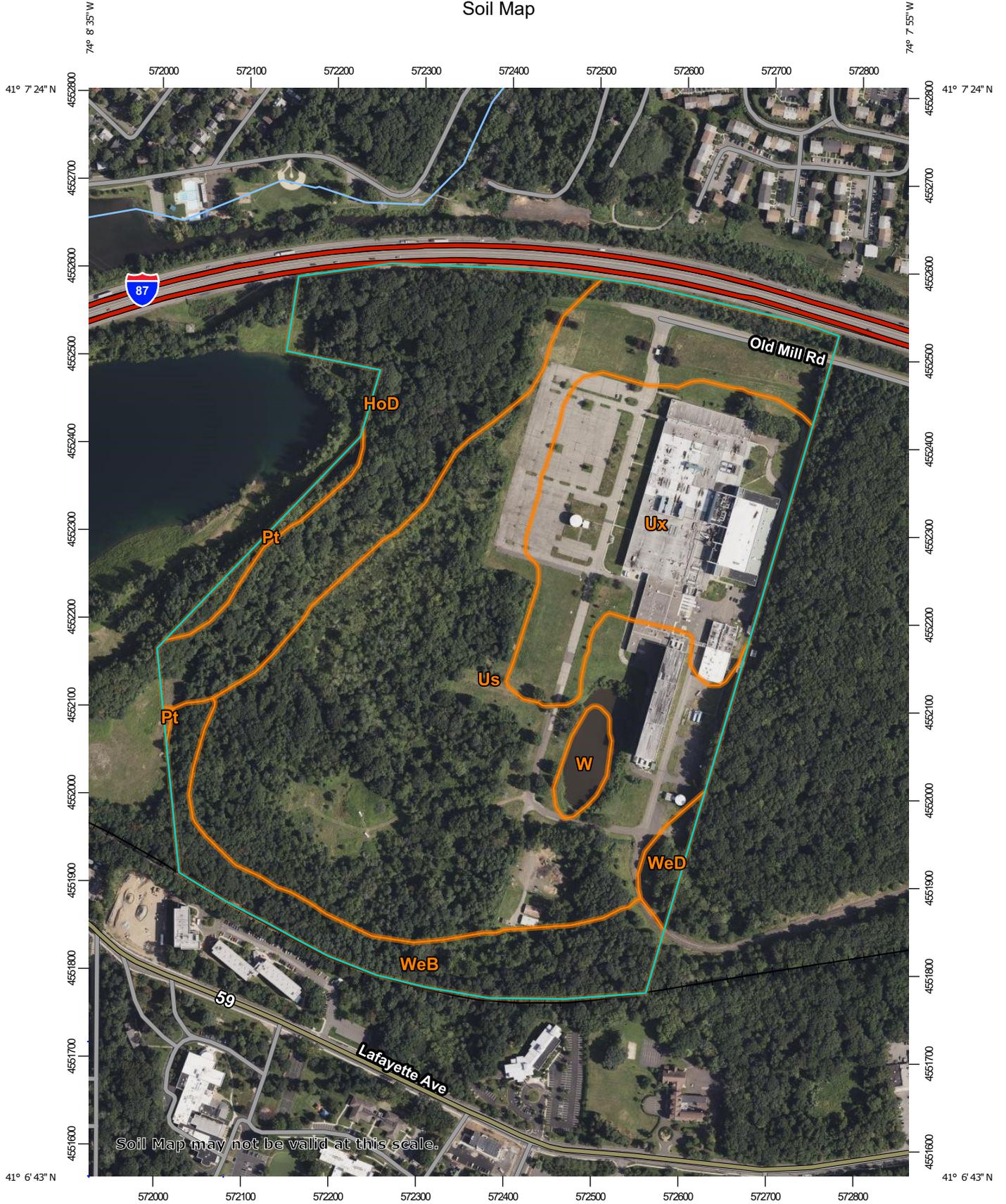
identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:6,040 if printed on A portrait (8.5" x 11") sheet.

0 50 100 200 300 Meters

0 250 500 1000 1500 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

**Special Point Features**

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

**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 1:24,000.

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: Rockland County, New York  
 Survey Area Data: Version 19, Sep 1, 2021

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

Date(s) aerial images were photographed: Apr 13, 2021—Sep 14, 2021

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

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HoD	Holyoke-Rock outcrop complex, hilly	20.2	17.7%
Pt	Pits, gravel	1.4	1.2%
Us	Udorthents, smoothed	58.8	51.5%
Ux	Urban land	21.5	18.8%
W	Water	1.3	1.2%
WeB	Wethersfield gravelly silt loam, 3 to 8 percent slopes	9.8	8.6%
WeD	Wethersfield gravelly silt loam, 15 to 25 percent slopes	1.2	1.1%
<b>Totals for Area of Interest</b>		<b>114.2</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

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was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Rockland County, New York

### HoD—Holyoke-Rock outcrop complex, hilly

#### Map Unit Setting

*National map unit symbol:* 9v4q  
*Elevation:* 0 to 740 feet  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Holyoke and similar soils:* 55 percent  
*Rock outcrop:* 20 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Holyoke

##### Setting

*Landform:* Ridges, hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy till

##### Typical profile

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*H1 - 2 to 6 inches:* silt loam  
*H2 - 6 to 18 inches:* silt loam  
*H3 - 18 to 28 inches:* unweathered bedrock

##### Properties and qualities

*Slope:* 10 to 30 percent  
*Surface area covered with cobbles, stones or boulders:* 1.6 percent  
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* D  
*Ecological site:* F145XY011CT - Well Drained Shallow Till Uplands  
*Hydric soil rating:* No

### **Description of Rock Outcrop**

#### **Typical profile**

*H1 - 0 to 60 inches: unweathered bedrock*

#### **Properties and qualities**

*Slope: 10 to 30 percent*

*Depth to restrictive feature: 0 inches to lithic bedrock*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)*

#### **Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 7s*

*Hydric soil rating: Unranked*

### **Minor Components**

#### **Charlton**

*Percent of map unit: 10 percent*

*Hydric soil rating: No*

#### **Chatfield**

*Percent of map unit: 10 percent*

*Hydric soil rating: No*

#### **Watchaug**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

### **Pt—Pits, gravel**

#### **Map Unit Setting**

*National map unit symbol: 9v50*

*Mean annual precipitation: 47 to 50 inches*

*Mean annual air temperature: 48 to 52 degrees F*

*Frost-free period: 135 to 215 days*

*Farmland classification: Not prime farmland*

#### **Map Unit Composition**

*Pits, gravel: 80 percent*

*Minor components: 20 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Pits, Gravel**

#### **Typical profile**

*H1 - 0 to 6 inches: very gravelly sand*

*H2 - 6 to 60 inches: very gravelly coarse sand*

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### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 8s

*Hydric soil rating:* Unranked

### Minor Components

#### Riverhead

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Udorthents

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Hinckley

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Fredon

*Percent of map unit:* 4 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### Water

*Percent of map unit:* 1 percent

*Hydric soil rating:* Unranked

## Us—Udorthents, smoothed

### Map Unit Setting

*National map unit symbol:* 9v5d

*Elevation:* 0 to 890 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Udorthents, smoothed, and similar soils:* 80 percent

*Minor components:* 20 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Udorthents, Smoothed

#### Typical profile

*H1 - 0 to 20 inches:* channery loam

*H2 - 20 to 70 inches:* very gravelly loam

#### Properties and qualities

*Slope:* 0 to 8 percent

*Depth to restrictive feature:* More than 80 inches

## Custom Soil Resource Report

*Drainage class:* Somewhat excessively drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.06 to 5.95 in/hr)

*Depth to water table:* About 36 to 72 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water supply, 0 to 60 inches:* Low (about 5.4 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* A

*Hydric soil rating:* No

### **Minor Components**

#### **Udorthents, wet substratum**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Urban land**

*Percent of map unit:* 4 percent

*Hydric soil rating:* Unranked

#### **Alden**

*Percent of map unit:* 2 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### **Wallington**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

#### **Wethersfield**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

#### **Riverhead**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

#### **Hollis**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

#### **Rock outcrop**

*Percent of map unit:* 1 percent

*Hydric soil rating:* Unranked

## Ux—Urban land

### Map Unit Setting

*National map unit symbol:* 9v5g  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Urban land:* 75 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Urban Land

#### Typical profile

*H1 - 0 to 6 inches:* variable

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8s  
*Hydric soil rating:* Unranked

### Minor Components

#### Riverhead

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Yalesville

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Holyoke

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Udorthents

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Udorthents, wet substratum

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

## **W—Water**

### **Map Unit Setting**

*National map unit symbol:* 9v5s  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Water:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## **WeB—Wethersfield gravelly silt loam, 3 to 8 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9v5l  
*Elevation:* 30 to 690 feet  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Wethersfield and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Wethersfield**

#### **Setting**

*Landform:* Till plains, hills  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

#### **Typical profile**

*H1 - 0 to 13 inches:* gravelly silt loam  
*H2 - 13 to 22 inches:* gravelly loam  
*H3 - 22 to 60 inches:* gravelly fine sandy loam

#### **Properties and qualities**

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* 20 to 38 inches to densic material

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*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 18 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands  
*Hydric soil rating:* No

### Minor Components

#### Cheshire

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Charlton

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Riverhead

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Wallington

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

## WeD—Wethersfield gravelly silt loam, 15 to 25 percent slope s

### Map Unit Setting

*National map unit symbol:* 9v5n  
*Elevation:* 0 to 640 feet  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Wethersfield and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Wethersfield

#### Setting

*Landform:* Till plains, hills

## Custom Soil Resource Report

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

### Typical profile

*H1 - 0 to 13 inches:* gravelly silt loam

*H2 - 13 to 22 inches:* gravelly loam

*H3 - 22 to 60 inches:* gravelly fine sandy loam

### Properties and qualities

*Slope:* 15 to 25 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* C

*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands

*Hydric soil rating:* No

### Minor Components

#### Riverhead

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Charlton

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Cheshire

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Wallington

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Yalesville

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)

**EXISTING AND PROPOSED HYDROCAD OUTPUT –  
WATER QUALITY, 1-, 10- & 100-YEAR STORM EVENTS**

**2024-01-15 Existing Conditions**

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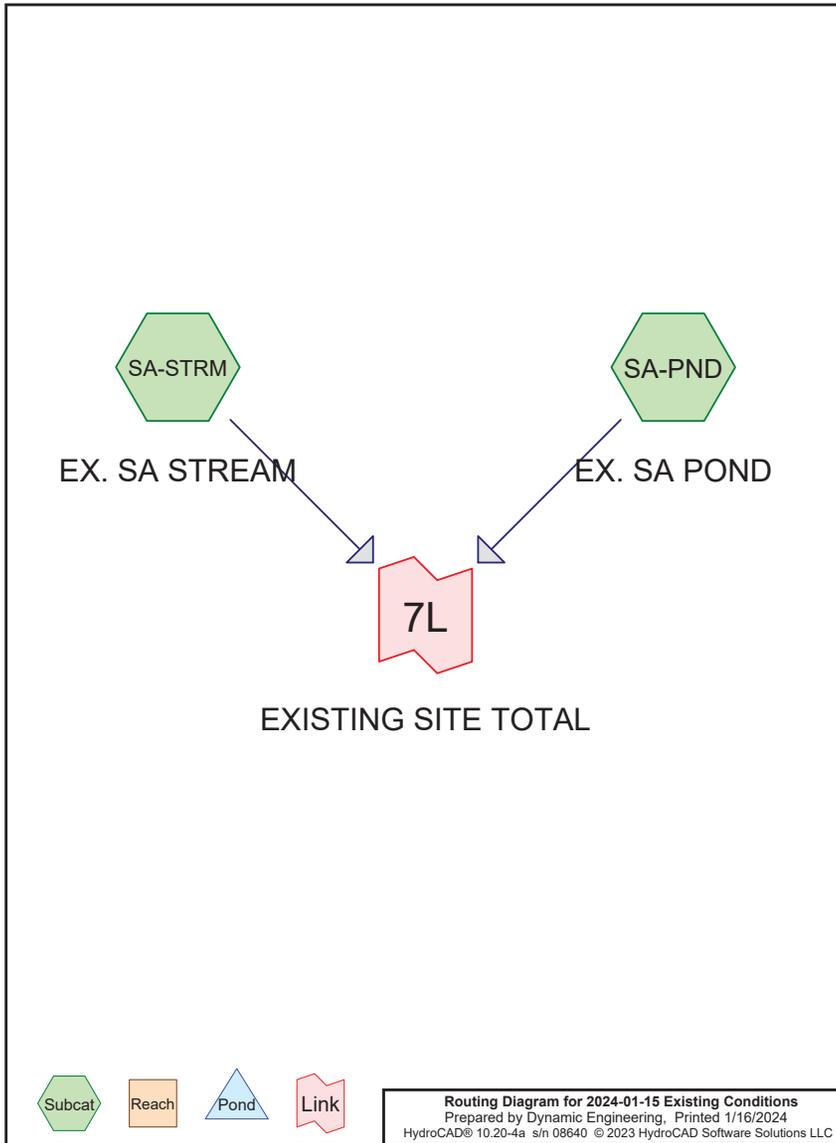
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**Rainfall Events Listing**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	NY-Suffern 24-hr S1	1-yr	Default	24.00	1	2.74	2
2	10-yr	NY-Suffern 24-hr S1	10-yr	Default	24.00	1	4.98	2
3	100-yr	NY-Suffern 24-hr S1	100-yr	Default	24.00	1	8.81	2



**2024-01-15 Existing Conditions**

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**Area Listing (selected nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
3.180	39	>75% Grass cover, Good, HSG A (SA-PND)
8.370	80	>75% Grass cover, Good, HSG D (SA-PND, SA-STRM)
0.090	72	Dirt roads, HSG A (SA-STRM)
0.030	87	Dirt roads, HSG C (SA-STRM)
20.250	98	IMP (SA-STRM)
0.710	98	Paved parking, HSG A (SA-PND)
0.140	98	Paved parking, HSG D (SA-PND)
0.680	98	Water Surface, HSG A (SA-PND)
1.170	98	Water Surface, HSG D (SA-PND)
49.330	30	Woods, Good, HSG A (SA-STRM)
34.450	70	Woods, Good, HSG C (SA-STRM)
12.070	77	Woods, Good, HSG D (SA-STRM)
<b>130.470</b>	<b>60</b>	<b>TOTAL AREA</b>

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment SA-PND: EX. SA POND** Runoff Area=6.380 ac 42.32% Impervious Runoff Depth>0.46"  
Flow Length=169' Tc=15.6 min CN=67 Runoff=1.81 cfs 0.243 af

**Subcatchment SA-STRM: EX. SA** Runoff Area=124.090 ac 16.32% Impervious Runoff Depth>0.24"  
Flow Length=327' Tc=16.6 min CN=60 Runoff=9.60 cfs 2.508 af

**Link 7L: EXISTING SITE TOTAL** Inflow=10.99 cfs 2.751 af  
Primary=10.99 cfs 2.751 af

**Total Runoff Area = 130.470 ac Runoff Volume = 2.751 af Average Runoff Depth = 0.25"**  
**82.41% Pervious = 107.520 ac 17.59% Impervious = 22.950 ac**

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment SA-PND: EX. SA POND**

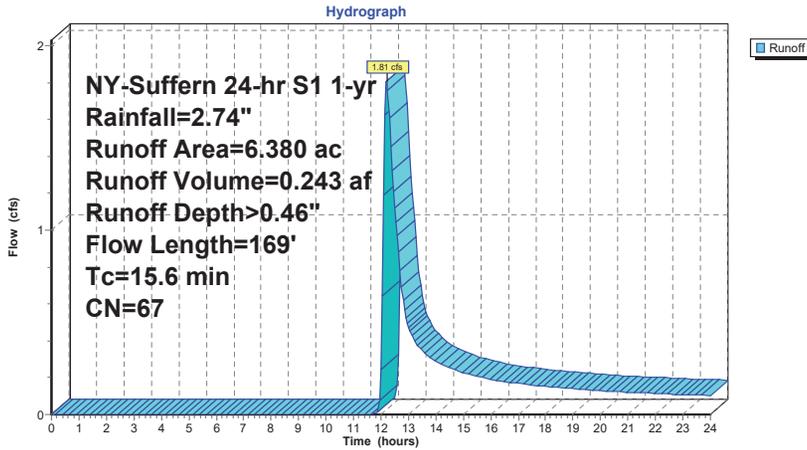
Runoff = 1.81 cfs @ 12.21 hrs, Volume= 0.243 af, Depth> 0.46"  
Routed to Link 7L : EXISTING SITE TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
0.710	98	Paved parking, HSG A
0.140	98	Paved parking, HSG D
0.680	98	Water Surface, HSG A
1.170	98	Water Surface, HSG D
3.180	39	>75% Grass cover, Good, HSG A
0.500	80	>75% Grass cover, Good, HSG D
6.380	67	Weighted Average
3.680		57.68% Pervious Area
2.700		42.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0133	0.16		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.35"
0.0	19	0.1605	6.45		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
15.6	169	Total			

**Subcatchment SA-PND: EX. SA POND**



**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment SA-PND: EX. SA POND**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	2.02	0.18	0.47
0.25	0.01	0.00	0.00	13.25	2.06	0.19	0.39
0.50	0.02	0.00	0.00	13.50	2.10	0.21	0.35
0.75	0.03	0.00	0.00	13.75	2.13	0.22	0.31
1.00	0.04	0.00	0.00	14.00	2.17	0.23	0.29
1.25	0.05	0.00	0.00	14.25	2.19	0.24	0.27
1.50	0.05	0.00	0.00	14.50	2.22	0.25	0.25
1.75	0.06	0.00	0.00	14.75	2.25	0.26	0.24
2.00	0.07	0.00	0.00	15.00	2.27	0.27	0.23
2.25	0.08	0.00	0.00	15.25	2.29	0.27	0.22
2.50	0.09	0.00	0.00	15.50	2.31	0.28	0.21
2.75	0.10	0.00	0.00	15.75	2.33	0.29	0.20
3.00	0.12	0.00	0.00	16.00	2.35	0.30	0.19
3.25	0.13	0.00	0.00	16.25	2.37	0.30	0.19
3.50	0.14	0.00	0.00	16.50	2.39	0.31	0.18
3.75	0.15	0.00	0.00	16.75	2.40	0.32	0.17
4.00	0.16	0.00	0.00	17.00	2.42	0.32	0.17
4.25	0.17	0.00	0.00	17.25	2.44	0.33	0.16
4.50	0.18	0.00	0.00	17.50	2.45	0.34	0.16
4.75	0.20	0.00	0.00	17.75	2.47	0.34	0.16
5.00	0.21	0.00	0.00	18.00	2.48	0.35	0.15
5.25	0.22	0.00	0.00	18.25	2.49	0.35	0.15
5.50	0.23	0.00	0.00	18.50	2.51	0.36	0.15
5.75	0.25	0.00	0.00	18.75	2.52	0.36	0.14
6.00	0.26	0.00	0.00	19.00	2.53	0.37	0.14
6.25	0.28	0.00	0.00	19.25	2.55	0.38	0.14
6.50	0.29	0.00	0.00	19.50	2.56	0.38	0.13
6.75	0.31	0.00	0.00	19.75	2.57	0.39	0.13
7.00	0.32	0.00	0.00	20.00	2.58	0.39	0.13
7.25	0.34	0.00	0.00	20.25	2.59	0.40	0.13
7.50	0.35	0.00	0.00	20.50	2.60	0.40	0.13
7.75	0.37	0.00	0.00	20.75	2.61	0.41	0.12
8.00	0.39	0.00	0.00	21.00	2.63	0.41	0.12
8.25	0.41	0.00	0.00	21.25	2.64	0.41	0.12
8.50	0.43	0.00	0.00	21.50	2.65	0.42	0.12
8.75	0.45	0.00	0.00	21.75	2.66	0.42	0.12
9.00	0.47	0.00	0.00	22.00	2.67	0.43	0.11
9.25	0.50	0.00	0.00	22.25	2.68	0.43	0.11
9.50	0.52	0.00	0.00	22.50	2.69	0.44	0.11
9.75	0.55	0.00	0.00	22.75	2.69	0.44	0.11
10.00	0.58	0.00	0.00	23.00	2.70	0.44	0.11
10.25	0.61	0.00	0.00	23.25	2.71	0.45	0.11
10.50	0.65	0.00	0.00	23.50	2.72	0.45	0.11
10.75	0.69	0.00	0.00	23.75	2.73	0.46	0.10
11.00	0.73	0.00	0.00	24.00	2.74	0.46	0.10
11.25	0.79	0.00	0.00				
11.50	0.86	0.00	0.00				
11.75	1.00	0.00	0.00				
12.00	1.51	0.05	0.25				
12.25	1.76	0.11	1.75				
12.50	1.90	0.14	1.12				
12.75	1.96	0.16	0.69				

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment SA-STRM: EX. SA STREAM**

Runoff = 9.60 cfs @ 12.41 hrs, Volume= 2.508 af, Depth> 0.24"  
 Routed to Link 7L : EXISTING SITE TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
49.330	30	Woods, Good, HSG A
0.090	72	Dirt roads, HSG A
7.870	80	>75% Grass cover, Good, HSG D
12.070	77	Woods, Good, HSG D
34.450	70	Woods, Good, HSG C
0.030	87	Dirt roads, HSG C
* 20.250	98	IMP
124.090	60	Weighted Average
103.840		83.68% Pervious Area
20.250		16.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0450	0.24		<b>Sheet Flow, AB</b> Grass: Short n= 0.150 P2= 3.35"
8.7	50	0.0450	0.10		<b>Sheet Flow, BC</b> Woods: Light underbrush n= 0.400 P2= 3.35"
1.0	177	0.0347	3.00		<b>Shallow Concentrated Flow, CD</b> Unpaved Kv= 16.1 fps
16.6	327	Total			

**2024-01-15 Existing Conditions**

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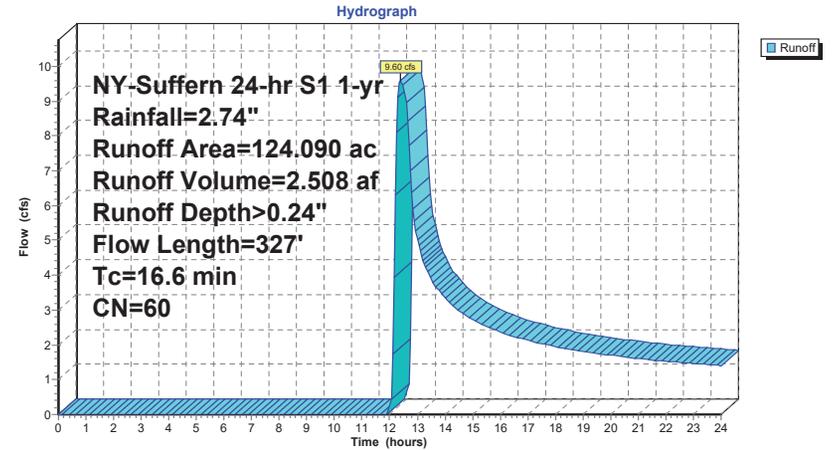
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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Subcatchment SA-STRM: EX. SA STREAM**



**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment SA-STRM: EX. SA STREAM**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	2.02	0.06	5.03
0.25	0.01	0.00	0.00	13.25	2.06	0.07	4.32
0.50	0.02	0.00	0.00	13.50	2.10	0.08	3.90
0.75	0.03	0.00	0.00	13.75	2.13	0.09	3.59
1.00	0.04	0.00	0.00	14.00	2.17	0.09	3.35
1.25	0.05	0.00	0.00	14.25	2.19	0.10	3.15
1.50	0.05	0.00	0.00	14.50	2.22	0.10	2.99
1.75	0.06	0.00	0.00	14.75	2.25	0.11	2.85
2.00	0.07	0.00	0.00	15.00	2.27	0.12	2.73
2.25	0.08	0.00	0.00	15.25	2.29	0.12	2.63
2.50	0.09	0.00	0.00	15.50	2.31	0.13	2.53
2.75	0.10	0.00	0.00	15.75	2.33	0.13	2.45
3.00	0.12	0.00	0.00	16.00	2.35	0.13	2.37
3.25	0.13	0.00	0.00	16.25	2.37	0.14	2.30
3.50	0.14	0.00	0.00	16.50	2.39	0.14	2.24
3.75	0.15	0.00	0.00	16.75	2.40	0.15	2.18
4.00	0.16	0.00	0.00	17.00	2.42	0.15	2.13
4.25	0.17	0.00	0.00	17.25	2.44	0.16	2.08
4.50	0.18	0.00	0.00	17.50	2.45	0.16	2.03
4.75	0.20	0.00	0.00	17.75	2.47	0.16	1.99
5.00	0.21	0.00	0.00	18.00	2.48	0.17	1.95
5.25	0.22	0.00	0.00	18.25	2.49	0.17	1.91
5.50	0.23	0.00	0.00	18.50	2.51	0.18	1.88
5.75	0.25	0.00	0.00	18.75	2.52	0.18	1.84
6.00	0.26	0.00	0.00	19.00	2.53	0.18	1.81
6.25	0.28	0.00	0.00	19.25	2.55	0.19	1.78
6.50	0.29	0.00	0.00	19.50	2.56	0.19	1.75
6.75	0.31	0.00	0.00	19.75	2.57	0.19	1.72
7.00	0.32	0.00	0.00	20.00	2.58	0.20	1.70
7.25	0.34	0.00	0.00	20.25	2.59	0.20	1.67
7.50	0.35	0.00	0.00	20.50	2.60	0.20	1.65
7.75	0.37	0.00	0.00	20.75	2.61	0.21	1.63
8.00	0.39	0.00	0.00	21.00	2.63	0.21	1.60
8.25	0.41	0.00	0.00	21.25	2.64	0.21	1.58
8.50	0.43	0.00	0.00	21.50	2.65	0.22	1.56
8.75	0.45	0.00	0.00	21.75	2.66	0.22	1.54
9.00	0.47	0.00	0.00	22.00	2.67	0.22	1.53
9.25	0.50	0.00	0.00	22.25	2.68	0.23	1.51
9.50	0.52	0.00	0.00	22.50	2.69	0.23	1.49
9.75	0.55	0.00	0.00	22.75	2.69	0.23	1.47
10.00	0.58	0.00	0.00	23.00	2.70	0.23	1.46
10.25	0.61	0.00	0.00	23.25	2.71	0.24	1.44
10.50	0.65	0.00	0.00	23.50	2.72	0.24	1.43
10.75	0.69	0.00	0.00	23.75	2.73	0.24	1.41
11.00	0.73	0.00	0.00	24.00	<b>2.74</b>	<b>0.25</b>	1.40
11.25	0.79	0.00	0.00				
11.50	0.86	0.00	0.00				
11.75	1.00	0.00	0.00				
12.00	1.51	0.00	0.04				
12.25	1.76	0.03	<b>8.12</b>				
12.50	1.90	0.04	<b>9.42</b>				
12.75	1.96	0.05	6.99				

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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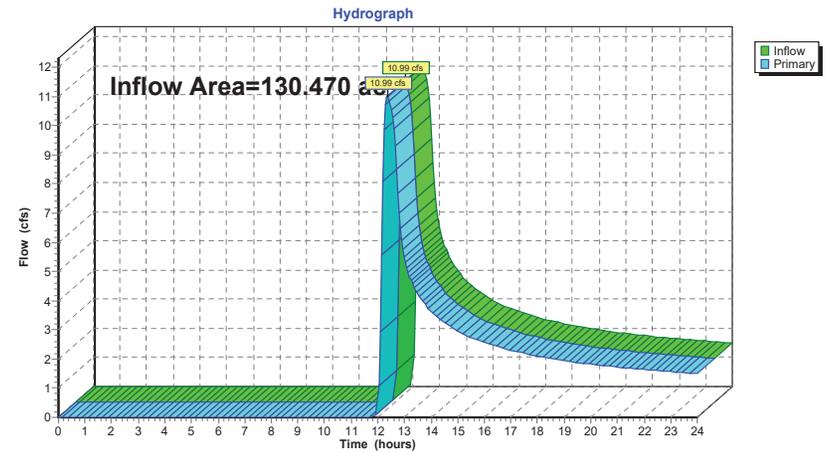
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**Summary for Link 7L: EXISTING SITE TOTAL**

Inflow Area = 130.470 ac, 17.59% Impervious, Inflow Depth > 0.25" for 1-yr event  
 Inflow = 10.99 cfs @ 12.37 hrs, Volume= 2.751 af  
 Primary = 10.99 cfs @ 12.37 hrs, Volume= 2.751 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

**Link 7L: EXISTING SITE TOTAL**



**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Link 7L: EXISTING SITE TOTAL**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	13.00	5.50	0.00	5.50
0.25	0.00	0.00	0.00	13.25	4.71	0.00	4.71
0.50	0.00	0.00	0.00	13.50	4.24	0.00	4.24
0.75	0.00	0.00	0.00	13.75	3.90	0.00	3.90
1.00	0.00	0.00	0.00	14.00	3.64	0.00	3.64
1.25	0.00	0.00	0.00	14.25	3.42	0.00	3.42
1.50	0.00	0.00	0.00	14.50	3.24	0.00	3.24
1.75	0.00	0.00	0.00	14.75	3.09	0.00	3.09
2.00	0.00	0.00	0.00	15.00	2.96	0.00	2.96
2.25	0.00	0.00	0.00	15.25	2.84	0.00	2.84
2.50	0.00	0.00	0.00	15.50	2.74	0.00	2.74
2.75	0.00	0.00	0.00	15.75	2.65	0.00	2.65
3.00	0.00	0.00	0.00	16.00	2.56	0.00	2.56
3.25	0.00	0.00	0.00	16.25	2.49	0.00	2.49
3.50	0.00	0.00	0.00	16.50	2.42	0.00	2.42
3.75	0.00	0.00	0.00	16.75	2.36	0.00	2.36
4.00	0.00	0.00	0.00	17.00	2.30	0.00	2.30
4.25	0.00	0.00	0.00	17.25	2.24	0.00	2.24
4.50	0.00	0.00	0.00	17.50	2.19	0.00	2.19
4.75	0.00	0.00	0.00	17.75	2.15	0.00	2.15
5.00	0.00	0.00	0.00	18.00	2.10	0.00	2.10
5.25	0.00	0.00	0.00	18.25	2.06	0.00	2.06
5.50	0.00	0.00	0.00	18.50	2.02	0.00	2.02
5.75	0.00	0.00	0.00	18.75	1.99	0.00	1.99
6.00	0.00	0.00	0.00	19.00	1.95	0.00	1.95
6.25	0.00	0.00	0.00	19.25	1.92	0.00	1.92
6.50	0.00	0.00	0.00	19.50	1.89	0.00	1.89
6.75	0.00	0.00	0.00	19.75	1.86	0.00	1.86
7.00	0.00	0.00	0.00	20.00	1.83	0.00	1.83
7.25	0.00	0.00	0.00	20.25	1.80	0.00	1.80
7.50	0.00	0.00	0.00	20.50	1.77	0.00	1.77
7.75	0.00	0.00	0.00	20.75	1.75	0.00	1.75
8.00	0.00	0.00	0.00	21.00	1.73	0.00	1.73
8.25	0.00	0.00	0.00	21.25	1.70	0.00	1.70
8.50	0.00	0.00	0.00	21.50	1.68	0.00	1.68
8.75	0.00	0.00	0.00	21.75	1.66	0.00	1.66
9.00	0.00	0.00	0.00	22.00	1.64	0.00	1.64
9.25	0.00	0.00	0.00	22.25	1.62	0.00	1.62
9.50	0.00	0.00	0.00	22.50	1.60	0.00	1.60
9.75	0.00	0.00	0.00	22.75	1.58	0.00	1.58
10.00	0.00	0.00	0.00	23.00	1.57	0.00	1.57
10.25	0.00	0.00	0.00	23.25	1.55	0.00	1.55
10.50	0.00	0.00	0.00	23.50	1.53	0.00	1.53
10.75	0.00	0.00	0.00	23.75	1.52	0.00	1.52
11.00	0.00	0.00	0.00	24.00	1.50	0.00	1.50
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.00	0.00	0.00				
12.00	0.28	0.00	0.28				
12.25	9.87	0.00	9.87				
12.50	10.54	0.00	10.54				
12.75	7.68	0.00	7.68				

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**SubcatchmentSA-PND: EX. SA POND** Runoff Area=6.380 ac 42.32% Impervious Runoff Depth>1.78"  
 Flow Length=169' Tc=15.6 min CN=67 Runoff=8.70 cfs 0.946 af

**SubcatchmentSA-STRM: EX. SA** Runoff Area=124.090 ac 16.32% Impervious Runoff Depth>1.28"  
 Flow Length=327' Tc=16.6 min CN=60 Runoff=108.55 cfs 13.240 af

**Link 7L: EXISTING SITE TOTAL** Inflow=117.13 cfs 14.186 af  
 Primary=117.13 cfs 14.186 af

**Total Runoff Area = 130.470 ac Runoff Volume = 14.186 af Average Runoff Depth = 1.30"**  
**82.41% Pervious = 107.520 ac 17.59% Impervious = 22.950 ac**

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment SA-PND: EX. SA POND**

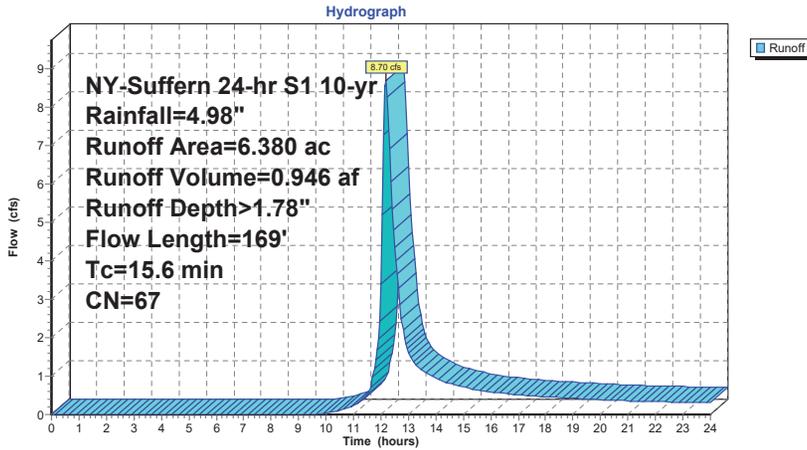
Runoff = 8.70 cfs @ 12.18 hrs, Volume= 0.946 af, Depth> 1.78"  
 Routed to Link 7L : EXISTING SITE TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
0.710	98	Paved parking, HSG A
0.140	98	Paved parking, HSG D
0.680	98	Water Surface, HSG A
1.170	98	Water Surface, HSG D
3.180	39	>75% Grass cover, Good, HSG A
0.500	80	>75% Grass cover, Good, HSG D
6.380	67	Weighted Average
3.680		57.68% Pervious Area
2.700		42.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0133	0.16		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.35"
0.0	19	0.1605	6.45		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
15.6	169	Total			

**Subcatchment SA-PND: EX. SA POND**



**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment SA-PND: EX. SA POND**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.62	0.92	1.61
0.25	0.02	0.00	0.00	13.25	3.70	0.97	1.32
0.50	0.03	0.00	0.00	13.50	3.77	1.01	1.15
0.75	0.05	0.00	0.00	13.75	3.84	1.05	1.03
1.00	0.07	0.00	0.00	14.00	3.90	1.08	0.94
1.25	0.09	0.00	0.00	14.25	3.95	1.11	0.87
1.50	0.10	0.00	0.00	14.50	4.00	1.14	0.81
1.75	0.12	0.00	0.00	14.75	4.05	1.17	0.76
2.00	0.14	0.00	0.00	15.00	4.09	1.20	0.72
2.25	0.16	0.00	0.00	15.25	4.13	1.23	0.68
2.50	0.18	0.00	0.00	15.50	4.17	1.25	0.65
2.75	0.20	0.00	0.00	15.75	4.21	1.27	0.62
3.00	0.22	0.00	0.00	16.00	4.24	1.30	0.59
3.25	0.24	0.00	0.00	16.25	4.28	1.32	0.57
3.50	0.26	0.00	0.00	16.50	4.31	1.34	0.55
3.75	0.28	0.00	0.00	16.75	4.34	1.36	0.53
4.00	0.30	0.00	0.00	17.00	4.37	1.38	0.52
4.25	0.33	0.00	0.00	17.25	4.40	1.40	0.50
4.50	0.35	0.00	0.00	17.50	4.43	1.42	0.49
4.75	0.37	0.00	0.00	17.75	4.46	1.44	0.47
5.00	0.40	0.00	0.00	18.00	4.49	1.45	0.46
5.25	0.42	0.00	0.00	18.25	4.51	1.47	0.45
5.50	0.44	0.00	0.00	18.50	4.54	1.49	0.44
5.75	0.47	0.00	0.00	18.75	4.56	1.50	0.43
6.00	0.50	0.00	0.00	19.00	4.59	1.52	0.42
6.25	0.52	0.00	0.00	19.25	4.61	1.54	0.41
6.50	0.55	0.00	0.00	19.50	4.63	1.55	0.40
6.75	0.58	0.00	0.00	19.75	4.66	1.57	0.39
7.00	0.61	0.00	0.00	20.00	4.68	1.58	0.39
7.25	0.64	0.00	0.00	20.25	4.70	1.60	0.38
7.50	0.67	0.00	0.00	20.50	4.72	1.61	0.37
7.75	0.71	0.00	0.00	20.75	4.74	1.62	0.36
8.00	0.74	0.00	0.00	21.00	4.76	1.64	0.36
8.25	0.78	0.00	0.00	21.25	4.78	1.65	0.35
8.50	0.81	0.00	0.00	21.50	4.80	1.67	0.35
8.75	0.85	0.00	0.00	21.75	4.82	1.68	0.34
9.00	0.90	0.00	0.00	22.00	4.84	1.69	0.34
9.25	0.94	0.00	0.00	22.25	4.86	1.70	0.33
9.50	0.99	0.00	0.00	22.50	4.88	1.72	0.33
9.75	1.04	0.00	0.01	22.75	4.89	1.73	0.32
10.00	1.09	0.00	0.03	23.00	4.91	1.74	0.32
10.25	1.15	0.01	0.06	23.25	4.93	1.75	0.31
10.50	1.22	0.01	0.10	23.50	4.95	1.77	0.31
10.75	1.29	0.02	0.16	23.75	4.96	1.78	0.30
11.00	1.37	0.03	0.23	24.00	4.98	1.79	0.30
11.25	1.48	0.04	0.34				
11.50	1.60	0.07	0.52				
11.75	1.88	0.14	1.20				
12.00	2.70	0.44	3.39				
12.25	3.15	0.66	7.89				
12.50	3.40	0.80	4.35				
12.75	3.52	0.86	2.49				

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment SA-STRM: EX. SA STREAM**

Runoff = 108.55 cfs @ 12.21 hrs, Volume= 13.240 af, Depth> 1.28"  
 Routed to Link 7L : EXISTING SITE TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
49.330	30	Woods, Good, HSG A
0.090	72	Dirt roads, HSG A
7.870	80	>75% Grass cover, Good, HSG D
12.070	77	Woods, Good, HSG D
34.450	70	Woods, Good, HSG C
0.030	87	Dirt roads, HSG C
* 20.250	98	IMP
124.090	60	Weighted Average
103.840		83.68% Pervious Area
20.250		16.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0450	0.24		<b>Sheet Flow, AB</b> Grass: Short n= 0.150 P2= 3.35"
8.7	50	0.0450	0.10		<b>Sheet Flow, BC</b> Woods: Light underbrush n= 0.400 P2= 3.35"
1.0	177	0.0347	3.00		<b>Shallow Concentrated Flow, CD</b> Unpaved Kv= 16.1 fps
16.6	327	Total			

**2024-01-15 Existing Conditions**

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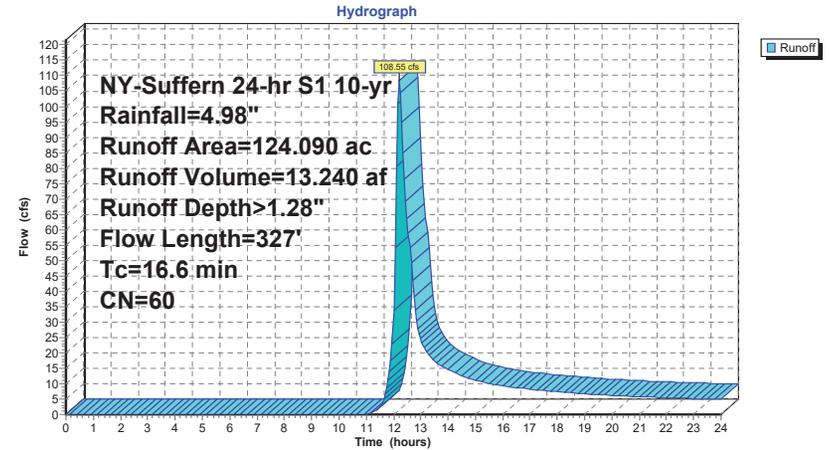
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**Subcatchment SA-STRM: EX. SA STREAM**



**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment SA-STRM: EX. SA STREAM**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.62	0.58	24.52
0.25	0.02	0.00	0.00	13.25	3.70	0.62	20.05
0.50	0.03	0.00	0.00	13.50	3.77	0.65	17.54
0.75	0.05	0.00	0.00	13.75	3.84	0.68	15.78
1.00	0.07	0.00	0.00	14.00	3.90	0.71	14.44
1.25	0.09	0.00	0.00	14.25	3.95	0.74	13.38
1.50	0.10	0.00	0.00	14.50	4.00	0.76	12.51
1.75	0.12	0.00	0.00	14.75	4.05	0.78	11.78
2.00	0.14	0.00	0.00	15.00	4.09	0.81	11.16
2.25	0.16	0.00	0.00	15.25	4.13	0.83	10.62
2.50	0.18	0.00	0.00	15.50	4.17	0.85	10.15
2.75	0.20	0.00	0.00	15.75	4.21	0.87	9.73
3.00	0.22	0.00	0.00	16.00	4.24	0.88	9.35
3.25	0.24	0.00	0.00	16.25	4.28	0.90	9.02
3.50	0.26	0.00	0.00	16.50	4.31	0.92	8.71
3.75	0.28	0.00	0.00	16.75	4.34	0.94	8.44
4.00	0.30	0.00	0.00	17.00	4.37	0.95	8.18
4.25	0.33	0.00	0.00	17.25	4.40	0.97	7.94
4.50	0.35	0.00	0.00	17.50	4.43	0.98	7.73
4.75	0.37	0.00	0.00	17.75	4.46	1.00	7.53
5.00	0.40	0.00	0.00	18.00	4.49	1.01	7.34
5.25	0.42	0.00	0.00	18.25	4.51	1.03	7.16
5.50	0.44	0.00	0.00	18.50	4.54	1.04	7.00
5.75	0.47	0.00	0.00	18.75	4.56	1.05	6.85
6.00	0.50	0.00	0.00	19.00	4.59	1.07	6.70
6.25	0.52	0.00	0.00	19.25	4.61	1.08	6.56
6.50	0.55	0.00	0.00	19.50	4.63	1.09	6.43
6.75	0.58	0.00	0.00	19.75	4.66	1.10	6.31
7.00	0.61	0.00	0.00	20.00	4.68	1.12	6.20
7.25	0.64	0.00	0.00	20.25	4.70	1.13	6.09
7.50	0.67	0.00	0.00	20.50	4.72	1.14	5.98
7.75	0.71	0.00	0.00	20.75	4.74	1.15	5.88
8.00	0.74	0.00	0.00	21.00	4.76	1.16	5.78
8.25	0.78	0.00	0.00	21.25	4.78	1.18	5.69
8.50	0.81	0.00	0.00	21.50	4.80	1.19	5.60
8.75	0.85	0.00	0.00	21.75	4.82	1.20	5.52
9.00	0.90	0.00	0.00	22.00	4.84	1.21	5.44
9.25	0.94	0.00	0.00	22.25	4.86	1.22	5.36
9.50	0.99	0.00	0.00	22.50	4.88	1.23	5.29
9.75	1.04	0.00	0.00	22.75	4.89	1.24	5.22
10.00	1.09	0.00	0.00	23.00	4.91	1.25	5.15
10.25	1.15	0.00	0.00	23.25	4.93	1.26	5.08
10.50	1.22	0.00	0.00	23.50	4.95	1.27	5.02
10.75	1.29	0.00	0.00	23.75	4.96	1.28	4.95
11.00	1.37	0.00	0.01	24.00	<b>4.98</b>	<b>1.29</b>	4.89
11.25	1.48	0.00	0.65				
11.50	1.60	0.01	2.41				
11.75	1.88	0.04	8.69				
12.00	2.70	0.23	<b>33.71</b>				
12.25	3.15	0.39	<b>104.54</b>				
12.50	3.40	0.49	63.52				
12.75	3.52	0.54	38.19				

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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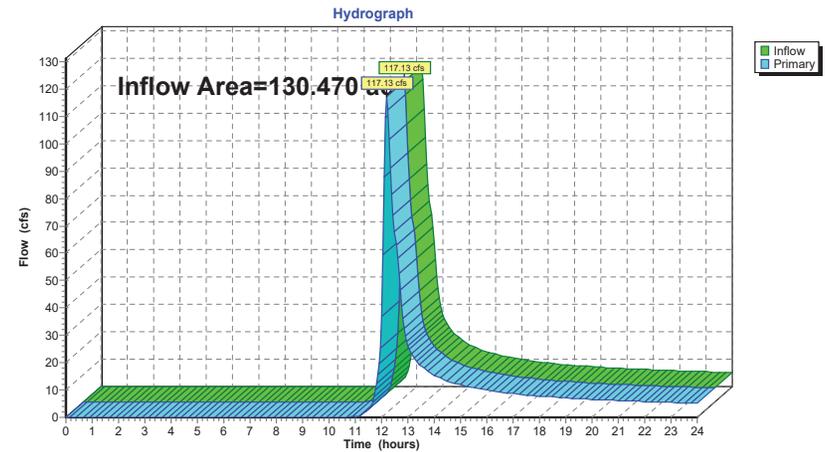
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**Summary for Link 7L: EXISTING SITE TOTAL**

Inflow Area = 130.470 ac, 17.59% Impervious, Inflow Depth > 1.30" for 10-yr event  
 Inflow = 117.13 cfs @ 12.21 hrs, Volume= 14.186 af  
 Primary = 117.13 cfs @ 12.21 hrs, Volume= 14.186 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

**Link 7L: EXISTING SITE TOTAL**



**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Link 7L: EXISTING SITE TOTAL**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	13.00	26.13	0.00	26.13
0.25	0.00	0.00	0.00	13.25	21.37	0.00	21.37
0.50	0.00	0.00	0.00	13.50	18.69	0.00	18.69
0.75	0.00	0.00	0.00	13.75	16.81	0.00	16.81
1.00	0.00	0.00	0.00	14.00	15.38	0.00	15.38
1.25	0.00	0.00	0.00	14.25	14.25	0.00	14.25
1.50	0.00	0.00	0.00	14.50	13.32	0.00	13.32
1.75	0.00	0.00	0.00	14.75	12.54	0.00	12.54
2.00	0.00	0.00	0.00	15.00	11.87	0.00	11.87
2.25	0.00	0.00	0.00	15.25	11.30	0.00	11.30
2.50	0.00	0.00	0.00	15.50	10.79	0.00	10.79
2.75	0.00	0.00	0.00	15.75	10.35	0.00	10.35
3.00	0.00	0.00	0.00	16.00	9.95	0.00	9.95
3.25	0.00	0.00	0.00	16.25	9.59	0.00	9.59
3.50	0.00	0.00	0.00	16.50	9.26	0.00	9.26
3.75	0.00	0.00	0.00	16.75	8.97	0.00	8.97
4.00	0.00	0.00	0.00	17.00	8.70	0.00	8.70
4.25	0.00	0.00	0.00	17.25	8.44	0.00	8.44
4.50	0.00	0.00	0.00	17.50	8.21	0.00	8.21
4.75	0.00	0.00	0.00	17.75	8.00	0.00	8.00
5.00	0.00	0.00	0.00	18.00	7.80	0.00	7.80
5.25	0.00	0.00	0.00	18.25	7.61	0.00	7.61
5.50	0.00	0.00	0.00	18.50	7.44	0.00	7.44
5.75	0.00	0.00	0.00	18.75	7.27	0.00	7.27
6.00	0.00	0.00	0.00	19.00	7.12	0.00	7.12
6.25	0.00	0.00	0.00	19.25	6.97	0.00	6.97
6.50	0.00	0.00	0.00	19.50	6.84	0.00	6.84
6.75	0.00	0.00	0.00	19.75	6.70	0.00	6.70
7.00	0.00	0.00	0.00	20.00	6.58	0.00	6.58
7.25	0.00	0.00	0.00	20.25	6.46	0.00	6.46
7.50	0.00	0.00	0.00	20.50	6.35	0.00	6.35
7.75	0.00	0.00	0.00	20.75	6.24	0.00	6.24
8.00	0.00	0.00	0.00	21.00	6.14	0.00	6.14
8.25	0.00	0.00	0.00	21.25	6.05	0.00	6.05
8.50	0.00	0.00	0.00	21.50	5.95	0.00	5.95
8.75	0.00	0.00	0.00	21.75	5.86	0.00	5.86
9.00	0.00	0.00	0.00	22.00	5.77	0.00	5.77
9.25	0.00	0.00	0.00	22.25	5.69	0.00	5.69
9.50	0.00	0.00	0.00	22.50	5.61	0.00	5.61
9.75	0.01	0.00	0.01	22.75	5.54	0.00	5.54
10.00	0.03	0.00	0.03	23.00	5.46	0.00	5.46
10.25	0.06	0.00	0.06	23.25	5.39	0.00	5.39
10.50	0.10	0.00	0.10	23.50	5.32	0.00	5.32
10.75	0.16	0.00	0.16	23.75	5.26	0.00	5.26
11.00	0.24	0.00	0.24	24.00	5.19	0.00	5.19
11.25	0.99	0.00	0.99				
11.50	2.93	0.00	2.93				
11.75	9.89	0.00	9.89				
12.00	<b>37.10</b>	0.00	<b>37.10</b>				
12.25	<b>112.43</b>	0.00	<b>112.43</b>				
12.50	67.87	0.00	67.87				
12.75	40.68	0.00	40.68				

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**SubcatchmentSA-PND: EX. SA POND** Runoff Area=6.380 ac 42.32% Impervious Runoff Depth>4.78"  
 Flow Length=169' Tc=15.6 min CN=67 Runoff=22.55 cfs 2.541 af

**SubcatchmentSA-STRM: EX. SA** Runoff Area=124.090 ac 16.32% Impervious Runoff Depth>3.93"  
 Flow Length=327' Tc=16.6 min CN=60 Runoff=345.24 cfs 40.640 af

**Link 7L: EXISTING SITE TOTAL** Inflow=367.50 cfs 43.181 af  
 Primary=367.50 cfs 43.181 af

**Total Runoff Area = 130.470 ac Runoff Volume = 43.181 af Average Runoff Depth = 3.97"**  
**82.41% Pervious = 107.520 ac 17.59% Impervious = 22.950 ac**

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment SA-PND: EX. SA POND**

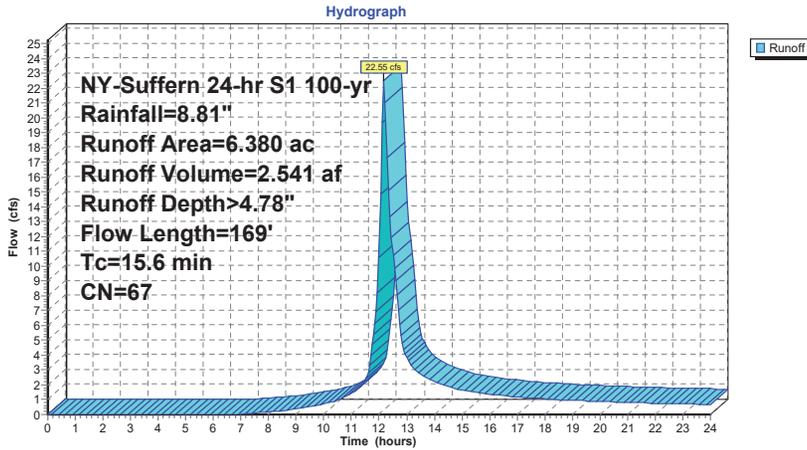
Runoff = 22.55 cfs @ 12.17 hrs, Volume= 2.541 af, Depth> 4.78"  
Routed to Link 7L : EXISTING SITE TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
0.710	98	Paved parking, HSG A
0.140	98	Paved parking, HSG D
0.680	98	Water Surface, HSG A
1.170	98	Water Surface, HSG D
3.180	39	>75% Grass cover, Good, HSG A
0.500	80	>75% Grass cover, Good, HSG D
6.380	67	Weighted Average
3.680		57.68% Pervious Area
2.700		42.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0133	0.16		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.35"
0.0	19	0.1605	6.45		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
15.6	169	Total			

**Subcatchment SA-PND: EX. SA POND**



**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment SA-PND: EX. SA POND**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	6.33	2.78	3.87
0.25	0.03	0.00	0.00	13.25	6.48	2.89	3.15
0.50	0.06	0.00	0.00	13.50	6.61	3.00	2.73
0.75	0.09	0.00	0.00	13.75	6.72	3.09	2.44
1.00	0.13	0.00	0.00	14.00	6.83	3.17	2.22
1.25	0.16	0.00	0.00	14.25	6.92	3.24	2.04
1.50	0.19	0.00	0.00	14.50	7.01	3.32	1.90
1.75	0.23	0.00	0.00	14.75	7.10	3.38	1.78
2.00	0.26	0.00	0.00	15.00	7.17	3.45	1.68
2.25	0.30	0.00	0.00	15.25	7.25	3.51	1.59
2.50	0.33	0.00	0.00	15.50	7.32	3.56	1.51
2.75	0.37	0.00	0.00	15.75	7.39	3.62	1.45
3.00	0.41	0.00	0.00	16.00	7.45	3.67	1.38
3.25	0.44	0.00	0.00	16.25	7.52	3.72	1.33
3.50	0.48	0.00	0.00	16.50	7.58	3.77	1.28
3.75	0.52	0.00	0.00	16.75	7.63	3.82	1.24
4.00	0.56	0.00	0.00	17.00	7.69	3.87	1.20
4.25	0.60	0.00	0.00	17.25	7.74	3.91	1.16
4.50	0.64	0.00	0.00	17.50	7.80	3.95	1.12
4.75	0.69	0.00	0.00	17.75	7.85	4.00	1.09
5.00	0.73	0.00	0.00	18.00	7.90	4.04	1.06
5.25	0.78	0.00	0.00	18.25	7.95	4.08	1.04
5.50	0.82	0.00	0.00	18.50	7.99	4.11	1.01
5.75	0.87	0.00	0.00	18.75	8.04	4.15	0.99
6.00	0.92	0.00	0.00	19.00	8.08	4.19	0.96
6.25	0.97	0.00	0.00	19.25	8.13	4.23	0.94
6.50	1.02	0.00	0.00	19.50	8.17	4.26	0.92
6.75	1.07	0.00	0.02	19.75	8.21	4.30	0.90
7.00	1.12	0.00	0.05	20.00	8.25	4.33	0.88
7.25	1.18	0.01	0.08	20.25	8.29	4.36	0.87
7.50	1.24	0.01	0.11	20.50	8.33	4.40	0.85
7.75	1.30	0.02	0.15	20.75	8.37	4.43	0.83
8.00	1.36	0.03	0.19	21.00	8.40	4.46	0.82
8.25	1.43	0.04	0.23	21.25	8.44	4.49	0.81
8.50	1.50	0.05	0.28	21.50	8.48	4.52	0.79
8.75	1.57	0.06	0.33	21.75	8.51	4.55	0.78
9.00	1.64	0.08	0.38	22.00	8.55	4.58	0.77
9.25	1.72	0.10	0.45	22.25	8.58	4.61	0.75
9.50	1.81	0.12	0.52	22.50	8.62	4.64	0.74
9.75	1.90	0.14	0.61	22.75	8.65	4.67	0.73
10.00	2.00	0.17	0.71	23.00	8.68	4.69	0.72
10.25	2.11	0.21	0.83	23.25	8.72	4.72	0.71
10.50	2.22	0.25	0.98	23.50	8.75	4.75	0.70
10.75	2.36	0.30	1.17	23.75	8.78	4.78	0.69
11.00	2.51	0.36	1.42	24.00	8.81	4.80	0.68
11.25	2.69	0.44	1.78				
11.50	2.91	0.54	2.36				
11.75	3.40	0.79	4.71				
12.00	4.72	1.61	10.58				
12.25	5.49	2.15	19.94				
12.50	5.94	2.49	10.77				
12.75	6.16	2.65	6.07				

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment SA-STRM: EX. SA STREAM**

Runoff = 345.24 cfs @ 12.19 hrs, Volume= 40.640 af, Depth> 3.93"  
 Routed to Link 7L : EXISTING SITE TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
49.330	30	Woods, Good, HSG A
0.090	72	Dirt roads, HSG A
7.870	80	>75% Grass cover, Good, HSG D
12.070	77	Woods, Good, HSG D
34.450	70	Woods, Good, HSG C
0.030	87	Dirt roads, HSG C
* 20.250	98	IMP
124.090	60	Weighted Average
103.840		83.68% Pervious Area
20.250		16.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0450	0.24		<b>Sheet Flow, AB</b> Grass: Short n= 0.150 P2= 3.35"
8.7	50	0.0450	0.10		<b>Sheet Flow, BC</b> Woods: Light underbrush n= 0.400 P2= 3.35"
1.0	177	0.0347	3.00		<b>Shallow Concentrated Flow, CD</b> Unpaved Kv= 16.1 fps
16.6	327	Total			

**2024-01-15 Existing Conditions**

Prepared by Dynamic Engineering

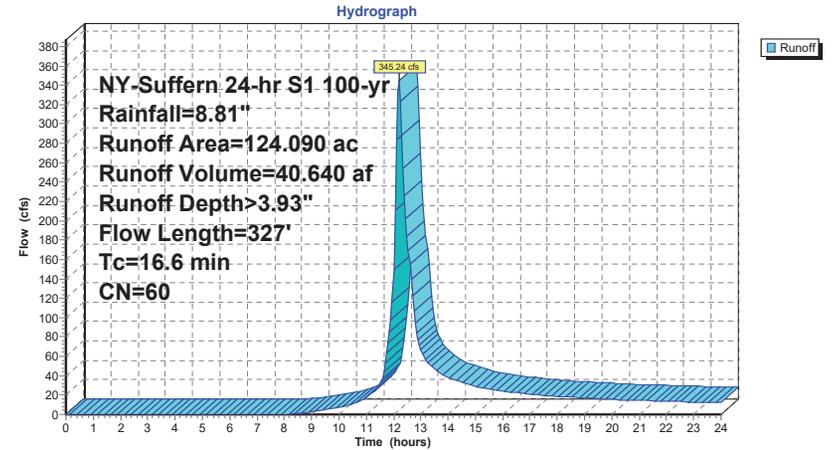
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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Subcatchment SA-STRM: EX. SA STREAM**



**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment SA-STRM: EX. SA STREAM**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	6.33	2.14	66.95
0.25	0.03	0.00	0.00	13.25	6.48	2.24	54.15
0.50	0.06	0.00	0.00	13.50	6.61	2.33	47.01
0.75	0.09	0.00	0.00	13.75	6.72	2.41	42.05
1.00	0.13	0.00	0.00	14.00	6.83	2.48	38.29
1.25	0.16	0.00	0.00	14.25	6.92	2.55	35.31
1.50	0.19	0.00	0.00	14.50	7.01	2.61	32.89
1.75	0.23	0.00	0.00	14.75	7.10	2.67	30.86
2.00	0.26	0.00	0.00	15.00	7.17	2.73	29.13
2.25	0.30	0.00	0.00	15.25	7.25	2.78	27.64
2.50	0.33	0.00	0.00	15.50	7.32	2.83	26.34
2.75	0.37	0.00	0.00	15.75	7.39	2.88	25.19
3.00	0.41	0.00	0.00	16.00	7.45	2.93	24.16
3.25	0.44	0.00	0.00	16.25	7.52	2.98	23.24
3.50	0.48	0.00	0.00	16.50	7.58	3.02	22.40
3.75	0.52	0.00	0.00	16.75	7.63	3.06	21.65
4.00	0.56	0.00	0.00	17.00	7.69	3.10	20.96
4.25	0.60	0.00	0.00	17.25	7.74	3.14	20.31
4.50	0.64	0.00	0.00	17.50	7.80	3.18	19.73
4.75	0.69	0.00	0.00	17.75	7.85	3.22	19.18
5.00	0.73	0.00	0.00	18.00	7.90	3.26	18.68
5.25	0.78	0.00	0.00	18.25	7.95	3.29	18.20
5.50	0.82	0.00	0.00	18.50	7.99	3.33	17.76
5.75	0.87	0.00	0.00	18.75	8.04	3.36	17.35
6.00	0.92	0.00	0.00	19.00	8.08	3.39	16.96
6.25	0.97	0.00	0.00	19.25	8.13	3.43	16.59
6.50	1.02	0.00	0.00	19.50	8.17	3.46	16.24
6.75	1.07	0.00	0.00	19.75	8.21	3.49	15.91
7.00	1.12	0.00	0.00	20.00	8.25	3.52	15.60
7.25	1.18	0.00	0.00	20.25	8.29	3.55	15.31
7.50	1.24	0.00	0.00	20.50	8.33	3.58	15.03
7.75	1.30	0.00	0.00	20.75	8.37	3.61	14.76
8.00	1.36	0.00	0.01	21.00	8.40	3.64	14.50
8.25	1.43	0.00	0.31	21.25	8.44	3.67	14.26
8.50	1.50	0.00	0.93	21.50	8.48	3.70	14.02
8.75	1.57	0.01	1.65	21.75	8.51	3.72	13.80
9.00	1.64	0.01	2.46	22.00	8.55	3.75	13.58
9.25	1.72	0.02	3.39	22.25	8.58	3.78	13.38
9.50	1.81	0.03	4.44	22.50	8.62	3.80	13.18
9.75	1.90	0.04	5.66	22.75	8.65	3.83	12.99
10.00	2.00	0.06	7.11	23.00	8.68	3.85	12.81
10.25	2.11	0.08	8.86	23.25	8.72	3.88	12.63
10.50	2.22	0.10	11.02	23.50	8.75	3.90	12.46
10.75	2.36	0.14	13.78	23.75	8.78	3.93	12.30
11.00	2.51	0.18	17.49	24.00	<b>8.81</b>	<b>3.95</b>	12.14
11.25	2.69	0.23	22.77				
11.50	2.91	0.30	31.15				
11.75	3.40	0.49	63.40				
12.00	4.72	1.14	<b>150.02</b>				
12.25	5.49	1.59	<b>323.51</b>				
12.50	5.94	1.88	183.77				
12.75	6.16	2.02	106.70				

**2024-01-15 Existing Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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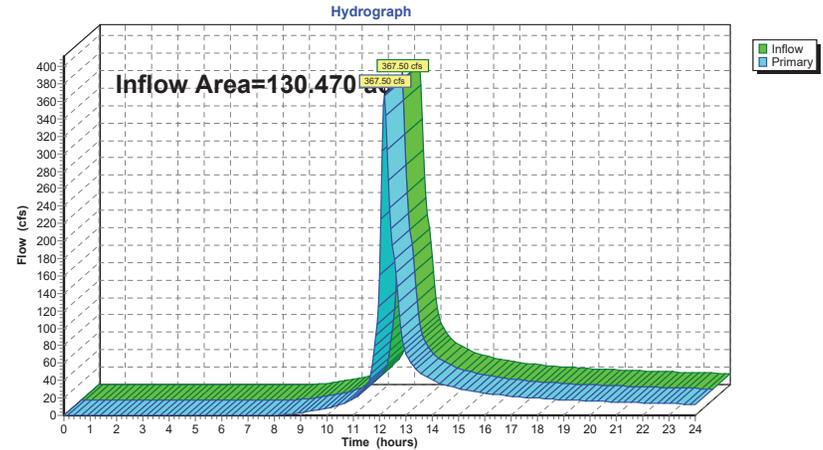
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**Summary for Link 7L: EXISTING SITE TOTAL**

Inflow Area = 130.470 ac, 17.59% Impervious, Inflow Depth > 3.97" for 100-yr event  
 Inflow = 367.50 cfs @ 12.19 hrs, Volume= 43.181 af  
 Primary = 367.50 cfs @ 12.19 hrs, Volume= 43.181 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

**Link 7L: EXISTING SITE TOTAL**



**2024-01-15 Existing Conditions**

*NY-Suffern 24-hr S1 100-yr Rainfall=8.81"*

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**Hydrograph for Link 7L: EXISTING SITE TOTAL**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	13.00	70.82	0.00	70.82
0.25	0.00	0.00	0.00	13.25	57.29	0.00	57.29
0.50	0.00	0.00	0.00	13.50	49.74	0.00	49.74
0.75	0.00	0.00	0.00	13.75	44.49	0.00	44.49
1.00	0.00	0.00	0.00	14.00	40.51	0.00	40.51
1.25	0.00	0.00	0.00	14.25	37.36	0.00	37.36
1.50	0.00	0.00	0.00	14.50	34.79	0.00	34.79
1.75	0.00	0.00	0.00	14.75	32.64	0.00	32.64
2.00	0.00	0.00	0.00	15.00	30.81	0.00	30.81
2.25	0.00	0.00	0.00	15.25	29.23	0.00	29.23
2.50	0.00	0.00	0.00	15.50	27.85	0.00	27.85
2.75	0.00	0.00	0.00	15.75	26.64	0.00	26.64
3.00	0.00	0.00	0.00	16.00	25.55	0.00	25.55
3.25	0.00	0.00	0.00	16.25	24.57	0.00	24.57
3.50	0.00	0.00	0.00	16.50	23.69	0.00	23.69
3.75	0.00	0.00	0.00	16.75	22.89	0.00	22.89
4.00	0.00	0.00	0.00	17.00	22.15	0.00	22.15
4.25	0.00	0.00	0.00	17.25	21.47	0.00	21.47
4.50	0.00	0.00	0.00	17.50	20.85	0.00	20.85
4.75	0.00	0.00	0.00	17.75	20.28	0.00	20.28
5.00	0.00	0.00	0.00	18.00	19.74	0.00	19.74
5.25	0.00	0.00	0.00	18.25	19.24	0.00	19.24
5.50	0.00	0.00	0.00	18.50	18.77	0.00	18.77
5.75	0.00	0.00	0.00	18.75	18.33	0.00	18.33
6.00	0.00	0.00	0.00	19.00	17.92	0.00	17.92
6.25	0.00	0.00	0.00	19.25	17.53	0.00	17.53
6.50	0.00	0.00	0.00	19.50	17.16	0.00	17.16
6.75	0.02	0.00	0.02	19.75	16.81	0.00	16.81
7.00	0.05	0.00	0.05	20.00	16.49	0.00	16.49
7.25	0.08	0.00	0.08	20.25	16.18	0.00	16.18
7.50	0.11	0.00	0.11	20.50	15.88	0.00	15.88
7.75	0.15	0.00	0.15	20.75	15.59	0.00	15.59
8.00	0.19	0.00	0.19	21.00	15.32	0.00	15.32
8.25	0.54	0.00	0.54	21.25	15.07	0.00	15.07
8.50	1.20	0.00	1.20	21.50	14.82	0.00	14.82
8.75	1.98	0.00	1.98	21.75	14.58	0.00	14.58
9.00	2.85	0.00	2.85	22.00	14.35	0.00	14.35
9.25	3.83	0.00	3.83	22.25	14.14	0.00	14.14
9.50	4.96	0.00	4.96	22.50	13.93	0.00	13.93
9.75	6.27	0.00	6.27	22.75	13.72	0.00	13.72
10.00	7.82	0.00	7.82	23.00	13.53	0.00	13.53
10.25	9.69	0.00	9.69	23.25	13.34	0.00	13.34
10.50	11.99	0.00	11.99	23.50	13.16	0.00	13.16
10.75	14.95	0.00	14.95	23.75	12.99	0.00	12.99
11.00	18.91	0.00	18.91	24.00	12.82	0.00	12.82
11.25	24.56	0.00	24.56				
11.50	33.51	0.00	33.51				
11.75	68.11	0.00	68.11				
12.00	<b>160.60</b>	0.00	<b>160.60</b>				
12.25	<b>343.44</b>	0.00	<b>343.44</b>				
12.50	194.54	0.00	194.54				
12.75	112.77	0.00	112.77				

**2024-01-15 Proposed Conditions**

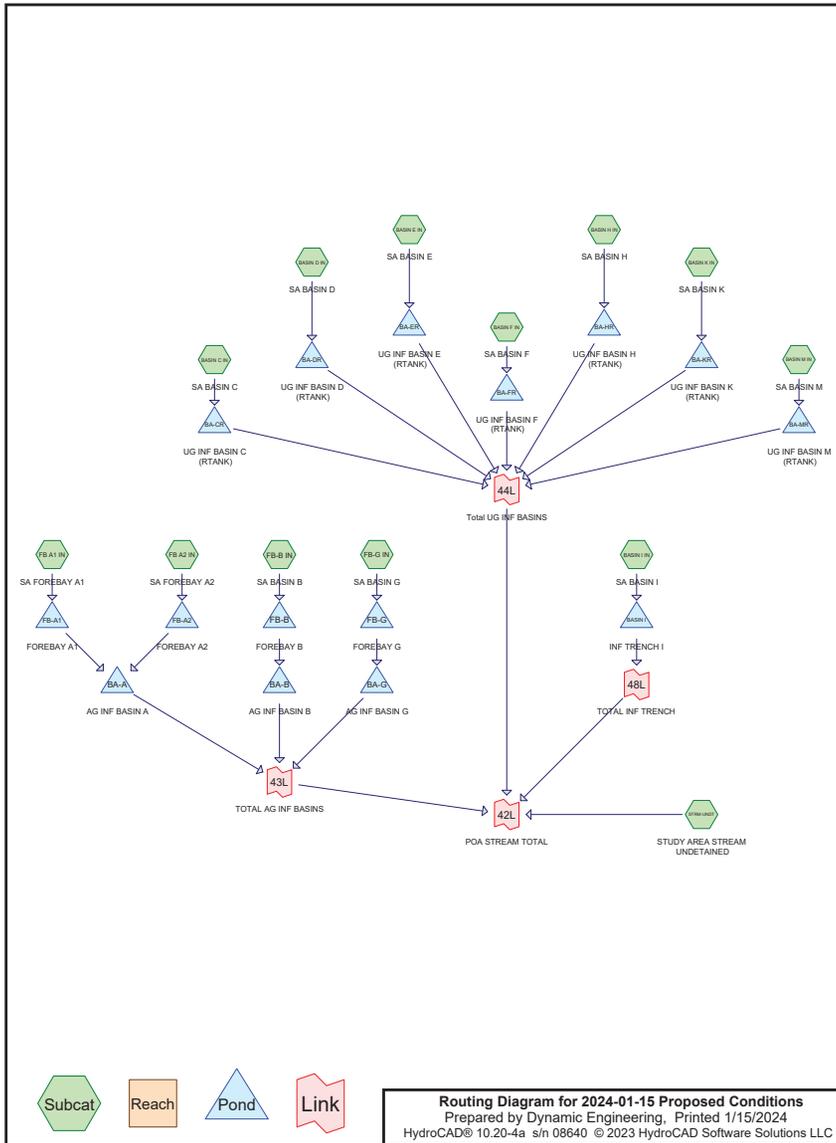
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**Project Notes**

Rainfall events imported from "NRCS-Rain.txt" for 7083 NY Orange  
Defined 3 rainfall events from NY-Suffern IDF  
Copied 9 events from NY-Suffern 24-hr S1 storm  
Copied 9 events from NY-Suffern 24-hr S1 storm  
Copied 9 events from NY-Suffern 24-hr S1 storm  
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland  
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland  
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland  
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland  
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland  
Defined 9 rainfall events from NY-Suffern IDF  
Defined 9 rainfall events from NY-Suffern IDF



**2024-01-15 Proposed Conditions**

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**Rainfall Events Listing (selected events)**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	NY-Suffern 24-hr S1	1-yr	Default	24.00	1	2.74	2
2	10-yr	NY-Suffern 24-hr S1	10-yr	Default	24.00	1	4.98	2
3	100-yr	NY-Suffern 24-hr S1	100-yr	Default	24.00	1	8.81	2
4	WQ	Type III 24-hr		Default	24.00	1	1.50	2

**2024-01-15 Proposed Conditions**

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**Area Listing (selected nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
3.950	39	>75% Grass cover, Good, HSG A (BASIN C IN, BASIN D IN, BASIN E IN, BASIN F IN, BASIN H IN, BASIN I IN, BASIN M IN, FB A1 IN, FB A2 IN, FB-B IN, FB-G IN)
0.150	74	>75% Grass cover, Good, HSG C (BASIN F IN, BASIN M IN)
0.830	80	>75% Grass cover, Good, HSG D (BASIN C IN, BASIN D IN, BASIN F IN, BASIN I IN, FB-B IN)
2.470	98	IMP (BASIN H IN, STRM-UNDT)
5.010	98	Paved parking (BASIN I IN, BASIN K IN)
2.150	98	Paved parking and roof area, HSG A (FB A1 IN)
33.430	98	Paved parking, HSG A (BASIN C IN, BASIN E IN, BASIN F IN, BASIN M IN, FB-B IN, FB-G IN)
1.960	98	Paved parking, roof area (FB A2 IN)
7.870	98	Paved parking- Impervious (BASIN D IN)
25.050	30	Woods, Good, HSG A (STRM-UNDT)
31.620	70	Woods, Good, HSG C (STRM-UNDT)
10.770	77	Woods, Good, HSG D (STRM-UNDT)
<b>125.260</b>	<b>74</b>	<b>TOTAL AREA</b>

**2024-01-15 Proposed Conditions**

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**Soil Listing (selected nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
64.580	HSG A	BASIN C IN, BASIN D IN, BASIN E IN, BASIN F IN, BASIN H IN, BASIN I IN, BASIN M IN, FB A1 IN, FB A2 IN, FB-B IN, FB-G IN, STRM-UNDT
0.000	HSG B	
31.770	HSG C	BASIN F IN, BASIN M IN, STRM-UNDT
11.600	HSG D	BASIN C IN, BASIN D IN, BASIN F IN, BASIN I IN, FB-B IN, STRM-UNDT
17.310	Other	BASIN D IN, BASIN H IN, BASIN I IN, BASIN K IN, FB A2 IN, STRM-UNDT
<b>125.260</b>		<b>TOTAL AREA</b>

**2024-01-15 Proposed Conditions**

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**Ground Covers (selected nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
3.950	0.000	0.150	0.830	0.000	4.930	>75% Grass cover, Good	BASI N C IN, BASI N D IN, BASI N E IN, BASI N F IN, BASI N H IN, BASI N I IN, BASI N M IN, FB A1 IN, FB A2 IN, FB-B IN, FB-G IN
0.000	0.000	0.000	0.000	2.470	2.470	IMP	BASI N H IN, STR M-UN DT
33.430	0.000	0.000	0.000	5.010	38.440	Paved parking	BASI N C IN, BASI N E IN, BASI N F IN,

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**Ground Covers (selected nodes) (continued)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
2.150	0.000	0.000	0.000	0.000	2.150	Paved parking and roof area	FB A1 IN
0.000	0.000	0.000	0.000	1.960	1.960	Paved parking, roof area	FB A2 IN
0.000	0.000	0.000	0.000	7.870	7.870	Paved parking- Impervious	BASI N D IN
25.050	0.000	31.620	10.770	0.000	67.440	Woods, Good	STR M-UN DT
<b>64.580</b>	<b>0.000</b>	<b>31.770</b>	<b>11.600</b>	<b>17.310</b>	<b>125.260</b>	<b>TOTAL AREA</b>	

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**Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	BA-A	309.00	306.42	129.0	0.0200	0.012	0.0	18.0	0.0	
2	BA-B	303.00	302.89	11.0	0.0100	0.012	0.0	18.0	0.0	
3	BA-CR	303.75	302.65	85.0	0.0129	0.012	0.0	18.0	0.0	
4	BA-DR	305.25	305.18	7.0	0.0100	0.012	0.0	18.0	0.0	
5	BA-ER	305.25	304.15	55.0	0.0200	0.012	0.0	18.0	0.0	
6	BA-FR	306.50	303.04	692.0	0.0050	0.120	0.0	24.0	0.0	
7	BA-G	308.50	308.19	61.5	0.0050	0.012	0.0	18.0	0.0	
8	BA-HR	307.55	306.65	45.0	0.0200	0.012	0.0	18.0	0.0	
9	BA-KR	307.95	307.65	30.0	0.0100	0.012	0.0	18.0	0.0	
10	BA-MR	304.00	303.35	65.0	0.0100	0.012	0.0	18.0	0.0	
11	BASIN I	309.00	308.00	50.0	0.0200	0.012	0.0	18.0	0.0	

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- SubcatchmentBASIN C IN: SA BASIN C** Runoff Area=8.090 ac 94.93% Impervious Runoff Depth=2.20"  
Flow Length=135' Tc=5.0 min CN=95 Runoff=23.71 cfs 1.481 af
- SubcatchmentBASIN D IN: SA BASIN D** Runoff Area=8.240 ac 95.51% Impervious Runoff Depth=2.40"  
Flow Length=133' Tc=5.0 min CN=97 Runoff=25.57 cfs 1.649 af
- SubcatchmentBASIN E IN: SA BASIN E** Runoff Area=8.220 ac 95.13% Impervious Runoff Depth=2.20"  
Flow Length=215' Tc=5.2 min CN=95 Runoff=23.50 cfs 1.504 af
- SubcatchmentBASIN F IN: SA BASIN F** Runoff Area=9.660 ac 93.79% Impervious Runoff Depth=2.20"  
Flow Length=95' Tc=3.8 min CN=95 Runoff=30.33 cfs 1.768 af
- SubcatchmentBASIN H IN: SA BASIN H** Runoff Area=1.430 ac 98.60% Impervious Runoff Depth=2.40"  
Flow Length=77' Slope=0.0118 1/ Slope=0.0118 1/ Tc=1.2 min CN=97 Runoff=5.25 cfs 0.286 af
- SubcatchmentBASIN I IN: SA BASIN I** Runoff Area=1.930 ac 60.10% Impervious Runoff Depth=0.80"  
Flow Length=80' Slope=0.0100 1/ Slope=0.0100 1/ Tc=4.5 min CN=75 Runoff=1.91 cfs 0.128 af
- SubcatchmentBASIN K IN: SA BASIN K** Runoff Area=3.850 ac 100.00% Impervious Runoff Depth=2.51"  
Flow Length=158' Slope=0.0120 1/ Slope=0.0120 1/ Tc=1.9 min CN=98 Runoff=14.08 cfs 0.805 af
- SubcatchmentBASIN M IN: SA BASIN M** Runoff Area=7.830 ac 94.76% Impervious Runoff Depth=2.20"  
Flow Length=162' Tc=5.3 min CN=95 Runoff=22.35 cfs 1.433 af
- SubcatchmentFB A1 IN: SA FOREBAY A1** Runoff Area=2.540 ac 84.65% Impervious Runoff Depth=1.67"  
Flow Length=134' Slope=0.0100 1/ Slope=0.0100 1/ Tc=1.9 min CN=89 Runoff=6.83 cfs 0.353 af
- SubcatchmentFB A2 IN: SA FOREBAY A2** Runoff Area=2.710 ac 72.32% Impervious Runoff Depth=1.18"  
Flow Length=50' Slope=0.1400 1/ Slope=0.1400 1/ Tc=2.5 min CN=82 Runoff=4.97 cfs 0.266 af
- SubcatchmentFB-B IN: SA BASIN B** Runoff Area=1.560 ac 66.03% Impervious Runoff Depth=1.51"  
Flow Length=53' Slope=0.1700 1/ Slope=0.1700 1/ Tc=2.4 min CN=87 Runoff=3.76 cfs 0.197 af
- SubcatchmentFB-G IN: SA BASIN G** Runoff Area=0.700 ac 60.00% Impervious Runoff Depth=0.75"  
Flow Length=30' Slope=0.1600 1/ Slope=0.1600 1/ Tc=1.6 min CN=74 Runoff=0.77 cfs 0.044 af
- SubcatchmentSTRM-UNDT: STUDY AREA** Runoff Area=68.500 ac 1.55% Impervious Runoff Depth=0.17"  
Flow Length=1,340' Tc=15.6 min CN=57 Runoff=2.83 cfs 0.986 af
- Pond BA-A: AG INF BASIN A** Peak Elev=309.94' Storage=1,513 cf Inflow=5.43 cfs 0.534 af  
Discarded=2.59 cfs 0.534 af Primary=0.00 cfs 0.000 af Outflow=2.59 cfs 0.534 af
- Pond BA-B: AG INF BASIN B** Peak Elev=304.87' Storage=2,781 cf Inflow=3.84 cfs 0.178 af  
Discarded=0.40 cfs 0.178 af Primary=0.00 cfs 0.000 af Outflow=0.40 cfs 0.178 af
- Pond BA-CR: UG INF BASIN C (RTANK)** Peak Elev=304.52' Storage=21,548 cf Inflow=23.71 cfs 1.481 af  
Discarded=2.11 cfs 1.480 af Primary=0.00 cfs 0.000 af Outflow=2.11 cfs 1.481 af

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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- Pond BA-DR: UG INF BASIN D (RTANK)** Peak Elev=305.89' Storage=22,049 cf Inflow=25.57 cfs 1.649 af  
Discarded=2.50 cfs 1.644 af Primary=0.07 cfs 0.004 af Outflow=2.56 cfs 1.649 af
- Pond BA-ER: UG INF BASIN E (RTANK)** Peak Elev=306.09' Storage=20,512 cf Inflow=23.50 cfs 1.504 af  
Discarded=2.45 cfs 1.504 af Primary=0.00 cfs 0.000 af Outflow=2.45 cfs 1.504 af
- Pond BA-FR: UG INF BASIN F (RTANK)** Peak Elev=306.86' Storage=12,290 cf Inflow=30.33 cfs 1.768 af  
Discarded=7.23 cfs 1.768 af Primary=0.00 cfs 0.000 af Outflow=7.23 cfs 1.768 af
- Pond BA-G: AG INF BASIN G** Peak Elev=309.50' Storage=8 cf Inflow=0.02 cfs 0.005 af  
Discarded=0.02 cfs 0.005 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.005 af
- Pond BA-HR: UG INF BASIN H (RTANK)** Peak Elev=308.60' Storage=3,795 cf Inflow=5.25 cfs 0.286 af  
Discarded=0.46 cfs 0.286 af Primary=0.00 cfs 0.000 af Outflow=0.46 cfs 0.286 af
- Pond BA-KR: UG INF BASIN K (RTANK)** Peak Elev=308.75' Storage=8,767 cf Inflow=14.08 cfs 0.805 af  
Discarded=1.71 cfs 0.805 af Primary=0.00 cfs 0.000 af Outflow=1.71 cfs 0.805 af
- Pond BA-MR: UG INF BASIN M (RTANK)** Peak Elev=305.03' Storage=24,946 cf Inflow=22.35 cfs 1.433 af  
Discarded=1.25 cfs 1.433 af Primary=0.00 cfs 0.000 af Outflow=1.25 cfs 1.433 af
- Pond BASIN I: INF TRENCH I** Peak Elev=312.51' Storage=76 cf Inflow=1.91 cfs 0.128 af  
Discarded=1.93 cfs 0.128 af Primary=0.00 cfs 0.000 af Outflow=1.93 cfs 0.128 af
- Pond FB-A1: FOREBAY A1** Peak Elev=311.26' Storage=5,835 cf Inflow=6.83 cfs 0.353 af  
Outflow=5.43 cfs 0.366 af
- Pond FB-A2: FOREBAY A2** Peak Elev=310.48' Storage=4,865 cf Inflow=4.97 cfs 0.266 af  
Outflow=0.85 cfs 0.168 af
- Pond FB-B: FOREBAY B** Peak Elev=306.81' Storage=866 cf Inflow=3.76 cfs 0.197 af  
Outflow=3.84 cfs 0.178 af
- Pond FB-G: FOREBAY G** Peak Elev=311.15' Storage=1,677 cf Inflow=0.77 cfs 0.044 af  
Outflow=0.02 cfs 0.005 af
- Link 42L: POA STREAM TOTAL** Inflow=2.90 cfs 0.990 af  
Primary=2.90 cfs 0.990 af
- Link 43L: TOTAL AG INF BASINS** Inflow=0.00 cfs 0.000 af  
Primary=0.00 cfs 0.000 af
- Link 44L: Total UG INF BASINS** Inflow=0.07 cfs 0.004 af  
Primary=0.07 cfs 0.004 af
- Link 48L: TOTAL INF TRENCH** Inflow=0.00 cfs 0.000 af  
Primary=0.00 cfs 0.000 af

**Total Runoff Area = 125.260 ac Runoff Volume = 10.899 af Average Runoff Depth = 1.04"**  
**57.78% Pervious = 72.370 ac 42.22% Impervious = 52.890 ac**

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment BASIN C IN: SA BASIN C**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 23.71 cfs @ 12.02 hrs, Volume= 1.481 af, Depth= 2.20"  
 Routed to Pond BA-CR : UG INF BASIN C (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
7.680	98	Paved parking, HSG A
0.380	39	>75% Grass cover, Good, HSG A
0.030	80	>75% Grass cover, Good, HSG D
8.090	95	Weighted Average
0.410		5.07% Pervious Area
7.680		94.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	61	0.0735	0.27		<b>Sheet Flow, Sheet Flow (open space)</b> Grass: Short n= 0.150 P2= 3.35"
0.9	39	0.0067	0.75		<b>Sheet Flow, Sheet Flow (Paved)</b> Smooth surfaces n= 0.011 P2= 3.35"
0.3	35	0.0068	1.67		<b>Shallow Concentrated Flow, Shallow Concentrated Flow</b> Paved Kv= 20.3 fps
5.0	135	Total			

**2024-01-15 Proposed Conditions**

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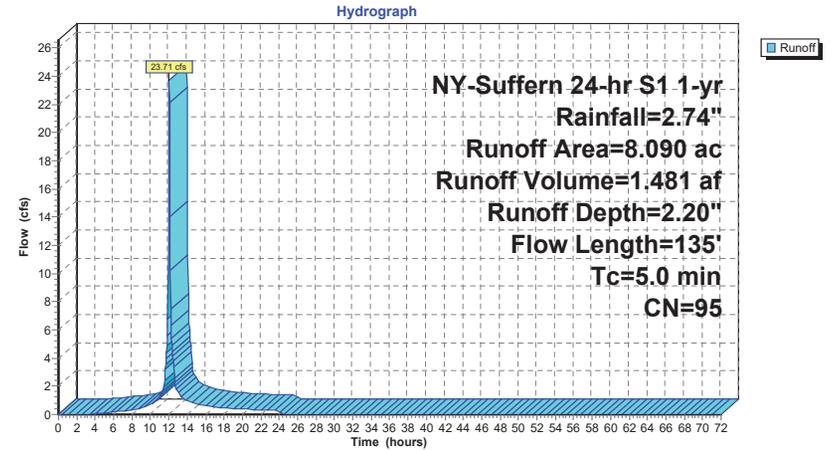
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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Subcatchment BASIN C IN: SA BASIN C**



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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment BASIN C IN: SA BASIN C**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	2.20	0.00
1.00	0.04	0.00	0.00	53.00	2.74	2.20	0.00
2.00	0.07	0.00	0.00	54.00	2.74	2.20	0.00
3.00	0.12	0.00	0.01	55.00	2.74	2.20	0.00
4.00	0.16	0.01	0.06	56.00	2.74	2.20	0.00
5.00	0.21	0.02	0.12	57.00	2.74	2.20	0.00
6.00	0.26	0.04	0.18	58.00	2.74	2.20	0.00
7.00	0.32	0.06	0.25	59.00	2.74	2.20	0.00
8.00	0.39	0.10	0.35	60.00	2.74	2.20	0.00
9.00	0.47	0.15	0.48	61.00	2.74	2.20	0.00
10.00	0.58	0.22	0.70	62.00	2.74	2.20	0.00
11.00	0.73	0.34	1.22	63.00	2.74	2.20	0.00
12.00	1.51	1.02	<b>22.54</b>	64.00	2.74	2.20	0.00
13.00	2.02	1.50	1.58	65.00	2.74	2.20	0.00
14.00	2.17	1.64	0.96	66.00	2.74	2.20	0.00
15.00	2.27	1.74	0.72	67.00	2.74	2.20	0.00
16.00	2.35	1.82	0.59	68.00	2.74	2.20	0.00
17.00	2.42	1.89	0.51	69.00	2.74	2.20	0.00
18.00	2.48	1.94	0.45	70.00	2.74	2.20	0.00
19.00	2.53	2.00	0.40	71.00	2.74	2.20	0.00
20.00	2.58	2.04	0.37	72.00	2.74	2.20	0.00
21.00	2.63	2.08	0.34				
22.00	2.67	2.12	0.31				
23.00	2.70	2.16	0.29				
24.00	<b>2.74</b>	<b>2.20</b>	0.28				
25.00	2.74	2.20	0.00				
26.00	2.74	2.20	0.00				
27.00	2.74	2.20	0.00				
28.00	2.74	2.20	0.00				
29.00	2.74	2.20	0.00				
30.00	2.74	2.20	0.00				
31.00	2.74	2.20	0.00				
32.00	2.74	2.20	0.00				
33.00	2.74	2.20	0.00				
34.00	2.74	2.20	0.00				
35.00	2.74	2.20	0.00				
36.00	2.74	2.20	0.00				
37.00	2.74	2.20	0.00				
38.00	2.74	2.20	0.00				
39.00	2.74	2.20	0.00				
40.00	2.74	2.20	0.00				
41.00	2.74	2.20	0.00				
42.00	2.74	2.20	0.00				
43.00	2.74	2.20	0.00				
44.00	2.74	2.20	0.00				
45.00	2.74	2.20	0.00				
46.00	2.74	2.20	0.00				
47.00	2.74	2.20	0.00				
48.00	2.74	2.20	0.00				
49.00	2.74	2.20	0.00				
50.00	2.74	2.20	0.00				
51.00	2.74	2.20	0.00				

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment BASIN D IN: SA BASIN D**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 25.57 cfs @ 12.02 hrs, Volume= 1.649 af, Depth= 2.40"  
Routed to Pond BA-DR : UG INF BASIN D (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
* 7.870	98	Paved parking- Impervious
0.010	39	>75% Grass cover, Good, HSG A
0.360	80	>75% Grass cover, Good, HSG D
8.240	97	Weighted Average
0.370		4.49% Pervious Area
7.870		95.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	68	0.0713	0.27		<b>Sheet Flow, Sheet Flow - Grass</b> Grass: Short n= 0.150 P2= 3.35"
0.6	32	0.0130	0.94		<b>Sheet Flow, Sheet Flow - Asphalt</b> Smooth surfaces n= 0.011 P2= 3.35"
0.2	33	0.0131	2.32		<b>Shallow Concentrated Flow, Shallow Con. - Asphalt</b> Paved Kv= 20.3 fps
5.0	133	Total			

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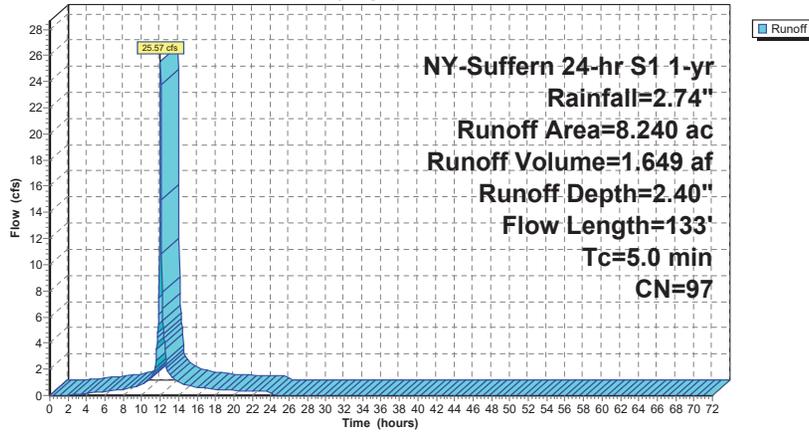
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**Subcatchment BASIN D IN: SA BASIN D**

Hydrograph



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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment BASIN D IN: SA BASIN D**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	2.40	0.00
1.00	0.04	0.00	0.00	53.00	2.74	2.40	0.00
2.00	0.07	0.00	0.02	54.00	2.74	2.40	0.00
3.00	0.12	0.01	0.09	55.00	2.74	2.40	0.00
4.00	0.16	0.02	0.16	56.00	2.74	2.40	0.00
5.00	0.21	0.05	0.22	57.00	2.74	2.40	0.00
6.00	0.26	0.08	0.29	58.00	2.74	2.40	0.00
7.00	0.32	0.12	0.37	59.00	2.74	2.40	0.00
8.00	0.39	0.17	0.47	60.00	2.74	2.40	0.00
9.00	0.47	0.24	0.61	61.00	2.74	2.40	0.00
10.00	0.58	0.32	0.85	62.00	2.74	2.40	0.00
11.00	0.73	0.46	1.41	63.00	2.74	2.40	0.00
12.00	1.51	1.19	<b>24.37</b>	64.00	2.74	2.40	0.00
13.00	2.02	1.69	1.66	65.00	2.74	2.40	0.00
14.00	2.17	1.83	1.01	66.00	2.74	2.40	0.00
15.00	2.27	1.94	0.76	67.00	2.74	2.40	0.00
16.00	2.35	2.02	0.62	68.00	2.74	2.40	0.00
17.00	2.42	2.08	0.53	69.00	2.74	2.40	0.00
18.00	2.48	2.14	0.46	70.00	2.74	2.40	0.00
19.00	2.53	2.20	0.42	71.00	2.74	2.40	0.00
20.00	2.58	2.24	0.38	72.00	2.74	2.40	0.00
21.00	2.63	2.29	0.35				
22.00	2.67	2.33	0.33				
23.00	2.70	2.37	0.30				
24.00	<b>2.74</b>	<b>2.40</b>	0.29				
25.00	2.74	2.40	0.00				
26.00	2.74	2.40	0.00				
27.00	2.74	2.40	0.00				
28.00	2.74	2.40	0.00				
29.00	2.74	2.40	0.00				
30.00	2.74	2.40	0.00				
31.00	2.74	2.40	0.00				
32.00	2.74	2.40	0.00				
33.00	2.74	2.40	0.00				
34.00	2.74	2.40	0.00				
35.00	2.74	2.40	0.00				
36.00	2.74	2.40	0.00				
37.00	2.74	2.40	0.00				
38.00	2.74	2.40	0.00				
39.00	2.74	2.40	0.00				
40.00	2.74	2.40	0.00				
41.00	2.74	2.40	0.00				
42.00	2.74	2.40	0.00				
43.00	2.74	2.40	0.00				
44.00	2.74	2.40	0.00				
45.00	2.74	2.40	0.00				
46.00	2.74	2.40	0.00				
47.00	2.74	2.40	0.00				
48.00	2.74	2.40	0.00				
49.00	2.74	2.40	0.00				
50.00	2.74	2.40	0.00				
51.00	2.74	2.40	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment BASIN E IN: SA BASIN E**

[49] Hint: Tc<2dt may require smaller dt

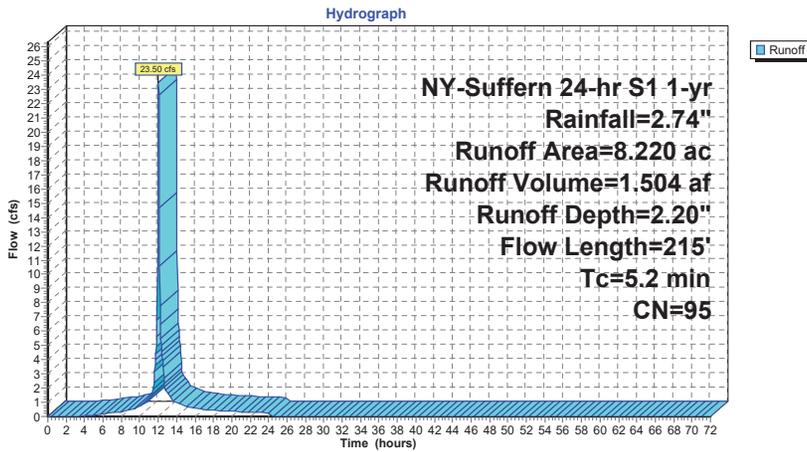
Runoff = 23.50 cfs @ 12.03 hrs, Volume= 1.504 af, Depth= 2.20"  
 Routed to Pond BA-ER : UG INF BASIN E (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
7.820	98	Paved parking, HSG A
0.400	39	>75% Grass cover, Good, HSG A
8.220	95	Weighted Average
0.400		4.87% Pervious Area
7.820		95.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	40	0.0313	0.17		<b>Sheet Flow, Sheet Flow</b> Grass: Short n= 0.150 P2= 3.35"
0.8	60	0.0225	1.33		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.35"
0.6	115	0.0230	3.08		<b>Shallow Concentrated Flow, Shallow concentrated Flow (Paved)</b> Paved Kv= 20.3 fps
5.2	215	Total			

**Subcatchment BASIN E IN: SA BASIN E**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment BASIN E IN: SA BASIN E**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	2.20	0.00
1.00	0.04	0.00	0.00	53.00	2.74	2.20	0.00
2.00	0.07	0.00	0.00	54.00	2.74	2.20	0.00
3.00	0.12	0.00	0.01	55.00	2.74	2.20	0.00
4.00	0.16	0.01	0.06	56.00	2.74	2.20	0.00
5.00	0.21	0.02	0.12	57.00	2.74	2.20	0.00
6.00	0.26	0.04	0.18	58.00	2.74	2.20	0.00
7.00	0.32	0.06	0.26	59.00	2.74	2.20	0.00
8.00	0.39	0.10	0.35	60.00	2.74	2.20	0.00
9.00	0.47	0.15	0.48	61.00	2.74	2.20	0.00
10.00	0.58	0.22	0.71	62.00	2.74	2.20	0.00
11.00	0.73	0.34	1.23	63.00	2.74	2.20	0.00
12.00	1.51	1.02	<b>22.31</b>	64.00	2.74	2.20	0.00
13.00	2.02	1.50	<b>1.61</b>	65.00	2.74	2.20	0.00
14.00	2.17	1.64	0.98	66.00	2.74	2.20	0.00
15.00	2.27	1.74	0.74	67.00	2.74	2.20	0.00
16.00	2.35	1.82	0.60	68.00	2.74	2.20	0.00
17.00	2.42	1.89	0.52	69.00	2.74	2.20	0.00
18.00	2.48	1.94	0.45	70.00	2.74	2.20	0.00
19.00	2.53	2.00	0.41	71.00	2.74	2.20	0.00
20.00	2.58	2.04	0.37	72.00	2.74	2.20	0.00
21.00	2.63	2.08	0.34				
22.00	2.67	2.12	0.32				
23.00	2.70	2.16	0.30				
24.00	<b>2.74</b>	<b>2.20</b>	0.28				
25.00	2.74	2.20	0.00				
26.00	2.74	2.20	0.00				
27.00	2.74	2.20	0.00				
28.00	2.74	2.20	0.00				
29.00	2.74	2.20	0.00				
30.00	2.74	2.20	0.00				
31.00	2.74	2.20	0.00				
32.00	2.74	2.20	0.00				
33.00	2.74	2.20	0.00				
34.00	2.74	2.20	0.00				
35.00	2.74	2.20	0.00				
36.00	2.74	2.20	0.00				
37.00	2.74	2.20	0.00				
38.00	2.74	2.20	0.00				
39.00	2.74	2.20	0.00				
40.00	2.74	2.20	0.00				
41.00	2.74	2.20	0.00				
42.00	2.74	2.20	0.00				
43.00	2.74	2.20	0.00				
44.00	2.74	2.20	0.00				
45.00	2.74	2.20	0.00				
46.00	2.74	2.20	0.00				
47.00	2.74	2.20	0.00				
48.00	2.74	2.20	0.00				
49.00	2.74	2.20	0.00				
50.00	2.74	2.20	0.00				
51.00	2.74	2.20	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment BASIN F IN: SA BASIN F**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 30.33 cfs @ 12.01 hrs, Volume= 1.768 af, Depth= 2.20"  
Routed to Pond BA-FR : UG INF BASIN F (RTANK)

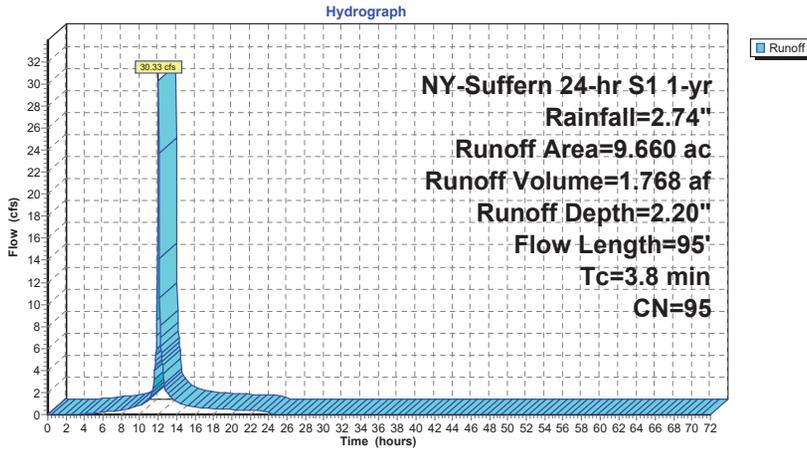
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
9.060	98	Paved parking, HSG A
0.450	39	>75% Grass cover, Good, HSG A
0.100	74	>75% Grass cover, Good, HSG C
0.050	80	>75% Grass cover, Good, HSG D
9.660	95	Weighted Average
0.600		6.21% Pervious Area
9.060		93.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	43	0.0550	0.22		Sheet Flow, Sheet Flow - Grass Grass: Short n= 0.150 P2= 3.35"
0.5	52	0.0380	1.60		Sheet Flow, Sheet Flow - Asphalt Smooth surfaces n= 0.011 P2= 3.35"
3.8	95	Total			

**Subcatchment BASIN F IN: SA BASIN F**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment BASIN F IN: SA BASIN F**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	2.20	0.00
1.00	0.04	0.00	0.00	53.00	2.74	2.20	0.00
2.00	0.07	0.00	0.00	54.00	2.74	2.20	0.00
3.00	0.12	0.00	0.01	55.00	2.74	2.20	0.00
4.00	0.16	0.01	0.08	56.00	2.74	2.20	0.00
5.00	0.21	0.02	0.14	57.00	2.74	2.20	0.00
6.00	0.26	0.04	0.22	58.00	2.74	2.20	0.00
7.00	0.32	0.06	0.31	59.00	2.74	2.20	0.00
8.00	0.39	0.10	0.42	60.00	2.74	2.20	0.00
9.00	0.47	0.15	0.57	61.00	2.74	2.20	0.00
10.00	0.58	0.22	0.84	62.00	2.74	2.20	0.00
11.00	0.73	0.34	1.47	63.00	2.74	2.20	0.00
12.00	1.51	1.02	<b>30.16</b>	64.00	2.74	2.20	0.00
13.00	2.02	1.50	1.86	65.00	2.74	2.20	0.00
14.00	2.17	1.64	1.14	66.00	2.74	2.20	0.00
15.00	2.27	1.74	0.86	67.00	2.74	2.20	0.00
16.00	2.35	1.82	0.71	68.00	2.74	2.20	0.00
17.00	2.42	1.89	0.60	69.00	2.74	2.20	0.00
18.00	2.48	1.94	0.53	70.00	2.74	2.20	0.00
19.00	2.53	2.00	0.48	71.00	2.74	2.20	0.00
20.00	2.58	2.04	0.44	72.00	2.74	2.20	0.00
21.00	2.63	2.08	0.40				
22.00	2.67	2.12	0.37				
23.00	2.70	2.16	0.35				
24.00	<b>2.74</b>	<b>2.20</b>	0.33				
25.00	2.74	2.20	0.00				
26.00	2.74	2.20	0.00				
27.00	2.74	2.20	0.00				
28.00	2.74	2.20	0.00				
29.00	2.74	2.20	0.00				
30.00	2.74	2.20	0.00				
31.00	2.74	2.20	0.00				
32.00	2.74	2.20	0.00				
33.00	2.74	2.20	0.00				
34.00	2.74	2.20	0.00				
35.00	2.74	2.20	0.00				
36.00	2.74	2.20	0.00				
37.00	2.74	2.20	0.00				
38.00	2.74	2.20	0.00				
39.00	2.74	2.20	0.00				
40.00	2.74	2.20	0.00				
41.00	2.74	2.20	0.00				
42.00	2.74	2.20	0.00				
43.00	2.74	2.20	0.00				
44.00	2.74	2.20	0.00				
45.00	2.74	2.20	0.00				
46.00	2.74	2.20	0.00				
47.00	2.74	2.20	0.00				
48.00	2.74	2.20	0.00				
49.00	2.74	2.20	0.00				
50.00	2.74	2.20	0.00				
51.00	2.74	2.20	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment BASIN H IN: SA BASIN H**

[49] Hint: Tc<2dt may require smaller dt

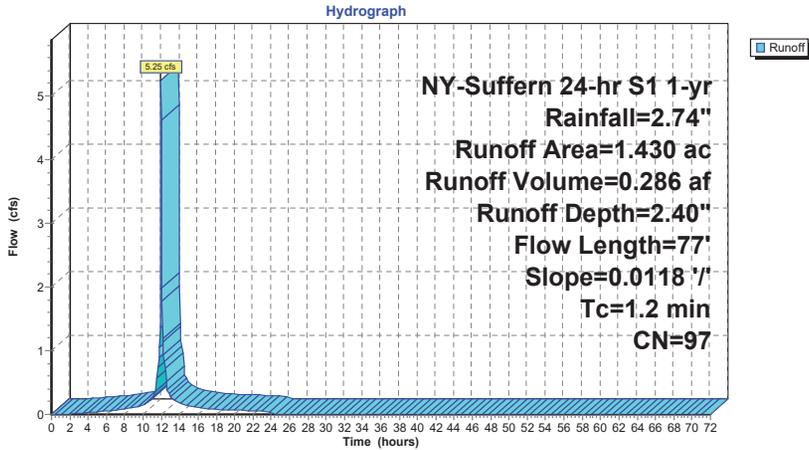
Runoff = 5.25 cfs @ 11.97 hrs, Volume= 0.286 af, Depth= 2.40"  
Routed to Pond BA-HR : UG INF BASIN H (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
* 1.410	98	IMP
0.020	39	>75% Grass cover, Good, HSG A
1.430	97	Weighted Average
0.020		1.40% Pervious Area
1.410		98.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	77	0.0118	1.08		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.35"

**Subcatchment BASIN H IN: SA BASIN H**



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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment BASIN H IN: SA BASIN H**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	2.40	0.00
1.00	0.04	0.00	0.00	53.00	2.74	2.40	0.00
2.00	0.07	0.00	0.00	54.00	2.74	2.40	0.00
3.00	0.12	0.01	0.02	55.00	2.74	2.40	0.00
4.00	0.16	0.02	0.03	56.00	2.74	2.40	0.00
5.00	0.21	0.05	0.04	57.00	2.74	2.40	0.00
6.00	0.26	0.08	0.05	58.00	2.74	2.40	0.00
7.00	0.32	0.12	0.06	59.00	2.74	2.40	0.00
8.00	0.39	0.17	0.08	60.00	2.74	2.40	0.00
9.00	0.47	0.24	0.11	61.00	2.74	2.40	0.00
10.00	0.58	0.32	0.15	62.00	2.74	2.40	0.00
11.00	0.73	0.46	<b>0.25</b>	63.00	2.74	2.40	0.00
12.00	1.51	1.19	<b>4.62</b>	64.00	2.74	2.40	0.00
13.00	2.02	1.69	0.28	65.00	2.74	2.40	0.00
14.00	2.17	1.83	0.17	66.00	2.74	2.40	0.00
15.00	2.27	1.94	0.13	67.00	2.74	2.40	0.00
16.00	2.35	2.02	0.11	68.00	2.74	2.40	0.00
17.00	2.42	2.08	0.09	69.00	2.74	2.40	0.00
18.00	2.48	2.14	0.08	70.00	2.74	2.40	0.00
19.00	2.53	2.20	0.07	71.00	2.74	2.40	0.00
20.00	2.58	2.24	0.07	72.00	2.74	2.40	0.00
21.00	2.63	2.29	0.06				
22.00	2.67	2.33	0.06				
23.00	2.70	2.37	0.05				
24.00	<b>2.74</b>	<b>2.40</b>	0.04				
25.00	2.74	2.40	0.00				
26.00	2.74	2.40	0.00				
27.00	2.74	2.40	0.00				
28.00	2.74	2.40	0.00				
29.00	2.74	2.40	0.00				
30.00	2.74	2.40	0.00				
31.00	2.74	2.40	0.00				
32.00	2.74	2.40	0.00				
33.00	2.74	2.40	0.00				
34.00	2.74	2.40	0.00				
35.00	2.74	2.40	0.00				
36.00	2.74	2.40	0.00				
37.00	2.74	2.40	0.00				
38.00	2.74	2.40	0.00				
39.00	2.74	2.40	0.00				
40.00	2.74	2.40	0.00				
41.00	2.74	2.40	0.00				
42.00	2.74	2.40	0.00				
43.00	2.74	2.40	0.00				
44.00	2.74	2.40	0.00				
45.00	2.74	2.40	0.00				
46.00	2.74	2.40	0.00				
47.00	2.74	2.40	0.00				
48.00	2.74	2.40	0.00				
49.00	2.74	2.40	0.00				
50.00	2.74	2.40	0.00				
51.00	2.74	2.40	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment BASIN I IN: SA BASIN I**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.91 cfs @ 12.03 hrs, Volume= 0.128 af, Depth= 0.80"  
Routed to Pond BASIN I : INF TRENCH I

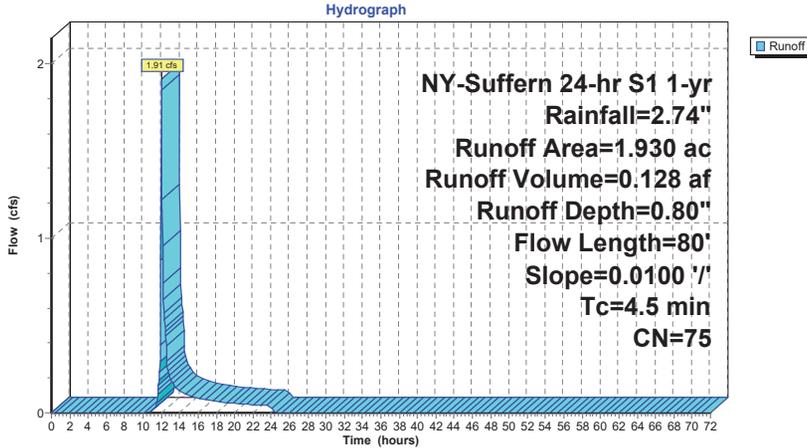
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
* 1.160	98	Paved parking
0.730	39	>75% Grass cover, Good, HSG A
0.040	80	>75% Grass cover, Good, HSG D
1.930	75	Weighted Average
0.770		39.90% Pervious Area
1.160		60.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	60	0.0100	0.96		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.35"
3.5	20	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.35"
4.5	80				Total

**Subcatchment BASIN I IN: SA BASIN I**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment BASIN I IN: SA BASIN I**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	0.80	0.00
1.00	0.04	0.00	0.00	53.00	2.74	0.80	0.00
2.00	0.07	0.00	0.00	54.00	2.74	0.80	0.00
3.00	0.12	0.00	0.00	55.00	2.74	0.80	0.00
4.00	0.16	0.00	0.00	56.00	2.74	0.80	0.00
5.00	0.21	0.00	0.00	57.00	2.74	0.80	0.00
6.00	0.26	0.00	0.00	58.00	2.74	0.80	0.00
7.00	0.32	0.00	0.00	59.00	2.74	0.80	0.00
8.00	0.39	0.00	0.00	60.00	2.74	0.80	0.00
9.00	0.47	0.00	0.00	61.00	2.74	0.80	0.00
10.00	0.58	0.00	0.00	62.00	2.74	0.80	0.00
11.00	0.73	0.00	0.01	63.00	2.74	0.80	0.00
12.00	1.51	0.17	1.81	64.00	2.74	0.80	0.00
13.00	2.02	0.39	0.19	65.00	2.74	0.80	0.00
14.00	2.17	0.46	0.12	66.00	2.74	0.80	0.00
15.00	2.27	0.52	0.10	67.00	2.74	0.80	0.00
16.00	2.35	0.57	0.08	68.00	2.74	0.80	0.00
17.00	2.42	0.60	0.07	69.00	2.74	0.80	0.00
18.00	2.48	0.64	0.06	70.00	2.74	0.80	0.00
19.00	2.53	0.67	0.06	71.00	2.74	0.80	0.00
20.00	2.58	0.70	0.05	72.00	2.74	0.80	0.00
21.00	2.63	0.72	0.05				
22.00	2.67	0.75	0.05				
23.00	2.70	0.77	0.04				
24.00	2.74	0.80	0.04				
25.00	2.74	0.80	0.00				
26.00	2.74	0.80	0.00				
27.00	2.74	0.80	0.00				
28.00	2.74	0.80	0.00				
29.00	2.74	0.80	0.00				
30.00	2.74	0.80	0.00				
31.00	2.74	0.80	0.00				
32.00	2.74	0.80	0.00				
33.00	2.74	0.80	0.00				
34.00	2.74	0.80	0.00				
35.00	2.74	0.80	0.00				
36.00	2.74	0.80	0.00				
37.00	2.74	0.80	0.00				
38.00	2.74	0.80	0.00				
39.00	2.74	0.80	0.00				
40.00	2.74	0.80	0.00				
41.00	2.74	0.80	0.00				
42.00	2.74	0.80	0.00				
43.00	2.74	0.80	0.00				
44.00	2.74	0.80	0.00				
45.00	2.74	0.80	0.00				
46.00	2.74	0.80	0.00				
47.00	2.74	0.80	0.00				
48.00	2.74	0.80	0.00				
49.00	2.74	0.80	0.00				
50.00	2.74	0.80	0.00				
51.00	2.74	0.80	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment BASIN K IN: SA BASIN K**

[49] Hint: Tc<2dt may require smaller dt

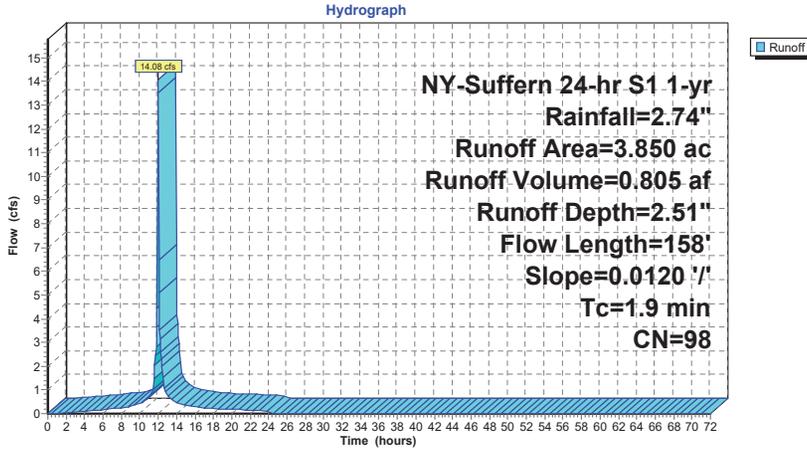
Runoff = 14.08 cfs @ 11.98 hrs, Volume= 0.805 af, Depth= 2.51"  
Routed to Pond BA-KR : UG INF BASIN K (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
* 3.850	98	Paved parking
3.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0120	1.15		Sheet Flow, A to B Smooth surfaces n= 0.011 P2= 3.35"
0.4	58	0.0120	2.22		Shallow Concentrated Flow, B to C Paved Kv= 20.3 fps
1.9	158	Total			

**Subcatchment BASIN K IN: SA BASIN K**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment BASIN K IN: SA BASIN K**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	2.51	0.00
1.00	0.04	0.00	0.00	53.00	2.74	2.51	0.00
2.00	0.07	0.00	0.04	54.00	2.74	2.51	0.00
3.00	0.12	0.02	0.08	55.00	2.74	2.51	0.00
4.00	0.16	0.04	0.11	56.00	2.74	2.51	0.00
5.00	0.21	0.08	0.14	57.00	2.74	2.51	0.00
6.00	0.26	0.11	0.17	58.00	2.74	2.51	0.00
7.00	0.32	0.16	0.20	59.00	2.74	2.51	0.00
8.00	0.39	0.22	0.25	60.00	2.74	2.51	0.00
9.00	0.47	0.29	0.32	61.00	2.74	2.51	0.00
10.00	0.58	0.39	0.43	62.00	2.74	2.51	0.00
11.00	0.73	0.53	0.71	63.00	2.74	2.51	0.00
12.00	1.51	1.29	13.51	64.00	2.74	2.51	0.00
13.00	2.02	1.79	0.76	65.00	2.74	2.51	0.00
14.00	2.17	1.94	0.47	66.00	2.74	2.51	0.00
15.00	2.27	2.04	0.35	67.00	2.74	2.51	0.00
16.00	2.35	2.12	0.29	68.00	2.74	2.51	0.00
17.00	2.42	2.19	0.25	69.00	2.74	2.51	0.00
18.00	2.48	2.25	0.22	70.00	2.74	2.51	0.00
19.00	2.53	2.30	0.20	71.00	2.74	2.51	0.00
20.00	2.58	2.35	0.18	72.00	2.74	2.51	0.00
21.00	2.63	2.40	0.16				
22.00	2.67	2.44	0.15				
23.00	2.70	2.47	0.14				
24.00	2.74	2.51	0.13				
25.00	2.74	2.51	0.00				
26.00	2.74	2.51	0.00				
27.00	2.74	2.51	0.00				
28.00	2.74	2.51	0.00				
29.00	2.74	2.51	0.00				
30.00	2.74	2.51	0.00				
31.00	2.74	2.51	0.00				
32.00	2.74	2.51	0.00				
33.00	2.74	2.51	0.00				
34.00	2.74	2.51	0.00				
35.00	2.74	2.51	0.00				
36.00	2.74	2.51	0.00				
37.00	2.74	2.51	0.00				
38.00	2.74	2.51	0.00				
39.00	2.74	2.51	0.00				
40.00	2.74	2.51	0.00				
41.00	2.74	2.51	0.00				
42.00	2.74	2.51	0.00				
43.00	2.74	2.51	0.00				
44.00	2.74	2.51	0.00				
45.00	2.74	2.51	0.00				
46.00	2.74	2.51	0.00				
47.00	2.74	2.51	0.00				
48.00	2.74	2.51	0.00				
49.00	2.74	2.51	0.00				
50.00	2.74	2.51	0.00				
51.00	2.74	2.51	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment BASIN M IN: SA BASIN M**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 22.35 cfs @ 12.03 hrs, Volume= 1.433 af, Depth= 2.20"  
Routed to Pond BA-MR : UG INF BASIN M (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

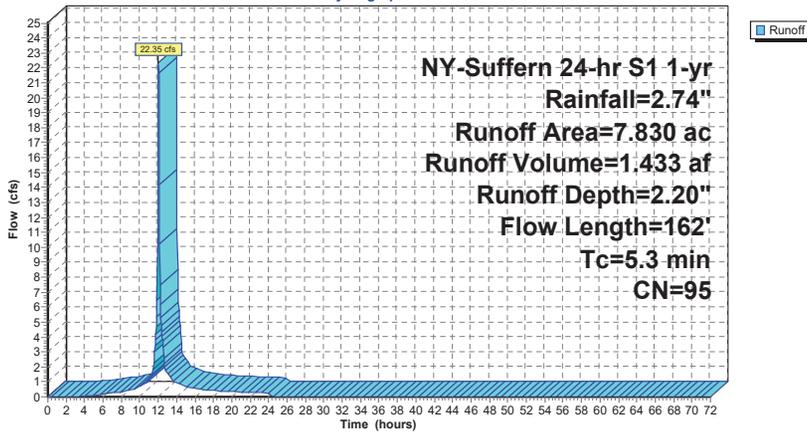
Area (ac)	CN	Description
7.420	98	Paved parking, HSG A
0.360	39	>75% Grass cover, Good, HSG A
0.050	74	>75% Grass cover, Good, HSG C
7.830	95	Weighted Average
0.410		5.24% Pervious Area
7.420		94.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	70	0.0571	0.25		Sheet Flow, A to B Grass: Short n= 0.150 P2= 3.35"
0.6	92	0.0163	2.59		Shallow Concentrated Flow, B to C Paved Kv= 20.3 fps
5.3	162	Total			

**Subcatchment BASIN M IN: SA BASIN M**

Hydrograph



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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment BASIN M IN: SA BASIN M**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	2.20	0.00
1.00	0.04	0.00	0.00	53.00	2.74	2.20	0.00
2.00	0.07	0.00	0.00	54.00	2.74	2.20	0.00
3.00	0.12	0.00	0.01	55.00	2.74	2.20	0.00
4.00	0.16	0.01	0.06	56.00	2.74	2.20	0.00
5.00	0.21	0.02	0.12	57.00	2.74	2.20	0.00
6.00	0.26	0.04	0.18	58.00	2.74	2.20	0.00
7.00	0.32	0.06	0.25	59.00	2.74	2.20	0.00
8.00	0.39	0.10	0.34	60.00	2.74	2.20	0.00
9.00	0.47	0.15	0.46	61.00	2.74	2.20	0.00
10.00	0.58	0.22	0.67	62.00	2.74	2.20	0.00
11.00	0.73	0.34	1.17	63.00	2.74	2.20	0.00
12.00	1.51	1.02	<b>20.97</b>	64.00	2.74	2.20	0.00
13.00	2.02	1.50	<b>1.53</b>	65.00	2.74	2.20	0.00
14.00	2.17	1.64	0.93	66.00	2.74	2.20	0.00
15.00	2.27	1.74	0.70	67.00	2.74	2.20	0.00
16.00	2.35	1.82	0.57	68.00	2.74	2.20	0.00
17.00	2.42	1.89	0.49	69.00	2.74	2.20	0.00
18.00	2.48	1.94	0.43	70.00	2.74	2.20	0.00
19.00	2.53	2.00	0.39	71.00	2.74	2.20	0.00
20.00	2.58	2.04	0.35	72.00	2.74	2.20	0.00
21.00	2.63	2.08	0.33				
22.00	2.67	2.12	0.30				
23.00	2.70	2.16	0.28				
24.00	<b>2.74</b>	<b>2.20</b>	0.27				
25.00	2.74	2.20	0.00				
26.00	2.74	2.20	0.00				
27.00	2.74	2.20	0.00				
28.00	2.74	2.20	0.00				
29.00	2.74	2.20	0.00				
30.00	2.74	2.20	0.00				
31.00	2.74	2.20	0.00				
32.00	2.74	2.20	0.00				
33.00	2.74	2.20	0.00				
34.00	2.74	2.20	0.00				
35.00	2.74	2.20	0.00				
36.00	2.74	2.20	0.00				
37.00	2.74	2.20	0.00				
38.00	2.74	2.20	0.00				
39.00	2.74	2.20	0.00				
40.00	2.74	2.20	0.00				
41.00	2.74	2.20	0.00				
42.00	2.74	2.20	0.00				
43.00	2.74	2.20	0.00				
44.00	2.74	2.20	0.00				
45.00	2.74	2.20	0.00				
46.00	2.74	2.20	0.00				
47.00	2.74	2.20	0.00				
48.00	2.74	2.20	0.00				
49.00	2.74	2.20	0.00				
50.00	2.74	2.20	0.00				
51.00	2.74	2.20	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment FB A1 IN: SA FOREBAY A1**

[49] Hint: Tc<2dt may require smaller dt

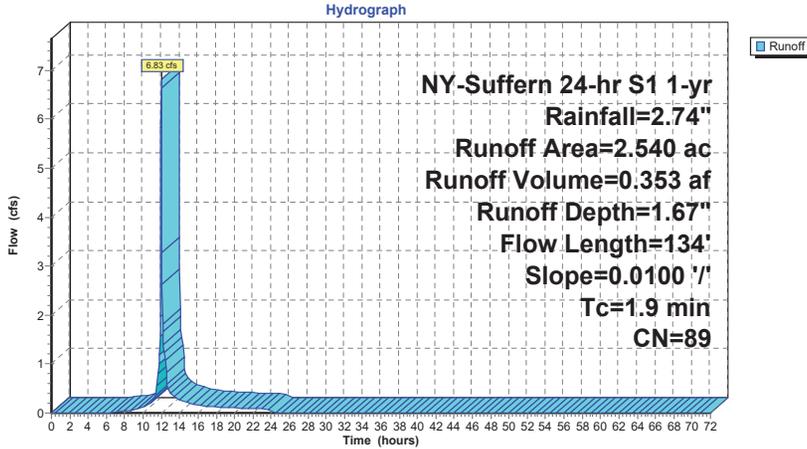
Runoff = 6.83 cfs @ 11.98 hrs, Volume= 0.353 af, Depth= 1.67"  
Routed to Pond FB-A1 : FOREBAY A1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
* 2.150	98	Paved parking and roof area, HSG A
0.390	39	>75% Grass cover, Good, HSG A
2.540	89	Weighted Average
0.390		15.35% Pervious Area
2.150		84.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.35"
0.3	34	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow Concentrated Flow</b> Paved Kv= 20.3 fps
1.9	134	Total			

**Subcatchment FB A1 IN: SA FOREBAY A1**



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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment FB A1 IN: SA FOREBAY A1**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	1.67	0.00
1.00	0.04	0.00	0.00	53.00	2.74	1.67	0.00
2.00	0.07	0.00	0.00	54.00	2.74	1.67	0.00
3.00	0.12	0.00	0.00	55.00	2.74	1.67	0.00
4.00	0.16	0.00	0.00	56.00	2.74	1.67	0.00
5.00	0.21	0.00	0.00	57.00	2.74	1.67	0.00
6.00	0.26	0.00	0.00	58.00	2.74	1.67	0.00
7.00	0.32	0.00	0.02	59.00	2.74	1.67	0.00
8.00	0.39	0.01	0.04	60.00	2.74	1.67	0.00
9.00	0.47	0.04	0.07	61.00	2.74	1.67	0.00
10.00	0.58	0.07	0.12	62.00	2.74	1.67	0.00
11.00	0.73	0.14	0.24	63.00	2.74	1.67	0.00
12.00	1.51	0.64	<b>6.83</b>	64.00	2.74	1.67	0.00
13.00	2.02	1.04	0.42	65.00	2.74	1.67	0.00
14.00	2.17	1.17	0.26	66.00	2.74	1.67	0.00
15.00	2.27	1.25	0.20	67.00	2.74	1.67	0.00
16.00	2.35	1.33	0.17	68.00	2.74	1.67	0.00
17.00	2.42	1.38	0.14	69.00	2.74	1.67	0.00
18.00	2.48	1.44	0.13	70.00	2.74	1.67	0.00
19.00	2.53	1.48	0.11	71.00	2.74	1.67	0.00
20.00	2.58	1.53	0.10	72.00	2.74	1.67	0.00
21.00	2.63	1.56	0.10				
22.00	2.67	1.60	0.09				
23.00	2.70	1.63	0.08				
24.00	<b>2.74</b>	<b>1.67</b>	0.07				
25.00	2.74	1.67	0.00				
26.00	2.74	1.67	0.00				
27.00	2.74	1.67	0.00				
28.00	2.74	1.67	0.00				
29.00	2.74	1.67	0.00				
30.00	2.74	1.67	0.00				
31.00	2.74	1.67	0.00				
32.00	2.74	1.67	0.00				
33.00	2.74	1.67	0.00				
34.00	2.74	1.67	0.00				
35.00	2.74	1.67	0.00				
36.00	2.74	1.67	0.00				
37.00	2.74	1.67	0.00				
38.00	2.74	1.67	0.00				
39.00	2.74	1.67	0.00				
40.00	2.74	1.67	0.00				
41.00	2.74	1.67	0.00				
42.00	2.74	1.67	0.00				
43.00	2.74	1.67	0.00				
44.00	2.74	1.67	0.00				
45.00	2.74	1.67	0.00				
46.00	2.74	1.67	0.00				
47.00	2.74	1.67	0.00				
48.00	2.74	1.67	0.00				
49.00	2.74	1.67	0.00				
50.00	2.74	1.67	0.00				
51.00	2.74	1.67	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment FB A2 IN: SA FOREBAY A2**

[49] Hint: Tc<2dt may require smaller dt

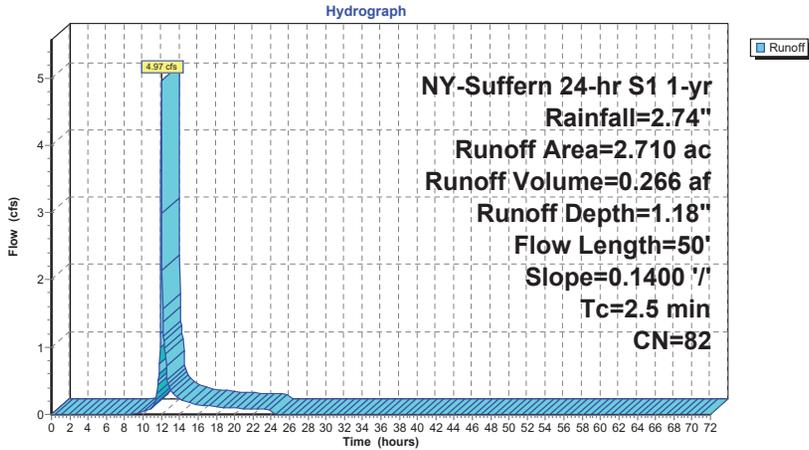
Runoff = 4.97 cfs @ 12.00 hrs, Volume= 0.266 af, Depth= 1.18"  
Routed to Pond FB-A2 : FOREBAY A2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
* 1.960	98	Paved parking, roof area
0.750	39	>75% Grass cover, Good, HSG A
2.710	82	Weighted Average
0.750		27.68% Pervious Area
1.960		72.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	50	0.1400	0.33		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.35"

**Subcatchment FB A2 IN: SA FOREBAY A2**



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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment FB A2 IN: SA FOREBAY A2**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	1.18	0.00
1.00	0.04	0.00	0.00	53.00	2.74	1.18	0.00
2.00	0.07	0.00	0.00	54.00	2.74	1.18	0.00
3.00	0.12	0.00	0.00	55.00	2.74	1.18	0.00
4.00	0.16	0.00	0.00	56.00	2.74	1.18	0.00
5.00	0.21	0.00	0.00	57.00	2.74	1.18	0.00
6.00	0.26	0.00	0.00	58.00	2.74	1.18	0.00
7.00	0.32	0.00	0.00	59.00	2.74	1.18	0.00
8.00	0.39	0.00	0.00	60.00	2.74	1.18	0.00
9.00	0.47	0.00	0.01	61.00	2.74	1.18	0.00
10.00	0.58	0.01	0.04	62.00	2.74	1.18	0.00
11.00	0.73	0.03	0.11	63.00	2.74	1.18	0.00
12.00	1.51	0.35	<b>4.95</b>	64.00	2.74	1.18	0.00
13.00	2.02	0.66	0.36	65.00	2.74	1.18	0.00
14.00	2.17	0.76	0.23	66.00	2.74	1.18	0.00
15.00	2.27	0.83	0.18	67.00	2.74	1.18	0.00
16.00	2.35	0.89	0.15	68.00	2.74	1.18	0.00
17.00	2.42	0.94	0.13	69.00	2.74	1.18	0.00
18.00	2.48	0.98	0.11	70.00	2.74	1.18	0.00
19.00	2.53	1.02	0.10	71.00	2.74	1.18	0.00
20.00	2.58	1.06	0.09	72.00	2.74	1.18	0.00
21.00	2.63	1.09	0.09				
22.00	2.67	1.12	0.08				
23.00	2.70	1.15	0.08				
24.00	<b>2.74</b>	<b>1.18</b>	0.07				
25.00	2.74	1.18	0.00				
26.00	2.74	1.18	0.00				
27.00	2.74	1.18	0.00				
28.00	2.74	1.18	0.00				
29.00	2.74	1.18	0.00				
30.00	2.74	1.18	0.00				
31.00	2.74	1.18	0.00				
32.00	2.74	1.18	0.00				
33.00	2.74	1.18	0.00				
34.00	2.74	1.18	0.00				
35.00	2.74	1.18	0.00				
36.00	2.74	1.18	0.00				
37.00	2.74	1.18	0.00				
38.00	2.74	1.18	0.00				
39.00	2.74	1.18	0.00				
40.00	2.74	1.18	0.00				
41.00	2.74	1.18	0.00				
42.00	2.74	1.18	0.00				
43.00	2.74	1.18	0.00				
44.00	2.74	1.18	0.00				
45.00	2.74	1.18	0.00				
46.00	2.74	1.18	0.00				
47.00	2.74	1.18	0.00				
48.00	2.74	1.18	0.00				
49.00	2.74	1.18	0.00				
50.00	2.74	1.18	0.00				
51.00	2.74	1.18	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment FB-B IN: SA BASIN B**

[49] Hint: Tc<2dt may require smaller dt

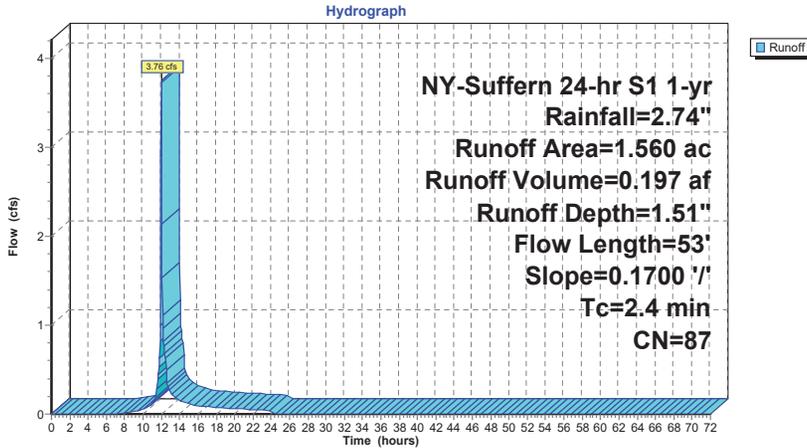
Runoff = 3.76 cfs @ 11.99 hrs, Volume= 0.197 af, Depth= 1.51"  
 Routed to Pond FB-B : FOREBAY B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
1.030	98	Paved parking, HSG A
0.180	39	>75% Grass cover, Good, HSG A
0.350	80	>75% Grass cover, Good, HSG D
1.560	87	Weighted Average
0.530		33.97% Pervious Area
1.030		66.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	53	0.1700	0.36		Sheet Flow, A to B
Grass: Short n= 0.150 P2= 3.35"					

**Subcatchment FB-B IN: SA BASIN B**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment FB-B IN: SA BASIN B**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	1.51	0.00
1.00	0.04	0.00	0.00	53.00	2.74	1.51	0.00
2.00	0.07	0.00	0.00	54.00	2.74	1.51	0.00
3.00	0.12	0.00	0.00	55.00	2.74	1.51	0.00
4.00	0.16	0.00	0.00	56.00	2.74	1.51	0.00
5.00	0.21	0.00	0.00	57.00	2.74	1.51	0.00
6.00	0.26	0.00	0.00	58.00	2.74	1.51	0.00
7.00	0.32	0.00	0.00	59.00	2.74	1.51	0.00
8.00	0.39	0.01	0.01	60.00	2.74	1.51	0.00
9.00	0.47	0.02	0.03	61.00	2.74	1.51	0.00
10.00	0.58	0.04	0.05	62.00	2.74	1.51	0.00
11.00	0.73	0.10	0.12	63.00	2.74	1.51	0.00
12.00	1.51	0.54	3.73	64.00	2.74	1.51	0.00
13.00	2.02	0.92	0.25	65.00	2.74	1.51	0.00
14.00	2.17	1.04	0.15	66.00	2.74	1.51	0.00
15.00	2.27	1.12	0.12	67.00	2.74	1.51	0.00
16.00	2.35	1.19	0.10	68.00	2.74	1.51	0.00
17.00	2.42	1.24	0.08	69.00	2.74	1.51	0.00
18.00	2.48	1.29	0.07	70.00	2.74	1.51	0.00
19.00	2.53	1.34	0.07	71.00	2.74	1.51	0.00
20.00	2.58	1.38	0.06	72.00	2.74	1.51	0.00
21.00	2.63	1.42	0.06				
22.00	2.67	1.45	0.05				
23.00	2.70	1.48	0.05				
24.00	2.74	1.51	0.05				
25.00	2.74	1.51	0.00				
26.00	2.74	1.51	0.00				
27.00	2.74	1.51	0.00				
28.00	2.74	1.51	0.00				
29.00	2.74	1.51	0.00				
30.00	2.74	1.51	0.00				
31.00	2.74	1.51	0.00				
32.00	2.74	1.51	0.00				
33.00	2.74	1.51	0.00				
34.00	2.74	1.51	0.00				
35.00	2.74	1.51	0.00				
36.00	2.74	1.51	0.00				
37.00	2.74	1.51	0.00				
38.00	2.74	1.51	0.00				
39.00	2.74	1.51	0.00				
40.00	2.74	1.51	0.00				
41.00	2.74	1.51	0.00				
42.00	2.74	1.51	0.00				
43.00	2.74	1.51	0.00				
44.00	2.74	1.51	0.00				
45.00	2.74	1.51	0.00				
46.00	2.74	1.51	0.00				
47.00	2.74	1.51	0.00				
48.00	2.74	1.51	0.00				
49.00	2.74	1.51	0.00				
50.00	2.74	1.51	0.00				
51.00	2.74	1.51	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment FB-G IN: SA BASIN G**

[49] Hint: Tc<2dt may require smaller dt

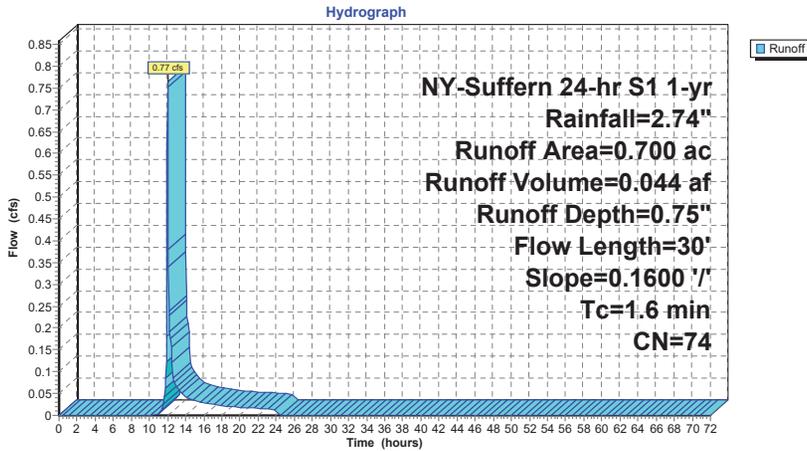
Runoff = 0.77 cfs @ 11.99 hrs, Volume= 0.044 af, Depth= 0.75"  
Routed to Pond FB-G : FOREBAY G

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG A
0.280	39	>75% Grass cover, Good, HSG A
0.700	74	Weighted Average
0.280		40.00% Pervious Area
0.420		60.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	30	0.1600	0.31		Sheet Flow, A to B Grass: Short n= 0.150 P2= 3.35"

**Subcatchment FB-G IN: SA BASIN G**



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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment FB-G IN: SA BASIN G**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	0.75	0.00
1.00	0.04	0.00	0.00	53.00	2.74	0.75	0.00
2.00	0.07	0.00	0.00	54.00	2.74	0.75	0.00
3.00	0.12	0.00	0.00	55.00	2.74	0.75	0.00
4.00	0.16	0.00	0.00	56.00	2.74	0.75	0.00
5.00	0.21	0.00	0.00	57.00	2.74	0.75	0.00
6.00	0.26	0.00	0.00	58.00	2.74	0.75	0.00
7.00	0.32	0.00	0.00	59.00	2.74	0.75	0.00
8.00	0.39	0.00	0.00	60.00	2.74	0.75	0.00
9.00	0.47	0.00	0.00	61.00	2.74	0.75	0.00
10.00	0.58	0.00	0.00	62.00	2.74	0.75	0.00
11.00	0.73	0.00	0.00	63.00	2.74	0.75	0.00
12.00	1.51	0.15	0.75	64.00	2.74	0.75	0.00
13.00	2.02	0.36	0.07	65.00	2.74	0.75	0.00
14.00	2.17	0.43	0.04	66.00	2.74	0.75	0.00
15.00	2.27	0.48	0.03	67.00	2.74	0.75	0.00
16.00	2.35	0.53	0.03	68.00	2.74	0.75	0.00
17.00	2.42	0.56	0.02	69.00	2.74	0.75	0.00
18.00	2.48	0.60	0.02	70.00	2.74	0.75	0.00
19.00	2.53	0.63	0.02	71.00	2.74	0.75	0.00
20.00	2.58	0.65	0.02	72.00	2.74	0.75	0.00
21.00	2.63	0.68	0.02				
22.00	2.67	0.70	0.02				
23.00	2.70	0.73	0.02				
24.00	2.74	0.75	0.01				
25.00	2.74	0.75	0.00				
26.00	2.74	0.75	0.00				
27.00	2.74	0.75	0.00				
28.00	2.74	0.75	0.00				
29.00	2.74	0.75	0.00				
30.00	2.74	0.75	0.00				
31.00	2.74	0.75	0.00				
32.00	2.74	0.75	0.00				
33.00	2.74	0.75	0.00				
34.00	2.74	0.75	0.00				
35.00	2.74	0.75	0.00				
36.00	2.74	0.75	0.00				
37.00	2.74	0.75	0.00				
38.00	2.74	0.75	0.00				
39.00	2.74	0.75	0.00				
40.00	2.74	0.75	0.00				
41.00	2.74	0.75	0.00				
42.00	2.74	0.75	0.00				
43.00	2.74	0.75	0.00				
44.00	2.74	0.75	0.00				
45.00	2.74	0.75	0.00				
46.00	2.74	0.75	0.00				
47.00	2.74	0.75	0.00				
48.00	2.74	0.75	0.00				
49.00	2.74	0.75	0.00				
50.00	2.74	0.75	0.00				
51.00	2.74	0.75	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**

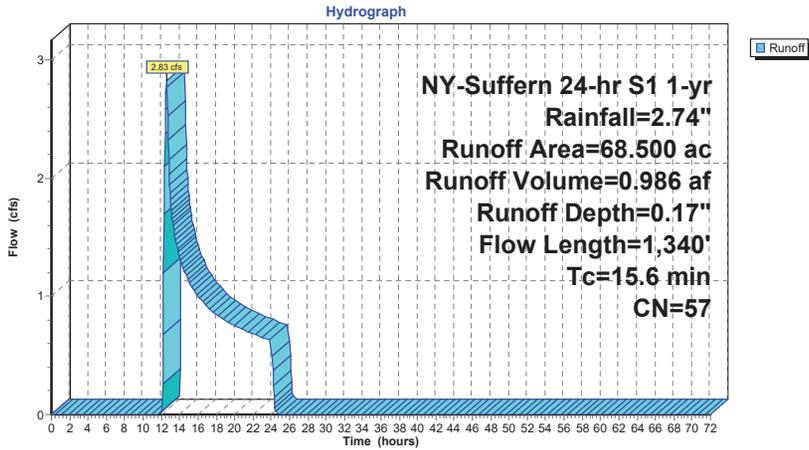
Runoff = 2.83 cfs @ 12.58 hrs, Volume= 0.986 af, Depth= 0.17"  
Routed to Link 42L : POA STREAM TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

Area (ac)	CN	Description
* 1.060	98	IMP
25.050	30	Woods, Good, HSG A
31.620	70	Woods, Good, HSG C
10.770	77	Woods, Good, HSG D
68.500	57	Weighted Average
67.440		98.45% Pervious Area
1.060		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	49	0.1300	0.15		<b>Sheet Flow, SHEET FLOW</b> Woods: Light underbrush n= 0.400 P2= 3.35"
5.3	51	0.0170	0.16		<b>Sheet Flow, SHEET FLOW</b> Range n= 0.130 P2= 3.35"
4.7	1,240	0.0760	4.44		<b>Shallow Concentrated Flow, SHALLOW CONCENTRATED</b> Unpaved Kv= 16.1 fps
15.6	1,340	Total			

**Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	2.74	0.17	0.00
1.00	0.04	0.00	0.00	53.00	2.74	0.17	0.00
2.00	0.07	0.00	0.00	54.00	2.74	0.17	0.00
3.00	0.12	0.00	0.00	55.00	2.74	0.17	0.00
4.00	0.16	0.00	0.00	56.00	2.74	0.17	0.00
5.00	0.21	0.00	0.00	57.00	2.74	0.17	0.00
6.00	0.26	0.00	0.00	58.00	2.74	0.17	0.00
7.00	0.32	0.00	0.00	59.00	2.74	0.17	0.00
8.00	0.39	0.00	0.00	60.00	2.74	0.17	0.00
9.00	0.47	0.00	0.00	61.00	2.74	0.17	0.00
10.00	0.58	0.00	0.00	62.00	2.74	0.17	0.00
11.00	0.73	0.00	0.00	63.00	2.74	0.17	0.00
12.00	1.51	0.00	<b>0.00</b>	64.00	2.74	0.17	0.00
13.00	2.02	0.03	<b>1.82</b>	65.00	2.74	0.17	0.00
14.00	2.17	0.05	1.34	66.00	2.74	0.17	0.00
15.00	2.27	0.07	1.13	67.00	2.74	0.17	0.00
16.00	2.35	0.08	1.00	68.00	2.74	0.17	0.00
17.00	2.42	0.10	0.92	69.00	2.74	0.17	0.00
18.00	2.48	0.11	0.85	70.00	2.74	0.17	0.00
19.00	2.53	0.12	0.80	71.00	2.74	0.17	0.00
20.00	2.58	0.13	0.75	72.00	2.74	0.17	0.00
21.00	2.63	0.14	0.71				
22.00	2.67	0.15	0.68				
23.00	2.70	0.16	0.66				
24.00	<b>2.74</b>	<b>0.17</b>	0.63				
25.00	2.74	0.17	0.00				
26.00	2.74	0.17	0.00				
27.00	2.74	0.17	0.00				
28.00	2.74	0.17	0.00				
29.00	2.74	0.17	0.00				
30.00	2.74	0.17	0.00				
31.00	2.74	0.17	0.00				
32.00	2.74	0.17	0.00				
33.00	2.74	0.17	0.00				
34.00	2.74	0.17	0.00				
35.00	2.74	0.17	0.00				
36.00	2.74	0.17	0.00				
37.00	2.74	0.17	0.00				
38.00	2.74	0.17	0.00				
39.00	2.74	0.17	0.00				
40.00	2.74	0.17	0.00				
41.00	2.74	0.17	0.00				
42.00	2.74	0.17	0.00				
43.00	2.74	0.17	0.00				
44.00	2.74	0.17	0.00				
45.00	2.74	0.17	0.00				
46.00	2.74	0.17	0.00				
47.00	2.74	0.17	0.00				
48.00	2.74	0.17	0.00				
49.00	2.74	0.17	0.00				
50.00	2.74	0.17	0.00				
51.00	2.74	0.17	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Pond BA-A: AG INF BASIN A**

[92] Warning: Device #5 is above defined storage

Inflow Area = 5.250 ac, 78.29% Impervious, Inflow Depth = 1.22" for 1-yr event  
 Inflow = 5.43 cfs @ 12.02 hrs, Volume= 0.534 af  
 Outflow = 2.59 cfs @ 12.17 hrs, Volume= 0.534 af, Atten= 52%, Lag= 8.8 min  
 Discarded = 2.59 cfs @ 12.17 hrs, Volume= 0.534 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.94' @ 12.17 hrs Surf.Area= 11,386 sf Storage= 1,513 cf

Plug-Flow detention time= 8.2 min calculated for 0.532 af (100% of inflow)  
 Center-of-Mass det. time= 3.7 min ( 859.6 - 855.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	43,288 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	10,324	0	0
310.00	11,848	2,217	2,217
311.00	14,026	12,937	15,154
312.00	16,335	15,181	30,335
312.75	18,208	12,954	43,288

Device	Routing	Invert	Outlet Devices
#1	Primary	309.00'	<b>18.0" Round Culvert</b> L= 129.0' Ke= 1.000 Inlet / Outlet Invert= 309.00' / 306.42' S= 0.0200 ' /' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	309.80'	<b>9.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 305.80'
#3	Device 1	311.10'	<b>3.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Device 1	312.60'	<b>48.0" x 48.0" Horiz. Top Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Primary	312.75'	<b>48.0' long x 11.0' breadth Broad-Crested Rectangular Weir (Emergency Spillway)</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64

Discarded OutFlow Max=2.58 cfs @ 12.17 hrs HW=309.94' (Free Discharge)  
 ↳2=Exfiltration ( Controls 2.58 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=309.81' (Free Discharge)  
 ↳1=Culvert (Passes 0.00 cfs of 2.22 cfs potential flow)  
 ↳3=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)  
 ↳4=Top Grate ( Controls 0.00 cfs)  
 ↳5=Broad-Crested Rectangular Weir (Emergency Spillway) Controls 0.00 cfs)

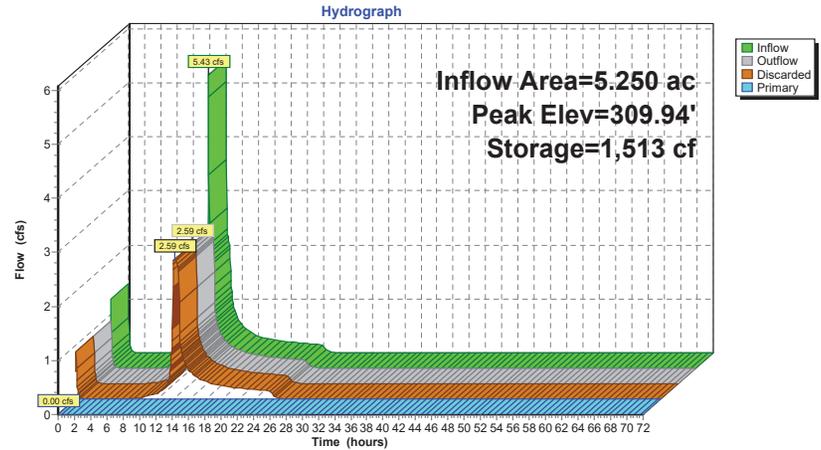
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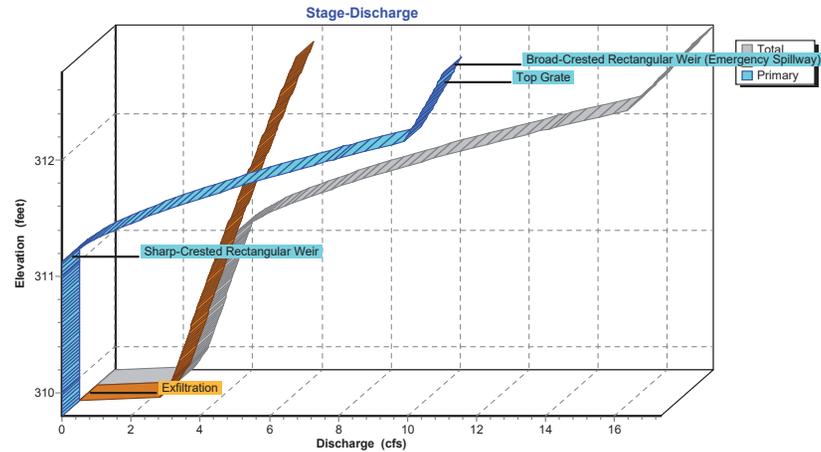
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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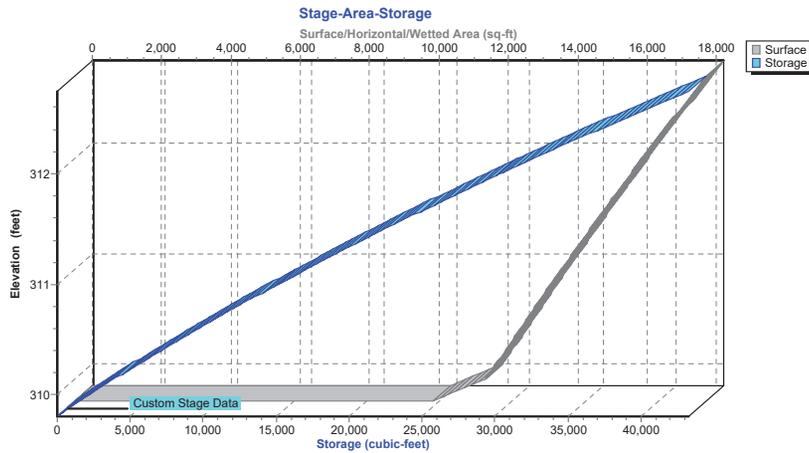
**Pond BA-A: AG INF BASIN A**



**Pond BA-A: AG INF BASIN A**



Pond BA-A: AG INF BASIN A



Hydrograph for Pond BA-A: AG INF BASIN A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	1.27	68	309.81	0.52	0.52	0.00
2.50	0.00	0	309.80	0.00	0.00	0.00
5.00	0.00	0	309.80	0.00	0.00	0.00
7.50	0.02	3	309.80	0.02	0.02	0.00
10.00	0.11	14	309.80	0.11	0.11	0.00
12.50	1.92	1,033	309.90	2.49	2.49	0.00
15.00	0.39	52	309.80	0.39	0.39	0.00
17.50	0.26	34	309.80	0.26	0.26	0.00
20.00	0.20	27	309.80	0.20	0.20	0.00
22.50	0.17	22	309.80	0.17	0.17	0.00
25.00	0.01	1	309.80	0.01	0.01	0.00
27.50	0.00	0	309.80	0.00	0.00	0.00
30.00	0.00	0	309.80	0.00	0.00	0.00
32.50	0.00	0	309.80	0.00	0.00	0.00
35.00	0.00	0	309.80	0.00	0.00	0.00
37.50	0.00	0	309.80	0.00	0.00	0.00
40.00	0.00	0	309.80	0.00	0.00	0.00
42.50	0.00	0	309.80	0.00	0.00	0.00
45.00	0.00	0	309.80	0.00	0.00	0.00
47.50	0.00	0	309.80	0.00	0.00	0.00
50.00	0.00	0	309.80	0.00	0.00	0.00
52.50	0.00	0	309.80	0.00	0.00	0.00
55.00	0.00	0	309.80	0.00	0.00	0.00
57.50	0.00	0	309.80	0.00	0.00	0.00
60.00	0.00	0	309.80	0.00	0.00	0.00
62.50	0.00	0	309.80	0.00	0.00	0.00
65.00	0.00	0	309.80	0.00	0.00	0.00
67.50	0.00	0	309.80	0.00	0.00	0.00
70.00	0.00	0	309.80	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Discharge for Pond BA-A: AG INF BASIN A**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
309.80	0.00	0.00	0.00	312.40	16.16	5.77	10.39
309.85	2.38	2.38	0.00	312.45	16.33	5.84	10.49
309.90	2.50	2.50	0.00	312.50	16.50	5.91	10.58
309.95	2.61	2.61	0.00	312.55	16.66	5.98	10.68
310.00	2.73	2.73	0.00	312.60	16.83	6.06	10.77
310.05	2.78	2.78	0.00	312.65	17.00	6.13	10.87
310.10	2.84	2.84	0.00	312.70	17.16	6.20	10.96
310.15	2.90	2.90	0.00	312.75	<b>17.33</b>	<b>6.27</b>	<b>11.05</b>
310.20	2.95	2.95	0.00				
310.25	3.01	3.01	0.00				
310.30	3.07	3.07	0.00				
310.35	3.13	3.13	0.00				
310.40	3.19	3.19	0.00				
310.45	3.24	3.24	0.00				
310.50	3.30	3.30	0.00				
310.55	3.36	3.36	0.00				
310.60	3.42	3.42	0.00				
310.65	3.48	3.48	0.00				
310.70	3.54	3.54	0.00				
310.75	3.60	3.60	0.00				
310.80	3.66	3.66	0.00				
310.85	3.72	3.72	0.00				
310.90	3.78	3.78	0.00				
310.95	3.84	3.84	0.00				
311.00	3.91	3.91	0.00				
311.05	3.97	3.97	0.00				
311.10	4.03	4.03	0.00				
311.15	4.20	4.09	0.11				
311.20	4.47	4.16	0.31				
311.25	4.79	4.22	0.56				
311.30	5.15	4.29	0.87				
311.35	5.56	4.35	1.21				
311.40	6.00	4.42	1.58				
311.45	6.46	4.48	1.98				
311.50	6.96	4.55	2.42				
311.55	7.48	4.61	2.87				
311.60	8.03	4.68	3.35				
311.65	8.60	4.74	3.85				
311.70	9.19	4.81	4.38				
311.75	9.79	4.87	4.92				
311.80	10.42	4.94	5.48				
311.85	11.06	5.01	6.05				
311.90	11.72	5.07	6.65				
311.95	12.39	5.14	7.25				
312.00	13.08	5.21	7.87				
312.05	13.79	5.28	8.51				
312.10	14.50	5.35	9.16				
312.15	15.23	5.42	9.82				
312.20	15.48	5.49	9.99				
312.25	15.65	5.56	10.09				
312.30	15.82	5.63	10.19				
312.35	15.99	5.70	10.29				

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**Stage-Area-Storage for Pond BA-A: AG INF BASIN A**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	10,324	0	312.40	17,334	37,068
309.85	10,705	526	312.45	17,459	37,938
309.90	11,086	1,071	312.50	17,584	38,814
309.95	11,467	1,634	312.55	17,709	39,697
310.00	11,848	2,217	312.60	17,833	40,585
310.05	11,957	2,812	312.65	17,958	41,480
310.10	12,066	3,413	312.70	18,083	42,381
310.15	12,175	4,019	312.75	<b>18,208</b>	<b>43,288</b>
310.20	12,284	4,630			
310.25	12,393	5,247			
310.30	12,501	5,870			
310.35	12,610	6,497			
310.40	12,719	7,131			
310.45	12,828	7,769			
310.50	12,937	8,413			
310.55	13,046	9,063			
310.60	13,155	9,718			
310.65	13,264	10,379			
310.70	13,373	11,044			
310.75	13,482	11,716			
310.80	13,590	12,393			
310.85	13,699	13,075			
310.90	13,808	13,762			
310.95	13,917	14,456			
311.00	14,026	15,154			
311.05	14,141	15,858			
311.10	14,257	16,568			
311.15	14,372	17,284			
311.20	14,488	18,006			
311.25	14,603	18,733			
311.30	14,719	19,466			
311.35	14,834	20,205			
311.40	14,950	20,949			
311.45	15,065	21,700			
311.50	15,181	22,456			
311.55	15,296	23,218			
311.60	15,411	23,985			
311.65	15,527	24,759			
311.70	15,642	25,538			
311.75	15,758	26,323			
311.80	15,873	27,114			
311.85	15,989	27,910			
311.90	16,104	28,713			
311.95	16,220	29,521			
312.00	16,335	30,335			
312.05	16,460	31,155			
312.10	16,585	31,981			
312.15	16,710	32,813			
312.20	16,834	33,652			
312.25	16,959	34,496			
312.30	17,084	35,348			
312.35	17,209	36,205			

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**Summary for Pond BA-B: AG INF BASIN B**

Inflow Area = 1,560 ac, 66.03% Impervious, Inflow Depth = 1.37" for 1-yr event  
 Inflow = 3.84 cfs @ 12.00 hrs, Volume= 0.178 af  
 Outflow = 0.40 cfs @ 12.57 hrs, Volume= 0.178 af, Atten= 90%, Lag= 34.4 min  
 Discarded = 0.40 cfs @ 12.57 hrs, Volume= 0.178 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 304.87' @ 12.57 hrs Surf.Area= 4,280 sf Storage= 2,781 cf

Plug-Flow detention time= 65.2 min calculated for 0.178 af (100% of inflow)  
 Center-of-Mass det. time= 65.1 min ( 925.2 - 860.1 )

Volume #1	Invert 304.00'	Avail.Storage 26,598 cf	Storage Description Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
304.00	2,100	0	0
305.00	4,600	3,350	3,350
306.00	6,700	5,650	9,000
307.00	8,777	7,739	16,739
308.00	10,941	9,859	26,598

Device #1	Routing Primary	Invert 303.00'	Outlet Devices 18.0" Round Culvert
#1	Primary	303.00'	18.0" Round Culvert L= 11.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 303.00' / 302.89' S= 0.0100 ' ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	304.00'	3.500 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 300.00'
#3	Device 1	305.00'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.00'	48.0" x 48.0" Horiz. Top Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.40 cfs @ 12.57 hrs HW=304.87' (Free Discharge)  
 ↳ 2=Exfiltration ( Controls 0.40 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=304.00' (Free Discharge)  
 ↳ 1=Culvert (Passes 0.00 cfs of 3.29 cfs potential flow)  
 ↳ 3=Orifice/Grate ( Controls 0.00 cfs)  
 ↳ 4=Top Grate ( Controls 0.00 cfs)

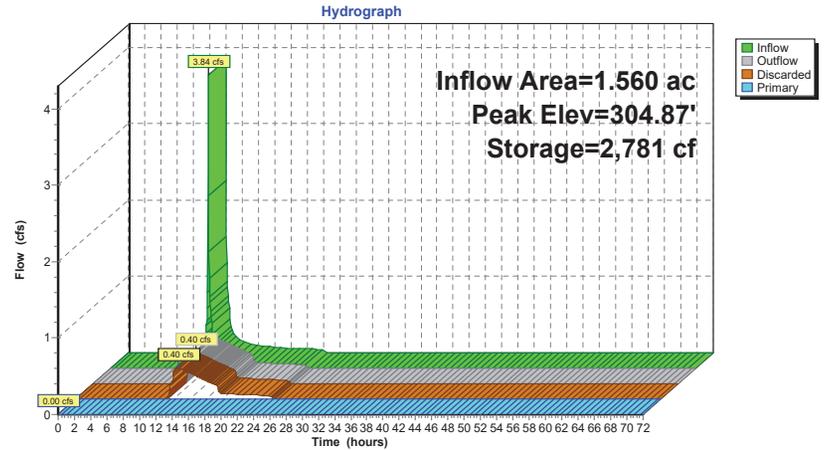
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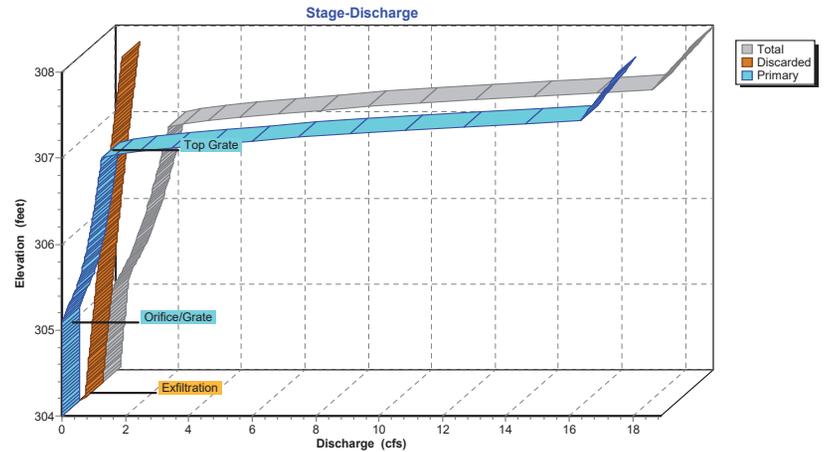
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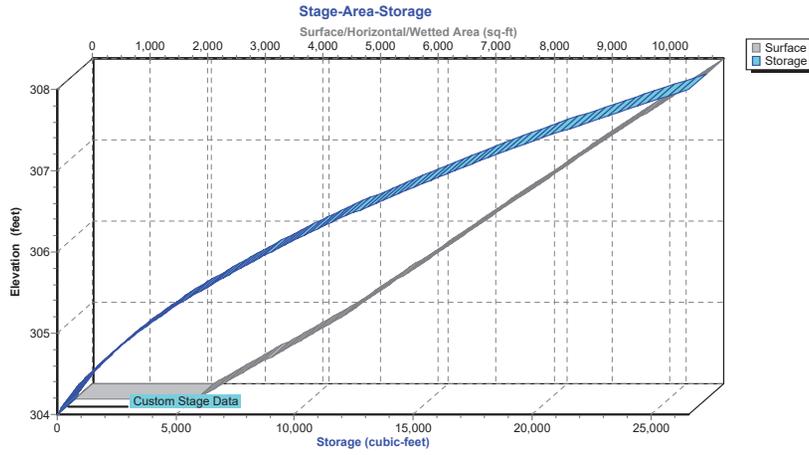
**Pond BA-B: AG INF BASIN B**



**Pond BA-B: AG INF BASIN B**



Pond BA-B: AG INF BASIN B



Hydrograph for Pond BA-B: AG INF BASIN B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	304.00	0.00	0.00	0.00
2.50	0.00	0	304.00	0.00	0.00	0.00
5.00	0.00	0	304.00	0.00	0.00	0.00
7.50	0.00	0	304.00	0.00	0.00	0.00
10.00	0.00	0	304.00	0.00	0.00	0.00
12.50	0.56	2,761	304.87	0.40	0.40	0.00
15.00	0.12	1,310	304.48	0.29	0.29	0.00
17.50	0.08	68	304.03	0.14	0.14	0.00
20.00	0.06	30	304.01	0.06	0.06	0.00
22.50	0.05	25	304.01	0.05	0.05	0.00
25.00	0.00	0	304.00	0.00	0.00	0.00
27.50	0.00	0	304.00	0.00	0.00	0.00
30.00	0.00	0	304.00	0.00	0.00	0.00
32.50	0.00	0	304.00	0.00	0.00	0.00
35.00	0.00	0	304.00	0.00	0.00	0.00
37.50	0.00	0	304.00	0.00	0.00	0.00
40.00	0.00	0	304.00	0.00	0.00	0.00
42.50	0.00	0	304.00	0.00	0.00	0.00
45.00	0.00	0	304.00	0.00	0.00	0.00
47.50	0.00	0	304.00	0.00	0.00	0.00
50.00	0.00	0	304.00	0.00	0.00	0.00
52.50	0.00	0	304.00	0.00	0.00	0.00
55.00	0.00	0	304.00	0.00	0.00	0.00
57.50	0.00	0	304.00	0.00	0.00	0.00
60.00	0.00	0	304.00	0.00	0.00	0.00
62.50	0.00	0	304.00	0.00	0.00	0.00
65.00	0.00	0	304.00	0.00	0.00	0.00
67.50	0.00	0	304.00	0.00	0.00	0.00
70.00	0.00	0	304.00	0.00	0.00	0.00

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**Stage-Discharge for Pond BA-B: AG INF BASIN B**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
304.00	0.00	0.00	0.00	306.60	1.99	0.89	1.10
304.05	0.18	0.18	0.00	306.65	2.02	0.90	1.12
304.10	0.19	0.19	0.00	306.70	2.06	0.92	1.14
304.15	0.21	0.21	0.00	306.75	2.09	0.93	1.16
304.20	0.22	0.22	0.00	306.80	2.13	0.95	1.18
304.25	0.23	0.23	0.00	306.85	2.16	0.96	1.20
304.30	0.25	0.25	0.00	306.90	2.19	0.98	1.21
304.35	0.26	0.26	0.00	306.95	2.23	0.99	1.23
304.40	0.27	0.27	0.00	307.00	2.26	1.01	1.25
304.45	0.28	0.28	0.00	307.05	2.88	1.03	1.85
304.50	0.30	0.30	0.00	307.10	3.98	1.04	2.94
304.55	0.31	0.31	0.00	307.15	5.40	1.06	4.34
304.60	0.33	0.33	0.00	307.20	7.07	1.07	6.00
304.65	0.34	0.34	0.00	307.25	8.97	1.09	7.88
304.70	0.35	0.35	0.00	307.30	11.06	1.11	9.95
304.75	0.37	0.37	0.00	307.35	13.33	1.12	12.20
304.80	0.38	0.38	0.00	307.40	15.76	1.14	14.62
304.85	0.39	0.39	0.00	307.45	17.52	1.16	16.37
304.90	0.41	0.41	0.00	307.50	17.65	1.17	16.48
304.95	0.42	0.42	0.00	307.55	17.78	1.19	16.59
305.00	0.44	0.44	0.00	307.60	17.90	1.21	16.70
305.05	0.46	0.45	0.01	307.65	18.03	1.22	16.80
305.10	0.49	0.46	0.03	307.70	18.15	1.24	16.91
305.15	0.54	0.48	0.07	307.75	18.27	1.26	17.02
305.20	0.60	0.49	0.11	307.80	18.40	1.27	17.12
305.25	0.67	0.50	0.17	307.85	18.52	1.29	17.23
305.30	0.75	0.52	0.23	307.90	18.64	1.31	17.33
305.35	0.83	0.53	0.30	307.95	18.76	1.32	17.44
305.40	0.91	0.54	0.36	308.00	<b>18.88</b>	<b>1.34</b>	<b>17.54</b>
305.45	0.98	0.56	0.43				
305.50	1.04	0.57	0.47				
305.55	1.10	0.58	0.52				
305.60	1.16	0.60	0.56				
305.65	1.21	0.61	0.60				
305.70	1.26	0.63	0.63				
305.75	1.31	0.64	0.67				
305.80	1.35	0.65	0.70				
305.85	1.40	0.67	0.73				
305.90	1.44	0.68	0.76				
305.95	1.49	0.70	0.79				
306.00	1.53	0.71	0.82				
306.05	1.57	0.72	0.85				
306.10	1.61	0.74	0.87				
306.15	1.65	0.75	0.90				
306.20	1.69	0.77	0.92				
306.25	1.73	0.78	0.95				
306.30	1.77	0.80	0.97				
306.35	1.80	0.81	0.99				
306.40	1.84	0.83	1.01				
306.45	1.88	0.84	1.04				
306.50	1.91	0.86	1.06				
306.55	1.95	0.87	1.08				

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**Stage-Area-Storage for Pond BA-B: AG INF BASIN B**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
304.00	2,100	0	306.60	7,946	13,394
304.05	2,225	108	306.65	8,050	13,794
304.10	2,350	223	306.70	8,154	14,199
304.15	2,475	343	306.75	8,258	14,609
304.20	2,600	470	306.80	8,362	15,025
304.25	2,725	603	306.85	8,465	15,445
304.30	2,850	743	306.90	8,569	15,871
304.35	2,975	888	306.95	8,673	16,302
304.40	3,100	1,040	307.00	8,777	16,739
304.45	3,225	1,198	307.05	8,885	17,180
304.50	3,350	1,363	307.10	8,993	17,627
304.55	3,475	1,533	307.15	9,102	18,079
304.60	3,600	1,710	307.20	9,210	18,537
304.65	3,725	1,893	307.25	9,318	19,000
304.70	3,850	2,082	307.30	9,426	19,469
304.75	3,975	2,278	307.35	9,534	19,943
304.80	4,100	2,480	307.40	9,643	20,422
304.85	4,225	2,688	307.45	9,751	20,907
304.90	4,350	2,902	307.50	9,859	21,398
304.95	4,475	3,123	307.55	9,967	21,893
305.00	4,600	3,350	307.60	10,075	22,394
305.05	4,705	3,583	307.65	10,184	22,901
305.10	4,810	3,821	307.70	10,292	23,413
305.15	4,915	4,064	307.75	10,400	23,930
305.20	5,020	4,312	307.80	10,508	24,453
305.25	5,125	4,566	307.85	10,616	24,981
305.30	5,230	4,825	307.90	10,725	25,514
305.35	5,335	5,089	307.95	10,833	26,053
305.40	5,440	5,358	308.00	<b>10,941</b>	<b>26,598</b>
305.45	5,545	5,633			
305.50	5,650	5,913			
305.55	5,755	6,198			
305.60	5,860	6,488			
305.65	5,965	6,784			
305.70	6,070	7,084			
305.75	6,175	7,391			
305.80	6,280	7,702			
305.85	6,385	8,019			
305.90	6,490	8,340			
305.95	6,595	8,668			
306.00	6,700	9,000			
306.05	6,804	9,338			
306.10	6,908	9,680			
306.15	7,012	10,028			
306.20	7,115	10,382			
306.25	7,219	10,740			
306.30	7,323	11,103			
306.35	7,427	11,472			
306.40	7,531	11,846			
306.45	7,635	12,225			
306.50	7,739	12,610			
306.55	7,842	12,999			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-CR: UG INF BASIN C (RTANK)**

Inflow Area = 8.090 ac, 94.93% Impervious, Inflow Depth = 2.20" for 1-yr event  
 Inflow = 23.71 cfs @ 12.02 hrs, Volume= 1.481 af  
 Outflow = 2.11 cfs @ 12.69 hrs, Volume= 1.481 af, Atten= 91%, Lag= 40.1 min  
 Discarded = 2.11 cfs @ 12.69 hrs, Volume= 1.480 af  
 Primary = 0.00 cfs @ 12.69 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 304.52' @ 12.69 hrs Surf.Area= 27,305 sf Storage= 21,548 cf

Plug-Flow detention time= 73.9 min calculated for 1.479 af (100% of inflow)  
 Center-of-Mass det. time= 73.9 min ( 865.7 - 791.9 )

Volume	Invert	Avail.Storage	Storage Description
#1A	303.50'	14,951 cf	<b>41.40'W x 659.51'L x 5.35'H Field A</b> 145,966 cf Overall - 108,590 cf Embedded = 37,376 cf x 40.0% Voids
#2A	303.75'	103,160 cf	<b>Ferguson R-Tank UD 4</b> x 6327 Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 6327 Chambers in 19 Rows
		118,111 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	303.75'	<b>18.0" Round Culvert</b> L= 85.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 303.75' / 302.65' S= 0.0129 ' ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	303.50'	<b>2.600 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 299.90'
#3	Device 1	304.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.50'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=2.11 cfs @ 12.69 hrs HW=304.52' (Free Discharge)  
 ↳2=Exfiltration ( Controls 2.11 cfs)

**Primary OutFlow** Max=0.00 cfs @ 12.69 hrs HW=304.52' (Free Discharge)  
 ↳1=Culvert (Passes 0.00 cfs of 3.37 cfs potential flow)  
 ↳3=Orifice/Grate (Orifice Controls 0.00 cfs @ 0.49 fps)  
 ↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Pond BA-CR: UG INF BASIN C (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf  
 Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

333 Chambers/Row x 1.97' Long = 655.51' Row Length +24.0" End Stone x 2 = 659.51' Base Length  
 19 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 41.40' Base Width  
 3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

6,327 Chambers x 16.3 cf = 103,160.4 cf Chamber Storage  
 6,327 Chambers x 17.2 cf = 108,589.8 cf Displacement

145,966.2 cf Field - 108,589.8 cf Chambers = 37,376.3 cf Stone x 40.0% Voids = 14,950.5 cf Stone Storage

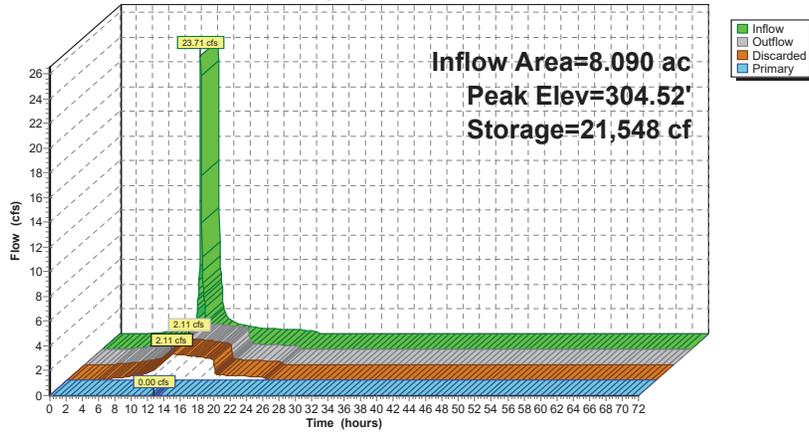
Chamber Storage + Stone Storage = 118,110.9 cf = 2.711 af  
 Overall Storage Efficiency = 80.9%  
 Overall System Size = 659.51' x 41.40' x 5.35'

6,327 Chambers  
 5,406.2 cy Field  
 1,384.3 cy Stone



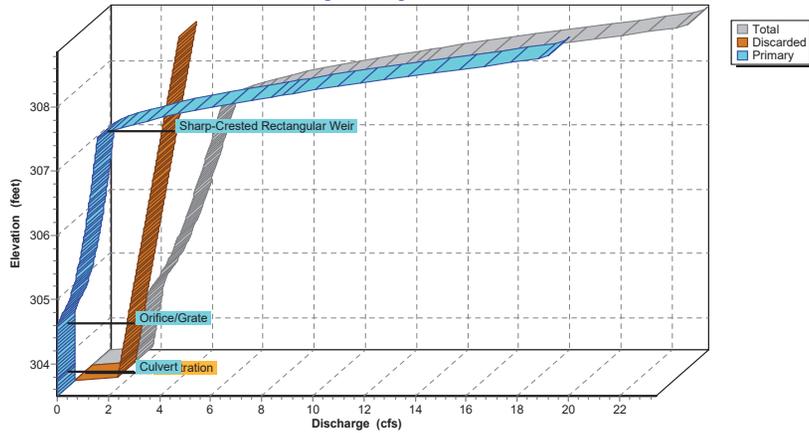
Pond BA-CR: UG INF BASIN C (RTANK)

Hydrograph



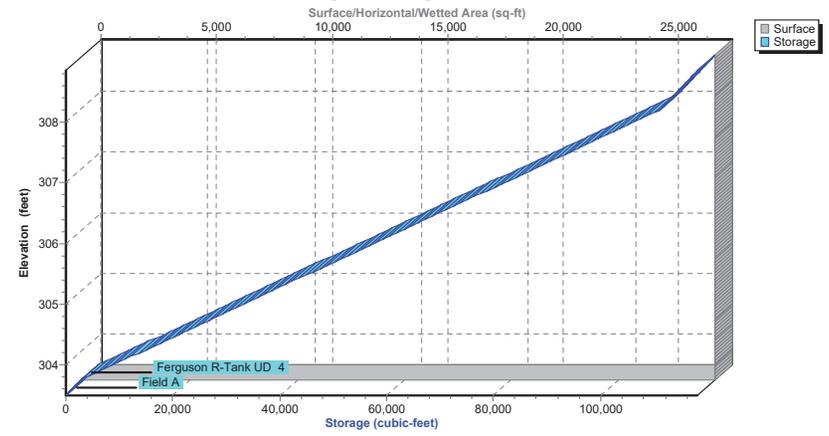
Pond BA-CR: UG INF BASIN C (RTANK)

Stage-Discharge



Pond BA-CR: UG INF BASIN C (RTANK)

Stage-Area-Storage



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**Hydrograph for Pond BA-CR: UG INF BASIN C (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	303.50	0.00	0.00	0.00
2.50	0.00	0	303.50	0.00	0.00	0.00
5.00	0.12	40	303.50	0.11	0.11	0.00
7.50	0.30	101	303.51	0.29	0.29	0.00
10.00	<b>0.70</b>	234	303.52	0.67	0.67	0.00
12.50	<b>3.84</b>	<b>21,057</b>	<b>304.50</b>	<b>2.10</b>	<b>2.10</b>	<b>0.00</b>
15.00	0.72	<b>13,860</b>	<b>304.21</b>	<b>1.97</b>	<b>1.97</b>	<b>0.00</b>
17.50	0.47	2,343	303.71	1.74	1.74	0.00
20.00	0.37	129	303.51	0.37	0.37	0.00
22.50	0.30	107	303.51	0.31	0.31	0.00
25.00	0.00	0	303.50	0.00	0.00	0.00
27.50	0.00	0	303.50	0.00	0.00	0.00
30.00	0.00	0	303.50	0.00	0.00	0.00
32.50	0.00	0	303.50	0.00	0.00	0.00
35.00	0.00	0	303.50	0.00	0.00	0.00
37.50	0.00	0	303.50	0.00	0.00	0.00
40.00	0.00	0	303.50	0.00	0.00	0.00
42.50	0.00	0	303.50	0.00	0.00	0.00
45.00	0.00	0	303.50	0.00	0.00	0.00
47.50	0.00	0	303.50	0.00	0.00	0.00
50.00	0.00	0	303.50	0.00	0.00	0.00
52.50	0.00	0	303.50	0.00	0.00	0.00
55.00	0.00	0	303.50	0.00	0.00	0.00
57.50	0.00	0	303.50	0.00	0.00	0.00
60.00	0.00	0	303.50	0.00	0.00	0.00
62.50	0.00	0	303.50	0.00	0.00	0.00
65.00	0.00	0	303.50	0.00	0.00	0.00
67.50	0.00	0	303.50	0.00	0.00	0.00
70.00	0.00	0	303.50	0.00	0.00	0.00

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**Stage-Discharge for Pond BA-CR: UG INF BASIN C (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
303.50	0.00	0.00	0.00	308.70	22.06	4.02	18.04
303.60	1.69	1.69	0.00	308.80	<b>23.31</b>	<b>4.06</b>	<b>19.25</b>
303.70	1.73	1.73	0.00				
303.80	1.78	1.78	0.00				
303.90	1.83	1.83	0.00				
304.00	1.87	1.87	0.00				
304.10	1.92	1.92	0.00				
304.20	1.96	1.96	0.00				
304.30	2.01	2.01	0.00				
304.40	2.05	2.05	0.00				
304.50	2.10	2.10	0.00				
304.60	2.18	2.15	0.03				
304.70	2.30	2.19	0.11				
304.80	2.47	2.24	0.23				
304.90	2.65	2.28	0.36				
305.00	2.80	2.33	0.47				
305.10	2.93	2.37	0.56				
305.20	3.05	2.42	0.63				
305.30	3.17	2.47	0.70				
305.40	3.27	2.51	0.76				
305.50	3.38	2.56	0.82				
305.60	3.47	2.60	0.87				
305.70	3.57	2.65	0.92				
305.80	3.66	2.69	0.97				
305.90	3.75	2.74	1.01				
306.00	3.84	2.78	1.06				
306.10	3.93	2.83	1.10				
306.20	4.01	2.88	1.14				
306.30	4.10	2.92	1.18				
306.40	4.18	2.97	1.21				
306.50	4.26	3.01	1.25				
306.60	4.34	3.06	1.29				
306.70	4.42	3.10	1.32				
306.80	4.50	3.15	1.35				
306.90	4.58	3.20	1.39				
307.00	4.66	3.24	1.42				
307.10	4.74	3.29	1.45				
307.20	4.81	3.33	1.48				
307.30	4.89	3.38	1.51				
307.40	4.96	3.42	1.54				
307.50	5.04	3.47	1.57				
307.60	5.12	3.51	1.60				
307.70	5.20	3.55	1.63				
307.80	5.28	3.59	1.66				
307.90	5.36	3.63	1.69				
308.00	5.44	3.67	1.72				
308.10	5.52	3.71	1.75				
308.20	5.60	3.75	1.78				
308.30	5.68	3.79	1.81				
308.40	5.76	3.83	1.84				
308.50	5.84	3.87	1.87				
308.60	5.92	3.91	1.90				

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**Stage-Area-Storage for Pond BA-CR: UG INF BASIN C (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
303.50	27,305	0	308.70	27,305	116,518
303.60	27,305	1,092	308.80	27,305	117,611
303.70	27,305	2,184			
303.80	27,305	3,951			
303.90	27,305	6,391			
304.00	27,305	8,832			
304.10	27,305	11,273			
304.20	27,305	13,713			
304.30	27,305	16,154			
304.40	27,305	18,595			
304.50	27,305	21,035			
304.60	27,305	23,476			
304.70	27,305	25,917			
304.80	27,305	28,357			
304.90	27,305	30,798			
305.00	27,305	33,238			
305.10	27,305	35,679			
305.20	27,305	38,120			
305.30	27,305	40,560			
305.40	27,305	43,001			
305.50	27,305	45,442			
305.60	27,305	47,882			
305.70	27,305	50,323			
305.80	27,305	52,764			
305.90	27,305	55,204			
306.00	27,305	57,645			
306.10	27,305	60,085			
306.20	27,305	62,526			
306.30	27,305	64,967			
306.40	27,305	67,407			
306.50	27,305	69,848			
306.60	27,305	72,289			
306.70	27,305	74,729			
306.80	27,305	77,170			
306.90	27,305	79,611			
307.00	27,305	82,051			
307.10	27,305	84,492			
307.20	27,305	86,932			
307.30	27,305	89,373			
307.40	27,305	91,814			
307.50	27,305	94,254			
307.60	27,305	96,695			
307.70	27,305	99,136			
307.80	27,305	101,576			
307.90	27,305	104,017			
308.00	27,305	106,458			
308.10	27,305	108,898			
308.20	27,305	111,057			
308.30	27,305	112,150			
308.40	27,305	113,242			
308.50	27,305	114,334			
308.60	27,305	115,426			

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**Summary for Pond BA-DR: UG INF BASIN D (RTANK)**

Inflow Area = 8.240 ac, 95.51% Impervious, Inflow Depth = 2.40" for 1-yr event  
 Inflow = 25.57 cfs @ 12.02 hrs, Volume= 1.649 af  
 Outflow = 2.56 cfs @ 12.62 hrs, Volume= 1.649 af, Atten= 90%, Lag= 36.0 min  
 Discarded = 2.50 cfs @ 12.62 hrs, Volume= 1.644 af  
 Primary = 0.07 cfs @ 12.62 hrs, Volume= 0.004 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 305.89' @ 12.62 hrs Surf.Area= 32,692 sf Storage= 22,049 cf

Plug-Flow detention time= 57.3 min calculated for 1.649 af (100% of inflow)  
 Center-of-Mass det. time= 57.3 min ( 830.4 - 773.2 )

Volume	Invert	Avail.Storage	Storage Description
#1A	305.00'	15,782 cf	<b>49.28'W x 663.45'L x 4.26'H Field A</b> 139,369 cf Overall - 99,915 cf Embedded = 39,454 cf x 40.0% Voids
#2A	305.25'	94,919 cf	<b>Ferguson R-Tank UD 3 x 7705</b> Inside #1 Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf 7705 Chambers in 23 Rows
		110,701 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	305.25'	<b>18.0" Round Culvert</b> L= 7.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 305.25' / 305.18' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	305.00'	<b>2.700 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 301.00'
#3	Device 1	305.75'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.00'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Device 1	308.25'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=2.50 cfs @ 12.62 hrs HW=305.89' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 2.50 cfs)

**Primary OutFlow** Max=0.06 cfs @ 12.62 hrs HW=305.89' (Free Discharge)  
 ↳ **1=Culvert** (Passes 0.06 cfs of 1.44 cfs potential flow)  
 ↳ **3=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.26 fps)  
 ↳ **4=Orifice/Grate** ( Controls 0.00 cfs)  
 ↳ **5=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

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**Pond BA-DR: UG INF BASIN D (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 3 (Ferguson R-Tank UD)**

Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf

Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf

335 Chambers/Row x 1.97' Long = 659.45' Row Length +24.0" End Stone x 2 = 663.45' Base Length

23 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 49.28' Base Width

3.0" Stone Base + 40.2" Chamber Height + 8.0" Stone Cover = 4.26' Field Height

7,705 Chambers x 12.3 cf = 94,919.2 cf Chamber Storage

7,705 Chambers x 13.0 cf = 99,914.9 cf Displacement

139,369.3 cf Field - 99,914.9 cf Chambers = 39,454.4 cf Stone x 40.0% Voids = 15,781.8 cf Stone Storage

Chamber Storage + Stone Storage = 110,700.9 cf = 2.541 af

Overall Storage Efficiency = 79.4%

Overall System Size = 663.45' x 49.28' x 4.26'

7,705 Chambers

5,161.8 cy Field

1,461.3 cy Stone



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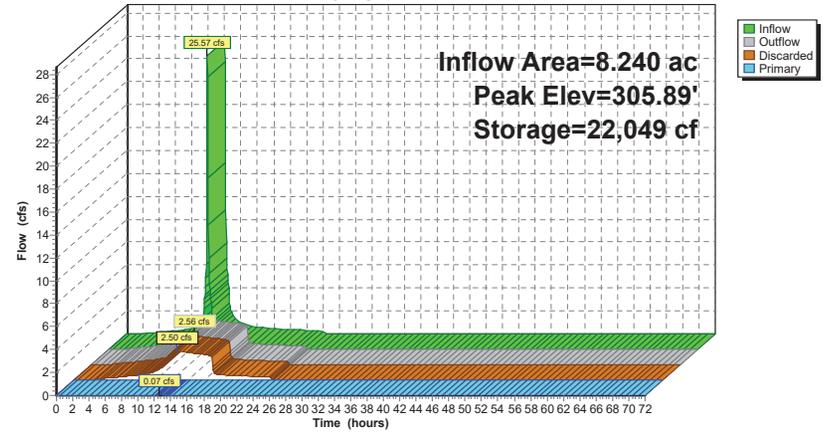
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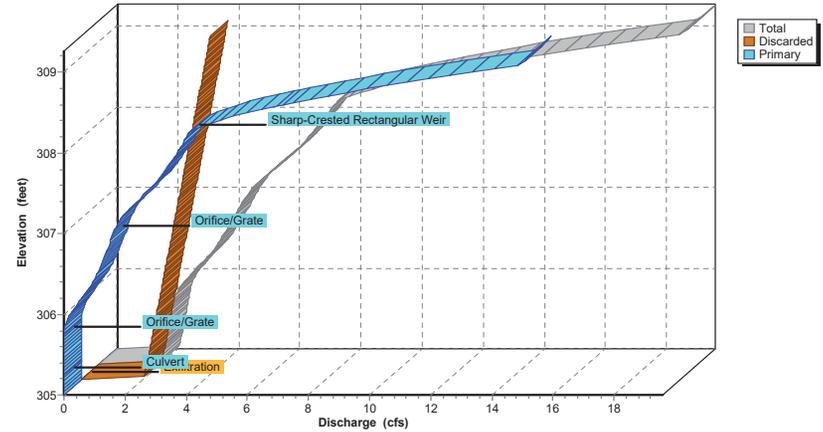
**Pond BA-DR: UG INF BASIN D (RTANK)**

Hydrograph



**Pond BA-DR: UG INF BASIN D (RTANK)**

Stage-Discharge



**2024-01-15 Proposed Conditions**

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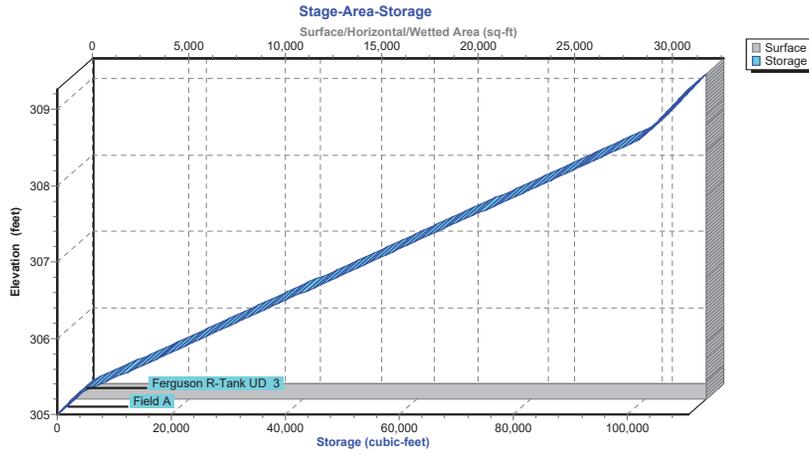
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**Pond BA-DR: UG INF BASIN D (RTANK)**



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**Hydrograph for Pond BA-DR: UG INF BASIN D (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	305.00	0.00	0.00	0.00
2.50	0.06	14	305.00	0.05	0.05	0.00
5.00	0.22	59	305.00	0.22	0.22	0.00
7.50	0.42	110	305.01	0.41	0.41	0.00
10.00	<b>0.85</b>	222	305.02	0.82	0.82	0.00
12.50	<b>4.05</b>	<b>21,710</b>	<b>305.88</b>	<b>2.55</b>	<b>2.49</b>	<b>0.06</b>
15.00	0.76	<b>11,589</b>	<b>305.53</b>	<b>2.32</b>	<b>2.32</b>	<b>0.00</b>
17.50	0.49	135	305.01	0.50	0.50	0.00
20.00	0.38	103	305.01	0.38	0.38	0.00
22.50	0.31	85	305.01	0.32	0.32	0.00
25.00	0.00	0	305.00	0.00	0.00	0.00
27.50	0.00	0	305.00	0.00	0.00	0.00
30.00	0.00	0	305.00	0.00	0.00	0.00
32.50	0.00	0	305.00	0.00	0.00	0.00
35.00	0.00	0	305.00	0.00	0.00	0.00
37.50	0.00	0	305.00	0.00	0.00	0.00
40.00	0.00	0	305.00	0.00	0.00	0.00
42.50	0.00	0	305.00	0.00	0.00	0.00
45.00	0.00	0	305.00	0.00	0.00	0.00
47.50	0.00	0	305.00	0.00	0.00	0.00
50.00	0.00	0	305.00	0.00	0.00	0.00
52.50	0.00	0	305.00	0.00	0.00	0.00
55.00	0.00	0	305.00	0.00	0.00	0.00
57.50	0.00	0	305.00	0.00	0.00	0.00
60.00	0.00	0	305.00	0.00	0.00	0.00
62.50	0.00	0	305.00	0.00	0.00	0.00
65.00	0.00	0	305.00	0.00	0.00	0.00
67.50	0.00	0	305.00	0.00	0.00	0.00
70.00	0.00	0	305.00	0.00	0.00	0.00

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**Stage-Discharge for Pond BA-DR: UG INF BASIN D (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
305.00	0.00	0.00	0.00	307.60	6.31	3.37	2.94
305.05	2.07	2.07	0.00	307.65	6.45	3.40	3.06
305.10	2.09	2.09	0.00	307.70	6.58	3.42	3.15
305.15	2.12	2.12	0.00	307.75	6.70	3.45	3.25
305.20	2.15	2.15	0.00	307.80	6.82	3.47	3.35
305.25	2.17	2.17	0.00	307.85	6.94	3.50	3.44
305.30	2.20	2.20	0.00	307.90	7.06	3.52	3.53
305.35	2.22	2.22	0.00	307.95	7.17	3.55	3.62
305.40	2.25	2.25	0.00	308.00	7.27	3.58	3.70
305.45	2.27	2.27	0.00	308.05	7.38	3.60	3.78
305.50	2.30	2.30	0.00	308.10	7.49	3.63	3.86
305.55	2.32	2.32	0.00	308.15	7.59	3.65	3.94
305.60	2.35	2.35	0.00	308.20	7.69	3.68	4.01
305.65	2.38	2.38	0.00	308.25	7.79	3.70	4.08
305.70	2.40	2.40	0.00	308.30	8.03	3.73	4.30
305.75	2.43	2.43	0.00	308.35	8.39	3.75	4.64
305.80	2.46	2.45	0.01	308.40	8.83	3.78	5.05
305.85	2.51	2.48	0.04	308.45	9.33	3.81	5.52
305.90	2.58	2.50	0.08	308.50	9.87	3.83	6.04
305.95	2.66	2.53	0.13	308.55	10.47	3.86	6.61
306.00	2.76	2.55	0.20	308.60	11.10	3.88	7.22
306.05	2.86	2.58	0.28	308.65	11.77	3.91	7.86
306.10	2.98	2.61	0.37	308.70	12.48	3.93	8.54
306.15	3.10	2.63	0.47	308.75	13.21	3.96	9.25
306.20	3.23	2.66	0.57	308.80	13.98	3.98	9.99
306.25	3.36	2.68	0.68	308.85	14.77	4.01	10.76
306.30	3.49	2.71	0.78	308.90	15.59	4.04	11.56
306.35	3.61	2.73	0.87	308.95	16.44	4.06	12.38
306.40	3.71	2.76	0.95	309.00	17.30	4.09	13.22
306.45	3.80	2.78	1.02	309.05	18.19	4.11	14.08
306.50	3.89	2.81	1.08	309.10	19.11	4.14	14.97
306.55	3.98	2.83	1.15	309.15	19.26	4.16	15.10
306.60	4.07	2.86	1.21	309.20	19.41	4.19	15.22
306.65	4.15	2.89	1.27	309.25	<b>19.55</b>	<b>4.21</b>	<b>15.34</b>
306.70	4.23	2.91	1.32				
306.75	4.31	2.94	1.37				
306.80	4.39	2.96	1.42				
306.85	4.46	2.99	1.47				
306.90	4.53	3.01	1.52				
306.95	4.60	3.04	1.56				
307.00	4.67	3.06	1.61				
307.05	4.75	3.09	1.66				
307.10	4.85	3.12	1.73				
307.15	4.95	3.14	1.81				
307.20	5.08	3.17	1.91				
307.25	5.21	3.19	2.02				
307.30	5.36	3.22	2.14				
307.35	5.51	3.24	2.27				
307.40	5.67	3.27	2.40				
307.45	5.83	3.29	2.54				
307.50	6.00	3.32	2.68				
307.55	6.16	3.35	2.81				

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**Stage-Area-Storage for Pond BA-DR: UG INF BASIN D (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
305.00	<b>32,692</b>	0	307.60	32,692	72,590
305.05	32,692	654	307.65	32,692	74,064
305.10	32,692	1,308	307.70	32,692	75,539
305.15	32,692	1,962	307.75	32,692	77,014
305.20	32,692	2,615	307.80	32,692	78,489
305.25	32,692	3,269	307.85	32,692	79,964
305.30	32,692	4,744	307.90	32,692	81,439
305.35	32,692	6,219	307.95	32,692	82,914
305.40	32,692	7,694	308.00	32,692	84,389
305.45	32,692	9,169	308.05	32,692	85,864
305.50	32,692	10,644	308.10	32,692	87,339
305.55	32,692	12,119	308.15	32,692	88,814
305.60	32,692	13,593	308.20	32,692	90,288
305.65	32,692	15,068	308.25	32,692	91,763
305.70	32,692	16,543	308.30	32,692	93,238
305.75	32,692	18,018	308.35	32,692	94,713
305.80	32,692	19,493	308.40	32,692	96,188
305.85	32,692	20,968	308.45	32,692	97,663
305.90	32,692	22,443	308.50	32,692	99,138
305.95	32,692	23,918	308.55	32,692	100,613
306.00	32,692	25,393	308.60	32,692	102,029
306.05	32,692	26,868	308.65	32,692	102,683
306.10	32,692	28,343	308.70	32,692	103,337
306.15	32,692	29,817	308.75	32,692	103,991
306.20	32,692	31,292	308.80	32,692	104,645
306.25	32,692	32,767	308.85	32,692	105,299
306.30	32,692	34,242	308.90	32,692	105,952
306.35	32,692	35,717	308.95	32,692	106,606
306.40	32,692	37,192	309.00	32,692	107,260
306.45	32,692	38,667	309.05	32,692	107,914
306.50	32,692	40,142	309.10	32,692	108,568
306.55	32,692	41,617	309.15	32,692	109,222
306.60	32,692	43,092	309.20	32,692	109,875
306.65	32,692	44,566	309.25	32,692	<b>110,529</b>
306.70	32,692	46,041			
306.75	32,692	47,516			
306.80	32,692	48,991			
306.85	32,692	50,466			
306.90	32,692	51,941			
306.95	32,692	53,416			
307.00	32,692	54,891			
307.05	32,692	56,366			
307.10	32,692	57,841			
307.15	32,692	59,315			
307.20	32,692	60,790			
307.25	32,692	62,265			
307.30	32,692	63,740			
307.35	32,692	65,215			
307.40	32,692	66,690			
307.45	32,692	68,165			
307.50	32,692	69,640			
307.55	32,692	71,115			

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Pond BA-ER: UG INF BASIN E (RTANK)**

Inflow Area = 8.220 ac, 95.13% Impervious, Inflow Depth = 2.20" for 1-yr event  
 Inflow = 23.50 cfs @ 12.03 hrs, Volume= 1.504 af  
 Outflow = 2.45 cfs @ 12.63 hrs, Volume= 1.504 af, Atten= 90%, Lag= 36.2 min  
 Discarded = 2.45 cfs @ 12.63 hrs, Volume= 1.504 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 306.09' @ 12.63 hrs Surf.Area= 24,100 sf Storage= 20,512 cf

Plug-Flow detention time= 56.8 min calculated for 1.504 af (100% of inflow)  
 Center-of-Mass det. time= 56.8 min ( 848.8 - 792.1 )

Volume	Invert	Avail.Storage	Storage Description
#1A	305.00'	12,897 cf	<b>45.34'W x 531.56'L x 5.35'H Field A</b> 128,835 cf Overall - 96,593 cf Embedded = 32,242 cf x 40.0% Voids
#2A	305.25'	91,763 cf	<b>Ferguson R-Tank UD 4</b> x 5628 Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 5628 Chambers in 21 Rows
		104,660 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	305.25'	<b>18.0" Round Culvert</b> L= 55.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 305.25' / 304.15' S= 0.0200 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	305.00'	<b>3.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 300.75'
#3	Device 1	306.90'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	308.50'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=2.45 cfs @ 12.63 hrs HW=306.09' (Free Discharge)  
 ↳2=Exfiltration ( Controls 2.45 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=305.00' (Free Discharge)  
 ↳1=Culvert ( Controls 0.00 cfs)  
 ↳3=Orifice/Grate ( Controls 0.00 cfs)  
 ↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Pond BA-ER: UG INF BASIN E (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf  
 Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

268 Chambers/Row x 1.97' Long = 527.56' Row Length +24.0" End Stone x 2 = 531.56' Base Length  
 21 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 45.34' Base Width  
 3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

5,628 Chambers x 16.3 cf = 91,763.3 cf Chamber Storage  
 5,628 Chambers x 17.2 cf = 96,593.0 cf Displacement

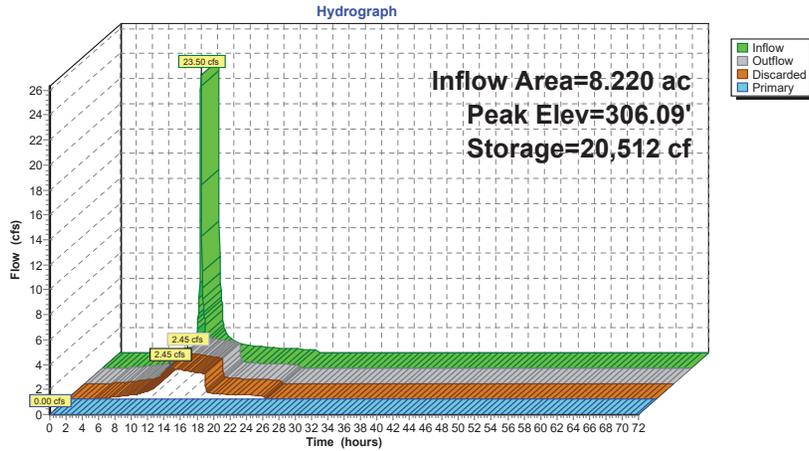
128,834.5 cf Field - 96,593.0 cf Chambers = 32,241.6 cf Stone x 40.0% Voids = 12,896.6 cf Stone Storage

Chamber Storage + Stone Storage = 104,659.9 cf = 2.403 af  
 Overall Storage Efficiency = 81.2%  
 Overall System Size = 531.56' x 45.34' x 5.35'

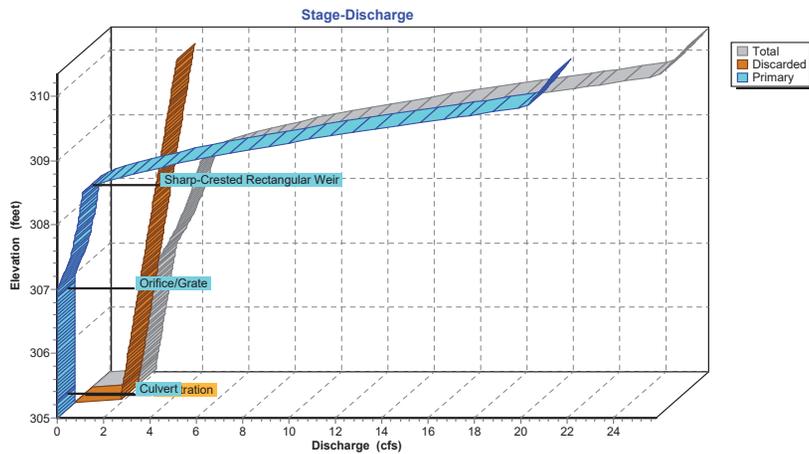
5,628 Chambers  
 4,771.6 cy Field  
 1,194.1 cy Stone



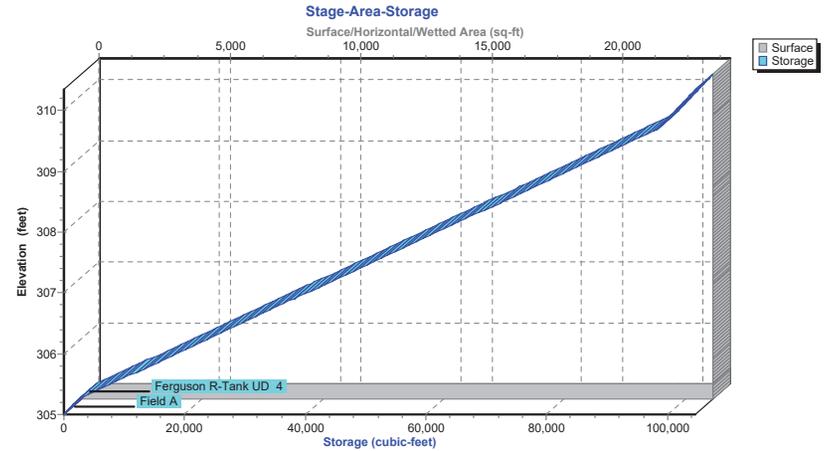
Pond BA-ER: UG INF BASIN E (RTANK)



Pond BA-ER: UG INF BASIN E (RTANK)



Pond BA-ER: UG INF BASIN E (RTANK)



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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Pond BA-ER: UG INF BASIN E (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	305.00	0.00	0.00	<b>0.00</b>
2.50	0.00	0	305.00	0.00	0.00	0.00
5.00	0.12	31	305.00	0.12	0.12	0.00
7.50	0.30	77	305.01	0.30	0.30	0.00
10.00	<b>0.71</b>	179	305.02	0.68	0.68	0.00
12.50	<b>3.92</b>	<b>20,167</b>	<b>306.07</b>	<b>2.44</b>	<b>2.44</b>	0.00
15.00	0.74	<b>10,398</b>	<b>305.62</b>	<b>2.24</b>	<b>2.24</b>	0.00
17.50	0.48	127	305.01	0.49	0.49	0.00
20.00	0.37	98	305.01	0.37	0.37	0.00
22.50	0.31	81	305.01	0.31	0.31	0.00
25.00	0.00	0	305.00	0.00	0.00	0.00
27.50	0.00	0	305.00	0.00	0.00	0.00
30.00	0.00	0	305.00	0.00	0.00	0.00
32.50	0.00	0	305.00	0.00	0.00	0.00
35.00	0.00	0	305.00	0.00	0.00	0.00
37.50	0.00	0	305.00	0.00	0.00	0.00
40.00	0.00	0	305.00	0.00	0.00	0.00
42.50	0.00	0	305.00	0.00	0.00	0.00
45.00	0.00	0	305.00	0.00	0.00	0.00
47.50	0.00	0	305.00	0.00	0.00	0.00
50.00	0.00	0	305.00	0.00	0.00	0.00
52.50	0.00	0	305.00	0.00	0.00	0.00
55.00	0.00	0	305.00	0.00	0.00	0.00
57.50	0.00	0	305.00	0.00	0.00	0.00
60.00	0.00	0	305.00	0.00	0.00	0.00
62.50	0.00	0	305.00	0.00	0.00	0.00
65.00	0.00	0	305.00	0.00	0.00	0.00
67.50	0.00	0	305.00	0.00	0.00	0.00
70.00	0.00	0	305.00	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-ER: UG INF BASIN E (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
305.00	0.00	0.00	0.00	310.20	25.43	4.34	21.09
305.10	2.00	2.00	0.00	310.30	<b>25.71</b>	<b>4.39</b>	<b>21.32</b>
305.20	2.04	2.04	0.00				
305.30	2.09	2.09	0.00				
305.40	2.14	2.14	0.00				
305.50	2.18	2.18	0.00				
305.60	2.23	2.23	0.00				
305.70	2.27	2.27	0.00				
305.80	2.32	2.32	0.00				
305.90	2.37	2.37	0.00				
306.00	2.41	2.41	0.00				
306.10	2.46	2.46	0.00				
306.20	2.50	2.50	0.00				
306.30	2.55	2.55	0.00				
306.40	2.60	2.60	0.00				
306.50	2.64	2.64	0.00				
306.60	2.69	2.69	0.00				
306.70	2.73	2.73	0.00				
306.80	2.78	2.78	0.00				
306.90	2.83	2.83	0.00				
307.00	2.90	2.87	0.03				
307.10	3.03	2.92	0.11				
307.20	3.19	2.96	0.23				
307.30	3.37	3.01	0.36				
307.40	3.53	3.06	0.47				
307.50	3.66	3.10	0.56				
307.60	3.78	3.15	0.63				
307.70	3.89	3.19	0.70				
307.80	4.00	3.24	0.76				
307.90	4.10	3.28	0.82				
308.00	4.20	3.33	0.87				
308.10	4.30	3.38	0.92				
308.20	4.39	3.42	0.97				
308.30	4.48	3.47	1.01				
308.40	4.57	3.51	1.06				
308.50	4.66	3.56	1.10				
308.60	5.16	3.61	1.55				
308.70	5.99	3.65	2.34				
308.80	7.03	3.70	3.33				
308.90	8.24	3.74	4.49				
309.00	9.59	3.79	5.79				
309.10	11.05	3.84	7.22				
309.20	12.63	3.88	8.75				
309.30	14.30	3.93	10.37				
309.40	16.06	3.97	12.08				
309.50	17.90	4.02	13.88				
309.60	19.81	4.07	15.74				
309.70	21.78	4.11	17.67				
309.80	23.82	4.16	19.67				
309.90	24.59	4.20	20.38				
310.00	24.87	4.25	20.62				
310.10	25.15	4.30	20.86				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Area-Storage for Pond BA-ER: UG INF BASIN E (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
305.00	24,100	0	310.20	24,100	103,254
305.10	24,100	964	310.30	24,100	104,218
305.20	24,100	1,928			
305.30	24,100	3,492			
305.40	24,100	5,655			
305.50	24,100	7,819			
305.60	24,100	9,982			
305.70	24,100	12,146			
305.80	24,100	14,309			
305.90	24,100	16,473			
306.00	24,100	18,636			
306.10	24,100	20,800			
306.20	24,100	22,963			
306.30	24,100	25,127			
306.40	24,100	27,290			
306.50	24,100	29,453			
306.60	24,100	31,617			
306.70	24,100	33,780			
306.80	24,100	35,944			
306.90	24,100	38,107			
307.00	24,100	40,271			
307.10	24,100	42,434			
307.20	24,100	44,598			
307.30	24,100	46,761			
307.40	24,100	48,925			
307.50	24,100	51,088			
307.60	24,100	53,252			
307.70	24,100	55,415			
307.80	24,100	57,579			
307.90	24,100	59,742			
308.00	24,100	61,906			
308.10	24,100	64,069			
308.20	24,100	66,233			
308.30	24,100	68,396			
308.40	24,100	70,559			
308.50	24,100	72,723			
308.60	24,100	74,886			
308.70	24,100	77,050			
308.80	24,100	79,213			
308.90	24,100	81,377			
309.00	24,100	83,540			
309.10	24,100	85,704			
309.20	24,100	87,867			
309.30	24,100	90,031			
309.40	24,100	92,194			
309.50	24,100	94,358			
309.60	24,100	96,521			
309.70	24,100	98,684			
309.80	24,100	99,398			
309.90	24,100	100,362			
310.00	24,100	101,326			
310.10	24,100	102,290			

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Pond BA-FR: UG INF BASIN F (RTANK)**

Inflow Area = 9.660 ac, 93.79% Impervious, Inflow Depth = 2.20" for 1-yr event  
 Inflow = 30.33 cfs @ 12.01 hrs, Volume= 1.768 af  
 Outflow = 7.23 cfs @ 12.24 hrs, Volume= 1.768 af, Atten= 76%, Lag= 14.0 min  
 Discarded = 7.23 cfs @ 12.24 hrs, Volume= 1.768 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 306.86' @ 12.24 hrs Surf.Area= 28,685 sf Storage= 12,290 cf

Plug-Flow detention time= 8.1 min calculated for 1.767 af (100% of inflow)  
 Center-of-Mass det. time= 8.1 min ( 798.9 - 790.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	306.25'	13,996 cf	<b>47.31'W x 606.36'L x 4.26'H Field A</b> 122,289 cf Overall - 87,298 cf Embedded = 34,991 cf x 40.0% Voids
#2A	306.50'	82,933 cf	<b>Ferguson R-Tank UD 3 x 6732</b> Inside #1 Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf 6732 Chambers in 22 Rows
		96,929 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	306.50'	<b>24.0" Round Culvert</b> L= 692.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 306.50' / 303.04' S= 0.0050 '/' Cc= 0.900 n= 0.120, Flow Area= 3.14 sf
#2	Discarded	306.25'	<b>9.750 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 301.00'
#3	Device 1	307.65'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	308.75'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=7.23 cfs @ 12.24 hrs HW=306.86' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 7.23 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=306.25' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)  
 ↳ **4=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Pond BA-FR: UG INF BASIN F (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 3 (Ferguson R-Tank UD)**

Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf

Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf

306 Chambers/Row x 1.97' Long = 602.36' Row Length +24.0" End Stone x 2 = 606.36' Base Length

22 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 47.31' Base Width

3.0" Stone Base + 40.2" Chamber Height + 8.0" Stone Cover = 4.26' Field Height

6,732 Chambers x 12.3 cf = 82,932.6 cf Chamber Storage

6,732 Chambers x 13.0 cf = 87,297.5 cf Displacement

122,288.7 cf Field - 87,297.5 cf Chambers = 34,991.2 cf Stone x 40.0% Voids = 13,996.5 cf Stone Storage

Chamber Storage + Stone Storage = 96,929.1 cf = 2.225 af

Overall Storage Efficiency = 79.3%

Overall System Size = 606.36' x 47.31' x 4.26'

6,732 Chambers

4,529.2 cy Field

1,296.0 cy Stone



**2024-01-15 Proposed Conditions**

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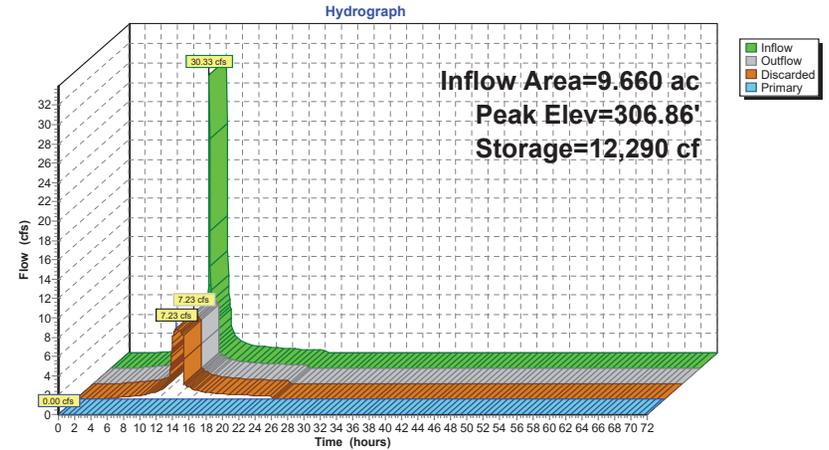
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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

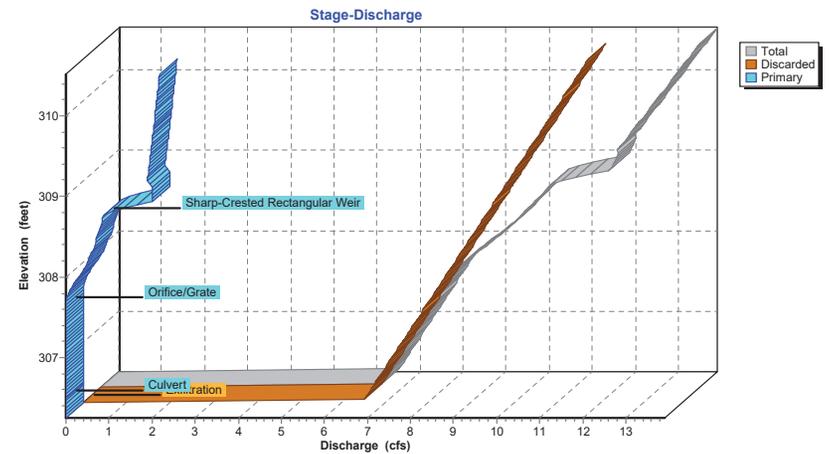
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**Pond BA-FR: UG INF BASIN F (RTANK)**



**Pond BA-FR: UG INF BASIN F (RTANK)**



**2024-01-15 Proposed Conditions**

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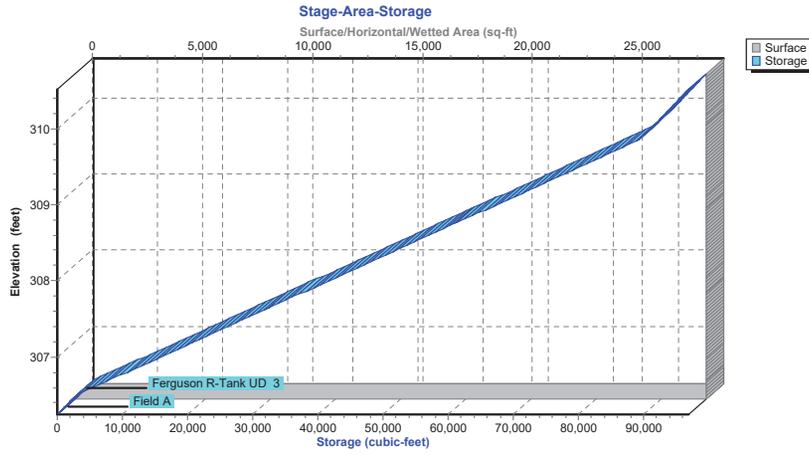
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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Pond BA-FR: UG INF BASIN F (RTANK)**



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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Pond BA-FR: UG INF BASIN F (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	306.25	0.00	0.00	<b>0.00</b>
2.50	0.00	0	306.25	0.00	0.00	0.00
5.00	0.14	11	306.25	0.14	0.14	0.00
7.50	0.36	27	306.25	0.35	0.35	0.00
10.00	<b>0.84</b>	<b>62</b>	<b>306.26</b>	<b>0.83</b>	<b>0.83</b>	0.00
12.50	<b>4.49</b>	<b>10,736</b>	<b>306.80</b>	<b>7.16</b>	<b>7.16</b>	0.00
15.00	0.86	65	306.26	0.87	0.87	0.00
17.50	0.57	43	306.25	0.57	0.57	0.00
20.00	0.44	33	306.25	0.44	0.44	0.00
22.50	0.36	27	306.25	0.36	0.36	0.00
25.00	0.00	0	306.25	0.00	0.00	0.00
27.50	0.00	0	306.25	0.00	0.00	0.00
30.00	0.00	0	306.25	0.00	0.00	0.00
32.50	0.00	0	306.25	0.00	0.00	0.00
35.00	0.00	0	306.25	0.00	0.00	0.00
37.50	0.00	0	306.25	0.00	0.00	0.00
40.00	0.00	0	306.25	0.00	0.00	0.00
42.50	0.00	0	306.25	0.00	0.00	0.00
45.00	0.00	0	306.25	0.00	0.00	0.00
47.50	0.00	0	306.25	0.00	0.00	0.00
50.00	0.00	0	306.25	0.00	0.00	0.00
52.50	0.00	0	306.25	0.00	0.00	0.00
55.00	0.00	0	306.25	0.00	0.00	0.00
57.50	0.00	0	306.25	0.00	0.00	0.00
60.00	0.00	0	306.25	0.00	0.00	0.00
62.50	0.00	0	306.25	0.00	0.00	0.00
65.00	0.00	0	306.25	0.00	0.00	0.00
67.50	0.00	0	306.25	0.00	0.00	0.00
70.00	0.00	0	306.25	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Discharge for Pond BA-FR: UG INF BASIN F (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
306.25	0.00	0.00	0.00	308.85	11.01	9.68	1.33
306.30	6.54	6.54	0.00	308.90	11.44	9.74	1.70
306.35	6.60	6.60	0.00	308.95	11.81	9.80	2.01
306.40	6.66	6.66	0.00	309.00	11.88	9.87	2.02
306.45	6.72	6.72	0.00	309.05	11.94	9.93	2.02
306.50	6.78	6.78	0.00	309.10	11.99	9.99	2.00
306.55	6.84	6.84	0.00	309.15	12.00	10.05	1.95
306.60	6.91	6.91	0.00	309.20	12.01	10.11	1.89
306.65	6.97	6.97	0.00	309.25	12.08	10.17	1.91
306.70	7.03	7.03	0.00	309.30	12.15	10.24	1.92
306.75	7.09	7.09	0.00	309.35	12.23	10.30	1.93
306.80	7.15	7.15	0.00	309.40	12.30	10.36	1.94
306.85	7.21	7.21	0.00	309.45	12.37	10.42	1.95
306.90	7.28	7.28	0.00	309.50	12.44	10.48	1.96
306.95	7.34	7.34	0.00	309.55	12.52	10.54	1.97
307.00	7.40	7.40	0.00	309.60	12.59	10.61	1.98
307.05	7.46	7.46	0.00	309.65	12.66	10.67	1.99
307.10	7.52	7.52	0.00	309.70	12.73	10.73	2.01
307.15	7.58	7.58	0.00	309.75	12.81	10.79	2.02
307.20	7.65	7.65	0.00	309.80	12.88	10.85	2.03
307.25	7.71	7.71	0.00	309.85	12.95	10.91	2.04
307.30	7.77	7.77	0.00	309.90	13.02	10.98	2.05
307.35	7.83	7.83	0.00	309.95	13.10	11.04	2.06
307.40	7.89	7.89	0.00	310.00	13.17	11.10	2.07
307.45	7.95	7.95	0.00	310.05	13.24	11.16	2.08
307.50	8.02	8.02	0.00	310.10	13.31	11.22	2.09
307.55	8.08	8.08	0.00	310.15	13.38	11.28	2.10
307.60	8.14	8.14	0.00	310.20	13.46	11.35	2.11
307.65	8.20	8.20	0.00	310.25	13.53	11.41	2.12
307.70	8.27	8.26	0.01	310.30	13.60	11.47	2.13
307.75	8.35	8.32	0.03	310.35	13.67	11.53	2.14
307.80	8.45	8.39	0.07	310.40	13.74	11.59	2.15
307.85	8.56	8.45	0.11	310.45	13.81	11.65	2.16
307.90	8.68	8.51	0.17	310.50	<b>13.89</b>	<b>11.72</b>	<b>2.17</b>
307.95	8.80	8.57	0.23				
308.00	8.93	8.63	0.30				
308.05	9.06	8.69	0.36				
308.10	9.18	8.76	0.43				
308.15	9.29	8.82	0.47				
308.20	9.40	8.88	0.52				
308.25	9.50	8.94	0.56				
308.30	9.60	9.00	0.60				
308.35	9.70	9.06	0.63				
308.40	9.79	9.13	0.67				
308.45	9.89	9.19	0.70				
308.50	9.98	9.25	0.73				
308.55	10.07	9.31	0.76				
308.60	10.16	9.37	0.79				
308.65	10.25	9.43	0.82				
308.70	10.34	9.50	0.85				
308.75	10.43	9.56	0.87				
308.80	10.66	9.62	1.04				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Area-Storage for Pond BA-FR: UG INF BASIN F (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
306.25	<b>28,685</b>	0	308.85	28,685	63,550
306.30	28,685	574	308.90	28,685	64,841
306.35	28,685	1,147	308.95	28,685	66,132
306.40	28,685	1,721	309.00	28,685	67,423
306.45	28,685	2,295	309.05	28,685	68,714
306.50	28,685	2,869	309.10	28,685	70,005
306.55	28,685	4,160	309.15	28,685	71,296
306.60	28,685	5,451	309.20	28,685	72,587
306.65	28,685	6,742	309.25	28,685	73,878
306.70	28,685	8,033	309.30	28,685	75,169
306.75	28,685	9,324	309.35	28,685	76,460
306.80	28,685	10,615	309.40	28,685	77,751
306.85	28,685	11,906	309.45	28,685	79,043
306.90	28,685	13,197	309.50	28,685	80,334
306.95	28,685	14,488	309.55	28,685	81,625
307.00	28,685	15,779	309.60	28,685	82,916
307.05	28,685	17,070	309.65	28,685	84,207
307.10	28,685	18,362	309.70	28,685	85,498
307.15	28,685	19,653	309.75	28,685	86,789
307.20	28,685	20,944	309.80	28,685	88,080
307.25	28,685	22,235	309.85	28,685	89,320
307.30	28,685	23,526	309.90	28,685	89,894
307.35	28,685	24,817	309.95	28,685	90,468
307.40	28,685	26,108	310.00	28,685	91,041
307.45	28,685	27,399	310.05	28,685	91,615
307.50	28,685	28,690	310.10	28,685	92,189
307.55	28,685	29,981	310.15	28,685	92,763
307.60	28,685	31,272	310.20	28,685	93,336
307.65	28,685	32,563	310.25	28,685	93,910
307.70	28,685	33,855	310.30	28,685	94,484
307.75	28,685	35,146	310.35	28,685	95,057
307.80	28,685	36,437	310.40	28,685	95,631
307.85	28,685	37,728	310.45	28,685	96,205
307.90	28,685	39,019	310.50	28,685	<b>96,779</b>
307.95	28,685	40,310			
308.00	28,685	41,601			
308.05	28,685	42,892			
308.10	28,685	44,183			
308.15	28,685	45,474			
308.20	28,685	46,765			
308.25	28,685	48,056			
308.30	28,685	49,348			
308.35	28,685	50,639			
308.40	28,685	51,930			
308.45	28,685	53,221			
308.50	28,685	54,512			
308.55	28,685	55,803			
308.60	28,685	57,094			
308.65	28,685	58,385			
308.70	28,685	59,676			
308.75	28,685	60,967			
308.80	28,685	62,258			

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Pond BA-G: AG INF BASIN G**

Inflow Area = 0.700 ac, 60.00% Impervious, Inflow Depth = 0.09" for 1-yr event  
 Inflow = 0.02 cfs @ 20.30 hrs, Volume= 0.005 af  
 Outflow = 0.02 cfs @ 20.81 hrs, Volume= 0.005 af, Atten= 7%, Lag= 30.7 min  
 Discarded = 0.02 cfs @ 20.81 hrs, Volume= 0.005 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.50' @ 20.81 hrs Surf.Area= 6,111 sf Storage= 8 cf

Plug-Flow detention time= 7.1 min calculated for 0.005 af (100% of inflow)  
 Center-of-Mass det. time= 7.2 min ( 1,331.2 - 1,324.0 )

Volume #1	Invert 309.50'	Avail.Storage 18,077 cf	Storage Description Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.50	6,110	0	0
310.00	6,548	3,165	3,165
311.00	7,475	7,012	10,176
312.00	8,326	7,901	18,077

Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	<b>18.0" Round Culvert</b> L= 61.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 308.50' / 308.19' S= 0.0050 /' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	309.50'	<b>2.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 304.60'
#3	Device 1	309.90'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	311.00'	<b>48.0" x 48.0" Horiz. Top Grate</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=0.35 cfs @ 20.81 hrs HW=309.50' (Free Discharge)  
 ↳2=Exfiltration ( Controls 0.35 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=309.50' (Free Discharge)  
 ↳1=Culvert (Passes 0.00 cfs of 3.61 cfs potential flow)  
 ↳3=Orifice/Grate ( Controls 0.00 cfs)  
 ↳4=Top Grate ( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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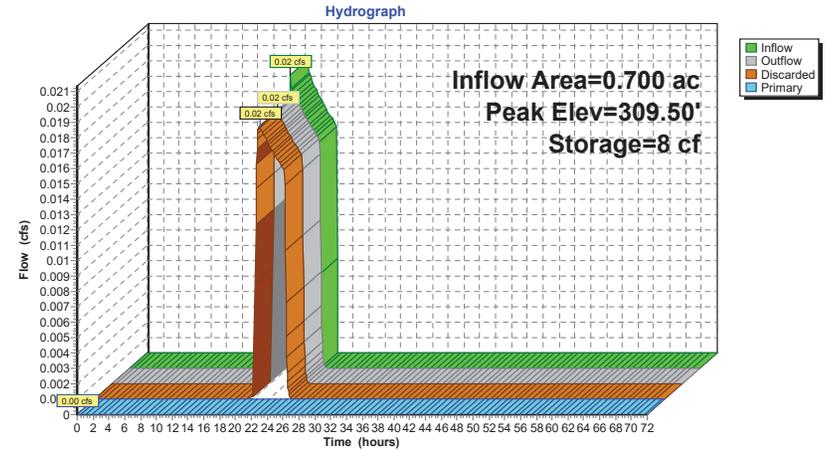
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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

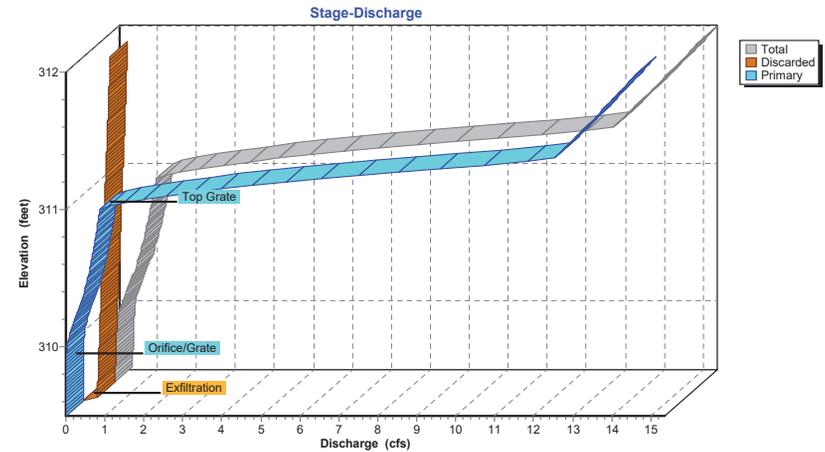
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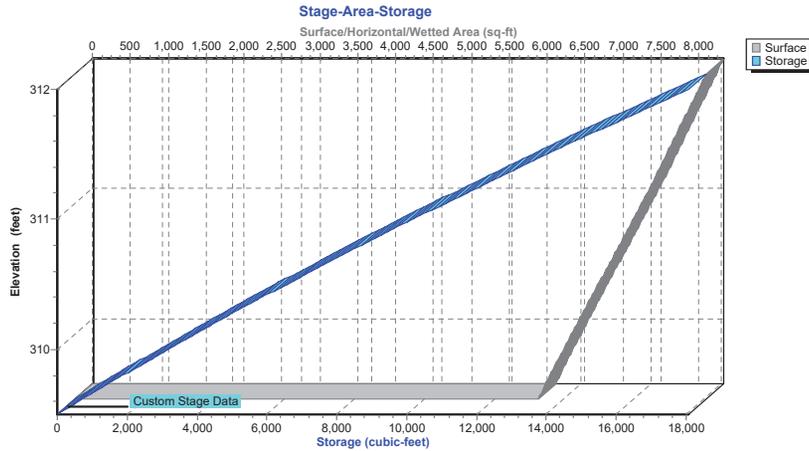
**Pond BA-G: AG INF BASIN G**



**Pond BA-G: AG INF BASIN G**



**Pond BA-G: AG INF BASIN G**



**Hydrograph for Pond BA-G: AG INF BASIN G**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	309.50	0.00	0.00	0.00
2.50	0.00	0	309.50	0.00	0.00	0.00
5.00	0.00	0	309.50	0.00	0.00	0.00
7.50	0.00	0	309.50	0.00	0.00	0.00
10.00	0.00	0	309.50	0.00	0.00	0.00
12.50	0.00	0	309.50	0.00	0.00	0.00
15.00	0.00	0	309.50	0.00	0.00	0.00
17.50	0.00	0	309.50	0.00	0.00	0.00
20.00	0.00	0	309.50	0.00	0.00	0.00
22.50	0.02	7	309.50	0.02	0.02	0.00
25.00	0.00	0	309.50	0.00	0.00	0.00
27.50	0.00	0	309.50	0.00	0.00	0.00
30.00	0.00	0	309.50	0.00	0.00	0.00
32.50	0.00	0	309.50	0.00	0.00	0.00
35.00	0.00	0	309.50	0.00	0.00	0.00
37.50	0.00	0	309.50	0.00	0.00	0.00
40.00	0.00	0	309.50	0.00	0.00	0.00
42.50	0.00	0	309.50	0.00	0.00	0.00
45.00	0.00	0	309.50	0.00	0.00	0.00
47.50	0.00	0	309.50	0.00	0.00	0.00
50.00	0.00	0	309.50	0.00	0.00	0.00
52.50	0.00	0	309.50	0.00	0.00	0.00
55.00	0.00	0	309.50	0.00	0.00	0.00
57.50	0.00	0	309.50	0.00	0.00	0.00
60.00	0.00	0	309.50	0.00	0.00	0.00
62.50	0.00	0	309.50	0.00	0.00	0.00
65.00	0.00	0	309.50	0.00	0.00	0.00
67.50	0.00	0	309.50	0.00	0.00	0.00
70.00	0.00	0	309.50	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Discharge for Pond BA-G: AG INF BASIN G**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
309.50	0.00	0.00	0.00
309.55	0.36	0.36	0.00
309.60	0.37	0.37	0.00
309.65	0.37	0.37	0.00
309.70	0.38	0.38	0.00
309.75	0.38	0.38	0.00
309.80	0.39	0.39	0.00
309.85	0.40	0.40	0.00
309.90	0.40	0.40	0.00
309.95	0.42	0.41	0.01
310.00	0.45	0.42	0.03
310.05	0.49	0.42	0.07
310.10	0.54	0.43	0.11
310.15	0.60	0.44	0.17
310.20	0.67	0.44	0.23
310.25	0.74	0.45	0.30
310.30	0.82	0.46	0.36
310.35	0.89	0.46	0.43
310.40	0.94	0.47	0.47
310.45	0.99	0.48	0.52
310.50	1.04	0.48	0.56
310.55	1.09	0.49	0.60
310.60	1.13	0.50	0.63
310.65	1.17	0.50	0.67
310.70	1.21	0.51	0.70
310.75	1.25	0.52	0.73
310.80	1.29	0.52	0.76
310.85	1.32	0.53	0.79
310.90	1.36	0.54	0.82
310.95	1.39	0.54	0.85
311.00	1.42	0.55	0.87
311.05	2.04	0.56	1.48
311.10	3.14	0.57	2.58
311.15	4.56	0.57	3.98
311.20	6.23	0.58	5.65
311.25	8.12	0.59	7.53
311.30	10.20	0.59	9.61
311.35	12.47	0.60	11.87
311.40	13.23	0.61	12.62
311.45	13.42	0.61	12.81
311.50	13.61	0.62	12.99
311.55	13.79	0.63	13.16
311.60	13.97	0.63	13.34
311.65	14.16	0.64	13.51
311.70	14.33	0.65	13.69
311.75	14.51	0.66	13.85
311.80	14.68	0.66	14.02
311.85	14.86	0.67	14.19
311.90	15.03	0.68	14.35
311.95	15.19	0.68	14.51
312.00	<b>15.36</b>	<b>0.69</b>	<b>14.67</b>

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Area-Storage for Pond BA-G: AG INF BASIN G**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.50	6,110	0
309.55	6,154	307
309.60	6,198	615
309.65	6,241	926
309.70	6,285	1,240
309.75	6,329	1,555
309.80	6,373	1,872
309.85	6,417	2,192
309.90	6,460	2,514
309.95	6,504	2,838
310.00	6,548	3,165
310.05	6,594	3,493
310.10	6,641	3,824
310.15	6,687	4,157
310.20	6,733	4,493
310.25	6,780	4,830
310.30	6,826	5,171
310.35	6,872	5,513
310.40	6,919	5,858
310.45	6,965	6,205
310.50	7,012	6,554
310.55	7,058	6,906
310.60	7,104	7,260
310.65	7,151	7,617
310.70	7,197	7,975
310.75	7,243	8,336
310.80	7,290	8,700
310.85	7,336	9,065
310.90	7,382	9,433
310.95	7,429	9,803
311.00	7,475	10,176
311.05	7,518	10,551
311.10	7,560	10,928
311.15	7,603	11,307
311.20	7,645	11,688
311.25	7,688	12,071
311.30	7,730	12,457
311.35	7,773	12,844
311.40	7,815	13,234
311.45	7,858	13,626
311.50	7,901	14,020
311.55	7,943	14,416
311.60	7,986	14,814
311.65	8,028	15,215
311.70	8,071	15,617
311.75	8,113	16,022
311.80	8,156	16,428
311.85	8,198	16,837
311.90	8,241	17,248
311.95	8,283	17,661
312.00	<b>8,326</b>	<b>18,077</b>

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Pond BA-HR: UG INF BASIN H (RTANK)**

Inflow Area = 1.430 ac, 98.60% Impervious, Inflow Depth = 2.40" for 1-yr event  
 Inflow = 5.25 cfs @ 11.97 hrs, Volume= 0.286 af  
 Outflow = 0.46 cfs @ 12.55 hrs, Volume= 0.286 af, Atten= 91%, Lag= 35.0 min  
 Discarded = 0.46 cfs @ 12.55 hrs, Volume= 0.286 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 308.60' @ 12.55 hrs Surf.Area= 3,728 sf Storage= 3,795 cf

Plug-Flow detention time= 54.5 min calculated for 0.286 af (100% of inflow)  
 Center-of-Mass det. time= 54.5 min ( 824.1 - 769.6 )

Volume	Invert	Avail.Storage	Storage Description
#1A	307.30'	2,288 cf	<b>39.43'W x 94.55'L x 5.35'H Field A</b> 19,932 cf Overall - 14,211 cf Embedded = 5,721 cf x 40.0% Voids
#2A	307.55'	13,500 cf	<b>Ferguson R-Tank UD 4</b> x 828 Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 828 Chambers in 18 Rows
		15,789 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	307.55'	<b>18.0" Round Culvert</b> L= 45.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 307.55' / 306.65' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	307.30'	<b>4.000 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 303.30'
#3	Device 1	309.60'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	310.85'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.46 cfs @ 12.55 hrs HW=308.60' (Free Discharge)  
 ↳2=Exfiltration ( Controls 0.46 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=307.30' (Free Discharge)  
 ↳1=Culvert ( Controls 0.00 cfs)  
 ↳3=Orifice/Grate ( Controls 0.00 cfs)  
 ↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Pond BA-HR: UG INF BASIN H (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf  
 Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

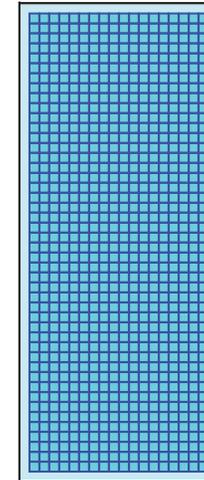
46 Chambers/Row x 1.97' Long = 90.55' Row Length +24.0" End Stone x 2 = 94.55' Base Length  
 18 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 39.43' Base Width  
 3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

828 Chambers x 16.3 cf = 13,500.4 cf Chamber Storage  
 828 Chambers x 17.2 cf = 14,210.9 cf Displacement

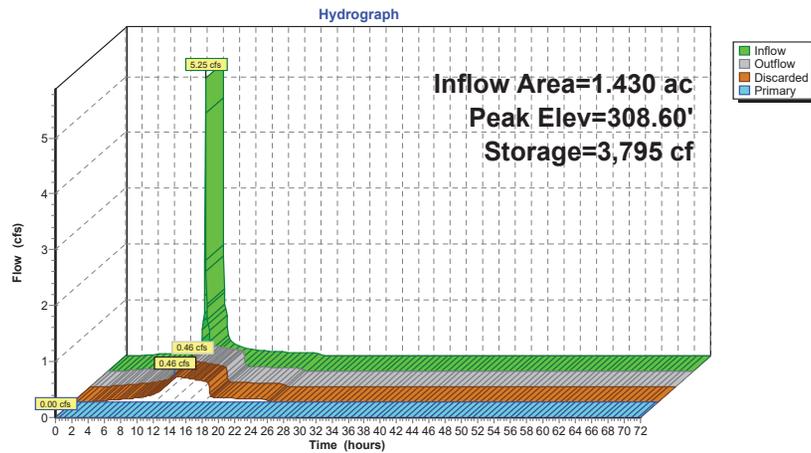
19,931.5 cf of Field - 14,210.9 cf of Chambers = 5,720.6 cf Stone x 40.0% Voids = 2,288.2 cf Stone Storage

Chamber Storage + Stone Storage = 15,788.6 cf = 0.362 af  
 Overall Storage Efficiency = 79.2%  
 Overall System Size = 94.55' x 39.43' x 5.35'

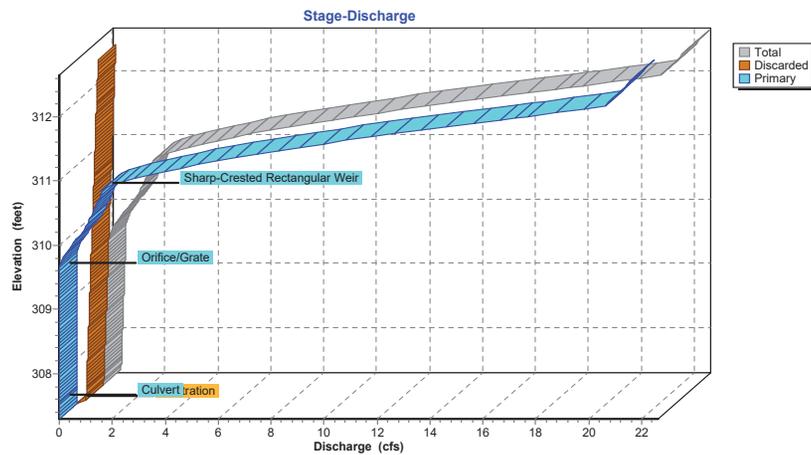
828 Chambers  
 738.2 cy Field  
 211.9 cy Stone



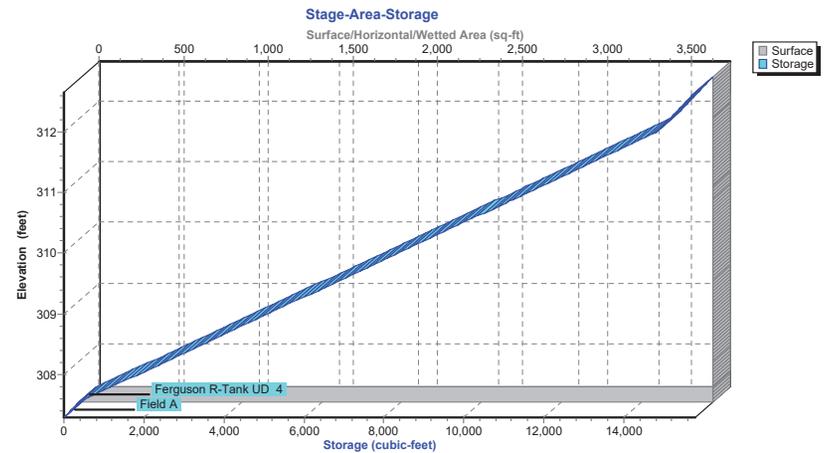
### Pond BA-HR: UG INF BASIN H (RTANK)



### Pond BA-HR: UG INF BASIN H (RTANK)



### Pond BA-HR: UG INF BASIN H (RTANK)



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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Pond BA-HR: UG INF BASIN H (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	307.30	0.00	0.00	<b>0.00</b>
2.50	0.01	2	307.30	0.01	0.01	0.00
5.00	0.04	9	307.31	0.04	0.04	0.00
7.50	0.07	16	307.31	0.07	0.07	0.00
10.00	<b>0.15</b>	33	307.32	0.15	0.15	0.00
12.50	<b>0.64</b>	<b>3,782</b>	<b>308.60</b>	<b>0.46</b>	<b>0.46</b>	0.00
15.00	0.13	<b>1,805</b>	<b>307.99</b>	<b>0.40</b>	<b>0.40</b>	0.00
17.50	0.09	20	307.31	0.09	0.09	0.00
20.00	0.07	15	307.31	0.07	0.07	0.00
22.50	0.05	12	307.31	0.05	0.05	0.00
25.00	0.00	0	307.30	0.00	0.00	0.00
27.50	0.00	0	307.30	0.00	0.00	0.00
30.00	0.00	0	307.30	0.00	0.00	0.00
32.50	0.00	0	307.30	0.00	0.00	0.00
35.00	0.00	0	307.30	0.00	0.00	0.00
37.50	0.00	0	307.30	0.00	0.00	0.00
40.00	0.00	0	307.30	0.00	0.00	0.00
42.50	0.00	0	307.30	0.00	0.00	0.00
45.00	0.00	0	307.30	0.00	0.00	0.00
47.50	0.00	0	307.30	0.00	0.00	0.00
50.00	0.00	0	307.30	0.00	0.00	0.00
52.50	0.00	0	307.30	0.00	0.00	0.00
55.00	0.00	0	307.30	0.00	0.00	0.00
57.50	0.00	0	307.30	0.00	0.00	0.00
60.00	0.00	0	307.30	0.00	0.00	0.00
62.50	0.00	0	307.30	0.00	0.00	0.00
65.00	0.00	0	307.30	0.00	0.00	0.00
67.50	0.00	0	307.30	0.00	0.00	0.00
70.00	0.00	0	307.30	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Discharge for Pond BA-HR: UG INF BASIN H (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
307.30	0.00	0.00	0.00	312.50	22.24	0.79	21.45
307.40	0.35	0.35	0.00	312.60	<b>22.50</b>	<b>0.80</b>	<b>21.70</b>
307.50	0.36	0.36	0.00				
307.60	0.37	0.37	0.00				
307.70	0.38	0.38	0.00				
307.80	0.39	0.39	0.00				
307.90	0.40	0.40	0.00				
308.00	0.41	0.41	0.00				
308.10	0.41	0.41	0.00				
308.20	0.42	0.42	0.00				
308.30	0.43	0.43	0.00				
308.40	0.44	0.44	0.00				
308.50	0.45	0.45	0.00				
308.60	0.46	0.46	0.00				
308.70	0.47	0.47	0.00				
308.80	0.47	0.47	0.00				
308.90	0.48	0.48	0.00				
309.00	0.49	0.49	0.00				
309.10	0.50	0.50	0.00				
309.20	0.51	0.51	0.00				
309.30	0.52	0.52	0.00				
309.40	0.53	0.53	0.00				
309.50	0.54	0.54	0.00				
309.60	0.54	0.54	0.00				
309.70	0.59	0.55	0.04				
309.80	0.70	0.56	0.13				
309.90	0.85	0.57	0.28				
310.00	1.05	0.58	0.47				
310.10	1.26	0.59	0.68				
310.20	1.47	0.60	0.87				
310.30	1.62	0.60	1.02				
310.40	1.76	0.61	1.15				
310.50	1.89	0.62	1.27				
310.60	2.00	0.63	1.37				
310.70	2.11	0.64	1.47				
310.80	2.21	0.65	1.56				
310.90	2.45	0.66	1.80				
311.00	3.15	0.66	2.49				
311.10	4.10	0.67	3.43				
311.20	5.23	0.68	4.55				
311.30	6.51	0.69	5.82				
311.40	7.92	0.70	7.22				
311.50	9.44	0.71	8.74				
311.60	11.06	0.72	10.35				
311.70	12.77	0.72	12.05				
311.80	14.57	0.73	13.83				
311.90	16.43	0.74	15.69				
312.00	18.37	0.75	17.62				
312.10	20.37	0.76	19.61				
312.20	21.47	0.77	20.70				
312.30	21.73	0.78	20.95				
312.40	21.99	0.79	21.20				

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Area-Storage for Pond BA-HR: UG INF BASIN H (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
307.30	3,728	0	312.50	3,728	15,571
307.40	3,728	149	312.60	3,728	15,720
307.50	3,728	298			
307.60	3,728	536			
307.70	3,728	861			
307.80	3,728	1,187			
307.90	3,728	1,512			
308.00	3,728	1,838			
308.10	3,728	2,164			
308.20	3,728	2,489			
308.30	3,728	2,815			
308.40	3,728	3,140			
308.50	3,728	3,466			
308.60	3,728	3,792			
308.70	3,728	4,117			
308.80	3,728	4,443			
308.90	3,728	4,769			
309.00	3,728	5,094			
309.10	3,728	5,420			
309.20	3,728	5,745			
309.30	3,728	6,071			
309.40	3,728	6,397			
309.50	3,728	6,722			
309.60	3,728	7,048			
309.70	3,728	7,373			
309.80	3,728	7,699			
309.90	3,728	8,025			
310.00	3,728	8,350			
310.10	3,728	8,676			
310.20	3,728	9,001			
310.30	3,728	9,327			
310.40	3,728	9,653			
310.50	3,728	9,978			
310.60	3,728	10,304			
310.70	3,728	10,629			
310.80	3,728	10,955			
310.90	3,728	11,281			
311.00	3,728	11,606			
311.10	3,728	11,932			
311.20	3,728	12,257			
311.30	3,728	12,583			
311.40	3,728	12,909			
311.50	3,728	13,234			
311.60	3,728	13,560			
311.70	3,728	13,885			
311.80	3,728	14,211			
311.90	3,728	14,537			
312.00	3,728	14,862			
312.10	3,728	14,975			
312.20	3,728	15,124			
312.30	3,728	15,273			
312.40	3,728	15,422			

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Pond BA-KR: UG INF BASIN K (RTANK)**

Inflow Area = 3.850 ac, 100.00% Impervious, Inflow Depth = 2.51" for 1-yr event  
 Inflow = 14.08 cfs @ 11.98 hrs, Volume= 0.805 af  
 Outflow = 1.71 cfs @ 12.50 hrs, Volume= 0.805 af, Atten= 88%, Lag= 30.8 min  
 Discarded = 1.71 cfs @ 12.50 hrs, Volume= 0.805 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 308.75' @ 12.50 hrs Surf.Area= 10,650 sf Storage= 8,767 cf

Plug-Flow detention time= 29.1 min calculated for 0.805 af (100% of inflow)  
 Center-of-Mass det. time= 29.1 min ( 787.4 - 758.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	307.70'	5,356 cf	<b>88.65'W x 120.14'L x 5.35'H Field A</b> 56,933 cf Overall - 43,542 cf Embedded = 13,391 cf x 40.0% Voids
#2A	307.95'	41,365 cf	<b>Ferguson R-Tank UD 4 x 2537</b> Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 2537 Chambers in 43 Rows
		46,721 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	307.95'	<b>18.0" Round Culvert</b> L= 30.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 307.95' / 307.65' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	307.70'	<b>5.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 303.70'
#3	Device 1	309.85'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	311.00'	<b>3.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=1.71 cfs @ 12.50 hrs HW=308.75' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 1.71 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=307.70' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)  
 ↳ **4=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Pond BA-KR: UG INF BASIN K (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf  
Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

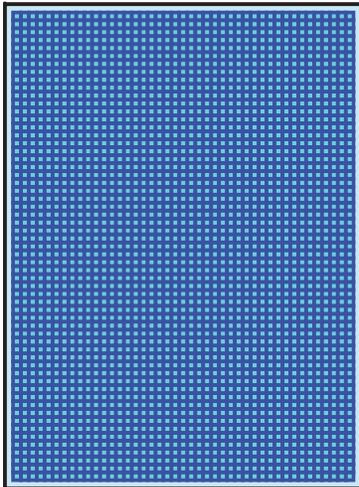
59 Chambers/Row x 1.97' Long = 116.14' Row Length +24.0" End Stone x 2 = 120.14' Base Length  
43 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 88.65' Base Width  
3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

2,537 Chambers x 16.3 cf = 41,365.2 cf Chamber Storage  
2,537 Chambers x 17.2 cf = 43,542.3 cf Displacement

56,933.0 cf Field - 43,542.3 cf Chambers = 13,390.7 cf Stone x 40.0% Voids = 5,356.3 cf Stone Storage

Chamber Storage + Stone Storage = 46,721.5 cf = 1.073 af  
Overall Storage Efficiency = 82.1%  
Overall System Size = 120.14' x 88.65' x 5.35'

2,537 Chambers  
2,108.6 cy Field  
496.0 cy Stone



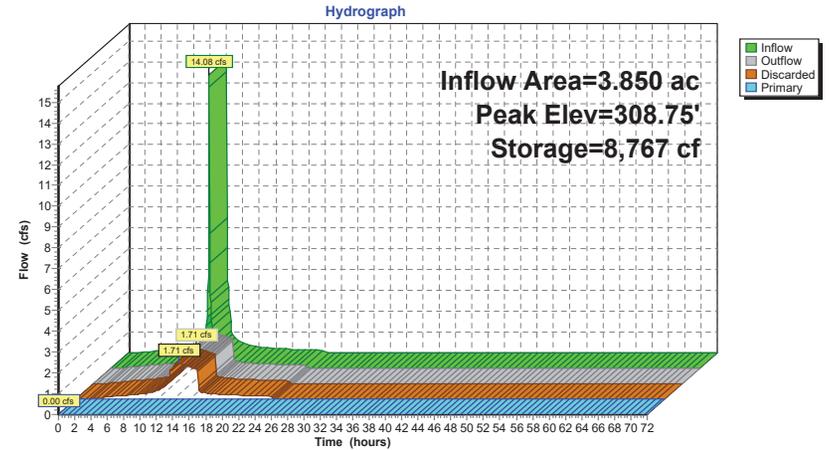
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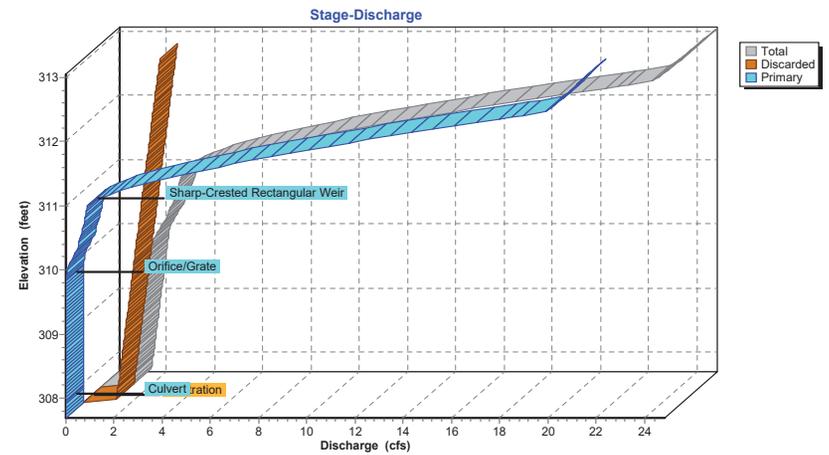
NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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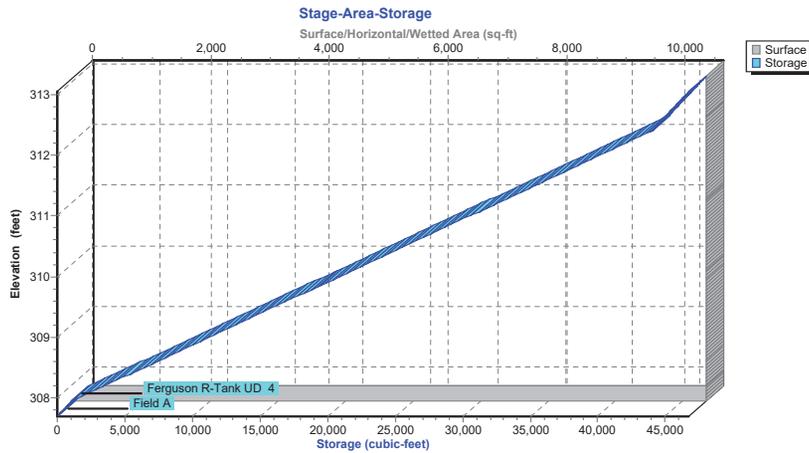
**Pond BA-KR: UG INF BASIN K (RTANK)**



**Pond BA-KR: UG INF BASIN K (RTANK)**



Pond BA-KR: UG INF BASIN K (RTANK)



Hydrograph for Pond BA-KR: UG INF BASIN K (RTANK)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	307.70	0.00	0.00	0.00
2.50	0.06	9	307.70	0.06	0.06	0.00
5.00	0.14	22	307.71	0.14	0.14	0.00
7.50	0.22	37	307.71	0.22	0.22	0.00
10.00	0.43	71	307.72	0.43	0.43	0.00
12.50	1.80	8,767	308.75	1.71	1.71	0.00
15.00	0.35	101	307.72	0.61	0.61	0.00
17.50	0.23	39	307.71	0.23	0.23	0.00
20.00	0.18	30	307.71	0.18	0.18	0.00
22.50	0.15	25	307.71	0.15	0.15	0.00
25.00	0.00	0	307.70	0.00	0.00	0.00
27.50	0.00	0	307.70	0.00	0.00	0.00
30.00	0.00	0	307.70	0.00	0.00	0.00
32.50	0.00	0	307.70	0.00	0.00	0.00
35.00	0.00	0	307.70	0.00	0.00	0.00
37.50	0.00	0	307.70	0.00	0.00	0.00
40.00	0.00	0	307.70	0.00	0.00	0.00
42.50	0.00	0	307.70	0.00	0.00	0.00
45.00	0.00	0	307.70	0.00	0.00	0.00
47.50	0.00	0	307.70	0.00	0.00	0.00
50.00	0.00	0	307.70	0.00	0.00	0.00
52.50	0.00	0	307.70	0.00	0.00	0.00
55.00	0.00	0	307.70	0.00	0.00	0.00
57.50	0.00	0	307.70	0.00	0.00	0.00
60.00	0.00	0	307.70	0.00	0.00	0.00
62.50	0.00	0	307.70	0.00	0.00	0.00
65.00	0.00	0	307.70	0.00	0.00	0.00
67.50	0.00	0	307.70	0.00	0.00	0.00
70.00	0.00	0	307.70	0.00	0.00	0.00

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Discharge for Pond BA-KR: UG INF BASIN K (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
307.70	0.00	0.00	0.00	312.90	24.39	3.12	21.27
307.80	1.39	1.39	0.00	313.00	<b>24.70</b>	<b>3.15</b>	<b>21.55</b>
307.90	1.42	1.42	0.00				
308.00	1.46	1.46	0.00				
308.10	1.49	1.49	0.00				
308.20	1.53	1.53	0.00				
308.30	1.56	1.56	0.00				
308.40	1.59	1.59	0.00				
308.50	1.63	1.63	0.00				
308.60	1.66	1.66	0.00				
308.70	1.69	1.69	0.00				
308.80	1.73	1.73	0.00				
308.90	1.76	1.76	0.00				
309.00	1.80	1.80	0.00				
309.10	1.83	1.83	0.00				
309.20	1.86	1.86	0.00				
309.30	1.90	1.90	0.00				
309.40	1.93	1.93	0.00				
309.50	1.97	1.97	0.00				
309.60	2.00	2.00	0.00				
309.70	2.03	2.03	0.00				
309.80	2.07	2.07	0.00				
309.90	2.11	2.10	0.01				
310.00	2.20	2.14	0.07				
310.10	2.34	2.17	0.17				
310.20	2.50	2.20	0.30				
310.30	2.66	2.24	0.43				
310.40	2.79	2.27	0.52				
310.50	2.90	2.31	0.60				
310.60	3.01	2.34	0.67				
310.70	3.11	2.37	0.73				
310.80	3.20	2.41	0.79				
310.90	3.29	2.44	0.85				
311.00	3.37	2.47	0.90				
311.10	3.81	2.51	1.31				
311.20	4.55	2.54	2.00				
311.30	5.46	2.58	2.88				
311.40	6.52	2.61	3.91				
311.50	7.69	2.64	5.05				
311.60	8.97	2.68	6.29				
311.70	10.34	2.71	7.63				
311.80	11.79	2.75	9.05				
311.90	13.32	2.78	10.54				
312.00	14.91	2.81	12.09				
312.10	16.56	2.85	13.71				
312.20	18.26	2.88	15.38				
312.30	20.02	2.92	17.11				
312.40	21.82	2.95	18.88				
312.50	23.08	2.98	20.10				
312.60	23.42	3.02	20.40				
312.70	23.74	3.05	20.69				
312.80	24.07	3.08	20.98				

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Area-Storage for Pond BA-KR: UG INF BASIN K (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
307.70	<b>10,650</b>	0	312.90	10,650	46,100
307.80	10,650	426	313.00	10,650	<b>46,526</b>
307.90	10,650	852			
308.00	10,650	1,548			
308.10	10,650	2,515			
308.20	10,650	3,482			
308.30	10,650	4,448			
308.40	10,650	5,415			
308.50	10,650	6,382			
308.60	10,650	7,349			
308.70	10,650	8,315			
308.80	10,650	9,282			
308.90	10,650	10,249			
309.00	10,650	11,215			
309.10	10,650	12,182			
309.20	10,650	13,149			
309.30	10,650	14,115			
309.40	10,650	15,082			
309.50	10,650	16,049			
309.60	10,650	17,016			
309.70	10,650	17,982			
309.80	10,650	18,949			
309.90	10,650	19,916			
310.00	10,650	20,882			
310.10	10,650	21,849			
310.20	10,650	22,816			
310.30	10,650	23,782			
310.40	10,650	24,749			
310.50	10,650	25,716			
310.60	10,650	26,683			
310.70	10,650	27,649			
310.80	10,650	28,616			
310.90	10,650	29,583			
311.00	10,650	30,549			
311.10	10,650	31,516			
311.20	10,650	32,483			
311.30	10,650	33,449			
311.40	10,650	34,416			
311.50	10,650	35,383			
311.60	10,650	36,350			
311.70	10,650	37,316			
311.80	10,650	38,283			
311.90	10,650	39,250			
312.00	10,650	40,216			
312.10	10,650	41,183			
312.20	10,650	42,150			
312.30	10,650	43,116			
312.40	10,650	43,970			
312.50	10,650	44,396			
312.60	10,650	44,822			
312.70	10,650	45,248			
312.80	10,650	45,674			

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Pond BA-MR: UG INF BASIN M (RTANK)**

Inflow Area = 7.830 ac, 94.76% Impervious, Inflow Depth = 2.20" for 1-yr event  
 Inflow = 22.35 cfs @ 12.03 hrs, Volume= 1.433 af  
 Outflow = 1.25 cfs @ 13.32 hrs, Volume= 1.433 af, Atten= 94%, Lag= 77.7 min  
 Discarded = 1.25 cfs @ 13.32 hrs, Volume= 1.433 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 305.03' @ 13.32 hrs Surf.Area= 24,066 sf Storage= 24,946 cf

Plug-Flow detention time= 166.4 min calculated for 1.432 af (100% of inflow)  
 Center-of-Mass det. time= 166.3 min ( 958.5 - 792.2 )

Volume	Invert	Avail.Storage	Storage Description
#1A	303.75'	14,995 cf	<b>63.06'W x 381.67'L x 5.45'H Field A</b> 131,150 cf Overall - 93,663 cf Embedded = 37,486 cf x 40.0% Voids
#2A	304.00'	88,980 cf	<b>Ferguson R-Tank HD 3</b> x 7245 Inside #1 Inside= 15.7"W x 50.4"H => 5.24 sf x 2.35'L = 12.3 cf Outside= 15.7"W x 50.4"H => 5.51 sf x 2.35'L = 12.9 cf 7245 Chambers in 45 Rows
		103,975 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	304.00'	<b>18.0" Round Culvert</b> L= 65.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 304.00' / 303.35' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	303.75'	<b>2.000 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 293.50'
#3	Device 1	305.75'	<b>18.0" W x 12.0" H Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.75'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

Discarded OutFlow Max=1.25 cfs @ 13.32 hrs HW=305.03' (Free Discharge)

↳2=Exfiltration ( Controls 1.25 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=303.75' (Free Discharge)

↳1=Culvert ( Controls 0.00 cfs)

↳3=Orifice ( Controls 0.00 cfs)

↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Pond BA-MR: UG INF BASIN M (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank HD 3 (Ferguson R-Tank HD)**

Inside= 15.7"W x 50.4"H => 5.24 sf x 2.35'L = 12.3 cf

Outside= 15.7"W x 50.4"H => 5.51 sf x 2.35'L = 12.9 cf

161 Chambers/Row x 2.35' Long = 377.67' Row Length +24.0" End Stone x 2 = 381.67' Base Length  
 45 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 63.06' Base Width  
 3.0" Stone Base + 50.4" Chamber Height + 12.0" Stone Cover = 5.45' Field Height

7,245 Chambers x 12.3 cf = 88,980.1 cf Chamber Storage

7,245 Chambers x 12.9 cf = 93,663.3 cf Displacement

131,149.7 cf Field - 93,663.3 cf Chambers = 37,486.4 cf Stone x 40.0% Voids = 14,994.6 cf Stone Storage

Chamber Storage + Stone Storage = 103,974.7 cf = 2.387 af

Overall Storage Efficiency = 79.3%

Overall System Size = 381.67' x 63.06' x 5.45'

7,245 Chambers

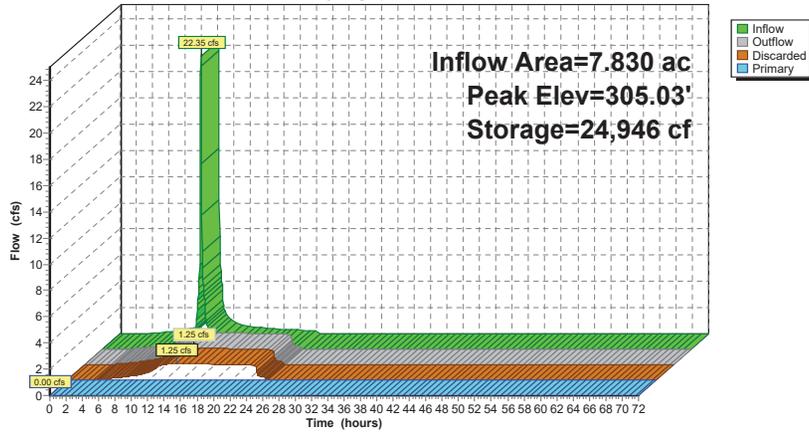
4,857.4 cy Field

1,388.4 cy Stone



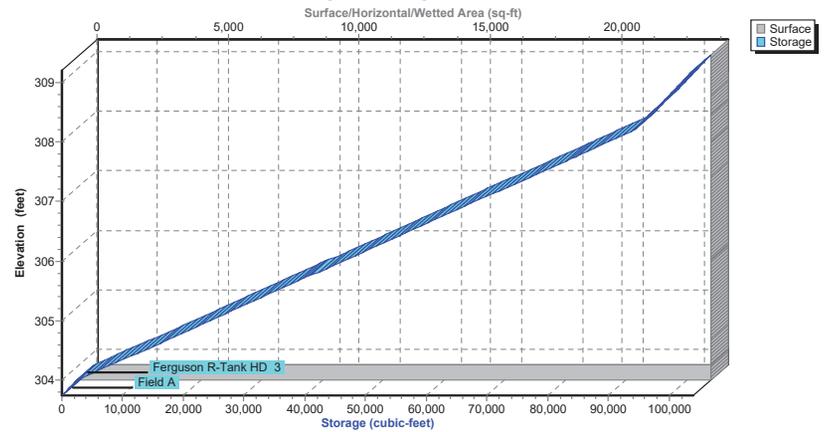
Pond BA-MR: UG INF BASIN M (RTANK)

Hydrograph



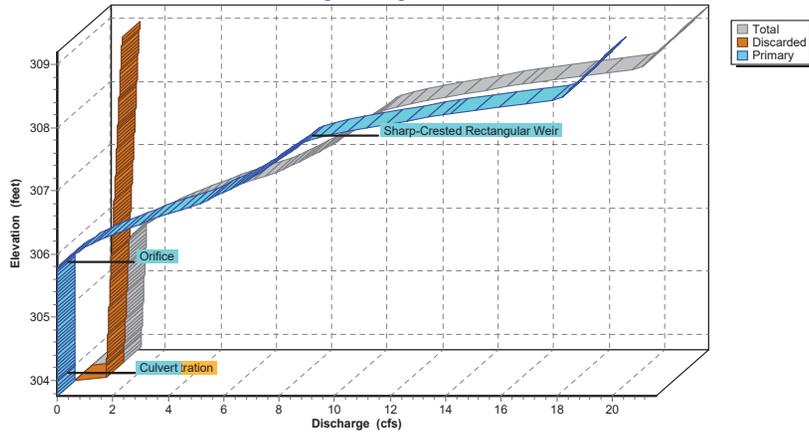
Pond BA-MR: UG INF BASIN M (RTANK)

Stage-Area-Storage



Pond BA-MR: UG INF BASIN M (RTANK)

Stage-Discharge



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**Hydrograph for Pond BA-MR: UG INF BASIN M (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	303.75	0.00	0.00	<b>0.00</b>
2.50	0.00	0	303.75	0.00	0.00	0.00
5.00	0.12	51	303.76	0.11	0.11	0.00
7.50	0.29	129	303.76	0.28	0.28	0.00
10.00	<b>0.67</b>	299	303.78	0.64	0.64	0.00
12.50	<b>3.74</b>	<b>23,181</b>	<b>304.95</b>	<b>1.24</b>	<b>1.24</b>	0.00
15.00	0.70	<b>22,918</b>	<b>304.94</b>	<b>1.24</b>	<b>1.24</b>	0.00
17.50	0.46	16,899	304.66	1.21	1.21	0.00
20.00	0.35	9,753	304.34	1.18	1.18	0.00
22.50	0.29	2,218	303.98	1.14	1.14	0.00
25.00	0.00	0	303.75	0.00	0.00	0.00
27.50	0.00	0	303.75	0.00	0.00	0.00
30.00	0.00	0	303.75	0.00	0.00	0.00
32.50	0.00	0	303.75	0.00	0.00	0.00
35.00	0.00	0	303.75	0.00	0.00	0.00
37.50	0.00	0	303.75	0.00	0.00	0.00
40.00	0.00	0	303.75	0.00	0.00	0.00
42.50	0.00	0	303.75	0.00	0.00	0.00
45.00	0.00	0	303.75	0.00	0.00	0.00
47.50	0.00	0	303.75	0.00	0.00	0.00
50.00	0.00	0	303.75	0.00	0.00	0.00
52.50	0.00	0	303.75	0.00	0.00	0.00
55.00	0.00	0	303.75	0.00	0.00	0.00
57.50	0.00	0	303.75	0.00	0.00	0.00
60.00	0.00	0	303.75	0.00	0.00	0.00
62.50	0.00	0	303.75	0.00	0.00	0.00
65.00	0.00	0	303.75	0.00	0.00	0.00
67.50	0.00	0	303.75	0.00	0.00	0.00
70.00	0.00	0	303.75	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Discharge for Pond BA-MR: UG INF BASIN M (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
303.75	0.00	0.00	0.00	308.95	20.98	1.68	19.30
303.85	1.13	1.13	0.00	309.05	21.23	1.69	19.54
303.95	1.14	1.14	0.00	309.15	<b>21.47</b>	<b>1.70</b>	<b>19.77</b>
304.05	1.15	1.15	0.00				
304.15	1.16	1.16	0.00				
304.25	1.17	1.17	0.00				
304.35	1.18	1.18	0.00				
304.45	1.19	1.19	0.00				
304.55	1.20	1.20	0.00				
304.65	1.21	1.21	0.00				
304.75	1.22	1.22	0.00				
304.85	1.23	1.23	0.00				
304.95	1.24	1.24	0.00				
305.05	1.26	1.26	0.00				
305.15	1.27	1.27	0.00				
305.25	1.28	1.28	0.00				
305.35	1.29	1.29	0.00				
305.45	1.30	1.30	0.00				
305.55	1.31	1.31	0.00				
305.65	1.32	1.32	0.00				
305.75	1.33	1.33	0.00				
305.85	1.49	1.34	0.15				
305.95	1.78	1.35	0.43				
306.05	2.16	1.36	0.79				
306.15	2.59	1.38	1.22				
306.25	3.09	1.39	1.70				
306.35	3.63	1.40	2.24				
306.45	4.23	1.41	2.82				
306.55	4.86	1.42	3.45				
306.65	5.54	1.43	4.11				
306.75	6.26	1.44	4.81				
306.85	6.85	1.45	5.40				
306.95	7.36	1.46	5.90				
307.05	7.82	1.47	6.35				
307.15	8.24	1.48	6.76				
307.25	8.64	1.49	7.14				
307.35	9.01	1.51	7.51				
307.45	9.37	1.52	7.85				
307.55	9.71	1.53	8.18				
307.65	10.04	1.54	8.50				
307.75	10.35	1.55	8.80				
307.85	11.07	1.56	9.51				
307.95	12.11	1.57	10.54				
308.05	13.36	1.58	11.78				
308.15	14.76	1.59	13.17				
308.25	16.30	1.60	14.70				
308.35	17.95	1.61	16.34				
308.45	19.71	1.63	18.08				
308.55	19.97	1.64	18.34				
308.65	20.23	1.65	18.58				
308.75	20.48	1.66	18.83				
308.85	20.73	1.67	19.07				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-MR: UG INF BASIN M (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
303.75	24,066	0	308.95	24,066	101,573
303.85	24,066	963	309.05	24,066	102,536
303.95	24,066	1,925	309.15	24,066	103,498
304.05	24,066	3,501			
304.15	24,066	5,691			
304.25	24,066	7,880			
304.35	24,066	10,069			
304.45	24,066	12,259			
304.55	24,066	14,448			
304.65	24,066	16,637			
304.75	24,066	18,827			
304.85	24,066	21,016			
304.95	24,066	23,206			
305.05	24,066	25,395			
305.15	24,066	27,584			
305.25	24,066	29,774			
305.35	24,066	31,963			
305.45	24,066	34,152			
305.55	24,066	36,342			
305.65	24,066	38,531			
305.75	24,066	40,720			
305.85	24,066	42,910			
305.95	24,066	45,099			
306.05	24,066	47,288			
306.15	24,066	49,478			
306.25	24,066	51,667			
306.35	24,066	53,857			
306.45	24,066	56,046			
306.55	24,066	58,235			
306.65	24,066	60,425			
306.75	24,066	62,614			
306.85	24,066	64,803			
306.95	24,066	66,993			
307.05	24,066	69,182			
307.15	24,066	71,371			
307.25	24,066	73,561			
307.35	24,066	75,750			
307.45	24,066	77,939			
307.55	24,066	80,129			
307.65	24,066	82,318			
307.75	24,066	84,508			
307.85	24,066	86,697			
307.95	24,066	88,886			
308.05	24,066	91,076			
308.15	24,066	93,265			
308.25	24,066	94,835			
308.35	24,066	95,797			
308.45	24,066	96,760			
308.55	24,066	97,722			
308.65	24,066	98,685			
308.75	24,066	99,648			
308.85	24,066	100,610			

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Pond BASIN I: INF TRENCH I**

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.930 ac, 60.10% Impervious, Inflow Depth = 0.80" for 1-yr event  
 Inflow = 1.91 cfs @ 12.03 hrs, Volume= 0.128 af  
 Outflow = 1.93 cfs @ 12.04 hrs, Volume= 0.128 af, Atten= 0%, Lag= 1.0 min  
 Discarded = 1.93 cfs @ 12.04 hrs, Volume= 0.128 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 48L : TOTAL INF TRENCH

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 312.51' @ 12.04 hrs Surf.Area= 13,450 sf Storage= 76 cf

Plug-Flow detention time= 0.7 min calculated for 0.128 af (100% of inflow)  
 Center-of-Mass det. time= 0.7 min ( 890.5 - 889.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	312.50'	8,339 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 20,848 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
312.50	13,450	0	0
314.05	13,450	20,848	20,848

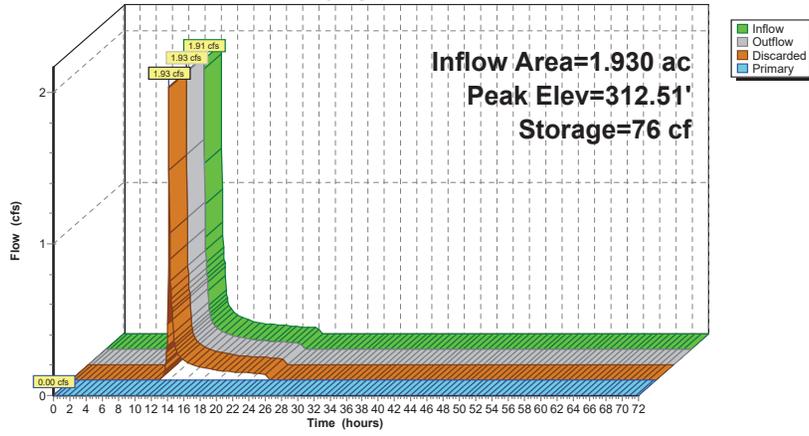
Device	Routing	Invert	Outlet Devices
#1	Primary	309.00'	<b>18.0" Round Culvert</b> L= 50.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 309.00' / 308.00' S= 0.0200 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf
#2	Discarded	312.50'	<b>6.800 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 308.50'
#3	Device 1	313.45'	<b>3.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Device 1	313.90'	<b>48.0" x 48.0" Horiz. Top Grate X 2.00</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=2.12 cfs @ 12.04 hrs HW=312.51' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 2.12 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=312.50' (Free Discharge)  
 ↳ **1=Culvert** (Passes 0.00 cfs of 17.46 cfs potential flow)  
 ↳ **3=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ **4=Top Grate** ( Controls 0.00 cfs)

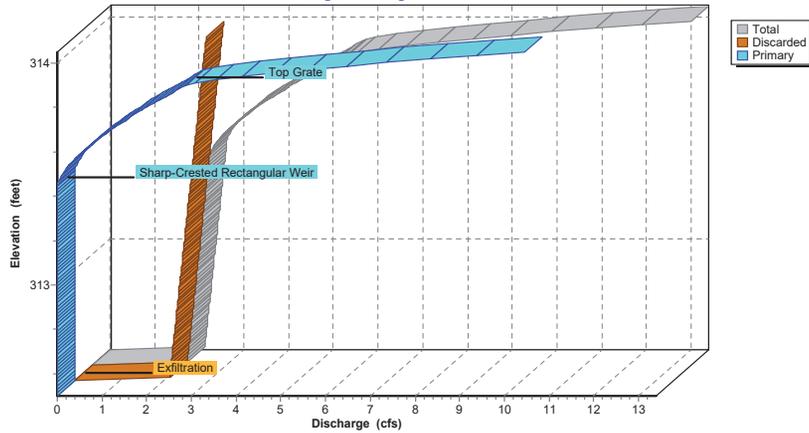
Pond BASIN I: INF TRENCH I

Hydrograph



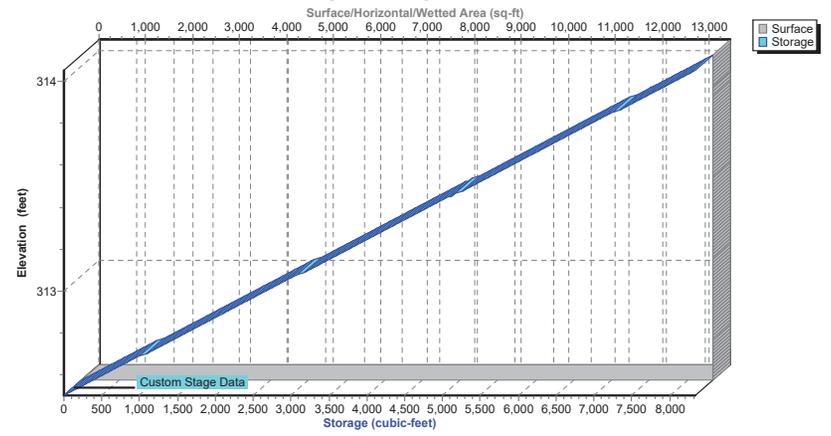
Pond BASIN I: INF TRENCH I

Stage-Discharge



Pond BASIN I: INF TRENCH I

Stage-Area-Storage



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**Hydrograph for Pond BASIN I: INF TRENCH I**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	312.50	0.00	0.00	<b>0.00</b>
2.50	0.00	0	312.50	0.00	0.00	0.00
5.00	0.00	0	312.50	0.00	0.00	0.00
7.50	0.00	0	312.50	0.00	0.00	0.00
10.00	<b>0.00</b>	<b>0</b>	<b>312.50</b>	<b>0.00</b>	<b>0.00</b>	0.00
12.50	<b>0.44</b>	<b>18</b>	<b>312.50</b>	<b>0.45</b>	<b>0.45</b>	0.00
15.00	0.10	4	312.50	0.10	0.10	0.00
17.50	0.07	3	312.50	0.07	0.07	0.00
20.00	0.05	2	312.50	0.05	0.05	0.00
22.50	0.05	2	312.50	0.05	0.05	0.00
25.00	0.00	0	312.50	0.00	0.00	0.00
27.50	0.00	0	312.50	0.00	0.00	0.00
30.00	0.00	0	312.50	0.00	0.00	0.00
32.50	0.00	0	312.50	0.00	0.00	0.00
35.00	0.00	0	312.50	0.00	0.00	0.00
37.50	0.00	0	312.50	0.00	0.00	0.00
40.00	0.00	0	312.50	0.00	0.00	0.00
42.50	0.00	0	312.50	0.00	0.00	0.00
45.00	0.00	0	312.50	0.00	0.00	0.00
47.50	0.00	0	312.50	0.00	0.00	0.00
50.00	0.00	0	312.50	0.00	0.00	0.00
52.50	0.00	0	312.50	0.00	0.00	0.00
55.00	0.00	0	312.50	0.00	0.00	0.00
57.50	0.00	0	312.50	0.00	0.00	0.00
60.00	0.00	0	312.50	0.00	0.00	0.00
62.50	0.00	0	312.50	0.00	0.00	0.00
65.00	0.00	0	312.50	0.00	0.00	0.00
67.50	0.00	0	312.50	0.00	0.00	0.00
70.00	0.00	0	312.50	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Discharge for Pond BASIN I: INF TRENCH I**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
312.50	0.00	0.00	0.00	313.54	2.93	2.67	0.26
312.52	2.13	2.13	0.00	313.56	3.03	2.68	0.36
312.54	2.14	2.14	0.00	313.58	3.14	2.69	0.46
312.56	2.15	2.15	0.00	313.60	3.26	2.70	0.56
312.58	2.16	2.16	0.00	313.62	3.39	2.71	0.68
312.60	2.17	2.17	0.00	313.64	3.52	2.72	0.80
312.62	2.18	2.18	0.00	313.66	3.66	2.73	0.93
312.64	2.19	2.19	0.00	313.68	3.81	2.74	1.07
312.66	2.20	2.20	0.00	313.70	3.96	2.75	1.21
312.68	2.21	2.21	0.00	313.72	4.11	2.76	1.35
312.70	2.22	2.22	0.00	313.74	4.28	2.77	1.50
312.72	2.23	2.23	0.00	313.76	4.44	2.78	1.66
312.74	2.24	2.24	0.00	313.78	4.61	2.79	1.82
312.76	2.25	2.25	0.00	313.80	4.79	2.81	1.98
312.78	2.27	2.27	0.00	313.82	4.97	2.82	2.15
312.80	2.28	2.28	0.00	313.84	5.15	2.83	2.33
312.82	2.29	2.29	0.00	313.86	5.34	2.84	2.51
312.84	2.30	2.30	0.00	313.88	5.53	2.85	2.69
312.86	2.31	2.31	0.00	313.90	5.73	2.86	2.87
312.88	2.32	2.32	0.00	313.92	6.23	2.87	3.36
312.90	2.33	2.33	0.00	313.94	6.97	2.88	4.09
312.92	2.34	2.34	0.00	313.96	7.88	2.89	4.99
312.94	2.35	2.35	0.00	313.98	8.92	2.90	6.02
312.96	2.36	2.36	0.00	314.00	10.07	2.91	7.16
312.98	2.37	2.37	0.00	314.02	11.33	2.92	8.41
313.00	2.38	2.38	0.00	314.04	<b>12.68</b>	<b>2.93</b>	<b>9.75</b>
313.02	2.39	2.39	0.00				
313.04	2.40	2.40	0.00				
313.06	2.41	2.41	0.00				
313.08	2.42	2.42	0.00				
313.10	2.43	2.43	0.00				
313.12	2.45	2.45	0.00				
313.14	2.46	2.46	0.00				
313.16	2.47	2.47	0.00				
313.18	2.48	2.48	0.00				
313.20	2.49	2.49	0.00				
313.22	2.50	2.50	0.00				
313.24	2.51	2.51	0.00				
313.26	2.52	2.52	0.00				
313.28	2.53	2.53	0.00				
313.30	2.54	2.54	0.00				
313.32	2.55	2.55	0.00				
313.34	2.56	2.56	0.00				
313.36	2.57	2.57	0.00				
313.38	2.58	2.58	0.00				
313.40	2.59	2.59	0.00				
313.42	2.60	2.60	0.00				
313.44	2.61	2.61	0.00				
313.46	2.64	2.63	0.01				
313.48	2.69	2.64	0.05				
313.50	2.76	2.65	0.11				
313.52	2.84	2.66	0.18				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Area-Storage for Pond BASIN I: INF TRENCH I**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
312.50	13,450	0	313.54	13,450	5,595
312.52	13,450	108	313.56	13,450	5,703
312.54	13,450	215	313.58	13,450	5,810
312.56	13,450	323	313.60	13,450	5,918
312.58	13,450	430	313.62	13,450	6,026
312.60	13,450	538	313.64	13,450	6,133
312.62	13,450	646	313.66	13,450	6,241
312.64	13,450	753	313.68	13,450	6,348
312.66	13,450	861	313.70	13,450	6,456
312.68	13,450	968	313.72	13,450	6,564
312.70	13,450	1,076	313.74	13,450	6,671
312.72	13,450	1,184	313.76	13,450	6,779
312.74	13,450	1,291	313.78	13,450	6,886
312.76	13,450	1,399	313.80	13,450	6,994
312.78	13,450	1,506	313.82	13,450	7,102
312.80	13,450	1,614	313.84	13,450	7,209
312.82	13,450	1,722	313.86	13,450	7,317
312.84	13,450	1,829	313.88	13,450	7,424
312.86	13,450	1,937	313.90	13,450	7,532
312.88	13,450	2,044	313.92	13,450	7,640
312.90	13,450	2,152	313.94	13,450	7,747
312.92	13,450	2,260	313.96	13,450	7,855
312.94	13,450	2,367	313.98	13,450	7,962
312.96	13,450	2,475	314.00	13,450	8,070
312.98	13,450	2,582	314.02	13,450	8,178
313.00	13,450	2,690	314.04	13,450	<b>8,285</b>
313.02	13,450	2,798			
313.04	13,450	2,905			
313.06	13,450	3,013			
313.08	13,450	3,120			
313.10	13,450	3,228			
313.12	13,450	3,336			
313.14	13,450	3,443			
313.16	13,450	3,551			
313.18	13,450	3,658			
313.20	13,450	3,766			
313.22	13,450	3,874			
313.24	13,450	3,981			
313.26	13,450	4,089			
313.28	13,450	4,196			
313.30	13,450	4,304			
313.32	13,450	4,412			
313.34	13,450	4,519			
313.36	13,450	4,627			
313.38	13,450	4,734			
313.40	13,450	4,842			
313.42	13,450	4,950			
313.44	13,450	5,057			
313.46	13,450	5,165			
313.48	13,450	5,272			
313.50	13,450	5,380			
313.52	13,450	5,488			

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**Summary for Pond FB-A1: FOREBAY A1**

Inflow Area = 2.540 ac, 84.65% Impervious, Inflow Depth = 1.67" for 1-yr event  
 Inflow = 6.83 cfs @ 11.98 hrs, Volume= 0.353 af  
 Outflow = 5.43 cfs @ 12.02 hrs, Volume= 0.366 af, Atten= 20%, Lag= 2.2 min  
 Primary = 5.43 cfs @ 12.02 hrs, Volume= 0.366 af  
 Routed to Pond BA-A : AG INF BASIN A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Starting Elev= 311.10' Surf.Area= 4,661 sf Storage= 5,055 cf  
 Peak Elev= 311.26' @ 12.02 hrs Surf.Area= 4,875 sf Storage= 5,835 cf (780 cf above start)

Plug-Flow detention time= 182.7 min calculated for 0.250 af (71% of inflow)  
 Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	14,500 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

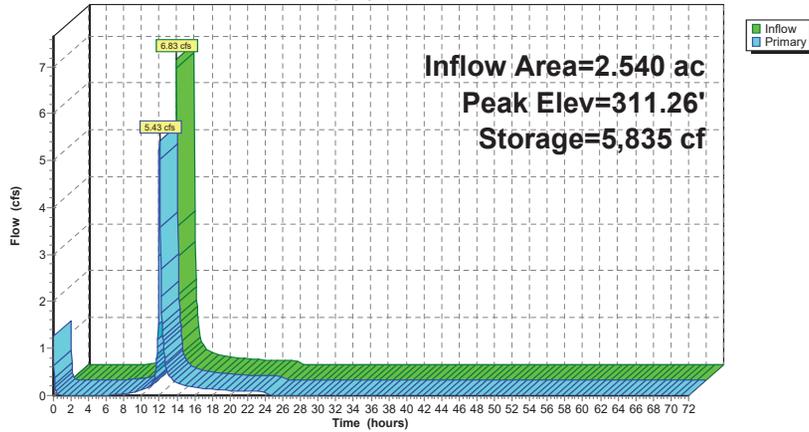
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	2,919	0	0
310.00	3,398	632	632
311.00	4,530	3,964	4,596
312.00	5,837	5,184	9,779
312.75	6,752	4,721	14,500

Device	Routing	Invert	Outlet Devices
#1	Primary	311.00'	<b>15.0' long x 15.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=5.13 cfs @ 12.02 hrs HW=311.25' (Free Discharge)  
 1=Broad-Crested Rectangular Weir (Weir Controls 5.13 cfs @ 1.35 fps)

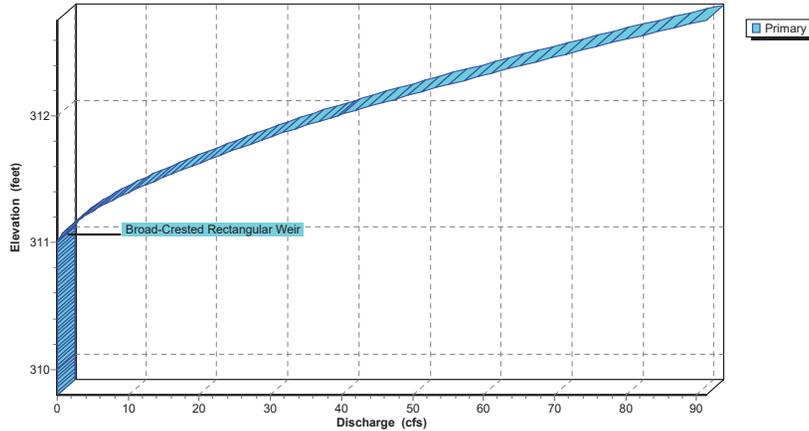
Pond FB-A1: FOREBAY A1

Hydrograph



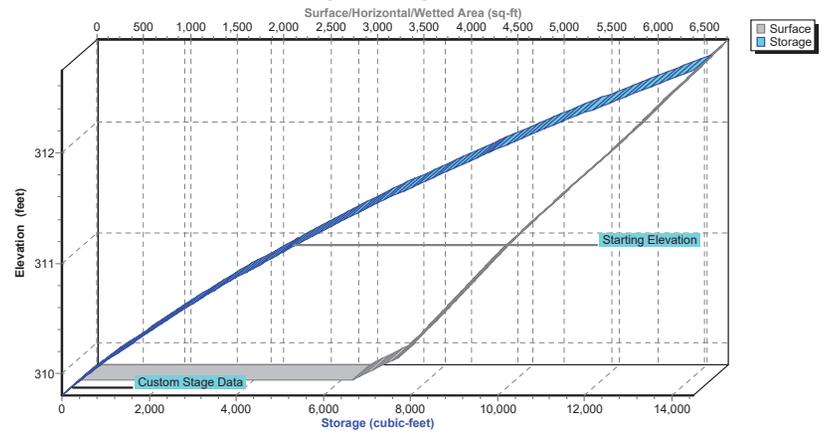
Pond FB-A1: FOREBAY A1

Stage-Discharge



Pond FB-A1: FOREBAY A1

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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**Hydrograph for Pond FB-A1: FOREBAY A1**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	5,055	311.10	1.27
2.50	0.00	4,596	311.00	0.00
5.00	0.00	4,596	311.00	0.00
7.50	0.03	4,620	311.01	0.02
10.00	<b>0.12</b>	<b>4,673</b>	<b>311.02</b>	<b>0.11</b>
12.50	<b>0.98</b>	<b>5,004</b>	<b>311.09</b>	<b>1.08</b>
15.00	0.20	4,722	311.03	0.21
17.50	0.13	4,687	311.02	0.14
20.00	0.10	4,672	311.02	0.11
22.50	0.09	4,664	311.01	0.09
25.00	0.00	4,599	311.00	0.00
27.50	0.00	4,596	311.00	0.00
30.00	0.00	4,596	311.00	0.00
32.50	0.00	4,596	311.00	0.00
35.00	0.00	4,596	311.00	0.00
37.50	0.00	4,596	311.00	0.00
40.00	0.00	4,596	311.00	0.00
42.50	0.00	4,596	311.00	0.00
45.00	0.00	4,596	311.00	0.00
47.50	0.00	4,596	311.00	0.00
50.00	0.00	4,596	311.00	0.00
52.50	0.00	4,596	311.00	0.00
55.00	0.00	4,596	311.00	0.00
57.50	0.00	4,596	311.00	0.00
60.00	0.00	4,596	311.00	0.00
62.50	0.00	4,596	311.00	0.00
65.00	0.00	4,596	311.00	0.00
67.50	0.00	4,596	311.00	0.00
70.00	0.00	4,596	311.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond FB-A1: FOREBAY A1**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.80	0.00	310.84	0.00	311.88	32.64
309.82	0.00	310.86	0.00	311.90	33.75
309.84	0.00	310.88	0.00	311.92	34.86
309.86	0.00	310.90	0.00	311.94	35.99
309.88	0.00	310.92	0.00	311.96	37.14
309.90	0.00	310.94	0.00	311.98	38.29
309.92	0.00	310.96	0.00	312.00	39.45
309.94	0.00	310.98	0.00	312.02	40.65
309.96	0.00	311.00	0.00	312.04	41.87
309.98	0.00	311.02	0.11	312.06	43.10
310.00	0.00	311.04	0.32	312.08	44.34
310.02	0.00	311.06	0.59	312.10	45.60
310.04	0.00	311.08	0.91	312.12	46.87
310.06	0.00	311.10	1.27	312.14	48.15
310.08	0.00	311.12	1.67	312.16	49.44
310.10	0.00	311.14	2.11	312.18	50.74
310.12	0.00	311.16	2.57	312.20	52.06
310.14	0.00	311.18	3.07	312.22	53.36
310.16	0.00	311.20	3.60	312.24	54.68
310.18	0.00	311.22	4.15	312.26	56.01
310.20	0.00	311.24	4.73	312.28	57.35
310.22	0.00	311.26	5.34	312.30	58.70
310.24	0.00	311.28	5.97	312.32	60.06
310.26	0.00	311.30	6.63	312.34	61.43
310.28	0.00	311.32	7.31	312.36	62.81
310.30	0.00	311.34	8.01	312.38	64.20
310.32	0.00	311.36	8.74	312.40	65.60
310.34	0.00	311.38	9.48	312.42	66.98
310.36	0.00	311.40	10.25	312.44	68.38
310.38	0.00	311.42	11.02	312.46	69.78
310.40	0.00	311.44	11.82	312.48	71.19
310.42	0.00	311.46	12.64	312.50	72.61
310.44	0.00	311.48	13.47	312.52	74.04
310.46	0.00	311.50	14.32	312.54	75.48
310.48	0.00	311.52	15.19	312.56	76.92
310.50	0.00	311.54	16.07	312.58	78.38
310.52	0.00	311.56	16.97	312.60	79.84
310.54	0.00	311.58	17.89	312.62	81.34
310.56	0.00	311.60	18.82	312.64	82.85
310.58	0.00	311.62	19.73	312.66	84.37
310.60	0.00	311.64	20.64	312.68	85.90
310.62	0.00	311.66	21.57	312.70	87.44
310.64	0.00	311.68	22.51	312.72	88.99
310.66	0.00	311.70	23.46	312.74	<b>90.55</b>
310.68	0.00	311.72	24.41		
310.70	0.00	311.74	25.38		
310.72	0.00	311.76	26.36		
310.74	0.00	311.78	27.34		
310.76	0.00	311.80	28.34		
310.78	0.00	311.82	29.39		
310.80	0.00	311.84	30.46		
310.82	0.00	311.86	31.55		

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond FB-A1: FOREBAY A1**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	2,919	0	312.40	6,325	12,212
309.85	3,038	149	312.45	6,386	12,529
309.90	3,158	304	312.50	6,447	12,850
309.95	3,278	465	312.55	6,508	13,174
310.00	3,398	632	312.60	6,569	13,501
310.05	3,454	803	312.65	6,630	13,831
310.10	3,511	977	312.70	6,691	14,164
310.15	3,568	1,154	312.75	<b>6,752</b>	<b>14,500</b>
310.20	3,624	1,334			
310.25	3,681	1,516			
310.30	3,737	1,702			
310.35	3,794	1,890			
310.40	3,851	2,081			
310.45	3,907	2,275			
310.50	3,964	2,472			
310.55	4,021	2,672			
310.60	4,077	2,874			
310.65	4,134	3,079			
310.70	4,190	3,287			
310.75	4,247	3,498			
310.80	4,304	3,712			
310.85	4,360	3,929			
310.90	4,417	4,148			
310.95	4,474	4,370			
311.00	4,530	4,596			
311.05	4,586	4,824			
311.10	4,641	5,055			
311.15	4,726	5,290			
311.20	4,792	5,528			
311.25	4,857	5,769			
311.30	4,922	6,013			
311.35	4,988	6,261			
311.40	5,053	6,512			
311.45	5,118	6,767			
311.50	5,184	7,024			
311.55	5,249	7,285			
311.60	5,314	7,549			
311.65	5,380	7,816			
311.70	5,445	8,087			
311.75	5,510	8,361			
311.80	5,576	8,638			
311.85	5,641	8,918			
311.90	5,706	9,202			
311.95	5,772	9,489			
312.00	5,837	9,779			
312.05	5,898	10,073			
312.10	5,959	10,369			
312.15	6,020	10,668			
312.20	6,081	10,971			
312.25	6,142	11,277			
312.30	6,203	11,585			
312.35	6,264	11,897			

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**Summary for Pond FB-A2: FOREBAY A2**

Inflow Area = 2.710 ac, 72.32% Impervious, Inflow Depth = 1.18" for 1-yr event  
 Inflow = 4.97 cfs @ 12.00 hrs, Volume= 0.266 af  
 Outflow = 0.85 cfs @ 12.48 hrs, Volume= 0.168 af, Atten= 83%, Lag= 28.8 min  
 Primary = 0.85 cfs @ 12.48 hrs, Volume= 0.168 af  
 Routed to Pond BA-A : AG INF BASIN A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 310.48' @ 12.48 hrs Surf.Area= 7,745 sf Storage= 4,865 cf

Plug-Flow detention time= 235.3 min calculated for 0.168 af (63% of inflow)  
 Center-of-Mass det. time= 107.2 min ( 966.3 - 859.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	26,127 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

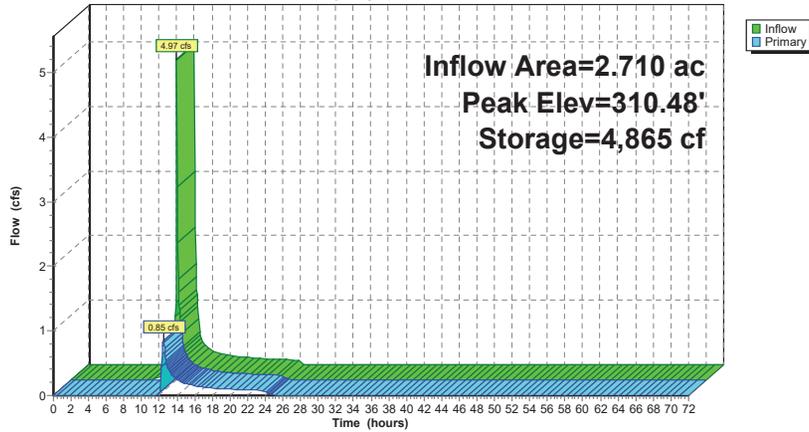
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	6,055	0	0
310.00	7,144	1,320	1,320
311.00	8,407	7,775	9,095
312.00	9,845	9,126	18,221
312.75	11,238	7,906	26,127

Device	Routing	Invert	Outlet Devices
#1	Primary	310.40'	<b>15.0' long x 15.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=0.84 cfs @ 12.48 hrs HW=310.48' (Free Discharge)  
 ↳=Broad-Crested Rectangular Weir (Weir Controls 0.84 cfs @ 0.74 fps)

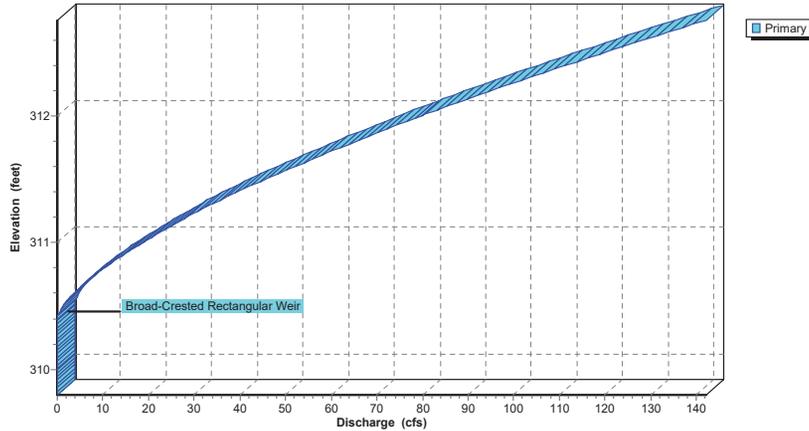
Pond FB-A2: FOREBAY A2

Hydrograph



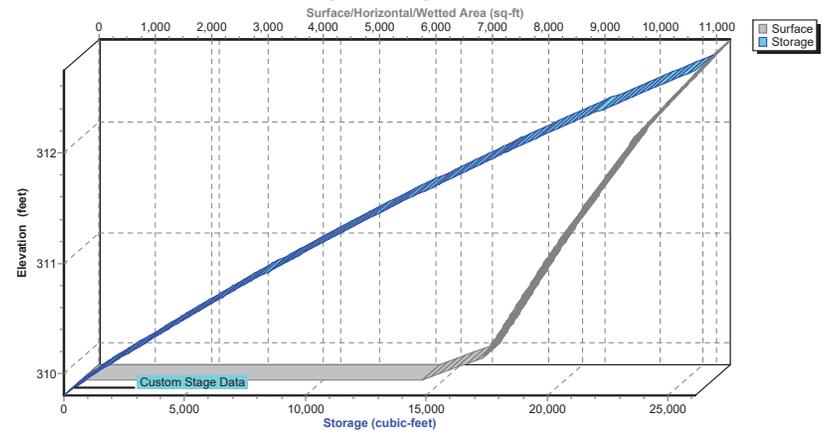
Pond FB-A2: FOREBAY A2

Stage-Discharge



Pond FB-A2: FOREBAY A2

Stage-Area-Storage



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**Hydrograph for Pond FB-A2: FOREBAY A2**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	309.80	0.00
2.50	0.00	0	309.80	0.00
5.00	0.00	0	309.80	0.00
7.50	0.00	0	309.80	0.00
10.00	<b>0.04</b>	77	309.81	0.00
12.50	<b>0.83</b>	<b>4,863</b>	<b>310.48</b>	<b>0.84</b>
15.00	0.18	4,479	310.43	0.18
17.50	0.12	4,437	310.42	0.12
20.00	0.09	4,411	310.42	0.10
22.50	0.08	4,389	310.41	0.08
25.00	0.00	4,286	310.40	0.01
27.50	0.00	4,278	310.40	0.00
30.00	0.00	4,278	310.40	0.00
32.50	0.00	4,278	310.40	0.00
35.00	0.00	4,278	310.40	0.00
37.50	0.00	4,278	310.40	0.00
40.00	0.00	4,278	310.40	0.00
42.50	0.00	4,278	310.40	0.00
45.00	0.00	4,278	310.40	0.00
47.50	0.00	4,278	310.40	0.00
50.00	0.00	4,278	310.40	0.00
52.50	0.00	4,278	310.40	0.00
55.00	0.00	4,278	310.40	0.00
57.50	0.00	4,278	310.40	0.00
60.00	0.00	4,278	310.40	0.00
62.50	0.00	4,278	310.40	0.00
65.00	0.00	4,278	310.40	0.00
67.50	0.00	4,278	310.40	0.00
70.00	0.00	4,278	310.40	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Discharge for Pond FB-A2: FOREBAY A2**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.80	0.00	310.84	11.82	311.88	71.19
309.82	0.00	310.86	12.64	311.90	72.61
309.84	0.00	310.88	13.47	311.92	74.04
309.86	0.00	310.90	14.32	311.94	75.48
309.88	0.00	310.92	15.19	311.96	76.92
309.90	0.00	310.94	16.07	311.98	78.38
309.92	0.00	310.96	16.97	312.00	79.84
309.94	0.00	310.98	17.89	312.02	81.34
309.96	0.00	311.00	18.82	312.04	82.85
309.98	0.00	311.02	19.73	312.06	84.37
310.00	0.00	311.04	20.64	312.08	85.90
310.02	0.00	311.06	21.57	312.10	87.44
310.04	0.00	311.08	22.51	312.12	88.99
310.06	0.00	311.10	23.46	312.14	90.55
310.08	0.00	311.12	24.41	312.16	92.11
310.10	0.00	311.14	25.38	312.18	93.69
310.12	0.00	311.16	26.36	312.20	95.27
310.14	0.00	311.18	27.34	312.22	96.86
310.16	0.00	311.20	28.34	312.24	98.46
310.18	0.00	311.22	29.39	312.26	100.07
310.20	0.00	311.24	30.46	312.28	101.69
310.22	0.00	311.26	31.55	312.30	103.32
310.24	0.00	311.28	32.64	312.32	104.95
310.26	0.00	311.30	33.75	312.34	106.60
310.28	0.00	311.32	34.86	312.36	108.25
310.30	0.00	311.34	35.99	312.38	109.91
310.32	0.00	311.36	37.14	312.40	111.58
310.34	0.00	311.38	38.29	312.42	113.26
310.36	0.00	311.40	39.45	312.44	114.95
310.38	0.00	311.42	40.65	312.46	116.64
310.40	0.00	311.44	41.87	312.48	118.34
310.42	0.11	311.46	43.10	312.50	120.05
310.44	0.32	311.48	44.34	312.52	121.77
310.46	0.59	311.50	45.60	312.54	123.50
310.48	0.91	311.52	46.87	312.56	125.24
310.50	1.27	311.54	48.15	312.58	126.98
310.52	1.67	311.56	49.44	312.60	128.73
310.54	2.11	311.58	50.74	312.62	130.49
310.56	2.57	311.60	52.06	312.64	132.26
310.58	3.07	311.62	53.36	312.66	134.03
310.60	3.60	311.64	54.68	312.68	135.82
310.62	4.15	311.66	56.01	312.70	137.61
310.64	4.73	311.68	57.35	312.72	139.41
310.66	5.34	311.70	58.70	312.74	<b>141.21</b>
310.68	5.97	311.72	60.06		
310.70	6.63	311.74	61.43		
310.72	7.31	311.76	62.81		
310.74	8.01	311.78	64.20		
310.76	8.74	311.80	65.60		
310.78	9.48	311.82	66.98		
310.80	10.25	311.84	68.38		
310.82	11.02	311.86	69.78		

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Area-Storage for Pond FB-A2: FOREBAY A2**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	6,055	0	312.40	10,588	22,308
309.85	6,327	310	312.45	10,681	22,839
309.90	6,599	633	312.50	10,774	23,376
309.95	6,872	969	312.55	10,867	23,917
310.00	7,144	1,320	312.60	10,960	24,462
310.05	7,207	1,679	312.65	11,053	25,013
310.10	7,270	2,041	312.70	11,146	25,568
310.15	7,333	2,406	312.75	<b>11,238</b>	<b>26,127</b>
310.20	7,396	2,774			
310.25	7,460	3,145			
310.30	7,523	3,520			
310.35	7,586	3,898			
310.40	7,649	4,278			
310.45	7,712	4,662			
310.50	7,775	5,050			
310.55	7,839	5,440			
310.60	7,902	5,834			
310.65	7,965	6,230			
310.70	8,028	6,630			
310.75	8,091	7,033			
310.80	8,154	7,439			
310.85	8,218	7,848			
310.90	8,281	8,261			
310.95	8,344	8,677			
311.00	8,407	9,095			
311.05	8,479	9,517			
311.10	8,551	9,943			
311.15	8,623	10,373			
311.20	8,695	10,805			
311.25	8,766	11,242			
311.30	8,838	11,682			
311.35	8,910	12,126			
311.40	8,982	12,573			
311.45	9,054	13,024			
311.50	9,126	13,479			
311.55	9,198	13,937			
311.60	9,270	14,398			
311.65	9,341	14,864			
311.70	9,413	15,332			
311.75	9,485	15,805			
311.80	9,557	16,281			
311.85	9,629	16,761			
311.90	9,701	17,244			
311.95	9,773	17,731			
312.00	9,845	18,221			
312.05	9,937	18,716			
312.10	10,030	19,215			
312.15	10,123	19,719			
312.20	10,216	20,227			
312.25	10,309	20,740			
312.30	10,402	21,258			
312.35	10,495	21,781			

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Summary for Pond FB-B: FOREBAY B**

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.560 ac, 66.03% Impervious, Inflow Depth = 1.51" for 1-yr event  
 Inflow = 3.76 cfs @ 11.99 hrs, Volume= 0.197 af  
 Outflow = 3.84 cfs @ 12.00 hrs, Volume= 0.178 af, Atten= 0%, Lag= 0.3 min  
 Primary = 3.84 cfs @ 12.00 hrs, Volume= 0.178 af  
 Routed to Pond BA-B : AG INF BASIN B

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 306.81' @ 12.00 hrs Surf.Area= 599 sf Storage= 866 cf

Plug-Flow detention time= 71.7 min calculated for 0.178 af (91% of inflow)  
 Center-of-Mass det. time= 22.9 min ( 860.1 - 837.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	304.00'	1,720 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

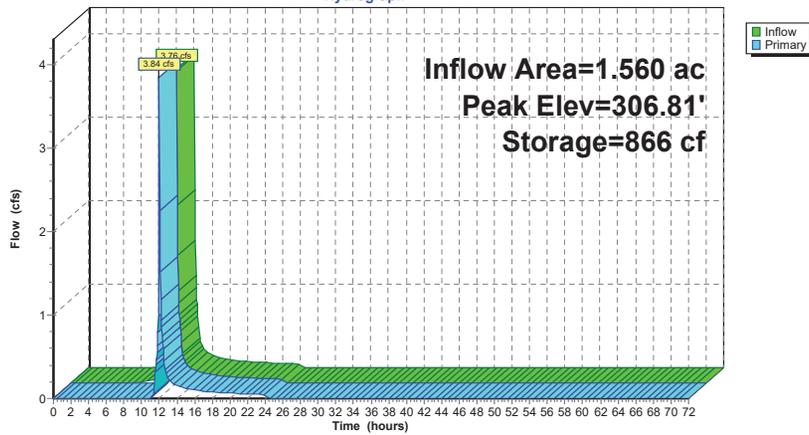
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
304.00	45	0	0
305.00	192	119	119
306.00	451	322	440
307.00	633	542	982
308.00	842	738	1,720

Device	Routing	Invert	Outlet Devices
#1	Primary	306.70'	<b>31.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=3.71 cfs @ 12.00 hrs HW=306.81' (Free Discharge)  
 ↳1=Sharp-Crested Rectangular Weir (Weir Controls 3.71 cfs @ 1.08 fps)

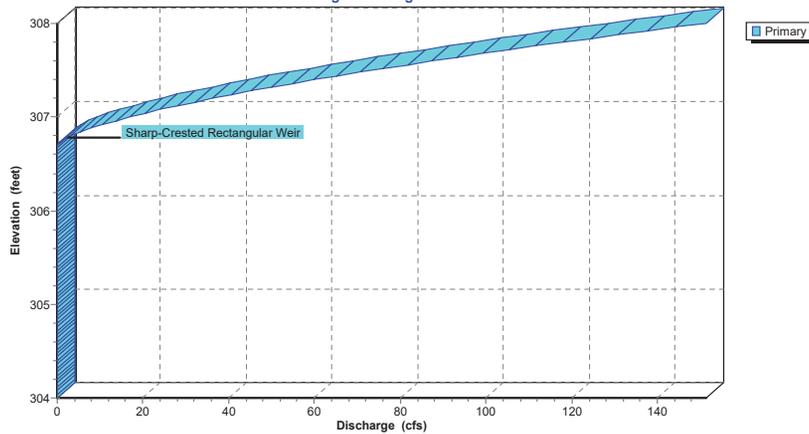
### Pond FB-B: FOREBAY B

Hydrograph



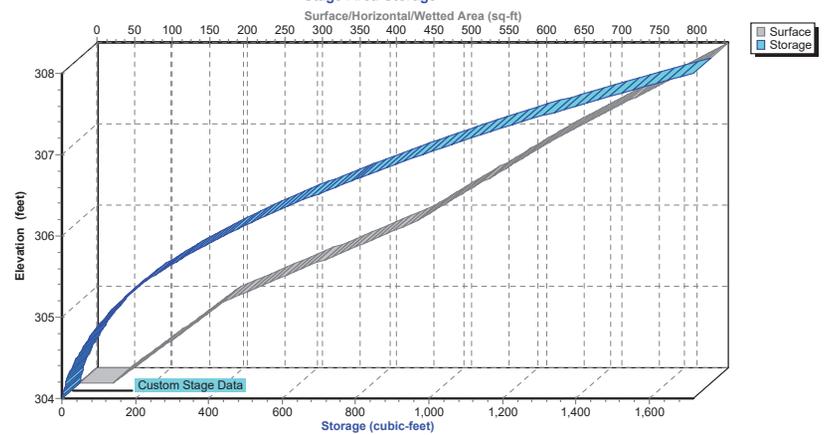
### Pond FB-B: FOREBAY B

Stage-Discharge



### Pond FB-B: FOREBAY B

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Pond FB-B: FOREBAY B**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	304.00	0.00
2.50	0.00	0	304.00	0.00
5.00	0.00	0	304.00	0.00
7.50	0.01	10	304.18	0.00
10.00	<b>0.05</b>	<b>243</b>	<b>305.49</b>	<b>0.00</b>
12.50	<b>0.57</b>	<b>817</b>	<b>306.73</b>	<b>0.56</b>
15.00	0.12	805	306.71	0.12
17.50	0.08	803	306.71	0.08
20.00	0.06	803	306.70	0.06
22.50	0.05	802	306.70	0.05
25.00	0.00	800	306.70	0.00
27.50	0.00	800	306.70	0.00
30.00	0.00	800	306.70	0.00
32.50	0.00	800	306.70	0.00
35.00	0.00	800	306.70	0.00
37.50	0.00	800	306.70	0.00
40.00	0.00	800	306.70	0.00
42.50	0.00	800	306.70	0.00
45.00	0.00	800	306.70	0.00
47.50	0.00	800	306.70	0.00
50.00	0.00	800	306.70	0.00
52.50	0.00	800	306.70	0.00
55.00	0.00	800	306.70	0.00
57.50	0.00	800	306.70	0.00
60.00	0.00	800	306.70	0.00
62.50	0.00	800	306.70	0.00
65.00	0.00	800	306.70	0.00
67.50	0.00	800	306.70	0.00
70.00	0.00	800	306.70	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Discharge for Pond FB-B: FOREBAY B**

Elevation (feet)	Primary (cfs)						
304.00	0.00	305.04	0.00	306.08	0.00	307.12	27.96
304.02	0.00	305.06	0.00	306.10	0.00	307.14	29.98
304.04	0.00	305.08	0.00	306.12	0.00	307.16	32.04
304.06	0.00	305.10	0.00	306.14	0.00	307.18	34.15
304.08	0.00	305.12	0.00	306.16	0.00	307.20	36.30
304.10	0.00	305.14	0.00	306.18	0.00	307.22	38.50
304.12	0.00	305.16	0.00	306.20	0.00	307.24	40.73
304.14	0.00	305.18	0.00	306.22	0.00	307.26	43.01
304.16	0.00	305.20	0.00	306.24	0.00	307.28	45.33
304.18	0.00	305.22	0.00	306.26	0.00	307.30	47.69
304.20	0.00	305.24	0.00	306.28	0.00	307.32	50.09
304.22	0.00	305.26	0.00	306.30	0.00	307.34	52.52
304.24	0.00	305.28	0.00	306.32	0.00	307.36	55.00
304.26	0.00	305.30	0.00	306.34	0.00	307.38	57.51
304.28	0.00	305.32	0.00	306.36	0.00	307.40	60.06
304.30	0.00	305.34	0.00	306.38	0.00	307.42	62.64
304.32	0.00	305.36	0.00	306.40	0.00	307.44	65.26
304.34	0.00	305.38	0.00	306.42	0.00	307.46	67.92
304.36	0.00	305.40	0.00	306.44	0.00	307.48	70.61
304.38	0.00	305.42	0.00	306.46	0.00	307.50	73.33
304.40	0.00	305.44	0.00	306.48	0.00	307.52	76.09
304.42	0.00	305.46	0.00	306.50	0.00	307.54	78.88
304.44	0.00	305.48	0.00	306.52	0.00	307.56	81.70
304.46	0.00	305.50	0.00	306.54	0.00	307.58	84.56
304.48	0.00	305.52	0.00	306.56	0.00	307.60	87.44
304.50	0.00	305.54	0.00	306.58	0.00	307.62	90.36
304.52	0.00	305.56	0.00	306.60	0.00	307.64	93.31
304.54	0.00	305.58	0.00	306.62	0.00	307.66	96.30
304.56	0.00	305.60	0.00	306.64	0.00	307.68	99.31
304.58	0.00	305.62	0.00	306.66	0.00	307.70	102.35
304.60	0.00	305.64	0.00	306.68	0.00	307.72	105.42
304.62	0.00	305.66	0.00	306.70	0.00	307.74	108.53
304.64	0.00	305.68	0.00	306.72	0.29	307.76	111.66
304.66	0.00	305.70	0.00	306.74	0.82	307.78	114.82
304.68	0.00	305.72	0.00	306.76	1.51	307.80	118.01
304.70	0.00	305.74	0.00	306.78	2.33	307.82	121.22
304.72	0.00	305.76	0.00	306.80	3.26	307.84	124.47
304.74	0.00	305.78	0.00	306.82	4.28	307.86	127.74
304.76	0.00	305.80	0.00	306.84	5.39	307.88	131.04
304.78	0.00	305.82	0.00	306.86	6.59	307.90	134.37
304.80	0.00	305.84	0.00	306.88	7.86	307.92	137.73
304.82	0.00	305.86	0.00	306.90	9.20	307.94	141.11
304.84	0.00	305.88	0.00	306.92	10.61	307.96	144.52
304.86	0.00	305.90	0.00	306.94	12.09	307.98	147.95
304.88	0.00	305.92	0.00	306.96	13.63	308.00	<b>151.42</b>
304.90	0.00	305.94	0.00	306.98	15.23		
304.92	0.00	305.96	0.00	307.00	16.89		
304.94	0.00	305.98	0.00	307.02	18.61		
304.96	0.00	306.00	0.00	307.04	20.38		
304.98	0.00	306.02	0.00	307.06	22.20		
305.00	0.00	306.04	0.00	307.08	24.07		
305.02	0.00	306.06	0.00	307.10	25.99		

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Area-Storage for Pond FB-B: FOREBAY B**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
304.00	45	0	306.60	560	743
304.05	52	2	306.65	569	772
304.10	60	5	306.70	578	800
304.15	67	8	306.75	588	829
304.20	74	12	306.80	597	859
304.25	82	16	306.85	606	889
304.30	89	20	306.90	615	920
304.35	96	25	306.95	624	951
304.40	104	30	307.00	633	982
304.45	111	35	307.05	643	1,014
304.50	119	41	307.10	654	1,046
304.55	126	47	307.15	664	1,079
304.60	133	53	307.20	675	1,113
304.65	141	60	307.25	685	1,147
304.70	148	68	307.30	696	1,181
304.75	155	75	307.35	706	1,216
304.80	163	83	307.40	717	1,252
304.85	170	91	307.45	727	1,288
304.90	177	100	307.50	738	1,325
304.95	185	109	307.55	748	1,362
305.00	192	119	307.60	758	1,399
305.05	205	128	307.65	769	1,438
305.10	218	139	307.70	779	1,476
305.15	231	150	307.75	790	1,516
305.20	244	162	307.80	800	1,555
305.25	257	175	307.85	811	1,596
305.30	270	188	307.90	821	1,636
305.35	283	202	307.95	832	1,678
305.40	296	216	308.00	<b>842</b>	<b>1,720</b>
305.45	309	231			
305.50	322	247			
305.55	334	263			
305.60	347	280			
305.65	360	298			
305.70	373	316			
305.75	386	335			
305.80	399	355			
305.85	412	375			
305.90	425	396			
305.95	438	418			
306.00	451	440			
306.05	460	463			
306.10	469	486			
306.15	478	510			
306.20	487	534			
306.25	497	558			
306.30	506	583			
306.35	515	609			
306.40	524	635			
306.45	533	661			
306.50	542	688			
306.55	551	716			

**2024-01-15 Proposed Conditions**

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**Summary for Pond FB-G: FOREBAY G**

Inflow Area = 0.700 ac, 60.00% Impervious, Inflow Depth = 0.75" for 1-yr event  
 Inflow = 0.77 cfs @ 11.99 hrs, Volume= 0.044 af  
 Outflow = 0.02 cfs @ 20.30 hrs, Volume= 0.005 af, Atten= 98%, Lag= 498.7 min  
 Primary = 0.02 cfs @ 20.30 hrs, Volume= 0.005 af  
 Routed to Pond BA-G : AG INF BASIN G

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 311.15' @ 20.30 hrs Surf.Area= 1,342 sf Storage= 1,677 cf

Plug-Flow detention time= 614.5 min calculated for 0.005 af (12% of inflow)  
 Center-of-Mass det. time= 432.6 min ( 1,324.0 - 891.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	309.50'	2,956 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

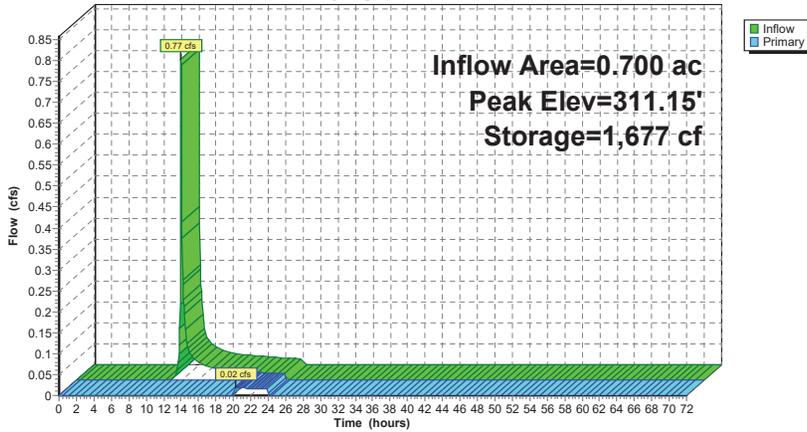
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.50	676	0	0
310.00	890	392	392
311.00	1,284	1,087	1,479
312.00	1,671	1,478	2,956

Device	Routing	Invert	Outlet Devices
#1	Primary	311.15'	<b>42.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=0.00 cfs @ 20.30 hrs HW=311.15' (Free Discharge)  
 ↳1=Sharp-Crested Rectangular Weir (Weir Controls 0.00 cfs @ 0.10 fps)

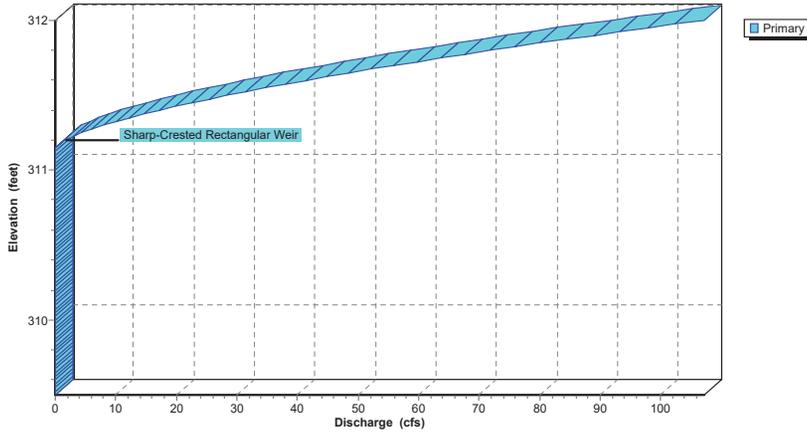
Pond FB-G: FOREBAY G

Hydrograph



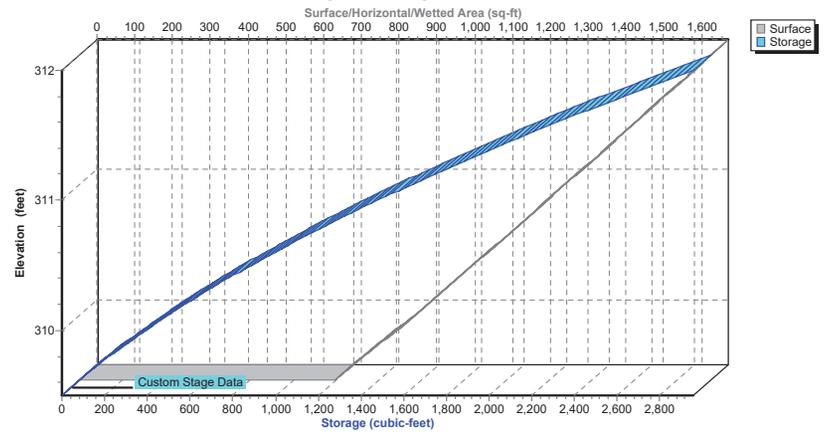
Pond FB-G: FOREBAY G

Stage-Discharge



Pond FB-G: FOREBAY G

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Pond FB-G: FOREBAY G**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	309.50	0.00
2.50	0.00	0	309.50	0.00
5.00	0.00	0	309.50	0.00
7.50	0.00	0	309.50	0.00
10.00	<b>0.00</b>	0	309.50	0.00
12.50	<b>0.14</b>	756	310.38	0.00
15.00	<b>0.03</b>	1,224	310.80	0.00
17.50	<b>0.02</b>	1,473	311.00	0.00
20.00	<b>0.02</b>	<b>1,661</b>	<b>311.14</b>	<b>0.00</b>
22.50	<b>0.02</b>	<b>1,676</b>	<b>311.15</b>	<b>0.02</b>
25.00	0.00	1,675	311.15	0.00
27.50	0.00	1,675	311.15	0.00
30.00	0.00	1,675	311.15	0.00
32.50	0.00	1,675	311.15	0.00
35.00	0.00	1,675	311.15	0.00
37.50	0.00	1,675	311.15	0.00
40.00	0.00	1,675	311.15	0.00
42.50	0.00	1,675	311.15	0.00
45.00	0.00	1,675	311.15	0.00
47.50	0.00	1,675	311.15	0.00
50.00	0.00	1,675	311.15	0.00
52.50	0.00	1,675	311.15	0.00
55.00	0.00	1,675	311.15	0.00
57.50	0.00	1,675	311.15	0.00
60.00	0.00	1,675	311.15	0.00
62.50	0.00	1,675	311.15	0.00
65.00	0.00	1,675	311.15	0.00
67.50	0.00	1,675	311.15	0.00
70.00	0.00	1,675	311.15	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Discharge for Pond FB-G: FOREBAY G**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.50	0.00	310.54	0.00	311.58	38.65
309.52	0.00	310.56	0.00	311.60	41.37
309.54	0.00	310.58	0.00	311.62	44.15
309.56	0.00	310.60	0.00	311.64	47.00
309.58	0.00	310.62	0.00	311.66	49.90
309.60	0.00	310.64	0.00	311.68	52.86
309.62	0.00	310.66	0.00	311.70	55.87
309.64	0.00	310.68	0.00	311.72	58.94
309.66	0.00	310.70	0.00	311.74	62.07
309.68	0.00	310.72	0.00	311.76	65.24
309.70	0.00	310.74	0.00	311.78	68.47
309.72	0.00	310.76	0.00	311.80	71.75
309.74	0.00	310.78	0.00	311.82	75.08
309.76	0.00	310.80	0.00	311.84	78.46
309.78	0.00	310.82	0.00	311.86	81.89
309.80	0.00	310.84	0.00	311.88	85.36
309.82	0.00	310.86	0.00	311.90	88.89
309.84	0.00	310.88	0.00	311.92	92.46
309.86	0.00	310.90	0.00	311.94	96.07
309.88	0.00	310.92	0.00	311.96	99.73
309.90	0.00	310.94	0.00	311.98	103.44
309.92	0.00	310.96	0.00	312.00	<b>107.19</b>
309.94	0.00	310.98	0.00		
309.96	0.00	311.00	0.00		
309.98	0.00	311.02	0.00		
310.00	0.00	311.04	0.00		
310.02	0.00	311.06	0.00		
310.04	0.00	311.08	0.00		
310.06	0.00	311.10	0.00		
310.08	0.00	311.12	0.00		
310.10	0.00	311.14	0.00		
310.12	0.00	311.16	0.14		
310.14	0.00	311.18	0.71		
310.16	0.00	311.20	1.54		
310.18	0.00	311.22	2.54		
310.20	0.00	311.24	3.71		
310.22	0.00	311.26	5.01		
310.24	0.00	311.28	6.43		
310.26	0.00	311.30	7.97		
310.28	0.00	311.32	9.62		
310.30	0.00	311.34	11.36		
310.32	0.00	311.36	13.20		
310.34	0.00	311.38	15.13		
310.36	0.00	311.40	17.15		
310.38	0.00	311.42	19.24		
310.40	0.00	311.44	21.42		
310.42	0.00	311.46	23.67		
310.44	0.00	311.48	25.99		
310.46	0.00	311.50	28.39		
310.48	0.00	311.52	30.86		
310.50	0.00	311.54	33.39		
310.52	0.00	311.56	35.99		

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Stage-Area-Storage for Pond FB-G: FOREBAY G**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.50	676	0
309.55	697	34
309.60	719	70
309.65	740	106
309.70	762	144
309.75	783	182
309.80	804	222
309.85	826	263
309.90	847	305
309.95	869	348
310.00	890	392
310.05	910	436
310.10	929	482
310.15	949	529
310.20	969	577
310.25	989	626
310.30	1,008	676
310.35	1,028	727
310.40	1,048	779
310.45	1,067	832
310.50	1,087	886
310.55	1,107	941
310.60	1,126	996
310.65	1,146	1,053
310.70	1,166	1,111
310.75	1,186	1,170
310.80	1,205	1,230
310.85	1,225	1,290
310.90	1,245	1,352
310.95	1,264	1,415
311.00	1,284	1,479
311.05	1,303	1,543
311.10	1,323	1,609
311.15	1,342	1,675
311.20	1,361	1,743
311.25	1,381	1,812
311.30	1,400	1,881
311.35	1,419	1,952
311.40	1,439	2,023
311.45	1,458	2,095
311.50	1,478	2,169
311.55	1,497	2,243
311.60	1,516	2,319
311.65	1,536	2,395
311.70	1,555	2,472
311.75	1,574	2,550
311.80	1,594	2,630
311.85	1,613	2,710
311.90	1,632	2,791
311.95	1,652	2,873
312.00	<b>1,671</b>	<b>2,956</b>

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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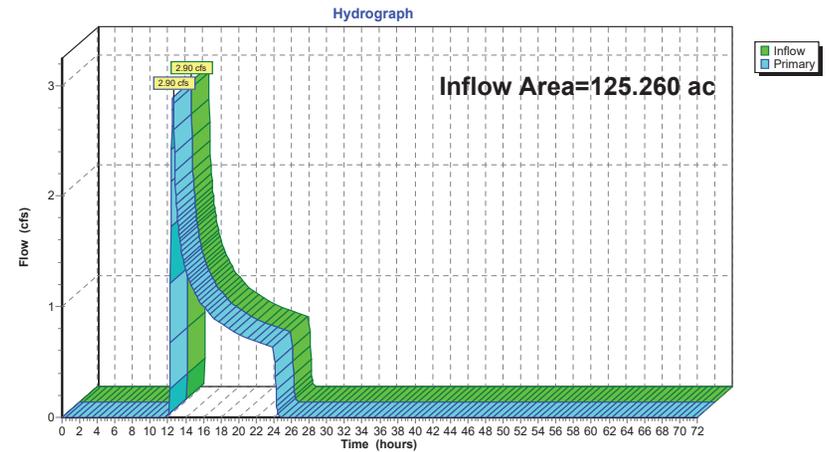
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**Summary for Link 42L: POA STREAM TOTAL**

Inflow Area = 125.260 ac, 42.22% Impervious, Inflow Depth = 0.09" for 1-yr event  
 Inflow = 2.90 cfs @ 12.58 hrs, Volume= 0.990 af  
 Primary = 2.90 cfs @ 12.58 hrs, Volume= 0.990 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 42L: POA STREAM TOTAL**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Link 42L: POA STREAM TOTAL**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	1.86	0.00	1.86	65.00	0.00	0.00	0.00
14.00	1.34	0.00	1.34	66.00	0.00	0.00	0.00
15.00	1.13	0.00	1.13	67.00	0.00	0.00	0.00
16.00	1.00	0.00	1.00	68.00	0.00	0.00	0.00
17.00	0.92	0.00	0.92	69.00	0.00	0.00	0.00
18.00	0.85	0.00	0.85	70.00	0.00	0.00	0.00
19.00	0.80	0.00	0.80	71.00	0.00	0.00	0.00
20.00	0.75	0.00	0.75	72.00	0.00	0.00	0.00
21.00	0.71	0.00	0.71				
22.00	0.68	0.00	0.68				
23.00	0.66	0.00	0.66				
24.00	0.63	0.00	0.63				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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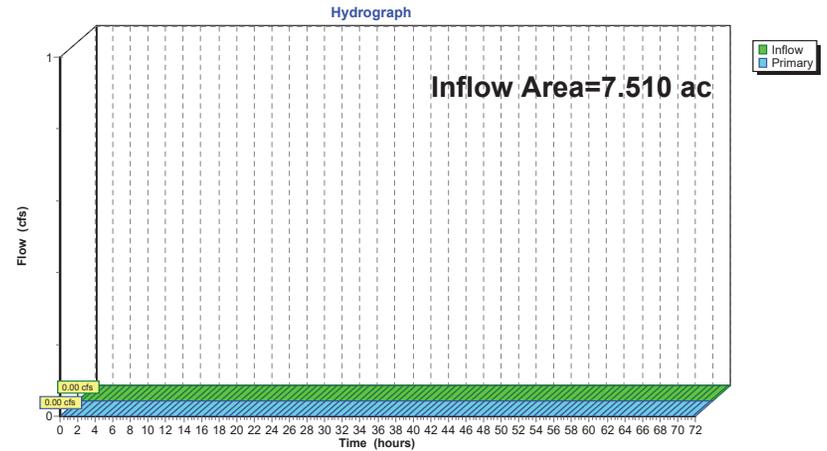
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**Summary for Link 43L: TOTAL AG INF BASINS**

Inflow Area = 7.510 ac, 74.03% Impervious, Inflow Depth = 0.00" for 1-yr event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 43L: TOTAL AG INF BASINS**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Link 43L: TOTAL AG INF BASINS**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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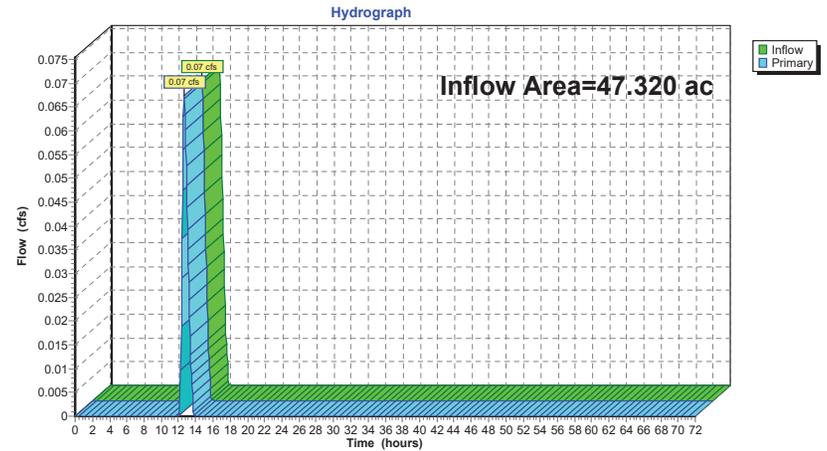
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**Summary for Link 44L: Total UG INF BASINS**

Inflow Area = 47.320 ac, 95.33% Impervious, Inflow Depth = 0.00" for 1-yr event  
 Inflow = 0.07 cfs @ 12.64 hrs, Volume= 0.004 af  
 Primary = 0.07 cfs @ 12.64 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 44L: Total UG INF BASINS**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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**Hydrograph for Link 44L: Total UG INF BASINS**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.04	0.00	0.04	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 1-yr Rainfall=2.74"

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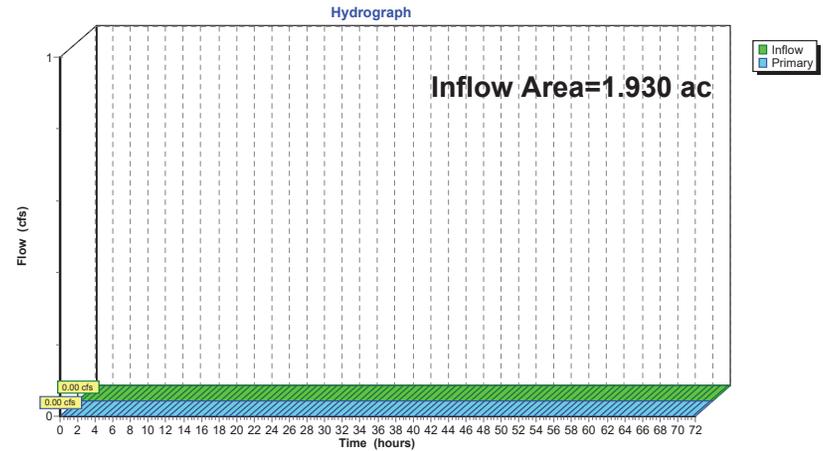
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**Summary for Link 48L: TOTAL INF TRENCH**

Inflow Area = 1.930 ac, 60.10% Impervious, Inflow Depth = 0.00" for 1-yr event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 48L: TOTAL INF TRENCH**



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**Hydrograph for Link 48L: TOTAL INF TRENCH**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>SubcatchmentBASIN C IN: SA BASIN C</b>	Runoff Area=8.090 ac 94.93% Impervious Runoff Depth=4.40" Flow Length=135' Tc=5.0 min CN=95 Runoff=39.31 cfs 2.966 af
<b>SubcatchmentBASIN D IN: SA BASIN D</b>	Runoff Area=8.240 ac 95.51% Impervious Runoff Depth=4.63" Flow Length=133' Tc=5.0 min CN=97 Runoff=40.93 cfs 3.177 af
<b>SubcatchmentBASIN E IN: SA BASIN E</b>	Runoff Area=8.220 ac 95.13% Impervious Runoff Depth=4.40" Flow Length=215' Tc=5.2 min CN=95 Runoff=38.97 cfs 3.014 af
<b>SubcatchmentBASIN F IN: SA BASIN F</b>	Runoff Area=9.660 ac 93.79% Impervious Runoff Depth=4.40" Flow Length=95' Tc=3.8 min CN=95 Runoff=50.00 cfs 3.542 af
<b>SubcatchmentBASIN H IN: SA BASIN H</b>	Runoff Area=1.430 ac 98.60% Impervious Runoff Depth=4.63" Flow Length=77' Slope=0.0118 '/' Tc=1.2 min CN=97 Runoff=8.31 cfs 0.551 af
<b>SubcatchmentBASIN I IN: SA BASIN I</b>	Runoff Area=1.930 ac 60.10% Impervious Runoff Depth=2.43" Flow Length=80' Slope=0.0100 '/' Tc=4.5 min CN=75 Runoff=5.67 cfs 0.391 af
<b>SubcatchmentBASIN K IN: SA BASIN K</b>	Runoff Area=3.850 ac 100.00% Impervious Runoff Depth=4.74" Flow Length=158' Slope=0.0120 '/' Tc=1.9 min CN=98 Runoff=21.99 cfs 1.522 af
<b>SubcatchmentBASIN M IN: SA BASIN M</b>	Runoff Area=7.830 ac 94.76% Impervious Runoff Depth=4.40" Flow Length=162' Tc=5.3 min CN=95 Runoff=37.07 cfs 2.871 af
<b>SubcatchmentFB A1 IN: SA FOREBAYA1</b>	Runoff Area=2.540 ac 84.65% Impervious Runoff Depth=3.75" Flow Length=134' Slope=0.0100 '/' Tc=1.9 min CN=89 Runoff=12.71 cfs 0.794 af
<b>SubcatchmentFB A2 IN: SA FOREBAYA2</b>	Runoff Area=2.710 ac 72.32% Impervious Runoff Depth=3.06" Flow Length=50' Slope=0.1400 '/' Tc=2.5 min CN=82 Runoff=11.14 cfs 0.691 af
<b>SubcatchmentFB-B IN: SA BASIN B</b>	Runoff Area=1.560 ac 66.03% Impervious Runoff Depth=3.55" Flow Length=53' Slope=0.1700 '/' Tc=2.4 min CN=87 Runoff=7.36 cfs 0.461 af
<b>SubcatchmentFB-G IN: SA BASIN G</b>	Runoff Area=0.700 ac 60.00% Impervious Runoff Depth=2.35" Flow Length=30' Slope=0.1600 '/' Tc=1.6 min CN=74 Runoff=2.24 cfs 0.137 af
<b>SubcatchmentSTRM-UNDT: STUDY AREA</b>	Runoff Area=68.500 ac 1.55% Impervious Runoff Depth=1.09" Flow Length=1,340' Tc=15.6 min CN=57 Runoff=48.57 cfs 6.244 af
<b>Pond BA-A: AG INF BASIN A</b>	Peak Elev=310.98' Storage=14,830 cf Inflow=18.74 cfs 1.401 af Discarded=3.88 cfs 1.401 af Primary=0.00 cfs 0.000 af Outflow=3.88 cfs 1.401 af
<b>Pond BA-B: AG INF BASIN B</b>	Peak Elev=305.62' Storage=6,630 cf Inflow=7.52 cfs 0.443 af Discarded=0.60 cfs 0.373 af Primary=0.58 cfs 0.070 af Outflow=1.18 cfs 0.443 af
<b>Pond BA-CR: UG INF BASIN C (RTANK)</b>	Peak Elev=305.57' Storage=47,069 cf Inflow=39.31 cfs 2.966 af Discarded=2.59 cfs 2.713 af Primary=0.85 cfs 0.253 af Outflow=3.44 cfs 2.966 af

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Pond BA-DR: UG INF BASIN D (RTANK)** Peak Elev=306.70' Storage=45,910 cf Inflow=40.93 cfs 3.177 af  
Discarded=2.91 cfs 2.873 af Primary=1.31 cfs 0.304 af Outflow=4.22 cfs 3.177 af

**Pond BA-ER: UG INF BASIN E (RTANK)** Peak Elev=307.30' Storage=46,691 cf Inflow=38.97 cfs 3.014 af  
Discarded=3.01 cfs 2.970 af Primary=0.36 cfs 0.044 af Outflow=3.37 cfs 3.014 af

**Pond BA-FR: UG INF BASIN F (RTANK)** Peak Elev=307.70' Storage=33,964 cf Inflow=50.00 cfs 3.542 af  
Discarded=8.27 cfs 3.542 af Primary=0.01 cfs 0.000 af Outflow=8.28 cfs 3.542 af

**Pond BA-G: AG INF BASIN G** Peak Elev=309.60' Storage=628 cf Inflow=1.85 cfs 0.099 af  
Discarded=0.37 cfs 0.099 af Primary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.099 af

**Pond BA-HR: UG INF BASIN H (RTANK)** Peak Elev=309.90' Storage=8,035 cf Inflow=8.31 cfs 0.551 af  
Discarded=0.57 cfs 0.534 af Primary=0.29 cfs 0.017 af Outflow=0.86 cfs 0.551 af

**Pond BA-KR: UG INF BASIN K (RTANK)** Peak Elev=309.85' Storage=19,431 cf Inflow=21.99 cfs 1.522 af  
Discarded=2.08 cfs 1.522 af Primary=0.00 cfs 0.000 af Outflow=2.08 cfs 1.522 af

**Pond BA-MR: UG INF BASIN M (RTANK)** Peak Elev=306.28' Storage=52,220 cf Inflow=37.07 cfs 2.871 af  
Discarded=1.39 cfs 2.507 af Primary=1.83 cfs 0.364 af Outflow=3.22 cfs 2.871 af

**Pond BASIN I: INF TRENCH I** Peak Elev=312.81' Storage=1,647 cf Inflow=5.67 cfs 0.391 af  
Discarded=2.28 cfs 0.391 af Primary=0.00 cfs 0.000 af Outflow=2.28 cfs 0.391 af

**Pond FB-A1: FOREBAY A1** Peak Elev=311.42' Storage=6,604 cf Inflow=12.71 cfs 0.794 af  
Outflow=10.92 cfs 0.808 af

**Pond FB-A2: FOREBAY A2** Peak Elev=310.74' Storage=6,990 cf Inflow=11.14 cfs 0.691 af  
Outflow=8.18 cfs 0.593 af

**Pond FB-B: FOREBAY B** Peak Elev=306.87' Storage=904 cf Inflow=7.36 cfs 0.461 af  
Outflow=7.52 cfs 0.443 af

**Pond FB-G: FOREBAY G** Peak Elev=311.21' Storage=1,758 cf Inflow=2.24 cfs 0.137 af  
Outflow=1.85 cfs 0.099 af

**Link 42L: POA STREAM TOTAL** Inflow=50.83 cfs 7.297 af  
Primary=50.83 cfs 7.297 af

**Link 43L: TOTAL AG INF BASINS** Inflow=0.58 cfs 0.070 af  
Primary=0.58 cfs 0.070 af

**Link 44L: Total UG INF BASINS** Inflow=4.57 cfs 0.983 af  
Primary=4.57 cfs 0.983 af

**Link 48L: TOTAL INF TRENCH** Inflow=0.00 cfs 0.000 af  
Primary=0.00 cfs 0.000 af

**Total Runoff Area = 125.260 ac Runoff Volume = 26.363 af Average Runoff Depth = 2.53"**  
**57.78% Pervious = 72.370 ac 42.22% Impervious = 52.890 ac**

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment BASIN C IN: SA BASIN C**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 39.31 cfs @ 12.02 hrs, Volume= 2.966 af, Depth= 4.40"  
Routed to Pond BA-CR : UG INF BASIN C (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
7.680	98	Paved parking, HSG A
0.380	39	>75% Grass cover, Good, HSG A
0.030	80	>75% Grass cover, Good, HSG D

8.090	95	Weighted Average
0.410		5.07% Pervious Area
7.680		94.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	61	0.0735	0.27		<b>Sheet Flow, Sheet Flow (open space)</b> Grass: Short n= 0.150 P2= 3.35"
0.9	39	0.0067	0.75		<b>Sheet Flow, Sheet Flow (Paved)</b> Smooth surfaces n= 0.011 P2= 3.35"
0.3	35	0.0068	1.67		<b>Shallow Concentrated Flow, Shallow Concentrated Flow</b> Paved Kv= 20.3 fps
5.0	135				Total

**2024-01-15 Proposed Conditions**

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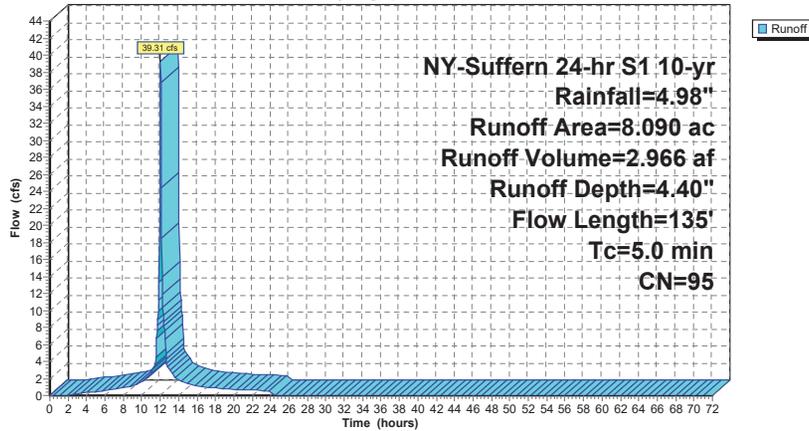
NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Subcatchment BASIN C IN: SA BASIN C**

Hydrograph



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment BASIN C IN: SA BASIN C**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.40	0.00
1.00	0.07	0.00	0.00	53.00	4.98	4.40	0.00
2.00	0.14	0.00	0.06	54.00	4.98	4.40	0.00
3.00	0.22	0.02	0.20	55.00	4.98	4.40	0.00
4.00	0.30	0.05	0.33	56.00	4.98	4.40	0.00
5.00	0.40	0.10	0.45	57.00	4.98	4.40	0.00
6.00	0.50	0.17	0.57	58.00	4.98	4.40	0.00
7.00	0.61	0.25	0.72	59.00	4.98	4.40	0.00
8.00	0.74	0.35	0.90	60.00	4.98	4.40	0.00
9.00	0.90	0.47	1.15	61.00	4.98	4.40	0.00
10.00	1.09	0.64	1.58	62.00	4.98	4.40	0.00
11.00	1.37	0.90	2.59	63.00	4.98	4.40	0.00
12.00	2.70	2.15	<b>37.57</b>	64.00	4.98	4.40	0.00
13.00	3.62	3.06	2.99	65.00	4.98	4.40	0.00
14.00	3.90	3.33	1.84	66.00	4.98	4.40	0.00
15.00	4.09	3.52	1.39	67.00	4.98	4.40	0.00
16.00	4.24	3.67	1.14	68.00	4.98	4.40	0.00
17.00	4.37	3.80	0.98	69.00	4.98	4.40	0.00
18.00	4.49	3.91	0.86	70.00	4.98	4.40	0.00
19.00	4.59	4.01	0.78	71.00	4.98	4.40	0.00
20.00	4.68	4.10	0.71	72.00	4.98	4.40	0.00
21.00	4.76	4.18	0.65				
22.00	4.84	4.26	0.61				
23.00	4.91	4.33	0.57				
24.00	<b>4.98</b>	<b>4.40</b>	0.54				
25.00	4.98	4.40	0.00				
26.00	4.98	4.40	0.00				
27.00	4.98	4.40	0.00				
28.00	4.98	4.40	0.00				
29.00	4.98	4.40	0.00				
30.00	4.98	4.40	0.00				
31.00	4.98	4.40	0.00				
32.00	4.98	4.40	0.00				
33.00	4.98	4.40	0.00				
34.00	4.98	4.40	0.00				
35.00	4.98	4.40	0.00				
36.00	4.98	4.40	0.00				
37.00	4.98	4.40	0.00				
38.00	4.98	4.40	0.00				
39.00	4.98	4.40	0.00				
40.00	4.98	4.40	0.00				
41.00	4.98	4.40	0.00				
42.00	4.98	4.40	0.00				
43.00	4.98	4.40	0.00				
44.00	4.98	4.40	0.00				
45.00	4.98	4.40	0.00				
46.00	4.98	4.40	0.00				
47.00	4.98	4.40	0.00				
48.00	4.98	4.40	0.00				
49.00	4.98	4.40	0.00				
50.00	4.98	4.40	0.00				
51.00	4.98	4.40	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment BASIN D IN: SA BASIN D**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 40.93 cfs @ 12.02 hrs, Volume= 3.177 af, Depth= 4.63"  
 Routed to Pond BA-DR : UG INF BASIN D (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
* 7.870	98	Paved parking- Impervious
0.010	39	>75% Grass cover, Good, HSG A
0.360	80	>75% Grass cover, Good, HSG D
8.240	97	Weighted Average
0.370		4.49% Pervious Area
7.870		95.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	68	0.0713	0.27		<b>Sheet Flow, Sheet Flow - Grass</b> Grass: Short n= 0.150 P2= 3.35"
0.6	32	0.0130	0.94		<b>Sheet Flow, Sheet Flow - Asphalt</b> Smooth surfaces n= 0.011 P2= 3.35"
0.2	33	0.0131	2.32		<b>Shallow Concentrated Flow, Shallow Con. - Asphalt</b> Paved Kv= 20.3 fps
5.0	133	Total			

**2024-01-15 Proposed Conditions**

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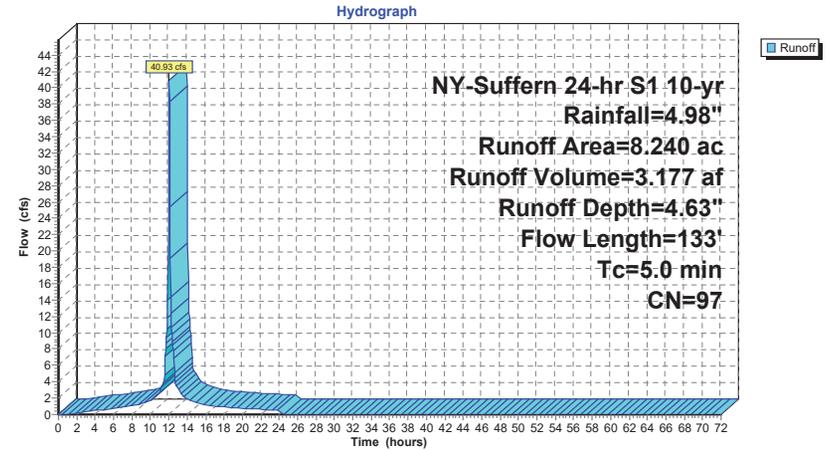
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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Subcatchment BASIN D IN: SA BASIN D**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment BASIN D IN: SA BASIN D**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.63	0.00
1.00	0.07	0.00	0.01	53.00	4.98	4.63	0.00
2.00	0.14	0.02	0.22	54.00	4.98	4.63	0.00
3.00	0.22	0.05	0.37	55.00	4.98	4.63	0.00
4.00	0.30	0.11	0.49	56.00	4.98	4.63	0.00
5.00	0.40	0.17	0.60	57.00	4.98	4.63	0.00
6.00	0.50	0.25	0.72	58.00	4.98	4.63	0.00
7.00	0.61	0.35	0.86	59.00	4.98	4.63	0.00
8.00	0.74	0.47	1.04	60.00	4.98	4.63	0.00
9.00	0.90	0.61	1.30	61.00	4.98	4.63	0.00
10.00	1.09	0.79	1.74	62.00	4.98	4.63	0.00
11.00	1.37	1.06	2.79	63.00	4.98	4.63	0.00
12.00	2.70	2.36	<b>39.16</b>	64.00	4.98	4.63	0.00
13.00	3.62	3.27	3.08	65.00	4.98	4.63	0.00
14.00	3.90	3.55	1.89	66.00	4.98	4.63	0.00
15.00	4.09	3.74	1.43	67.00	4.98	4.63	0.00
16.00	4.24	3.89	1.17	68.00	4.98	4.63	0.00
17.00	4.37	4.02	1.00	69.00	4.98	4.63	0.00
18.00	4.49	4.13	0.89	70.00	4.98	4.63	0.00
19.00	4.59	4.23	0.80	71.00	4.98	4.63	0.00
20.00	4.68	4.33	0.73	72.00	4.98	4.63	0.00
21.00	4.76	4.41	0.67				
22.00	4.84	4.49	0.62				
23.00	4.91	4.56	0.59				
24.00	<b>4.98</b>	<b>4.63</b>	0.55				
25.00	4.98	4.63	0.00				
26.00	4.98	4.63	0.00				
27.00	4.98	4.63	0.00				
28.00	4.98	4.63	0.00				
29.00	4.98	4.63	0.00				
30.00	4.98	4.63	0.00				
31.00	4.98	4.63	0.00				
32.00	4.98	4.63	0.00				
33.00	4.98	4.63	0.00				
34.00	4.98	4.63	0.00				
35.00	4.98	4.63	0.00				
36.00	4.98	4.63	0.00				
37.00	4.98	4.63	0.00				
38.00	4.98	4.63	0.00				
39.00	4.98	4.63	0.00				
40.00	4.98	4.63	0.00				
41.00	4.98	4.63	0.00				
42.00	4.98	4.63	0.00				
43.00	4.98	4.63	0.00				
44.00	4.98	4.63	0.00				
45.00	4.98	4.63	0.00				
46.00	4.98	4.63	0.00				
47.00	4.98	4.63	0.00				
48.00	4.98	4.63	0.00				
49.00	4.98	4.63	0.00				
50.00	4.98	4.63	0.00				
51.00	4.98	4.63	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment BASIN E IN: SA BASIN E**

[49] Hint: Tc<2dt may require smaller dt

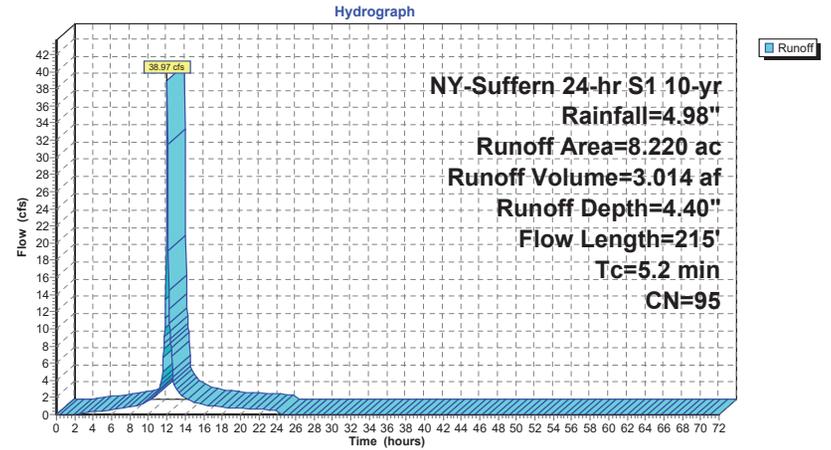
Runoff = 38.97 cfs @ 12.03 hrs, Volume= 3.014 af, Depth= 4.40"  
 Routed to Pond BA-ER : UG INF BASIN E (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
7.820	98	Paved parking, HSG A
0.400	39	>75% Grass cover, Good, HSG A
8.220	95	Weighted Average
0.400		4.87% Pervious Area
7.820		95.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	40	0.0313	0.17		<b>Sheet Flow, Sheet Flow</b> Grass: Short n= 0.150 P2= 3.35"
0.8	60	0.0225	1.33		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.35"
0.6	115	0.0230	3.08		<b>Shallow Concentrated Flow, Shallow concentrated Flow (Paved)</b> Paved Kv= 20.3 fps
5.2	215	Total			

**Subcatchment BASIN E IN: SA BASIN E**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment BASIN E IN: SA BASIN E**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.40	0.00
1.00	0.07	0.00	0.00	53.00	4.98	4.40	0.00
2.00	0.14	0.00	0.07	54.00	4.98	4.40	0.00
3.00	0.22	0.02	0.21	55.00	4.98	4.40	0.00
4.00	0.30	0.05	0.33	56.00	4.98	4.40	0.00
5.00	0.40	0.10	0.46	57.00	4.98	4.40	0.00
6.00	0.50	0.17	0.58	58.00	4.98	4.40	0.00
7.00	0.61	0.25	0.73	59.00	4.98	4.40	0.00
8.00	0.74	0.35	0.91	60.00	4.98	4.40	0.00
9.00	0.90	0.47	1.17	61.00	4.98	4.40	0.00
10.00	1.09	0.64	1.60	62.00	4.98	4.40	0.00
11.00	1.37	0.90	2.63	63.00	4.98	4.40	0.00
12.00	2.70	2.15	<b>37.27</b>	64.00	4.98	4.40	0.00
13.00	3.62	3.06	<b>3.04</b>	65.00	4.98	4.40	0.00
14.00	3.90	3.33	1.87	66.00	4.98	4.40	0.00
15.00	4.09	3.52	1.41	67.00	4.98	4.40	0.00
16.00	4.24	3.67	1.16	68.00	4.98	4.40	0.00
17.00	4.37	3.80	0.99	69.00	4.98	4.40	0.00
18.00	4.49	3.91	0.88	70.00	4.98	4.40	0.00
19.00	4.59	4.01	0.79	71.00	4.98	4.40	0.00
20.00	4.68	4.10	0.72	72.00	4.98	4.40	0.00
21.00	4.76	4.18	0.67				
22.00	4.84	4.26	0.62				
23.00	4.91	4.33	0.58				
24.00	<b>4.98</b>	<b>4.40</b>	0.55				
25.00	4.98	4.40	0.00				
26.00	4.98	4.40	0.00				
27.00	4.98	4.40	0.00				
28.00	4.98	4.40	0.00				
29.00	4.98	4.40	0.00				
30.00	4.98	4.40	0.00				
31.00	4.98	4.40	0.00				
32.00	4.98	4.40	0.00				
33.00	4.98	4.40	0.00				
34.00	4.98	4.40	0.00				
35.00	4.98	4.40	0.00				
36.00	4.98	4.40	0.00				
37.00	4.98	4.40	0.00				
38.00	4.98	4.40	0.00				
39.00	4.98	4.40	0.00				
40.00	4.98	4.40	0.00				
41.00	4.98	4.40	0.00				
42.00	4.98	4.40	0.00				
43.00	4.98	4.40	0.00				
44.00	4.98	4.40	0.00				
45.00	4.98	4.40	0.00				
46.00	4.98	4.40	0.00				
47.00	4.98	4.40	0.00				
48.00	4.98	4.40	0.00				
49.00	4.98	4.40	0.00				
50.00	4.98	4.40	0.00				
51.00	4.98	4.40	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment BASIN F IN: SA BASIN F**

[49] Hint: Tc<2dt may require smaller dt

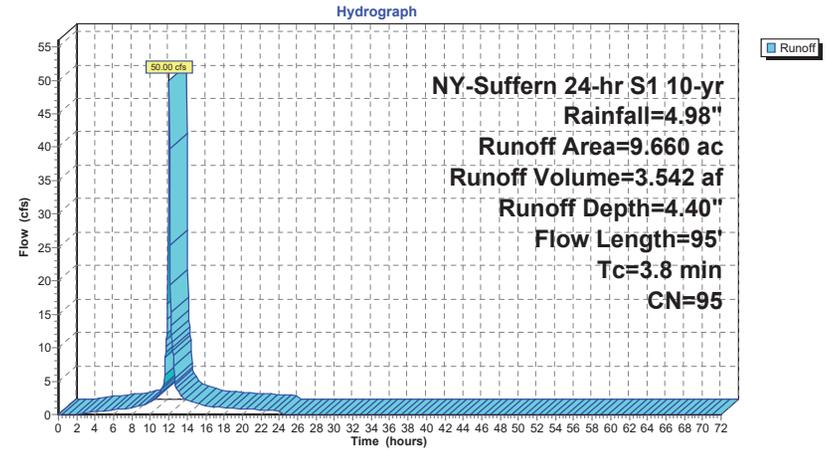
Runoff = 50.00 cfs @ 12.01 hrs, Volume= 3.542 af, Depth= 4.40"  
 Routed to Pond BA-FR : UG INF BASIN F (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
9.060	98	Paved parking, HSG A
0.450	39	>75% Grass cover, Good, HSG A
0.100	74	>75% Grass cover, Good, HSG C
0.050	80	>75% Grass cover, Good, HSG D
9.660	95	Weighted Average
0.600		6.21% Pervious Area
9.060		93.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	43	0.0550	0.22		<b>Sheet Flow, Sheet Flow - Grass</b> Grass: Short n= 0.150 P2= 3.35"
0.5	52	0.0380	1.60		<b>Sheet Flow, Sheet Flow - Asphalt</b> Smooth surfaces n= 0.011 P2= 3.35"
3.8	95	Total			

**Subcatchment BASIN F IN: SA BASIN F**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment BASIN F IN: SA BASIN F**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.40	0.00
1.00	0.07	0.00	0.00	53.00	4.98	4.40	0.00
2.00	0.14	0.00	0.08	54.00	4.98	4.40	0.00
3.00	0.22	0.02	0.25	55.00	4.98	4.40	0.00
4.00	0.30	0.05	0.40	56.00	4.98	4.40	0.00
5.00	0.40	0.10	0.54	57.00	4.98	4.40	0.00
6.00	0.50	0.17	0.69	58.00	4.98	4.40	0.00
7.00	0.61	0.25	0.86	59.00	4.98	4.40	0.00
8.00	0.74	0.35	1.08	60.00	4.98	4.40	0.00
9.00	0.90	0.47	1.38	61.00	4.98	4.40	0.00
10.00	1.09	0.64	1.90	62.00	4.98	4.40	0.00
11.00	1.37	0.90	3.13	63.00	4.98	4.40	0.00
12.00	2.70	2.15	<b>49.75</b>	64.00	4.98	4.40	0.00
13.00	3.62	3.06	3.53	65.00	4.98	4.40	0.00
14.00	3.90	3.33	2.18	66.00	4.98	4.40	0.00
15.00	4.09	3.52	1.65	67.00	4.98	4.40	0.00
16.00	4.24	3.67	1.36	68.00	4.98	4.40	0.00
17.00	4.37	3.80	1.16	69.00	4.98	4.40	0.00
18.00	4.49	3.91	1.03	70.00	4.98	4.40	0.00
19.00	4.59	4.01	0.93	71.00	4.98	4.40	0.00
20.00	4.68	4.10	0.85	72.00	4.98	4.40	0.00
21.00	4.76	4.18	0.78				
22.00	4.84	4.26	0.73				
23.00	4.91	4.33	0.68				
24.00	<b>4.98</b>	<b>4.40</b>	0.64				
25.00	4.98	4.40	0.00				
26.00	4.98	4.40	0.00				
27.00	4.98	4.40	0.00				
28.00	4.98	4.40	0.00				
29.00	4.98	4.40	0.00				
30.00	4.98	4.40	0.00				
31.00	4.98	4.40	0.00				
32.00	4.98	4.40	0.00				
33.00	4.98	4.40	0.00				
34.00	4.98	4.40	0.00				
35.00	4.98	4.40	0.00				
36.00	4.98	4.40	0.00				
37.00	4.98	4.40	0.00				
38.00	4.98	4.40	0.00				
39.00	4.98	4.40	0.00				
40.00	4.98	4.40	0.00				
41.00	4.98	4.40	0.00				
42.00	4.98	4.40	0.00				
43.00	4.98	4.40	0.00				
44.00	4.98	4.40	0.00				
45.00	4.98	4.40	0.00				
46.00	4.98	4.40	0.00				
47.00	4.98	4.40	0.00				
48.00	4.98	4.40	0.00				
49.00	4.98	4.40	0.00				
50.00	4.98	4.40	0.00				
51.00	4.98	4.40	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment BASIN H IN: SA BASIN H**

[49] Hint: Tc<2dt may require smaller dt

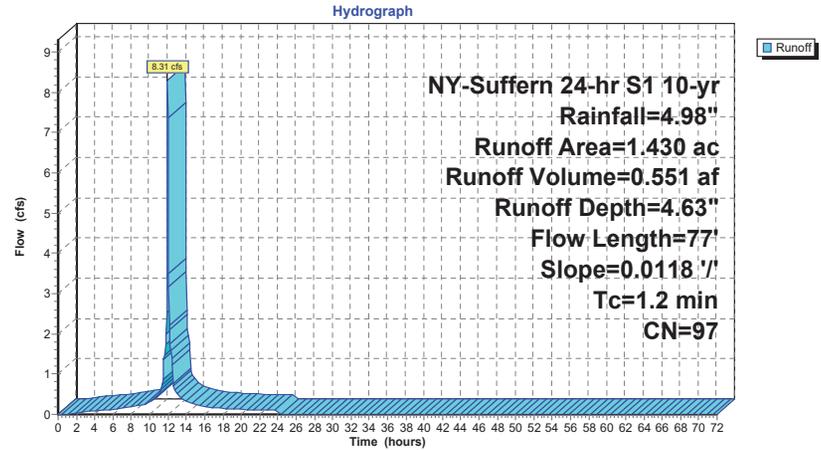
Runoff = 8.31 cfs @ 11.97 hrs, Volume= 0.551 af, Depth= 4.63"  
Routed to Pond BA-HR : UG INF BASIN H (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
1.410	98	IMP
0.020	39	>75% Grass cover, Good, HSG A
1.430	97	Weighted Average
0.020		1.40% Pervious Area
1.410		98.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	77	0.0118	1.08		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.35"

**Subcatchment BASIN H IN: SA BASIN H**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment BASIN H IN: SA BASIN H**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.63	0.00
1.00	0.07	0.00	0.00	53.00	4.98	4.63	0.00
2.00	0.14	0.02	0.04	54.00	4.98	4.63	0.00
3.00	0.22	0.05	0.07	55.00	4.98	4.63	0.00
4.00	0.30	0.11	0.09	56.00	4.98	4.63	0.00
5.00	0.40	0.17	0.11	57.00	4.98	4.63	0.00
6.00	0.50	0.25	0.13	58.00	4.98	4.63	0.00
7.00	0.61	0.35	0.15	59.00	4.98	4.63	0.00
8.00	0.74	0.47	0.18	60.00	4.98	4.63	0.00
9.00	0.90	0.61	0.23	61.00	4.98	4.63	0.00
10.00	1.09	0.79	0.31	62.00	4.98	4.63	0.00
11.00	1.37	1.06	<b>0.50</b>	63.00	4.98	4.63	0.00
12.00	2.70	2.36	<b>7.36</b>	64.00	4.98	4.63	0.00
13.00	3.62	3.27	0.52	65.00	4.98	4.63	0.00
14.00	3.90	3.55	0.32	66.00	4.98	4.63	0.00
15.00	4.09	3.74	0.25	67.00	4.98	4.63	0.00
16.00	4.24	3.89	0.20	68.00	4.98	4.63	0.00
17.00	4.37	4.02	0.17	69.00	4.98	4.63	0.00
18.00	4.49	4.13	0.15	70.00	4.98	4.63	0.00
19.00	4.59	4.23	0.14	71.00	4.98	4.63	0.00
20.00	4.68	4.33	0.13	72.00	4.98	4.63	0.00
21.00	4.76	4.41	0.12				
22.00	4.84	4.49	0.11				
23.00	4.91	4.56	0.10				
24.00	<b>4.98</b>	<b>4.63</b>	0.08				
25.00	4.98	4.63	0.00				
26.00	4.98	4.63	0.00				
27.00	4.98	4.63	0.00				
28.00	4.98	4.63	0.00				
29.00	4.98	4.63	0.00				
30.00	4.98	4.63	0.00				
31.00	4.98	4.63	0.00				
32.00	4.98	4.63	0.00				
33.00	4.98	4.63	0.00				
34.00	4.98	4.63	0.00				
35.00	4.98	4.63	0.00				
36.00	4.98	4.63	0.00				
37.00	4.98	4.63	0.00				
38.00	4.98	4.63	0.00				
39.00	4.98	4.63	0.00				
40.00	4.98	4.63	0.00				
41.00	4.98	4.63	0.00				
42.00	4.98	4.63	0.00				
43.00	4.98	4.63	0.00				
44.00	4.98	4.63	0.00				
45.00	4.98	4.63	0.00				
46.00	4.98	4.63	0.00				
47.00	4.98	4.63	0.00				
48.00	4.98	4.63	0.00				
49.00	4.98	4.63	0.00				
50.00	4.98	4.63	0.00				
51.00	4.98	4.63	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment BASIN I IN: SA BASIN I**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 5.67 cfs @ 12.02 hrs, Volume= 0.391 af, Depth= 2.43"  
 Routed to Pond BASIN I : INF TRENCH I

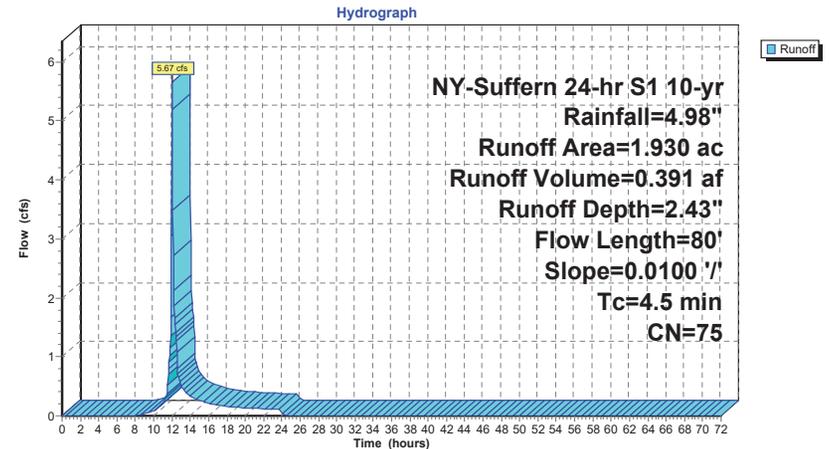
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
* 1.160	98	Paved parking
0.730	39	>75% Grass cover, Good, HSG A
0.040	80	>75% Grass cover, Good, HSG D
1.930	75	Weighted Average
0.770		39.90% Pervious Area
1.160		60.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	60	0.0100	0.96		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.35"
3.5	20	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.35"
4.5	80	Total			

**Subcatchment BASIN I IN: SA BASIN I**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment BASIN I IN: SA BASIN I**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	2.43	0.00
1.00	0.07	0.00	0.00	53.00	4.98	2.43	0.00
2.00	0.14	0.00	0.00	54.00	4.98	2.43	0.00
3.00	0.22	0.00	0.00	55.00	4.98	2.43	0.00
4.00	0.30	0.00	0.00	56.00	4.98	2.43	0.00
5.00	0.40	0.00	0.00	57.00	4.98	2.43	0.00
6.00	0.50	0.00	0.00	58.00	4.98	2.43	0.00
7.00	0.61	0.00	0.00	59.00	4.98	2.43	0.00
8.00	0.74	0.00	0.01	60.00	4.98	2.43	0.00
9.00	0.90	0.01	0.04	61.00	4.98	2.43	0.00
10.00	1.09	0.05	0.09	62.00	4.98	2.43	0.00
11.00	1.37	0.12	0.21	63.00	4.98	2.43	0.00
12.00	2.70	0.77	<b>5.45</b>	64.00	4.98	2.43	0.00
13.00	3.62	1.39	0.52	65.00	4.98	2.43	0.00
14.00	3.90	1.59	0.33	66.00	4.98	2.43	0.00
15.00	4.09	1.73	0.25	67.00	4.98	2.43	0.00
16.00	4.24	1.85	0.21	68.00	4.98	2.43	0.00
17.00	4.37	1.95	0.18	69.00	4.98	2.43	0.00
18.00	4.49	2.04	0.16	70.00	4.98	2.43	0.00
19.00	4.59	2.12	0.15	71.00	4.98	2.43	0.00
20.00	4.68	2.19	0.14	72.00	4.98	2.43	0.00
21.00	4.76	2.26	0.13				
22.00	4.84	2.32	0.12				
23.00	4.91	2.38	0.11				
24.00	<b>4.98</b>	<b>2.43</b>	0.10				
25.00	4.98	2.43	0.00				
26.00	4.98	2.43	0.00				
27.00	4.98	2.43	0.00				
28.00	4.98	2.43	0.00				
29.00	4.98	2.43	0.00				
30.00	4.98	2.43	0.00				
31.00	4.98	2.43	0.00				
32.00	4.98	2.43	0.00				
33.00	4.98	2.43	0.00				
34.00	4.98	2.43	0.00				
35.00	4.98	2.43	0.00				
36.00	4.98	2.43	0.00				
37.00	4.98	2.43	0.00				
38.00	4.98	2.43	0.00				
39.00	4.98	2.43	0.00				
40.00	4.98	2.43	0.00				
41.00	4.98	2.43	0.00				
42.00	4.98	2.43	0.00				
43.00	4.98	2.43	0.00				
44.00	4.98	2.43	0.00				
45.00	4.98	2.43	0.00				
46.00	4.98	2.43	0.00				
47.00	4.98	2.43	0.00				
48.00	4.98	2.43	0.00				
49.00	4.98	2.43	0.00				
50.00	4.98	2.43	0.00				
51.00	4.98	2.43	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment BASIN K IN: SA BASIN K**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 21.99 cfs @ 11.98 hrs, Volume= 1.522 af, Depth= 4.74"  
 Routed to Pond BA-KR : UG INF BASIN K (RTANK)

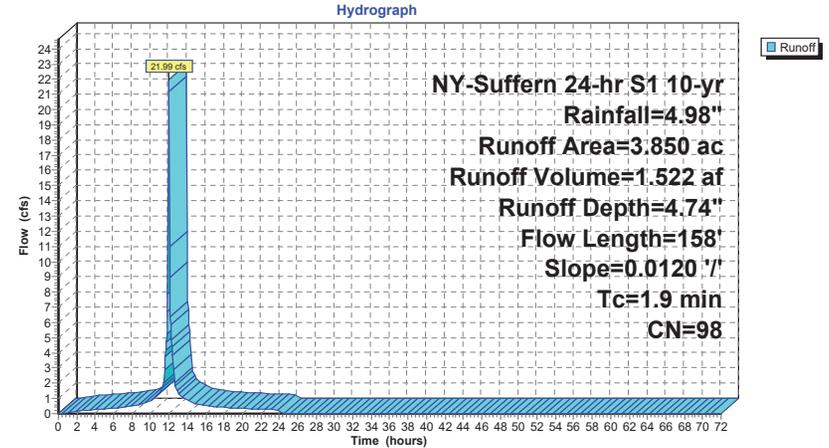
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
* 3.850	98	Paved parking
3.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0120	1.15		Sheet Flow, A to B Smooth surfaces n= 0.011 P2= 3.35"
0.4	58	0.0120	2.22		Shallow Concentrated Flow, B to C Paved Kv= 20.3 fps
1.9	158	Total			

**Subcatchment BASIN K IN: SA BASIN K**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment BASIN K IN: SA BASIN K**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.74	0.00
1.00	0.07	0.00	0.06	53.00	4.98	4.74	0.00
2.00	0.14	0.03	0.16	54.00	4.98	4.74	0.00
3.00	0.22	0.08	0.22	55.00	4.98	4.74	0.00
4.00	0.30	0.15	0.27	56.00	4.98	4.74	0.00
5.00	0.40	0.23	0.32	57.00	4.98	4.74	0.00
6.00	0.50	0.31	0.37	58.00	4.98	4.74	0.00
7.00	0.61	0.42	0.43	59.00	4.98	4.74	0.00
8.00	0.74	0.54	0.51	60.00	4.98	4.74	0.00
9.00	0.90	0.69	0.63	61.00	4.98	4.74	0.00
10.00	1.09	0.88	0.84	62.00	4.98	4.74	0.00
11.00	1.37	1.16	1.35	63.00	4.98	4.74	0.00
12.00	2.70	2.47	<b>21.16</b>	64.00	4.98	4.74	0.00
13.00	3.62	3.39	1.41	65.00	4.98	4.74	0.00
14.00	3.90	3.66	0.88	66.00	4.98	4.74	0.00
15.00	4.09	3.85	0.66	67.00	4.98	4.74	0.00
16.00	4.24	4.01	0.54	68.00	4.98	4.74	0.00
17.00	4.37	4.14	0.47	69.00	4.98	4.74	0.00
18.00	4.49	4.25	0.41	70.00	4.98	4.74	0.00
19.00	4.59	4.35	0.37	71.00	4.98	4.74	0.00
20.00	4.68	4.44	0.34	72.00	4.98	4.74	0.00
21.00	4.76	4.52	0.31				
22.00	4.84	4.60	0.29				
23.00	4.91	4.67	0.27				
24.00	<b>4.98</b>	<b>4.74</b>	0.24				
25.00	4.98	4.74	0.00				
26.00	4.98	4.74	0.00				
27.00	4.98	4.74	0.00				
28.00	4.98	4.74	0.00				
29.00	4.98	4.74	0.00				
30.00	4.98	4.74	0.00				
31.00	4.98	4.74	0.00				
32.00	4.98	4.74	0.00				
33.00	4.98	4.74	0.00				
34.00	4.98	4.74	0.00				
35.00	4.98	4.74	0.00				
36.00	4.98	4.74	0.00				
37.00	4.98	4.74	0.00				
38.00	4.98	4.74	0.00				
39.00	4.98	4.74	0.00				
40.00	4.98	4.74	0.00				
41.00	4.98	4.74	0.00				
42.00	4.98	4.74	0.00				
43.00	4.98	4.74	0.00				
44.00	4.98	4.74	0.00				
45.00	4.98	4.74	0.00				
46.00	4.98	4.74	0.00				
47.00	4.98	4.74	0.00				
48.00	4.98	4.74	0.00				
49.00	4.98	4.74	0.00				
50.00	4.98	4.74	0.00				
51.00	4.98	4.74	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment BASIN M IN: SA BASIN M**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 37.07 cfs @ 12.03 hrs, Volume= 2.871 af, Depth= 4.40"  
Routed to Pond BA-MR : UG INF BASIN M (RTANK)

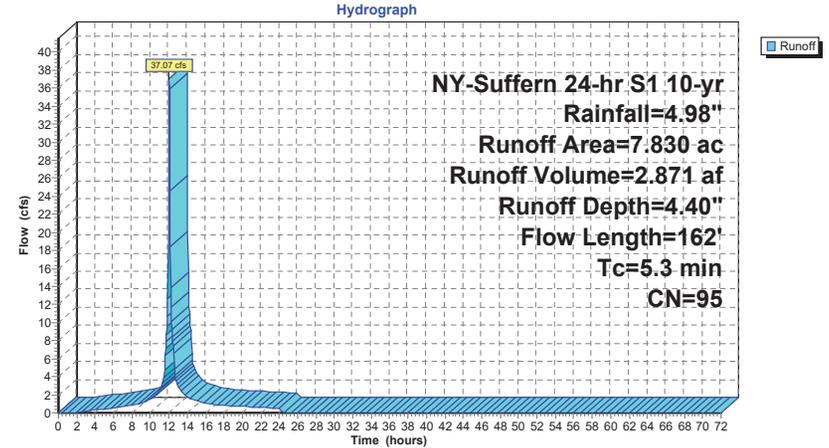
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
7.420	98	Paved parking, HSG A
0.360	39	>75% Grass cover, Good, HSG A
0.050	74	>75% Grass cover, Good, HSG C
7.830	95	Weighted Average
0.410		5.24% Pervious Area
7.420		94.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	70	0.0571	0.25		<b>Sheet Flow, A to B</b> Grass: Short n= 0.150 P2= 3.35"
0.6	92	0.0163	2.59		<b>Shallow Concentrated Flow, B to C</b> Paved Kv= 20.3 fps
5.3	162	Total			

**Subcatchment BASIN M IN: SA BASIN M**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment BASIN M IN: SA BASIN M**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.40	0.00
1.00	0.07	0.00	0.00	53.00	4.98	4.40	0.00
2.00	0.14	0.00	0.06	54.00	4.98	4.40	0.00
3.00	0.22	0.02	0.20	55.00	4.98	4.40	0.00
4.00	0.30	0.05	0.32	56.00	4.98	4.40	0.00
5.00	0.40	0.10	0.43	57.00	4.98	4.40	0.00
6.00	0.50	0.17	0.56	58.00	4.98	4.40	0.00
7.00	0.61	0.25	0.69	59.00	4.98	4.40	0.00
8.00	0.74	0.35	0.87	60.00	4.98	4.40	0.00
9.00	0.90	0.47	1.11	61.00	4.98	4.40	0.00
10.00	1.09	0.64	1.53	62.00	4.98	4.40	0.00
11.00	1.37	0.90	2.50	63.00	4.98	4.40	0.00
12.00	2.70	2.15	<b>35.08</b>	64.00	4.98	4.40	0.00
13.00	3.62	3.06	<b>2.90</b>	65.00	4.98	4.40	0.00
14.00	3.90	3.33	1.78	66.00	4.98	4.40	0.00
15.00	4.09	3.52	1.34	67.00	4.98	4.40	0.00
16.00	4.24	3.67	1.10	68.00	4.98	4.40	0.00
17.00	4.37	3.80	0.95	69.00	4.98	4.40	0.00
18.00	4.49	3.91	0.84	70.00	4.98	4.40	0.00
19.00	4.59	4.01	0.75	71.00	4.98	4.40	0.00
20.00	4.68	4.10	0.69	72.00	4.98	4.40	0.00
21.00	4.76	4.18	0.63				
22.00	4.84	4.26	0.59				
23.00	4.91	4.33	0.55				
24.00	<b>4.98</b>	<b>4.40</b>	0.52				
25.00	4.98	4.40	0.00				
26.00	4.98	4.40	0.00				
27.00	4.98	4.40	0.00				
28.00	4.98	4.40	0.00				
29.00	4.98	4.40	0.00				
30.00	4.98	4.40	0.00				
31.00	4.98	4.40	0.00				
32.00	4.98	4.40	0.00				
33.00	4.98	4.40	0.00				
34.00	4.98	4.40	0.00				
35.00	4.98	4.40	0.00				
36.00	4.98	4.40	0.00				
37.00	4.98	4.40	0.00				
38.00	4.98	4.40	0.00				
39.00	4.98	4.40	0.00				
40.00	4.98	4.40	0.00				
41.00	4.98	4.40	0.00				
42.00	4.98	4.40	0.00				
43.00	4.98	4.40	0.00				
44.00	4.98	4.40	0.00				
45.00	4.98	4.40	0.00				
46.00	4.98	4.40	0.00				
47.00	4.98	4.40	0.00				
48.00	4.98	4.40	0.00				
49.00	4.98	4.40	0.00				
50.00	4.98	4.40	0.00				
51.00	4.98	4.40	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment FB A1 IN: SA FOREBAY A1**

[49] Hint: Tc<2dt may require smaller dt

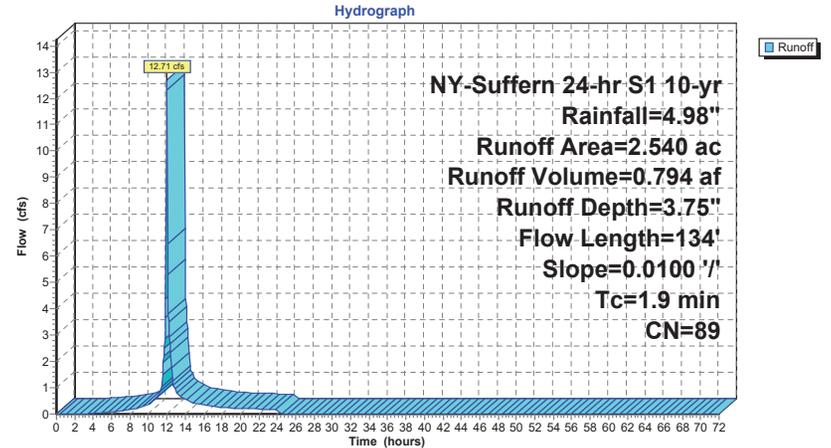
Runoff = 12.71 cfs @ 11.98 hrs, Volume= 0.794 af, Depth= 3.75"  
Routed to Pond FB-A1 : FOREBAY A1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
2.150	98	Paved parking and roof area, HSG A
0.390	39	>75% Grass cover, Good, HSG A
2.540	89	Weighted Average
0.390		15.35% Pervious Area
2.150		84.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		Sheet Flow, Sheet Flow Smooth surfaces n= 0.011 P2= 3.35"
0.3	34	0.0100	2.03		Shallow Concentrated Flow, Shallow Concentrated Flow Paved Kv= 20.3 fps
1.9	134	Total			

**Subcatchment FB A1 IN: SA FOREBAY A1**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment FB A1 IN: SA FOREBAY A1**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	3.75	0.00
1.00	0.07	0.00	0.00	53.00	4.98	3.75	0.00
2.00	0.14	0.00	0.00	54.00	4.98	3.75	0.00
3.00	0.22	0.00	0.00	55.00	4.98	3.75	0.00
4.00	0.30	0.00	0.02	56.00	4.98	3.75	0.00
5.00	0.40	0.02	0.05	57.00	4.98	3.75	0.00
6.00	0.50	0.04	0.08	58.00	4.98	3.75	0.00
7.00	0.61	0.08	0.12	59.00	4.98	3.75	0.00
8.00	0.74	0.14	0.17	60.00	4.98	3.75	0.00
9.00	0.90	0.22	0.25	61.00	4.98	3.75	0.00
10.00	1.09	0.34	0.37	62.00	4.98	3.75	0.00
11.00	1.37	0.54	0.66	63.00	4.98	3.75	0.00
12.00	2.70	1.63	<b>12.30</b>	64.00	4.98	3.75	0.00
13.00	3.62	2.47	0.87	65.00	4.98	3.75	0.00
14.00	3.90	2.73	0.54	66.00	4.98	3.75	0.00
15.00	4.09	2.91	0.41	67.00	4.98	3.75	0.00
16.00	4.24	3.05	0.34	68.00	4.98	3.75	0.00
17.00	4.37	3.17	0.29	69.00	4.98	3.75	0.00
18.00	4.49	3.28	0.26	70.00	4.98	3.75	0.00
19.00	4.59	3.38	0.23	71.00	4.98	3.75	0.00
20.00	4.68	3.46	0.21	72.00	4.98	3.75	0.00
21.00	4.76	3.54	0.20				
22.00	4.84	3.62	0.18				
23.00	4.91	3.69	0.17				
24.00	<b>4.98</b>	<b>3.75</b>	0.15				
25.00	4.98	3.75	0.00				
26.00	4.98	3.75	0.00				
27.00	4.98	3.75	0.00				
28.00	4.98	3.75	0.00				
29.00	4.98	3.75	0.00				
30.00	4.98	3.75	0.00				
31.00	4.98	3.75	0.00				
32.00	4.98	3.75	0.00				
33.00	4.98	3.75	0.00				
34.00	4.98	3.75	0.00				
35.00	4.98	3.75	0.00				
36.00	4.98	3.75	0.00				
37.00	4.98	3.75	0.00				
38.00	4.98	3.75	0.00				
39.00	4.98	3.75	0.00				
40.00	4.98	3.75	0.00				
41.00	4.98	3.75	0.00				
42.00	4.98	3.75	0.00				
43.00	4.98	3.75	0.00				
44.00	4.98	3.75	0.00				
45.00	4.98	3.75	0.00				
46.00	4.98	3.75	0.00				
47.00	4.98	3.75	0.00				
48.00	4.98	3.75	0.00				
49.00	4.98	3.75	0.00				
50.00	4.98	3.75	0.00				
51.00	4.98	3.75	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment FB A2 IN: SA FOREBAY A2**

[49] Hint: Tc<2dt may require smaller dt

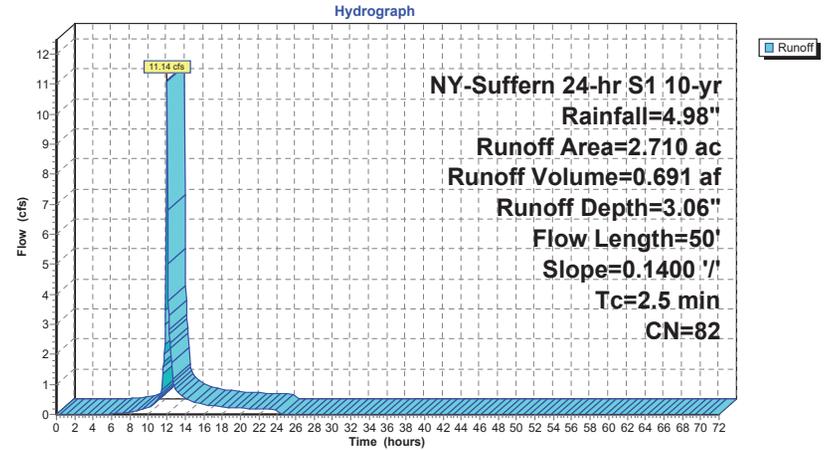
Runoff = 11.14 cfs @ 11.99 hrs, Volume= 0.691 af, Depth= 3.06"  
Routed to Pond FB-A2 : FOREBAY A2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
1.960	98	Paved parking, roof area
0.750	39	>75% Grass cover, Good, HSG A
2.710	82	Weighted Average
0.750		27.68% Pervious Area
1.960		72.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	50	0.1400	0.33		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.35"

**Subcatchment FB A2 IN: SA FOREBAY A2**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment FB A2 IN: SA FOREBAY A2**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	3.06	0.00
1.00	0.07	0.00	0.00	53.00	4.98	3.06	0.00
2.00	0.14	0.00	0.00	54.00	4.98	3.06	0.00
3.00	0.22	0.00	0.00	55.00	4.98	3.06	0.00
4.00	0.30	0.00	0.00	56.00	4.98	3.06	0.00
5.00	0.40	0.00	0.00	57.00	4.98	3.06	0.00
6.00	0.50	0.00	0.01	58.00	4.98	3.06	0.00
7.00	0.61	0.01	0.04	59.00	4.98	3.06	0.00
8.00	0.74	0.04	0.09	60.00	4.98	3.06	0.00
9.00	0.90	0.08	0.14	61.00	4.98	3.06	0.00
10.00	1.09	0.15	0.24	62.00	4.98	3.06	0.00
11.00	1.37	0.28	0.49	63.00	4.98	3.06	0.00
12.00	2.70	1.14	<b>11.07</b>	64.00	4.98	3.06	0.00
13.00	3.62	1.88	0.83	65.00	4.98	3.06	0.00
14.00	3.90	2.12	0.53	66.00	4.98	3.06	0.00
15.00	4.09	2.28	0.40	67.00	4.98	3.06	0.00
16.00	4.24	2.41	0.33	68.00	4.98	3.06	0.00
17.00	4.37	2.52	0.29	69.00	4.98	3.06	0.00
18.00	4.49	2.62	0.26	70.00	4.98	3.06	0.00
19.00	4.59	2.71	0.23	71.00	4.98	3.06	0.00
20.00	4.68	2.79	0.21	72.00	4.98	3.06	0.00
21.00	4.76	2.87	0.20				
22.00	4.84	2.94	0.18				
23.00	4.91	3.00	0.17				
24.00	<b>4.98</b>	<b>3.06</b>	0.16				
25.00	4.98	3.06	0.00				
26.00	4.98	3.06	0.00				
27.00	4.98	3.06	0.00				
28.00	4.98	3.06	0.00				
29.00	4.98	3.06	0.00				
30.00	4.98	3.06	0.00				
31.00	4.98	3.06	0.00				
32.00	4.98	3.06	0.00				
33.00	4.98	3.06	0.00				
34.00	4.98	3.06	0.00				
35.00	4.98	3.06	0.00				
36.00	4.98	3.06	0.00				
37.00	4.98	3.06	0.00				
38.00	4.98	3.06	0.00				
39.00	4.98	3.06	0.00				
40.00	4.98	3.06	0.00				
41.00	4.98	3.06	0.00				
42.00	4.98	3.06	0.00				
43.00	4.98	3.06	0.00				
44.00	4.98	3.06	0.00				
45.00	4.98	3.06	0.00				
46.00	4.98	3.06	0.00				
47.00	4.98	3.06	0.00				
48.00	4.98	3.06	0.00				
49.00	4.98	3.06	0.00				
50.00	4.98	3.06	0.00				
51.00	4.98	3.06	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment FB-B IN: SA BASIN B**

[49] Hint: Tc<2dt may require smaller dt

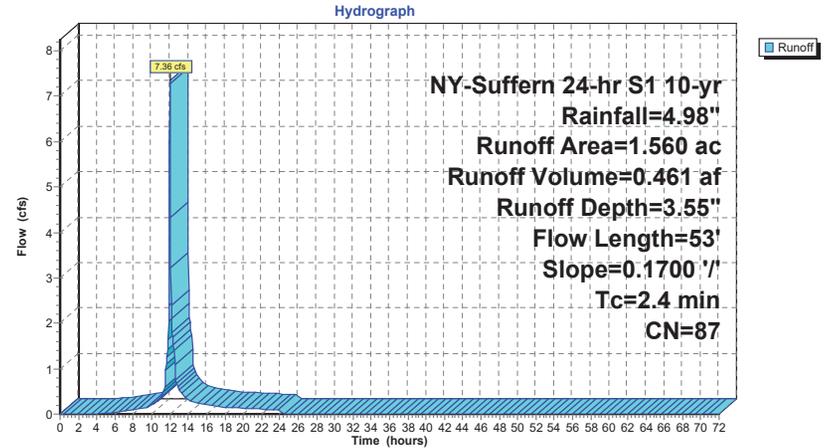
Runoff = 7.36 cfs @ 11.99 hrs, Volume= 0.461 af, Depth= 3.55"  
 Routed to Pond FB-B : FOREBAY B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
1.030	98	Paved parking, HSG A
0.180	39	>75% Grass cover, Good, HSG A
0.350	80	>75% Grass cover, Good, HSG D
1.560	87	Weighted Average
0.530		33.97% Pervious Area
1.030		66.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	53	0.1700	0.36		<b>Sheet Flow, A to B</b> Grass: Short n= 0.150 P2= 3.35"

**Subcatchment FB-B IN: SA BASIN B**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment FB-B IN: SA BASIN B**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	3.55	0.00
1.00	0.07	0.00	0.00	53.00	4.98	3.55	0.00
2.00	0.14	0.00	0.00	54.00	4.98	3.55	0.00
3.00	0.22	0.00	0.00	55.00	4.98	3.55	0.00
4.00	0.30	0.00	0.00	56.00	4.98	3.55	0.00
5.00	0.40	0.01	0.02	57.00	4.98	3.55	0.00
6.00	0.50	0.02	0.04	58.00	4.98	3.55	0.00
7.00	0.61	0.05	0.06	59.00	4.98	3.55	0.00
8.00	0.74	0.10	0.09	60.00	4.98	3.55	0.00
9.00	0.90	0.17	0.13	61.00	4.98	3.55	0.00
10.00	1.09	0.27	0.20	62.00	4.98	3.55	0.00
11.00	1.37	0.45	0.37	63.00	4.98	3.55	0.00
12.00	2.70	1.48	<b>7.28</b>	64.00	4.98	3.55	0.00
13.00	3.62	2.29	0.52	65.00	4.98	3.55	0.00
14.00	3.90	2.54	0.33	66.00	4.98	3.55	0.00
15.00	4.09	2.72	0.25	67.00	4.98	3.55	0.00
16.00	4.24	2.86	0.20	68.00	4.98	3.55	0.00
17.00	4.37	2.98	0.18	69.00	4.98	3.55	0.00
18.00	4.49	3.09	0.16	70.00	4.98	3.55	0.00
19.00	4.59	3.18	0.14	71.00	4.98	3.55	0.00
20.00	4.68	3.26	0.13	72.00	4.98	3.55	0.00
21.00	4.76	3.34	0.12				
22.00	4.84	3.42	0.11				
23.00	4.91	3.48	0.10				
24.00	<b>4.98</b>	<b>3.55</b>	0.10				
25.00	4.98	3.55	0.00				
26.00	4.98	3.55	0.00				
27.00	4.98	3.55	0.00				
28.00	4.98	3.55	0.00				
29.00	4.98	3.55	0.00				
30.00	4.98	3.55	0.00				
31.00	4.98	3.55	0.00				
32.00	4.98	3.55	0.00				
33.00	4.98	3.55	0.00				
34.00	4.98	3.55	0.00				
35.00	4.98	3.55	0.00				
36.00	4.98	3.55	0.00				
37.00	4.98	3.55	0.00				
38.00	4.98	3.55	0.00				
39.00	4.98	3.55	0.00				
40.00	4.98	3.55	0.00				
41.00	4.98	3.55	0.00				
42.00	4.98	3.55	0.00				
43.00	4.98	3.55	0.00				
44.00	4.98	3.55	0.00				
45.00	4.98	3.55	0.00				
46.00	4.98	3.55	0.00				
47.00	4.98	3.55	0.00				
48.00	4.98	3.55	0.00				
49.00	4.98	3.55	0.00				
50.00	4.98	3.55	0.00				
51.00	4.98	3.55	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment FB-G IN: SA BASIN G**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.24 cfs @ 11.98 hrs, Volume= 0.137 af, Depth= 2.35"  
Routed to Pond FB-G : FOREBAY G

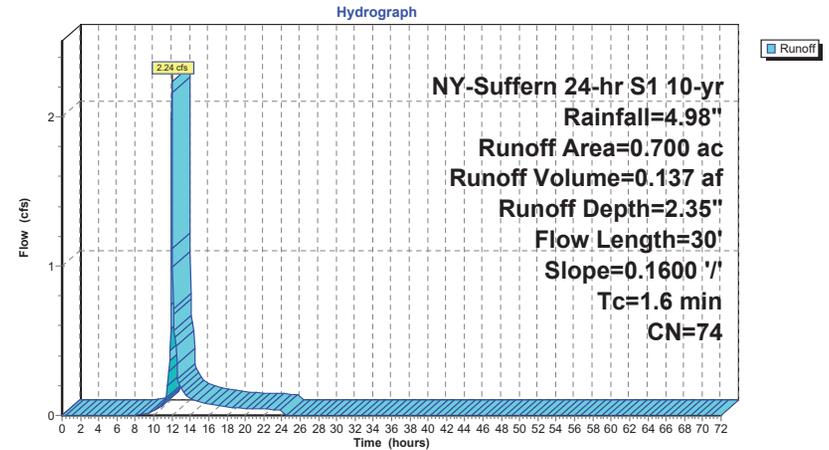
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG A
0.280	39	>75% Grass cover, Good, HSG A
0.700	74	Weighted Average
0.280		40.00% Pervious Area
0.420		60.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	30	0.1600	0.31		

**Sheet Flow, A to B**  
Grass: Short n= 0.150 P2= 3.35"

**Subcatchment FB-G IN: SA BASIN G**



**2024-01-15 Proposed Conditions**

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**Hydrograph for Subcatchment FB-G IN: SA BASIN G**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	2.35	0.00
1.00	0.07	0.00	0.00	53.00	4.98	2.35	0.00
2.00	0.14	0.00	0.00	54.00	4.98	2.35	0.00
3.00	0.22	0.00	0.00	55.00	4.98	2.35	0.00
4.00	0.30	0.00	0.00	56.00	4.98	2.35	0.00
5.00	0.40	0.00	0.00	57.00	4.98	2.35	0.00
6.00	0.50	0.00	0.00	58.00	4.98	2.35	0.00
7.00	0.61	0.00	0.00	59.00	4.98	2.35	0.00
8.00	0.74	0.00	0.00	60.00	4.98	2.35	0.00
9.00	0.90	0.01	0.01	61.00	4.98	2.35	0.00
10.00	1.09	0.04	0.03	62.00	4.98	2.35	0.00
11.00	1.37	0.11	0.07	63.00	4.98	2.35	0.00
12.00	2.70	0.72	2.17	64.00	4.98	2.35	0.00
13.00	3.62	1.32	0.18	65.00	4.98	2.35	0.00
14.00	3.90	1.52	0.12	66.00	4.98	2.35	0.00
15.00	4.09	1.66	0.09	67.00	4.98	2.35	0.00
16.00	4.24	1.78	0.07	68.00	4.98	2.35	0.00
17.00	4.37	1.87	0.06	69.00	4.98	2.35	0.00
18.00	4.49	1.96	0.06	70.00	4.98	2.35	0.00
19.00	4.59	2.04	0.05	71.00	4.98	2.35	0.00
20.00	4.68	2.11	0.05	72.00	4.98	2.35	0.00
21.00	4.76	2.18	0.04				
22.00	4.84	2.24	0.04				
23.00	4.91	2.29	0.04				
24.00	4.98	2.35	0.03				
25.00	4.98	2.35	0.00				
26.00	4.98	2.35	0.00				
27.00	4.98	2.35	0.00				
28.00	4.98	2.35	0.00				
29.00	4.98	2.35	0.00				
30.00	4.98	2.35	0.00				
31.00	4.98	2.35	0.00				
32.00	4.98	2.35	0.00				
33.00	4.98	2.35	0.00				
34.00	4.98	2.35	0.00				
35.00	4.98	2.35	0.00				
36.00	4.98	2.35	0.00				
37.00	4.98	2.35	0.00				
38.00	4.98	2.35	0.00				
39.00	4.98	2.35	0.00				
40.00	4.98	2.35	0.00				
41.00	4.98	2.35	0.00				
42.00	4.98	2.35	0.00				
43.00	4.98	2.35	0.00				
44.00	4.98	2.35	0.00				
45.00	4.98	2.35	0.00				
46.00	4.98	2.35	0.00				
47.00	4.98	2.35	0.00				
48.00	4.98	2.35	0.00				
49.00	4.98	2.35	0.00				
50.00	4.98	2.35	0.00				
51.00	4.98	2.35	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**

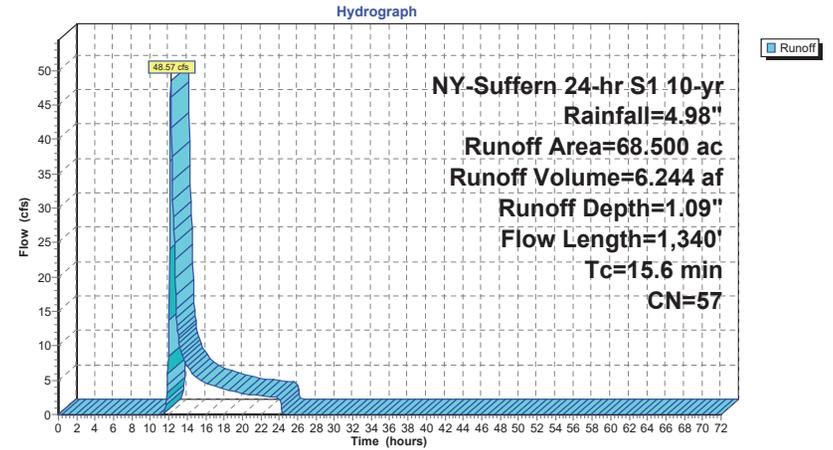
Runoff = 48.57 cfs @ 12.20 hrs, Volume= 6.244 af, Depth= 1.09"  
Routed to Link 42L : POA STREAM TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

Area (ac)	CN	Description
* 1.060	98	IMP
25.050	30	Woods, Good, HSG A
31.620	70	Woods, Good, HSG C
10.770	77	Woods, Good, HSG D
68.500	57	Weighted Average
67.440		98.45% Pervious Area
1.060		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	49	0.1300	0.15		<b>Sheet Flow, SHEET FLOW</b> Woods: Light underbrush n= 0.400 P2= 3.35"
5.3	51	0.0170	0.16		<b>Sheet Flow, SHEET FLOW</b> Range n= 0.130 P2= 3.35"
4.7	1,240	0.0760	4.44		<b>Shallow Concentrated Flow, SHALLOW CONCENTRATED</b> Unpaved Kv= 16.1 fps
15.6	1,340	Total			

**Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	1.09	0.00
1.00	0.07	0.00	0.00	53.00	4.98	1.09	0.00
2.00	0.14	0.00	0.00	54.00	4.98	1.09	0.00
3.00	0.22	0.00	0.00	55.00	4.98	1.09	0.00
4.00	0.30	0.00	0.00	56.00	4.98	1.09	0.00
5.00	0.40	0.00	0.00	57.00	4.98	1.09	0.00
6.00	0.50	0.00	0.00	58.00	4.98	1.09	0.00
7.00	0.61	0.00	0.00	59.00	4.98	1.09	0.00
8.00	0.74	0.00	0.00	60.00	4.98	1.09	0.00
9.00	0.90	0.00	0.00	61.00	4.98	1.09	0.00
10.00	1.09	0.00	0.00	62.00	4.98	1.09	0.00
11.00	1.37	0.00	0.00	63.00	4.98	1.09	0.00
12.00	2.70	0.16	13.69	64.00	4.98	1.09	0.00
13.00	3.62	0.46	11.52	65.00	4.98	1.09	0.00
14.00	3.90	0.57	7.00	66.00	4.98	1.09	0.00
15.00	4.09	0.66	5.46	67.00	4.98	1.09	0.00
16.00	4.24	0.73	4.60	68.00	4.98	1.09	0.00
17.00	4.37	0.79	4.05	69.00	4.98	1.09	0.00
18.00	4.49	0.84	3.64	70.00	4.98	1.09	0.00
19.00	4.59	0.89	3.34	71.00	4.98	1.09	0.00
20.00	4.68	0.94	3.09	72.00	4.98	1.09	0.00
21.00	4.76	0.98	2.89				
22.00	4.84	1.02	2.73				
23.00	4.91	1.06	2.58				
24.00	4.98	1.09	2.46				
25.00	4.98	1.09	0.00				
26.00	4.98	1.09	0.00				
27.00	4.98	1.09	0.00				
28.00	4.98	1.09	0.00				
29.00	4.98	1.09	0.00				
30.00	4.98	1.09	0.00				
31.00	4.98	1.09	0.00				
32.00	4.98	1.09	0.00				
33.00	4.98	1.09	0.00				
34.00	4.98	1.09	0.00				
35.00	4.98	1.09	0.00				
36.00	4.98	1.09	0.00				
37.00	4.98	1.09	0.00				
38.00	4.98	1.09	0.00				
39.00	4.98	1.09	0.00				
40.00	4.98	1.09	0.00				
41.00	4.98	1.09	0.00				
42.00	4.98	1.09	0.00				
43.00	4.98	1.09	0.00				
44.00	4.98	1.09	0.00				
45.00	4.98	1.09	0.00				
46.00	4.98	1.09	0.00				
47.00	4.98	1.09	0.00				
48.00	4.98	1.09	0.00				
49.00	4.98	1.09	0.00				
50.00	4.98	1.09	0.00				
51.00	4.98	1.09	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Pond BA-A: AG INF BASIN A**

[92] Warning: Device #5 is above defined storage

[81] Warning: Exceeded Pond FB-A2 by 0.45' @ 12.65 hrs

Inflow Area = 5.250 ac, 78.29% Impervious, Inflow Depth = 3.20" for 10-yr event  
 Inflow = 18.74 cfs @ 12.02 hrs, Volume= 1.401 af  
 Outflow = 3.88 cfs @ 12.56 hrs, Volume= 1.401 af, Atten= 79%, Lag= 32.1 min  
 Discarded = 3.88 cfs @ 12.56 hrs, Volume= 1.401 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 310.98' @ 12.56 hrs Surf.Area= 13,976 sf Storage= 14,830 cf

Plug-Flow detention time= 27.4 min calculated for 1.399 af (100% of inflow)  
 Center-of-Mass det. time= 25.5 min ( 855.1 - 829.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	43,288 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	10,324	0	0
310.00	11,848	2,217	2,217
311.00	14,026	12,937	15,154
312.00	16,335	15,181	30,335
312.75	18,208	12,954	43,288

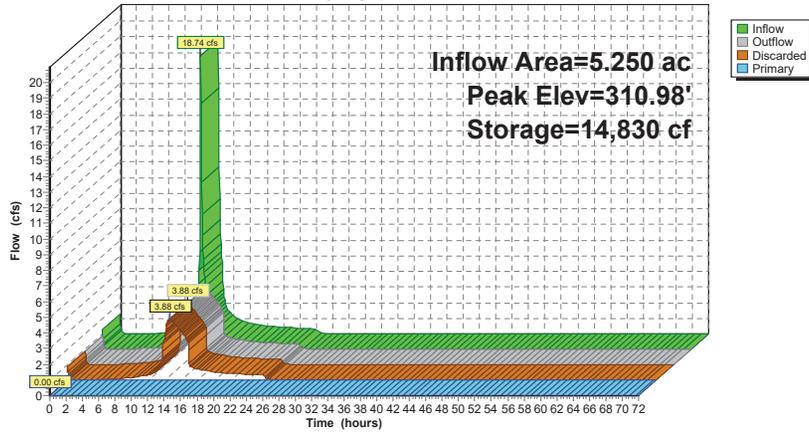
Device	Routing	Invert	Outlet Devices
#1	Primary	309.00'	18.0" Round Culvert L= 129.0' Ke= 1.000 Inlet / Outlet Invert= 309.00' / 306.42' S= 0.0200 ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	309.80'	9.500 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 305.80'
#3	Device 1	311.10'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	312.60'	48.0" x 48.0" Horiz. Top Grate C= 0.600 Limited to weir flow at low heads
#5	Primary	312.75'	48.0' long x 11.0' breadth Broad-Crested Rectangular Weir (Emergency Spillway) Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64

Discarded OutFlow Max=3.88 cfs @ 12.56 hrs HW=310.98' (Free Discharge)  
 2=Exfiltration ( Controls 3.88 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=309.81' (Free Discharge)  
 1=Culvert (Passes 0.00 cfs of 2.22 cfs potential flow)  
 3=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)  
 4=Top Grate ( Controls 0.00 cfs)  
 5=Broad-Crested Rectangular Weir (Emergency Spillway) ( Controls 0.00 cfs)

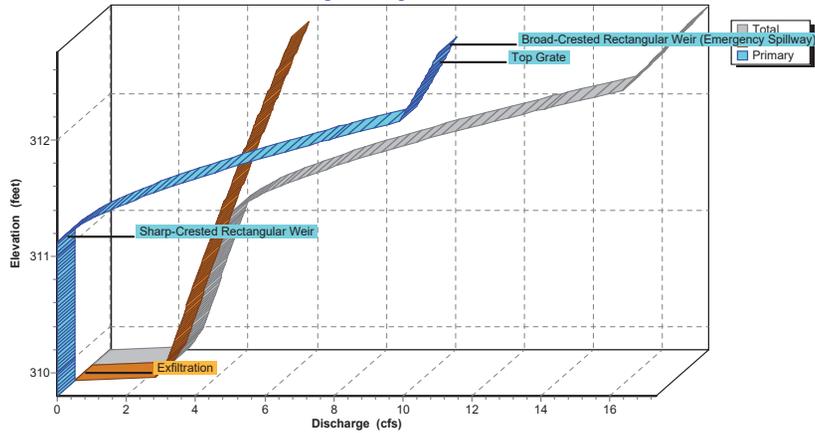
Pond BA-A: AG INF BASIN A

Hydrograph



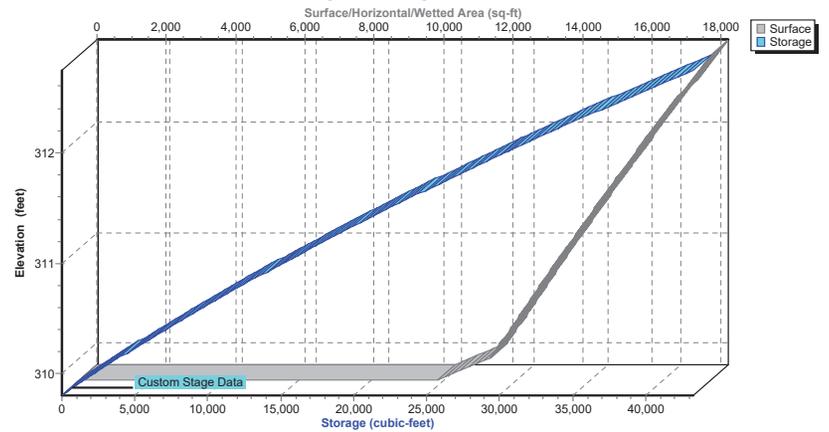
Pond BA-A: AG INF BASIN A

Stage-Discharge



Pond BA-A: AG INF BASIN A

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Pond BA-A: AG INF BASIN A**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	1.27	68	309.81	0.52	0.52	0.00
2.50	0.00	0	309.80	0.00	0.00	0.00
5.00	0.04	5	309.80	0.04	0.04	0.00
7.50	0.14	18	309.80	0.14	0.14	0.00
10.00	0.36	46	309.80	0.35	0.35	0.00
12.50	4.58	14,752	310.97	3.87	3.87	0.00
15.00	0.84	112	309.81	0.85	0.85	0.00
17.50	0.56	74	309.81	0.56	0.56	0.00
20.00	0.43	57	309.81	0.43	0.43	0.00
22.50	0.36	47	309.80	0.36	0.36	0.00
25.00	0.01	2	309.80	0.02	0.02	0.00
27.50	0.00	0	309.80	0.00	0.00	0.00
30.00	0.00	0	309.80	0.00	0.00	0.00
32.50	0.00	0	309.80	0.00	0.00	0.00
35.00	0.00	0	309.80	0.00	0.00	0.00
37.50	0.00	0	309.80	0.00	0.00	0.00
40.00	0.00	0	309.80	0.00	0.00	0.00
42.50	0.00	0	309.80	0.00	0.00	0.00
45.00	0.00	0	309.80	0.00	0.00	0.00
47.50	0.00	0	309.80	0.00	0.00	0.00
50.00	0.00	0	309.80	0.00	0.00	0.00
52.50	0.00	0	309.80	0.00	0.00	0.00
55.00	0.00	0	309.80	0.00	0.00	0.00
57.50	0.00	0	309.80	0.00	0.00	0.00
60.00	0.00	0	309.80	0.00	0.00	0.00
62.50	0.00	0	309.80	0.00	0.00	0.00
65.00	0.00	0	309.80	0.00	0.00	0.00
67.50	0.00	0	309.80	0.00	0.00	0.00
70.00	0.00	0	309.80	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Stage-Discharge for Pond BA-A: AG INF BASIN A**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
309.80	0.00	0.00	0.00	312.40	16.16	5.77	10.39
309.85	2.38	2.38	0.00	312.45	16.33	5.84	10.49
309.90	2.50	2.50	0.00	312.50	16.50	5.91	10.58
309.95	2.61	2.61	0.00	312.55	16.66	5.98	10.68
310.00	2.73	2.73	0.00	312.60	16.83	6.06	10.77
310.05	2.78	2.78	0.00	312.65	17.00	6.13	10.87
310.10	2.84	2.84	0.00	312.70	17.16	6.20	10.96
310.15	2.90	2.90	0.00	312.75	17.33	6.27	11.05
310.20	2.95	2.95	0.00				
310.25	3.01	3.01	0.00				
310.30	3.07	3.07	0.00				
310.35	3.13	3.13	0.00				
310.40	3.19	3.19	0.00				
310.45	3.24	3.24	0.00				
310.50	3.30	3.30	0.00				
310.55	3.36	3.36	0.00				
310.60	3.42	3.42	0.00				
310.65	3.48	3.48	0.00				
310.70	3.54	3.54	0.00				
310.75	3.60	3.60	0.00				
310.80	3.66	3.66	0.00				
310.85	3.72	3.72	0.00				
310.90	3.78	3.78	0.00				
310.95	3.84	3.84	0.00				
311.00	3.91	3.91	0.00				
311.05	3.97	3.97	0.00				
311.10	4.03	4.03	0.00				
311.15	4.20	4.09	0.11				
311.20	4.47	4.16	0.31				
311.25	4.79	4.22	0.56				
311.30	5.15	4.29	0.87				
311.35	5.56	4.35	1.21				
311.40	6.00	4.42	1.58				
311.45	6.46	4.48	1.98				
311.50	6.96	4.55	2.42				
311.55	7.48	4.61	2.87				
311.60	8.03	4.68	3.35				
311.65	8.60	4.74	3.85				
311.70	9.19	4.81	4.38				
311.75	9.79	4.87	4.92				
311.80	10.42	4.94	5.48				
311.85	11.06	5.01	6.05				
311.90	11.72	5.07	6.65				
311.95	12.39	5.14	7.25				
312.00	13.08	5.21	7.87				
312.05	13.79	5.28	8.51				
312.10	14.50	5.35	9.16				
312.15	15.23	5.42	9.82				
312.20	15.48	5.49	9.99				
312.25	15.65	5.56	10.09				
312.30	15.82	5.63	10.19				
312.35	15.99	5.70	10.29				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-A: AG INF BASIN A**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	10,324	0	312.40	17,334	37,068
309.85	10,705	526	312.45	17,459	37,938
309.90	11,086	1,071	312.50	17,584	38,814
309.95	11,467	1,634	312.55	17,709	39,697
310.00	11,848	2,217	312.60	17,833	40,585
310.05	11,957	2,812	312.65	17,958	41,480
310.10	12,066	3,413	312.70	18,083	42,381
310.15	12,175	4,019	312.75	<b>18,208</b>	<b>43,288</b>
310.20	12,284	4,630			
310.25	12,393	5,247			
310.30	12,501	5,870			
310.35	12,610	6,497			
310.40	12,719	7,131			
310.45	12,828	7,769			
310.50	12,937	8,413			
310.55	13,046	9,063			
310.60	13,155	9,718			
310.65	13,264	10,379			
310.70	13,373	11,044			
310.75	13,482	11,716			
310.80	13,590	12,393			
310.85	13,699	13,075			
310.90	13,808	13,762			
310.95	13,917	14,456			
311.00	14,026	15,154			
311.05	14,141	15,858			
311.10	14,257	16,568			
311.15	14,372	17,284			
311.20	14,488	18,006			
311.25	14,603	18,733			
311.30	14,719	19,466			
311.35	14,834	20,205			
311.40	14,950	20,949			
311.45	15,065	21,700			
311.50	15,181	22,456			
311.55	15,296	23,218			
311.60	15,411	23,985			
311.65	15,527	24,759			
311.70	15,642	25,538			
311.75	15,758	26,323			
311.80	15,873	27,114			
311.85	15,989	27,910			
311.90	16,104	28,713			
311.95	16,220	29,521			
312.00	16,335	30,335			
312.05	16,460	31,155			
312.10	16,585	31,981			
312.15	16,710	32,813			
312.20	16,834	33,652			
312.25	16,959	34,496			
312.30	17,084	35,348			
312.35	17,209	36,205			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-B: AG INF BASIN B**

Inflow Area = 1.560 ac, 66.03% Impervious, Inflow Depth = 3.41" for 10-yr event  
 Inflow = 7.52 cfs @ 11.99 hrs, Volume= 0.443 af  
 Outflow = 1.18 cfs @ 12.51 hrs, Volume= 0.443 af, Atten= 84%, Lag= 30.9 min  
 Discarded = 0.60 cfs @ 12.51 hrs, Volume= 0.373 af  
 Primary = 0.58 cfs @ 12.51 hrs, Volume= 0.070 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 305.62' @ 12.51 hrs Surf.Area= 5,911 sf Storage= 6,630 cf

Plug-Flow detention time= 83.2 min calculated for 0.443 af (100% of inflow)  
 Center-of-Mass det. time= 83.2 min ( 909.7 - 826.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	304.00'	26,598 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
304.00	2,100	0	0
305.00	4,600	3,350	3,350
306.00	6,700	5,650	9,000
307.00	8,777	7,739	16,739
308.00	10,941	9,859	26,598

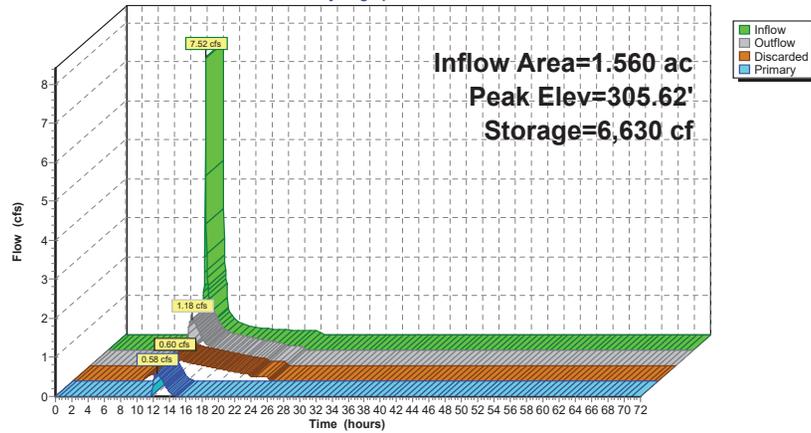
Device	Routing	Invert	Outlet Devices
#1	Primary	303.00'	<b>18.0" Round Culvert</b> L= 11.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 303.00' / 302.89' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	304.00'	<b>3.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 300.00'
#3	Device 1	305.00'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.00'	<b>48.0" x 48.0" Horiz. Top Grate</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=0.60 cfs @ 12.51 hrs HW=305.62' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 0.60 cfs)

**Primary OutFlow** Max=0.58 cfs @ 12.51 hrs HW=305.62' (Free Discharge)  
 ↳ **1=Culvert** (Passes 0.58 cfs of 11.65 cfs potential flow)  
 ↳ **3=Orifice/Grate** (Orifice Controls 0.58 cfs @ 2.94 fps)  
 ↳ **4=Top Grate** ( Controls 0.00 cfs)

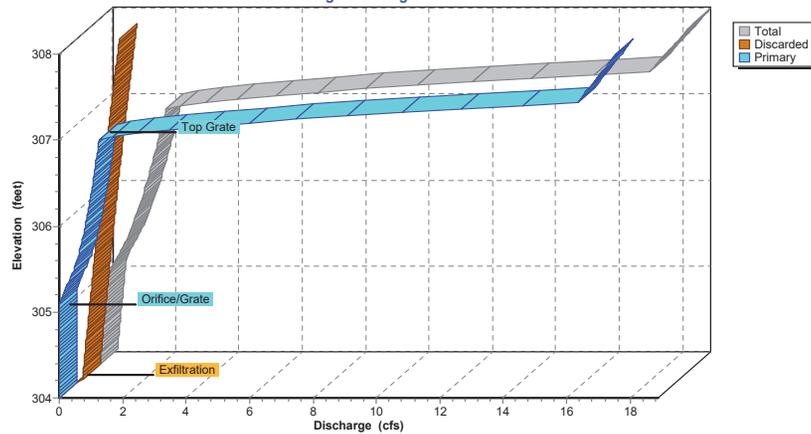
Pond BA-B: AG INF BASIN B

Hydrograph



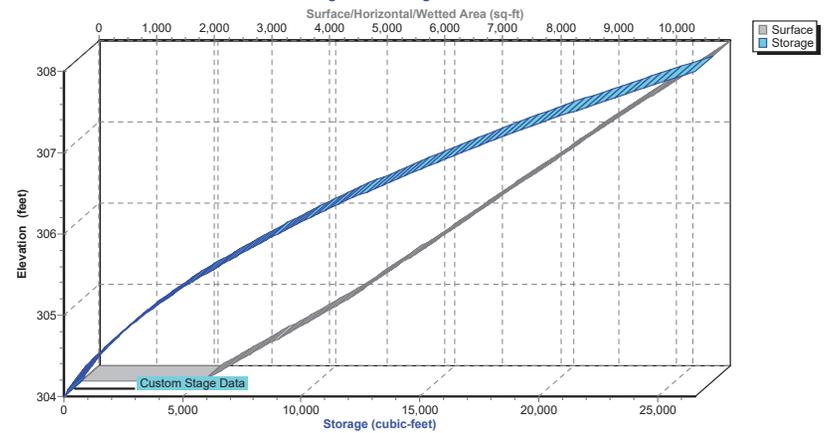
Pond BA-B: AG INF BASIN B

Stage-Discharge



Pond BA-B: AG INF BASIN B

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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**Hydrograph for Pond BA-B: AG INF BASIN B**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	304.00	0.00	0.00	0.00
2.50	0.00	0	304.00	0.00	0.00	0.00
5.00	0.00	0	304.00	0.00	0.00	0.00
7.50	0.00	0	304.00	0.00	0.00	0.00
10.00	<b>0.20</b>	91	304.04	0.18	0.18	0.00
12.50	<b>1.27</b>	<b>6,629</b>	<b>305.62</b>	<b>1.18</b>	<b>0.60</b>	<b>0.58</b>
15.00	0.25	3,526	305.04	0.45	0.45	0.00
17.50	0.17	1,809	304.63	0.33	0.33	0.00
20.00	0.13	595	304.25	0.23	0.23	0.00
22.50	0.11	52	304.02	0.11	0.11	0.00
25.00	0.00	0	304.00	0.00	0.00	0.00
27.50	0.00	0	304.00	0.00	0.00	0.00
30.00	0.00	0	304.00	0.00	0.00	0.00
32.50	0.00	0	304.00	0.00	0.00	0.00
35.00	0.00	0	304.00	0.00	0.00	0.00
37.50	0.00	0	304.00	0.00	0.00	0.00
40.00	0.00	0	304.00	0.00	0.00	0.00
42.50	0.00	0	304.00	0.00	0.00	0.00
45.00	0.00	0	304.00	0.00	0.00	0.00
47.50	0.00	0	304.00	0.00	0.00	0.00
50.00	0.00	0	304.00	0.00	0.00	0.00
52.50	0.00	0	304.00	0.00	0.00	0.00
55.00	0.00	0	304.00	0.00	0.00	0.00
57.50	0.00	0	304.00	0.00	0.00	0.00
60.00	0.00	0	304.00	0.00	0.00	0.00
62.50	0.00	0	304.00	0.00	0.00	0.00
65.00	0.00	0	304.00	0.00	0.00	0.00
67.50	0.00	0	304.00	0.00	0.00	0.00
70.00	0.00	0	304.00	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-B: AG INF BASIN B**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
304.00	0.00	0.00	0.00	306.60	1.99	0.89	1.10
304.05	0.18	0.18	0.00	306.65	2.02	0.90	1.12
304.10	0.19	0.19	0.00	306.70	2.06	0.92	1.14
304.15	0.21	0.21	0.00	306.75	2.09	0.93	1.16
304.20	0.22	0.22	0.00	306.80	2.13	0.95	1.18
304.25	0.23	0.23	0.00	306.85	2.16	0.96	1.20
304.30	0.25	0.25	0.00	306.90	2.19	0.98	1.21
304.35	0.26	0.26	0.00	306.95	2.23	0.99	1.23
304.40	0.27	0.27	0.00	307.00	2.26	1.01	1.25
304.45	0.28	0.28	0.00	307.05	2.88	1.03	1.85
304.50	0.30	0.30	0.00	307.10	3.98	1.04	2.94
304.55	0.31	0.31	0.00	307.15	5.40	1.06	4.34
304.60	0.33	0.33	0.00	307.20	7.07	1.07	6.00
304.65	0.34	0.34	0.00	307.25	8.97	1.09	7.88
304.70	0.35	0.35	0.00	307.30	11.06	1.11	9.95
304.75	0.37	0.37	0.00	307.35	13.33	1.12	12.20
304.80	0.38	0.38	0.00	307.40	15.76	1.14	14.62
304.85	0.39	0.39	0.00	307.45	17.52	1.16	16.37
304.90	0.41	0.41	0.00	307.50	17.65	1.17	16.48
304.95	0.42	0.42	0.00	307.55	17.78	1.19	16.59
305.00	0.44	0.44	0.00	307.60	17.90	1.21	16.70
305.05	0.46	0.45	0.01	307.65	18.03	1.22	16.80
305.10	0.49	0.46	0.03	307.70	18.15	1.24	16.91
305.15	0.54	0.48	0.07	307.75	18.27	1.26	17.02
305.20	0.60	0.49	0.11	307.80	18.40	1.27	17.12
305.25	0.67	0.50	0.17	307.85	18.52	1.29	17.23
305.30	0.75	0.52	0.23	307.90	18.64	1.31	17.33
305.35	0.83	0.53	0.30	307.95	18.76	1.32	17.44
305.40	0.91	0.54	0.36	308.00	<b>18.88</b>	<b>1.34</b>	<b>17.54</b>
305.45	0.98	0.56	0.43				
305.50	1.04	0.57	0.47				
305.55	1.10	0.58	0.52				
305.60	1.16	0.60	0.56				
305.65	1.21	0.61	0.60				
305.70	1.26	0.63	0.63				
305.75	1.31	0.64	0.67				
305.80	1.35	0.65	0.70				
305.85	1.40	0.67	0.73				
305.90	1.44	0.68	0.76				
305.95	1.49	0.70	0.79				
306.00	1.53	0.71	0.82				
306.05	1.57	0.72	0.85				
306.10	1.61	0.74	0.87				
306.15	1.65	0.75	0.90				
306.20	1.69	0.77	0.92				
306.25	1.73	0.78	0.95				
306.30	1.77	0.80	0.97				
306.35	1.80	0.81	0.99				
306.40	1.84	0.83	1.01				
306.45	1.88	0.84	1.04				
306.50	1.91	0.86	1.06				
306.55	1.95	0.87	1.08				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-B: AG INF BASIN B**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
304.00	2,100	0	306.60	7,946	13,394
304.05	2,225	108	306.65	8,050	13,794
304.10	2,350	223	306.70	8,154	14,199
304.15	2,475	343	306.75	8,258	14,609
304.20	2,600	470	306.80	8,362	15,025
304.25	2,725	603	306.85	8,465	15,445
304.30	2,850	743	306.90	8,569	15,871
304.35	2,975	888	306.95	8,673	16,302
304.40	3,100	1,040	307.00	8,777	16,739
304.45	3,225	1,198	307.05	8,885	17,180
304.50	3,350	1,363	307.10	8,993	17,627
304.55	3,475	1,533	307.15	9,102	18,079
304.60	3,600	1,710	307.20	9,210	18,537
304.65	3,725	1,893	307.25	9,318	19,000
304.70	3,850	2,082	307.30	9,426	19,469
304.75	3,975	2,278	307.35	9,534	19,943
304.80	4,100	2,480	307.40	9,643	20,422
304.85	4,225	2,688	307.45	9,751	20,907
304.90	4,350	2,902	307.50	9,859	21,398
304.95	4,475	3,123	307.55	9,967	21,893
305.00	4,600	3,350	307.60	10,075	22,394
305.05	4,705	3,583	307.65	10,184	22,901
305.10	4,810	3,821	307.70	10,292	23,413
305.15	4,915	4,064	307.75	10,400	23,930
305.20	5,020	4,312	307.80	10,508	24,453
305.25	5,125	4,566	307.85	10,616	24,981
305.30	5,230	4,825	307.90	10,725	25,514
305.35	5,335	5,089	307.95	10,833	26,053
305.40	5,440	5,358	308.00	<b>10,941</b>	<b>26,598</b>
305.45	5,545	5,633			
305.50	5,650	5,913			
305.55	5,755	6,198			
305.60	5,860	6,488			
305.65	5,965	6,784			
305.70	6,070	7,084			
305.75	6,175	7,391			
305.80	6,280	7,702			
305.85	6,385	8,019			
305.90	6,490	8,340			
305.95	6,595	8,668			
306.00	6,700	9,000			
306.05	6,804	9,338			
306.10	6,908	9,680			
306.15	7,012	10,028			
306.20	7,115	10,382			
306.25	7,219	10,740			
306.30	7,323	11,103			
306.35	7,427	11,472			
306.40	7,531	11,846			
306.45	7,635	12,225			
306.50	7,739	12,610			
306.55	7,842	12,999			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-CR: UG INF BASIN C (RTANK)**

Inflow Area = 8.090 ac, 94.93% Impervious, Inflow Depth = 4.40" for 10-yr event  
 Inflow = 39.31 cfs @ 12.02 hrs, Volume= 2.966 af  
 Outflow = 3.44 cfs @ 12.83 hrs, Volume= 2.966 af, Atten= 91%, Lag= 48.2 min  
 Discarded = 2.59 cfs @ 12.83 hrs, Volume= 2.713 af  
 Primary = 0.85 cfs @ 12.83 hrs, Volume= 0.253 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 305.57' @ 12.83 hrs Surf.Area= 27,305 sf Storage= 47,069 cf

Plug-Flow detention time= 129.2 min calculated for 2.964 af (100% of inflow)  
 Center-of-Mass det. time= 129.1 min ( 901.1 - 772.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	303.50'	14,951 cf	<b>41.40'W x 659.51'L x 5.35'H Field A</b> 145,966 cf Overall - 108,590 cf Embedded = 37,376 cf x 40.0% Voids
#2A	303.75'	103,160 cf	<b>Ferguson R-Tank UD 4 x 6327</b> Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 6327 Chambers in 19 Rows
		118,111 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	303.75'	<b>18.0" Round Culvert</b> L= 85.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 303.75' / 302.65' S= 0.0129 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	303.50'	<b>2.600 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 299.90'
#3	Device 1	304.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.50'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=2.59 cfs @ 12.83 hrs HW=305.57' (Free Discharge)  
 ↳2=Exfiltration ( Controls 2.59 cfs)

**Primary OutFlow** Max=0.85 cfs @ 12.83 hrs HW=305.57' (Free Discharge)  
 ↳1=Culvert (Passes 0.85 cfs of 10.98 cfs potential flow)  
 ↳3=Orifice/Grate (Orifice Controls 0.85 cfs @ 4.35 fps)  
 ↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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**Pond BA-CR: UG INF BASIN C (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf

Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

333 Chambers/Row x 1.97' Long = 655.51' Row Length +24.0" End Stone x 2 = 659.51' Base Length

19 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 41.40' Base Width

3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

6,327 Chambers x 16.3 cf = 103,160.4 cf Chamber Storage

6,327 Chambers x 17.2 cf = 108,589.8 cf Displacement

145,966.2 cf Field - 108,589.8 cf Chambers = 37,376.3 cf Stone x 40.0% Voids = 14,950.5 cf Stone Storage

Storage

Chamber Storage + Stone Storage = 118,110.9 cf = 2.711 af

Overall Storage Efficiency = 80.9%

Overall System Size = 659.51' x 41.40' x 5.35'

6,327 Chambers

5,406.2 cy Field

1,384.3 cy Stone



**2024-01-15 Proposed Conditions**

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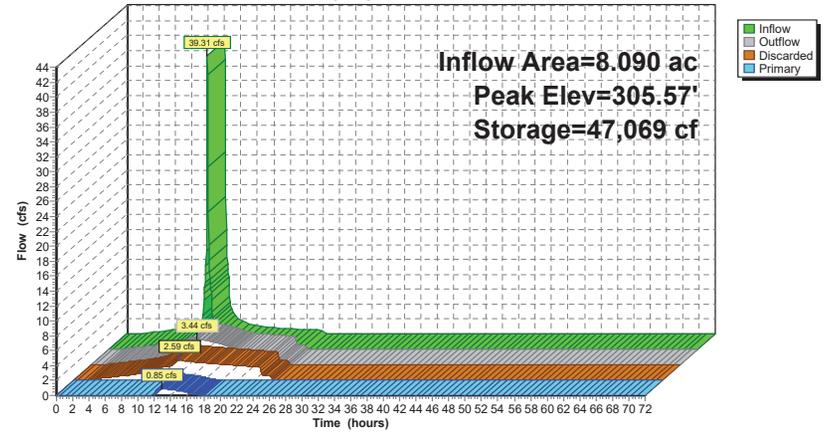
NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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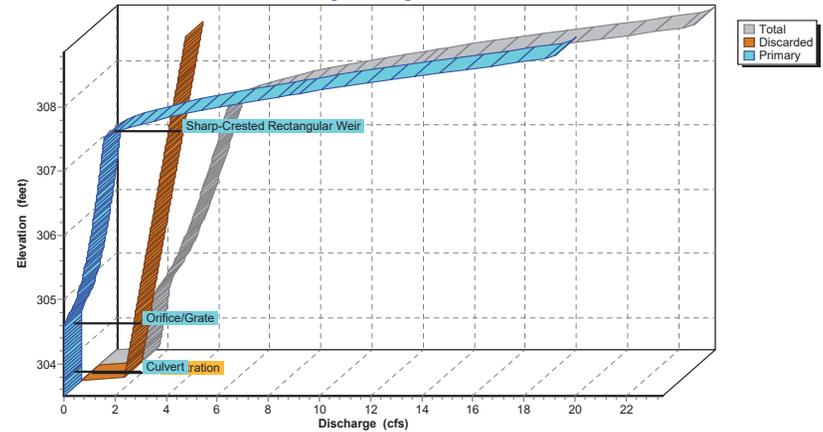
**Pond BA-CR: UG INF BASIN C (RTANK)**

Hydrograph

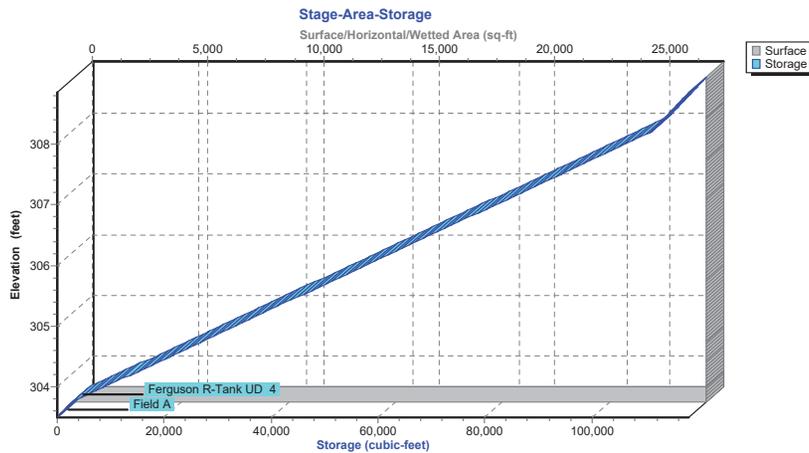


**Pond BA-CR: UG INF BASIN C (RTANK)**

Stage-Discharge



Pond BA-CR: UG INF BASIN C (RTANK)



Hydrograph for Pond BA-CR: UG INF BASIN C (RTANK)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	303.50	0.00	0.00	0.00
2.50	0.14	43	303.50	0.12	0.12	0.00
5.00	0.45	153	303.51	0.44	0.44	0.00
7.50	0.80	274	303.53	0.78	0.78	0.00
10.00	<b>1.58</b>	534	303.55	1.52	1.52	0.00
12.50	<b>7.60</b>	<b>45,542</b>	<b>305.50</b>	<b>3.38</b>	<b>2.56</b>	<b>0.82</b>
15.00	1.39	<b>37,447</b>	<b>305.17</b>	<b>3.02</b>	<b>2.41</b>	<b>0.61</b>
17.50	0.92	24,018	304.62	2.20	2.16	0.04
20.00	0.71	12,749	304.16	1.94	1.94	0.00
22.50	0.59	1,974	303.68	1.73	1.73	0.00
25.00	0.00	0	303.50	0.00	0.00	0.00
27.50	0.00	0	303.50	0.00	0.00	0.00
30.00	0.00	0	303.50	0.00	0.00	0.00
32.50	0.00	0	303.50	0.00	0.00	0.00
35.00	0.00	0	303.50	0.00	0.00	0.00
37.50	0.00	0	303.50	0.00	0.00	0.00
40.00	0.00	0	303.50	0.00	0.00	0.00
42.50	0.00	0	303.50	0.00	0.00	0.00
45.00	0.00	0	303.50	0.00	0.00	0.00
47.50	0.00	0	303.50	0.00	0.00	0.00
50.00	0.00	0	303.50	0.00	0.00	0.00
52.50	0.00	0	303.50	0.00	0.00	0.00
55.00	0.00	0	303.50	0.00	0.00	0.00
57.50	0.00	0	303.50	0.00	0.00	0.00
60.00	0.00	0	303.50	0.00	0.00	0.00
62.50	0.00	0	303.50	0.00	0.00	0.00
65.00	0.00	0	303.50	0.00	0.00	0.00
67.50	0.00	0	303.50	0.00	0.00	0.00
70.00	0.00	0	303.50	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-CR: UG INF BASIN C (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
303.50	0.00	0.00	0.00	308.70	22.06	4.02	18.04
303.60	1.69	1.69	0.00	308.80	<b>23.31</b>	<b>4.06</b>	<b>19.25</b>
303.70	1.73	1.73	0.00				
303.80	1.78	1.78	0.00				
303.90	1.83	1.83	0.00				
304.00	1.87	1.87	0.00				
304.10	1.92	1.92	0.00				
304.20	1.96	1.96	0.00				
304.30	2.01	2.01	0.00				
304.40	2.05	2.05	0.00				
304.50	2.10	2.10	0.00				
304.60	2.18	2.15	0.03				
304.70	2.30	2.19	0.11				
304.80	2.47	2.24	0.23				
304.90	2.65	2.28	0.36				
305.00	2.80	2.33	0.47				
305.10	2.93	2.37	0.56				
305.20	3.05	2.42	0.63				
305.30	3.17	2.47	0.70				
305.40	3.27	2.51	0.76				
305.50	3.38	2.56	0.82				
305.60	3.47	2.60	0.87				
305.70	3.57	2.65	0.92				
305.80	3.66	2.69	0.97				
305.90	3.75	2.74	1.01				
306.00	3.84	2.78	1.06				
306.10	3.93	2.83	1.10				
306.20	4.01	2.88	1.14				
306.30	4.10	2.92	1.18				
306.40	4.18	2.97	1.21				
306.50	4.26	3.01	1.25				
306.60	4.34	3.06	1.29				
306.70	4.42	3.10	1.32				
306.80	4.50	3.15	1.35				
306.90	4.58	3.20	1.39				
307.00	4.66	3.24	1.42				
307.10	4.74	3.29	1.45				
307.20	4.81	3.33	1.48				
307.30	4.89	3.38	1.51				
307.40	4.96	3.42	1.54				
307.50	5.04	3.47	1.57				
307.60	5.12	3.51	1.60				
307.70	5.20	3.56	1.63				
307.80	5.28	3.61	1.66				
307.90	5.36	3.65	1.69				
308.00	5.44	3.70	1.72				
308.10	5.52	3.74	1.75				
308.20	5.60	3.79	1.78				
308.30	5.68	3.83	1.81				
308.40	5.76	3.88	1.84				
308.50	5.84	3.93	1.87				
308.60	5.92	3.97	1.90				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Stage-Area-Storage for Pond BA-CR: UG INF BASIN C (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
303.50	<b>27,305</b>	0	308.70	27,305	116,518
303.60	27,305	1,092	308.80	27,305	<b>117,611</b>
303.70	27,305	2,184			
303.80	27,305	3,951			
303.90	27,305	6,391			
304.00	27,305	8,832			
304.10	27,305	11,273			
304.20	27,305	13,713			
304.30	27,305	16,154			
304.40	27,305	18,595			
304.50	27,305	21,035			
304.60	27,305	23,476			
304.70	27,305	25,917			
304.80	27,305	28,357			
304.90	27,305	30,798			
305.00	27,305	33,238			
305.10	27,305	35,679			
305.20	27,305	38,120			
305.30	27,305	40,560			
305.40	27,305	43,001			
305.50	27,305	45,442			
305.60	27,305	47,882			
305.70	27,305	50,323			
305.80	27,305	52,764			
305.90	27,305	55,204			
306.00	27,305	57,645			
306.10	27,305	60,085			
306.20	27,305	62,526			
306.30	27,305	64,967			
306.40	27,305	67,407			
306.50	27,305	69,848			
306.60	27,305	72,289			
306.70	27,305	74,729			
306.80	27,305	77,170			
306.90	27,305	79,611			
307.00	27,305	82,051			
307.10	27,305	84,492			
307.20	27,305	86,932			
307.30	27,305	89,373			
307.40	27,305	91,814			
307.50	27,305	94,254			
307.60	27,305	96,695			
307.70	27,305	99,136			
307.80	27,305	101,576			
307.90	27,305	104,017			
308.00	27,305	106,458			
308.10	27,305	108,898			
308.20	27,305	111,057			
308.30	27,305	112,150			
308.40	27,305	113,242			
308.50	27,305	114,334			
308.60	27,305	115,426			

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Pond BA-DR: UG INF BASIN D (RTANK)**

Inflow Area = 8.240 ac, 95.51% Impervious, Inflow Depth = 4.63" for 10-yr event  
 Inflow = 40.93 cfs @ 12.02 hrs, Volume= 3.177 af  
 Outflow = 4.22 cfs @ 12.67 hrs, Volume= 3.177 af, Atten= 90%, Lag= 39.0 min  
 Discarded = 2.91 cfs @ 12.67 hrs, Volume= 2.873 af  
 Primary = 1.31 cfs @ 12.67 hrs, Volume= 0.304 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 306.70' @ 12.67 hrs Surf.Area= 32,692 sf Storage= 45,910 cf

Plug-Flow detention time= 94.9 min calculated for 3.177 af (100% of inflow)  
 Center-of-Mass det. time= 94.9 min ( 852.1 - 757.2 )

Volume	Invert	Avail.Storage	Storage Description
#1A	305.00'	15,782 cf	<b>49.28'W x 663.45'L x 4.26'H Field A</b> 139,369 cf Overall - 99,915 cf Embedded = 39,454 cf x 40.0% Voids
#2A	305.25'	94,919 cf	<b>Ferguson R-Tank UD 3</b> x 7705 Inside #1 Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf 7705 Chambers in 23 Rows
		110,701 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	305.25'	<b>18.0" Round Culvert</b> L= 7.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 305.25' / 305.18' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	305.00'	<b>2.700 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 301.00'
#3	Device 1	305.75'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.00'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Device 1	308.25'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=2.91 cfs @ 12.67 hrs HW=306.70' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 2.91 cfs)

**Primary OutFlow** Max=1.31 cfs @ 12.67 hrs HW=306.70' (Free Discharge)  
 ↳ **1=Culvert** (Passes 1.31 cfs of 5.72 cfs potential flow)  
 ↳ **3=Orifice/Grate** (Orifice Controls 1.31 cfs @ 3.77 fps)  
 ↳ **4=Orifice/Grate** ( Controls 0.00 cfs)  
 ↳ **5=Sharp-Crested Rectangular Weir**( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Pond BA-DR: UG INF BASIN D (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 3 (Ferguson R-Tank UD)**

Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf  
 Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf

335 Chambers/Row x 1.97' Long = 659.45' Row Length +24.0" End Stone x 2 = 663.45' Base Length  
 23 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 49.28' Base Width  
 3.0" Stone Base + 40.2" Chamber Height + 8.0" Stone Cover = 4.26' Field Height

7,705 Chambers x 12.3 cf = 94,919.2 cf Chamber Storage  
 7,705 Chambers x 13.0 cf = 99,914.9 cf Displacement

139,369.3 cf Field - 99,914.9 cf Chambers = 39,454.4 cf Stone x 40.0% Voids = 15,781.8 cf Stone Storage

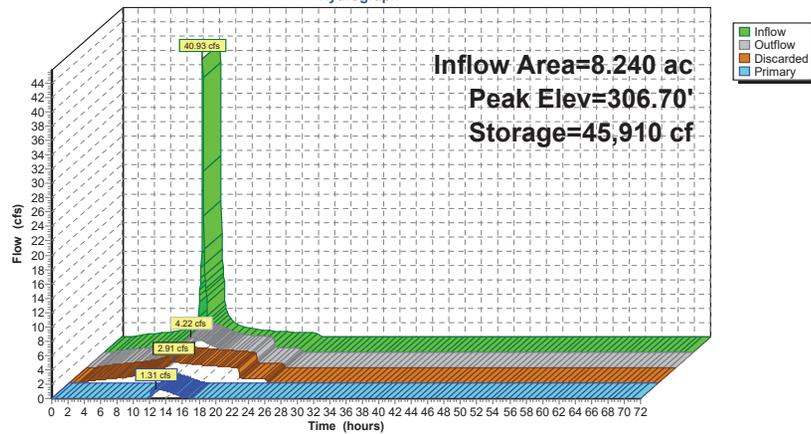
Chamber Storage + Stone Storage = 110,700.9 cf = 2.541 af  
 Overall Storage Efficiency = 79.4%  
 Overall System Size = 663.45' x 49.28' x 4.26'

7,705 Chambers  
 5,161.8 cy Field  
 1,461.3 cy Stone



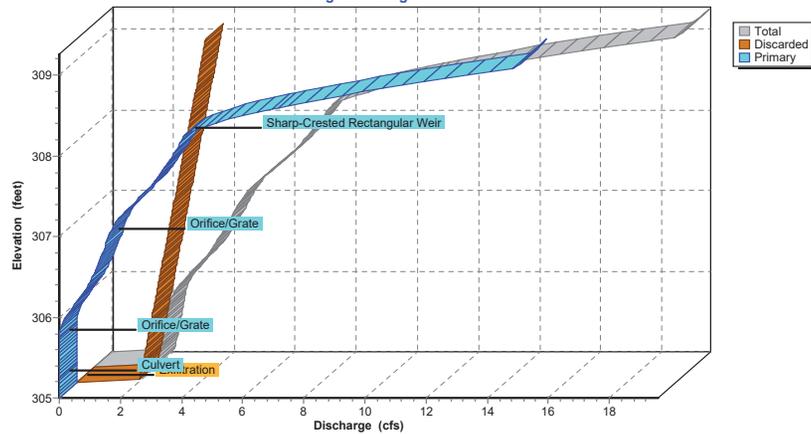
### Pond BA-DR: UG INF BASIN D (RTANK)

Hydrograph



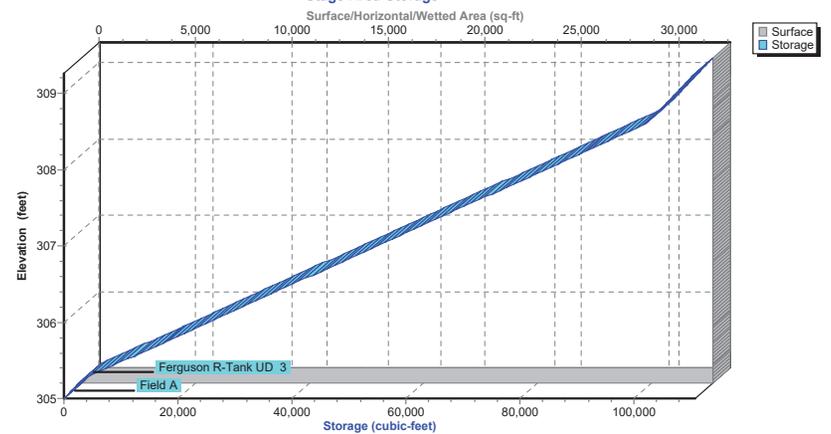
### Pond BA-DR: UG INF BASIN D (RTANK)

Stage-Discharge



### Pond BA-DR: UG INF BASIN D (RTANK)

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Pond BA-DR: UG INF BASIN D (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	305.00	0.00	0.00	0.00
2.50	0.30	77	305.01	0.29	0.29	0.00
5.00	0.60	161	305.01	0.60	0.60	0.00
7.50	0.94	251	305.02	0.93	0.93	0.00
10.00	<b>1.74</b>	456	305.03	1.69	1.69	0.00
12.50	<b>7.84</b>	<b>44,920</b>	<b>306.66</b>	<b>4.17</b>	<b>2.89</b>	<b>1.28</b>
15.00	1.43	<b>32,134</b>	<b>306.23</b>	<b>3.30</b>	<b>2.67</b>	<b>0.63</b>
17.50	0.94	17,653	305.74	2.42	2.42	0.00
20.00	0.73	4,319	305.29	2.19	2.19	0.00
22.50	0.60	164	305.01	0.61	0.61	0.00
25.00	0.00	0	305.00	0.00	0.00	0.00
27.50	0.00	0	305.00	0.00	0.00	0.00
30.00	0.00	0	305.00	0.00	0.00	0.00
32.50	0.00	0	305.00	0.00	0.00	0.00
35.00	0.00	0	305.00	0.00	0.00	0.00
37.50	0.00	0	305.00	0.00	0.00	0.00
40.00	0.00	0	305.00	0.00	0.00	0.00
42.50	0.00	0	305.00	0.00	0.00	0.00
45.00	0.00	0	305.00	0.00	0.00	0.00
47.50	0.00	0	305.00	0.00	0.00	0.00
50.00	0.00	0	305.00	0.00	0.00	0.00
52.50	0.00	0	305.00	0.00	0.00	0.00
55.00	0.00	0	305.00	0.00	0.00	0.00
57.50	0.00	0	305.00	0.00	0.00	0.00
60.00	0.00	0	305.00	0.00	0.00	0.00
62.50	0.00	0	305.00	0.00	0.00	0.00
65.00	0.00	0	305.00	0.00	0.00	0.00
67.50	0.00	0	305.00	0.00	0.00	0.00
70.00	0.00	0	305.00	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-DR: UG INF BASIN D (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
305.00	0.00	0.00	0.00	307.60	6.31	3.37	2.94
305.05	2.07	2.07	0.00	307.65	6.45	3.40	3.06
305.10	2.09	2.09	0.00	307.70	6.58	3.42	3.15
305.15	2.12	2.12	0.00	307.75	6.70	3.45	3.25
305.20	2.15	2.15	0.00	307.80	6.82	3.47	3.35
305.25	2.17	2.17	0.00	307.85	6.94	3.50	3.44
305.30	2.20	2.20	0.00	307.90	7.06	3.52	3.53
305.35	2.22	2.22	0.00	307.95	7.17	3.55	3.62
305.40	2.25	2.25	0.00	308.00	7.27	3.58	3.70
305.45	2.27	2.27	0.00	308.05	7.38	3.60	3.78
305.50	2.30	2.30	0.00	308.10	7.49	3.63	3.86
305.55	2.32	2.32	0.00	308.15	7.59	3.65	3.94
305.60	2.35	2.35	0.00	308.20	7.69	3.68	4.01
305.65	2.38	2.38	0.00	308.25	7.79	3.70	4.08
305.70	2.40	2.40	0.00	308.30	8.03	3.73	4.30
305.75	2.43	2.43	0.00	308.35	8.39	3.75	4.64
305.80	2.46	2.45	0.01	308.40	8.83	3.78	5.05
305.85	2.51	2.48	0.04	308.45	9.33	3.81	5.52
305.90	2.58	2.50	0.08	308.50	9.87	3.83	6.04
305.95	2.66	2.53	0.13	308.55	10.47	3.86	6.61
306.00	2.76	2.55	0.20	308.60	11.10	3.88	7.22
306.05	2.86	2.58	0.28	308.65	11.77	3.91	7.86
306.10	2.98	2.61	0.37	308.70	12.48	3.93	8.54
306.15	3.10	2.63	0.47	308.75	13.21	3.96	9.25
306.20	3.23	2.66	0.57	308.80	13.98	3.98	9.99
306.25	3.36	2.68	0.68	308.85	14.77	4.01	10.76
306.30	3.49	2.71	0.78	308.90	15.59	4.04	11.56
306.35	3.61	2.73	0.87	308.95	16.44	4.06	12.38
306.40	3.71	2.76	0.95	309.00	17.30	4.09	13.22
306.45	3.80	2.78	1.02	309.05	18.19	4.11	14.08
306.50	3.89	2.81	1.08	309.10	19.11	4.14	14.97
306.55	3.98	2.83	1.15	309.15	19.26	4.16	15.10
306.60	4.07	2.86	1.21	309.20	19.41	4.19	15.22
306.65	4.15	2.89	1.27	309.25	<b>19.55</b>	<b>4.21</b>	<b>15.34</b>
306.70	4.23	2.91	1.32				
306.75	4.31	2.94	1.37				
306.80	4.39	2.96	1.42				
306.85	4.46	2.99	1.47				
306.90	4.53	3.01	1.52				
306.95	4.60	3.04	1.56				
307.00	4.67	3.06	1.61				
307.05	4.75	3.09	1.66				
307.10	4.85	3.12	1.73				
307.15	4.95	3.14	1.81				
307.20	5.08	3.17	1.91				
307.25	5.21	3.19	2.02				
307.30	5.36	3.22	2.14				
307.35	5.51	3.24	2.27				
307.40	5.67	3.27	2.40				
307.45	5.83	3.29	2.54				
307.50	6.00	3.32	2.68				
307.55	6.16	3.35	2.81				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-DR: UG INF BASIN D (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
305.00	32,692	0	307.60	32,692	72,590
305.05	32,692	654	307.65	32,692	74,064
305.10	32,692	1,308	307.70	32,692	75,539
305.15	32,692	1,962	307.75	32,692	77,014
305.20	32,692	2,615	307.80	32,692	78,489
305.25	32,692	3,269	307.85	32,692	79,964
305.30	32,692	4,744	307.90	32,692	81,439
305.35	32,692	6,219	307.95	32,692	82,914
305.40	32,692	7,694	308.00	32,692	84,389
305.45	32,692	9,169	308.05	32,692	85,864
305.50	32,692	10,644	308.10	32,692	87,339
305.55	32,692	12,119	308.15	32,692	88,814
305.60	32,692	13,593	308.20	32,692	90,288
305.65	32,692	15,068	308.25	32,692	91,763
305.70	32,692	16,543	308.30	32,692	93,238
305.75	32,692	18,018	308.35	32,692	94,713
305.80	32,692	19,493	308.40	32,692	96,188
305.85	32,692	20,968	308.45	32,692	97,663
305.90	32,692	22,443	308.50	32,692	99,138
305.95	32,692	23,918	308.55	32,692	100,613
306.00	32,692	25,393	308.60	32,692	102,029
306.05	32,692	26,868	308.65	32,692	102,683
306.10	32,692	28,343	308.70	32,692	103,337
306.15	32,692	29,817	308.75	32,692	103,991
306.20	32,692	31,292	308.80	32,692	104,645
306.25	32,692	32,767	308.85	32,692	105,299
306.30	32,692	34,242	308.90	32,692	105,953
306.35	32,692	35,717	308.95	32,692	106,606
306.40	32,692	37,192	309.00	32,692	107,260
306.45	32,692	38,667	309.05	32,692	107,914
306.50	32,692	40,142	309.10	32,692	108,568
306.55	32,692	41,617	309.15	32,692	109,222
306.60	32,692	43,092	309.20	32,692	109,875
306.65	32,692	44,566	309.25	32,692	110,529
306.70	32,692	46,041			
306.75	32,692	47,516			
306.80	32,692	48,991			
306.85	32,692	50,466			
306.90	32,692	51,941			
306.95	32,692	53,416			
307.00	32,692	54,891			
307.05	32,692	56,366			
307.10	32,692	57,841			
307.15	32,692	59,315			
307.20	32,692	60,790			
307.25	32,692	62,265			
307.30	32,692	63,740			
307.35	32,692	65,215			
307.40	32,692	66,690			
307.45	32,692	68,165			
307.50	32,692	69,640			
307.55	32,692	71,115			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-ER: UG INF BASIN E (RTANK)**

Inflow Area = 8.220 ac, 95.13% Impervious, Inflow Depth = 4.40" for 10-yr event  
 Inflow = 38.97 cfs @ 12.03 hrs, Volume= 3.014 af  
 Outflow = 3.37 cfs @ 12.87 hrs, Volume= 3.014 af, Atten= 91%, Lag= 50.9 min  
 Discarded = 3.01 cfs @ 12.87 hrs, Volume= 2.970 af  
 Primary = 0.36 cfs @ 12.87 hrs, Volume= 0.044 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 307.30' @ 12.87 hrs Surf.Area= 24,100 sf Storage= 46,691 cf

Plug-Flow detention time= 122.6 min calculated for 3.014 af (100% of inflow)  
 Center-of-Mass det. time= 122.6 min ( 894.8 - 772.2 )

Volume	Invert	Avail.Storage	Storage Description
#1A	305.00'	12,897 cf	<b>45.34'W x 531.56'L x 5.35'H Field A</b> 128,835 cf Overall - 96,593 cf Embedded = 32,242 cf x 40.0% Voids
#2A	305.25'	91,763 cf	<b>Ferguson R-Tank UD 4 x 5628</b> Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 5628 Chambers in 21 Rows
		104,660 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	305.25'	<b>18.0" Round Culvert</b> L= 55.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 305.25' / 304.15' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	305.00'	<b>3.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 300.75'
#3	Device 1	306.90'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	308.50'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=3.01 cfs @ 12.87 hrs HW=307.30' (Free Discharge)  
 ↳2=Exfiltration ( Controls 3.01 cfs)

**Primary OutFlow** Max=0.36 cfs @ 12.87 hrs HW=307.30' (Free Discharge)  
 ↳1=Culvert (Passes 0.36 cfs of 12.11 cfs potential flow)  
 ↳3=Orifice/Grate (Orifice Controls 0.36 cfs @ 2.14 fps)  
 ↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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**Pond BA-ER: UG INF BASIN E (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf

Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

268 Chambers/Row x 1.97' Long = 527.56' Row Length +24.0" End Stone x 2 = 531.56' Base Length

21 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 45.34' Base Width

3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

5,628 Chambers x 16.3 cf = 91,763.3 cf Chamber Storage

5,628 Chambers x 17.2 cf = 96,593.0 cf Displacement

128,834.5 cf Field - 96,593.0 cf Chambers = 32,241.6 cf Stone x 40.0% Voids = 12,896.6 cf Stone Storage

Chamber Storage + Stone Storage = 104,659.9 cf = 2.403 af

Overall Storage Efficiency = 81.2%

Overall System Size = 531.56' x 45.34' x 5.35'

5,628 Chambers

4,771.6 cy Field

1,194.1 cy Stone



**2024-01-15 Proposed Conditions**

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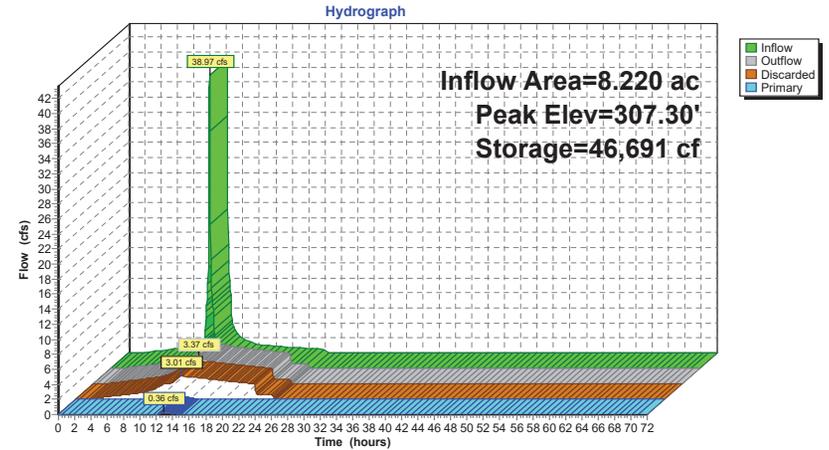
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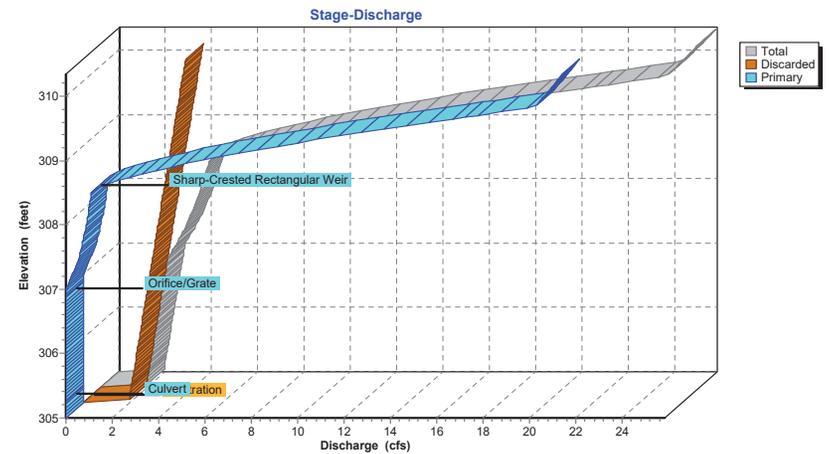
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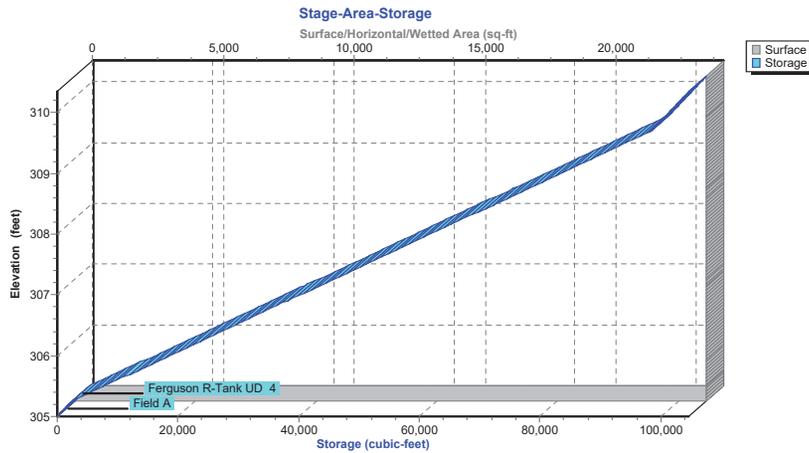
**Pond BA-ER: UG INF BASIN E (RTANK)**



**Pond BA-ER: UG INF BASIN E (RTANK)**



Pond BA-ER: UG INF BASIN E (RTANK)



Hydrograph for Pond BA-ER: UG INF BASIN E (RTANK)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	305.00	0.00	0.00	0.00
2.50	0.14	34	305.00	0.13	0.13	0.00
5.00	0.46	116	305.01	0.45	0.45	0.00
7.50	0.81	209	305.02	0.80	0.80	0.00
10.00	<b>1.60</b>	407	305.04	1.56	1.56	0.00
12.50	<b>7.76</b>	<b>44,895</b>	<b>307.21</b>	<b>3.22</b>	<b>2.97</b>	<b>0.25</b>
15.00	1.41	<b>38,552</b>	<b>306.92</b>	<b>2.84</b>	<b>2.83</b>	<b>0.00</b>
17.50	0.93	24,529	306.27	2.54	2.54	0.00
20.00	0.72	10,396	305.62	2.24	2.24	0.00
22.50	0.60	157	305.02	0.60	0.60	0.00
25.00	0.00	0	305.00	0.00	0.00	0.00
27.50	0.00	0	305.00	0.00	0.00	0.00
30.00	0.00	0	305.00	0.00	0.00	0.00
32.50	0.00	0	305.00	0.00	0.00	0.00
35.00	0.00	0	305.00	0.00	0.00	0.00
37.50	0.00	0	305.00	0.00	0.00	0.00
40.00	0.00	0	305.00	0.00	0.00	0.00
42.50	0.00	0	305.00	0.00	0.00	0.00
45.00	0.00	0	305.00	0.00	0.00	0.00
47.50	0.00	0	305.00	0.00	0.00	0.00
50.00	0.00	0	305.00	0.00	0.00	0.00
52.50	0.00	0	305.00	0.00	0.00	0.00
55.00	0.00	0	305.00	0.00	0.00	0.00
57.50	0.00	0	305.00	0.00	0.00	0.00
60.00	0.00	0	305.00	0.00	0.00	0.00
62.50	0.00	0	305.00	0.00	0.00	0.00
65.00	0.00	0	305.00	0.00	0.00	0.00
67.50	0.00	0	305.00	0.00	0.00	0.00
70.00	0.00	0	305.00	0.00	0.00	0.00

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**Stage-Discharge for Pond BA-ER: UG INF BASIN E (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
305.00	0.00	0.00	0.00	310.20	25.43	4.34	21.09
305.10	2.00	2.00	0.00	310.30	<b>25.71</b>	<b>4.39</b>	<b>21.32</b>
305.20	2.04	2.04	0.00				
305.30	2.09	2.09	0.00				
305.40	2.14	2.14	0.00				
305.50	2.18	2.18	0.00				
305.60	2.23	2.23	0.00				
305.70	2.27	2.27	0.00				
305.80	2.32	2.32	0.00				
305.90	2.37	2.37	0.00				
306.00	2.41	2.41	0.00				
306.10	2.46	2.46	0.00				
306.20	2.50	2.50	0.00				
306.30	2.55	2.55	0.00				
306.40	2.60	2.60	0.00				
306.50	2.64	2.64	0.00				
306.60	2.69	2.69	0.00				
306.70	2.73	2.73	0.00				
306.80	2.78	2.78	0.00				
306.90	2.83	2.83	0.00				
307.00	2.90	2.87	0.03				
307.10	3.03	2.92	0.11				
307.20	3.19	2.96	0.23				
307.30	3.37	3.01	0.36				
307.40	3.53	3.06	0.47				
307.50	3.66	3.10	0.56				
307.60	3.78	3.15	0.63				
307.70	3.89	3.19	0.70				
307.80	4.00	3.24	0.76				
307.90	4.10	3.28	0.82				
308.00	4.20	3.33	0.87				
308.10	4.30	3.38	0.92				
308.20	4.39	3.42	0.97				
308.30	4.48	3.47	1.01				
308.40	4.57	3.51	1.06				
308.50	4.66	3.56	1.10				
308.60	5.16	3.61	1.55				
308.70	5.99	3.65	2.34				
308.80	7.03	3.70	3.33				
308.90	8.24	3.74	4.49				
309.00	9.59	3.79	5.79				
309.10	11.05	3.84	7.22				
309.20	12.63	3.88	8.75				
309.30	14.30	3.93	10.37				
309.40	16.06	3.97	12.08				
309.50	17.90	4.02	13.88				
309.60	19.81	4.07	15.74				
309.70	21.78	4.11	17.67				
309.80	23.82	4.16	19.67				
309.90	24.59	4.20	20.38				
310.00	24.87	4.25	20.62				
310.10	25.15	4.30	20.86				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-ER: UG INF BASIN E (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
305.00	<b>24,100</b>	0	310.20	24,100	103,254
305.10	24,100	964	310.30	24,100	<b>104,218</b>
305.20	24,100	1,928			
305.30	24,100	3,492			
305.40	24,100	5,655			
305.50	24,100	7,819			
305.60	24,100	9,982			
305.70	24,100	12,146			
305.80	24,100	14,309			
305.90	24,100	16,473			
306.00	24,100	18,636			
306.10	24,100	20,800			
306.20	24,100	22,963			
306.30	24,100	25,127			
306.40	24,100	27,290			
306.50	24,100	29,453			
306.60	24,100	31,617			
306.70	24,100	33,780			
306.80	24,100	35,944			
306.90	24,100	38,107			
307.00	24,100	40,271			
307.10	24,100	42,434			
307.20	24,100	44,598			
307.30	24,100	46,761			
307.40	24,100	48,925			
307.50	24,100	51,088			
307.60	24,100	53,252			
307.70	24,100	55,415			
307.80	24,100	57,579			
307.90	24,100	59,742			
308.00	24,100	61,906			
308.10	24,100	64,069			
308.20	24,100	66,233			
308.30	24,100	68,396			
308.40	24,100	70,559			
308.50	24,100	72,723			
308.60	24,100	74,886			
308.70	24,100	77,050			
308.80	24,100	79,213			
308.90	24,100	81,377			
309.00	24,100	83,540			
309.10	24,100	85,704			
309.20	24,100	87,867			
309.30	24,100	90,031			
309.40	24,100	92,194			
309.50	24,100	94,358			
309.60	24,100	96,521			
309.70	24,100	98,434			
309.80	24,100	99,398			
309.90	24,100	100,362			
310.00	24,100	101,326			
310.10	24,100	102,290			

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Pond BA-FR: UG INF BASIN F (RTANK)**

Inflow Area = 9.660 ac, 93.79% Impervious, Inflow Depth = 4.40" for 10-yr event  
 Inflow = 50.00 cfs @ 12.01 hrs, Volume= 3.542 af  
 Outflow = 8.28 cfs @ 12.51 hrs, Volume= 3.542 af, Atten= 83%, Lag= 30.5 min  
 Discarded = 8.27 cfs @ 12.52 hrs, Volume= 3.542 af  
 Primary = 0.01 cfs @ 12.51 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 307.70' @ 12.52 hrs Surf.Area= 28,685 sf Storage= 33,964 cf

Plug-Flow detention time= 21.9 min calculated for 3.539 af (100% of inflow)  
 Center-of-Mass det. time= 21.9 min ( 792.9 - 770.9 )

Volume	Invert	Avail.Storage	Storage Description
#1A	306.25'	13,996 cf	<b>47.31'W x 606.36'L x 4.26'H Field A</b> 122,289 cf Overall - 87,298 cf Embedded = 34,991 cf x 40.0% Voids
#2A	306.50'	82,933 cf	<b>Ferguson R-Tank UD 3</b> x 6732 Inside #1 Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf 6732 Chambers in 22 Rows
		96,929 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	306.50'	<b>24.0" Round Culvert</b> L= 692.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 306.50' / 303.04' S= 0.0050 '/' Cc= 0.900 n= 0.120, Flow Area= 3.14 sf
#2	Discarded	306.25'	<b>9.750 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 301.00'
#3	Device 1	307.65'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	308.75'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=8.27 cfs @ 12.52 hrs HW=307.70' (Free Discharge)  
 ↳2=Exfiltration ( Controls 8.27 cfs)

**Primary OutFlow** Max=0.01 cfs @ 12.51 hrs HW=307.70' (Free Discharge)  
 ↳1=Culvert (Passes 0.01 cfs of 0.75 cfs potential flow)  
 ↳3=Orifice/Grate (Orifice Controls 0.01 cfs @ 0.79 fps)  
 ↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

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**Pond BA-FR: UG INF BASIN F (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 3 (Ferguson R-Tank UD)**

Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf  
 Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf

306 Chambers/Row x 1.97' Long = 602.36' Row Length +24.0" End Stone x 2 = 606.36' Base Length  
 22 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 47.31' Base Width  
 3.0" Stone Base + 40.2" Chamber Height + 8.0" Stone Cover = 4.26' Field Height

6,732 Chambers x 12.3 cf = 82,932.6 cf Chamber Storage  
 6,732 Chambers x 13.0 cf = 87,297.5 cf Displacement

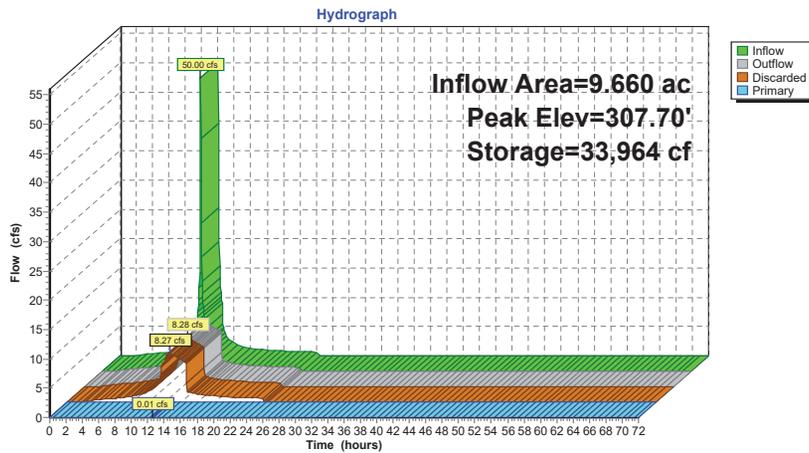
122,288.7 cf Field - 87,297.5 cf Chambers = 34,991.2 cf Stone x 40.0% Voids = 13,996.5 cf Stone Storage

Chamber Storage + Stone Storage = 96,929.1 cf = 2.225 af  
 Overall Storage Efficiency = 79.3%  
 Overall System Size = 606.36' x 47.31' x 4.26'

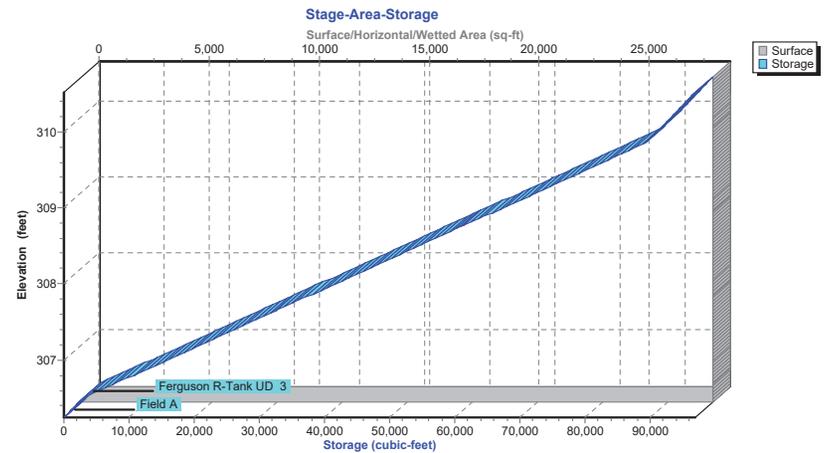
6,732 Chambers  
 4,529.2 cy Field  
 1,296.0 cy Stone



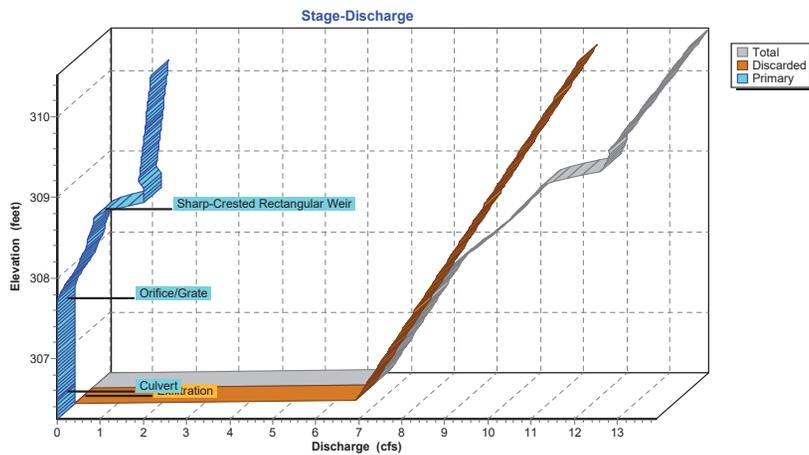
Pond BA-FR: UG INF BASIN F (RTANK)



Pond BA-FR: UG INF BASIN F (RTANK)



Pond BA-FR: UG INF BASIN F (RTANK)



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**Hydrograph for Pond BA-FR: UG INF BASIN F (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	306.25	0.00	0.00	0.00
2.50	0.17	12	306.25	0.16	0.16	0.00
5.00	0.54	40	306.25	0.54	0.54	0.00
7.50	0.96	72	306.26	0.96	0.96	0.00
10.00	<b>1.90</b>	141	306.26	1.88	1.88	0.00
12.50	<b>8.90</b>	<b>33,955</b>	<b>307.70</b>	<b>8.28</b>	<b>8.27</b>	<b>0.01</b>
15.00	1.65	124	306.26	1.66	1.66	0.00
17.50	1.09	82	306.26	1.09	1.09	0.00
20.00	0.85	64	306.26	0.85	0.85	0.00
22.50	0.70	53	306.25	0.70	0.70	0.00
25.00	0.00	0	306.25	0.00	0.00	0.00
27.50	0.00	0	306.25	0.00	0.00	0.00
30.00	0.00	0	306.25	0.00	0.00	0.00
32.50	0.00	0	306.25	0.00	0.00	0.00
35.00	0.00	0	306.25	0.00	0.00	0.00
37.50	0.00	0	306.25	0.00	0.00	0.00
40.00	0.00	0	306.25	0.00	0.00	0.00
42.50	0.00	0	306.25	0.00	0.00	0.00
45.00	0.00	0	306.25	0.00	0.00	0.00
47.50	0.00	0	306.25	0.00	0.00	0.00
50.00	0.00	0	306.25	0.00	0.00	0.00
52.50	0.00	0	306.25	0.00	0.00	0.00
55.00	0.00	0	306.25	0.00	0.00	0.00
57.50	0.00	0	306.25	0.00	0.00	0.00
60.00	0.00	0	306.25	0.00	0.00	0.00
62.50	0.00	0	306.25	0.00	0.00	0.00
65.00	0.00	0	306.25	0.00	0.00	0.00
67.50	0.00	0	306.25	0.00	0.00	0.00
70.00	0.00	0	306.25	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-FR: UG INF BASIN F (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
306.25	0.00	0.00	0.00	308.85	11.01	9.68	1.33
306.30	6.54	6.54	0.00	308.90	11.44	9.74	1.70
306.35	6.60	6.60	0.00	308.95	11.81	9.80	2.01
306.40	6.66	6.66	0.00	309.00	11.88	9.87	2.02
306.45	6.72	6.72	0.00	309.05	11.94	9.93	2.02
306.50	6.78	6.78	0.00	309.10	11.99	9.99	2.00
306.55	6.84	6.84	0.00	309.15	12.00	10.05	1.95
306.60	6.91	6.91	0.00	309.20	12.01	10.11	1.89
306.65	6.97	6.97	0.00	309.25	12.08	10.17	1.91
306.70	7.03	7.03	0.00	309.30	12.15	10.24	1.92
306.75	7.09	7.09	0.00	309.35	12.23	10.30	1.93
306.80	7.15	7.15	0.00	309.40	12.30	10.36	1.94
306.85	7.21	7.21	0.00	309.45	12.37	10.42	1.95
306.90	7.28	7.28	0.00	309.50	12.44	10.48	1.96
306.95	7.34	7.34	0.00	309.55	12.52	10.54	1.97
307.00	7.40	7.40	0.00	309.60	12.59	10.61	1.98
307.05	7.46	7.46	0.00	309.65	12.66	10.67	1.99
307.10	7.52	7.52	0.00	309.70	12.73	10.73	2.01
307.15	7.58	7.58	0.00	309.75	12.81	10.79	2.02
307.20	7.65	7.65	0.00	309.80	12.88	10.85	2.03
307.25	7.71	7.71	0.00	309.85	12.95	10.91	2.04
307.30	7.77	7.77	0.00	309.90	13.02	10.98	2.05
307.35	7.83	7.83	0.00	309.95	13.10	11.04	2.06
307.40	7.89	7.89	0.00	310.00	13.17	11.10	2.07
307.45	7.95	7.95	0.00	310.05	13.24	11.16	2.08
307.50	8.02	8.02	0.00	310.10	13.31	11.22	2.09
307.55	8.08	8.08	0.00	310.15	13.38	11.28	2.10
307.60	8.14	8.14	0.00	310.20	13.46	11.35	2.11
307.65	8.20	8.20	0.00	310.25	13.53	11.41	2.12
307.70	8.27	8.26	0.01	310.30	13.60	11.47	2.13
307.75	8.35	8.32	0.03	310.35	13.67	11.53	2.14
307.80	8.45	8.39	0.07	310.40	13.74	11.59	2.15
307.85	8.56	8.45	0.11	310.45	13.81	11.65	2.16
307.90	8.68	8.51	0.17	310.50	<b>13.89</b>	<b>11.72</b>	<b>2.17</b>
307.95	8.80	8.57	0.23				
308.00	8.93	8.63	0.30				
308.05	9.06	8.69	0.36				
308.10	9.18	8.76	0.43				
308.15	9.29	8.82	0.47				
308.20	9.40	8.88	0.52				
308.25	9.50	8.94	0.56				
308.30	9.60	9.00	0.60				
308.35	9.70	9.06	0.63				
308.40	9.79	9.13	0.67				
308.45	9.89	9.19	0.70				
308.50	9.98	9.25	0.73				
308.55	10.07	9.31	0.76				
308.60	10.16	9.37	0.79				
308.65	10.25	9.43	0.82				
308.70	10.34	9.50	0.85				
308.75	10.43	9.56	0.87				
308.80	10.66	9.62	1.04				

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**Stage-Area-Storage for Pond BA-FR: UG INF BASIN F (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
306.25	28,685	0	308.85	28,685	63,550
306.30	28,685	574	308.90	28,685	64,841
306.35	28,685	1,147	308.95	28,685	66,132
306.40	28,685	1,721	309.00	28,685	67,423
306.45	28,685	2,295	309.05	28,685	68,714
306.50	28,685	2,869	309.10	28,685	70,005
306.55	28,685	4,160	309.15	28,685	71,296
306.60	28,685	5,451	309.20	28,685	72,587
306.65	28,685	6,742	309.25	28,685	73,878
306.70	28,685	8,033	309.30	28,685	75,169
306.75	28,685	9,324	309.35	28,685	76,460
306.80	28,685	10,615	309.40	28,685	77,751
306.85	28,685	11,906	309.45	28,685	79,043
306.90	28,685	13,197	309.50	28,685	80,334
306.95	28,685	14,488	309.55	28,685	81,625
307.00	28,685	15,779	309.60	28,685	82,916
307.05	28,685	17,070	309.65	28,685	84,207
307.10	28,685	18,362	309.70	28,685	85,498
307.15	28,685	19,653	309.75	28,685	86,789
307.20	28,685	20,944	309.80	28,685	88,080
307.25	28,685	22,235	309.85	28,685	89,320
307.30	28,685	23,526	309.90	28,685	89,894
307.35	28,685	24,817	309.95	28,685	90,468
307.40	28,685	26,108	310.00	28,685	91,041
307.45	28,685	27,399	310.05	28,685	91,615
307.50	28,685	28,690	310.10	28,685	92,189
307.55	28,685	29,981	310.15	28,685	92,763
307.60	28,685	31,272	310.20	28,685	93,336
307.65	28,685	32,563	310.25	28,685	93,910
307.70	28,685	33,855	310.30	28,685	94,484
307.75	28,685	35,146	310.35	28,685	95,057
307.80	28,685	36,437	310.40	28,685	95,631
307.85	28,685	37,728	310.45	28,685	96,205
307.90	28,685	39,019	310.50	28,685	96,779
307.95	28,685	40,310			
308.00	28,685	41,601			
308.05	28,685	42,892			
308.10	28,685	44,183			
308.15	28,685	45,474			
308.20	28,685	46,765			
308.25	28,685	48,056			
308.30	28,685	49,348			
308.35	28,685	50,639			
308.40	28,685	51,930			
308.45	28,685	53,221			
308.50	28,685	54,512			
308.55	28,685	55,803			
308.60	28,685	57,094			
308.65	28,685	58,385			
308.70	28,685	59,676			
308.75	28,685	60,967			
308.80	28,685	62,258			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-G: AG INF BASIN G**

Inflow Area = 0.700 ac, 60.00% Impervious, Inflow Depth = 1.69" for 10-yr event  
 Inflow = 1.85 cfs @ 12.06 hrs, Volume= 0.099 af  
 Outflow = 0.37 cfs @ 12.53 hrs, Volume= 0.099 af, Atten= 80%, Lag= 28.6 min  
 Discarded = 0.37 cfs @ 12.53 hrs, Volume= 0.099 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.60' @ 12.53 hrs Surf.Area= 6,199 sf Storage= 628 cf

Plug-Flow detention time= 12.4 min calculated for 0.098 af (100% of inflow)  
 Center-of-Mass det. time= 12.4 min ( 932.3 - 919.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	309.50'	18,077 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.50	6,110	0	0
310.00	6,548	3,165	3,165
311.00	7,475	7,012	10,176
312.00	8,326	7,901	18,077

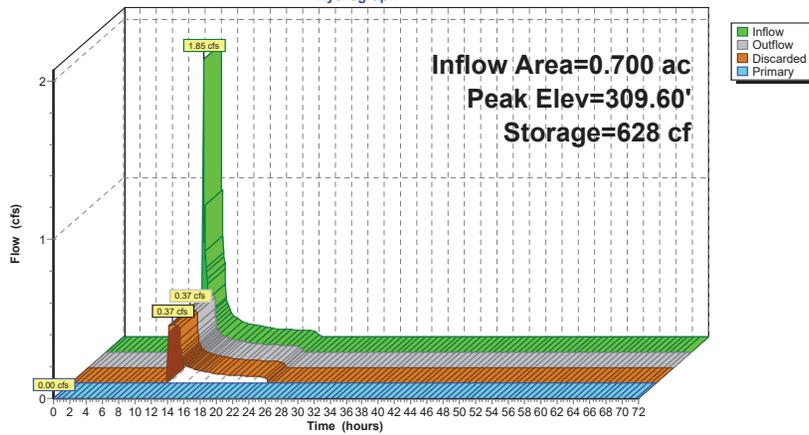
Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	<b>18.0" Round Culvert</b> L= 61.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 308.50' / 308.19' S= 0.0050 ' / Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	309.50'	<b>2.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 304.60'
#3	Device 1	309.90'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	311.00'	<b>48.0" x 48.0" Horiz. Top Grate</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=0.37 cfs @ 12.53 hrs HW=309.60' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 0.37 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=309.50' (Free Discharge)  
 ↳ **1=Culvert** (Passes 0.00 cfs of 3.61 cfs potential flow)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)  
 ↳ **4=Top Grate** ( Controls 0.00 cfs)

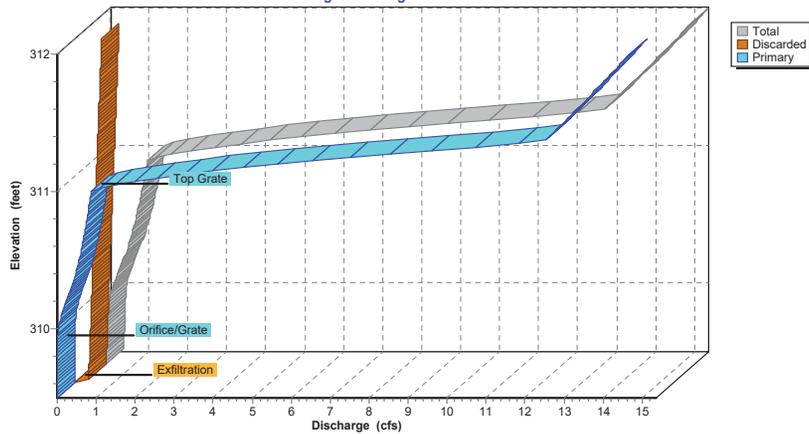
Pond BA-G: AG INF BASIN G

Hydrograph



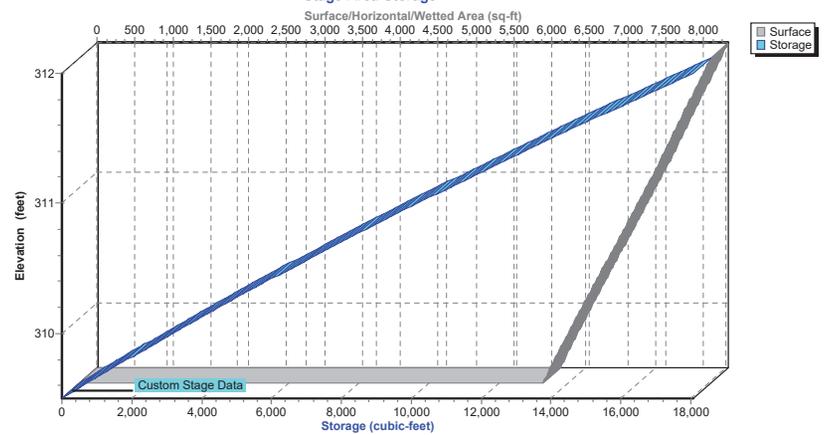
Pond BA-G: AG INF BASIN G

Stage-Discharge



Pond BA-G: AG INF BASIN G

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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**Hydrograph for Pond BA-G: AG INF BASIN G**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	309.50	0.00	0.00	<b>0.00</b>
2.50	0.00	0	309.50	0.00	0.00	0.00
5.00	0.00	0	309.50	0.00	0.00	0.00
7.50	0.00	0	309.50	0.00	0.00	0.00
10.00	<b>0.00</b>	0	309.50	0.00	0.00	0.00
12.50	<b>0.43</b>	<b>625</b>	<b>309.60</b>	<b>0.37</b>	<b>0.37</b>	0.00
15.00	0.09	<b>39</b>	<b>309.51</b>	<b>0.09</b>	<b>0.09</b>	0.00
17.50	0.06	27	309.50	0.06	0.06	0.00
20.00	0.05	21	309.50	0.05	0.05	0.00
22.50	0.04	18	309.50	0.04	0.04	0.00
25.00	0.00	0	309.50	0.00	0.00	0.00
27.50	0.00	0	309.50	0.00	0.00	0.00
30.00	0.00	0	309.50	0.00	0.00	0.00
32.50	0.00	0	309.50	0.00	0.00	0.00
35.00	0.00	0	309.50	0.00	0.00	0.00
37.50	0.00	0	309.50	0.00	0.00	0.00
40.00	0.00	0	309.50	0.00	0.00	0.00
42.50	0.00	0	309.50	0.00	0.00	0.00
45.00	0.00	0	309.50	0.00	0.00	0.00
47.50	0.00	0	309.50	0.00	0.00	0.00
50.00	0.00	0	309.50	0.00	0.00	0.00
52.50	0.00	0	309.50	0.00	0.00	0.00
55.00	0.00	0	309.50	0.00	0.00	0.00
57.50	0.00	0	309.50	0.00	0.00	0.00
60.00	0.00	0	309.50	0.00	0.00	0.00
62.50	0.00	0	309.50	0.00	0.00	0.00
65.00	0.00	0	309.50	0.00	0.00	0.00
67.50	0.00	0	309.50	0.00	0.00	0.00
70.00	0.00	0	309.50	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-G: AG INF BASIN G**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
309.50	0.00	0.00	0.00
309.55	0.36	0.36	0.00
309.60	0.37	0.37	0.00
309.65	0.37	0.37	0.00
309.70	0.38	0.38	0.00
309.75	0.38	0.38	0.00
309.80	0.39	0.39	0.00
309.85	0.40	0.40	0.00
309.90	0.40	0.40	0.00
309.95	0.42	0.41	0.01
310.00	0.45	0.42	0.03
310.05	0.49	0.42	0.07
310.10	0.54	0.43	0.11
310.15	0.60	0.44	0.17
310.20	0.67	0.44	0.23
310.25	0.74	0.45	0.30
310.30	0.82	0.46	0.36
310.35	0.89	0.46	0.43
310.40	0.94	0.47	0.47
310.45	0.99	0.48	0.52
310.50	1.04	0.48	0.56
310.55	1.09	0.49	0.60
310.60	1.13	0.50	0.63
310.65	1.17	0.50	0.67
310.70	1.21	0.51	0.70
310.75	1.25	0.52	0.73
310.80	1.29	0.52	0.76
310.85	1.32	0.53	0.79
310.90	1.36	0.54	0.82
310.95	1.39	0.54	0.85
311.00	1.42	0.55	0.87
311.05	2.04	0.56	1.48
311.10	3.14	0.57	2.58
311.15	4.56	0.57	3.98
311.20	6.23	0.58	5.65
311.25	8.12	0.59	7.53
311.30	10.20	0.59	9.61
311.35	12.47	0.60	11.87
311.40	13.23	0.61	12.62
311.45	13.42	0.61	12.81
311.50	13.61	0.62	12.99
311.55	13.79	0.63	13.16
311.60	13.97	0.63	13.34
311.65	14.16	0.64	13.51
311.70	14.33	0.65	13.69
311.75	14.51	0.66	13.85
311.80	14.68	0.66	14.02
311.85	14.86	0.67	14.19
311.90	15.03	0.68	14.35
311.95	15.19	0.68	14.51
312.00	<b>15.36</b>	<b>0.69</b>	<b>14.67</b>

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-G: AG INF BASIN G**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.50	6,110	0
309.55	6,154	307
309.60	6,198	615
309.65	6,241	926
309.70	6,285	1,240
309.75	6,329	1,555
309.80	6,373	1,872
309.85	6,417	2,192
309.90	6,460	2,514
309.95	6,504	2,838
310.00	6,548	3,165
310.05	6,594	3,493
310.10	6,641	3,824
310.15	6,687	4,157
310.20	6,733	4,493
310.25	6,780	4,830
310.30	6,826	5,171
310.35	6,872	5,513
310.40	6,919	5,858
310.45	6,965	6,205
310.50	7,012	6,554
310.55	7,058	6,906
310.60	7,104	7,260
310.65	7,151	7,617
310.70	7,197	7,975
310.75	7,243	8,336
310.80	7,290	8,700
310.85	7,336	9,065
310.90	7,382	9,433
310.95	7,429	9,803
311.00	7,475	10,176
311.05	7,518	10,551
311.10	7,560	10,928
311.15	7,603	11,307
311.20	7,645	11,688
311.25	7,688	12,071
311.30	7,730	12,457
311.35	7,773	12,844
311.40	7,815	13,234
311.45	7,858	13,626
311.50	7,901	14,020
311.55	7,943	14,416
311.60	7,986	14,814
311.65	8,028	15,215
311.70	8,071	15,617
311.75	8,113	16,022
311.80	8,156	16,428
311.85	8,198	16,837
311.90	8,241	17,248
311.95	8,283	17,661
312.00	<b>8,326</b>	<b>18,077</b>

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-HR: UG INF BASIN H (RTANK)**

Inflow Area = 1.430 ac, 98.60% Impervious, Inflow Depth = 4.63" for 10-yr event  
 Inflow = 8.31 cfs @ 11.97 hrs, Volume= 0.551 af  
 Outflow = 0.86 cfs @ 12.55 hrs, Volume= 0.551 af, Atten= 90%, Lag= 35.1 min  
 Discarded = 0.57 cfs @ 12.55 hrs, Volume= 0.534 af  
 Primary = 0.29 cfs @ 12.55 hrs, Volume= 0.017 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.90' @ 12.55 hrs Surf.Area= 3,728 sf Storage= 8,035 cf

Plug-Flow detention time= 103.3 min calculated for 0.551 af (100% of inflow)  
 Center-of-Mass det. time= 103.3 min ( 856.9 - 753.7 )

Volume	Invert	Avail.Storage	Storage Description
#1A	307.30'	2,288 cf	<b>39.43'W x 94.55'L x 5.35'H Field A</b> 19,932 cf Overall - 14,211 cf Embedded = 5,721 cf x 40.0% Voids
#2A	307.55'	13,500 cf	<b>Ferguson R-Tank UD 4 x 828</b> Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 828 Chambers in 18 Rows
		15,789 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	307.55'	<b>18.0" Round Culvert</b> L= 45.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 307.55' / 306.65' S= 0.0200 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	307.30'	<b>4.000 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 303.30'
#3	Device 1	309.60'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	310.85'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.57 cfs @ 12.55 hrs HW=309.90' (Free Discharge)  
 ↳2=Exfiltration ( Controls 0.57 cfs)

**Primary OutFlow** Max=0.29 cfs @ 12.55 hrs HW=309.90' (Free Discharge)  
 ↳1=Culvert (Passes 0.29 cfs of 13.47 cfs potential flow)  
 ↳3=Orifice/Grate (Orifice Controls 0.29 cfs @ 1.87 fps)  
 ↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Pond BA-HR: UG INF BASIN H (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf

Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

46 Chambers/Row x 1.97' Long = 90.55' Row Length +24.0" End Stone x 2 = 94.55' Base Length

18 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 39.43' Base Width

3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

828 Chambers x 16.3 cf = 13,500.4 cf Chamber Storage

828 Chambers x 17.2 cf = 14,210.9 cf Displacement

19,931.5 cf Field - 14,210.9 cf Chambers = 5,720.6 cf Stone x 40.0% Voids = 2,288.2 cf Stone Storage

Chamber Storage + Stone Storage = 15,788.6 cf = 0.362 af

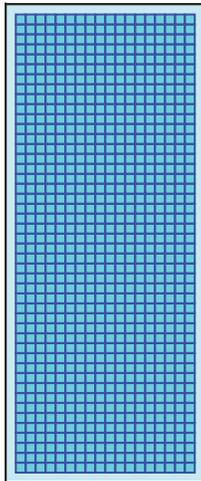
Overall Storage Efficiency = 79.2%

Overall System Size = 94.55' x 39.43' x 5.35'

828 Chambers

738.2 cy Field

211.9 cy Stone



**2024-01-15 Proposed Conditions**

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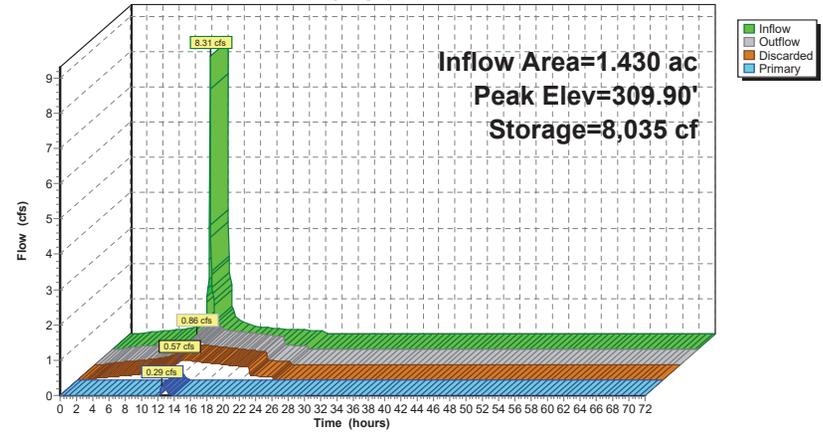
NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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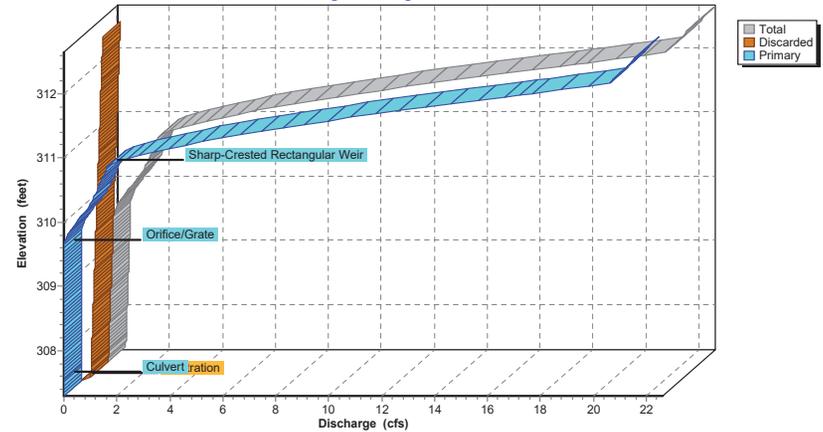
**Pond BA-HR: UG INF BASIN H (RTANK)**

Hydrograph

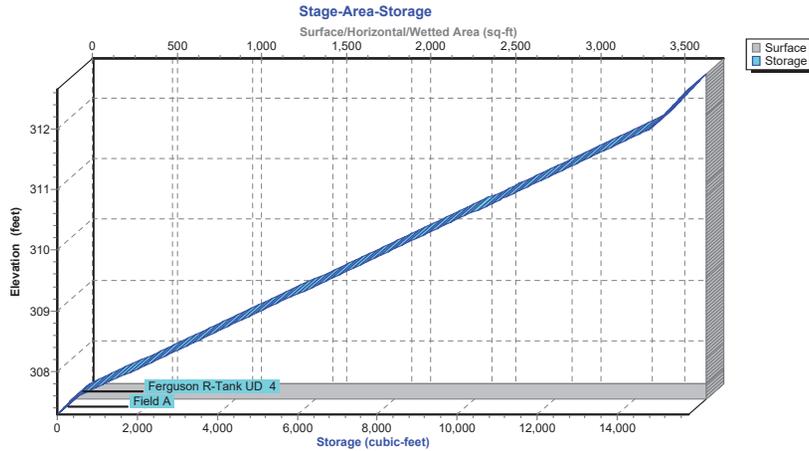


**Pond BA-HR: UG INF BASIN H (RTANK)**

Stage-Discharge



Pond BA-HR: UG INF BASIN H (RTANK)



Hydrograph for Pond BA-HR: UG INF BASIN H (RTANK)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	307.30	0.00	0.00	0.00
2.50	0.05	12	307.31	0.05	0.05	0.00
5.00	0.11	24	307.32	0.10	0.10	0.00
7.50	0.17	37	307.33	0.16	0.16	0.00
10.00	<b>0.31</b>	68	307.35	0.30	0.30	0.00
12.50	<b>1.23</b>	<b>8,009</b>	<b>309.90</b>	<b>0.85</b>	<b>0.57</b>	<b>0.28</b>
15.00	0.25	<b>6,102</b>	<b>309.31</b>	<b>0.52</b>	<b>0.52</b>	<b>0.00</b>
17.50	0.16	3,507	308.51	0.45	0.45	0.00
20.00	0.13	1,036	307.75	0.38	0.38	0.00
22.50	0.10	24	307.32	0.10	0.10	0.00
25.00	0.00	0	307.30	0.00	0.00	0.00
27.50	0.00	0	307.30	0.00	0.00	0.00
30.00	0.00	0	307.30	0.00	0.00	0.00
32.50	0.00	0	307.30	0.00	0.00	0.00
35.00	0.00	0	307.30	0.00	0.00	0.00
37.50	0.00	0	307.30	0.00	0.00	0.00
40.00	0.00	0	307.30	0.00	0.00	0.00
42.50	0.00	0	307.30	0.00	0.00	0.00
45.00	0.00	0	307.30	0.00	0.00	0.00
47.50	0.00	0	307.30	0.00	0.00	0.00
50.00	0.00	0	307.30	0.00	0.00	0.00
52.50	0.00	0	307.30	0.00	0.00	0.00
55.00	0.00	0	307.30	0.00	0.00	0.00
57.50	0.00	0	307.30	0.00	0.00	0.00
60.00	0.00	0	307.30	0.00	0.00	0.00
62.50	0.00	0	307.30	0.00	0.00	0.00
65.00	0.00	0	307.30	0.00	0.00	0.00
67.50	0.00	0	307.30	0.00	0.00	0.00
70.00	0.00	0	307.30	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-HR: UG INF BASIN H (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
307.30	0.00	0.00	0.00	312.50	22.24	0.79	21.45
307.40	0.35	0.35	0.00	312.60	<b>22.50</b>	<b>0.80</b>	<b>21.70</b>
307.50	0.36	0.36	0.00				
307.60	0.37	0.37	0.00				
307.70	0.38	0.38	0.00				
307.80	0.39	0.39	0.00				
307.90	0.40	0.40	0.00				
308.00	0.41	0.41	0.00				
308.10	0.41	0.41	0.00				
308.20	0.42	0.42	0.00				
308.30	0.43	0.43	0.00				
308.40	0.44	0.44	0.00				
308.50	0.45	0.45	0.00				
308.60	0.46	0.46	0.00				
308.70	0.47	0.47	0.00				
308.80	0.47	0.47	0.00				
308.90	0.48	0.48	0.00				
309.00	0.49	0.49	0.00				
309.10	0.50	0.50	0.00				
309.20	0.51	0.51	0.00				
309.30	0.52	0.52	0.00				
309.40	0.53	0.53	0.00				
309.50	0.54	0.54	0.00				
309.60	0.54	0.54	0.00				
309.70	0.59	0.55	0.04				
309.80	0.70	0.56	0.13				
309.90	0.85	0.57	0.28				
310.00	1.05	0.58	0.47				
310.10	1.26	0.59	0.68				
310.20	1.47	0.60	0.87				
310.30	1.62	0.60	1.02				
310.40	1.76	0.61	1.15				
310.50	1.89	0.62	1.27				
310.60	2.00	0.63	1.37				
310.70	2.11	0.64	1.47				
310.80	2.21	0.65	1.56				
310.90	2.45	0.66	1.80				
311.00	3.15	0.66	2.49				
311.10	4.10	0.67	3.43				
311.20	5.23	0.68	4.55				
311.30	6.51	0.69	5.82				
311.40	7.92	0.70	7.22				
311.50	9.44	0.71	8.74				
311.60	11.06	0.72	10.35				
311.70	12.77	0.72	12.05				
311.80	14.57	0.73	13.83				
311.90	16.43	0.74	15.69				
312.00	18.37	0.75	17.62				
312.10	20.37	0.76	19.61				
312.20	21.47	0.77	20.70				
312.30	21.73	0.78	20.95				
312.40	21.99	0.79	21.20				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Stage-Area-Storage for Pond BA-HR: UG INF BASIN H (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
307.30	<b>3,728</b>	0	312.50	3,728	15,571
307.40	3,728	149	312.60	3,728	<b>15,720</b>
307.50	3,728	298			
307.60	3,728	536			
307.70	3,728	861			
307.80	3,728	1,187			
307.90	3,728	1,512			
308.00	3,728	1,838			
308.10	3,728	2,164			
308.20	3,728	2,489			
308.30	3,728	2,815			
308.40	3,728	3,140			
308.50	3,728	3,466			
308.60	3,728	3,792			
308.70	3,728	4,117			
308.80	3,728	4,443			
308.90	3,728	4,769			
309.00	3,728	5,094			
309.10	3,728	5,420			
309.20	3,728	5,745			
309.30	3,728	6,071			
309.40	3,728	6,397			
309.50	3,728	6,722			
309.60	3,728	7,048			
309.70	3,728	7,373			
309.80	3,728	7,699			
309.90	3,728	8,025			
310.00	3,728	8,350			
310.10	3,728	8,676			
310.20	3,728	9,001			
310.30	3,728	9,327			
310.40	3,728	9,653			
310.50	3,728	9,978			
310.60	3,728	10,304			
310.70	3,728	10,629			
310.80	3,728	10,955			
310.90	3,728	11,281			
311.00	3,728	11,606			
311.10	3,728	11,932			
311.20	3,728	12,257			
311.30	3,728	12,583			
311.40	3,728	12,909			
311.50	3,728	13,234			
311.60	3,728	13,560			
311.70	3,728	13,885			
311.80	3,728	14,211			
311.90	3,728	14,537			
312.00	3,728	14,862			
312.10	3,728	14,975			
312.20	3,728	15,124			
312.30	3,728	15,273			
312.40	3,728	15,422			

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Summary for Pond BA-KR: UG INF BASIN K (RTANK)**

Inflow Area = 3.850 ac, 100.00% Impervious, Inflow Depth = 4.74" for 10-yr event  
 Inflow = 21.99 cfs @ 11.98 hrs, Volume= 1.522 af  
 Outflow = 2.08 cfs @ 12.59 hrs, Volume= 1.522 af, Atten= 91%, Lag= 36.4 min  
 Discarded = 2.08 cfs @ 12.59 hrs, Volume= 1.522 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.85' @ 12.59 hrs Surf.Area= 10,650 sf Storage= 19,431 cf

Plug-Flow detention time= 61.8 min calculated for 1.521 af (100% of inflow)  
 Center-of-Mass det. time= 61.8 min ( 807.1 - 745.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	307.70'	5,356 cf	<b>88.65'W x 120.14'L x 5.35'H Field A</b> 56,933 cf Overall - 43,542 cf Embedded = 13,391 cf x 40.0% Voids
#2A	307.95'	41,365 cf	<b>Ferguson R-Tank UD 4</b> x 2537 Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 2537 Chambers in 43 Rows
		46,721 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	307.95'	<b>18.0" Round Culvert</b> L= 30.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 307.95' / 307.65' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	307.70'	<b>5.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 303.70'
#3	Device 1	309.85'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	311.00'	<b>3.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=2.08 cfs @ 12.59 hrs HW=309.85' (Free Discharge)  
 ↳2=Exfiltration ( Controls 2.08 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=307.70' (Free Discharge)  
 ↳1=Culvert ( Controls 0.00 cfs)  
 ↳3=Orifice/Grate ( Controls 0.00 cfs)  
 ↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Pond BA-KR: UG INF BASIN K (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf  
 Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

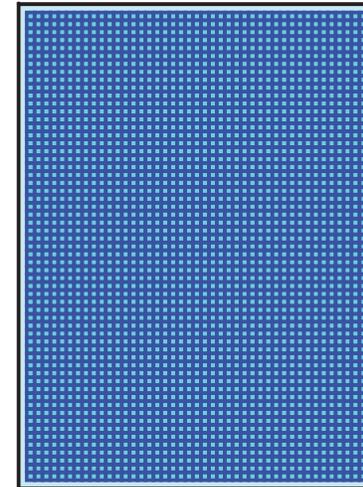
59 Chambers/Row x 1.97' Long = 116.14' Row Length +24.0" End Stone x 2 = 120.14' Base Length  
 43 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 88.65' Base Width  
 3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

2,537 Chambers x 16.3 cf = 41,365.2 cf Chamber Storage  
 2,537 Chambers x 17.2 cf = 43,542.3 cf Displacement

56,933.0 cf Field - 43,542.3 cf Chambers = 13,390.7 cf Stone x 40.0% Voids = 5,356.3 cf Stone Storage

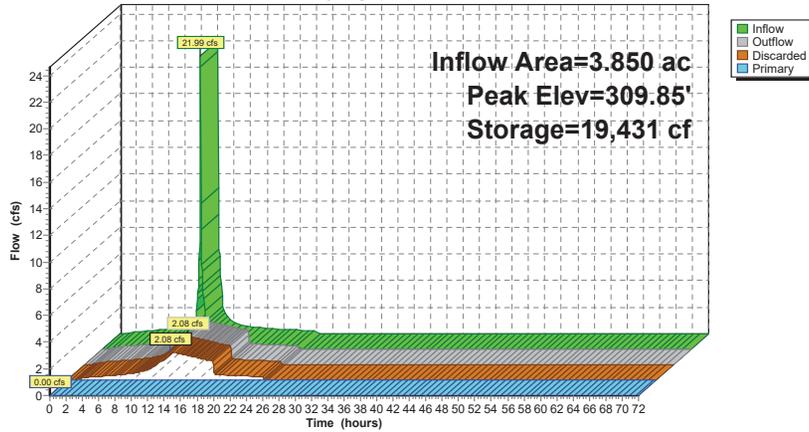
Chamber Storage + Stone Storage = 46,721.5 cf = 1.073 af  
 Overall Storage Efficiency = 82.1%  
 Overall System Size = 120.14' x 88.65' x 5.35'

2,537 Chambers  
 2,108.6 cy Field  
 496.0 cy Stone



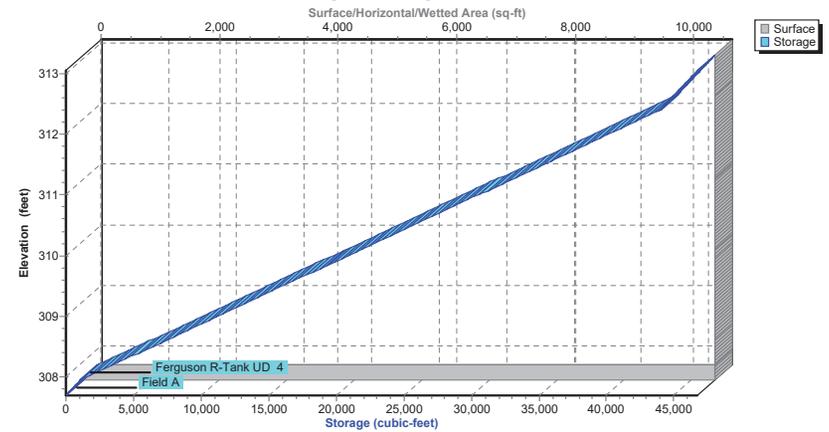
Pond BA-KR: UG INF BASIN K (RTANK)

Hydrograph



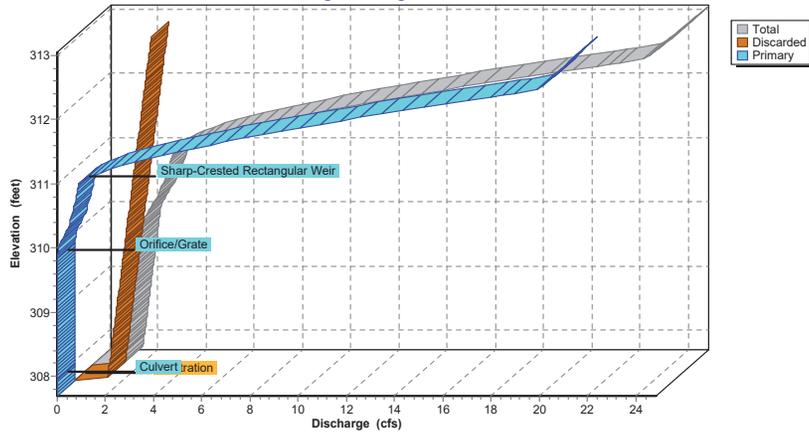
Pond BA-KR: UG INF BASIN K (RTANK)

Stage-Area-Storage



Pond BA-KR: UG INF BASIN K (RTANK)

Stage-Discharge



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Pond BA-KR: UG INF BASIN K (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	307.70	0.00	0.00	<b>0.00</b>
2.50	0.19	32	307.71	0.19	0.19	0.00
5.00	0.32	53	307.71	0.32	0.32	0.00
7.50	0.47	78	307.72	0.47	0.47	0.00
10.00	<b>0.84</b>	138	307.73	0.83	0.83	0.00
12.50	<b>3.48</b>	<b>19,279</b>	<b>309.83</b>	<b>2.08</b>	<b>2.08</b>	0.00
15.00	0.66	<b>11,448</b>	<b>309.02</b>	<b>1.80</b>	<b>1.80</b>	0.00
17.50	0.44	1,570	308.00	1.46	1.46	0.00
20.00	0.34	56	307.71	0.34	0.34	0.00
22.50	0.28	47	307.71	0.28	0.28	0.00
25.00	0.00	0	307.70	0.00	0.00	0.00
27.50	0.00	0	307.70	0.00	0.00	0.00
30.00	0.00	0	307.70	0.00	0.00	0.00
32.50	0.00	0	307.70	0.00	0.00	0.00
35.00	0.00	0	307.70	0.00	0.00	0.00
37.50	0.00	0	307.70	0.00	0.00	0.00
40.00	0.00	0	307.70	0.00	0.00	0.00
42.50	0.00	0	307.70	0.00	0.00	0.00
45.00	0.00	0	307.70	0.00	0.00	0.00
47.50	0.00	0	307.70	0.00	0.00	0.00
50.00	0.00	0	307.70	0.00	0.00	0.00
52.50	0.00	0	307.70	0.00	0.00	0.00
55.00	0.00	0	307.70	0.00	0.00	0.00
57.50	0.00	0	307.70	0.00	0.00	0.00
60.00	0.00	0	307.70	0.00	0.00	0.00
62.50	0.00	0	307.70	0.00	0.00	0.00
65.00	0.00	0	307.70	0.00	0.00	0.00
67.50	0.00	0	307.70	0.00	0.00	0.00
70.00	0.00	0	307.70	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-KR: UG INF BASIN K (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
307.70	0.00	0.00	0.00	312.90	24.39	3.12	21.27
307.80	1.39	1.39	0.00	313.00	<b>24.70</b>	<b>3.15</b>	<b>21.55</b>
307.90	1.42	1.42	0.00				
308.00	1.46	1.46	0.00				
308.10	1.49	1.49	0.00				
308.20	1.53	1.53	0.00				
308.30	1.56	1.56	0.00				
308.40	1.59	1.59	0.00				
308.50	1.63	1.63	0.00				
308.60	1.66	1.66	0.00				
308.70	1.69	1.69	0.00				
308.80	1.73	1.73	0.00				
308.90	1.76	1.76	0.00				
309.00	1.80	1.80	0.00				
309.10	1.83	1.83	0.00				
309.20	1.86	1.86	0.00				
309.30	1.90	1.90	0.00				
309.40	1.93	1.93	0.00				
309.50	1.97	1.97	0.00				
309.60	2.00	2.00	0.00				
309.70	2.03	2.03	0.00				
309.80	2.07	2.07	0.00				
309.90	2.11	2.10	0.01				
310.00	2.20	2.14	0.07				
310.10	2.34	2.17	0.17				
310.20	2.50	2.20	0.30				
310.30	2.66	2.24	0.43				
310.40	2.79	2.27	0.52				
310.50	2.90	2.31	0.60				
310.60	3.01	2.34	0.67				
310.70	3.11	2.37	0.73				
310.80	3.20	2.41	0.79				
310.90	3.29	2.44	0.85				
311.00	3.37	2.47	0.90				
311.10	3.81	2.51	1.31				
311.20	4.55	2.54	2.00				
311.30	5.46	2.58	2.88				
311.40	6.52	2.61	3.91				
311.50	7.69	2.64	5.05				
311.60	8.97	2.68	6.29				
311.70	10.34	2.71	7.63				
311.80	11.79	2.75	9.05				
311.90	13.32	2.78	10.54				
312.00	14.91	2.81	12.09				
312.10	16.56	2.85	13.71				
312.20	18.26	2.88	15.38				
312.30	20.02	2.92	17.11				
312.40	21.82	2.95	18.88				
312.50	23.08	2.98	20.10				
312.60	23.42	3.02	20.40				
312.70	23.74	3.05	20.69				
312.80	24.07	3.08	20.98				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Stage-Area-Storage for Pond BA-KR: UG INF BASIN K (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
307.70	10,650	0	312.90	10,650	46,100
307.80	10,650	426	313.00	10,650	46,526
307.90	10,650	852			
308.00	10,650	1,548			
308.10	10,650	2,515			
308.20	10,650	3,482			
308.30	10,650	4,448			
308.40	10,650	5,415			
308.50	10,650	6,382			
308.60	10,650	7,349			
308.70	10,650	8,315			
308.80	10,650	9,282			
308.90	10,650	10,249			
309.00	10,650	11,215			
309.10	10,650	12,182			
309.20	10,650	13,149			
309.30	10,650	14,115			
309.40	10,650	15,082			
309.50	10,650	16,049			
309.60	10,650	17,016			
309.70	10,650	17,982			
309.80	10,650	18,949			
309.90	10,650	19,916			
310.00	10,650	20,882			
310.10	10,650	21,849			
310.20	10,650	22,816			
310.30	10,650	23,782			
310.40	10,650	24,749			
310.50	10,650	25,716			
310.60	10,650	26,683			
310.70	10,650	27,649			
310.80	10,650	28,616			
310.90	10,650	29,583			
311.00	10,650	30,549			
311.10	10,650	31,516			
311.20	10,650	32,483			
311.30	10,650	33,449			
311.40	10,650	34,416			
311.50	10,650	35,383			
311.60	10,650	36,350			
311.70	10,650	37,316			
311.80	10,650	38,283			
311.90	10,650	39,250			
312.00	10,650	40,216			
312.10	10,650	41,183			
312.20	10,650	42,150			
312.30	10,650	43,116			
312.40	10,650	43,970			
312.50	10,650	44,396			
312.60	10,650	44,822			
312.70	10,650	45,248			
312.80	10,650	45,674			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-MR: UG INF BASIN M (RTANK)**

Inflow Area = 7.830 ac, 94.76% Impervious, Inflow Depth = 4.40" for 10-yr event  
 Inflow = 37.07 cfs @ 12.03 hrs, Volume= 2.871 af  
 Outflow = 3.22 cfs @ 12.87 hrs, Volume= 2.871 af, Atten= 91%, Lag= 50.5 min  
 Discarded = 1.39 cfs @ 12.87 hrs, Volume= 2.507 af  
 Primary = 1.83 cfs @ 12.87 hrs, Volume= 0.364 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 306.28' @ 12.87 hrs Surf.Area= 24,066 sf Storage= 52,220 cf

Plug-Flow detention time= 277.0 min calculated for 2.869 af (100% of inflow)  
 Center-of-Mass det. time= 277.1 min ( 1,049.4 - 772.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	303.75'	14,995 cf	<b>63.06'W x 381.67'L x 5.45'H Field A</b> 131,150 cf Overall - 93,663 cf Embedded = 37,486 cf x 40.0% Voids
#2A	304.00'	88,980 cf	<b>Ferguson R-Tank HD 3 x 7245</b> Inside #1 Inside= 15.7"W x 50.4"H => 5.24 sf x 2.35'L = 12.3 cf Outside= 15.7"W x 50.4"H => 5.51 sf x 2.35'L = 12.9 cf 7245 Chambers in 45 Rows
		103,975 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	304.00'	<b>18.0" Round Culvert</b> L= 65.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 304.00' / 303.35' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	303.75'	<b>2.000 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 293.50'
#3	Device 1	305.75'	<b>18.0" W x 12.0" H Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.75'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

Discarded OutFlow Max=1.39 cfs @ 12.87 hrs HW=306.28' (Free Discharge)  
 ↳2=Exfiltration ( Controls 1.39 cfs)

Primary OutFlow Max=1.83 cfs @ 12.87 hrs HW=306.28' (Free Discharge)  
 ↳1=Culvert (Passes 1.83 cfs of 11.38 cfs potential flow)  
 ↳3=Orifice (Orifice Controls 1.83 cfs @ 2.33 fps)  
 ↳4=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)

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**Pond BA-MR: UG INF BASIN M (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank HD 3 (Ferguson R-Tank HD)**

Inside= 15.7"W x 50.4"H => 5.24 sf x 2.35'L = 12.3 cf

Outside= 15.7"W x 50.4"H => 5.51 sf x 2.35'L = 12.9 cf

161 Chambers/Row x 2.35' Long = 377.67' Row Length +24.0" End Stone x 2 = 381.67' Base Length

45 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 63.06' Base Width

3.0" Stone Base + 50.4" Chamber Height + 12.0" Stone Cover = 5.45' Field Height

7,245 Chambers x 12.3 cf = 88,980.1 cf Chamber Storage

7,245 Chambers x 12.9 cf = 93,663.3 cf Displacement

131,149.7 cf Field - 93,663.3 cf Chambers = 37,486.4 cf Stone x 40.0% Voids = 14,994.6 cf Stone Storage

Chamber Storage + Stone Storage = 103,974.7 cf = 2.387 af

Overall Storage Efficiency = 79.3%

Overall System Size = 381.67' x 63.06' x 5.45'

7,245 Chambers

4,857.4 cy Field

1,388.4 cy Stone



**2024-01-15 Proposed Conditions**

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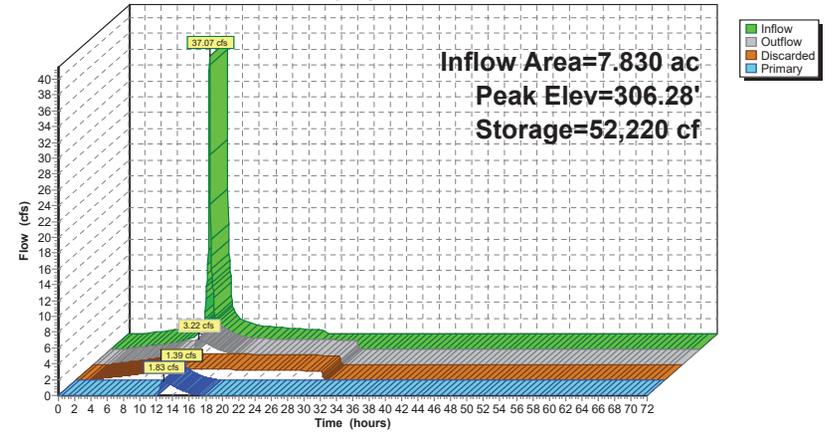
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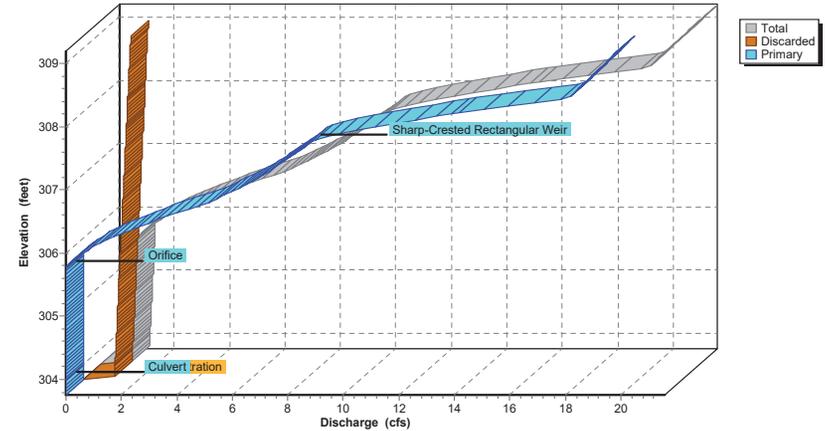
**Pond BA-MR: UG INF BASIN M (RTANK)**

Hydrograph

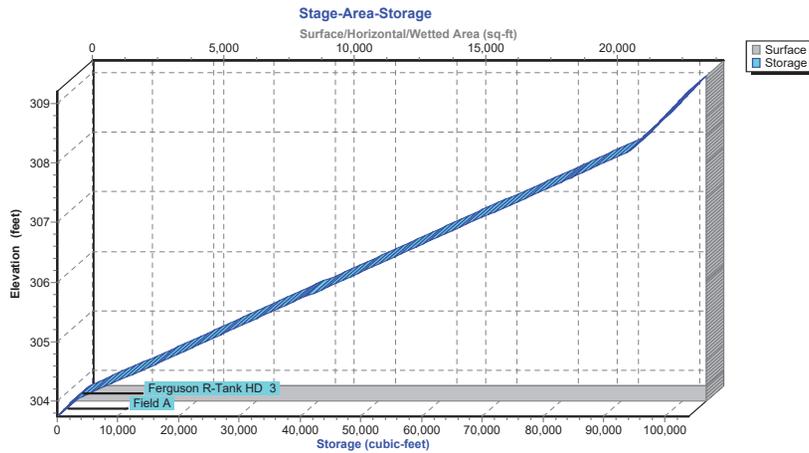


**Pond BA-MR: UG INF BASIN M (RTANK)**

Stage-Discharge



**Pond BA-MR: UG INF BASIN M (RTANK)**



**Hydrograph for Pond BA-MR: UG INF BASIN M (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	303.75	0.00	0.00	0.00
2.50	0.13	54	303.76	0.11	0.11	0.00
5.00	0.43	196	303.77	0.42	0.42	0.00
7.50	0.77	352	303.79	0.75	0.75	0.00
10.00	<b>1.53</b>	1,145	303.87	1.13	1.13	0.00
12.50	<b>7.40</b>	<b>50,417</b>	<b>306.19</b>	<b>2.80</b>	<b>1.38</b>	<b>1.42</b>
15.00	1.34	<b>46,769</b>	<b>306.03</b>	<b>2.06</b>	<b>1.36</b>	<b>0.70</b>
17.50	0.89	41,592	305.79	1.38	1.34	0.04
20.00	0.69	36,632	305.56	1.31	1.31	0.00
22.50	0.57	30,583	305.29	1.28	1.28	0.00
25.00	0.00	22,309	304.91	1.24	1.24	0.00
27.50	0.00	11,393	304.41	1.19	1.19	0.00
30.00	0.00	960	303.85	1.13	1.13	0.00
32.50	0.00	0	303.75	0.00	0.00	0.00
35.00	0.00	0	303.75	0.00	0.00	0.00
37.50	0.00	0	303.75	0.00	0.00	0.00
40.00	0.00	0	303.75	0.00	0.00	0.00
42.50	0.00	0	303.75	0.00	0.00	0.00
45.00	0.00	0	303.75	0.00	0.00	0.00
47.50	0.00	0	303.75	0.00	0.00	0.00
50.00	0.00	0	303.75	0.00	0.00	0.00
52.50	0.00	0	303.75	0.00	0.00	0.00
55.00	0.00	0	303.75	0.00	0.00	0.00
57.50	0.00	0	303.75	0.00	0.00	0.00
60.00	0.00	0	303.75	0.00	0.00	0.00
62.50	0.00	0	303.75	0.00	0.00	0.00
65.00	0.00	0	303.75	0.00	0.00	0.00
67.50	0.00	0	303.75	0.00	0.00	0.00
70.00	0.00	0	303.75	0.00	0.00	0.00

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**Stage-Discharge for Pond BA-MR: UG INF BASIN M (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
303.75	0.00	0.00	0.00	308.95	20.98	1.68	19.30
303.85	1.13	1.13	0.00	309.05	21.23	1.69	19.54
303.95	1.14	1.14	0.00	309.15	<b>21.47</b>	<b>1.70</b>	<b>19.77</b>
304.05	1.15	1.15	0.00				
304.15	1.16	1.16	0.00				
304.25	1.17	1.17	0.00				
304.35	1.18	1.18	0.00				
304.45	1.19	1.19	0.00				
304.55	1.20	1.20	0.00				
304.65	1.21	1.21	0.00				
304.75	1.22	1.22	0.00				
304.85	1.23	1.23	0.00				
304.95	1.24	1.24	0.00				
305.05	1.26	1.26	0.00				
305.15	1.27	1.27	0.00				
305.25	1.28	1.28	0.00				
305.35	1.29	1.29	0.00				
305.45	1.30	1.30	0.00				
305.55	1.31	1.31	0.00				
305.65	1.32	1.32	0.00				
305.75	1.33	1.33	0.00				
305.85	1.49	1.34	0.15				
305.95	1.78	1.35	0.43				
306.05	2.16	1.36	0.79				
306.15	2.59	1.38	1.22				
306.25	3.09	1.39	1.70				
306.35	3.63	1.40	2.24				
306.45	4.23	1.41	2.82				
306.55	4.86	1.42	3.45				
306.65	5.54	1.43	4.11				
306.75	6.26	1.44	4.81				
306.85	6.85	1.45	5.40				
306.95	7.36	1.46	5.90				
307.05	7.82	1.47	6.35				
307.15	8.24	1.48	6.76				
307.25	8.64	1.49	7.14				
307.35	9.01	1.51	7.51				
307.45	9.37	1.52	7.85				
307.55	9.71	1.53	8.18				
307.65	10.04	1.54	8.50				
307.75	10.35	1.55	8.80				
307.85	11.07	1.56	9.51				
307.95	12.11	1.57	10.54				
308.05	13.36	1.58	11.78				
308.15	14.76	1.59	13.17				
308.25	16.30	1.60	14.70				
308.35	17.95	1.61	16.34				
308.45	19.71	1.63	18.08				
308.55	19.97	1.64	18.34				
308.65	20.23	1.65	18.58				
308.75	20.48	1.66	18.83				
308.85	20.73	1.67	19.07				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-MR: UG INF BASIN M (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
303.75	<b>24,066</b>	0	308.95	24,066	101,573
303.85	24,066	963	309.05	24,066	102,536
303.95	24,066	1,925	309.15	24,066	<b>103,498</b>
304.05	24,066	3,501			
304.15	24,066	5,691			
304.25	24,066	7,880			
304.35	24,066	10,069			
304.45	24,066	12,259			
304.55	24,066	14,448			
304.65	24,066	16,637			
304.75	24,066	18,827			
304.85	24,066	21,016			
304.95	24,066	23,206			
305.05	24,066	25,395			
305.15	24,066	27,584			
305.25	24,066	29,774			
305.35	24,066	31,963			
305.45	24,066	34,152			
305.55	24,066	36,342			
305.65	24,066	38,531			
305.75	24,066	40,720			
305.85	24,066	42,910			
305.95	24,066	45,099			
306.05	24,066	47,288			
306.15	24,066	49,478			
306.25	24,066	51,667			
306.35	24,066	53,857			
306.45	24,066	56,046			
306.55	24,066	58,235			
306.65	24,066	60,425			
306.75	24,066	62,614			
306.85	24,066	64,803			
306.95	24,066	66,993			
307.05	24,066	69,182			
307.15	24,066	71,371			
307.25	24,066	73,561			
307.35	24,066	75,750			
307.45	24,066	77,939			
307.55	24,066	80,129			
307.65	24,066	82,318			
307.75	24,066	84,508			
307.85	24,066	86,697			
307.95	24,066	88,886			
308.05	24,066	91,076			
308.15	24,066	93,265			
308.25	24,066	94,835			
308.35	24,066	95,797			
308.45	24,066	96,760			
308.55	24,066	97,722			
308.65	24,066	98,685			
308.75	24,066	99,648			
308.85	24,066	100,610			

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**Summary for Pond BASIN I: INF TRENCH I**

Inflow Area = 1.930 ac, 60.10% Impervious, Inflow Depth = 2.43" for 10-yr event  
 Inflow = 5.67 cfs @ 12.02 hrs, Volume= 0.391 af  
 Outflow = 2.28 cfs @ 12.19 hrs, Volume= 0.391 af, Atten= 60%, Lag= 10.3 min  
 Discarded = 2.28 cfs @ 12.19 hrs, Volume= 0.391 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 48L : TOTAL INF TRENCH

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 312.81' @ 12.19 hrs Surf.Area= 13,450 sf Storage= 1,647 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
 Center-of-Mass det. time= 3.2 min ( 857.7 - 854.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	312.50'	8,339 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 20,848 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
312.50	13,450	0	0
314.05	13,450	20,848	20,848

Device	Routing	Invert	Outlet Devices
#1	Primary	309.00'	<b>18.0" Round Culvert</b> L= 50.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 309.00' / 308.00' S= 0.0200 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf
#2	Discarded	312.50'	<b>6.800 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 308.50'
#3	Device 1	313.45'	<b>3.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Device 1	313.90'	<b>48.0" x 48.0" Horiz. Top Grate X 2.00</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=2.28 cfs @ 12.19 hrs HW=312.81' (Free Discharge)  
 ↳2=Exfiltration ( Controls 2.28 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=312.50' (Free Discharge)  
 ↳1=Culvert (Passes 0.00 cfs of 17.46 cfs potential flow)  
 ↳3=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)  
 ↳4=Top Grate ( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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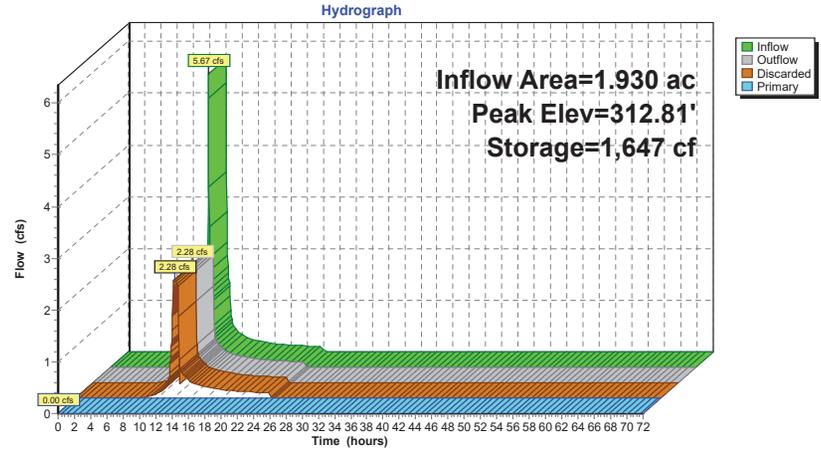
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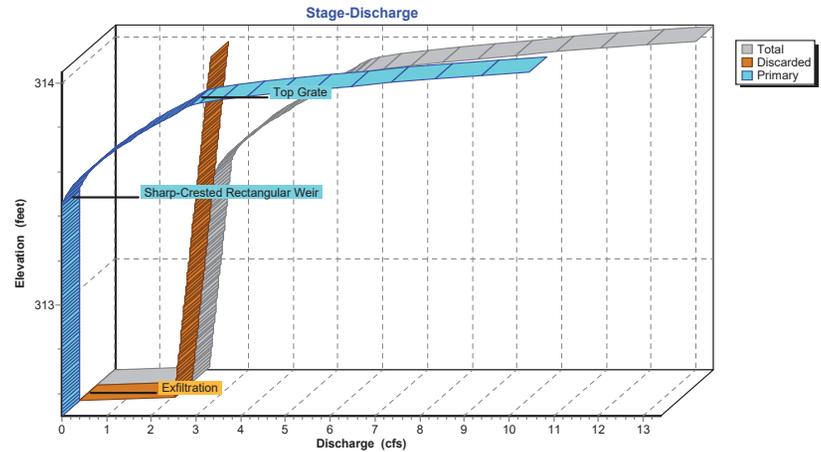
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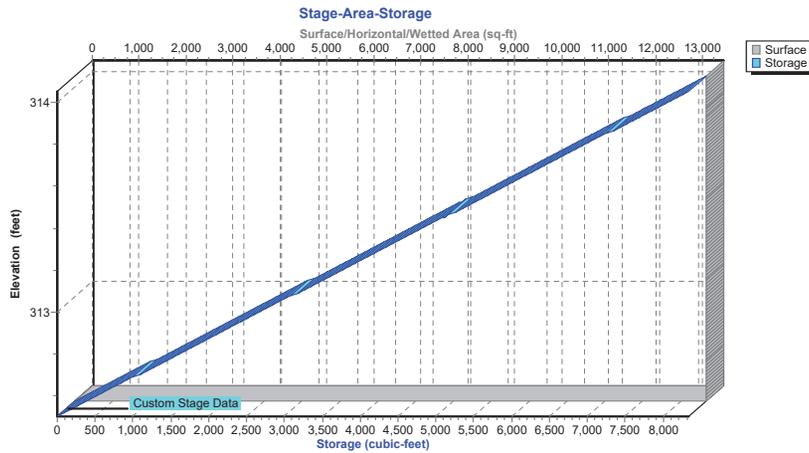
**Pond BASIN I: INF TRENCH I**



**Pond BASIN I: INF TRENCH I**



Pond BASIN I: INF TRENCH I



Hydrograph for Pond BASIN I: INF TRENCH I

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	312.50	0.00	0.00	0.00
2.50	0.00	0	312.50	0.00	0.00	0.00
5.00	0.00	0	312.50	0.00	0.00	0.00
7.50	0.00	0	312.50	0.00	0.00	0.00
10.00	0.09	3	312.50	0.09	0.09	0.00
12.50	1.27	929	312.67	2.21	2.21	0.00
15.00	0.25	10	312.50	0.25	0.25	0.00
17.50	0.17	7	312.50	0.17	0.17	0.00
20.00	0.14	5	312.50	0.14	0.14	0.00
22.50	0.11	4	312.50	0.11	0.11	0.00
25.00	0.00	0	312.50	0.00	0.00	0.00
27.50	0.00	0	312.50	0.00	0.00	0.00
30.00	0.00	0	312.50	0.00	0.00	0.00
32.50	0.00	0	312.50	0.00	0.00	0.00
35.00	0.00	0	312.50	0.00	0.00	0.00
37.50	0.00	0	312.50	0.00	0.00	0.00
40.00	0.00	0	312.50	0.00	0.00	0.00
42.50	0.00	0	312.50	0.00	0.00	0.00
45.00	0.00	0	312.50	0.00	0.00	0.00
47.50	0.00	0	312.50	0.00	0.00	0.00
50.00	0.00	0	312.50	0.00	0.00	0.00
52.50	0.00	0	312.50	0.00	0.00	0.00
55.00	0.00	0	312.50	0.00	0.00	0.00
57.50	0.00	0	312.50	0.00	0.00	0.00
60.00	0.00	0	312.50	0.00	0.00	0.00
62.50	0.00	0	312.50	0.00	0.00	0.00
65.00	0.00	0	312.50	0.00	0.00	0.00
67.50	0.00	0	312.50	0.00	0.00	0.00
70.00	0.00	0	312.50	0.00	0.00	0.00

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**Stage-Discharge for Pond BASIN I: INF TRENCH I**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
312.50	0.00	0.00	0.00	313.54	2.93	2.67	0.26
312.52	2.13	2.13	0.00	313.56	3.03	2.68	0.36
312.54	2.14	2.14	0.00	313.58	3.14	2.69	0.46
312.56	2.15	2.15	0.00	313.60	3.26	2.70	0.56
312.58	2.16	2.16	0.00	313.62	3.39	2.71	0.68
312.60	2.17	2.17	0.00	313.64	3.52	2.72	0.80
312.62	2.18	2.18	0.00	313.66	3.66	2.73	0.93
312.64	2.19	2.19	0.00	313.68	3.81	2.74	1.07
312.66	2.20	2.20	0.00	313.70	3.96	2.75	1.21
312.68	2.21	2.21	0.00	313.72	4.11	2.76	1.35
312.70	2.22	2.22	0.00	313.74	4.28	2.77	1.50
312.72	2.23	2.23	0.00	313.76	4.44	2.78	1.66
312.74	2.24	2.24	0.00	313.78	4.61	2.79	1.82
312.76	2.25	2.25	0.00	313.80	4.79	2.81	1.98
312.78	2.27	2.27	0.00	313.82	4.97	2.82	2.15
312.80	2.28	2.28	0.00	313.84	5.15	2.83	2.33
312.82	2.29	2.29	0.00	313.86	5.34	2.84	2.51
312.84	2.30	2.30	0.00	313.88	5.53	2.85	2.69
312.86	2.31	2.31	0.00	313.90	5.73	2.86	2.87
312.88	2.32	2.32	0.00	313.92	6.23	2.87	3.36
312.90	2.33	2.33	0.00	313.94	6.97	2.88	4.09
312.92	2.34	2.34	0.00	313.96	7.88	2.89	4.99
312.94	2.35	2.35	0.00	313.98	8.92	2.90	6.02
312.96	2.36	2.36	0.00	314.00	10.07	2.91	7.16
312.98	2.37	2.37	0.00	314.02	11.33	2.92	8.41
313.00	2.38	2.38	0.00	314.04	<b>12.68</b>	<b>2.93</b>	<b>9.75</b>
313.02	2.39	2.39	0.00				
313.04	2.40	2.40	0.00				
313.06	2.41	2.41	0.00				
313.08	2.42	2.42	0.00				
313.10	2.43	2.43	0.00				
313.12	2.45	2.45	0.00				
313.14	2.46	2.46	0.00				
313.16	2.47	2.47	0.00				
313.18	2.48	2.48	0.00				
313.20	2.49	2.49	0.00				
313.22	2.50	2.50	0.00				
313.24	2.51	2.51	0.00				
313.26	2.52	2.52	0.00				
313.28	2.53	2.53	0.00				
313.30	2.54	2.54	0.00				
313.32	2.55	2.55	0.00				
313.34	2.56	2.56	0.00				
313.36	2.57	2.57	0.00				
313.38	2.58	2.58	0.00				
313.40	2.59	2.59	0.00				
313.42	2.60	2.60	0.00				
313.44	2.61	2.61	0.00				
313.46	2.64	2.63	0.01				
313.48	2.69	2.64	0.05				
313.50	2.76	2.65	0.11				
313.52	2.84	2.66	0.18				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BASIN I: INF TRENCH I**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
312.50	<b>13,450</b>	0	313.54	13,450	5,595
312.52	13,450	108	313.56	13,450	5,703
312.54	13,450	215	313.58	13,450	5,810
312.56	13,450	323	313.60	13,450	5,918
312.58	13,450	430	313.62	13,450	6,026
312.60	13,450	538	313.64	13,450	6,133
312.62	13,450	646	313.66	13,450	6,241
312.64	13,450	753	313.68	13,450	6,348
312.66	13,450	861	313.70	13,450	6,456
312.68	13,450	968	313.72	13,450	6,564
312.70	13,450	1,076	313.74	13,450	6,671
312.72	13,450	1,184	313.76	13,450	6,779
312.74	13,450	1,291	313.78	13,450	6,886
312.76	13,450	1,399	313.80	13,450	6,994
312.78	13,450	1,506	313.82	13,450	7,102
312.80	13,450	1,614	313.84	13,450	7,209
312.82	13,450	1,722	313.86	13,450	7,317
312.84	13,450	1,829	313.88	13,450	7,424
312.86	13,450	1,937	313.90	13,450	7,532
312.88	13,450	2,044	313.92	13,450	7,640
312.90	13,450	2,152	313.94	13,450	7,747
312.92	13,450	2,260	313.96	13,450	7,855
312.94	13,450	2,367	313.98	13,450	7,962
312.96	13,450	2,475	314.00	13,450	8,070
312.98	13,450	2,582	314.02	13,450	8,178
313.00	13,450	2,690	314.04	13,450	<b>8,285</b>
313.02	13,450	2,798			
313.04	13,450	2,905			
313.06	13,450	3,013			
313.08	13,450	3,120			
313.10	13,450	3,228			
313.12	13,450	3,336			
313.14	13,450	3,443			
313.16	13,450	3,551			
313.18	13,450	3,658			
313.20	13,450	3,766			
313.22	13,450	3,874			
313.24	13,450	3,981			
313.26	13,450	4,089			
313.28	13,450	4,196			
313.30	13,450	4,304			
313.32	13,450	4,412			
313.34	13,450	4,519			
313.36	13,450	4,627			
313.38	13,450	4,734			
313.40	13,450	4,842			
313.42	13,450	4,950			
313.44	13,450	5,057			
313.46	13,450	5,165			
313.48	13,450	5,272			
313.50	13,450	5,380			
313.52	13,450	5,488			

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**Summary for Pond FB-A1: FOREBAY A1**

Inflow Area = 2.540 ac, 84.65% Impervious, Inflow Depth = 3.75" for 10-yr event  
 Inflow = 12.71 cfs @ 11.98 hrs, Volume= 0.794 af  
 Outflow = 10.92 cfs @ 12.01 hrs, Volume= 0.808 af, Atten= 14%, Lag= 1.9 min  
 Primary = 10.92 cfs @ 12.01 hrs, Volume= 0.808 af  
 Routed to Pond BA-A : AG INF BASIN A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Starting Elev= 311.10' Surf.Area= 4,661 sf Storage= 5,055 cf  
 Peak Elev= 311.42' @ 12.01 hrs Surf.Area= 5,077 sf Storage= 6,604 cf (1,549 cf above start)

Plug-Flow detention time= 113.2 min calculated for 0.691 af (87% of inflow)  
 Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	14,500 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	2,919	0	0
310.00	3,398	632	632
311.00	4,530	3,964	4,596
312.00	5,837	5,184	9,779
312.75	6,752	4,721	14,500

Device	Routing	Invert	Outlet Devices
#1	Primary	311.00'	<b>15.0' long x 15.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=10.39 cfs @ 12.01 hrs HW=311.40' (Free Discharge)  
 1=Broad-Crested Rectangular Weir (Weir Controls 10.39 cfs @ 1.72 fps)

**2024-01-15 Proposed Conditions**

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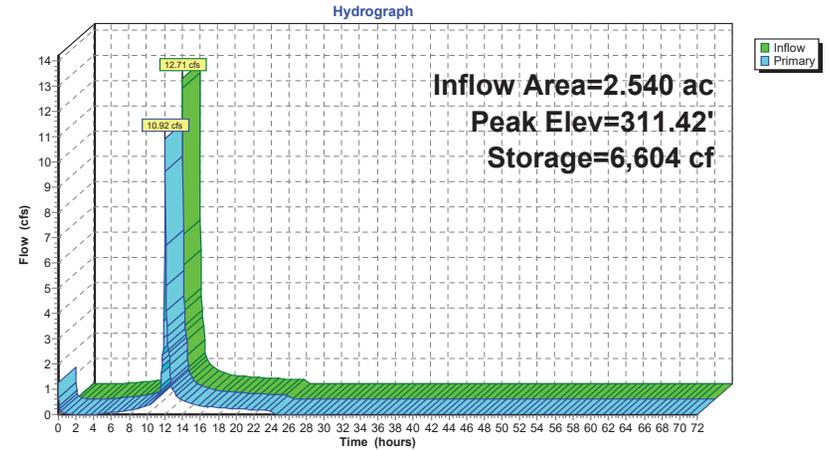
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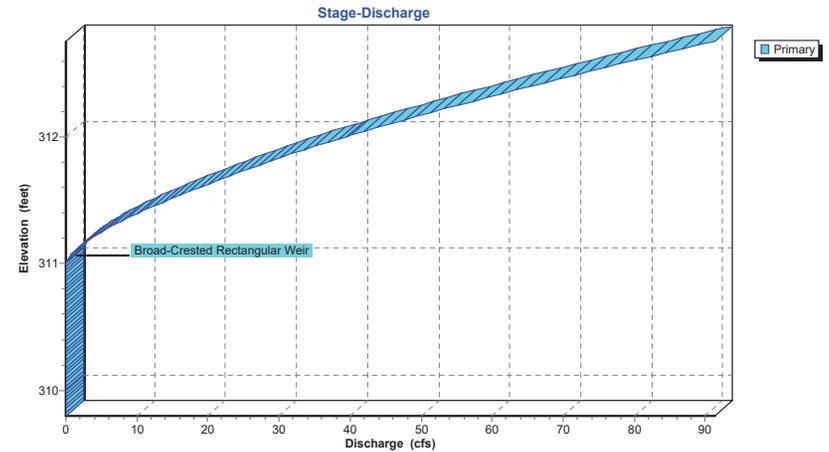
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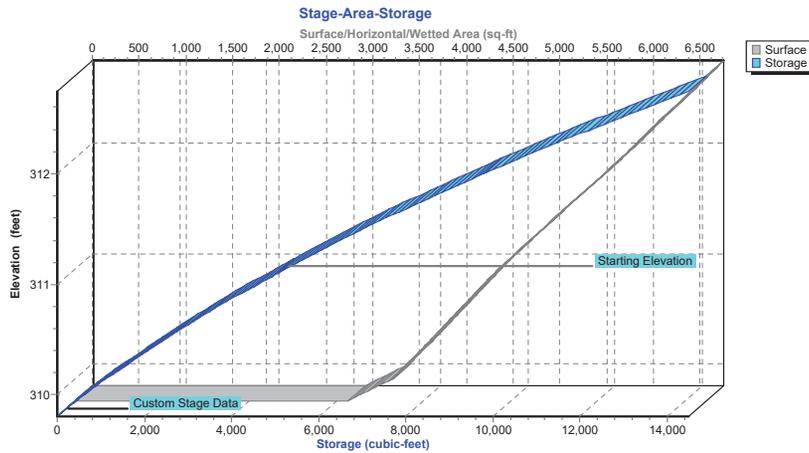
**Pond FB-A1: FOREBAY A1**



**Pond FB-A1: FOREBAY A1**



**Pond FB-A1: FOREBAY A1**



**Hydrograph for Pond FB-A1: FOREBAY A1**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	5,055	311.10	1.27
2.50	0.00	4,596	311.00	0.00
5.00	0.05	4,641	311.01	0.04
7.50	0.15	4,690	311.02	0.14
10.00	<b>0.37</b>	<b>4,788</b>	<b>311.04</b>	<b>0.36</b>
12.50	<b>2.12</b>	<b>5,274</b>	<b>311.15</b>	<b>2.26</b>
15.00	0.41	4,810	311.05	0.42
17.50	0.27	4,758	311.04	0.28
20.00	0.21	4,727	311.03	0.22
22.50	0.18	4,709	311.02	0.18
25.00	0.00	4,600	311.00	0.00
27.50	0.00	4,596	311.00	0.00
30.00	0.00	4,596	311.00	0.00
32.50	0.00	4,596	311.00	0.00
35.00	0.00	4,596	311.00	0.00
37.50	0.00	4,596	311.00	0.00
40.00	0.00	4,596	311.00	0.00
42.50	0.00	4,596	311.00	0.00
45.00	0.00	4,596	311.00	0.00
47.50	0.00	4,596	311.00	0.00
50.00	0.00	4,596	311.00	0.00
52.50	0.00	4,596	311.00	0.00
55.00	0.00	4,596	311.00	0.00
57.50	0.00	4,596	311.00	0.00
60.00	0.00	4,596	311.00	0.00
62.50	0.00	4,596	311.00	0.00
65.00	0.00	4,596	311.00	0.00
67.50	0.00	4,596	311.00	0.00
70.00	0.00	4,596	311.00	0.00

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**Stage-Discharge for Pond FB-A1: FOREBAY A1**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.80	0.00	310.84	0.00	311.88	32.64
309.82	0.00	310.86	0.00	311.90	33.75
309.84	0.00	310.88	0.00	311.92	34.86
309.86	0.00	310.90	0.00	311.94	35.99
309.88	0.00	310.92	0.00	311.96	37.14
309.90	0.00	310.94	0.00	311.98	38.29
309.92	0.00	310.96	0.00	312.00	39.45
309.94	0.00	310.98	0.00	312.02	40.65
309.96	0.00	311.00	0.00	312.04	41.87
309.98	0.00	311.02	0.11	312.06	43.10
310.00	0.00	311.04	0.32	312.08	44.34
310.02	0.00	311.06	0.59	312.10	45.60
310.04	0.00	311.08	0.91	312.12	46.87
310.06	0.00	311.10	1.27	312.14	48.15
310.08	0.00	311.12	1.67	312.16	49.44
310.10	0.00	311.14	2.11	312.18	50.74
310.12	0.00	311.16	2.57	312.20	52.06
310.14	0.00	311.18	3.07	312.22	53.36
310.16	0.00	311.20	3.60	312.24	54.68
310.18	0.00	311.22	4.15	312.26	56.01
310.20	0.00	311.24	4.73	312.28	57.35
310.22	0.00	311.26	5.34	312.30	58.70
310.24	0.00	311.28	5.97	312.32	60.06
310.26	0.00	311.30	6.63	312.34	61.43
310.28	0.00	311.32	7.31	312.36	62.81
310.30	0.00	311.34	8.01	312.38	64.20
310.32	0.00	311.36	8.74	312.40	65.60
310.34	0.00	311.38	9.48	312.42	66.98
310.36	0.00	311.40	10.25	312.44	68.38
310.38	0.00	311.42	11.02	312.46	69.78
310.40	0.00	311.44	11.82	312.48	71.19
310.42	0.00	311.46	12.64	312.50	72.61
310.44	0.00	311.48	13.47	312.52	74.04
310.46	0.00	311.50	14.32	312.54	75.48
310.48	0.00	311.52	15.19	312.56	76.92
310.50	0.00	311.54	16.07	312.58	78.38
310.52	0.00	311.56	16.97	312.60	79.84
310.54	0.00	311.58	17.89	312.62	81.34
310.56	0.00	311.60	18.82	312.64	82.85
310.58	0.00	311.62	19.73	312.66	84.37
310.60	0.00	311.64	20.64	312.68	85.90
310.62	0.00	311.66	21.57	312.70	87.44
310.64	0.00	311.68	22.51	312.72	88.99
310.66	0.00	311.70	23.46	312.74	<b>90.55</b>
310.68	0.00	311.72	24.41		
310.70	0.00	311.74	25.38		
310.72	0.00	311.76	26.36		
310.74	0.00	311.78	27.34		
310.76	0.00	311.80	28.34		
310.78	0.00	311.82	29.39		
310.80	0.00	311.84	30.46		
310.82	0.00	311.86	31.55		

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**Stage-Area-Storage for Pond FB-A1: FOREBAY A1**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	2,919	0	312.40	6,325	12,212
309.85	3,038	149	312.45	6,386	12,529
309.90	3,158	304	312.50	6,447	12,850
309.95	3,278	465	312.55	6,508	13,174
310.00	3,398	632	312.60	6,569	13,501
310.05	3,454	803	312.65	6,630	13,831
310.10	3,511	977	312.70	6,691	14,164
310.15	3,568	1,154	312.75	<b>6,752</b>	<b>14,500</b>
310.20	3,624	1,334			
310.25	3,681	1,516			
310.30	3,737	1,702			
310.35	3,794	1,890			
310.40	3,851	2,081			
310.45	3,907	2,275			
310.50	3,964	2,472			
310.55	4,021	2,672			
310.60	4,077	2,874			
310.65	4,134	3,079			
310.70	4,190	3,287			
310.75	4,247	3,498			
310.80	4,304	3,712			
310.85	4,360	3,929			
310.90	4,417	4,148			
310.95	4,474	4,370			
311.00	4,530	4,596			
311.05	4,586	4,824			
311.10	4,641	5,055			
311.15	4,726	5,290			
311.20	4,792	5,528			
311.25	4,857	5,769			
311.30	4,922	6,013			
311.35	4,988	6,261			
311.40	5,053	6,512			
311.45	5,118	6,767			
311.50	5,184	7,024			
311.55	5,249	7,285			
311.60	5,314	7,549			
311.65	5,380	7,816			
311.70	5,445	8,087			
311.75	5,510	8,361			
311.80	5,576	8,638			
311.85	5,641	8,918			
311.90	5,706	9,202			
311.95	5,772	9,489			
312.00	5,837	9,779			
312.05	5,898	10,073			
312.10	5,959	10,369			
312.15	6,020	10,668			
312.20	6,081	10,971			
312.25	6,142	11,277			
312.30	6,203	11,585			
312.35	6,264	11,897			

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**Summary for Pond FB-A2: FOREBAY A2**

Inflow Area = 2.710 ac, 72.32% Impervious, Inflow Depth = 3.06" for 10-yr event  
 Inflow = 11.14 cfs @ 11.99 hrs, Volume= 0.691 af  
 Outflow = 8.18 cfs @ 12.05 hrs, Volume= 0.593 af, Atten= 27%, Lag= 3.3 min  
 Primary = 8.18 cfs @ 12.05 hrs, Volume= 0.593 af  
 Routed to Pond BA-A : AG INF BASIN A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 310.74' @ 12.05 hrs Surf.Area= 8,085 sf Storage= 6,990 cf

Plug-Flow detention time= 116.7 min calculated for 0.593 af (86% of inflow)  
 Center-of-Mass det. time= 47.0 min ( 876.4 - 829.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	26,127 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	6,055	0	0
310.00	7,144	1,320	1,320
311.00	8,407	7,775	9,095
312.00	9,845	9,126	18,221
312.75	11,238	7,906	26,127

Device	Routing	Invert	Outlet Devices
#1	Primary	310.40'	<b>15.0' long x 15.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=8.11 cfs @ 12.05 hrs HW=310.74' (Free Discharge)  
 1=Broad-Crested Rectangular Weir(Weir Controls 8.11 cfs @ 1.58 fps)

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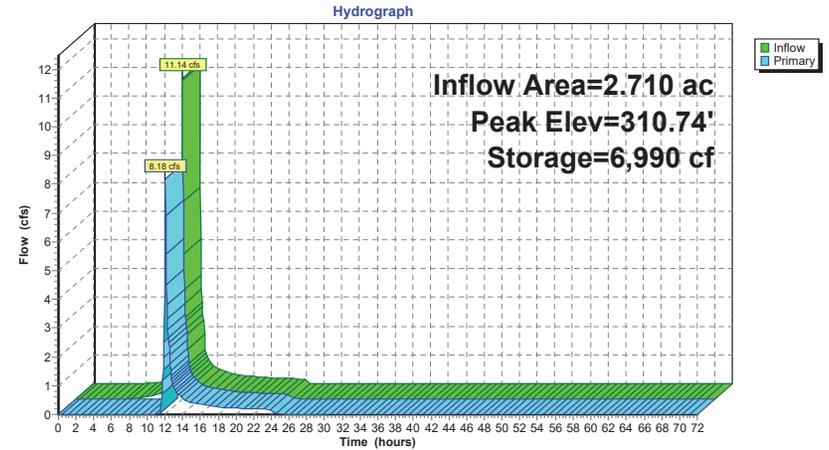
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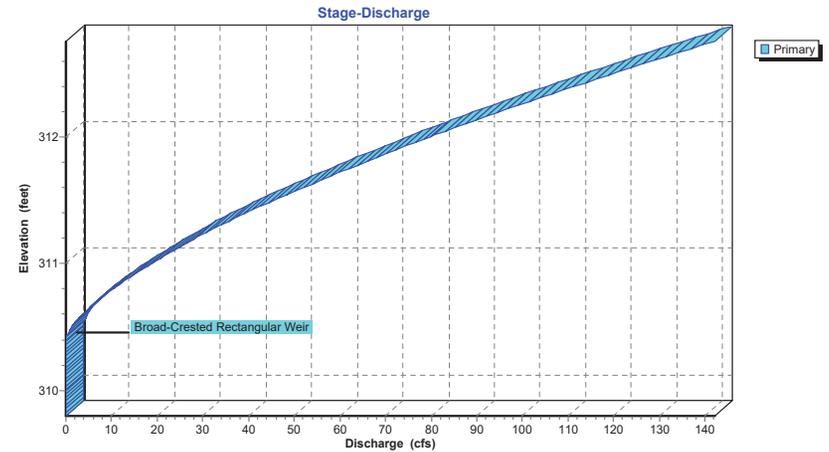
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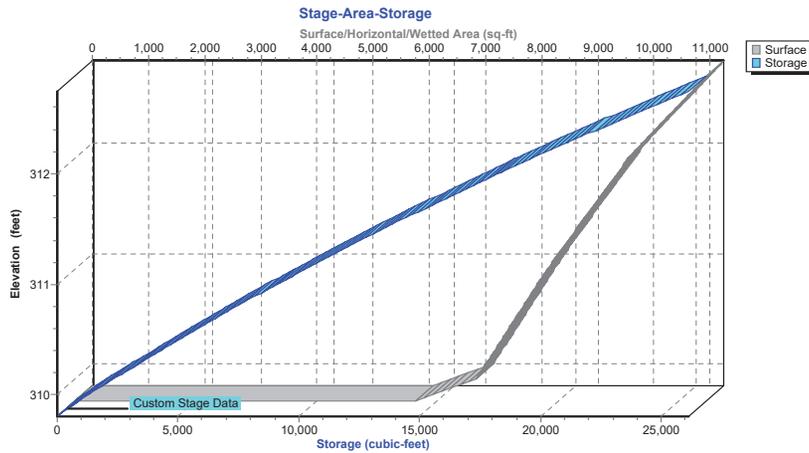
**Pond FB-A2: FOREBAY A2**



**Pond FB-A2: FOREBAY A2**



Pond FB-A2: FOREBAY A2



Hydrograph for Pond FB-A2: FOREBAY A2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	309.80	0.00
2.50	0.00	0	309.80	0.00
5.00	0.00	0	309.80	0.00
7.50	0.06	212	309.83	0.00
10.00	<b>0.24</b>	<b>1,435</b>	<b>310.02</b>	<b>0.00</b>
12.50	<b>2.04</b>	<b>5,430</b>	<b>310.55</b>	<b>2.31</b>
15.00	0.40	4,642	310.45	0.42
17.50	0.27	4,544	310.43	0.28
20.00	0.21	4,501	310.43	0.22
22.50	0.18	4,476	310.43	0.18
25.00	0.00	4,293	310.40	0.01
27.50	0.00	4,278	310.40	0.00
30.00	0.00	4,278	310.40	0.00
32.50	0.00	4,278	310.40	0.00
35.00	0.00	4,278	310.40	0.00
37.50	0.00	4,278	310.40	0.00
40.00	0.00	4,278	310.40	0.00
42.50	0.00	4,278	310.40	0.00
45.00	0.00	4,278	310.40	0.00
47.50	0.00	4,278	310.40	0.00
50.00	0.00	4,278	310.40	0.00
52.50	0.00	4,278	310.40	0.00
55.00	0.00	4,278	310.40	0.00
57.50	0.00	4,278	310.40	0.00
60.00	0.00	4,278	310.40	0.00
62.50	0.00	4,278	310.40	0.00
65.00	0.00	4,278	310.40	0.00
67.50	0.00	4,278	310.40	0.00
70.00	0.00	4,278	310.40	0.00

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Stage-Discharge for Pond FB-A2: FOREBAY A2**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.80	0.00	310.84	11.82	311.88	71.19
309.82	0.00	310.86	12.64	311.90	72.61
309.84	0.00	310.88	13.47	311.92	74.04
309.86	0.00	310.90	14.32	311.94	75.48
309.88	0.00	310.92	15.19	311.96	76.92
309.90	0.00	310.94	16.07	311.98	78.38
309.92	0.00	310.96	16.97	312.00	79.84
309.94	0.00	310.98	17.89	312.02	81.34
309.96	0.00	311.00	18.82	312.04	82.85
309.98	0.00	311.02	19.73	312.06	84.37
310.00	0.00	311.04	20.64	312.08	85.90
310.02	0.00	311.06	21.57	312.10	87.44
310.04	0.00	311.08	22.51	312.12	88.99
310.06	0.00	311.10	23.46	312.14	90.55
310.08	0.00	311.12	24.41	312.16	92.11
310.10	0.00	311.14	25.38	312.18	93.69
310.12	0.00	311.16	26.36	312.20	95.27
310.14	0.00	311.18	27.34	312.22	96.86
310.16	0.00	311.20	28.34	312.24	98.46
310.18	0.00	311.22	29.39	312.26	100.07
310.20	0.00	311.24	30.46	312.28	101.69
310.22	0.00	311.26	31.55	312.30	103.32
310.24	0.00	311.28	32.64	312.32	104.95
310.26	0.00	311.30	33.75	312.34	106.60
310.28	0.00	311.32	34.86	312.36	108.25
310.30	0.00	311.34	35.99	312.38	109.91
310.32	0.00	311.36	37.14	312.40	111.58
310.34	0.00	311.38	38.29	312.42	113.26
310.36	0.00	311.40	39.45	312.44	114.95
310.38	0.00	311.42	40.65	312.46	116.64
310.40	0.00	311.44	41.87	312.48	118.34
310.42	0.11	311.46	43.10	312.50	120.05
310.44	0.32	311.48	44.34	312.52	121.77
310.46	0.59	311.50	45.60	312.54	123.50
310.48	0.91	311.52	46.87	312.56	125.24
310.50	1.27	311.54	48.15	312.58	126.98
310.52	1.67	311.56	49.44	312.60	128.73
310.54	2.11	311.58	50.74	312.62	130.49
310.56	2.57	311.60	52.06	312.64	132.26
310.58	3.07	311.62	53.36	312.66	134.03
310.60	3.60	311.64	54.68	312.68	135.82
310.62	4.15	311.66	56.01	312.70	137.61
310.64	4.73	311.68	57.35	312.72	139.41
310.66	5.34	311.70	58.70	312.74	<b>141.21</b>
310.68	5.97	311.72	60.06		
310.70	6.63	311.74	61.43		
310.72	7.31	311.76	62.81		
310.74	8.01	311.78	64.20		
310.76	8.74	311.80	65.60		
310.78	9.48	311.82	66.98		
310.80	10.25	311.84	68.38		
310.82	11.02	311.86	69.78		

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Stage-Area-Storage for Pond FB-A2: FOREBAY A2**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	6,055	0	312.40	10,588	22,308
309.85	6,327	310	312.45	10,681	22,839
309.90	6,599	633	312.50	10,774	23,376
309.95	6,872	969	312.55	10,867	23,917
310.00	7,144	1,320	312.60	10,960	24,462
310.05	7,207	1,679	312.65	11,053	25,013
310.10	7,270	2,041	312.70	11,146	25,568
310.15	7,333	2,406	312.75	<b>11,238</b>	<b>26,127</b>
310.20	7,396	2,774			
310.25	7,460	3,145			
310.30	7,523	3,520			
310.35	7,586	3,898			
310.40	7,649	4,278			
310.45	7,712	4,662			
310.50	7,775	5,050			
310.55	7,839	5,440			
310.60	7,902	5,834			
310.65	7,965	6,230			
310.70	8,028	6,630			
310.75	8,091	7,033			
310.80	8,154	7,439			
310.85	8,218	7,848			
310.90	8,281	8,261			
310.95	8,344	8,677			
311.00	8,407	9,095			
311.05	8,479	9,517			
311.10	8,551	9,943			
311.15	8,623	10,373			
311.20	8,695	10,805			
311.25	8,766	11,242			
311.30	8,838	11,682			
311.35	8,910	12,126			
311.40	8,982	12,573			
311.45	9,054	13,024			
311.50	9,126	13,479			
311.55	9,198	13,937			
311.60	9,270	14,398			
311.65	9,341	14,864			
311.70	9,413	15,332			
311.75	9,485	15,805			
311.80	9,557	16,281			
311.85	9,629	16,761			
311.90	9,701	17,244			
311.95	9,773	17,731			
312.00	9,845	18,221			
312.05	9,937	18,716			
312.10	10,030	19,215			
312.15	10,123	19,719			
312.20	10,216	20,227			
312.25	10,309	20,740			
312.30	10,402	21,258			
312.35	10,495	21,781			

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**Summary for Pond FB-B: FOREBAY B**

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.560 ac, 66.03% Impervious, Inflow Depth = 3.55" for 10-yr event  
 Inflow = 7.36 cfs @ 11.99 hrs, Volume= 0.461 af  
 Outflow = 7.52 cfs @ 11.99 hrs, Volume= 0.443 af, Atten= 0%, Lag= 0.2 min  
 Primary = 7.52 cfs @ 11.99 hrs, Volume= 0.443 af  
 Routed to Pond BA-B : AG INF BASIN B

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 306.87' @ 11.99 hrs Surf.Area= 610 sf Storage= 904 cf

Plug-Flow detention time= 39.5 min calculated for 0.443 af (96% of inflow)  
 Center-of-Mass det. time= 16.1 min ( 826.5 - 810.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	304.00'	1,720 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
304.00	45	0	0
305.00	192	119	119
306.00	451	322	440
307.00	633	542	982
308.00	842	738	1,720

Device	Routing	Invert	Outlet Devices
#1	Primary	306.70'	<b>31.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

Primary OutFlow Max=7.25 cfs @ 11.99 hrs HW=306.87' (Free Discharge)  
 ↳1=Sharp-Crested Rectangular Weir(Weir Controls 7.25 cfs @ 1.35 fps)

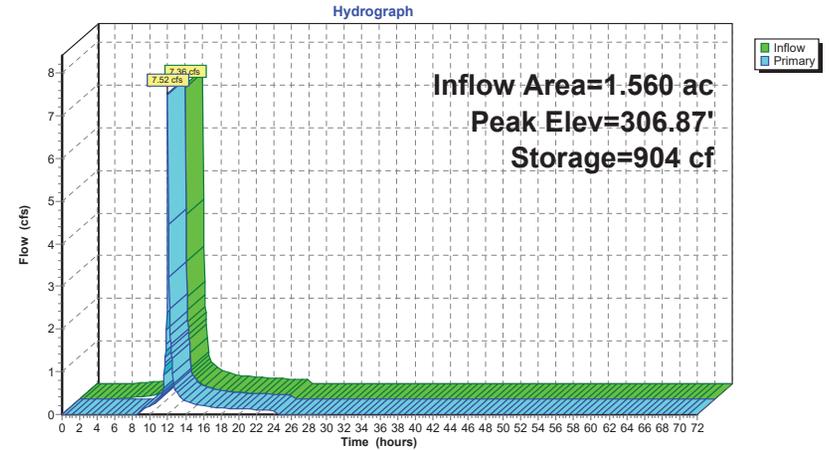
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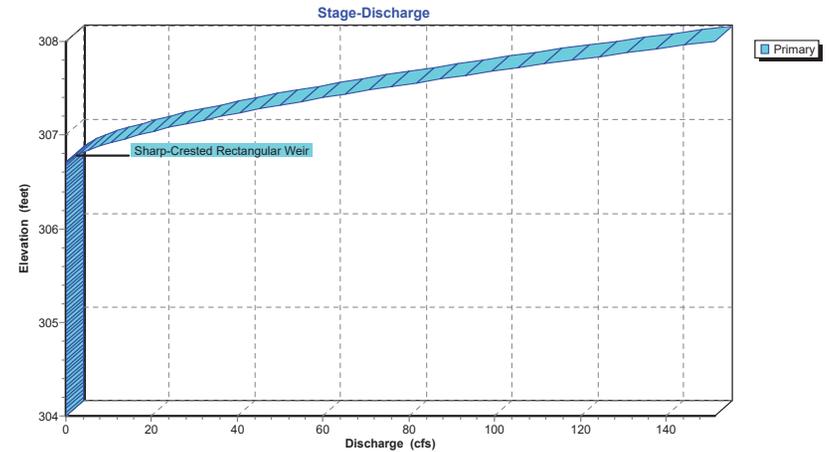
NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Pond FB-B: FOREBAY B**

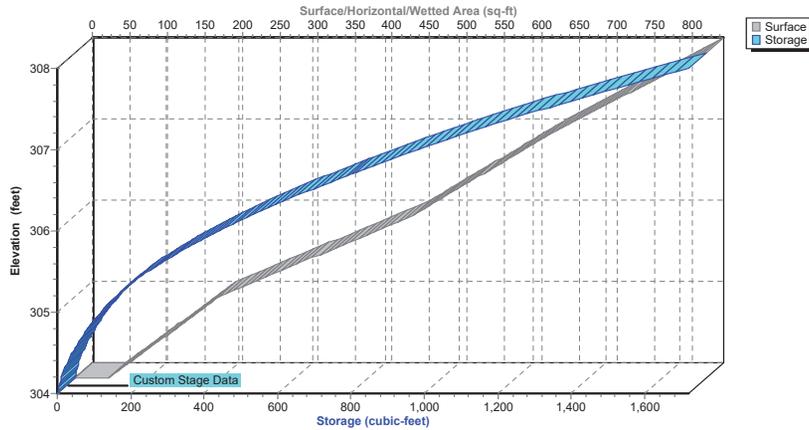


**Pond FB-B: FOREBAY B**



**Pond FB-B: FOREBAY B**

Stage-Area-Storage



**Hydrograph for Pond FB-B: FOREBAY B**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	304.00	0.00
2.50	0.00	0	304.00	0.00
5.00	0.02	31	304.41	0.00
7.50	0.07	414	305.94	0.00
10.00	<b>0.20</b>	<b>808</b>	<b>306.71</b>	<b>0.20</b>
12.50	<b>1.28</b>	<b>831</b>	<b>306.75</b>	<b>1.27</b>
15.00	0.25	810	306.72	0.25
17.50	0.17	807	306.71	0.17
20.00	0.13	805	306.71	0.13
22.50	0.11	805	306.71	0.11
25.00	0.00	800	306.70	0.00
27.50	0.00	800	306.70	0.00
30.00	0.00	800	306.70	0.00
32.50	0.00	800	306.70	0.00
35.00	0.00	800	306.70	0.00
37.50	0.00	800	306.70	0.00
40.00	0.00	800	306.70	0.00
42.50	0.00	800	306.70	0.00
45.00	0.00	800	306.70	0.00
47.50	0.00	800	306.70	0.00
50.00	0.00	800	306.70	0.00
52.50	0.00	800	306.70	0.00
55.00	0.00	800	306.70	0.00
57.50	0.00	800	306.70	0.00
60.00	0.00	800	306.70	0.00
62.50	0.00	800	306.70	0.00
65.00	0.00	800	306.70	0.00
67.50	0.00	800	306.70	0.00
70.00	0.00	800	306.70	0.00

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**Stage-Discharge for Pond FB-B: FOREBAY B**

Elevation (feet)	Primary (cfs)						
304.00	0.00	305.04	0.00	306.08	0.00	307.12	27.96
304.02	0.00	305.06	0.00	306.10	0.00	307.14	29.98
304.04	0.00	305.08	0.00	306.12	0.00	307.16	32.04
304.06	0.00	305.10	0.00	306.14	0.00	307.18	34.15
304.08	0.00	305.12	0.00	306.16	0.00	307.20	36.30
304.10	0.00	305.14	0.00	306.18	0.00	307.22	38.50
304.12	0.00	305.16	0.00	306.20	0.00	307.24	40.73
304.14	0.00	305.18	0.00	306.22	0.00	307.26	43.01
304.16	0.00	305.20	0.00	306.24	0.00	307.28	45.33
304.18	0.00	305.22	0.00	306.26	0.00	307.30	47.69
304.20	0.00	305.24	0.00	306.28	0.00	307.32	50.09
304.22	0.00	305.26	0.00	306.30	0.00	307.34	52.52
304.24	0.00	305.28	0.00	306.32	0.00	307.36	55.00
304.26	0.00	305.30	0.00	306.34	0.00	307.38	57.51
304.28	0.00	305.32	0.00	306.36	0.00	307.40	60.06
304.30	0.00	305.34	0.00	306.38	0.00	307.42	62.64
304.32	0.00	305.36	0.00	306.40	0.00	307.44	65.26
304.34	0.00	305.38	0.00	306.42	0.00	307.46	67.92
304.36	0.00	305.40	0.00	306.44	0.00	307.48	70.61
304.38	0.00	305.42	0.00	306.46	0.00	307.50	73.33
304.40	0.00	305.44	0.00	306.48	0.00	307.52	76.09
304.42	0.00	305.46	0.00	306.50	0.00	307.54	78.88
304.44	0.00	305.48	0.00	306.52	0.00	307.56	81.70
304.46	0.00	305.50	0.00	306.54	0.00	307.58	84.56
304.48	0.00	305.52	0.00	306.56	0.00	307.60	87.44
304.50	0.00	305.54	0.00	306.58	0.00	307.62	90.36
304.52	0.00	305.56	0.00	306.60	0.00	307.64	93.31
304.54	0.00	305.58	0.00	306.62	0.00	307.66	96.30
304.56	0.00	305.60	0.00	306.64	0.00	307.68	99.31
304.58	0.00	305.62	0.00	306.66	0.00	307.70	102.35
304.60	0.00	305.64	0.00	306.68	0.00	307.72	105.42
304.62	0.00	305.66	0.00	306.70	0.00	307.74	108.53
304.64	0.00	305.68	0.00	306.72	0.29	307.76	111.66
304.66	0.00	305.70	0.00	306.74	0.82	307.78	114.82
304.68	0.00	305.72	0.00	306.76	1.51	307.80	118.01
304.70	0.00	305.74	0.00	306.78	2.33	307.82	121.22
304.72	0.00	305.76	0.00	306.80	3.26	307.84	124.47
304.74	0.00	305.78	0.00	306.82	4.28	307.86	127.74
304.76	0.00	305.80	0.00	306.84	5.39	307.88	131.04
304.78	0.00	305.82	0.00	306.86	6.59	307.90	134.37
304.80	0.00	305.84	0.00	306.88	7.86	307.92	137.73
304.82	0.00	305.86	0.00	306.90	9.20	307.94	141.11
304.84	0.00	305.88	0.00	306.92	10.61	307.96	144.52
304.86	0.00	305.90	0.00	306.94	12.09	307.98	147.95
304.88	0.00	305.92	0.00	306.96	13.63	308.00	151.42
304.90	0.00	305.94	0.00	306.98	15.23		
304.92	0.00	305.96	0.00	307.00	16.89		
304.94	0.00	305.98	0.00	307.02	18.61		
304.96	0.00	306.00	0.00	307.04	20.38		
304.98	0.00	306.02	0.00	307.06	22.20		
305.00	0.00	306.04	0.00	307.08	24.07		
305.02	0.00	306.06	0.00	307.10	25.99		

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**Stage-Area-Storage for Pond FB-B: FOREBAY B**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
304.00	45	0	306.60	560	743
304.05	52	2	306.65	569	772
304.10	60	5	306.70	578	800
304.15	67	8	306.75	588	829
304.20	74	12	306.80	597	859
304.25	82	16	306.85	606	889
304.30	89	20	306.90	615	920
304.35	96	25	306.95	624	951
304.40	104	30	307.00	633	982
304.45	111	35	307.05	643	1,014
304.50	119	41	307.10	654	1,046
304.55	126	47	307.15	664	1,079
304.60	133	53	307.20	675	1,113
304.65	141	60	307.25	685	1,147
304.70	148	68	307.30	696	1,181
304.75	155	75	307.35	706	1,216
304.80	163	83	307.40	717	1,252
304.85	170	91	307.45	727	1,288
304.90	177	100	307.50	738	1,325
304.95	185	109	307.55	748	1,362
305.00	192	119	307.60	758	1,399
305.05	205	128	307.65	769	1,438
305.10	218	139	307.70	779	1,476
305.15	231	150	307.75	790	1,516
305.20	244	162	307.80	800	1,555
305.25	257	175	307.85	811	1,596
305.30	270	188	307.90	821	1,636
305.35	283	202	307.95	832	1,678
305.40	296	216	308.00	<b>842</b>	<b>1,720</b>
305.45	309	231			
305.50	322	247			
305.55	334	263			
305.60	347	280			
305.65	360	298			
305.70	373	316			
305.75	386	335			
305.80	399	355			
305.85	412	375			
305.90	425	396			
305.95	438	418			
306.00	451	440			
306.05	460	463			
306.10	469	486			
306.15	478	510			
306.20	487	534			
306.25	497	558			
306.30	506	583			
306.35	515	609			
306.40	524	635			
306.45	533	661			
306.50	542	688			
306.55	551	716			

**2024-01-15 Proposed Conditions**

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**Summary for Pond FB-G: FOREBAY G**

Inflow Area = 0.700 ac, 60.00% Impervious, Inflow Depth = 2.35" for 10-yr event  
 Inflow = 2.24 cfs @ 11.98 hrs, Volume= 0.137 af  
 Outflow = 1.85 cfs @ 12.06 hrs, Volume= 0.099 af, Atten= 18%, Lag= 4.4 min  
 Primary = 1.85 cfs @ 12.06 hrs, Volume= 0.099 af  
 Routed to Pond BA-G : AG INF BASIN G

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 311.21' @ 12.06 hrs Surf.Area= 1,366 sf Storage= 1,758 cf

Plug-Flow detention time= 177.0 min calculated for 0.098 af (72% of inflow)  
 Center-of-Mass det. time= 64.9 min ( 919.9 - 855.0 )

Volume #1	Invert 309.50'	Avail.Storage 2,956 cf	Storage Description Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.50	676	0	0
310.00	890	392	392
311.00	1,284	1,087	1,479
312.00	1,671	1,478	2,956

Device #1	Routing Primary	Invert 311.15'	Outlet Devices 42.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
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Primary OutFlow Max=1.65 cfs @ 12.06 hrs HW=311.20' (Free Discharge)  
 1=Sharp-Crested Rectangular Weir (Weir Controls 1.65 cfs @ 0.75 fps)

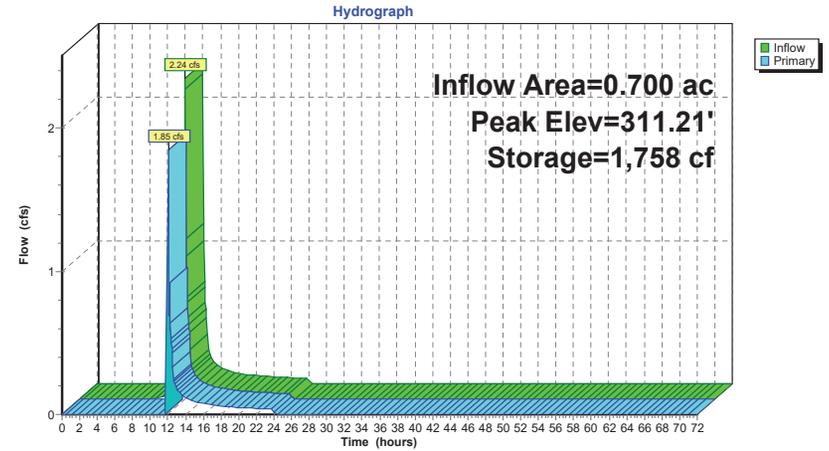
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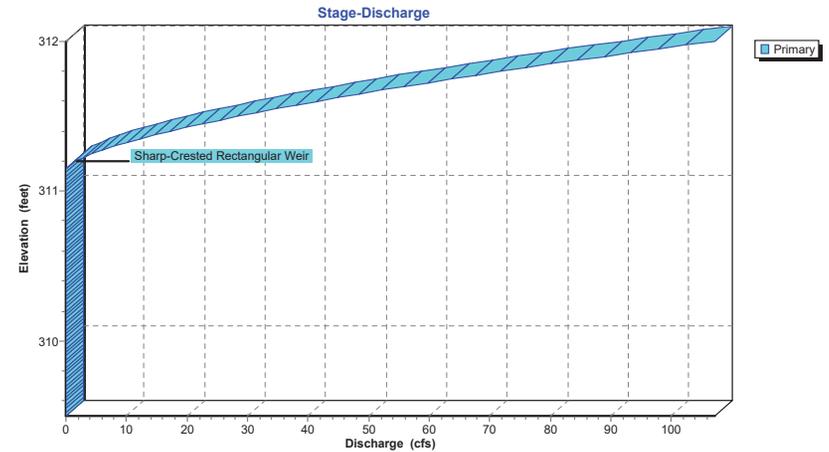
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**Pond FB-G: FOREBAY G**

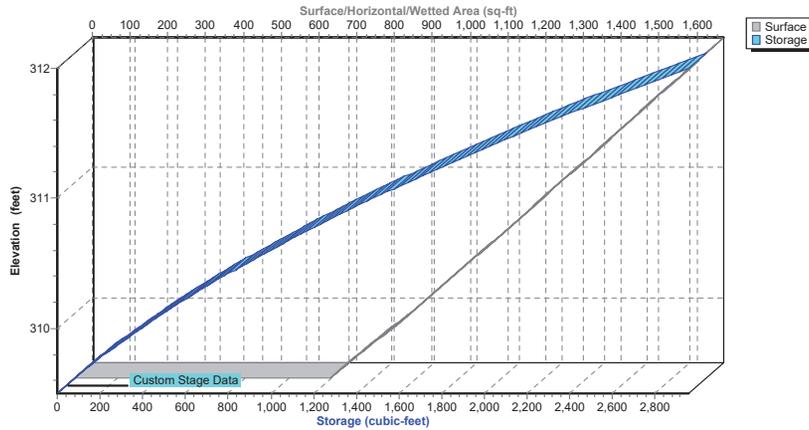


**Pond FB-G: FOREBAY G**



**Pond FB-G: FOREBAY G**

Stage-Area-Storage



**Hydrograph for Pond FB-G: FOREBAY G**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	309.50	0.00
2.50	0.00	0	309.50	0.00
5.00	0.00	0	309.50	0.00
7.50	0.00	0	309.50	0.00
10.00	<b>0.03</b>	<b>96</b>	<b>309.64</b>	<b>0.00</b>
12.50	<b>0.42</b>	<b>1,702</b>	<b>311.17</b>	<b>0.43</b>
15.00	0.09	1,681	311.15	0.09
17.50	0.06	1,679	311.15	0.06
20.00	0.05	1,678	311.15	0.05
22.50	0.04	1,678	311.15	0.04
25.00	0.00	1,675	311.15	0.00
27.50	0.00	1,675	311.15	0.00
30.00	0.00	1,675	311.15	0.00
32.50	0.00	1,675	311.15	0.00
35.00	0.00	1,675	311.15	0.00
37.50	0.00	1,675	311.15	0.00
40.00	0.00	1,675	311.15	0.00
42.50	0.00	1,675	311.15	0.00
45.00	0.00	1,675	311.15	0.00
47.50	0.00	1,675	311.15	0.00
50.00	0.00	1,675	311.15	0.00
52.50	0.00	1,675	311.15	0.00
55.00	0.00	1,675	311.15	0.00
57.50	0.00	1,675	311.15	0.00
60.00	0.00	1,675	311.15	0.00
62.50	0.00	1,675	311.15	0.00
65.00	0.00	1,675	311.15	0.00
67.50	0.00	1,675	311.15	0.00
70.00	0.00	1,675	311.15	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond FB-G: FOREBAY G**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.50	0.00	310.54	0.00	311.58	38.65
309.52	0.00	310.56	0.00	311.60	41.37
309.54	0.00	310.58	0.00	311.62	44.15
309.56	0.00	310.60	0.00	311.64	47.00
309.58	0.00	310.62	0.00	311.66	49.90
309.60	0.00	310.64	0.00	311.68	52.86
309.62	0.00	310.66	0.00	311.70	55.87
309.64	0.00	310.68	0.00	311.72	58.94
309.66	0.00	310.70	0.00	311.74	62.07
309.68	0.00	310.72	0.00	311.76	65.24
309.70	0.00	310.74	0.00	311.78	68.47
309.72	0.00	310.76	0.00	311.80	71.75
309.74	0.00	310.78	0.00	311.82	75.08
309.76	0.00	310.80	0.00	311.84	78.46
309.78	0.00	310.82	0.00	311.86	81.89
309.80	0.00	310.84	0.00	311.88	85.36
309.82	0.00	310.86	0.00	311.90	88.89
309.84	0.00	310.88	0.00	311.92	92.46
309.86	0.00	310.90	0.00	311.94	96.07
309.88	0.00	310.92	0.00	311.96	99.73
309.90	0.00	310.94	0.00	311.98	103.44
309.92	0.00	310.96	0.00	312.00	<b>107.19</b>
309.94	0.00	310.98	0.00		
309.96	0.00	311.00	0.00		
309.98	0.00	311.02	0.00		
310.00	0.00	311.04	0.00		
310.02	0.00	311.06	0.00		
310.04	0.00	311.08	0.00		
310.06	0.00	311.10	0.00		
310.08	0.00	311.12	0.00		
310.10	0.00	311.14	0.00		
310.12	0.00	311.16	0.14		
310.14	0.00	311.18	0.71		
310.16	0.00	311.20	1.54		
310.18	0.00	311.22	2.54		
310.20	0.00	311.24	3.71		
310.22	0.00	311.26	5.01		
310.24	0.00	311.28	6.43		
310.26	0.00	311.30	7.97		
310.28	0.00	311.32	9.62		
310.30	0.00	311.34	11.36		
310.32	0.00	311.36	13.20		
310.34	0.00	311.38	15.13		
310.36	0.00	311.40	17.15		
310.38	0.00	311.42	19.24		
310.40	0.00	311.44	21.42		
310.42	0.00	311.46	23.67		
310.44	0.00	311.48	25.99		
310.46	0.00	311.50	28.39		
310.48	0.00	311.52	30.86		
310.50	0.00	311.54	33.39		
310.52	0.00	311.56	35.99		

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**Stage-Area-Storage for Pond FB-G: FOREBAY G**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.50	676	0
309.55	697	34
309.60	719	70
309.65	740	106
309.70	762	144
309.75	783	182
309.80	804	222
309.85	826	263
309.90	847	305
309.95	869	348
310.00	890	392
310.05	910	436
310.10	929	482
310.15	949	529
310.20	969	577
310.25	989	626
310.30	1,008	676
310.35	1,028	727
310.40	1,048	779
310.45	1,067	832
310.50	1,087	886
310.55	1,107	941
310.60	1,126	996
310.65	1,146	1,053
310.70	1,166	1,111
310.75	1,186	1,170
310.80	1,205	1,230
310.85	1,225	1,290
310.90	1,245	1,352
310.95	1,264	1,415
311.00	1,284	1,479
311.05	1,303	1,543
311.10	1,323	1,609
311.15	1,342	1,675
311.20	1,361	1,743
311.25	1,381	1,812
311.30	1,400	1,881
311.35	1,419	1,952
311.40	1,439	2,023
311.45	1,458	2,095
311.50	1,478	2,169
311.55	1,497	2,243
311.60	1,516	2,319
311.65	1,536	2,395
311.70	1,555	2,472
311.75	1,574	2,550
311.80	1,594	2,630
311.85	1,613	2,710
311.90	1,632	2,791
311.95	1,652	2,873
312.00	<b>1,671</b>	<b>2,956</b>

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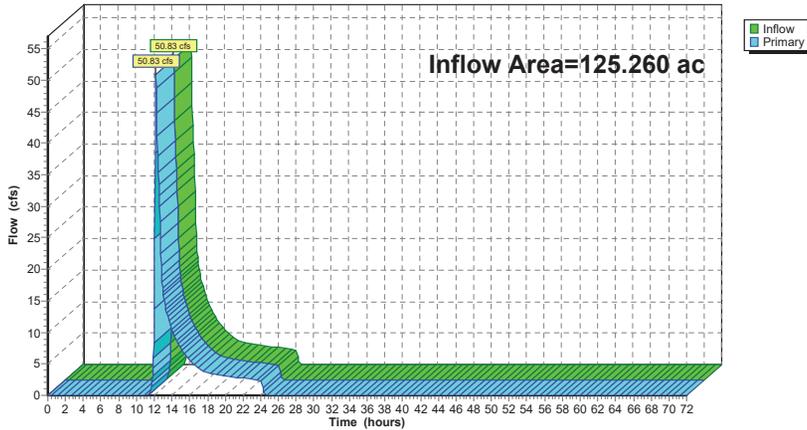
**Summary for Link 42L: POA STREAM TOTAL**

Inflow Area = 125.260 ac, 42.22% Impervious, Inflow Depth = 0.70" for 10-yr event  
 Inflow = 50.83 cfs @ 12.20 hrs, Volume= 7.297 af  
 Primary = 50.83 cfs @ 12.20 hrs, Volume= 7.297 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 42L: POA STREAM TOTAL**

Hydrograph



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 10-yr Rainfall=4.98"

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**Hydrograph for Link 42L: POA STREAM TOTAL**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	13.80	0.00	13.80	64.00	0.00	0.00	0.00
13.00	16.45	0.00	16.45	65.00	0.00	0.00	0.00
14.00	10.34	0.00	10.34	66.00	0.00	0.00	0.00
15.00	7.41	0.00	7.41	67.00	0.00	0.00	0.00
16.00	5.58	0.00	5.58	68.00	0.00	0.00	0.00
17.00	4.31	0.00	4.31	69.00	0.00	0.00	0.00
18.00	3.65	0.00	3.65	70.00	0.00	0.00	0.00
19.00	3.34	0.00	3.34	71.00	0.00	0.00	0.00
20.00	3.09	0.00	3.09	72.00	0.00	0.00	0.00
21.00	2.89	0.00	2.89				
22.00	2.73	0.00	2.73				
23.00	2.58	0.00	2.58				
24.00	2.46	0.00	2.46				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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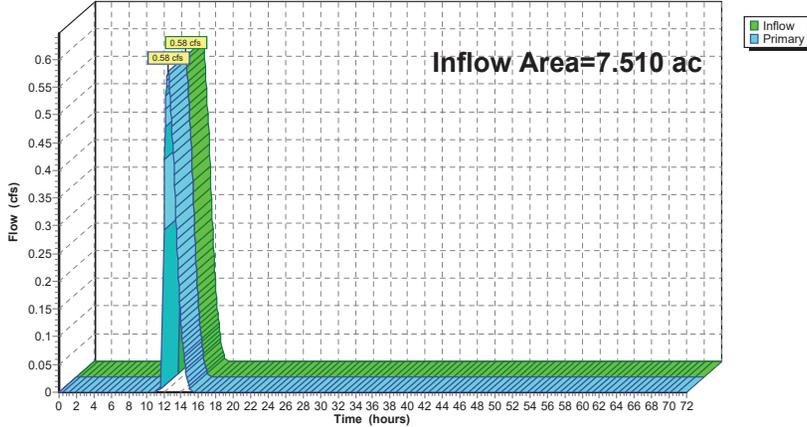
**Summary for Link 43L: TOTAL AG INF BASINS**

Inflow Area = 7.510 ac, 74.03% Impervious, Inflow Depth = 0.11" for 10-yr event  
 Inflow = 0.58 cfs @ 12.51 hrs, Volume= 0.070 af  
 Primary = 0.58 cfs @ 12.51 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 43L: TOTAL AG INF BASINS**

Hydrograph



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**Hydrograph for Link 43L: TOTAL AG INF BASINS**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.08	0.00	0.08	64.00	0.00	0.00	0.00
13.00	0.46	0.00	0.46	65.00	0.00	0.00	0.00
14.00	0.13	0.00	0.13	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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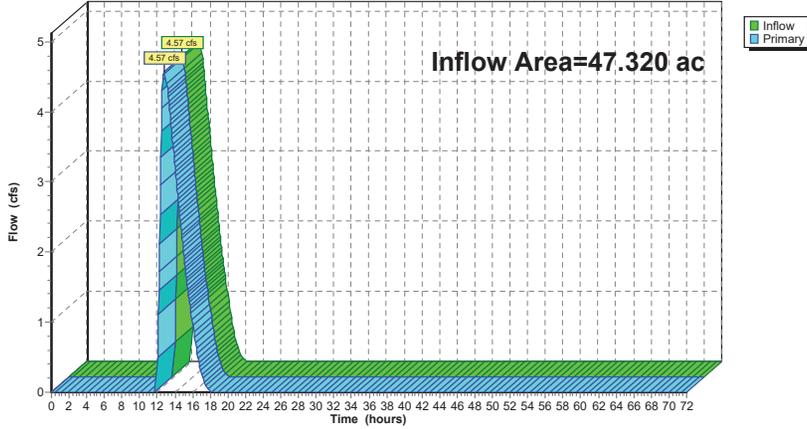
**Summary for Link 44L: Total UG INF BASINS**

Inflow Area = 47.320 ac, 95.33% Impervious, Inflow Depth = 0.25" for 10-yr event  
 Inflow = 4.57 cfs @ 12.77 hrs, Volume= 0.983 af  
 Primary = 4.57 cfs @ 12.77 hrs, Volume= 0.983 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 44L: Total UG INF BASINS**

Hydrograph



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**Hydrograph for Link 44L: Total UG INF BASINS**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.03	0.00	0.03	64.00	0.00	0.00	0.00
13.00	4.46	0.00	4.46	65.00	0.00	0.00	0.00
14.00	3.21	0.00	3.21	66.00	0.00	0.00	0.00
15.00	1.95	0.00	1.95	67.00	0.00	0.00	0.00
16.00	0.97	0.00	0.97	68.00	0.00	0.00	0.00
17.00	0.27	0.00	0.27	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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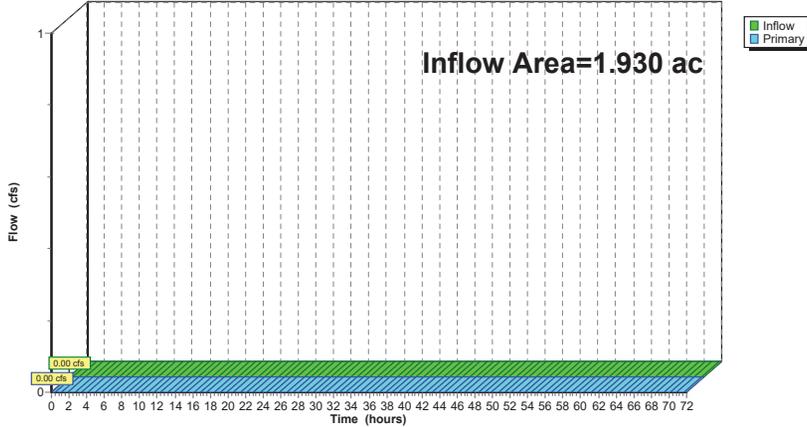
**Summary for Link 48L: TOTAL INF TRENCH**

Inflow Area = 1.930 ac, 60.10% Impervious, Inflow Depth = 0.00" for 10-yr event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 48L: TOTAL INF TRENCH**

Hydrograph



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**Hydrograph for Link 48L: TOTAL INF TRENCH**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

*NY-Suffern 24-hr S1 100-yr Rainfall=8.81"*

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- SubcatchmentBASIN C IN: SA BASIN C** Runoff Area=8.090 ac 94.93% Impervious Runoff Depth=8.21"  
Flow Length=135' Tc=5.0 min CN=95 Runoff=63.43 cfs 5.534 af
- SubcatchmentBASIN D IN: SA BASIN D** Runoff Area=8.240 ac 95.51% Impervious Runoff Depth=8.45"  
Flow Length=133' Tc=5.0 min CN=97 Runoff=65.13 cfs 5.802 af
- SubcatchmentBASIN E IN: SA BASIN E** Runoff Area=8.220 ac 95.13% Impervious Runoff Depth=8.21"  
Flow Length=215' Tc=5.2 min CN=95 Runoff=62.93 cfs 5.623 af
- SubcatchmentBASIN F IN: SA BASIN F** Runoff Area=9.660 ac 93.79% Impervious Runoff Depth=8.21"  
Flow Length=95' Tc=3.8 min CN=95 Runoff=80.39 cfs 6.608 af
- SubcatchmentBASIN H IN: SA BASIN H** Runoff Area=1.430 ac 98.60% Impervious Runoff Depth=8.45"  
Flow Length=77' Slope=0.0118 '/' Tc=1.2 min CN=97 Runoff=13.12 cfs 1.007 af
- SubcatchmentBASIN I IN: SA BASIN I** Runoff Area=1.930 ac 60.10% Impervious Runoff Depth=5.78"  
Flow Length=80' Slope=0.0100 '/' Tc=4.5 min CN=75 Runoff=12.08 cfs 0.929 af
- SubcatchmentBASIN K IN: SA BASIN K** Runoff Area=3.850 ac 100.00% Impervious Runoff Depth=8.57"  
Flow Length=158' Slope=0.0120 '/' Tc=1.9 min CN=98 Runoff=34.58 cfs 2.749 af
- SubcatchmentBASIN M IN: SA BASIN M** Runoff Area=7.830 ac 94.76% Impervious Runoff Depth=8.21"  
Flow Length=162' Tc=5.3 min CN=95 Runoff=59.85 cfs 5.356 af
- SubcatchmentFB A1 IN: SA FOREBAYA1** Runoff Area=2.540 ac 84.65% Impervious Runoff Depth=7.48"  
Flow Length=134' Slope=0.0100 '/' Tc=1.9 min CN=89 Runoff=21.63 cfs 1.584 af
- SubcatchmentFB A2 IN: SA FOREBAYA2** Runoff Area=2.710 ac 72.32% Impervious Runoff Depth=6.63"  
Flow Length=50' Slope=0.1400 '/' Tc=2.5 min CN=82 Runoff=20.89 cfs 1.498 af
- SubcatchmentFB-B IN: SA BASIN B** Runoff Area=1.560 ac 66.03% Impervious Runoff Depth=7.24"  
Flow Length=53' Slope=0.1700 '/' Tc=2.4 min CN=87 Runoff=12.86 cfs 0.941 af
- SubcatchmentFB-G IN: SA BASIN G** Runoff Area=0.700 ac 60.00% Impervious Runoff Depth=5.66"  
Flow Length=30' Slope=0.1600 '/' Tc=1.6 min CN=74 Runoff=4.79 cfs 0.330 af
- SubcatchmentSTRM-UNDT: STUDY AREA** Runoff Area=68.500 ac 1.55% Impervious Runoff Depth=3.59"  
Flow Length=1,340' Tc=15.6 min CN=57 Runoff=175.15 cfs 20.498 af
- Pond BA-A: AG INF BASIN A** Peak Elev=311.92' Storage=29,090 cf Inflow=35.46 cfs 2.997 af  
Discarded=5.11 cfs 2.576 af Primary=6.93 cfs 0.420 af Outflow=12.03 cfs 2.997 af
- Pond BA-B: AG INF BASIN B** Peak Elev=306.69' Storage=14,098 cf Inflow=13.10 cfs 0.923 af  
Discarded=0.91 cfs 0.644 af Primary=1.13 cfs 0.278 af Outflow=2.05 cfs 0.923 af
- Pond BA-CR: UG INF BASIN C (RTANK)** Peak Elev=307.61' Storage=96,927 cf Inflow=63.43 cfs 5.534 af  
Discarded=3.52 cfs 4.510 af Primary=2.07 cfs 1.024 af Outflow=5.59 cfs 5.534 af

**2024-01-15 Proposed Conditions**

*NY-Suffern 24-hr S1 100-yr Rainfall=8.81"*

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- Pond BA-DR: UG INF BASIN D (RTANK)** Peak Elev=308.19' Storage=90,041 cf Inflow=65.13 cfs 5.802 af  
Discarded=3.67 cfs 4.458 af Primary=4.00 cfs 1.344 af Outflow=7.67 cfs 5.802 af
  - Pond BA-ER: UG INF BASIN E (RTANK)** Peak Elev=309.14' Storage=86,480 cf Inflow=62.93 cfs 5.623 af  
Discarded=3.85 cfs 4.693 af Primary=7.76 cfs 0.930 af Outflow=11.61 cfs 5.623 af
  - Pond BA-FR: UG INF BASIN F (RTANK)** Peak Elev=309.21' Storage=72,941 cf Inflow=80.39 cfs 6.608 af  
Discarded=10.14 cfs 6.376 af Primary=2.02 cfs 0.232 af Outflow=12.03 cfs 6.608 af
  - Pond BA-G: AG INF BASIN G** Peak Elev=310.17' Storage=4,309 cf Inflow=4.93 cfs 0.291 af  
Discarded=0.44 cfs 0.271 af Primary=0.19 cfs 0.021 af Outflow=0.63 cfs 0.291 af
  - Pond BA-HR: UG INF BASIN H (RTANK)** Peak Elev=311.13' Storage=12,014 cf Inflow=13.12 cfs 1.007 af  
Discarded=0.68 cfs 0.764 af Primary=3.70 cfs 0.243 af Outflow=4.38 cfs 1.007 af
  - Pond BA-KR: UG INF BASIN K (RTANK)** Peak Elev=311.41' Storage=34,482 cf Inflow=34.58 cfs 2.749 af  
Discarded=2.61 cfs 2.435 af Primary=3.99 cfs 0.315 af Outflow=6.80 cfs 2.749 af
  - Pond BA-MR: UG INF BASIN M (RTANK)** Peak Elev=308.00' Storage=90,020 cf Inflow=59.85 cfs 5.356 af  
Discarded=1.58 cfs 3.170 af Primary=11.16 cfs 2.186 af Outflow=12.73 cfs 5.356 af
  - Pond BASIN I: INF TRENCH I** Peak Elev=313.71' Storage=6,485 cf Inflow=12.08 cfs 0.929 af  
Discarded=2.76 cfs 0.891 af Primary=1.24 cfs 0.039 af Outflow=4.00 cfs 0.929 af
  - Pond FB-A1: FOREBAYA1** Peak Elev=311.61' Storage=7,612 cf Inflow=21.63 cfs 1.584 af  
Outflow=19.34 cfs 1.597 af
  - Pond FB-A2: FOREBAYA2** Peak Elev=310.95' Storage=8,665 cf Inflow=20.89 cfs 1.498 af  
Outflow=16.45 cfs 1.399 af
  - Pond FB-B: FOREBAY B** Peak Elev=306.95' Storage=953 cf Inflow=12.86 cfs 0.941 af  
Outflow=13.10 cfs 0.923 af
  - Pond FB-G: FOREBAY G** Peak Elev=311.26' Storage=1,824 cf Inflow=4.79 cfs 0.330 af  
Outflow=4.93 cfs 0.291 af
  - Link 42L: POA STREAM TOTAL** Inflow=205.36 cfs 27.529 af  
Primary=205.36 cfs 27.529 af
  - Link 43L: TOTAL AG INF BASINS** Inflow=8.16 cfs 0.719 af  
Primary=8.16 cfs 0.719 af
  - Link 44L: Total UG INF BASINS** Inflow=32.04 cfs 6.272 af  
Primary=32.04 cfs 6.272 af
  - Link 48L: TOTAL INF TRENCH** Inflow=1.24 cfs 0.039 af  
Primary=1.24 cfs 0.039 af
- Total Runoff Area = 125.260 ac Runoff Volume = 58.459 af Average Runoff Depth = 5.60"**  
**57.78% Pervious = 72.370 ac 42.22% Impervious = 52.890 ac**

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment BASIN C IN: SA BASIN C**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 63.43 cfs @ 12.02 hrs, Volume= 5.534 af, Depth= 8.21"  
 Routed to Pond BA-CR : UG INF BASIN C (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
7.680	98	Paved parking, HSG A
0.380	39	>75% Grass cover, Good, HSG A
0.030	80	>75% Grass cover, Good, HSG D
8.090	95	Weighted Average
0.410		5.07% Pervious Area
7.680		94.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	61	0.0735	0.27		<b>Sheet Flow, Sheet Flow (open space)</b> Grass: Short n= 0.150 P2= 3.35"
0.9	39	0.0067	0.75		<b>Sheet Flow, Sheet Flow (Paved)</b> Smooth surfaces n= 0.011 P2= 3.35"
0.3	35	0.0068	1.67		<b>Shallow Concentrated Flow, Shallow Concentrated Flow</b> Paved Kv= 20.3 fps
5.0	135	Total			

**2024-01-15 Proposed Conditions**

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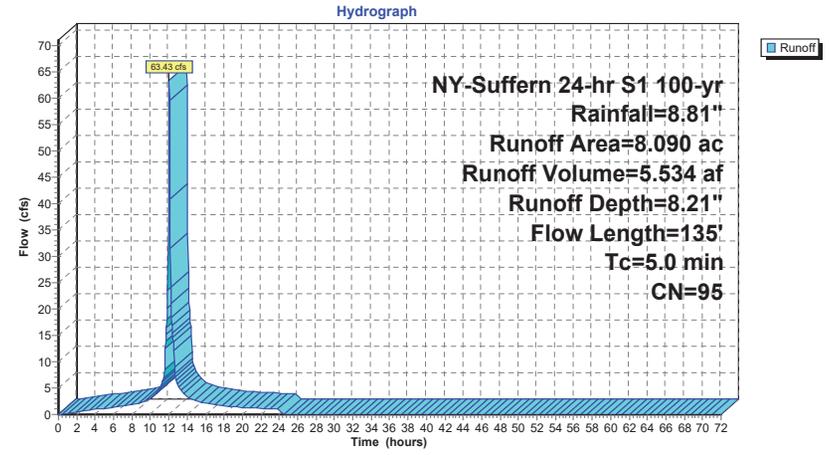
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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Subcatchment BASIN C IN: SA BASIN C**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment BASIN C IN: SA BASIN C**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	8.21	0.00
1.00	0.13	0.00	0.05	53.00	8.81	8.21	0.00
2.00	0.26	0.04	0.44	54.00	8.81	8.21	0.00
3.00	0.41	0.11	0.71	55.00	8.81	8.21	0.00
4.00	0.56	0.21	0.93	56.00	8.81	8.21	0.00
5.00	0.73	0.34	1.13	57.00	8.81	8.21	0.00
6.00	0.92	0.49	1.33	58.00	8.81	8.21	0.00
7.00	1.12	0.67	1.58	59.00	8.81	8.21	0.00
8.00	1.36	0.89	1.89	60.00	8.81	8.21	0.00
9.00	1.64	1.15	2.33	61.00	8.81	8.21	0.00
10.00	2.00	1.48	3.10	62.00	8.81	8.21	0.00
11.00	2.51	1.97	4.91	63.00	8.81	8.21	0.00
12.00	4.72	4.14	<b>60.79</b>	64.00	8.81	8.21	0.00
13.00	6.33	5.74	5.39	65.00	8.81	8.21	0.00
14.00	6.83	6.23	3.34	66.00	8.81	8.21	0.00
15.00	7.17	6.58	2.54	67.00	8.81	8.21	0.00
16.00	7.45	6.86	2.09	68.00	8.81	8.21	0.00
17.00	7.69	7.09	1.80	69.00	8.81	8.21	0.00
18.00	7.90	7.30	1.60	70.00	8.81	8.21	0.00
19.00	8.08	7.48	1.44	71.00	8.81	8.21	0.00
20.00	8.25	7.65	1.32	72.00	8.81	8.21	0.00
21.00	8.40	7.80	1.22				
22.00	8.55	7.95	1.13				
23.00	8.68	8.08	1.07				
24.00	<b>8.81</b>	<b>8.21</b>	1.00				
25.00	8.81	8.21	0.00				
26.00	8.81	8.21	0.00				
27.00	8.81	8.21	0.00				
28.00	8.81	8.21	0.00				
29.00	8.81	8.21	0.00				
30.00	8.81	8.21	0.00				
31.00	8.81	8.21	0.00				
32.00	8.81	8.21	0.00				
33.00	8.81	8.21	0.00				
34.00	8.81	8.21	0.00				
35.00	8.81	8.21	0.00				
36.00	8.81	8.21	0.00				
37.00	8.81	8.21	0.00				
38.00	8.81	8.21	0.00				
39.00	8.81	8.21	0.00				
40.00	8.81	8.21	0.00				
41.00	8.81	8.21	0.00				
42.00	8.81	8.21	0.00				
43.00	8.81	8.21	0.00				
44.00	8.81	8.21	0.00				
45.00	8.81	8.21	0.00				
46.00	8.81	8.21	0.00				
47.00	8.81	8.21	0.00				
48.00	8.81	8.21	0.00				
49.00	8.81	8.21	0.00				
50.00	8.81	8.21	0.00				
51.00	8.81	8.21	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment BASIN D IN: SA BASIN D**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 65.13 cfs @ 12.02 hrs, Volume= 5.802 af, Depth= 8.45"  
 Routed to Pond BA-DR : UG INF BASIN D (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
* 7.870	98	Paved parking- Impervious
0.010	39	>75% Grass cover, Good, HSG A
0.360	80	>75% Grass cover, Good, HSG D
8.240	97	Weighted Average
0.370		4.49% Pervious Area
7.870		95.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	68	0.0713	0.27		<b>Sheet Flow, Sheet Flow - Grass</b> Grass: Short n= 0.150 P2= 3.35"
0.6	32	0.0130	0.94		<b>Sheet Flow, Sheet Flow - Asphalt</b> Smooth surfaces n= 0.011 P2= 3.35"
0.2	33	0.0131	2.32		<b>Shallow Concentrated Flow, Shallow Con. - Asphalt</b> Paved Kv= 20.3 fps
5.0	133	Total			

**2024-01-15 Proposed Conditions**

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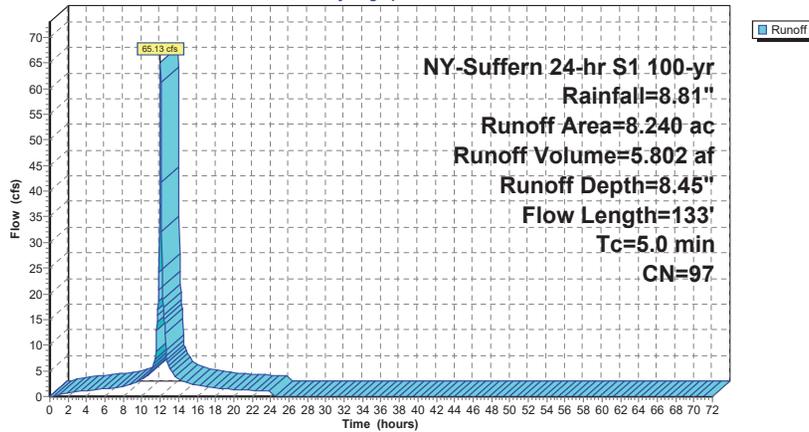
NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Subcatchment BASIN D IN: SA BASIN D**

Hydrograph



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment BASIN D IN: SA BASIN D**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	8.45	0.00
1.00	0.13	0.01	0.30	53.00	8.81	8.45	0.00
2.00	0.26	0.08	0.71	54.00	8.81	8.45	0.00
3.00	0.41	0.18	0.95	55.00	8.81	8.45	0.00
4.00	0.56	0.31	1.13	56.00	8.81	8.45	0.00
5.00	0.73	0.46	1.31	57.00	8.81	8.45	0.00
6.00	0.92	0.63	1.50	58.00	8.81	8.45	0.00
7.00	1.12	0.82	1.73	59.00	8.81	8.45	0.00
8.00	1.36	1.05	2.03	60.00	8.81	8.45	0.00
9.00	1.64	1.32	2.48	61.00	8.81	8.45	0.00
10.00	2.00	1.67	3.25	62.00	8.81	8.45	0.00
11.00	2.51	2.17	5.11	63.00	8.81	8.45	0.00
12.00	4.72	4.37	<b>62.44</b>	64.00	8.81	8.45	0.00
13.00	6.33	5.97	5.51	65.00	8.81	8.45	0.00
14.00	6.83	6.47	3.42	66.00	8.81	8.45	0.00
15.00	7.17	6.82	2.60	67.00	8.81	8.45	0.00
16.00	7.45	7.10	2.14	68.00	8.81	8.45	0.00
17.00	7.69	7.33	1.84	69.00	8.81	8.45	0.00
18.00	7.90	7.54	1.63	70.00	8.81	8.45	0.00
19.00	8.08	7.72	1.47	71.00	8.81	8.45	0.00
20.00	8.25	7.89	1.34	72.00	8.81	8.45	0.00
21.00	8.40	8.04	1.24				
22.00	8.55	8.19	1.16				
23.00	8.68	8.32	1.09				
24.00	<b>8.81</b>	<b>8.45</b>	1.02				
25.00	8.81	8.45	0.00				
26.00	8.81	8.45	0.00				
27.00	8.81	8.45	0.00				
28.00	8.81	8.45	0.00				
29.00	8.81	8.45	0.00				
30.00	8.81	8.45	0.00				
31.00	8.81	8.45	0.00				
32.00	8.81	8.45	0.00				
33.00	8.81	8.45	0.00				
34.00	8.81	8.45	0.00				
35.00	8.81	8.45	0.00				
36.00	8.81	8.45	0.00				
37.00	8.81	8.45	0.00				
38.00	8.81	8.45	0.00				
39.00	8.81	8.45	0.00				
40.00	8.81	8.45	0.00				
41.00	8.81	8.45	0.00				
42.00	8.81	8.45	0.00				
43.00	8.81	8.45	0.00				
44.00	8.81	8.45	0.00				
45.00	8.81	8.45	0.00				
46.00	8.81	8.45	0.00				
47.00	8.81	8.45	0.00				
48.00	8.81	8.45	0.00				
49.00	8.81	8.45	0.00				
50.00	8.81	8.45	0.00				
51.00	8.81	8.45	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment BASIN E IN: SA BASIN E**

[49] Hint: Tc<2dt may require smaller dt

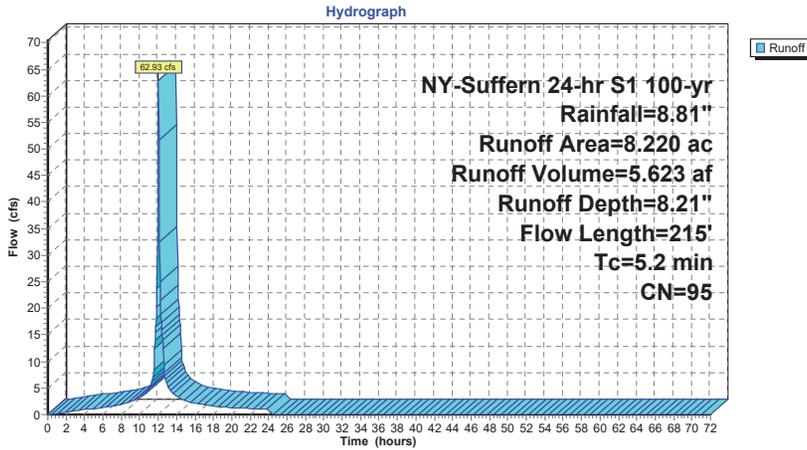
Runoff = 62.93 cfs @ 12.03 hrs, Volume= 5.623 af, Depth= 8.21"  
 Routed to Pond BA-ER : UG INF BASIN E (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
7.820	98	Paved parking, HSG A
0.400	39	>75% Grass cover, Good, HSG A
8.220	95	Weighted Average
0.400		4.87% Pervious Area
7.820		95.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	40	0.0313	0.17		<b>Sheet Flow, Sheet Flow</b> Grass: Short n= 0.150 P2= 3.35"
0.8	60	0.0225	1.33		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.35"
0.6	115	0.0230	3.08		<b>Shallow Concentrated Flow, Shallow concentrated Flow (Paved)</b> Paved Kv= 20.3 fps
5.2	215	Total			

**Subcatchment BASIN E IN: SA BASIN E**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment BASIN E IN: SA BASIN E**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	8.21	0.00
1.00	0.13	0.00	0.05	53.00	8.81	8.21	0.00
2.00	0.26	0.04	0.44	54.00	8.81	8.21	0.00
3.00	0.41	0.11	0.72	55.00	8.81	8.21	0.00
4.00	0.56	0.21	0.94	56.00	8.81	8.21	0.00
5.00	0.73	0.34	1.14	57.00	8.81	8.21	0.00
6.00	0.92	0.49	1.35	58.00	8.81	8.21	0.00
7.00	1.12	0.67	1.60	59.00	8.81	8.21	0.00
8.00	1.36	0.89	1.91	60.00	8.81	8.21	0.00
9.00	1.64	1.15	2.37	61.00	8.81	8.21	0.00
10.00	2.00	1.48	3.14	62.00	8.81	8.21	0.00
11.00	2.51	1.97	4.98	63.00	8.81	8.21	0.00
12.00	4.72	4.14	<b>60.39</b>	64.00	8.81	8.21	0.00
13.00	6.33	5.74	<b>5.49</b>	65.00	8.81	8.21	0.00
14.00	6.83	6.23	3.40	66.00	8.81	8.21	0.00
15.00	7.17	6.58	2.58	67.00	8.81	8.21	0.00
16.00	7.45	6.86	2.13	68.00	8.81	8.21	0.00
17.00	7.69	7.09	1.83	69.00	8.81	8.21	0.00
18.00	7.90	7.30	1.62	70.00	8.81	8.21	0.00
19.00	8.08	7.48	1.46	71.00	8.81	8.21	0.00
20.00	8.25	7.65	1.34	72.00	8.81	8.21	0.00
21.00	8.40	7.80	1.24				
22.00	8.55	7.95	1.15				
23.00	8.68	8.08	1.08				
24.00	<b>8.81</b>	<b>8.21</b>	1.02				
25.00	8.81	8.21	0.00				
26.00	8.81	8.21	0.00				
27.00	8.81	8.21	0.00				
28.00	8.81	8.21	0.00				
29.00	8.81	8.21	0.00				
30.00	8.81	8.21	0.00				
31.00	8.81	8.21	0.00				
32.00	8.81	8.21	0.00				
33.00	8.81	8.21	0.00				
34.00	8.81	8.21	0.00				
35.00	8.81	8.21	0.00				
36.00	8.81	8.21	0.00				
37.00	8.81	8.21	0.00				
38.00	8.81	8.21	0.00				
39.00	8.81	8.21	0.00				
40.00	8.81	8.21	0.00				
41.00	8.81	8.21	0.00				
42.00	8.81	8.21	0.00				
43.00	8.81	8.21	0.00				
44.00	8.81	8.21	0.00				
45.00	8.81	8.21	0.00				
46.00	8.81	8.21	0.00				
47.00	8.81	8.21	0.00				
48.00	8.81	8.21	0.00				
49.00	8.81	8.21	0.00				
50.00	8.81	8.21	0.00				
51.00	8.81	8.21	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment BASIN F IN: SA BASIN F**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 80.39 cfs @ 12.01 hrs, Volume= 6.608 af, Depth= 8.21"  
 Routed to Pond BA-FR : UG INF BASIN F (RTANK)

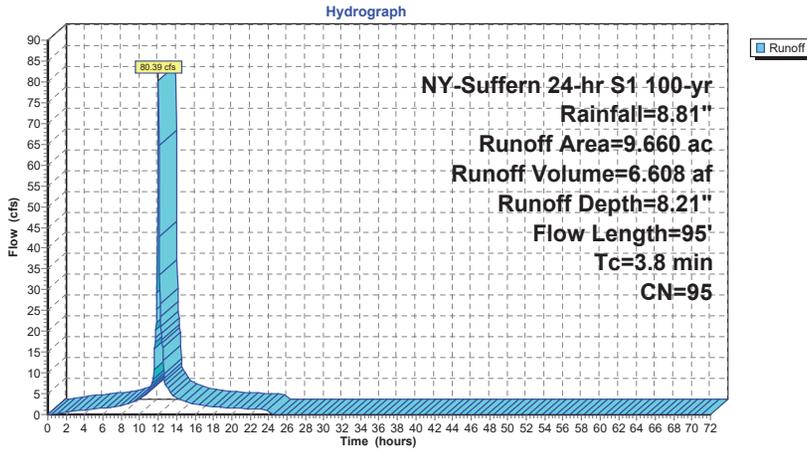
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
9.060	98	Paved parking, HSG A
0.450	39	>75% Grass cover, Good, HSG A
0.100	74	>75% Grass cover, Good, HSG C
0.050	80	>75% Grass cover, Good, HSG D
9.660	95	Weighted Average
0.600		6.21% Pervious Area
9.060		93.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	43	0.0550	0.22		Sheet Flow, Sheet Flow - Grass Grass: Short n= 0.150 P2= 3.35"
0.5	52	0.0380	1.60		Sheet Flow, Sheet Flow - Asphalt Smooth surfaces n= 0.011 P2= 3.35"
3.8	95				Total

**Subcatchment BASIN F IN: SA BASIN F**



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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment BASIN F IN: SA BASIN F**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	8.21	0.00
1.00	0.13	0.00	0.07	53.00	8.81	8.21	0.00
2.00	0.26	0.04	0.53	54.00	8.81	8.21	0.00
3.00	0.41	0.11	0.85	55.00	8.81	8.21	0.00
4.00	0.56	0.21	1.11	56.00	8.81	8.21	0.00
5.00	0.73	0.34	1.35	57.00	8.81	8.21	0.00
6.00	0.92	0.49	1.60	58.00	8.81	8.21	0.00
7.00	1.12	0.67	1.89	59.00	8.81	8.21	0.00
8.00	1.36	0.89	2.26	60.00	8.81	8.21	0.00
9.00	1.64	1.15	2.80	61.00	8.81	8.21	0.00
10.00	2.00	1.48	3.72	62.00	8.81	8.21	0.00
11.00	2.51	1.97	5.92	63.00	8.81	8.21	0.00
12.00	4.72	4.14	<b>80.02</b>	64.00	8.81	8.21	0.00
13.00	6.33	5.74	6.37	65.00	8.81	8.21	0.00
14.00	6.83	6.23	3.97	66.00	8.81	8.21	0.00
15.00	7.17	6.58	3.02	67.00	8.81	8.21	0.00
16.00	7.45	6.86	2.49	68.00	8.81	8.21	0.00
17.00	7.69	7.09	2.15	69.00	8.81	8.21	0.00
18.00	7.90	7.30	1.90	70.00	8.81	8.21	0.00
19.00	8.08	7.48	1.72	71.00	8.81	8.21	0.00
20.00	8.25	7.65	1.57	72.00	8.81	8.21	0.00
21.00	8.40	7.80	1.45				
22.00	8.55	7.95	1.35				
23.00	8.68	8.08	1.27				
24.00	<b>8.81</b>	<b>8.21</b>	1.19				
25.00	8.81	8.21	0.00				
26.00	8.81	8.21	0.00				
27.00	8.81	8.21	0.00				
28.00	8.81	8.21	0.00				
29.00	8.81	8.21	0.00				
30.00	8.81	8.21	0.00				
31.00	8.81	8.21	0.00				
32.00	8.81	8.21	0.00				
33.00	8.81	8.21	0.00				
34.00	8.81	8.21	0.00				
35.00	8.81	8.21	0.00				
36.00	8.81	8.21	0.00				
37.00	8.81	8.21	0.00				
38.00	8.81	8.21	0.00				
39.00	8.81	8.21	0.00				
40.00	8.81	8.21	0.00				
41.00	8.81	8.21	0.00				
42.00	8.81	8.21	0.00				
43.00	8.81	8.21	0.00				
44.00	8.81	8.21	0.00				
45.00	8.81	8.21	0.00				
46.00	8.81	8.21	0.00				
47.00	8.81	8.21	0.00				
48.00	8.81	8.21	0.00				
49.00	8.81	8.21	0.00				
50.00	8.81	8.21	0.00				
51.00	8.81	8.21	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment BASIN H IN: SA BASIN H**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 13.12 cfs @ 11.97 hrs, Volume= 1.007 af, Depth= 8.45"  
 Routed to Pond BA-HR : UG INF BASIN H (RTANK)

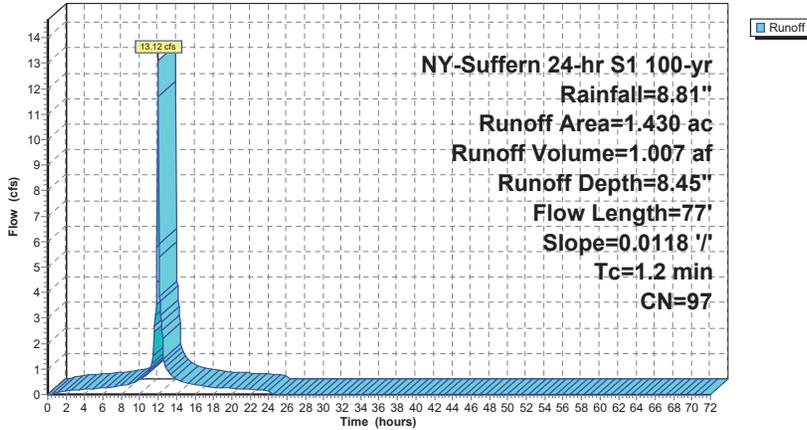
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
* 1.410	98	IMP
0.020	39	>75% Grass cover, Good, HSG A
1.430	97	Weighted Average
0.020		1.40% Pervious Area
1.410		98.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	77	0.0118	1.08		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.35"

**Subcatchment BASIN H IN: SA BASIN H**

Hydrograph



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment BASIN H IN: SA BASIN H**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	8.45	0.00
1.00	0.13	0.01	0.06	53.00	8.81	8.45	0.00
2.00	0.26	0.08	0.13	54.00	8.81	8.45	0.00
3.00	0.41	0.18	0.17	55.00	8.81	8.45	0.00
4.00	0.56	0.31	0.20	56.00	8.81	8.45	0.00
5.00	0.73	0.46	0.23	57.00	8.81	8.45	0.00
6.00	0.92	0.63	0.26	58.00	8.81	8.45	0.00
7.00	1.12	0.82	0.30	59.00	8.81	8.45	0.00
8.00	1.36	1.05	0.35	60.00	8.81	8.45	0.00
9.00	1.64	1.32	0.43	61.00	8.81	8.45	0.00
10.00	2.00	1.67	0.57	62.00	8.81	8.45	0.00
11.00	2.51	2.17	<b>0.91</b>	63.00	8.81	8.45	0.00
12.00	4.72	4.37	<b>11.68</b>	64.00	8.81	8.45	0.00
13.00	6.33	5.97	0.93	65.00	8.81	8.45	0.00
14.00	6.83	6.47	0.59	66.00	8.81	8.45	0.00
15.00	7.17	6.82	0.45	67.00	8.81	8.45	0.00
16.00	7.45	7.10	0.37	68.00	8.81	8.45	0.00
17.00	7.69	7.33	0.32	69.00	8.81	8.45	0.00
18.00	7.90	7.54	0.28	70.00	8.81	8.45	0.00
19.00	8.08	7.72	0.25	71.00	8.81	8.45	0.00
20.00	8.25	7.89	0.23	72.00	8.81	8.45	0.00
21.00	8.40	8.04	0.22				
22.00	8.55	8.19	0.20				
23.00	8.68	8.32	0.19				
24.00	<b>8.81</b>	<b>8.45</b>	0.15				
25.00	8.81	8.45	0.00				
26.00	8.81	8.45	0.00				
27.00	8.81	8.45	0.00				
28.00	8.81	8.45	0.00				
29.00	8.81	8.45	0.00				
30.00	8.81	8.45	0.00				
31.00	8.81	8.45	0.00				
32.00	8.81	8.45	0.00				
33.00	8.81	8.45	0.00				
34.00	8.81	8.45	0.00				
35.00	8.81	8.45	0.00				
36.00	8.81	8.45	0.00				
37.00	8.81	8.45	0.00				
38.00	8.81	8.45	0.00				
39.00	8.81	8.45	0.00				
40.00	8.81	8.45	0.00				
41.00	8.81	8.45	0.00				
42.00	8.81	8.45	0.00				
43.00	8.81	8.45	0.00				
44.00	8.81	8.45	0.00				
45.00	8.81	8.45	0.00				
46.00	8.81	8.45	0.00				
47.00	8.81	8.45	0.00				
48.00	8.81	8.45	0.00				
49.00	8.81	8.45	0.00				
50.00	8.81	8.45	0.00				
51.00	8.81	8.45	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment BASIN I IN: SA BASIN I**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 12.08 cfs @ 12.02 hrs, Volume= 0.929 af, Depth= 5.78"  
Routed to Pond BASIN I : INF TRENCH I

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

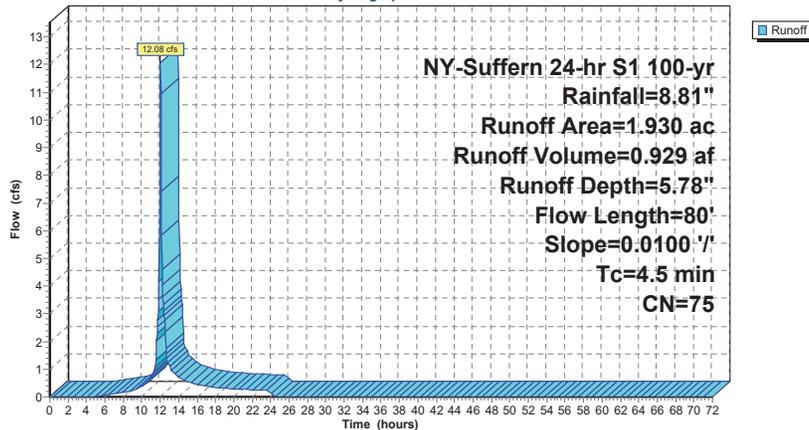
Area (ac)	CN	Description
* 1.160	98	Paved parking
0.730	39	>75% Grass cover, Good, HSG A
0.040	80	>75% Grass cover, Good, HSG D
1.930	75	Weighted Average
0.770		39.90% Pervious Area
1.160		60.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	60	0.0100	0.96		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.35"
3.5	20	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.35"
4.5	80				Total

**Subcatchment BASIN I IN: SA BASIN I**

Hydrograph



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment BASIN I IN: SA BASIN I**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	5.78	0.00
1.00	0.13	0.00	0.00	53.00	8.81	5.78	0.00
2.00	0.26	0.00	0.00	54.00	8.81	5.78	0.00
3.00	0.41	0.00	0.00	55.00	8.81	5.78	0.00
4.00	0.56	0.00	0.00	56.00	8.81	5.78	0.00
5.00	0.73	0.00	0.01	57.00	8.81	5.78	0.00
6.00	0.92	0.02	0.05	58.00	8.81	5.78	0.00
7.00	1.12	0.06	0.09	59.00	8.81	5.78	0.00
8.00	1.36	0.12	0.15	60.00	8.81	5.78	0.00
9.00	1.64	0.22	0.24	61.00	8.81	5.78	0.00
10.00	2.00	0.38	0.38	62.00	8.81	5.78	0.00
11.00	2.51	0.65	0.70	63.00	8.81	5.78	0.00
12.00	4.72	2.22	11.73	64.00	8.81	5.78	0.00
13.00	6.33	3.57	1.11	65.00	8.81	5.78	0.00
14.00	6.83	4.00	0.70	66.00	8.81	5.78	0.00
15.00	7.17	4.30	0.54	67.00	8.81	5.78	0.00
16.00	7.45	4.55	0.45	68.00	8.81	5.78	0.00
17.00	7.69	4.76	0.39	69.00	8.81	5.78	0.00
18.00	7.90	4.95	0.34	70.00	8.81	5.78	0.00
19.00	8.08	5.12	0.31	71.00	8.81	5.78	0.00
20.00	8.25	5.27	0.29	72.00	8.81	5.78	0.00
21.00	8.40	5.41	0.26				
22.00	8.55	5.54	0.25				
23.00	8.68	5.66	0.23				
24.00	8.81	5.78	0.22				
25.00	8.81	5.78	0.00				
26.00	8.81	5.78	0.00				
27.00	8.81	5.78	0.00				
28.00	8.81	5.78	0.00				
29.00	8.81	5.78	0.00				
30.00	8.81	5.78	0.00				
31.00	8.81	5.78	0.00				
32.00	8.81	5.78	0.00				
33.00	8.81	5.78	0.00				
34.00	8.81	5.78	0.00				
35.00	8.81	5.78	0.00				
36.00	8.81	5.78	0.00				
37.00	8.81	5.78	0.00				
38.00	8.81	5.78	0.00				
39.00	8.81	5.78	0.00				
40.00	8.81	5.78	0.00				
41.00	8.81	5.78	0.00				
42.00	8.81	5.78	0.00				
43.00	8.81	5.78	0.00				
44.00	8.81	5.78	0.00				
45.00	8.81	5.78	0.00				
46.00	8.81	5.78	0.00				
47.00	8.81	5.78	0.00				
48.00	8.81	5.78	0.00				
49.00	8.81	5.78	0.00				
50.00	8.81	5.78	0.00				
51.00	8.81	5.78	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment BASIN K IN: SA BASIN K**

[49] Hint: Tc<2dt may require smaller dt

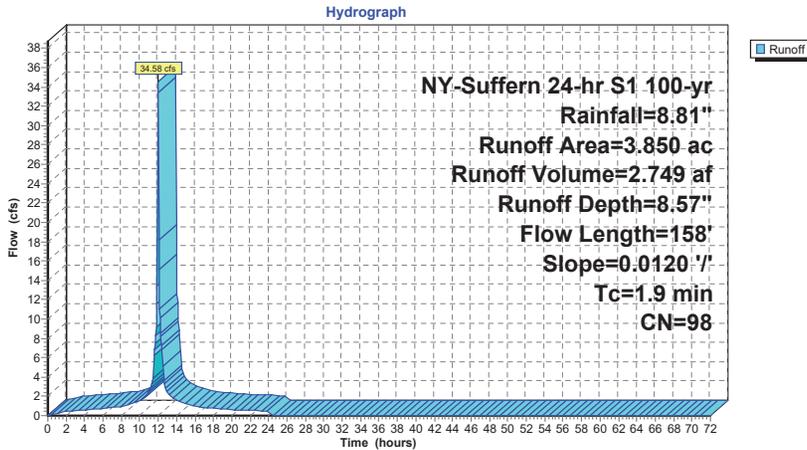
Runoff = 34.58 cfs @ 11.98 hrs, Volume= 2.749 af, Depth= 8.57"  
 Routed to Pond BA-KR : UG INF BASIN K (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
* 3.850	98	Paved parking
3.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0120	1.15		Sheet Flow, A to B Smooth surfaces n= 0.011 P2= 3.35"
0.4	58	0.0120	2.22		Shallow Concentrated Flow, B to C Paved Kv= 20.3 fps
1.9	158	Total			

**Subcatchment BASIN K IN: SA BASIN K**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment BASIN K IN: SA BASIN K**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	8.57	0.00
1.00	0.13	0.03	0.25	53.00	8.81	8.57	0.00
2.00	0.26	0.12	0.41	54.00	8.81	8.57	0.00
3.00	0.41	0.23	0.50	55.00	8.81	8.57	0.00
4.00	0.56	0.37	0.58	56.00	8.81	8.57	0.00
5.00	0.73	0.53	0.65	57.00	8.81	8.57	0.00
6.00	0.92	0.71	0.73	58.00	8.81	8.57	0.00
7.00	1.12	0.91	0.83	59.00	8.81	8.57	0.00
8.00	1.36	1.14	0.97	60.00	8.81	8.57	0.00
9.00	1.64	1.42	1.18	61.00	8.81	8.57	0.00
10.00	2.00	1.77	1.55	62.00	8.81	8.57	0.00
11.00	2.51	2.28	2.45	63.00	8.81	8.57	0.00
12.00	4.72	4.48	<b>33.35</b>	64.00	8.81	8.57	0.00
13.00	6.33	6.09	2.52	65.00	8.81	8.57	0.00
14.00	6.83	6.59	1.58	66.00	8.81	8.57	0.00
15.00	7.17	6.94	1.21	67.00	8.81	8.57	0.00
16.00	7.45	7.21	1.00	68.00	8.81	8.57	0.00
17.00	7.69	7.45	0.86	69.00	8.81	8.57	0.00
18.00	7.90	7.66	0.76	70.00	8.81	8.57	0.00
19.00	8.08	7.84	0.69	71.00	8.81	8.57	0.00
20.00	8.25	8.01	0.63	72.00	8.81	8.57	0.00
21.00	8.40	8.16	0.58				
22.00	8.55	8.31	0.54				
23.00	8.68	8.44	0.51				
24.00	<b>8.81</b>	<b>8.57</b>	0.45				
25.00	8.81	8.57	0.00				
26.00	8.81	8.57	0.00				
27.00	8.81	8.57	0.00				
28.00	8.81	8.57	0.00				
29.00	8.81	8.57	0.00				
30.00	8.81	8.57	0.00				
31.00	8.81	8.57	0.00				
32.00	8.81	8.57	0.00				
33.00	8.81	8.57	0.00				
34.00	8.81	8.57	0.00				
35.00	8.81	8.57	0.00				
36.00	8.81	8.57	0.00				
37.00	8.81	8.57	0.00				
38.00	8.81	8.57	0.00				
39.00	8.81	8.57	0.00				
40.00	8.81	8.57	0.00				
41.00	8.81	8.57	0.00				
42.00	8.81	8.57	0.00				
43.00	8.81	8.57	0.00				
44.00	8.81	8.57	0.00				
45.00	8.81	8.57	0.00				
46.00	8.81	8.57	0.00				
47.00	8.81	8.57	0.00				
48.00	8.81	8.57	0.00				
49.00	8.81	8.57	0.00				
50.00	8.81	8.57	0.00				
51.00	8.81	8.57	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment BASIN M IN: SA BASIN M**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 59.85 cfs @ 12.03 hrs, Volume= 5.356 af, Depth= 8.21"  
 Routed to Pond BA-MR : UG INF BASIN M (RTANK)

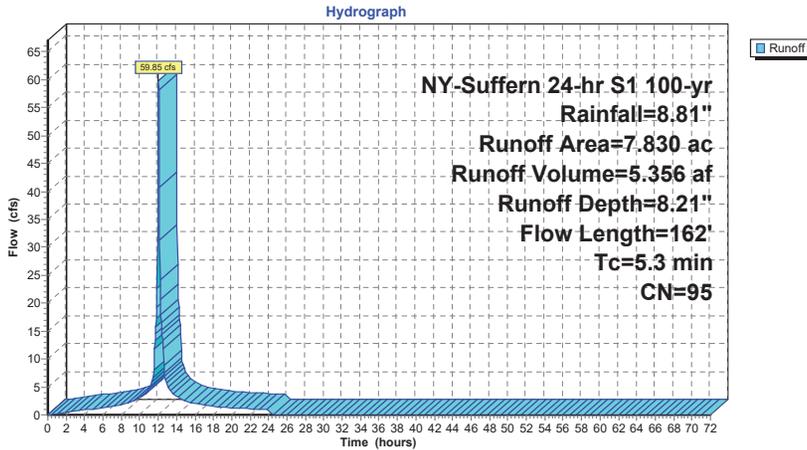
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
7.420	98	Paved parking, HSG A
0.360	39	>75% Grass cover, Good, HSG A
0.050	74	>75% Grass cover, Good, HSG C
7.830	95	Weighted Average
0.410		5.24% Pervious Area
7.420		94.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	70	0.0571	0.25		Sheet Flow, A to B Grass: Short n= 0.150 P2= 3.35"
0.6	92	0.0163	2.59		Shallow Concentrated Flow, B to C Paved Kv= 20.3 fps
5.3	162	Total			

**Subcatchment BASIN M IN: SA BASIN M**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment BASIN M IN: SA BASIN M**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	8.21	0.00
1.00	0.13	0.00	0.04	53.00	8.81	8.21	0.00
2.00	0.26	0.04	0.42	54.00	8.81	8.21	0.00
3.00	0.41	0.11	0.68	55.00	8.81	8.21	0.00
4.00	0.56	0.21	0.89	56.00	8.81	8.21	0.00
5.00	0.73	0.34	1.09	57.00	8.81	8.21	0.00
6.00	0.92	0.49	1.29	58.00	8.81	8.21	0.00
7.00	1.12	0.67	1.52	59.00	8.81	8.21	0.00
8.00	1.36	0.89	1.82	60.00	8.81	8.21	0.00
9.00	1.64	1.15	2.26	61.00	8.81	8.21	0.00
10.00	2.00	1.48	2.99	62.00	8.81	8.21	0.00
11.00	2.51	1.97	4.74	63.00	8.81	8.21	0.00
12.00	4.72	4.14	56.88	64.00	8.81	8.21	0.00
13.00	6.33	5.74	5.24	65.00	8.81	8.21	0.00
14.00	6.83	6.23	3.24	66.00	8.81	8.21	0.00
15.00	7.17	6.58	2.46	67.00	8.81	8.21	0.00
16.00	7.45	6.86	2.03	68.00	8.81	8.21	0.00
17.00	7.69	7.09	1.75	69.00	8.81	8.21	0.00
18.00	7.90	7.30	1.55	70.00	8.81	8.21	0.00
19.00	8.08	7.48	1.39	71.00	8.81	8.21	0.00
20.00	8.25	7.65	1.28	72.00	8.81	8.21	0.00
21.00	8.40	7.80	1.18				
22.00	8.55	7.95	1.10				
23.00	8.68	8.08	1.03				
24.00	8.81	8.21	0.97				
25.00	8.81	8.21	0.00				
26.00	8.81	8.21	0.00				
27.00	8.81	8.21	0.00				
28.00	8.81	8.21	0.00				
29.00	8.81	8.21	0.00				
30.00	8.81	8.21	0.00				
31.00	8.81	8.21	0.00				
32.00	8.81	8.21	0.00				
33.00	8.81	8.21	0.00				
34.00	8.81	8.21	0.00				
35.00	8.81	8.21	0.00				
36.00	8.81	8.21	0.00				
37.00	8.81	8.21	0.00				
38.00	8.81	8.21	0.00				
39.00	8.81	8.21	0.00				
40.00	8.81	8.21	0.00				
41.00	8.81	8.21	0.00				
42.00	8.81	8.21	0.00				
43.00	8.81	8.21	0.00				
44.00	8.81	8.21	0.00				
45.00	8.81	8.21	0.00				
46.00	8.81	8.21	0.00				
47.00	8.81	8.21	0.00				
48.00	8.81	8.21	0.00				
49.00	8.81	8.21	0.00				
50.00	8.81	8.21	0.00				
51.00	8.81	8.21	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment FB A1 IN: SA FOREBAY A1**

[49] Hint: Tc<2dt may require smaller dt

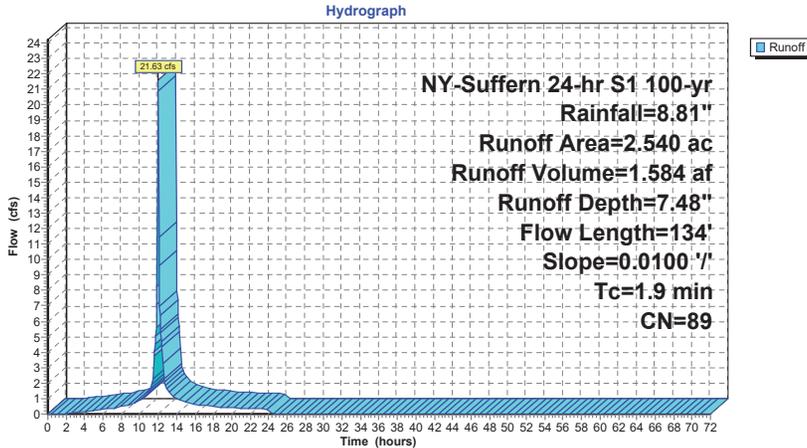
Runoff = 21.63 cfs @ 11.98 hrs, Volume= 1.584 af, Depth= 7.48"  
Routed to Pond FB-A1 : FOREBAY A1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
* 2.150	98	Paved parking and roof area, HSG A
0.390	39	>75% Grass cover, Good, HSG A
2.540	89	Weighted Average
0.390		15.35% Pervious Area
2.150		84.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.35"
0.3	34	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow Concentrated Flow</b> Paved Kv= 20.3 fps
1.9	134	Total			

**Subcatchment FB A1 IN: SA FOREBAY A1**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment FB A1 IN: SA FOREBAY A1**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	7.48	0.00
1.00	0.13	0.00	0.00	53.00	8.81	7.48	0.00
2.00	0.26	0.00	0.01	54.00	8.81	7.48	0.00
3.00	0.41	0.02	0.08	55.00	8.81	7.48	0.00
4.00	0.56	0.06	0.15	56.00	8.81	7.48	0.00
5.00	0.73	0.14	0.22	57.00	8.81	7.48	0.00
6.00	0.92	0.24	0.29	58.00	8.81	7.48	0.00
7.00	1.12	0.36	0.37	59.00	8.81	7.48	0.00
8.00	1.36	0.53	0.47	60.00	8.81	7.48	0.00
9.00	1.64	0.74	0.61	61.00	8.81	7.48	0.00
10.00	2.00	1.03	0.85	62.00	8.81	7.48	0.00
11.00	2.51	1.46	1.42	63.00	8.81	7.48	0.00
12.00	4.72	3.50	<b>20.90</b>	64.00	8.81	7.48	0.00
13.00	6.33	5.06	1.62	65.00	8.81	7.48	0.00
14.00	6.83	5.54	1.02	66.00	8.81	7.48	0.00
15.00	7.17	5.88	0.78	67.00	8.81	7.48	0.00
16.00	7.45	6.15	0.64	68.00	8.81	7.48	0.00
17.00	7.69	6.38	0.55	69.00	8.81	7.48	0.00
18.00	7.90	6.59	0.49	70.00	8.81	7.48	0.00
19.00	8.08	6.77	0.44	71.00	8.81	7.48	0.00
20.00	8.25	6.93	0.41	72.00	8.81	7.48	0.00
21.00	8.40	7.08	0.38				
22.00	8.55	7.23	0.35				
23.00	8.68	7.36	0.33				
24.00	<b>8.81</b>	<b>7.48</b>	0.29				
25.00	8.81	7.48	0.00				
26.00	8.81	7.48	0.00				
27.00	8.81	7.48	0.00				
28.00	8.81	7.48	0.00				
29.00	8.81	7.48	0.00				
30.00	8.81	7.48	0.00				
31.00	8.81	7.48	0.00				
32.00	8.81	7.48	0.00				
33.00	8.81	7.48	0.00				
34.00	8.81	7.48	0.00				
35.00	8.81	7.48	0.00				
36.00	8.81	7.48	0.00				
37.00	8.81	7.48	0.00				
38.00	8.81	7.48	0.00				
39.00	8.81	7.48	0.00				
40.00	8.81	7.48	0.00				
41.00	8.81	7.48	0.00				
42.00	8.81	7.48	0.00				
43.00	8.81	7.48	0.00				
44.00	8.81	7.48	0.00				
45.00	8.81	7.48	0.00				
46.00	8.81	7.48	0.00				
47.00	8.81	7.48	0.00				
48.00	8.81	7.48	0.00				
49.00	8.81	7.48	0.00				
50.00	8.81	7.48	0.00				
51.00	8.81	7.48	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment FB A2 IN: SA FOREBAY A2**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 20.89 cfs @ 11.99 hrs, Volume= 1.498 af, Depth= 6.63"  
Routed to Pond FB-A2 : FOREBAY A2

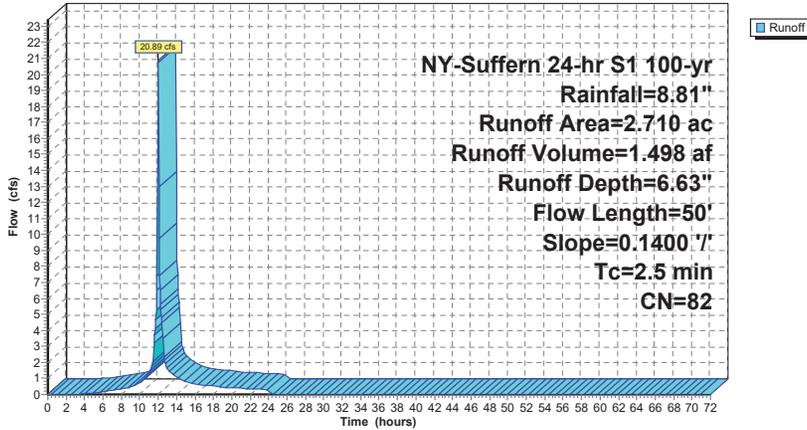
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
* 1.960	98	Paved parking, roof area
0.750	39	>75% Grass cover, Good, HSG A
2.710	82	Weighted Average
0.750		27.68% Pervious Area
1.960		72.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	50	0.1400	0.33		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.35"

**Subcatchment FB A2 IN: SA FOREBAY A2**

Hydrograph



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment FB A2 IN: SA FOREBAY A2**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	6.63	0.00
1.00	0.13	0.00	0.00	53.00	8.81	6.63	0.00
2.00	0.26	0.00	0.00	54.00	8.81	6.63	0.00
3.00	0.41	0.00	0.00	55.00	8.81	6.63	0.00
4.00	0.56	0.01	0.04	56.00	8.81	6.63	0.00
5.00	0.73	0.03	0.10	57.00	8.81	6.63	0.00
6.00	0.92	0.09	0.17	58.00	8.81	6.63	0.00
7.00	1.12	0.16	0.25	59.00	8.81	6.63	0.00
8.00	1.36	0.27	0.35	60.00	8.81	6.63	0.00
9.00	1.64	0.43	0.49	61.00	8.81	6.63	0.00
10.00	2.00	0.65	0.72	62.00	8.81	6.63	0.00
11.00	2.51	1.00	1.26	63.00	8.81	6.63	0.00
12.00	4.72	2.83	<b>20.72</b>	64.00	8.81	6.63	0.00
13.00	6.33	4.29	1.65	65.00	8.81	6.63	0.00
14.00	6.83	4.75	1.04	66.00	8.81	6.63	0.00
15.00	7.17	5.08	0.80	67.00	8.81	6.63	0.00
16.00	7.45	5.34	0.66	68.00	8.81	6.63	0.00
17.00	7.69	5.57	0.57	69.00	8.81	6.63	0.00
18.00	7.90	5.76	0.51	70.00	8.81	6.63	0.00
19.00	8.08	5.94	0.46	71.00	8.81	6.63	0.00
20.00	8.25	6.10	0.42	72.00	8.81	6.63	0.00
21.00	8.40	6.25	0.39				
22.00	8.55	6.38	0.36				
23.00	8.68	6.51	0.34				
24.00	<b>8.81</b>	<b>6.63</b>	0.31				
25.00	8.81	6.63	0.00				
26.00	8.81	6.63	0.00				
27.00	8.81	6.63	0.00				
28.00	8.81	6.63	0.00				
29.00	8.81	6.63	0.00				
30.00	8.81	6.63	0.00				
31.00	8.81	6.63	0.00				
32.00	8.81	6.63	0.00				
33.00	8.81	6.63	0.00				
34.00	8.81	6.63	0.00				
35.00	8.81	6.63	0.00				
36.00	8.81	6.63	0.00				
37.00	8.81	6.63	0.00				
38.00	8.81	6.63	0.00				
39.00	8.81	6.63	0.00				
40.00	8.81	6.63	0.00				
41.00	8.81	6.63	0.00				
42.00	8.81	6.63	0.00				
43.00	8.81	6.63	0.00				
44.00	8.81	6.63	0.00				
45.00	8.81	6.63	0.00				
46.00	8.81	6.63	0.00				
47.00	8.81	6.63	0.00				
48.00	8.81	6.63	0.00				
49.00	8.81	6.63	0.00				
50.00	8.81	6.63	0.00				
51.00	8.81	6.63	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment FB-B IN: SA BASIN B**

[49] Hint: Tc<2dt may require smaller dt

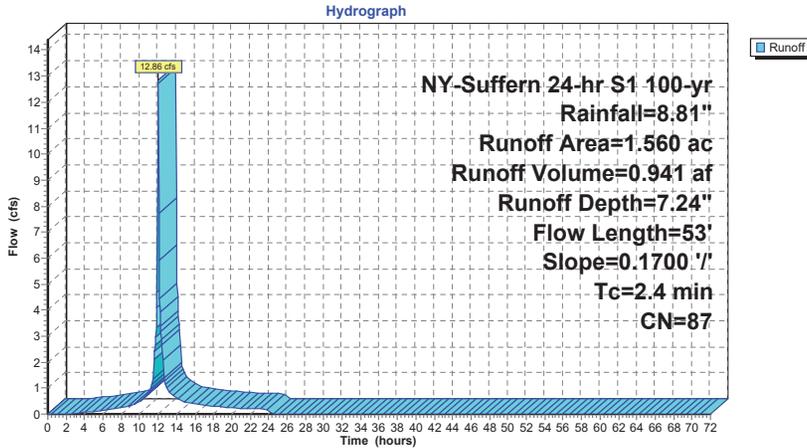
Runoff = 12.86 cfs @ 11.99 hrs, Volume= 0.941 af, Depth= 7.24"  
Routed to Pond FB-B : FOREBAY B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
1.030	98	Paved parking, HSG A
0.180	39	>75% Grass cover, Good, HSG A
0.350	80	>75% Grass cover, Good, HSG D
1.560	87	Weighted Average
0.530		33.97% Pervious Area
1.030		66.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	53	0.1700	0.36		Sheet Flow, A to B Grass: Short n= 0.150 P2= 3.35"

**Subcatchment FB-B IN: SA BASIN B**



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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment FB-B IN: SA BASIN B**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	7.24	0.00
1.00	0.13	0.00	0.00	53.00	8.81	7.24	0.00
2.00	0.26	0.00	0.00	54.00	8.81	7.24	0.00
3.00	0.41	0.01	0.03	55.00	8.81	7.24	0.00
4.00	0.56	0.04	0.07	56.00	8.81	7.24	0.00
5.00	0.73	0.10	0.11	57.00	8.81	7.24	0.00
6.00	0.92	0.18	0.15	58.00	8.81	7.24	0.00
7.00	1.12	0.29	0.20	59.00	8.81	7.24	0.00
8.00	1.36	0.44	0.26	60.00	8.81	7.24	0.00
9.00	1.64	0.64	0.35	61.00	8.81	7.24	0.00
10.00	2.00	0.90	0.49	62.00	8.81	7.24	0.00
11.00	2.51	1.32	0.83	63.00	8.81	7.24	0.00
12.00	4.72	3.30	12.70	64.00	8.81	7.24	0.00
13.00	6.33	4.83	0.99	65.00	8.81	7.24	0.00
14.00	6.83	5.31	0.62	66.00	8.81	7.24	0.00
15.00	7.17	5.65	0.47	67.00	8.81	7.24	0.00
16.00	7.45	5.92	0.39	68.00	8.81	7.24	0.00
17.00	7.69	6.15	0.34	69.00	8.81	7.24	0.00
18.00	7.90	6.35	0.30	70.00	8.81	7.24	0.00
19.00	8.08	6.53	0.27	71.00	8.81	7.24	0.00
20.00	8.25	6.69	0.25	72.00	8.81	7.24	0.00
21.00	8.40	6.84	0.23				
22.00	8.55	6.98	0.21				
23.00	8.68	7.12	0.20				
24.00	8.81	7.24	0.18				
25.00	8.81	7.24	0.00				
26.00	8.81	7.24	0.00				
27.00	8.81	7.24	0.00				
28.00	8.81	7.24	0.00				
29.00	8.81	7.24	0.00				
30.00	8.81	7.24	0.00				
31.00	8.81	7.24	0.00				
32.00	8.81	7.24	0.00				
33.00	8.81	7.24	0.00				
34.00	8.81	7.24	0.00				
35.00	8.81	7.24	0.00				
36.00	8.81	7.24	0.00				
37.00	8.81	7.24	0.00				
38.00	8.81	7.24	0.00				
39.00	8.81	7.24	0.00				
40.00	8.81	7.24	0.00				
41.00	8.81	7.24	0.00				
42.00	8.81	7.24	0.00				
43.00	8.81	7.24	0.00				
44.00	8.81	7.24	0.00				
45.00	8.81	7.24	0.00				
46.00	8.81	7.24	0.00				
47.00	8.81	7.24	0.00				
48.00	8.81	7.24	0.00				
49.00	8.81	7.24	0.00				
50.00	8.81	7.24	0.00				
51.00	8.81	7.24	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment FB-G IN: SA BASIN G**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 4.79 cfs @ 11.98 hrs, Volume= 0.330 af, Depth= 5.66"  
 Routed to Pond FB-G : FOREBAY G

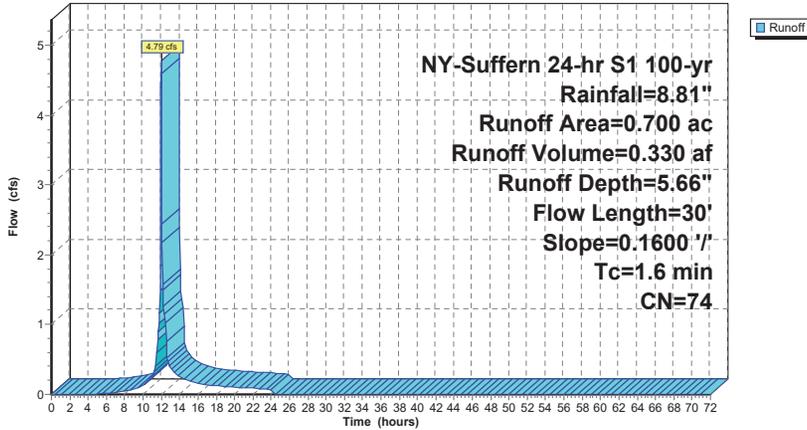
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG A
0.280	39	>75% Grass cover, Good, HSG A
0.700	74	Weighted Average
0.280		40.00% Pervious Area
0.420		60.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	30	0.1600	0.31		Sheet Flow, A to B Grass: Short n= 0.150 P2= 3.35"

**Subcatchment FB-G IN: SA BASIN G**

Hydrograph



**2024-01-15 Proposed Conditions**

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**Hydrograph for Subcatchment FB-G IN: SA BASIN G**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	5.66	0.00
1.00	0.13	0.00	0.00	53.00	8.81	5.66	0.00
2.00	0.26	0.00	0.00	54.00	8.81	5.66	0.00
3.00	0.41	0.00	0.00	55.00	8.81	5.66	0.00
4.00	0.56	0.00	0.00	56.00	8.81	5.66	0.00
5.00	0.73	0.00	0.00	57.00	8.81	5.66	0.00
6.00	0.92	0.01	0.02	58.00	8.81	5.66	0.00
7.00	1.12	0.05	0.03	59.00	8.81	5.66	0.00
8.00	1.36	0.10	0.05	60.00	8.81	5.66	0.00
9.00	1.64	0.20	0.08	61.00	8.81	5.66	0.00
10.00	2.00	0.35	0.13	62.00	8.81	5.66	0.00
11.00	2.51	0.61	0.25	63.00	8.81	5.66	0.00
12.00	4.72	2.14	4.59	64.00	8.81	5.66	0.00
13.00	6.33	3.46	0.39	65.00	8.81	5.66	0.00
14.00	6.83	3.89	0.25	66.00	8.81	5.66	0.00
15.00	7.17	4.20	0.19	67.00	8.81	5.66	0.00
16.00	7.45	4.44	0.16	68.00	8.81	5.66	0.00
17.00	7.69	4.65	0.14	69.00	8.81	5.66	0.00
18.00	7.90	4.83	0.12	70.00	8.81	5.66	0.00
19.00	8.08	5.00	0.11	71.00	8.81	5.66	0.00
20.00	8.25	5.15	0.10	72.00	8.81	5.66	0.00
21.00	8.40	5.29	0.10				
22.00	8.55	5.42	0.09				
23.00	8.68	5.54	0.08				
24.00	8.81	5.66	0.07				
25.00	8.81	5.66	0.00				
26.00	8.81	5.66	0.00				
27.00	8.81	5.66	0.00				
28.00	8.81	5.66	0.00				
29.00	8.81	5.66	0.00				
30.00	8.81	5.66	0.00				
31.00	8.81	5.66	0.00				
32.00	8.81	5.66	0.00				
33.00	8.81	5.66	0.00				
34.00	8.81	5.66	0.00				
35.00	8.81	5.66	0.00				
36.00	8.81	5.66	0.00				
37.00	8.81	5.66	0.00				
38.00	8.81	5.66	0.00				
39.00	8.81	5.66	0.00				
40.00	8.81	5.66	0.00				
41.00	8.81	5.66	0.00				
42.00	8.81	5.66	0.00				
43.00	8.81	5.66	0.00				
44.00	8.81	5.66	0.00				
45.00	8.81	5.66	0.00				
46.00	8.81	5.66	0.00				
47.00	8.81	5.66	0.00				
48.00	8.81	5.66	0.00				
49.00	8.81	5.66	0.00				
50.00	8.81	5.66	0.00				
51.00	8.81	5.66	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**

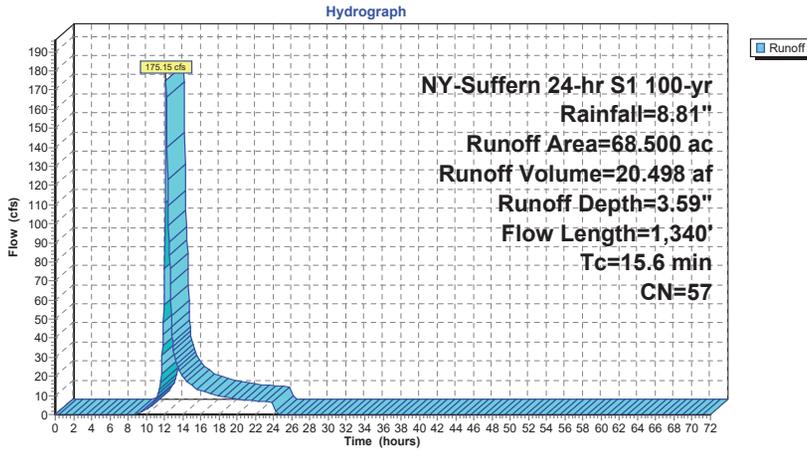
Runoff = 175.15 cfs @ 12.18 hrs, Volume= 20.498 af, Depth= 3.59"  
Routed to Link 42L : POA STREAM TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

Area (ac)	CN	Description
* 1.060	98	IMP
25.050	30	Woods, Good, HSG A
31.620	70	Woods, Good, HSG C
10.770	77	Woods, Good, HSG D
68.500	57	Weighted Average
67.440		98.45% Pervious Area
1.060		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	49	0.1300	0.15		<b>Sheet Flow, SHEET FLOW</b> Woods: Light underbrush n= 0.400 P2= 3.35"
5.3	51	0.0170	0.16		<b>Sheet Flow, SHEET FLOW</b> Range n= 0.130 P2= 3.35"
4.7	1,240	0.0760	4.44		<b>Shallow Concentrated Flow, SHALLOW CONCENTRATED</b> Unpaved Kv= 16.1 fps
15.6	1,340	Total			

**Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.81	3.59	0.00
1.00	0.13	0.00	0.00	53.00	8.81	3.59	0.00
2.00	0.26	0.00	0.00	54.00	8.81	3.59	0.00
3.00	0.41	0.00	0.00	55.00	8.81	3.59	0.00
4.00	0.56	0.00	0.00	56.00	8.81	3.59	0.00
5.00	0.73	0.00	0.00	57.00	8.81	3.59	0.00
6.00	0.92	0.00	0.00	58.00	8.81	3.59	0.00
7.00	1.12	0.00	0.00	59.00	8.81	3.59	0.00
8.00	1.36	0.00	0.00	60.00	8.81	3.59	0.00
9.00	1.64	0.00	0.35	61.00	8.81	3.59	0.00
10.00	2.00	0.03	2.55	62.00	8.81	3.59	0.00
11.00	2.51	0.12	7.58	63.00	8.81	3.59	0.00
12.00	4.72	0.96	76.45	64.00	8.81	3.59	0.00
13.00	6.33	1.88	33.58	65.00	8.81	3.59	0.00
14.00	6.83	2.20	19.69	66.00	8.81	3.59	0.00
15.00	7.17	2.43	15.07	67.00	8.81	3.59	0.00
16.00	7.45	2.62	12.55	68.00	8.81	3.59	0.00
17.00	7.69	2.78	10.91	69.00	8.81	3.59	0.00
18.00	7.90	2.93	9.75	70.00	8.81	3.59	0.00
19.00	8.08	3.06	8.87	71.00	8.81	3.59	0.00
20.00	8.25	3.18	8.17	72.00	8.81	3.59	0.00
21.00	8.40	3.29	7.60				
22.00	8.55	3.40	7.13				
23.00	8.68	3.50	6.73				
24.00	8.81	3.59	6.38				
25.00	8.81	3.59	0.00				
26.00	8.81	3.59	0.00				
27.00	8.81	3.59	0.00				
28.00	8.81	3.59	0.00				
29.00	8.81	3.59	0.00				
30.00	8.81	3.59	0.00				
31.00	8.81	3.59	0.00				
32.00	8.81	3.59	0.00				
33.00	8.81	3.59	0.00				
34.00	8.81	3.59	0.00				
35.00	8.81	3.59	0.00				
36.00	8.81	3.59	0.00				
37.00	8.81	3.59	0.00				
38.00	8.81	3.59	0.00				
39.00	8.81	3.59	0.00				
40.00	8.81	3.59	0.00				
41.00	8.81	3.59	0.00				
42.00	8.81	3.59	0.00				
43.00	8.81	3.59	0.00				
44.00	8.81	3.59	0.00				
45.00	8.81	3.59	0.00				
46.00	8.81	3.59	0.00				
47.00	8.81	3.59	0.00				
48.00	8.81	3.59	0.00				
49.00	8.81	3.59	0.00				
50.00	8.81	3.59	0.00				
51.00	8.81	3.59	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Pond BA-A: AG INF BASIN A**

- [92] Warning: Device #5 is above defined storage
- [81] Warning: Exceeded Pond FB-A1 by 0.66' @ 12.35 hrs
- [81] Warning: Exceeded Pond FB-A2 by 1.25' @ 12.35 hrs

Inflow Area = 5.250 ac, 78.29% Impervious, Inflow Depth = 6.85" for 100-yr event  
 Inflow = 35.46 cfs @ 12.02 hrs, Volume= 2.997 af  
 Outflow = 12.03 cfs @ 12.30 hrs, Volume= 2.997 af, Atten= 66%, Lag= 16.6 min  
 Discarded = 5.11 cfs @ 12.30 hrs, Volume= 2.576 af  
 Primary = 6.93 cfs @ 12.30 hrs, Volume= 0.420 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 311.92' @ 12.30 hrs Surf.Area= 16,158 sf Storage= 29,090 cf

Plug-Flow detention time= 31.8 min calculated for 2.995 af (100% of inflow)  
 Center-of-Mass det. time= 30.3 min ( 837.5 - 807.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	43,288 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	10,324	0	0
310.00	11,848	2,217	2,217
311.00	14,026	12,937	15,154
312.00	16,335	15,181	30,335
312.75	18,208	12,954	43,288

Device	Routing	Invert	Outlet Devices
#1	Primary	309.00'	<b>18.0" Round Culvert</b> L= 129.0' Ke= 1.000 Inlet / Outlet Invert= 309.00' / 306.42' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	309.80'	<b>9.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 305.80'
#3	Device 1	311.10'	<b>3.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Device 1	312.60'	<b>48.0" x 48.0" Horiz. Top Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Primary	312.75'	<b>48.0' long x 11.0' breadth Broad-Crested Rectangular Weir (Emergency Spill)</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64

**Discarded OutFlow** Max=5.10 cfs @ 12.30 hrs HW=311.92' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 5.10 cfs)

**Primary OutFlow** Max=6.92 cfs @ 12.30 hrs HW=311.92' (Free Discharge)  
 ↳ **1=Culvert** (Passes 6.92 cfs of 9.41 cfs potential flow)  
 ↳ **3=Sharp-Crested Rectangular Weir**(Weir Controls 6.92 cfs @ 2.97 fps)  
 ↳ **4=Top Grate** ( Controls 0.00 cfs)  
 ↳ **5=Broad-Crested Rectangular Weir (Emergency Spillway)** Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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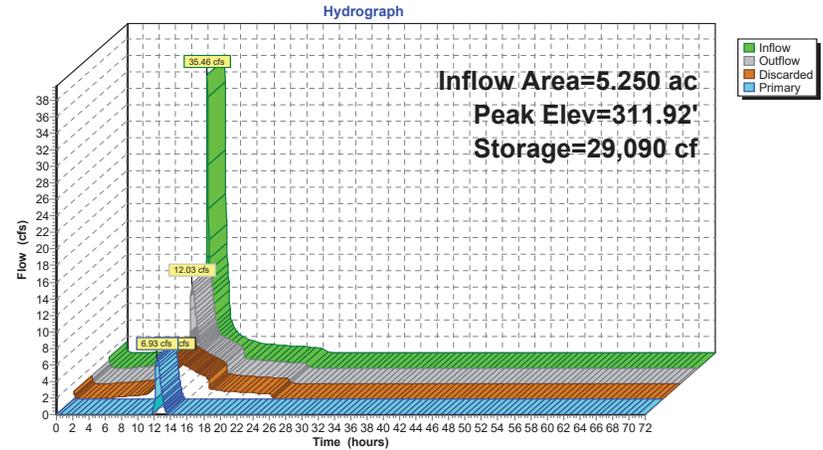
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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

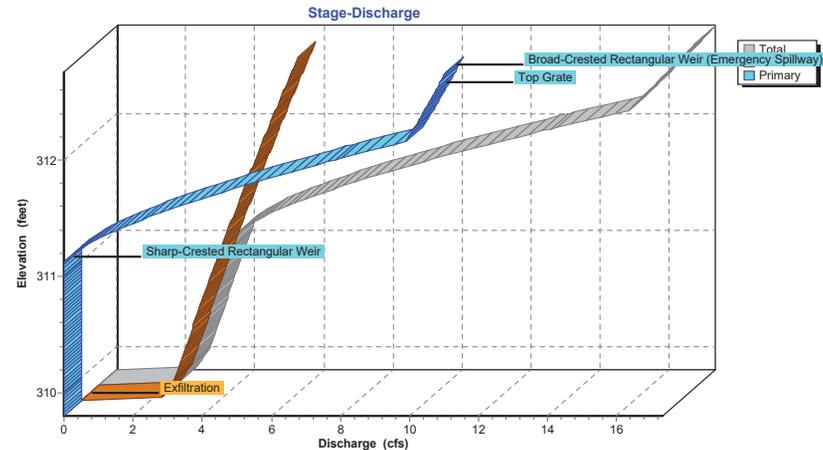
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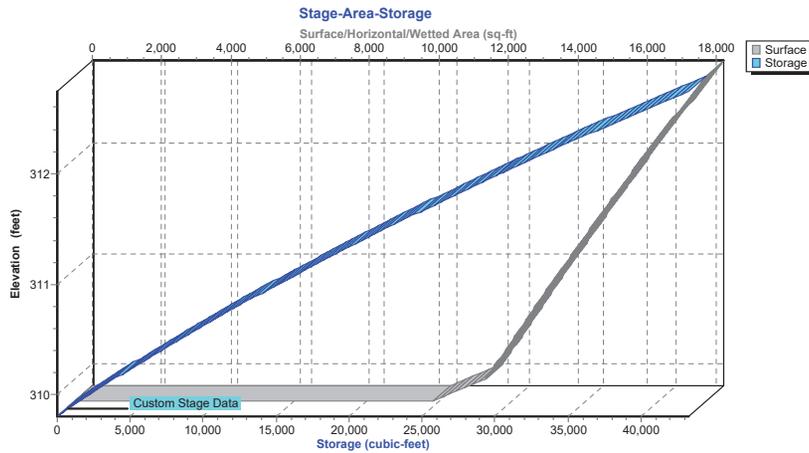
**Pond BA-A: AG INF BASIN A**



**Pond BA-A: AG INF BASIN A**



Pond BA-A: AG INF BASIN A



Hydrograph for Pond BA-A: AG INF BASIN A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	1.27	68	309.81	0.52	0.52	0.00
2.50	0.02	3	309.80	0.02	0.02	0.00
5.00	0.21	27	309.80	0.20	0.20	0.00
7.50	0.41	53	309.81	0.41	0.41	0.00
10.00	<b>1.51</b>	<b>197</b>	<b>309.82</b>	<b>1.49</b>	<b>1.49</b>	<b>0.00</b>
12.50	<b>8.65</b>	<b>27,908</b>	<b>311.85</b>	<b>11.06</b>	<b>5.01</b>	<b>6.05</b>
15.00	1.61	8,301	310.49	3.29	3.29	0.00
17.50	1.07	142	309.81	1.08	1.08	0.00
20.00	0.84	110	309.81	0.84	0.84	0.00
22.50	0.70	92	309.81	0.70	0.70	0.00
25.00	0.02	3	309.80	0.02	0.02	0.00
27.50	0.00	0	309.80	0.00	0.00	0.00
30.00	0.00	0	309.80	0.00	0.00	0.00
32.50	0.00	0	309.80	0.00	0.00	0.00
35.00	0.00	0	309.80	0.00	0.00	0.00
37.50	0.00	0	309.80	0.00	0.00	0.00
40.00	0.00	0	309.80	0.00	0.00	0.00
42.50	0.00	0	309.80	0.00	0.00	0.00
45.00	0.00	0	309.80	0.00	0.00	0.00
47.50	0.00	0	309.80	0.00	0.00	0.00
50.00	0.00	0	309.80	0.00	0.00	0.00
52.50	0.00	0	309.80	0.00	0.00	0.00
55.00	0.00	0	309.80	0.00	0.00	0.00
57.50	0.00	0	309.80	0.00	0.00	0.00
60.00	0.00	0	309.80	0.00	0.00	0.00
62.50	0.00	0	309.80	0.00	0.00	0.00
65.00	0.00	0	309.80	0.00	0.00	0.00
67.50	0.00	0	309.80	0.00	0.00	0.00
70.00	0.00	0	309.80	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Stage-Discharge for Pond BA-A: AG INF BASIN A**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
309.80	0.00	0.00	0.00	312.40	16.16	5.77	10.39
309.85	2.38	2.38	0.00	312.45	16.33	5.84	10.49
309.90	2.50	2.50	0.00	312.50	16.50	5.91	10.58
309.95	2.61	2.61	0.00	312.55	16.66	5.98	10.68
310.00	2.73	2.73	0.00	312.60	16.83	6.06	10.77
310.05	2.78	2.78	0.00	312.65	17.00	6.13	10.87
310.10	2.84	2.84	0.00	312.70	17.16	6.20	10.96
310.15	2.90	2.90	0.00	312.75	<b>17.33</b>	<b>6.27</b>	<b>11.05</b>
310.20	2.95	2.95	0.00				
310.25	3.01	3.01	0.00				
310.30	3.07	3.07	0.00				
310.35	3.13	3.13	0.00				
310.40	3.19	3.19	0.00				
310.45	3.24	3.24	0.00				
310.50	3.30	3.30	0.00				
310.55	3.36	3.36	0.00				
310.60	3.42	3.42	0.00				
310.65	3.48	3.48	0.00				
310.70	3.54	3.54	0.00				
310.75	3.60	3.60	0.00				
310.80	3.66	3.66	0.00				
310.85	3.72	3.72	0.00				
310.90	3.78	3.78	0.00				
310.95	3.84	3.84	0.00				
311.00	3.91	3.91	0.00				
311.05	3.97	3.97	0.00				
311.10	4.03	4.03	0.00				
311.15	4.20	4.09	0.11				
311.20	4.47	4.16	0.31				
311.25	4.79	4.22	0.56				
311.30	5.15	4.29	0.87				
311.35	5.56	4.35	1.21				
311.40	6.00	4.42	1.58				
311.45	6.46	4.48	1.98				
311.50	6.96	4.55	2.42				
311.55	7.48	4.61	2.87				
311.60	8.03	4.68	3.35				
311.65	8.60	4.74	3.85				
311.70	9.19	4.81	4.38				
311.75	9.79	4.87	4.92				
311.80	10.42	4.94	5.48				
311.85	11.06	5.01	6.05				
311.90	11.72	5.07	6.65				
311.95	12.39	5.14	7.25				
312.00	13.08	5.21	7.87				
312.05	13.79	5.28	8.51				
312.10	14.50	5.35	9.16				
312.15	15.23	5.42	9.82				
312.20	15.48	5.49	9.99				
312.25	15.65	5.56	10.09				
312.30	15.82	5.63	10.19				
312.35	15.99	5.70	10.29				

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**Stage-Area-Storage for Pond BA-A: AG INF BASIN A**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	10,324	0	312.40	17,334	37,068
309.85	10,705	526	312.45	17,459	37,938
309.90	11,086	1,071	312.50	17,584	38,814
309.95	11,467	1,634	312.55	17,709	39,697
310.00	11,848	2,217	312.60	17,833	40,585
310.05	11,957	2,812	312.65	17,958	41,480
310.10	12,066	3,413	312.70	18,083	42,381
310.15	12,175	4,019	<b>312.75</b>	<b>18,208</b>	<b>43,288</b>
310.20	12,284	4,630			
310.25	12,393	5,247			
310.30	12,501	5,870			
310.35	12,610	6,497			
310.40	12,719	7,131			
310.45	12,828	7,769			
310.50	12,937	8,413			
310.55	13,046	9,063			
310.60	13,155	9,718			
310.65	13,264	10,379			
310.70	13,373	11,044			
310.75	13,482	11,716			
310.80	13,590	12,393			
310.85	13,699	13,075			
310.90	13,808	13,762			
310.95	13,917	14,456			
311.00	14,026	15,154			
311.05	14,141	15,858			
<b>311.10</b>	<b>14,257</b>	<b>16,568</b>			
311.15	14,372	17,284			
311.20	14,488	18,006			
311.25	14,603	18,733			
311.30	14,719	19,466			
311.35	14,834	20,205			
311.40	14,950	20,949			
311.45	15,065	21,700			
311.50	15,181	22,456			
311.55	15,296	23,218			
311.60	15,411	23,985			
311.65	15,527	24,759			
311.70	15,642	25,538			
311.75	15,758	26,323			
311.80	15,873	27,114			
311.85	15,989	27,910			
311.90	16,104	28,713			
311.95	16,220	29,521			
312.00	16,335	30,335			
312.05	16,460	31,155			
312.10	16,585	31,981			
312.15	16,710	32,813			
312.20	16,834	33,652			
312.25	16,959	34,496			
312.30	17,084	35,348			
312.35	17,209	36,205			

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**Summary for Pond BA-B: AG INF BASIN B**

Inflow Area = 1,560 ac, 66.03% Impervious, Inflow Depth = 7.10" for 100-yr event  
 Inflow = 13.10 cfs @ 11.99 hrs, Volume= 0.923 af  
 Outflow = 2.05 cfs @ 12.53 hrs, Volume= 0.923 af, Atten= 84%, Lag= 32.3 min  
 Discarded = 0.91 cfs @ 12.53 hrs, Volume= 0.644 af  
 Primary = 1.13 cfs @ 12.53 hrs, Volume= 0.278 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 306.69' @ 12.53 hrs Surf.Area= 8,128 sf Storage= 14,098 cf

Plug-Flow detention time= 97.1 min calculated for 0.922 af (100% of inflow)  
 Center-of-Mass det. time= 97.0 min ( 895.4 - 798.3 )

Volume #1	Invert 304.00'	Avail.Storage 26,598 cf	Storage Description Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
304.00	2,100	0	0
305.00	4,600	3,350	3,350
306.00	6,700	5,650	9,000
307.00	8,777	7,739	16,739
308.00	10,941	9,859	26,598

Device #1	Routing Primary	Invert 303.00'	Outlet Devices 18.0" Round Culvert
			L= 11.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 303.00' / 302.89' S= 0.0100 ' ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	304.00'	3,500 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 300.00'
#3	Device 1	305.00'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.00'	48.0" x 48.0" Horiz. Top Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.91 cfs @ 12.53 hrs HW=306.69' (Free Discharge)  
 ↳ 2=Exfiltration ( Controls 0.91 cfs)

Primary OutFlow Max=1.13 cfs @ 12.53 hrs HW=306.69' (Free Discharge)  
 ↳ 1=Culvert (Passes 1.13 cfs of 14.58 cfs potential flow)  
 ↳ 3=Orifice/Grate (Orifice Controls 1.13 cfs @ 5.77 fps)  
 ↳ 4=Top Grate ( Controls 0.00 cfs)

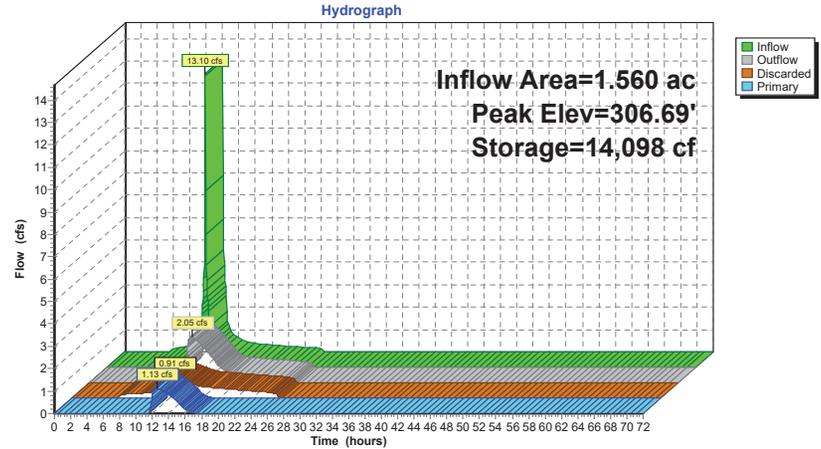
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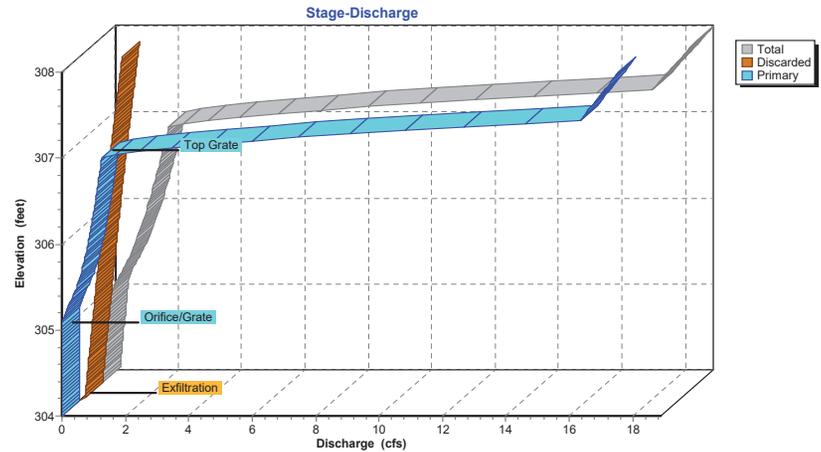
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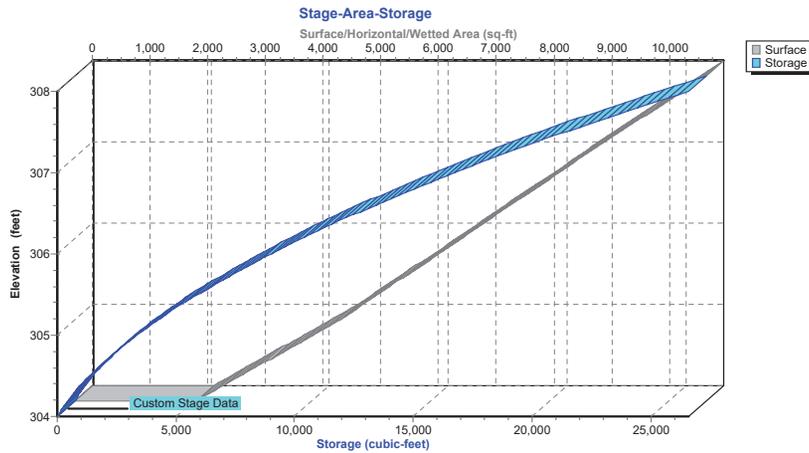
**Pond BA-B: AG INF BASIN B**



**Pond BA-B: AG INF BASIN B**



Pond BA-B: AG INF BASIN B



Hydrograph for Pond BA-B: AG INF BASIN B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	304.00	0.00	0.00	0.00
2.50	0.00	0	304.00	0.00	0.00	0.00
5.00	0.00	0	304.00	0.00	0.00	0.00
7.50	0.23	155	304.07	0.19	0.19	0.00
10.00	<b>0.49</b>	1,154	304.44	0.28	0.28	0.00
12.50	<b>2.42</b>	<b>14,080</b>	<b>306.69</b>	<b>2.05</b>	<b>0.91</b>	<b>1.13</b>
15.00	0.47	<b>6,337</b>	<b>305.57</b>	<b>1.13</b>	<b>0.59</b>	<b>0.54</b>
17.50	0.32	3,587	305.05	0.46	0.45	0.01
20.00	0.25	2,377	304.77	0.37	0.37	0.00
22.50	0.21	1,389	304.51	0.30	0.30	0.00
25.00	0.00	159	304.07	0.19	0.19	0.00
27.50	0.00	0	304.00	0.00	0.00	0.00
30.00	0.00	0	304.00	0.00	0.00	0.00
32.50	0.00	0	304.00	0.00	0.00	0.00
35.00	0.00	0	304.00	0.00	0.00	0.00
37.50	0.00	0	304.00	0.00	0.00	0.00
40.00	0.00	0	304.00	0.00	0.00	0.00
42.50	0.00	0	304.00	0.00	0.00	0.00
45.00	0.00	0	304.00	0.00	0.00	0.00
47.50	0.00	0	304.00	0.00	0.00	0.00
50.00	0.00	0	304.00	0.00	0.00	0.00
52.50	0.00	0	304.00	0.00	0.00	0.00
55.00	0.00	0	304.00	0.00	0.00	0.00
57.50	0.00	0	304.00	0.00	0.00	0.00
60.00	0.00	0	304.00	0.00	0.00	0.00
62.50	0.00	0	304.00	0.00	0.00	0.00
65.00	0.00	0	304.00	0.00	0.00	0.00
67.50	0.00	0	304.00	0.00	0.00	0.00
70.00	0.00	0	304.00	0.00	0.00	0.00

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**Stage-Discharge for Pond BA-B: AG INF BASIN B**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
304.00	0.00	0.00	0.00	306.60	1.99	0.89	1.10
304.05	0.18	0.18	0.00	306.65	2.02	0.90	1.12
304.10	0.19	0.19	0.00	306.70	2.06	0.92	1.14
304.15	0.21	0.21	0.00	306.75	2.09	0.93	1.16
304.20	0.22	0.22	0.00	306.80	2.13	0.95	1.18
304.25	0.23	0.23	0.00	306.85	2.16	0.96	1.20
304.30	0.25	0.25	0.00	306.90	2.19	0.98	1.21
304.35	0.26	0.26	0.00	306.95	2.23	0.99	1.23
304.40	0.27	0.27	0.00	307.00	2.26	1.01	1.25
304.45	0.28	0.28	0.00	307.05	2.88	1.03	1.85
304.50	0.30	0.30	0.00	307.10	3.98	1.04	2.94
304.55	0.31	0.31	0.00	307.15	5.40	1.06	4.34
304.60	0.33	0.33	0.00	307.20	7.07	1.07	6.00
304.65	0.34	0.34	0.00	307.25	8.97	1.09	7.88
304.70	0.35	0.35	0.00	307.30	11.06	1.11	9.95
304.75	0.37	0.37	0.00	307.35	13.33	1.12	12.20
304.80	0.38	0.38	0.00	307.40	15.76	1.14	14.62
304.85	0.39	0.39	0.00	307.45	17.52	1.16	16.37
304.90	0.41	0.41	0.00	307.50	17.65	1.17	16.48
304.95	0.42	0.42	0.00	307.55	17.78	1.19	16.59
305.00	0.44	0.44	0.00	307.60	17.90	1.21	16.70
305.05	0.46	0.45	0.01	307.65	18.03	1.22	16.80
305.10	0.49	0.46	0.03	307.70	18.15	1.24	16.91
305.15	0.54	0.48	0.07	307.75	18.27	1.26	17.02
305.20	0.60	0.49	0.11	307.80	18.40	1.27	17.12
305.25	0.67	0.50	0.17	307.85	18.52	1.29	17.23
305.30	0.75	0.52	0.23	307.90	18.64	1.31	17.33
305.35	0.83	0.53	0.30	307.95	18.76	1.32	17.44
305.40	0.91	0.54	0.36	308.00	<b>18.88</b>	<b>1.34</b>	<b>17.54</b>
305.45	0.98	0.56	0.43				
305.50	1.04	0.57	0.47				
305.55	1.10	0.58	0.52				
305.60	1.16	0.60	0.56				
305.65	1.21	0.61	0.60				
305.70	1.26	0.63	0.63				
305.75	1.31	0.64	0.67				
305.80	1.35	0.65	0.70				
305.85	1.40	0.67	0.73				
305.90	1.44	0.68	0.76				
305.95	1.49	0.70	0.79				
306.00	1.53	0.71	0.82				
306.05	1.57	0.72	0.85				
306.10	1.61	0.74	0.87				
306.15	1.65	0.75	0.90				
306.20	1.69	0.77	0.92				
306.25	1.73	0.78	0.95				
306.30	1.77	0.80	0.97				
306.35	1.80	0.81	0.99				
306.40	1.84	0.83	1.01				
306.45	1.88	0.84	1.04				
306.50	1.91	0.86	1.06				
306.55	1.95	0.87	1.08				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-B: AG INF BASIN B**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
304.00	2,100	0	306.60	7,946	13,394
304.05	2,225	108	306.65	8,050	13,794
304.10	2,350	223	306.70	8,154	14,199
304.15	2,475	343	306.75	8,258	14,609
304.20	2,600	470	306.80	8,362	15,025
304.25	2,725	603	306.85	8,465	15,445
304.30	2,850	743	306.90	8,569	15,871
304.35	2,975	888	306.95	8,673	16,302
304.40	3,100	1,040	307.00	8,777	16,739
304.45	3,225	1,198	307.05	8,885	17,180
304.50	3,350	1,363	307.10	8,993	17,627
304.55	3,475	1,533	307.15	9,102	18,079
304.60	3,600	1,710	307.20	9,210	18,537
304.65	3,725	1,893	307.25	9,318	19,000
304.70	3,850	2,082	307.30	9,426	19,469
304.75	3,975	2,278	307.35	9,534	19,943
304.80	4,100	2,480	307.40	9,643	20,422
304.85	4,225	2,688	307.45	9,751	20,907
304.90	4,350	2,902	307.50	9,859	21,398
304.95	4,475	3,123	307.55	9,967	21,893
<b>305.00</b>	<b>4,600</b>	<b>3,350</b>	307.60	10,075	22,394
305.05	4,705	3,583	307.65	10,184	22,901
305.10	4,810	3,821	307.70	10,292	23,413
305.15	4,915	4,064	307.75	10,400	23,930
305.20	5,020	4,312	307.80	10,508	24,453
305.25	5,125	4,566	307.85	10,616	24,981
305.30	5,230	4,825	307.90	10,725	25,514
305.35	5,335	5,089	307.95	10,833	26,053
305.40	5,440	5,358	308.00	<b>10,941</b>	<b>26,598</b>
305.45	5,545	5,633			
305.50	5,650	5,913			
305.55	5,755	6,198			
305.60	5,860	6,488			
305.65	5,965	6,784			
305.70	6,070	7,084			
305.75	6,175	7,391			
305.80	6,280	7,702			
305.85	6,385	8,019			
305.90	6,490	8,340			
305.95	6,595	8,668			
306.00	6,700	9,000			
306.05	6,804	9,338			
306.10	6,908	9,680			
306.15	7,012	10,028			
306.20	7,115	10,382			
306.25	7,219	10,740			
306.30	7,323	11,103			
306.35	7,427	11,472			
306.40	7,531	11,846			
306.45	7,635	12,225			
306.50	7,739	12,610			
306.55	7,842	12,999			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-CR: UG INF BASIN C (RTANK)**

Inflow Area = 8.090 ac, 94.93% Impervious, Inflow Depth = 8.21" for 100-yr event  
 Inflow = 63.43 cfs @ 12.02 hrs, Volume= 5.534 af  
 Outflow = 5.59 cfs @ 12.95 hrs, Volume= 5.534 af, Atten= 91%, Lag= 55.9 min  
 Discarded = 3.52 cfs @ 12.95 hrs, Volume= 4.510 af  
 Primary = 2.07 cfs @ 12.95 hrs, Volume= 1.024 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 307.61' @ 12.95 hrs Surf.Area= 27,305 sf Storage= 96,927 cf

Plug-Flow detention time= 198.7 min calculated for 5.530 af (100% of inflow)  
 Center-of-Mass det. time= 198.7 min ( 955.4 - 756.7 )

Volume	Invert	Avail.Storage	Storage Description
#1A	303.50'	14,951 cf	<b>41.40'W x 659.51'L x 5.35'H Field A</b> 145,966 cf Overall - 108,590 cf Embedded = 37,376 cf x 40.0% Voids
#2A	303.75'	103,160 cf	<b>Ferguson R-Tank UD 4</b> x 6327 Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 6327 Chambers in 19 Rows
		118,111 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	303.75'	<b>18.0" Round Culvert</b> L= 85.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 303.75' / 302.65' S= 0.0129 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	303.50'	<b>2.600 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 299.90'
#3	Device 1	304.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.50'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=3.52 cfs @ 12.95 hrs HW=307.61' (Free Discharge)  
 ↳2=Exfiltration ( Controls 3.52 cfs)

**Primary OutFlow** Max=2.07 cfs @ 12.95 hrs HW=307.61' (Free Discharge)  
 ↳1=Culvert (Passes 2.07 cfs of 16.60 cfs potential flow)  
 ↳3=Orifice/Grate (Orifice Controls 1.60 cfs @ 8.14 fps)  
 ↳4=Sharp-Crested Rectangular Weir(Weir Controls 0.47 cfs @ 1.08 fps)

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Pond BA-CR: UG INF BASIN C (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf  
 Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

333 Chambers/Row x 1.97' Long = 655.51' Row Length +24.0" End Stone x 2 = 659.51' Base Length  
 19 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 41.40' Base Width  
 3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

6,327 Chambers x 16.3 cf = 103,160.4 cf Chamber Storage  
 6,327 Chambers x 17.2 cf = 108,589.8 cf Displacement

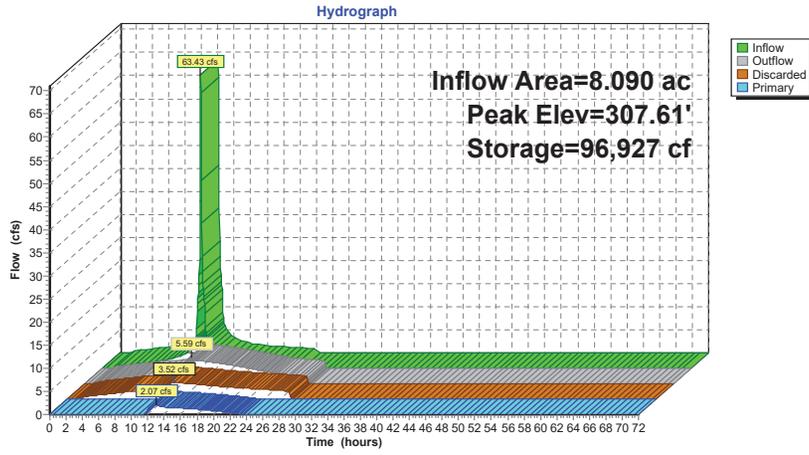
145,966.2 cf Field - 108,589.8 cf Chambers = 37,376.3 cf Stone x 40.0% Voids = 14,950.5 cf Stone Storage

Chamber Storage + Stone Storage = 118,110.9 cf = 2.711 af  
 Overall Storage Efficiency = 80.9%  
 Overall System Size = 659.51' x 41.40' x 5.35'

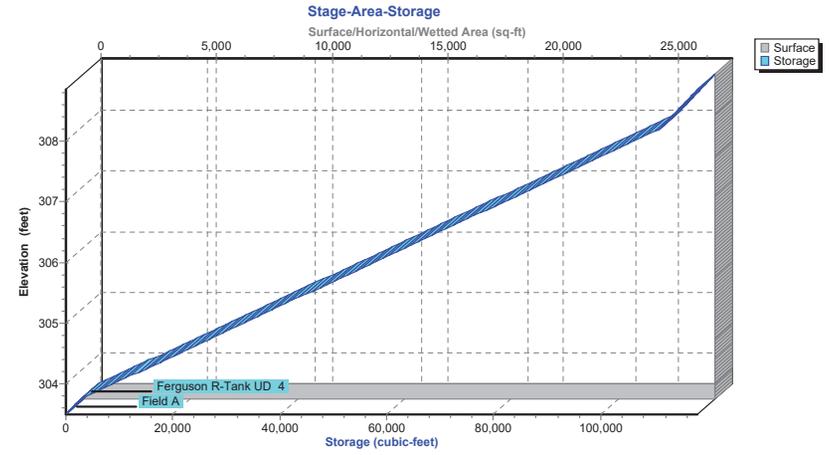
6,327 Chambers  
 5,406.2 cy Field  
 1,384.3 cy Stone



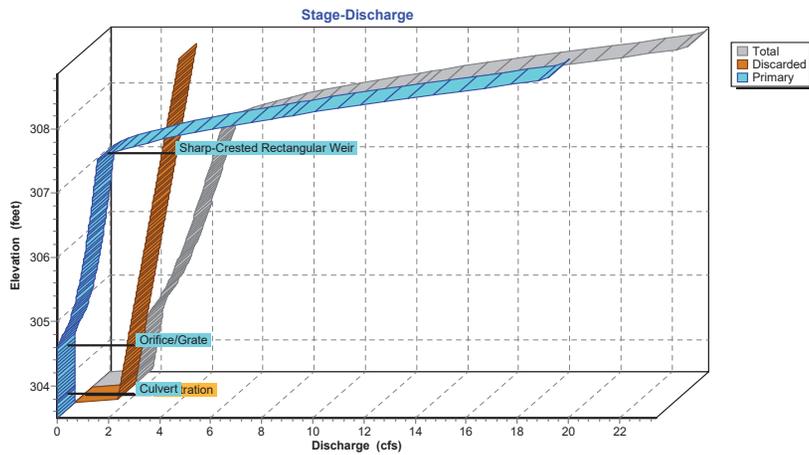
Pond BA-CR: UG INF BASIN C (RTANK)



Pond BA-CR: UG INF BASIN C (RTANK)



Pond BA-CR: UG INF BASIN C (RTANK)



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**Hydrograph for Pond BA-CR: UG INF BASIN C (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	303.50	0.00	0.00	0.00
2.50	0.58	195	303.52	0.56	0.56	0.00
5.00	1.13	387	303.54	1.11	1.11	0.00
7.50	1.72	594	303.55	1.67	1.67	0.00
10.00	<b>3.10</b>	<b>5,459</b>	<b>303.86</b>	<b>1.81</b>	<b>1.81</b>	<b>0.00</b>
12.50	<b>13.73</b>	<b>93,056</b>	<b>307.45</b>	<b>5.00</b>	<b>3.45</b>	<b>1.55</b>
15.00	2.54	<b>85,814</b>	<b>307.15</b>	<b>4.78</b>	<b>3.31</b>	<b>1.47</b>
17.50	1.69	64,310	306.27	4.08	2.91	1.17
20.00	1.32	44,341	305.45	3.33	2.54	0.79
22.50	1.10	28,748	304.82	2.49	2.24	0.25
25.00	0.00	14,988	304.25	1.99	1.99	0.00
27.50	0.00	19	303.50	0.05	0.05	0.00
30.00	0.00	0	303.50	0.00	0.00	0.00
32.50	0.00	0	303.50	0.00	0.00	0.00
35.00	0.00	0	303.50	0.00	0.00	0.00
37.50	0.00	0	303.50	0.00	0.00	0.00
40.00	0.00	0	303.50	0.00	0.00	0.00
42.50	0.00	0	303.50	0.00	0.00	0.00
45.00	0.00	0	303.50	0.00	0.00	0.00
47.50	0.00	0	303.50	0.00	0.00	0.00
50.00	0.00	0	303.50	0.00	0.00	0.00
52.50	0.00	0	303.50	0.00	0.00	0.00
55.00	0.00	0	303.50	0.00	0.00	0.00
57.50	0.00	0	303.50	0.00	0.00	0.00
60.00	0.00	0	303.50	0.00	0.00	0.00
62.50	0.00	0	303.50	0.00	0.00	0.00
65.00	0.00	0	303.50	0.00	0.00	0.00
67.50	0.00	0	303.50	0.00	0.00	0.00
70.00	0.00	0	303.50	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-CR: UG INF BASIN C (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
303.50	0.00	0.00	0.00	308.70	22.06	4.02	18.04
303.60	1.69	1.69	0.00	308.80	<b>23.31</b>	<b>4.06</b>	<b>19.25</b>
303.70	1.73	1.73	0.00				
303.80	1.78	1.78	0.00				
303.90	1.83	1.83	0.00				
304.00	1.87	1.87	0.00				
304.10	1.92	1.92	0.00				
304.20	1.96	1.96	0.00				
304.30	2.01	2.01	0.00				
304.40	2.05	2.05	0.00				
304.50	2.10	2.10	0.00				
304.60	2.18	2.15	0.03				
304.70	2.30	2.19	0.11				
304.80	2.47	2.24	0.23				
304.90	2.65	2.28	0.36				
305.00	2.80	2.33	0.47				
305.10	2.93	2.37	0.56				
305.20	3.05	2.42	0.63				
305.30	3.17	2.47	0.70				
305.40	3.27	2.51	0.76				
305.50	3.38	2.56	0.82				
305.60	3.47	2.60	0.87				
305.70	3.57	2.65	0.92				
305.80	3.66	2.69	0.97				
305.90	3.75	2.74	1.01				
306.00	3.84	2.78	1.06				
306.10	3.93	2.83	1.10				
306.20	4.01	2.88	1.14				
306.30	4.10	2.92	1.18				
306.40	4.18	2.97	1.21				
306.50	4.26	3.01	1.25				
306.60	4.34	3.06	1.29				
306.70	4.42	3.10	1.32				
306.80	4.50	3.15	1.35				
306.90	4.58	3.20	1.39				
307.00	4.66	3.24	1.42				
307.10	4.74	3.29	1.45				
307.20	4.81	3.33	1.48				
307.30	4.89	3.38	1.51				
307.40	4.96	3.42	1.54				
307.50	5.04	3.47	1.57				
307.60	5.52	3.51	2.01				
307.70	6.34	3.56	2.78				
307.80	7.37	3.61	3.77				
307.90	8.57	3.65	4.92				
308.00	9.91	3.70	6.21				
308.10	11.37	3.74	7.63				
308.20	12.94	3.79	9.15				
308.30	14.60	3.83	10.77				
308.40	16.35	3.88	12.47				
308.50	18.18	3.93	14.26				
308.60	20.09	3.97	16.12				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-CR: UG INF BASIN C (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
303.50	27,305	0	308.70	27,305	116,518
303.60	27,305	1,092	308.80	27,305	117,611
303.70	27,305	2,184			
303.80	27,305	3,951			
303.90	27,305	6,391			
304.00	27,305	8,832			
304.10	27,305	11,273			
304.20	27,305	13,713			
304.30	27,305	16,154			
304.40	27,305	18,595			
304.50	27,305	21,035			
304.60	27,305	23,476			
304.70	27,305	25,917			
304.80	27,305	28,357			
304.90	27,305	30,798			
305.00	27,305	33,238			
305.10	27,305	35,679			
305.20	27,305	38,120			
305.30	27,305	40,560			
305.40	27,305	43,001			
305.50	27,305	45,442			
305.60	27,305	47,882			
305.70	27,305	50,323			
305.80	27,305	52,764			
305.90	27,305	55,204			
306.00	27,305	57,645			
306.10	27,305	60,085			
306.20	27,305	62,526			
306.30	27,305	64,967			
306.40	27,305	67,407			
306.50	27,305	69,848			
306.60	27,305	72,289			
306.70	27,305	74,729			
306.80	27,305	77,170			
306.90	27,305	79,611			
307.00	27,305	82,051			
307.10	27,305	84,492			
307.20	27,305	86,932			
307.30	27,305	89,373			
307.40	27,305	91,814			
307.50	27,305	94,254			
307.60	27,305	96,695			
307.70	27,305	99,136			
307.80	27,305	101,576			
307.90	27,305	104,017			
308.00	27,305	106,458			
308.10	27,305	108,898			
308.20	27,305	111,057			
308.30	27,305	112,150			
308.40	27,305	113,242			
308.50	27,305	114,334			
308.60	27,305	115,426			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-DR: UG INF BASIN D (RTANK)**

Inflow Area = 8.240 ac, 95.51% Impervious, Inflow Depth = 8.45" for 100-yr event  
 Inflow = 65.13 cfs @ 12.02 hrs, Volume= 5.802 af  
 Outflow = 7.67 cfs @ 12.67 hrs, Volume= 5.802 af, Atten= 88%, Lag= 38.6 min  
 Discarded = 3.67 cfs @ 12.67 hrs, Volume= 4.458 af  
 Primary = 4.00 cfs @ 12.67 hrs, Volume= 1.344 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 308.19' @ 12.67 hrs Surf.Area= 32,692 sf Storage= 90,041 cf

Plug-Flow detention time= 132.9 min calculated for 5.802 af (100% of inflow)  
 Center-of-Mass det. time= 132.9 min ( 878.5 - 745.7 )

Volume	Invert	Avail.Storage	Storage Description
#1A	305.00'	15,782 cf	<b>49.28'W x 663.45'L x 4.26'H Field A</b> 139,369 cf Overall - 99,915 cf Embedded = 39,454 cf x 40.0% Voids
#2A	305.25'	94,919 cf	<b>Ferguson R-Tank UD 3 x 7705</b> Inside #1 Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf 7705 Chambers in 23 Rows
		110,701 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	305.25'	<b>18.0" Round Culvert</b> L= 7.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 305.25' / 305.18' S= 0.0100 ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	305.00'	<b>2.700 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 301.00'
#3	Device 1	305.75'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.00'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Device 1	308.25'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=3.67 cfs @ 12.67 hrs HW=308.19' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 3.67 cfs)

**Primary OutFlow** Max=4.00 cfs @ 12.67 hrs HW=308.19' (Free Discharge)  
 ↳ **1=Culvert** (Passes 4.00 cfs of 12.59 cfs potential flow)  
 ↳ **3=Orifice/Grate** (Orifice Controls 2.44 cfs @ 6.99 fps)  
 ↳ **4=Orifice/Grate** (Orifice Controls 1.56 cfs @ 4.46 fps)  
 ↳ **5=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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**Pond BA-DR: UG INF BASIN D (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 3 (Ferguson R-Tank UD)**

Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf

Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf

335 Chambers/Row x 1.97' Long = 659.45' Row Length +24.0" End Stone x 2 = 663.45' Base Length

23 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 49.28' Base Width

3.0" Stone Base + 40.2" Chamber Height + 8.0" Stone Cover = 4.26' Field Height

7,705 Chambers x 12.3 cf = 94,919.2 cf Chamber Storage

7,705 Chambers x 13.0 cf = 99,914.9 cf Displacement

139,369.3 cf Field - 99,914.9 cf Chambers = 39,454.4 cf Stone x 40.0% Voids = 15,781.8 cf Stone Storage

Chamber Storage + Stone Storage = 110,700.9 cf = 2.541 af

Overall Storage Efficiency = 79.4%

Overall System Size = 663.45' x 49.28' x 4.26'

7,705 Chambers

5,161.8 cy Field

1,461.3 cy Stone



**2024-01-15 Proposed Conditions**

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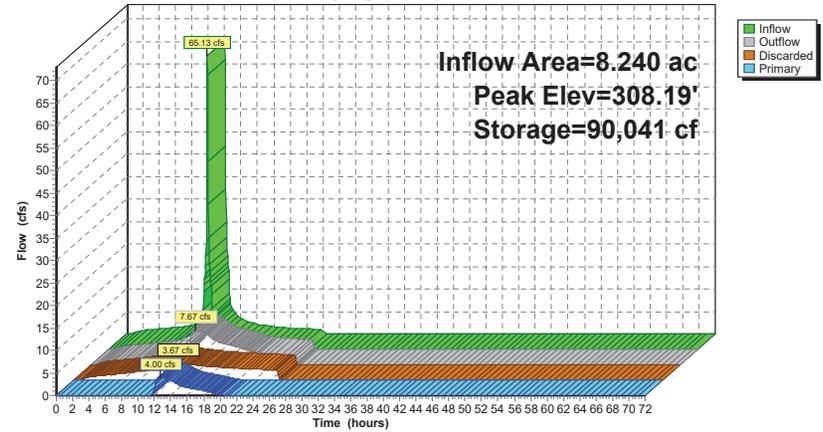
NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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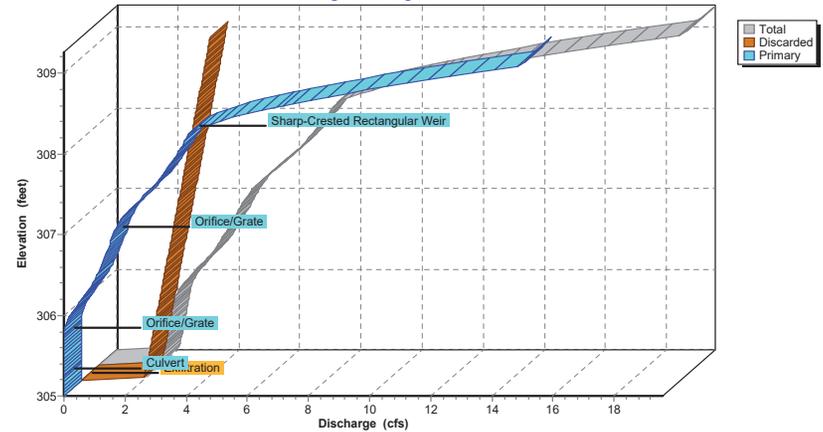
**Pond BA-DR: UG INF BASIN D (RTANK)**

Hydrograph

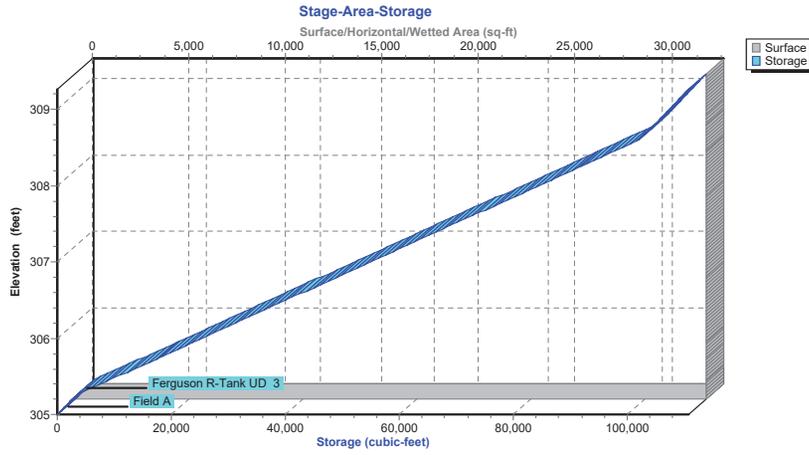


**Pond BA-DR: UG INF BASIN D (RTANK)**

Stage-Discharge



Pond BA-DR: UG INF BASIN D (RTANK)



Hydrograph for Pond BA-DR: UG INF BASIN D (RTANK)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	305.00	0.00	0.00	0.00
2.50	0.84	222	305.02	0.82	0.82	0.00
5.00	1.31	350	305.03	1.29	1.29	0.00
7.50	1.86	497	305.04	1.84	1.84	0.00
10.00	<b>3.25</b>	3,629	305.26	2.18	2.18	0.00
12.50	<b>14.04</b>	<b>88,344</b>	<b>308.13</b>	<b>7.55</b>	<b>3.64</b>	<b>3.91</b>
15.00	2.60	<b>66,185</b>	<b>307.38</b>	<b>5.61</b>	<b>3.26</b>	<b>2.35</b>
17.50	1.73	42,790	306.59	4.05	2.86	1.20
20.00	1.34	25,813	306.01	2.79	2.56	0.23
22.50	1.12	14,253	305.62	2.36	2.36	0.00
25.00	0.00	241	305.02	0.89	0.89	0.00
27.50	0.00	0	305.00	0.00	0.00	0.00
30.00	0.00	0	305.00	0.00	0.00	0.00
32.50	0.00	0	305.00	0.00	0.00	0.00
35.00	0.00	0	305.00	0.00	0.00	0.00
37.50	0.00	0	305.00	0.00	0.00	0.00
40.00	0.00	0	305.00	0.00	0.00	0.00
42.50	0.00	0	305.00	0.00	0.00	0.00
45.00	0.00	0	305.00	0.00	0.00	0.00
47.50	0.00	0	305.00	0.00	0.00	0.00
50.00	0.00	0	305.00	0.00	0.00	0.00
52.50	0.00	0	305.00	0.00	0.00	0.00
55.00	0.00	0	305.00	0.00	0.00	0.00
57.50	0.00	0	305.00	0.00	0.00	0.00
60.00	0.00	0	305.00	0.00	0.00	0.00
62.50	0.00	0	305.00	0.00	0.00	0.00
65.00	0.00	0	305.00	0.00	0.00	0.00
67.50	0.00	0	305.00	0.00	0.00	0.00
70.00	0.00	0	305.00	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-DR: UG INF BASIN D (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
305.00	0.00	0.00	0.00	307.60	6.31	3.37	2.94
305.05	2.07	2.07	0.00	307.65	6.45	3.40	3.06
305.10	2.09	2.09	0.00	307.70	6.58	3.42	3.15
305.15	2.12	2.12	0.00	307.75	6.70	3.45	3.25
305.20	2.15	2.15	0.00	307.80	6.82	3.47	3.35
305.25	2.17	2.17	0.00	307.85	6.94	3.50	3.44
305.30	2.20	2.20	0.00	307.90	7.06	3.52	3.53
305.35	2.22	2.22	0.00	307.95	7.17	3.55	3.62
305.40	2.25	2.25	0.00	308.00	7.27	3.58	3.70
305.45	2.27	2.27	0.00	308.05	7.38	3.60	3.78
305.50	2.30	2.30	0.00	308.10	7.49	3.63	3.86
305.55	2.32	2.32	0.00	308.15	7.59	3.65	3.94
305.60	2.35	2.35	0.00	308.20	7.69	3.68	4.01
305.65	2.38	2.38	0.00	308.25	7.79	3.70	4.08
305.70	2.40	2.40	0.00	308.30	8.03	3.73	4.30
305.75	2.43	2.43	0.00	308.35	8.39	3.75	4.64
305.80	2.46	2.45	0.01	308.40	8.83	3.78	5.05
305.85	2.51	2.48	0.04	308.45	9.33	3.81	5.52
305.90	2.58	2.50	0.08	308.50	9.87	3.83	6.04
305.95	2.66	2.53	0.13	308.55	10.47	3.86	6.61
306.00	2.76	2.55	0.20	308.60	11.10	3.88	7.22
306.05	2.86	2.58	0.28	308.65	11.77	3.91	7.86
306.10	2.98	2.61	0.37	308.70	12.48	3.93	8.54
306.15	3.10	2.63	0.47	308.75	13.21	3.96	9.25
306.20	3.23	2.66	0.57	308.80	13.98	3.98	9.99
306.25	3.36	2.68	0.68	308.85	14.77	4.01	10.76
306.30	3.49	2.71	0.78	308.90	15.59	4.04	11.56
306.35	3.61	2.73	0.87	308.95	16.44	4.06	12.38
306.40	3.71	2.76	0.95	309.00	17.30	4.09	13.22
306.45	3.80	2.78	1.02	309.05	18.19	4.11	14.08
306.50	3.89	2.81	1.08	309.10	19.11	4.14	14.97
306.55	3.98	2.83	1.15	309.15	19.26	4.16	15.10
306.60	4.07	2.86	1.21	309.20	19.41	4.19	15.22
306.65	4.15	2.89	1.27	309.25	<b>19.55</b>	<b>4.21</b>	<b>15.34</b>
306.70	4.23	2.91	1.32				
306.75	4.31	2.94	1.37				
306.80	4.39	2.96	1.42				
306.85	4.46	2.99	1.47				
306.90	4.53	3.01	1.52				
306.95	4.60	3.04	1.56				
307.00	4.67	3.06	1.61				
307.05	4.75	3.09	1.66				
307.10	4.85	3.12	1.73				
307.15	4.95	3.14	1.81				
307.20	5.08	3.17	1.91				
307.25	5.21	3.19	2.02				
307.30	5.36	3.22	2.14				
307.35	5.51	3.24	2.27				
307.40	5.67	3.27	2.40				
307.45	5.83	3.29	2.54				
307.50	6.00	3.32	2.68				
307.55	6.16	3.35	2.81				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-DR: UG INF BASIN D (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
305.00	<b>32,692</b>	0	307.60	32,692	72,590
305.05	32,692	654	307.65	32,692	74,064
305.10	32,692	1,308	307.70	32,692	75,539
305.15	32,692	1,962	307.75	32,692	77,014
305.20	32,692	2,615	307.80	32,692	78,489
305.25	32,692	3,269	307.85	32,692	79,964
305.30	32,692	4,744	307.90	32,692	81,439
305.35	32,692	6,219	307.95	32,692	82,914
305.40	32,692	7,694	308.00	32,692	84,389
305.45	32,692	9,169	308.05	32,692	85,864
305.50	32,692	10,644	308.10	32,692	87,339
305.55	32,692	12,119	308.15	32,692	88,814
305.60	32,692	13,593	308.20	32,692	90,288
305.65	32,692	15,068	308.25	32,692	91,763
305.70	32,692	16,543	308.30	32,692	93,238
<b>305.75</b>	<b>32,692</b>	<b>18,018</b>	308.35	32,692	94,713
305.80	32,692	19,493	308.40	32,692	96,188
305.85	32,692	20,968	308.45	32,692	97,663
305.90	32,692	22,443	308.50	32,692	99,138
305.95	32,692	23,918	308.55	32,692	100,613
306.00	32,692	25,393	308.60	32,692	102,029
306.05	32,692	26,868	308.65	32,692	102,683
306.10	32,692	28,343	308.70	32,692	103,337
306.15	32,692	29,817	308.75	32,692	103,991
306.20	32,692	31,292	308.80	32,692	104,645
306.25	32,692	32,767	308.85	32,692	105,299
306.30	32,692	34,242	308.90	32,692	105,952
306.35	32,692	35,717	308.95	32,692	106,606
306.40	32,692	37,192	309.00	32,692	107,260
306.45	32,692	38,667	309.05	32,692	107,914
306.50	32,692	40,142	309.10	32,692	108,568
306.55	32,692	41,617	309.15	32,692	109,222
306.60	32,692	43,092	309.20	32,692	109,875
306.65	32,692	44,566	309.25	32,692	<b>110,529</b>
306.70	32,692	46,041			
306.75	32,692	47,516			
306.80	32,692	48,991			
306.85	32,692	50,466			
306.90	32,692	51,941			
306.95	32,692	53,416			
307.00	32,692	54,891			
307.05	32,692	56,366			
307.10	32,692	57,841			
307.15	32,692	59,315			
307.20	32,692	60,790			
307.25	32,692	62,265			
307.30	32,692	63,740			
307.35	32,692	65,215			
307.40	32,692	66,690			
307.45	32,692	68,165			
307.50	32,692	69,640			
307.55	32,692	71,115			

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Pond BA-ER: UG INF BASIN E (RTANK)**

Inflow Area = 8.220 ac, 95.13% Impervious, Inflow Depth = 8.21" for 100-yr event  
 Inflow = 62.93 cfs @ 12.03 hrs, Volume= 5.623 af  
 Outflow = 11.61 cfs @ 12.56 hrs, Volume= 5.623 af, Atten= 82%, Lag= 32.0 min  
 Discarded = 3.85 cfs @ 12.56 hrs, Volume= 4.693 af  
 Primary = 7.76 cfs @ 12.56 hrs, Volume= 0.930 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.14' @ 12.56 hrs Surf.Area= 24,100 sf Storage= 86,480 cf

Plug-Flow detention time= 155.2 min calculated for 5.619 af (100% of inflow)  
 Center-of-Mass det. time= 155.2 min ( 912.1 - 756.9 )

Volume	Invert	Avail.Storage	Storage Description
#1A	305.00'	12,897 cf	<b>45.34'W x 531.56'L x 5.35'H Field A</b> 128,835 cf Overall - 96,593 cf Embedded = 32,242 cf x 40.0% Voids
#2A	305.25'	91,763 cf	<b>Ferguson R-Tank UD 4</b> x 5628 Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 5628 Chambers in 21 Rows
		104,660 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	305.25'	<b>18.0" Round Culvert</b> L= 55.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 305.25' / 304.15' S= 0.0200 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	305.00'	<b>3.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 300.75'
#3	Device 1	306.90'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	308.50'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=3.85 cfs @ 12.56 hrs HW=309.13' (Free Discharge)  
 ↳2=Exfiltration ( Controls 3.85 cfs)

**Primary OutFlow** Max=7.73 cfs @ 12.56 hrs HW=309.13' (Free Discharge)  
 ↳1=Culvert (Passes 7.73 cfs of 18.46 cfs potential flow)  
 ↳3=Orifice/Grate (Orifice Controls 1.33 cfs @ 6.78 fps)  
 ↳4=Sharp-Crested Rectangular Weir(Weir Controls 6.40 cfs @ 2.60 fps)

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Pond BA-ER: UG INF BASIN E (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf  
 Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

268 Chambers/Row x 1.97' Long = 527.56' Row Length +24.0" End Stone x 2 = 531.56' Base Length  
 21 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 45.34' Base Width  
 3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

5,628 Chambers x 16.3 cf = 91,763.3 cf Chamber Storage  
 5,628 Chambers x 17.2 cf = 96,593.0 cf Displacement

128,834.5 cf Field - 96,593.0 cf Chambers = 32,241.6 cf Stone x 40.0% Voids = 12,896.6 cf Stone Storage

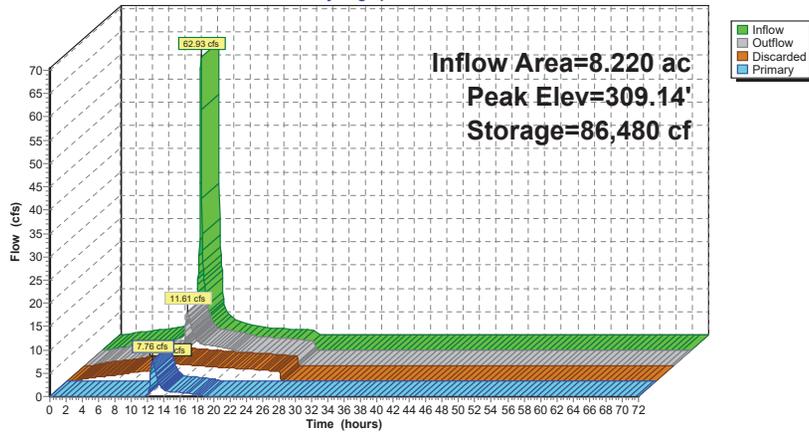
Chamber Storage + Stone Storage = 104,659.9 cf = 2.403 af  
 Overall Storage Efficiency = 81.2%  
 Overall System Size = 531.56' x 45.34' x 5.35'

5,628 Chambers  
 4,771.6 cy Field  
 1,194.1 cy Stone



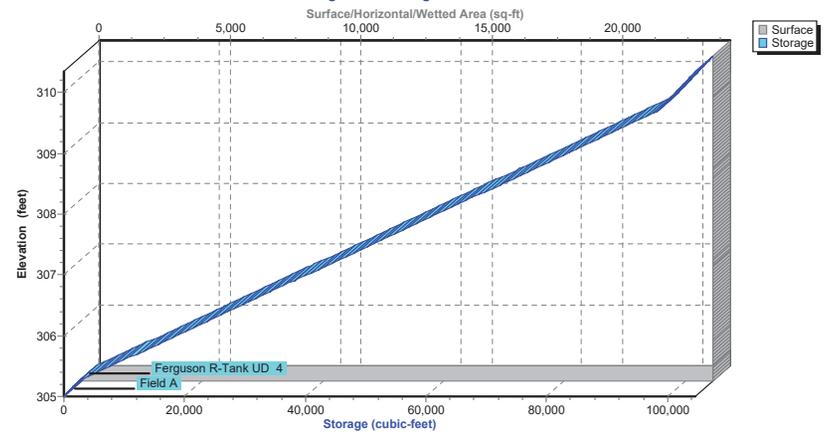
Pond BA-ER: UG INF BASIN E (RTANK)

Hydrograph



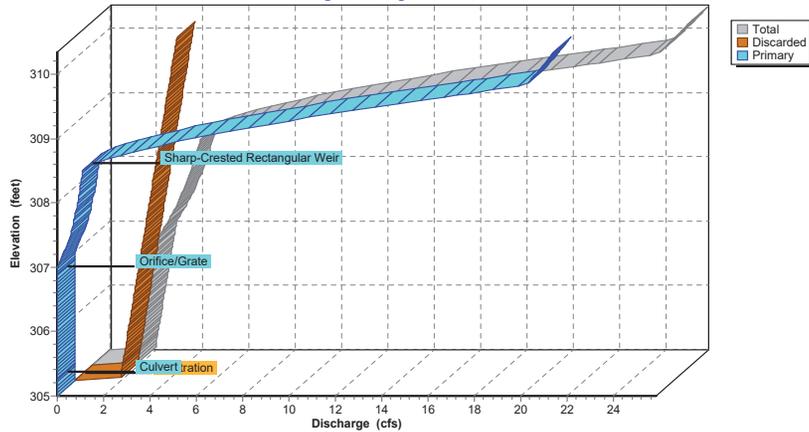
Pond BA-ER: UG INF BASIN E (RTANK)

Stage-Area-Storage



Pond BA-ER: UG INF BASIN E (RTANK)

Stage-Discharge



**2024-01-15 Proposed Conditions**

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**Hydrograph for Pond BA-ER: UG INF BASIN E (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	305.00	0.00	0.00	0.00
2.50	0.59	149	305.02	0.57	0.57	0.00
5.00	1.14	294	305.03	1.13	1.13	0.00
7.50	1.75	449	305.05	1.72	1.72	0.00
10.00	<b>3.14</b>	3,436	305.30	2.09	2.09	0.00
12.50	<b>13.99</b>	<b>86,175</b>	<b>309.12</b>	<b>11.39</b>	<b>3.85</b>	<b>7.54</b>
15.00	2.58	<b>68,176</b>	<b>308.29</b>	<b>4.47</b>	<b>3.46</b>	<b>1.01</b>
17.50	1.72	50,289	307.46	3.61	3.08	0.53
20.00	1.34	35,968	306.80	2.78	2.78	0.00
22.50	1.12	23,154	306.21	2.51	2.51	0.00
25.00	0.00	7,924	305.50	2.18	2.18	0.00
27.50	0.00	0	305.00	0.00	0.00	0.00
30.00	0.00	0	305.00	0.00	0.00	0.00
32.50	0.00	0	305.00	0.00	0.00	0.00
35.00	0.00	0	305.00	0.00	0.00	0.00
37.50	0.00	0	305.00	0.00	0.00	0.00
40.00	0.00	0	305.00	0.00	0.00	0.00
42.50	0.00	0	305.00	0.00	0.00	0.00
45.00	0.00	0	305.00	0.00	0.00	0.00
47.50	0.00	0	305.00	0.00	0.00	0.00
50.00	0.00	0	305.00	0.00	0.00	0.00
52.50	0.00	0	305.00	0.00	0.00	0.00
55.00	0.00	0	305.00	0.00	0.00	0.00
57.50	0.00	0	305.00	0.00	0.00	0.00
60.00	0.00	0	305.00	0.00	0.00	0.00
62.50	0.00	0	305.00	0.00	0.00	0.00
65.00	0.00	0	305.00	0.00	0.00	0.00
67.50	0.00	0	305.00	0.00	0.00	0.00
70.00	0.00	0	305.00	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-ER: UG INF BASIN E (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
305.00	0.00	0.00	0.00	310.20	25.43	4.34	21.09
305.10	2.00	2.00	0.00	310.30	<b>25.71</b>	<b>4.39</b>	<b>21.32</b>
305.20	2.04	2.04	0.00				
305.30	2.09	2.09	0.00				
305.40	2.14	2.14	0.00				
305.50	2.18	2.18	0.00				
305.60	2.23	2.23	0.00				
305.70	2.27	2.27	0.00				
305.80	2.32	2.32	0.00				
305.90	2.37	2.37	0.00				
306.00	2.41	2.41	0.00				
306.10	2.46	2.46	0.00				
306.20	2.50	2.50	0.00				
306.30	2.55	2.55	0.00				
306.40	2.60	2.60	0.00				
306.50	2.64	2.64	0.00				
306.60	2.69	2.69	0.00				
306.70	2.73	2.73	0.00				
306.80	2.78	2.78	0.00				
306.90	2.83	2.83	0.00				
307.00	2.90	2.87	0.03				
307.10	3.03	2.92	0.11				
307.20	3.19	2.96	0.23				
307.30	3.37	3.01	0.36				
307.40	3.53	3.06	0.47				
307.50	3.66	3.10	0.56				
307.60	3.78	3.15	0.63				
307.70	3.89	3.19	0.70				
307.80	4.00	3.24	0.76				
307.90	4.10	3.28	0.82				
308.00	4.20	3.33	0.87				
308.10	4.30	3.38	0.92				
308.20	4.39	3.42	0.97				
308.30	4.48	3.47	1.01				
308.40	4.57	3.51	1.06				
308.50	4.66	3.56	1.10				
308.60	5.16	3.61	1.55				
308.70	5.99	3.65	2.34				
308.80	7.03	3.70	3.33				
308.90	8.24	3.74	4.49				
309.00	9.59	3.79	5.79				
309.10	11.05	3.84	7.22				
309.20	12.63	3.88	8.75				
309.30	14.30	3.93	10.37				
309.40	16.06	3.97	12.08				
309.50	17.90	4.02	13.88				
309.60	19.81	4.07	15.74				
309.70	21.78	4.11	17.67				
309.80	23.82	4.16	19.67				
309.90	24.59	4.20	20.38				
310.00	24.87	4.25	20.62				
310.10	25.15	4.30	20.86				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-ER: UG INF BASIN E (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
305.00	24,100	0	310.20	24,100	103,254
305.10	24,100	964	310.30	24,100	104,218
305.20	24,100	1,928			
305.30	24,100	3,492			
305.40	24,100	5,655			
305.50	24,100	7,819			
305.60	24,100	9,982			
305.70	24,100	12,146			
305.80	24,100	14,309			
305.90	24,100	16,473			
306.00	24,100	18,636			
306.10	24,100	20,800			
306.20	24,100	22,963			
306.30	24,100	25,127			
306.40	24,100	27,290			
306.50	24,100	29,453			
306.60	24,100	31,617			
306.70	24,100	33,780			
306.80	24,100	35,944			
306.90	24,100	38,107			
307.00	24,100	40,271			
307.10	24,100	42,434			
307.20	24,100	44,598			
307.30	24,100	46,761			
307.40	24,100	48,925			
307.50	24,100	51,088			
307.60	24,100	53,252			
307.70	24,100	55,415			
307.80	24,100	57,579			
307.90	24,100	59,742			
308.00	24,100	61,906			
308.10	24,100	64,069			
308.20	24,100	66,233			
308.30	24,100	68,396			
308.40	24,100	70,559			
308.50	24,100	72,723			
308.60	24,100	74,886			
308.70	24,100	77,050			
308.80	24,100	79,213			
308.90	24,100	81,377			
309.00	24,100	83,540			
309.10	24,100	85,704			
309.20	24,100	87,867			
309.30	24,100	90,031			
309.40	24,100	92,194			
309.50	24,100	94,358			
309.60	24,100	96,521			
309.70	24,100	98,684			
309.80	24,100	99,398			
309.90	24,100	100,362			
310.00	24,100	101,326			
310.10	24,100	102,290			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-FR: UG INF BASIN F (RTANK)**

Inflow Area = 9.660 ac, 93.79% Impervious, Inflow Depth = 8.21" for 100-yr event  
 Inflow = 80.39 cfs @ 12.01 hrs, Volume= 6.608 af  
 Outflow = 12.03 cfs @ 12.56 hrs, Volume= 6.608 af, Atten= 85%, Lag= 33.4 min  
 Discarded = 10.14 cfs @ 12.57 hrs, Volume= 6.376 af  
 Primary = 2.02 cfs @ 12.30 hrs, Volume= 0.232 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.21' @ 12.56 hrs Surf.Area= 28,685 sf Storage= 72,941 cf

Plug-Flow detention time= 40.4 min calculated for 6.603 af (100% of inflow)  
 Center-of-Mass det. time= 40.3 min ( 795.9 - 755.6 )

Volume	Invert	Avail.Storage	Storage Description
#1A	306.25'	13,996 cf	<b>47.31'W x 606.36'L x 4.26'H Field A</b> 122,289 cf Overall - 87,298 cf Embedded = 34,991 cf x 40.0% Voids
#2A	306.50'	82,933 cf	<b>Ferguson R-Tank UD 3</b> x 6732 Inside #1 Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf 6732 Chambers in 22 Rows
		96,929 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	306.50'	<b>24.0" Round Culvert</b> L= 692.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 306.50' / 303.04' S= 0.0050 '/' Cc= 0.900 n= 0.120, Flow Area= 3.14 sf
#2	Discarded	306.25'	<b>9.750 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 301.00'
#3	Device 1	307.65'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	308.75'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=10.13 cfs @ 12.57 hrs HW=309.21' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 10.13 cfs)

**Primary OutFlow** Max=2.02 cfs @ 12.30 hrs HW=309.02' (Free Discharge)  
 ↳ **1=Culvert** (Barrel Controls 2.02 cfs @ 0.66 fps)  
 ↳ **3=Orifice/Grate** (Passes < 1.00 cfs potential flow)  
 ↳ **4=Sharp-Crested Rectangular Weir**(Passes < 1.85 cfs potential flow)

**2024-01-15 Proposed Conditions**

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**Pond BA-FR: UG INF BASIN F (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 3 (Ferguson R-Tank UD)**

Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf

Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf

306 Chambers/Row x 1.97' Long = 602.36' Row Length +24.0" End Stone x 2 = 606.36' Base Length

22 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 47.31' Base Width

3.0" Stone Base + 40.2" Chamber Height + 8.0" Stone Cover = 4.26' Field Height

6,732 Chambers x 12.3 cf = 82,932.6 cf Chamber Storage

6,732 Chambers x 13.0 cf = 87,297.5 cf Displacement

122,288.7 cf Field - 87,297.5 cf Chambers = 34,991.2 cf Stone x 40.0% Voids = 13,996.5 cf Stone Storage

Chamber Storage + Stone Storage = 96,929.1 cf = 2.225 af

Overall Storage Efficiency = 79.3%

Overall System Size = 606.36' x 47.31' x 4.26'

6,732 Chambers

4,529.2 cy Field

1,296.0 cy Stone



**2024-01-15 Proposed Conditions**

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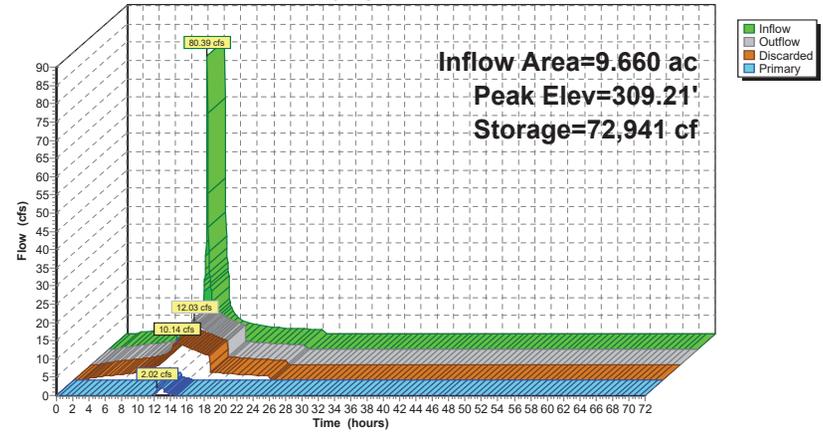
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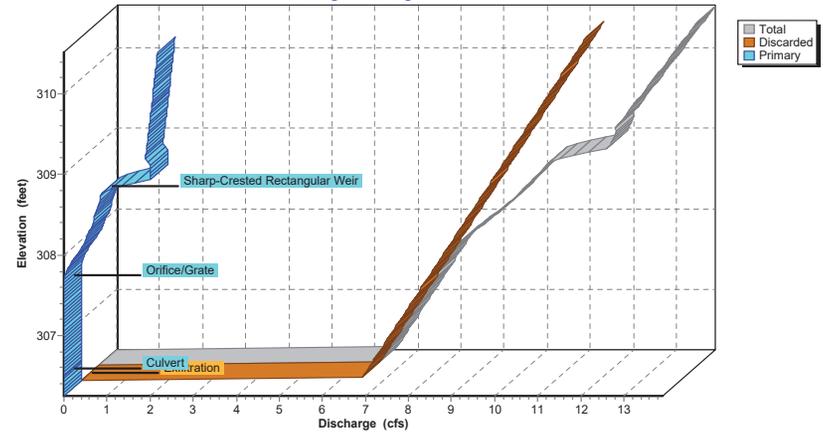
**Pond BA-FR: UG INF BASIN F (RTANK)**

Hydrograph

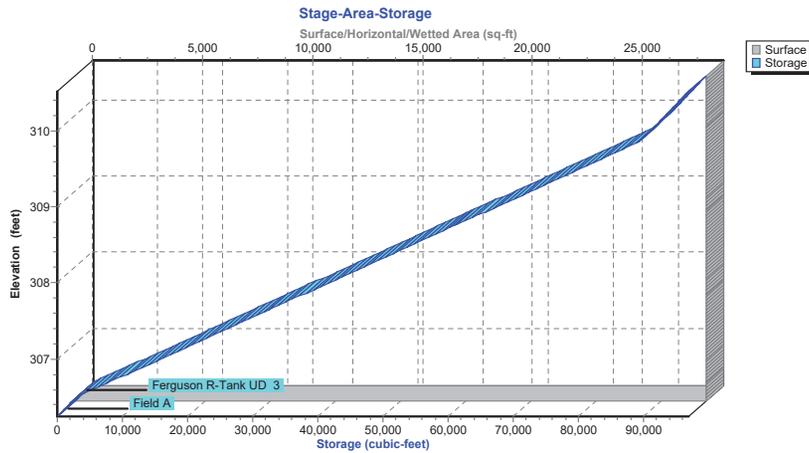


**Pond BA-FR: UG INF BASIN F (RTANK)**

Stage-Discharge



Pond BA-FR: UG INF BASIN F (RTANK)



Hydrograph for Pond BA-FR: UG INF BASIN F (RTANK)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	306.25	0.00	0.00	0.00
2.50	0.70	52	306.25	0.70	0.70	0.00
5.00	1.35	101	306.26	1.34	1.34	0.00
7.50	2.06	154	306.26	2.05	2.05	0.00
10.00	<b>3.72</b>	277	306.27	3.69	3.69	<b>0.00</b>
12.50	<b>16.08</b>	<b>72,466</b>	<b>309.20</b>	<b>12.00</b>	<b>10.05</b>	<b>1.95</b>
15.00	3.02	<b>28,586</b>	<b>307.50</b>	<b>8.01</b>	<b>8.01</b>	0.00
17.50	2.02	151	306.26	2.02	2.02	0.00
20.00	1.57	118	306.26	1.57	1.57	0.00
22.50	1.31	98	306.26	1.31	1.31	0.00
25.00	0.00	0	306.25	0.00	0.00	0.00
27.50	0.00	0	306.25	0.00	0.00	0.00
30.00	0.00	0	306.25	0.00	0.00	0.00
32.50	0.00	0	306.25	0.00	0.00	0.00
35.00	0.00	0	306.25	0.00	0.00	0.00
37.50	0.00	0	306.25	0.00	0.00	0.00
40.00	0.00	0	306.25	0.00	0.00	0.00
42.50	0.00	0	306.25	0.00	0.00	0.00
45.00	0.00	0	306.25	0.00	0.00	0.00
47.50	0.00	0	306.25	0.00	0.00	0.00
50.00	0.00	0	306.25	0.00	0.00	0.00
52.50	0.00	0	306.25	0.00	0.00	0.00
55.00	0.00	0	306.25	0.00	0.00	0.00
57.50	0.00	0	306.25	0.00	0.00	0.00
60.00	0.00	0	306.25	0.00	0.00	0.00
62.50	0.00	0	306.25	0.00	0.00	0.00
65.00	0.00	0	306.25	0.00	0.00	0.00
67.50	0.00	0	306.25	0.00	0.00	0.00
70.00	0.00	0	306.25	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-FR: UG INF BASIN F (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
306.25	0.00	0.00	0.00	308.85	11.01	9.68	1.33
306.30	6.54	6.54	0.00	308.90	11.44	9.74	1.70
306.35	6.60	6.60	0.00	308.95	11.81	9.80	2.01
306.40	6.66	6.66	0.00	309.00	11.88	9.87	2.02
306.45	6.72	6.72	0.00	309.05	11.94	9.93	2.02
306.50	6.78	6.78	0.00	309.10	11.99	9.99	2.00
306.55	6.84	6.84	0.00	309.15	12.00	10.05	1.95
306.60	6.91	6.91	0.00	309.20	12.01	10.11	1.89
306.65	6.97	6.97	0.00	309.25	12.08	10.17	1.91
306.70	7.03	7.03	0.00	309.30	12.15	10.24	1.92
306.75	7.09	7.09	0.00	309.35	12.23	10.30	1.93
306.80	7.15	7.15	0.00	309.40	12.30	10.36	1.94
306.85	7.21	7.21	0.00	309.45	12.37	10.42	1.95
306.90	7.28	7.28	0.00	309.50	12.44	10.48	1.96
306.95	7.34	7.34	0.00	309.55	12.52	10.54	1.97
307.00	7.40	7.40	0.00	309.60	12.59	10.61	1.98
307.05	7.46	7.46	0.00	309.65	12.66	10.67	1.99
307.10	7.52	7.52	0.00	309.70	12.73	10.73	2.01
307.15	7.58	7.58	0.00	309.75	12.81	10.79	2.02
307.20	7.65	7.65	0.00	309.80	12.88	10.85	2.03
307.25	7.71	7.71	0.00	309.85	12.95	10.91	2.04
307.30	7.77	7.77	0.00	309.90	13.02	10.98	2.05
307.35	7.83	7.83	0.00	309.95	13.10	11.04	2.06
307.40	7.89	7.89	0.00	310.00	13.17	11.10	2.07
307.45	7.95	7.95	0.00	310.05	13.24	11.16	2.08
307.50	8.02	8.02	0.00	310.10	13.31	11.22	2.09
307.55	8.08	8.08	0.00	310.15	13.38	11.28	2.10
307.60	8.14	8.14	0.00	310.20	13.46	11.35	2.11
307.65	8.20	8.20	0.00	310.25	13.53	11.41	2.12
307.70	8.27	8.26	0.01	310.30	13.60	11.47	2.13
307.75	8.35	8.32	0.03	310.35	13.67	11.53	2.14
307.80	8.45	8.39	0.07	310.40	13.74	11.59	2.15
307.85	8.56	8.45	0.11	310.45	13.81	11.65	2.16
307.90	8.68	8.51	0.17	310.50	<b>13.89</b>	<b>11.72</b>	<b>2.17</b>
307.95	8.80	8.57	0.23				
308.00	8.93	8.63	0.30				
308.05	9.06	8.69	0.36				
308.10	9.18	8.76	0.43				
308.15	9.29	8.82	0.47				
308.20	9.40	8.88	0.52				
308.25	9.50	8.94	0.56				
308.30	9.60	9.00	0.60				
308.35	9.70	9.06	0.63				
308.40	9.79	9.13	0.67				
308.45	9.89	9.19	0.70				
308.50	9.98	9.25	0.73				
308.55	10.07	9.31	0.76				
308.60	10.16	9.37	0.79				
308.65	10.25	9.43	0.82				
308.70	10.34	9.50	0.85				
308.75	10.43	9.56	0.87				
308.80	10.66	9.62	1.04				

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**Stage-Area-Storage for Pond BA-FR: UG INF BASIN F (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
306.25	<b>28,685</b>	0	308.85	28,685	63,550
306.30	28,685	574	308.90	28,685	64,841
306.35	28,685	1,147	308.95	28,685	66,132
306.40	28,685	1,721	309.00	28,685	67,423
306.45	28,685	2,295	309.05	28,685	68,714
306.50	28,685	2,869	309.10	28,685	70,005
306.55	28,685	4,160	309.15	28,685	71,296
306.60	28,685	5,451	309.20	28,685	72,587
306.65	28,685	6,742	309.25	28,685	73,878
306.70	28,685	8,033	309.30	28,685	75,169
306.75	28,685	9,324	309.35	28,685	76,460
306.80	28,685	10,615	309.40	28,685	77,751
306.85	28,685	11,906	309.45	28,685	79,043
306.90	28,685	13,197	309.50	28,685	80,334
306.95	28,685	14,488	309.55	28,685	81,625
307.00	28,685	15,779	309.60	28,685	82,916
307.05	28,685	17,070	309.65	28,685	84,207
307.10	28,685	18,362	309.70	28,685	85,498
307.15	28,685	19,653	309.75	28,685	86,789
307.20	28,685	20,944	309.80	28,685	88,080
307.25	28,685	22,235	309.85	28,685	89,320
307.30	28,685	23,526	309.90	28,685	89,894
307.35	28,685	24,817	309.95	28,685	90,468
307.40	28,685	26,108	310.00	28,685	91,041
307.45	28,685	27,399	310.05	28,685	91,615
307.50	28,685	28,690	310.10	28,685	92,189
307.55	28,685	29,981	310.15	28,685	92,763
307.60	28,685	31,272	310.20	28,685	93,336
307.65	28,685	32,563	310.25	28,685	93,910
307.70	28,685	33,855	310.30	28,685	94,484
307.75	28,685	35,146	310.35	28,685	95,057
307.80	28,685	36,437	310.40	28,685	95,631
307.85	28,685	37,728	310.45	28,685	96,205
307.90	28,685	39,019	310.50	28,685	96,779
307.95	28,685	40,310			
308.00	28,685	41,601			
308.05	28,685	42,892			
308.10	28,685	44,183			
308.15	28,685	45,474			
308.20	28,685	46,765			
308.25	28,685	48,056			
308.30	28,685	49,348			
308.35	28,685	50,639			
308.40	28,685	51,930			
308.45	28,685	53,221			
308.50	28,685	54,512			
308.55	28,685	55,803			
308.60	28,685	57,094			
308.65	28,685	58,385			
308.70	28,685	59,676			
308.75	28,685	60,967			
308.80	28,685	62,258			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-G: AG INF BASIN G**

Inflow Area = 0.700 ac, 60.00% Impervious, Inflow Depth = 5.00" for 100-yr event  
 Inflow = 4.93 cfs @ 11.99 hrs, Volume= 0.291 af  
 Outflow = 0.63 cfs @ 12.57 hrs, Volume= 0.291 af, Atten= 87%, Lag= 34.6 min  
 Discarded = 0.44 cfs @ 12.57 hrs, Volume= 0.271 af  
 Primary = 0.19 cfs @ 12.57 hrs, Volume= 0.021 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 310.17' @ 12.57 hrs Surf.Area= 6,708 sf Storage= 4,309 cf

Plug-Flow detention time= 71.8 min calculated for 0.291 af (100% of inflow)  
 Center-of-Mass det. time= 71.8 min ( 932.5 - 860.7 )

Volume #1	Invert 309.50'	Avail.Storage 18,077 cf	Storage Description Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.50	6,110	0	0
310.00	6,548	3,165	3,165
311.00	7,475	7,012	10,176
312.00	8,326	7,901	18,077

Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	<b>18.0" Round Culvert</b> L= 61.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 308.50' / 308.19' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	309.50'	<b>2.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 304.60'
#3	Device 1	309.90'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	311.00'	<b>48.0" x 48.0" Horiz. Top Grate</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=0.44 cfs @ 12.57 hrs HW=310.17' (Free Discharge)  
 ↳2=Exfiltration ( Controls 0.44 cfs)

**Primary OutFlow** Max=0.19 cfs @ 12.57 hrs HW=310.17' (Free Discharge)  
 ↳1=Culvert (Passes 0.19 cfs of 7.76 cfs potential flow)  
 ↳3=Orifice/Grate (Orifice Controls 0.19 cfs @ 1.78 fps)  
 ↳4=Top Grate ( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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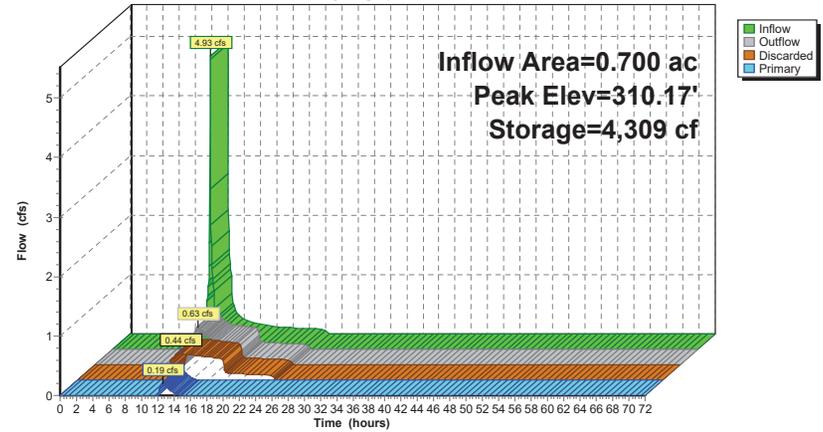
NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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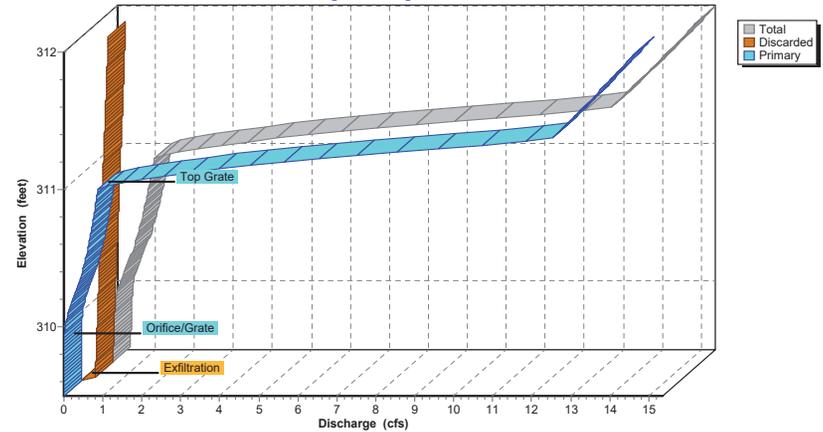
**Pond BA-G: AG INF BASIN G**

Hydrograph

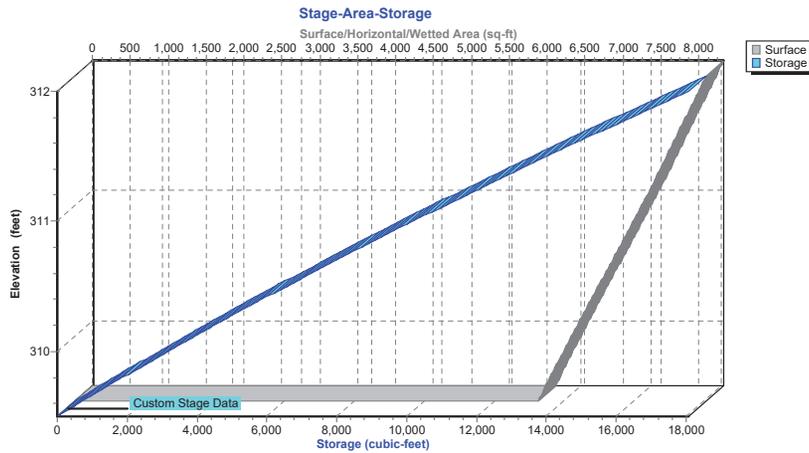


**Pond BA-G: AG INF BASIN G**

Stage-Discharge



**Pond BA-G: AG INF BASIN G**



**Hydrograph for Pond BA-G: AG INF BASIN G**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	309.50	0.00	0.00	0.00
2.50	0.00	0	309.50	0.00	0.00	0.00
5.00	0.00	0	309.50	0.00	0.00	0.00
7.50	0.00	0	309.50	0.00	0.00	0.00
10.00	<b>0.00</b>	0	309.50	0.00	0.00	0.00
12.50	<b>0.93</b>	<b>4,274</b>	<b>310.17</b>	<b>0.63</b>	<b>0.44</b>	<b>0.19</b>
15.00	0.19	<b>2,548</b>	<b>309.91</b>	<b>0.40</b>	<b>0.40</b>	<b>0.00</b>
17.50	0.13	496	309.58	0.36	0.36	0.00
20.00	0.10	44	309.51	0.10	0.10	0.00
22.50	0.09	37	309.51	0.09	0.09	0.00
25.00	0.00	0	309.50	0.00	0.00	0.00
27.50	0.00	0	309.50	0.00	0.00	0.00
30.00	0.00	0	309.50	0.00	0.00	0.00
32.50	0.00	0	309.50	0.00	0.00	0.00
35.00	0.00	0	309.50	0.00	0.00	0.00
37.50	0.00	0	309.50	0.00	0.00	0.00
40.00	0.00	0	309.50	0.00	0.00	0.00
42.50	0.00	0	309.50	0.00	0.00	0.00
45.00	0.00	0	309.50	0.00	0.00	0.00
47.50	0.00	0	309.50	0.00	0.00	0.00
50.00	0.00	0	309.50	0.00	0.00	0.00
52.50	0.00	0	309.50	0.00	0.00	0.00
55.00	0.00	0	309.50	0.00	0.00	0.00
57.50	0.00	0	309.50	0.00	0.00	0.00
60.00	0.00	0	309.50	0.00	0.00	0.00
62.50	0.00	0	309.50	0.00	0.00	0.00
65.00	0.00	0	309.50	0.00	0.00	0.00
67.50	0.00	0	309.50	0.00	0.00	0.00
70.00	0.00	0	309.50	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-G: AG INF BASIN G**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
309.50	0.00	0.00	0.00
309.55	0.36	0.36	0.00
309.60	0.37	0.37	0.00
309.65	0.37	0.37	0.00
309.70	0.38	0.38	0.00
309.75	0.38	0.38	0.00
309.80	0.39	0.39	0.00
309.85	0.40	0.40	0.00
309.90	0.40	0.40	0.00
309.95	0.42	0.41	0.01
310.00	0.45	0.42	0.03
310.05	0.49	0.42	0.07
310.10	0.54	0.43	0.11
310.15	0.60	0.44	0.17
310.20	0.67	0.44	0.23
310.25	0.74	0.45	0.30
310.30	0.82	0.46	0.36
310.35	0.89	0.46	0.43
310.40	0.94	0.47	0.47
310.45	0.99	0.48	0.52
310.50	1.04	0.48	0.56
310.55	1.09	0.49	0.60
310.60	1.13	0.50	0.63
310.65	1.17	0.50	0.67
310.70	1.21	0.51	0.70
310.75	1.25	0.52	0.73
310.80	1.29	0.52	0.76
310.85	1.32	0.53	0.79
310.90	1.36	0.54	0.82
310.95	1.39	0.54	0.85
311.00	1.42	0.55	0.87
311.05	2.04	0.56	1.48
311.10	3.14	0.57	2.58
311.15	4.56	0.57	3.98
311.20	6.23	0.58	5.65
311.25	8.12	0.59	7.53
311.30	10.20	0.59	9.61
311.35	12.47	0.60	11.87
311.40	13.23	0.61	12.62
311.45	13.42	0.61	12.81
311.50	13.61	0.62	12.99
311.55	13.79	0.63	13.16
311.60	13.97	0.63	13.34
311.65	14.16	0.64	13.51
311.70	14.33	0.65	13.69
311.75	14.51	0.66	13.85
311.80	14.68	0.66	14.02
311.85	14.86	0.67	14.19
311.90	15.03	0.68	14.35
311.95	15.19	0.68	14.51
312.00	<b>15.36</b>	<b>0.69</b>	<b>14.67</b>

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-G: AG INF BASIN G**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.50	6,110	0
309.55	6,154	307
309.60	6,198	615
309.65	6,241	926
309.70	6,285	1,240
309.75	6,329	1,555
309.80	6,373	1,872
309.85	6,417	2,192
309.90	6,460	2,514
309.95	6,504	2,838
310.00	6,548	3,165
310.05	6,594	3,493
310.10	6,641	3,824
310.15	6,687	4,157
310.20	6,733	4,493
310.25	6,780	4,830
310.30	6,826	5,171
310.35	6,872	5,513
310.40	6,919	5,858
310.45	6,965	6,205
310.50	7,012	6,554
310.55	7,058	6,906
310.60	7,104	7,260
310.65	7,151	7,617
310.70	7,197	7,975
310.75	7,243	8,336
310.80	7,290	8,700
310.85	7,336	9,065
310.90	7,382	9,433
310.95	7,429	9,803
311.00	7,475	10,176
311.05	7,518	10,551
311.10	7,560	10,928
311.15	7,603	11,307
311.20	7,645	11,688
311.25	7,688	12,071
311.30	7,730	12,457
311.35	7,773	12,844
311.40	7,815	13,234
311.45	7,858	13,626
311.50	7,901	14,020
311.55	7,943	14,416
311.60	7,986	14,814
311.65	8,028	15,215
311.70	8,071	15,617
311.75	8,113	16,022
311.80	8,156	16,428
311.85	8,198	16,837
311.90	8,241	17,248
311.95	8,283	17,661
312.00	<b>8,326</b>	<b>18,077</b>

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-HR: UG INF BASIN H (RTANK)**

Inflow Area = 1.430 ac, 98.60% Impervious, Inflow Depth = 8.45" for 100-yr event  
 Inflow = 13.12 cfs @ 11.97 hrs, Volume= 1.007 af  
 Outflow = 4.38 cfs @ 12.15 hrs, Volume= 1.007 af, Atten= 67%, Lag= 10.6 min  
 Discarded = 0.68 cfs @ 12.15 hrs, Volume= 0.764 af  
 Primary = 3.70 cfs @ 12.15 hrs, Volume= 0.243 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 311.13' @ 12.15 hrs Surf.Area= 3,728 sf Storage= 12,014 cf

Plug-Flow detention time= 97.0 min calculated for 1.007 af (100% of inflow)  
 Center-of-Mass det. time= 97.0 min ( 839.1 - 742.1 )

Volume	Invert	Avail.Storage	Storage Description
#1A	307.30'	2,288 cf	<b>39.43'W x 94.55'L x 5.35'H Field A</b> 19,932 cf Overall - 14,211 cf Embedded = 5,721 cf x 40.0% Voids
#2A	307.55'	13,500 cf	<b>Ferguson R-Tank UD 4 x 828</b> Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 828 Chambers in 18 Rows
		15,789 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	307.55'	<b>18.0" Round Culvert</b> L= 45.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 307.55' / 306.65' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	307.30'	<b>4.000 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 303.30'
#3	Device 1	309.60'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	310.85'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.68 cfs @ 12.15 hrs HW=311.12' (Free Discharge)  
 ↳2=Exfiltration ( Controls 0.68 cfs)

**Primary OutFlow** Max=3.68 cfs @ 12.15 hrs HW=311.12' (Free Discharge)  
 ↳1=Culvert (Passes 3.68 cfs of 17.74 cfs potential flow)  
 ↳3=Orifice/Grate (Orifice Controls 1.83 cfs @ 5.25 fps)  
 ↳4=Sharp-Crested Rectangular Weir(Weir Controls 1.85 cfs @ 1.71 fps)

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Pond BA-HR: UG INF BASIN H (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf  
 Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

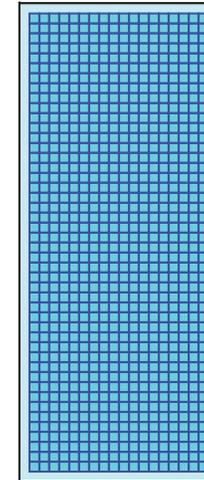
46 Chambers/Row x 1.97' Long = 90.55' Row Length +24.0" End Stone x 2 = 94.55' Base Length  
 18 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 39.43' Base Width  
 3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

828 Chambers x 16.3 cf = 13,500.4 cf Chamber Storage  
 828 Chambers x 17.2 cf = 14,210.9 cf Displacement

19,931.5 cf of Field - 14,210.9 cf of Chambers = 5,720.6 cf Stone x 40.0% Voids = 2,288.2 cf Stone Storage

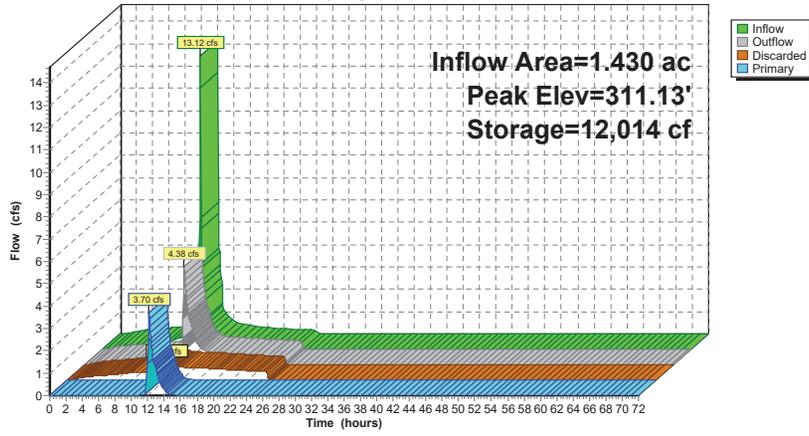
Chamber Storage + Stone Storage = 15,788.6 cf = 0.362 af  
 Overall Storage Efficiency = 79.2%  
 Overall System Size = 94.55' x 39.43' x 5.35'

828 Chambers  
 738.2 cy Field  
 211.9 cy Stone



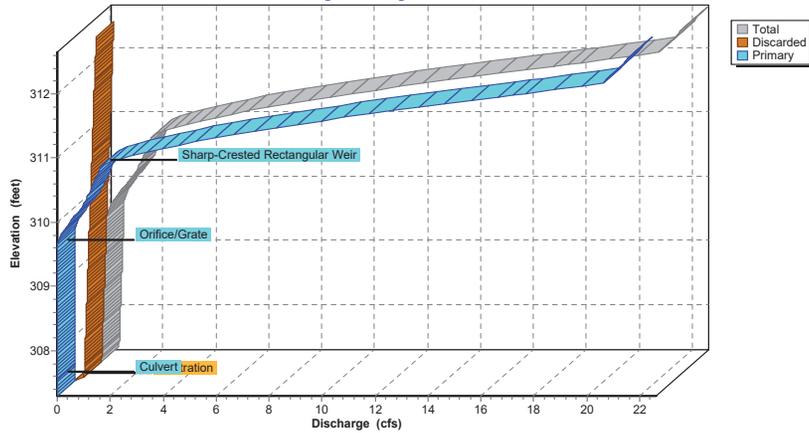
Pond BA-HR: UG INF BASIN H (RTANK)

Hydrograph



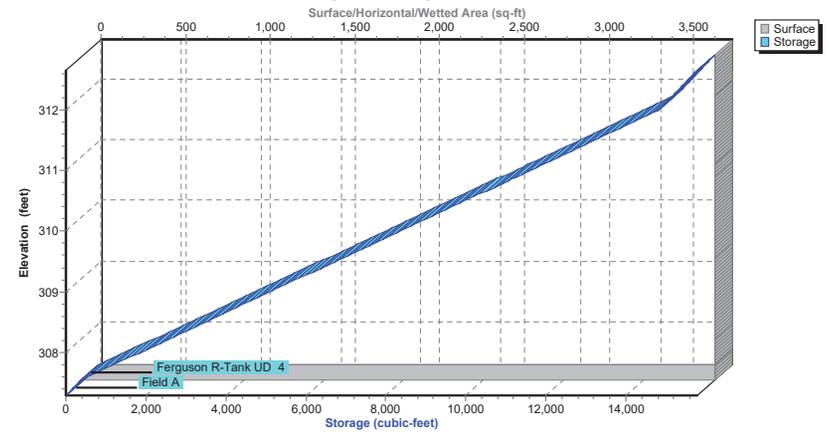
Pond BA-HR: UG INF BASIN H (RTANK)

Stage-Discharge



Pond BA-HR: UG INF BASIN H (RTANK)

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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**Hydrograph for Pond BA-HR: UG INF BASIN H (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	307.30	0.00	0.00	0.00
2.50	0.15	33	307.32	0.15	0.15	0.00
5.00	0.23	52	307.33	0.23	0.23	0.00
7.50	0.33	74	307.35	0.32	0.32	0.00
10.00	<b>0.57</b>	<b>691</b>	<b>307.65</b>	<b>0.38</b>	<b>0.38</b>	<b>0.00</b>
12.50	<b>2.21</b>	<b>11,387</b>	<b>310.93</b>	<b>2.65</b>	<b>0.66</b>	<b>1.99</b>
15.00	0.45	7,344	309.69	0.58	0.55	0.03
17.50	0.30	5,761	309.20	0.51	0.51	0.00
20.00	0.23	3,765	308.59	0.46	0.46	0.00
22.50	0.19	1,797	307.99	0.40	0.40	0.00
25.00	0.00	0	307.30	0.00	0.00	0.00
27.50	0.00	0	307.30	0.00	0.00	0.00
30.00	0.00	0	307.30	0.00	0.00	0.00
32.50	0.00	0	307.30	0.00	0.00	0.00
35.00	0.00	0	307.30	0.00	0.00	0.00
37.50	0.00	0	307.30	0.00	0.00	0.00
40.00	0.00	0	307.30	0.00	0.00	0.00
42.50	0.00	0	307.30	0.00	0.00	0.00
45.00	0.00	0	307.30	0.00	0.00	0.00
47.50	0.00	0	307.30	0.00	0.00	0.00
50.00	0.00	0	307.30	0.00	0.00	0.00
52.50	0.00	0	307.30	0.00	0.00	0.00
55.00	0.00	0	307.30	0.00	0.00	0.00
57.50	0.00	0	307.30	0.00	0.00	0.00
60.00	0.00	0	307.30	0.00	0.00	0.00
62.50	0.00	0	307.30	0.00	0.00	0.00
65.00	0.00	0	307.30	0.00	0.00	0.00
67.50	0.00	0	307.30	0.00	0.00	0.00
70.00	0.00	0	307.30	0.00	0.00	0.00

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**Stage-Discharge for Pond BA-HR: UG INF BASIN H (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
307.30	0.00	0.00	0.00	312.50	22.24	0.79	21.45
307.40	0.35	0.35	0.00	312.60	<b>22.50</b>	<b>0.80</b>	<b>21.70</b>
307.50	0.36	0.36	0.00				
307.60	0.37	0.37	0.00				
307.70	0.38	0.38	0.00				
307.80	0.39	0.39	0.00				
307.90	0.40	0.40	0.00				
308.00	0.41	0.41	0.00				
308.10	0.41	0.41	0.00				
308.20	0.42	0.42	0.00				
308.30	0.43	0.43	0.00				
308.40	0.44	0.44	0.00				
308.50	0.45	0.45	0.00				
308.60	0.46	0.46	0.00				
308.70	0.47	0.47	0.00				
308.80	0.47	0.47	0.00				
308.90	0.48	0.48	0.00				
309.00	0.49	0.49	0.00				
309.10	0.50	0.50	0.00				
309.20	0.51	0.51	0.00				
309.30	0.52	0.52	0.00				
309.40	0.53	0.53	0.00				
309.50	0.54	0.54	0.00				
309.60	0.54	0.54	0.00				
309.70	0.59	0.55	0.04				
309.80	0.70	0.56	0.13				
309.90	0.85	0.57	0.28				
310.00	1.05	0.58	0.47				
310.10	1.26	0.59	0.68				
310.20	1.47	0.60	0.87				
310.30	1.62	0.60	1.02				
310.40	1.76	0.61	1.15				
310.50	1.89	0.62	1.27				
310.60	2.00	0.63	1.37				
310.70	2.11	0.64	1.47				
310.80	2.21	0.65	1.56				
310.90	2.45	0.66	1.80				
311.00	3.15	0.66	2.49				
311.10	4.10	0.67	3.43				
311.20	5.23	0.68	4.55				
311.30	6.51	0.69	5.82				
311.40	7.92	0.70	7.22				
311.50	9.44	0.71	8.74				
311.60	11.06	0.72	10.35				
311.70	12.77	0.72	12.05				
311.80	14.57	0.73	13.83				
311.90	16.43	0.74	15.69				
312.00	18.37	0.75	17.62				
312.10	20.37	0.76	19.61				
312.20	21.47	0.77	20.70				
312.30	21.73	0.78	20.95				
312.40	21.99	0.79	21.20				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Stage-Area-Storage for Pond BA-HR: UG INF BASIN H (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
307.30	3,728	0	312.50	3,728	15,571
307.40	3,728	149	312.60	3,728	15,720
307.50	3,728	298			
307.60	3,728	536			
307.70	3,728	861			
307.80	3,728	1,187			
307.90	3,728	1,512			
308.00	3,728	1,838			
308.10	3,728	2,164			
308.20	3,728	2,489			
308.30	3,728	2,815			
308.40	3,728	3,140			
308.50	3,728	3,466			
308.60	3,728	3,792			
308.70	3,728	4,117			
308.80	3,728	4,443			
308.90	3,728	4,769			
309.00	3,728	5,094			
309.10	3,728	5,420			
309.20	3,728	5,745			
309.30	3,728	6,071			
309.40	3,728	6,397			
309.50	3,728	6,722			
309.60	3,728	7,048			
309.70	3,728	7,373			
309.80	3,728	7,699			
309.90	3,728	8,025			
310.00	3,728	8,350			
310.10	3,728	8,676			
310.20	3,728	9,001			
310.30	3,728	9,327			
310.40	3,728	9,653			
310.50	3,728	9,978			
310.60	3,728	10,304			
310.70	3,728	10,629			
310.80	3,728	10,955			
310.90	3,728	11,281			
311.00	3,728	11,606			
311.10	3,728	11,932			
311.20	3,728	12,257			
311.30	3,728	12,583			
311.40	3,728	12,909			
311.50	3,728	13,234			
311.60	3,728	13,560			
311.70	3,728	13,885			
311.80	3,728	14,211			
311.90	3,728	14,537			
312.00	3,728	14,862			
312.10	3,728	14,975			
312.20	3,728	15,124			
312.30	3,728	15,273			
312.40	3,728	15,422			

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Pond BA-KR: UG INF BASIN K (RTANK)**

Inflow Area = 3.850 ac, 100.00% Impervious, Inflow Depth = 8.57" for 100-yr event  
 Inflow = 34.58 cfs @ 11.98 hrs, Volume= 2.749 af  
 Outflow = 6.60 cfs @ 12.45 hrs, Volume= 2.749 af, Atten= 81%, Lag= 28.2 min  
 Discarded = 2.61 cfs @ 12.45 hrs, Volume= 2.435 af  
 Primary = 3.99 cfs @ 12.45 hrs, Volume= 0.315 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 311.41' @ 12.45 hrs Surf.Area= 10,650 sf Storage= 34,482 cf

Plug-Flow detention time= 80.2 min calculated for 2.749 af (100% of inflow)  
 Center-of-Mass det. time= 80.2 min ( 816.7 - 736.4 )

Volume	Invert	Avail.Storage	Storage Description
#1A	307.70'	5,356 cf	<b>88.65'W x 120.14'L x 5.35'H Field A</b> 56,933 cf Overall - 43,542 cf Embedded = 13,391 cf x 40.0% Voids
#2A	307.95'	41,365 cf	<b>Ferguson R-Tank UD 4 x 2537</b> Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 2537 Chambers in 43 Rows
		46,721 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	307.95'	<b>18.0" Round Culvert</b> L= 30.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 307.95' / 307.65' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	307.70'	<b>5.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 303.70'
#3	Device 1	309.85'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	311.00'	<b>3.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=2.61 cfs @ 12.45 hrs HW=311.41' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 2.61 cfs)

**Primary OutFlow** Max=3.98 cfs @ 12.45 hrs HW=311.41' (Free Discharge)  
 ↳ **1=Culvert** (Passes 3.98 cfs of 16.50 cfs potential flow)  
 ↳ **3=Orifice/Grate** (Orifice Controls 1.08 cfs @ 5.50 fps)  
 ↳ **4=Sharp-Crested Rectangular Weir** (Weir Controls 2.90 cfs @ 2.09 fps)

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Pond BA-KR: UG INF BASIN K (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf

Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

59 Chambers/Row x 1.97' Long = 116.14' Row Length +24.0" End Stone x 2 = 120.14' Base Length

43 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 88.65' Base Width

3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

2,537 Chambers x 16.3 cf = 41,365.2 cf Chamber Storage

2,537 Chambers x 17.2 cf = 43,542.3 cf Displacement

56,933.0 cf Field - 43,542.3 cf Chambers = 13,390.7 cf Stone x 40.0% Voids = 5,356.3 cf Stone Storage

Chamber Storage + Stone Storage = 46,721.5 cf = 1.073 af

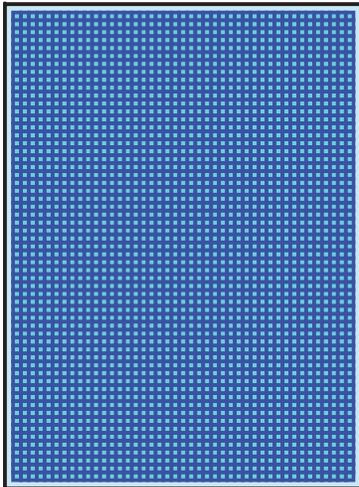
Overall Storage Efficiency = 82.1%

Overall System Size = 120.14' x 88.65' x 5.35'

2,537 Chambers

2,108.6 cy Field

496.0 cy Stone



**2024-01-15 Proposed Conditions**

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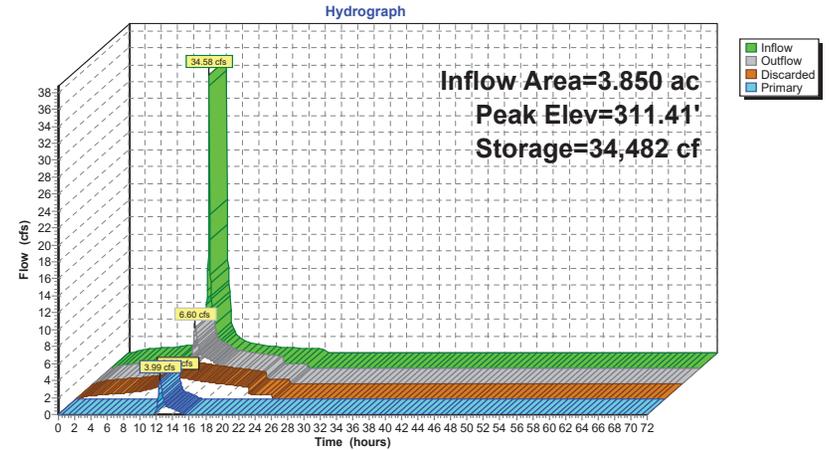
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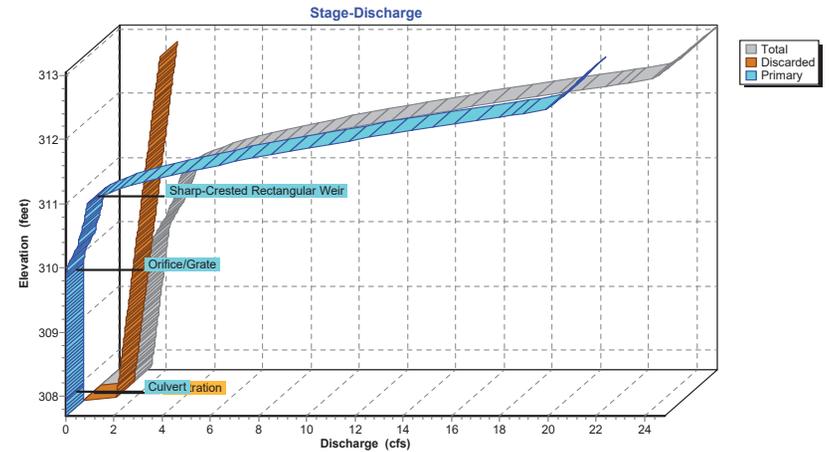
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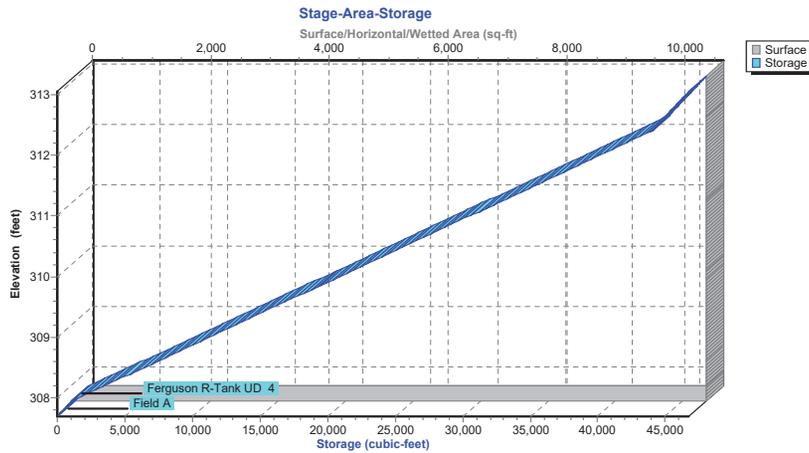
**Pond BA-KR: UG INF BASIN K (RTANK)**



**Pond BA-KR: UG INF BASIN K (RTANK)**



**Pond BA-KR: UG INF BASIN K (RTANK)**



**Hydrograph for Pond BA-KR: UG INF BASIN K (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	307.70	0.00	0.00	0.00
2.50	0.46	76	307.72	0.46	0.46	0.00
5.00	0.65	107	307.73	0.64	0.64	0.00
7.50	0.90	148	307.73	0.89	0.89	0.00
10.00	<b>1.55</b>	<b>350</b>	<b>307.78</b>	<b>1.38</b>	<b>1.38</b>	<b>0.00</b>
12.50	<b>6.22</b>	<b>34,444</b>	<b>311.40</b>	<b>6.55</b>	<b>2.61</b>	<b>3.94</b>
15.00	1.21	21,887	310.10	2.34	2.17	0.17
17.50	0.80	12,434	309.13	1.84	1.84	0.00
20.00	0.63	3,650	308.22	1.53	1.53	0.00
22.50	0.52	87	307.72	0.52	0.52	0.00
25.00	0.00	0	307.70	0.00	0.00	0.00
27.50	0.00	0	307.70	0.00	0.00	0.00
30.00	0.00	0	307.70	0.00	0.00	0.00
32.50	0.00	0	307.70	0.00	0.00	0.00
35.00	0.00	0	307.70	0.00	0.00	0.00
37.50	0.00	0	307.70	0.00	0.00	0.00
40.00	0.00	0	307.70	0.00	0.00	0.00
42.50	0.00	0	307.70	0.00	0.00	0.00
45.00	0.00	0	307.70	0.00	0.00	0.00
47.50	0.00	0	307.70	0.00	0.00	0.00
50.00	0.00	0	307.70	0.00	0.00	0.00
52.50	0.00	0	307.70	0.00	0.00	0.00
55.00	0.00	0	307.70	0.00	0.00	0.00
57.50	0.00	0	307.70	0.00	0.00	0.00
60.00	0.00	0	307.70	0.00	0.00	0.00
62.50	0.00	0	307.70	0.00	0.00	0.00
65.00	0.00	0	307.70	0.00	0.00	0.00
67.50	0.00	0	307.70	0.00	0.00	0.00
70.00	0.00	0	307.70	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-KR: UG INF BASIN K (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
307.70	0.00	0.00	0.00	312.90	24.39	3.12	21.27
307.80	1.39	1.39	0.00	313.00	<b>24.70</b>	<b>3.15</b>	<b>21.55</b>
307.90	1.42	1.42	0.00				
308.00	1.46	1.46	0.00				
308.10	1.49	1.49	0.00				
308.20	1.53	1.53	0.00				
308.30	1.56	1.56	0.00				
308.40	1.59	1.59	0.00				
308.50	1.63	1.63	0.00				
308.60	1.66	1.66	0.00				
308.70	1.69	1.69	0.00				
308.80	1.73	1.73	0.00				
308.90	1.76	1.76	0.00				
309.00	1.80	1.80	0.00				
309.10	1.83	1.83	0.00				
309.20	1.86	1.86	0.00				
309.30	1.90	1.90	0.00				
309.40	1.93	1.93	0.00				
309.50	1.97	1.97	0.00				
309.60	2.00	2.00	0.00				
309.70	2.03	2.03	0.00				
309.80	2.07	2.07	0.00				
309.90	2.11	2.10	0.01				
310.00	2.20	2.14	0.07				
310.10	2.34	2.17	0.17				
310.20	2.50	2.20	0.30				
310.30	2.66	2.24	0.43				
310.40	2.79	2.27	0.52				
310.50	2.90	2.31	0.60				
310.60	3.01	2.34	0.67				
310.70	3.11	2.37	0.73				
310.80	3.20	2.41	0.79				
310.90	3.29	2.44	0.85				
311.00	3.37	2.47	0.90				
311.10	3.81	2.51	1.31				
311.20	4.55	2.54	2.00				
311.30	5.46	2.58	2.88				
311.40	6.52	2.61	3.91				
311.50	7.69	2.64	5.05				
311.60	8.97	2.68	6.29				
311.70	10.34	2.71	7.63				
311.80	11.79	2.75	9.05				
311.90	13.32	2.78	10.54				
312.00	14.91	2.81	12.09				
312.10	16.56	2.85	13.71				
312.20	18.26	2.88	15.38				
312.30	20.02	2.92	17.11				
312.40	21.82	2.95	18.88				
312.50	23.08	2.98	20.10				
312.60	23.42	3.02	20.40				
312.70	23.74	3.05	20.69				
312.80	24.07	3.08	20.98				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Stage-Area-Storage for Pond BA-KR: UG INF BASIN K (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
307.70	<b>10,650</b>	0	312.90	10,650	46,100
307.80	10,650	426	313.00	10,650	<b>46,526</b>
307.90	10,650	852			
308.00	10,650	1,548			
308.10	10,650	2,515			
308.20	10,650	3,482			
308.30	10,650	4,448			
308.40	10,650	5,415			
308.50	10,650	6,382			
308.60	10,650	7,349			
308.70	10,650	8,315			
308.80	10,650	9,282			
308.90	10,650	10,249			
309.00	10,650	11,215			
309.10	10,650	12,182			
309.20	10,650	13,149			
309.30	10,650	14,115			
309.40	10,650	15,082			
309.50	10,650	16,049			
309.60	10,650	17,016			
309.70	10,650	17,982			
309.80	10,650	18,949			
309.90	10,650	19,916	309.85	19,432	
310.00	10,650	20,882			
310.10	10,650	21,849			
310.20	10,650	22,816			
310.30	10,650	23,782			
310.40	10,650	24,749			
310.50	10,650	25,716			
310.60	10,650	26,683			
310.70	10,650	27,649			
310.80	10,650	28,616			
310.90	10,650	29,583			
311.00	10,650	30,549			
311.10	10,650	31,516			
311.20	10,650	32,483			
311.30	10,650	33,449			
311.40	10,650	34,416			
311.50	10,650	35,383			
311.60	10,650	36,350			
311.70	10,650	37,316			
311.80	10,650	38,283			
311.90	10,650	39,250			
312.00	10,650	40,216			
312.10	10,650	41,183			
312.20	10,650	42,150			
312.30	10,650	43,116			
312.40	10,650	43,970			
312.50	10,650	44,396			
312.60	10,650	44,822			
312.70	10,650	45,248			
312.80	10,650	45,674			

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Summary for Pond BA-MR: UG INF BASIN M (RTANK)**

Inflow Area = 7.830 ac, 94.76% Impervious, Inflow Depth = 8.21" for 100-yr event  
 Inflow = 59.85 cfs @ 12.03 hrs, Volume= 5.356 af  
 Outflow = 12.73 cfs @ 12.52 hrs, Volume= 5.356 af, Atten= 79%, Lag= 29.5 min  
 Discarded = 1.58 cfs @ 12.52 hrs, Volume= 3.170 af  
 Primary = 11.16 cfs @ 12.52 hrs, Volume= 2.186 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 308.00' @ 12.52 hrs Surf.Area= 24,066 sf Storage= 90,020 cf

Plug-Flow detention time= 223.2 min calculated for 5.352 af (100% of inflow)  
 Center-of-Mass det. time= 223.4 min ( 980.4 - 757.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	303.75'	14,995 cf	<b>63.06'W x 381.67'L x 5.45'H Field A</b> 131,150 cf Overall - 93,663 cf Embedded = 37,486 cf x 40.0% Voids
#2A	304.00'	88,980 cf	<b>Ferguson R-Tank HD 3</b> x 7245 Inside #1 Inside= 15.7"W x 50.4"H => 5.24 sf x 2.35'L = 12.3 cf Outside= 15.7"W x 50.4"H => 5.51 sf x 2.35'L = 12.9 cf 7245 Chambers in 45 Rows
		103,975 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	304.00'	<b>18.0" Round Culvert</b> L= 65.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 304.00' / 303.35' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	303.75'	<b>2.000 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 293.50'
#3	Device 1	305.75'	<b>18.0" W x 12.0" H Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.75'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

Discarded OutFlow Max=1.58 cfs @ 12.52 hrs HW=308.00' (Free Discharge)  
 ↳2=Exfiltration ( Controls 1.58 cfs)

Primary OutFlow Max=11.14 cfs @ 12.52 hrs HW=308.00' (Free Discharge)  
 ↳1=Culvert (Passes 11.14 cfs of 16.92 cfs potential flow)  
 ↳3=Orifice (Orifice Controls 9.52 cfs @ 6.35 fps)  
 ↳4=Sharp-Crested Rectangular Weir(Weir Controls 1.62 cfs @ 1.64 fps)

**2024-01-15 Proposed Conditions**

NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Pond BA-MR: UG INF BASIN M (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank HD 3 (Ferguson R-Tank HD)**

Inside= 15.7"W x 50.4"H => 5.24 sf x 2.35'L = 12.3 cf  
 Outside= 15.7"W x 50.4"H => 5.51 sf x 2.35'L = 12.9 cf

161 Chambers/Row x 2.35' Long = 377.67' Row Length +24.0" End Stone x 2 = 381.67' Base Length  
 45 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 63.06' Base Width  
 3.0" Stone Base + 50.4" Chamber Height + 12.0" Stone Cover = 5.45' Field Height

7,245 Chambers x 12.3 cf = 88,980.1 cf Chamber Storage  
 7,245 Chambers x 12.9 cf = 93,663.3 cf Displacement

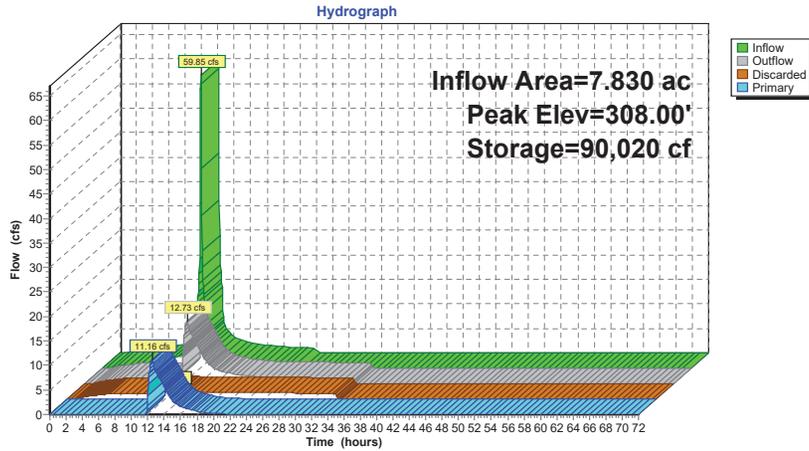
131,149.7 cf Field - 93,663.3 cf Chambers = 37,486.4 cf Stone x 40.0% Voids = 14,994.6 cf Stone Storage

Chamber Storage + Stone Storage = 103,974.7 cf = 2.387 af  
 Overall Storage Efficiency = 79.3%  
 Overall System Size = 381.67' x 63.06' x 5.45'

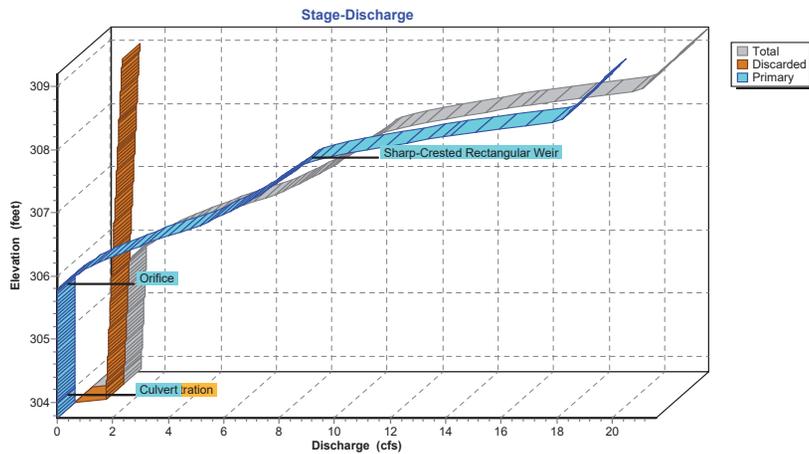
7,245 Chambers  
 4,857.4 cy Field  
 1,388.4 cy Stone



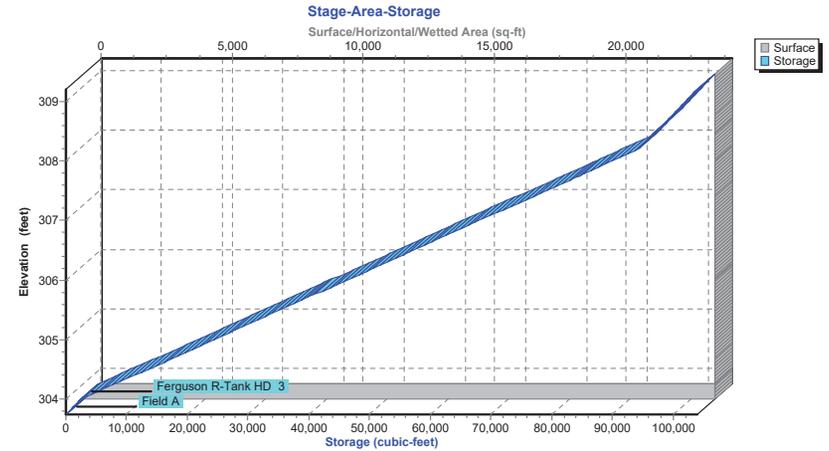
Pond BA-MR: UG INF BASIN M (RTANK)



Pond BA-MR: UG INF BASIN M (RTANK)



Pond BA-MR: UG INF BASIN M (RTANK)



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**Hydrograph for Pond BA-MR: UG INF BASIN M (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	303.75	0.00	0.00	0.00
2.50	0.56	247	303.78	0.53	0.53	0.00
5.00	1.09	498	303.80	1.06	1.06	0.00
7.50	1.66	2,571	304.01	1.14	1.14	0.00
10.00	<b>2.99</b>	11,834	304.43	1.19	1.19	0.00
12.50	<b>13.36</b>	<b>90,002</b>	<b>308.00</b>	<b>12.72</b>	<b>1.58</b>	<b>11.15</b>
15.00	2.46	56,204	306.46	4.27	1.41	2.87
17.50	1.64	47,441	306.06	2.19	1.36	0.82
20.00	1.28	43,757	305.89	1.60	1.35	0.25
22.50	1.06	41,119	305.77	1.35	1.33	0.01
25.00	0.00	34,977	305.49	1.30	1.30	0.00
27.50	0.00	23,507	304.96	1.25	1.25	0.00
30.00	0.00	12,539	304.46	1.19	1.19	0.00
32.50	0.00	2,050	303.96	1.14	1.14	0.00
35.00	0.00	0	303.75	0.00	0.00	0.00
37.50	0.00	0	303.75	0.00	0.00	0.00
40.00	0.00	0	303.75	0.00	0.00	0.00
42.50	0.00	0	303.75	0.00	0.00	0.00
45.00	0.00	0	303.75	0.00	0.00	0.00
47.50	0.00	0	303.75	0.00	0.00	0.00
50.00	0.00	0	303.75	0.00	0.00	0.00
52.50	0.00	0	303.75	0.00	0.00	0.00
55.00	0.00	0	303.75	0.00	0.00	0.00
57.50	0.00	0	303.75	0.00	0.00	0.00
60.00	0.00	0	303.75	0.00	0.00	0.00
62.50	0.00	0	303.75	0.00	0.00	0.00
65.00	0.00	0	303.75	0.00	0.00	0.00
67.50	0.00	0	303.75	0.00	0.00	0.00
70.00	0.00	0	303.75	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Stage-Discharge for Pond BA-MR: UG INF BASIN M (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
303.75	0.00	0.00	0.00	308.95	20.98	1.68	19.30
303.85	1.13	1.13	0.00	309.05	21.23	1.69	19.54
303.95	1.14	1.14	0.00	309.15	<b>21.47</b>	<b>1.70</b>	<b>19.77</b>
304.05	1.15	1.15	0.00				
304.15	1.16	1.16	0.00				
304.25	1.17	1.17	0.00				
304.35	1.18	1.18	0.00				
304.45	1.19	1.19	0.00				
304.55	1.20	1.20	0.00				
304.65	1.21	1.21	0.00				
304.75	1.22	1.22	0.00				
304.85	1.23	1.23	0.00				
304.95	1.24	1.24	0.00				
305.05	1.26	1.26	0.00				
305.15	1.27	1.27	0.00				
305.25	1.28	1.28	0.00				
305.35	1.29	1.29	0.00				
305.45	1.30	1.30	0.00				
305.55	1.31	1.31	0.00				
305.65	1.32	1.32	0.00				
305.75	1.33	1.33	0.00				
305.85	1.49	1.34	0.15				
305.95	1.78	1.35	0.43				
306.05	2.16	1.36	0.79				
306.15	2.59	1.38	1.22				
306.25	3.09	1.39	1.70				
306.35	3.63	1.40	2.24				
306.45	4.23	1.41	2.82				
306.55	4.86	1.42	3.45				
306.65	5.54	1.43	4.11				
306.75	6.26	1.44	4.81				
306.85	6.85	1.45	5.40				
306.95	7.36	1.46	5.90				
307.05	7.82	1.47	6.35				
307.15	8.24	1.48	6.76				
307.25	8.64	1.49	7.14				
307.35	9.01	1.51	7.51				
307.45	9.37	1.52	7.85				
307.55	9.71	1.53	8.18				
307.65	10.04	1.54	8.50				
307.75	10.35	1.55	8.80				
307.85	11.07	1.56	9.51				
307.95	12.11	1.57	10.54				
308.05	13.36	1.58	11.78				
308.15	14.76	1.59	13.17				
308.25	16.30	1.60	14.70				
308.35	17.95	1.61	16.34				
308.45	19.71	1.63	18.08				
308.55	19.97	1.64	18.34				
308.65	20.23	1.65	18.58				
308.75	20.48	1.66	18.83				
308.85	20.73	1.67	19.07				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-MR: UG INF BASIN M (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
303.75	24,066	0	308.95	24,066	101,573
303.85	24,066	963	309.05	24,066	102,536
303.95	24,066	1,925	309.15	24,066	103,498
304.05	24,066	3,501			
304.15	24,066	5,691			
304.25	24,066	7,880			
304.35	24,066	10,069			
304.45	24,066	12,259			
304.55	24,066	14,448			
304.65	24,066	16,637			
304.75	24,066	18,827			
304.85	24,066	21,016			
304.95	24,066	23,206			
305.05	24,066	25,395			
305.15	24,066	27,584			
305.25	24,066	29,774			
305.35	24,066	31,963			
305.45	24,066	34,152			
305.55	24,066	36,342			
305.65	24,066	38,531			
305.75	24,066	40,720			
305.85	24,066	42,910			
305.95	24,066	45,099			
306.05	24,066	47,288			
306.15	24,066	49,478			
306.25	24,066	51,667			
306.35	24,066	53,857			
306.45	24,066	56,046			
306.55	24,066	58,235			
306.65	24,066	60,425			
306.75	24,066	62,614			
306.85	24,066	64,803			
306.95	24,066	66,993			
307.05	24,066	69,182			
307.15	24,066	71,371			
307.25	24,066	73,561			
307.35	24,066	75,750			
307.45	24,066	77,939			
307.55	24,066	80,129			
307.65	24,066	82,318			
307.75	24,066	84,508			
307.85	24,066	86,697			
307.95	24,066	88,886			
308.05	24,066	91,076			
308.15	24,066	93,265			
308.25	24,066	94,835			
308.35	24,066	95,797			
308.45	24,066	96,760			
308.55	24,066	97,722			
308.65	24,066	98,685			
308.75	24,066	99,648			
308.85	24,066	100,610			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BASIN I: INF TRENCH I**

Inflow Area = 1.930 ac, 60.10% Impervious, Inflow Depth = 5.78" for 100-yr event  
 Inflow = 12.08 cfs @ 12.02 hrs, Volume= 0.929 af  
 Outflow = 4.00 cfs @ 12.26 hrs, Volume= 0.929 af, Atten= 67%, Lag= 14.6 min  
 Discarded = 2.76 cfs @ 12.26 hrs, Volume= 0.891 af  
 Primary = 1.24 cfs @ 12.26 hrs, Volume= 0.039 af  
 Routed to Link 48L : TOTAL INF TRENCH

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 313.71' @ 12.26 hrs Surf.Area= 13,450 sf Storage= 6,485 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
 Center-of-Mass det. time= 10.9 min ( 837.1 - 826.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	312.50'	8,339 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 20,848 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
312.50	13,450	0	0
314.05	13,450	20,848	20,848

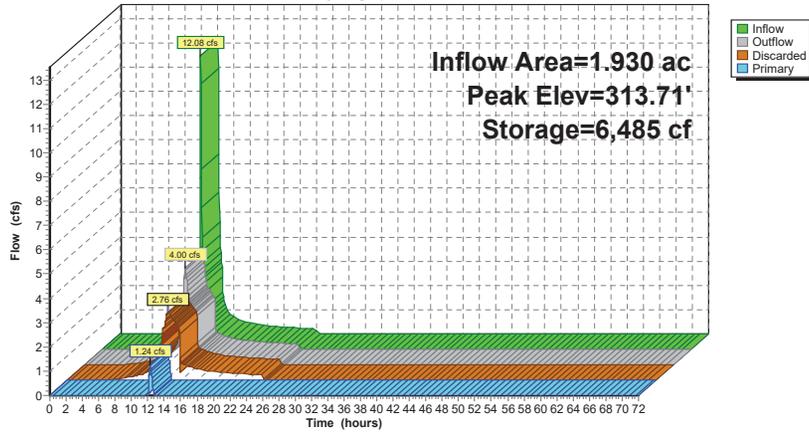
Device	Routing	Invert	Outlet Devices
#1	Primary	309.00'	<b>18.0" Round Culvert</b> L= 50.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 309.00' / 308.00' S= 0.0200 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf
#2	Discarded	312.50'	<b>6.800 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 308.50'
#3	Device 1	313.45'	<b>3.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Device 1	313.90'	<b>48.0" x 48.0" Horiz. Top Grate X 2.00</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=2.75 cfs @ 12.26 hrs HW=313.70' (Free Discharge)  
 ↳2=Exfiltration ( Controls 2.75 cfs)

**Primary OutFlow** Max=1.23 cfs @ 12.26 hrs HW=313.70' (Free Discharge)  
 ↳1=Culvert (Passes 1.23 cfs of 20.67 cfs potential flow)  
 ↳3=Sharp-Crested Rectangular Weir (Weir Controls 1.23 cfs @ 1.65 sf)  
 ↳4=Top Grate ( Controls 0.00 cfs)

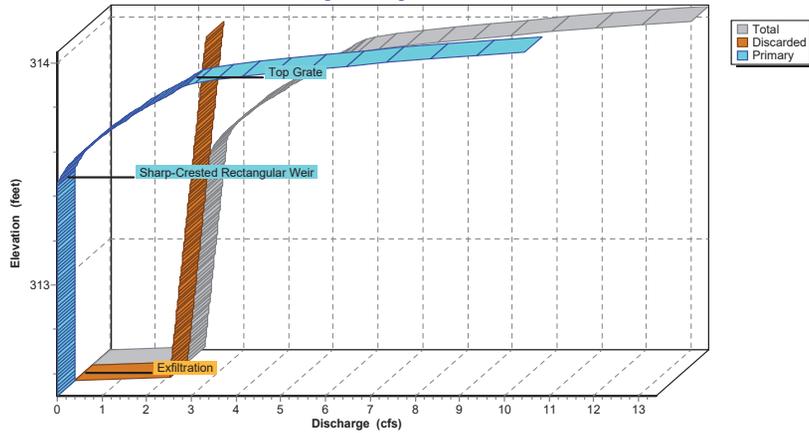
Pond BASIN I: INF TRENCH I

Hydrograph



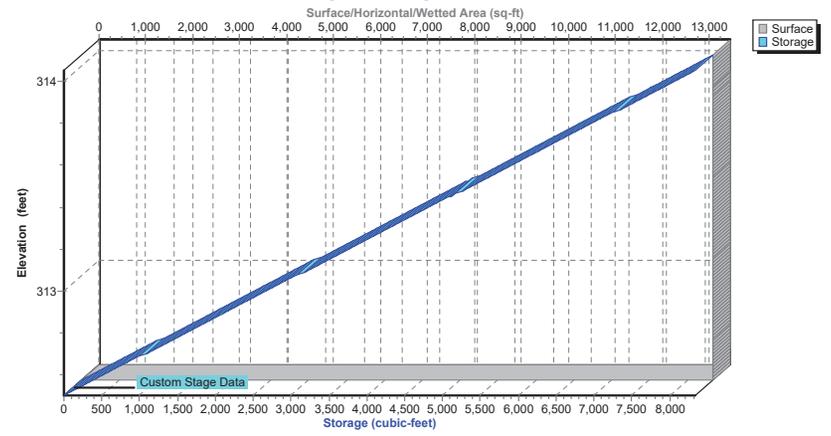
Pond BASIN I: INF TRENCH I

Stage-Discharge



Pond BASIN I: INF TRENCH I

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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**Hydrograph for Pond BASIN I: INF TRENCH I**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	312.50	0.00	0.00	0.00
2.50	0.00	0	312.50	0.00	0.00	0.00
5.00	0.01	0	312.50	0.01	0.01	0.00
7.50	0.12	5	312.50	0.12	0.12	0.00
10.00	<b>0.38</b>	<b>15</b>	<b>312.50</b>	<b>0.37</b>	<b>0.37</b>	<b>0.00</b>
12.50	<b>2.77</b>	<b>6,049</b>	<b>313.62</b>	<b>3.42</b>	<b>2.71</b>	<b>0.71</b>
15.00	0.54	21	312.50	0.54	0.54	0.00
17.50	0.36	14	312.50	0.36	0.36	0.00
20.00	0.29	11	312.50	0.29	0.29	0.00
22.50	0.24	9	312.50	0.24	0.24	0.00
25.00	0.00	0	312.50	0.00	0.00	0.00
27.50	0.00	0	312.50	0.00	0.00	0.00
30.00	0.00	0	312.50	0.00	0.00	0.00
32.50	0.00	0	312.50	0.00	0.00	0.00
35.00	0.00	0	312.50	0.00	0.00	0.00
37.50	0.00	0	312.50	0.00	0.00	0.00
40.00	0.00	0	312.50	0.00	0.00	0.00
42.50	0.00	0	312.50	0.00	0.00	0.00
45.00	0.00	0	312.50	0.00	0.00	0.00
47.50	0.00	0	312.50	0.00	0.00	0.00
50.00	0.00	0	312.50	0.00	0.00	0.00
52.50	0.00	0	312.50	0.00	0.00	0.00
55.00	0.00	0	312.50	0.00	0.00	0.00
57.50	0.00	0	312.50	0.00	0.00	0.00
60.00	0.00	0	312.50	0.00	0.00	0.00
62.50	0.00	0	312.50	0.00	0.00	0.00
65.00	0.00	0	312.50	0.00	0.00	0.00
67.50	0.00	0	312.50	0.00	0.00	0.00
70.00	0.00	0	312.50	0.00	0.00	0.00

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**Stage-Discharge for Pond BASIN I: INF TRENCH I**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
312.50	0.00	0.00	0.00	313.54	2.93	2.67	0.26
312.52	2.13	2.13	0.00	313.56	3.03	2.68	0.36
312.54	2.14	2.14	0.00	313.58	3.14	2.69	0.46
312.56	2.15	2.15	0.00	313.60	3.26	2.70	0.56
312.58	2.16	2.16	0.00	313.62	3.39	2.71	0.68
312.60	2.17	2.17	0.00	313.64	3.52	2.72	0.80
312.62	2.18	2.18	0.00	313.66	3.66	2.73	0.93
312.64	2.19	2.19	0.00	313.68	3.81	2.74	1.07
312.66	2.20	2.20	0.00	313.70	3.96	2.75	1.21
312.68	2.21	2.21	0.00	313.72	4.11	2.76	1.35
312.70	2.22	2.22	0.00	313.74	4.28	2.77	1.50
312.72	2.23	2.23	0.00	313.76	4.44	2.78	1.66
312.74	2.24	2.24	0.00	313.78	4.61	2.79	1.82
312.76	2.25	2.25	0.00	313.80	4.79	2.81	1.98
312.78	2.27	2.27	0.00	313.82	4.97	2.82	2.15
312.80	2.28	2.28	0.00	313.84	5.15	2.83	2.33
312.82	2.29	2.29	0.00	313.86	5.34	2.84	2.51
312.84	2.30	2.30	0.00	313.88	5.53	2.85	2.69
312.86	2.31	2.31	0.00	313.90	5.73	2.86	2.87
312.88	2.32	2.32	0.00	313.92	6.23	2.87	3.36
312.90	2.33	2.33	0.00	313.94	6.97	2.88	4.09
312.92	2.34	2.34	0.00	313.96	7.88	2.89	4.99
312.94	2.35	2.35	0.00	313.98	8.92	2.90	6.02
312.96	2.36	2.36	0.00	314.00	10.07	2.91	7.16
312.98	2.37	2.37	0.00	314.02	11.33	2.92	8.41
313.00	2.38	2.38	0.00	314.04	<b>12.68</b>	<b>2.93</b>	<b>9.75</b>
313.02	2.39	2.39	0.00				
313.04	2.40	2.40	0.00				
313.06	2.41	2.41	0.00				
313.08	2.42	2.42	0.00				
313.10	2.43	2.43	0.00				
313.12	2.45	2.45	0.00				
313.14	2.46	2.46	0.00				
313.16	2.47	2.47	0.00				
313.18	2.48	2.48	0.00				
313.20	2.49	2.49	0.00				
313.22	2.50	2.50	0.00				
313.24	2.51	2.51	0.00				
313.26	2.52	2.52	0.00				
313.28	2.53	2.53	0.00				
313.30	2.54	2.54	0.00				
313.32	2.55	2.55	0.00				
313.34	2.56	2.56	0.00				
313.36	2.57	2.57	0.00				
313.38	2.58	2.58	0.00				
313.40	2.59	2.59	0.00				
313.42	2.60	2.60	0.00				
313.44	2.61	2.61	0.00				
313.46	2.64	2.63	0.01				
313.48	2.69	2.64	0.05				
313.50	2.76	2.65	0.11				
313.52	2.84	2.66	0.18				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BASIN I: INF TRENCH I**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
312.50	13,450	0	313.54	13,450	5,595
312.52	13,450	108	313.56	13,450	5,703
312.54	13,450	215	313.58	13,450	5,810
312.56	13,450	323	313.60	13,450	5,918
312.58	13,450	430	313.62	13,450	6,026
312.60	13,450	538	313.64	13,450	6,133
312.62	13,450	646	313.66	13,450	6,241
312.64	13,450	753	313.68	13,450	6,348
312.66	13,450	861	313.70	13,450	6,456
312.68	13,450	968	313.72	13,450	6,564
312.70	13,450	1,076	313.74	13,450	6,671
312.72	13,450	1,184	313.76	13,450	6,779
312.74	13,450	1,291	313.78	13,450	6,886
312.76	13,450	1,399	313.80	13,450	6,994
312.78	13,450	1,506	313.82	13,450	7,102
312.80	13,450	1,614	313.84	13,450	7,209
312.82	13,450	1,722	313.86	13,450	7,317
312.84	13,450	1,829	313.88	13,450	7,424
312.86	13,450	1,937	313.90	13,450	7,532
312.88	13,450	2,044	313.92	13,450	7,640
312.90	13,450	2,152	313.94	13,450	7,747
312.92	13,450	2,260	313.96	13,450	7,855
312.94	13,450	2,367	313.98	13,450	7,962
312.96	13,450	2,475	314.00	13,450	8,070
312.98	13,450	2,582	314.02	13,450	8,178
313.00	13,450	2,690	314.04	13,450	<b>8,285</b>
313.02	13,450	2,798			
313.04	13,450	2,905			
313.06	13,450	3,013			
313.08	13,450	3,120			
313.10	13,450	3,228			
313.12	13,450	3,336			
313.14	13,450	3,443			
313.16	13,450	3,551			
313.18	13,450	3,658			
313.20	13,450	3,766			
313.22	13,450	3,874			
313.24	13,450	3,981			
313.26	13,450	4,089			
313.28	13,450	4,196			
313.30	13,450	4,304			
313.32	13,450	4,412			
313.34	13,450	4,519			
313.36	13,450	4,627			
313.38	13,450	4,734			
313.40	13,450	4,842			
313.42	13,450	4,950			
313.44	13,450	5,057			
313.46	13,450	5,165	313.45	5,111	
313.48	13,450	5,272			
313.50	13,450	5,380			
313.52	13,450	5,488			

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**Summary for Pond FB-A1: FOREBAY A1**

Inflow Area = 2.540 ac, 84.65% Impervious, Inflow Depth = 7.48" for 100-yr event  
 Inflow = 21.63 cfs @ 11.98 hrs, Volume= 1.584 af  
 Outflow = 19.34 cfs @ 12.01 hrs, Volume= 1.597 af, Atten= 11%, Lag= 1.7 min  
 Primary = 19.34 cfs @ 12.01 hrs, Volume= 1.597 af  
 Routed to Pond BA-A : AG INF BASIN A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Starting Elev= 311.10' Surf.Area= 4,661 sf Storage= 5,055 cf  
 Peak Elev= 311.61' @ 12.01 hrs Surf.Area= 5,330 sf Storage= 7,612 cf (2,557 cf above start)

Plug-Flow detention time= 73.8 min calculated for 1.481 af (94% of inflow)  
 Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	14,500 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

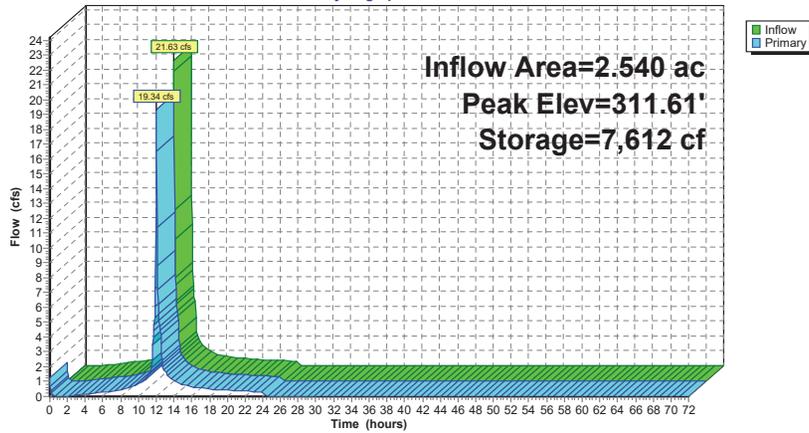
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	2,919	0	0
310.00	3,398	632	632
311.00	4,530	3,964	4,596
312.00	5,837	5,184	9,779
312.75	6,752	4,721	14,500

Device	Routing	Invert	Outlet Devices
#1	Primary	311.00'	<b>15.0' long x 15.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=18.57 cfs @ 12.01 hrs HW=311.59' (Free Discharge)  
 1=Broad-Crested Rectangular Weir (Weir Controls 18.57 cfs @ 2.08 fps)

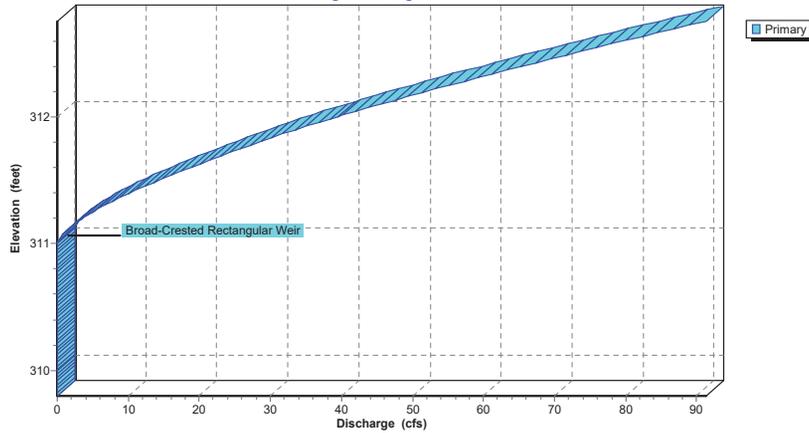
Pond FB-A1: FOREBAY A1

Hydrograph



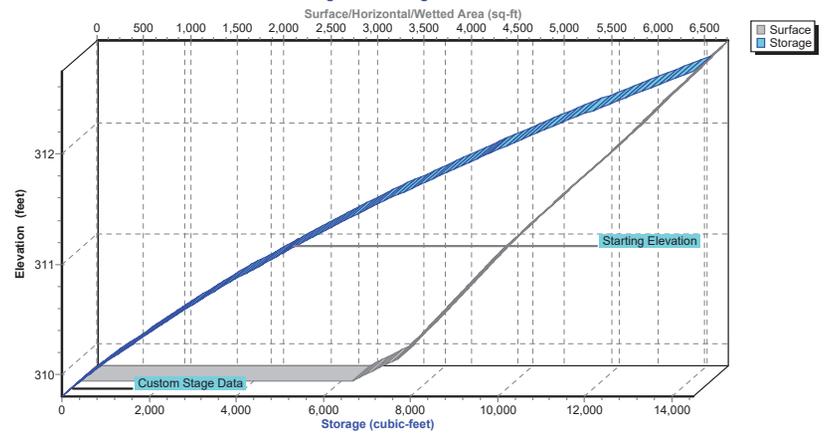
Pond FB-A1: FOREBAY A1

Stage-Discharge



Pond FB-A1: FOREBAY A1

Stage-Area-Storage



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**Hydrograph for Pond FB-A1: FOREBAY A1**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	5,055	311.10	1.27
2.50	0.04	4,623	311.01	0.02
5.00	0.22	4,723	311.03	0.21
7.50	0.42	4,806	311.05	0.41
10.00	<b>0.85</b>	<b>4,939</b>	<b>311.08</b>	<b>0.83</b>
12.50	<b>3.98</b>	<b>5,628</b>	<b>311.22</b>	<b>4.18</b>
15.00	0.78	4,927	311.07	0.79
17.50	0.52	4,845	311.05	0.53
20.00	0.41	4,806	311.05	0.41
22.50	0.34	4,784	311.04	0.34
25.00	0.00	4,601	311.00	0.00
27.50	0.00	4,596	311.00	0.00
30.00	0.00	4,596	311.00	0.00
32.50	0.00	4,596	311.00	0.00
35.00	0.00	4,596	311.00	0.00
37.50	0.00	4,596	311.00	0.00
40.00	0.00	4,596	311.00	0.00
42.50	0.00	4,596	311.00	0.00
45.00	0.00	4,596	311.00	0.00
47.50	0.00	4,596	311.00	0.00
50.00	0.00	4,596	311.00	0.00
52.50	0.00	4,596	311.00	0.00
55.00	0.00	4,596	311.00	0.00
57.50	0.00	4,596	311.00	0.00
60.00	0.00	4,596	311.00	0.00
62.50	0.00	4,596	311.00	0.00
65.00	0.00	4,596	311.00	0.00
67.50	0.00	4,596	311.00	0.00
70.00	0.00	4,596	311.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond FB-A1: FOREBAY A1**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.80	0.00	310.84	0.00	311.88	32.64
309.82	0.00	310.86	0.00	311.90	33.75
309.84	0.00	310.88	0.00	311.92	34.86
309.86	0.00	310.90	0.00	311.94	35.99
309.88	0.00	310.92	0.00	311.96	37.14
309.90	0.00	310.94	0.00	311.98	38.29
309.92	0.00	310.96	0.00	312.00	39.45
309.94	0.00	310.98	0.00	312.02	40.65
309.96	0.00	311.00	0.00	312.04	41.87
309.98	0.00	311.02	0.11	312.06	43.10
310.00	0.00	311.04	0.32	312.08	44.34
310.02	0.00	311.06	0.59	312.10	45.60
310.04	0.00	311.08	0.91	312.12	46.87
310.06	0.00	311.10	1.27	312.14	48.15
310.08	0.00	311.12	1.67	312.16	49.44
310.10	0.00	311.14	2.11	312.18	50.74
310.12	0.00	311.16	2.57	312.20	52.06
310.14	0.00	311.18	3.07	312.22	53.36
310.16	0.00	311.20	3.60	312.24	54.68
310.18	0.00	311.22	4.15	312.26	56.01
310.20	0.00	311.24	4.73	312.28	57.35
310.22	0.00	311.26	5.34	312.30	58.70
310.24	0.00	311.28	5.97	312.32	60.06
310.26	0.00	311.30	6.63	312.34	61.43
310.28	0.00	311.32	7.31	312.36	62.81
310.30	0.00	311.34	8.01	312.38	64.20
310.32	0.00	311.36	8.74	312.40	65.60
310.34	0.00	311.38	9.48	312.42	66.98
310.36	0.00	311.40	10.25	312.44	68.38
310.38	0.00	311.42	11.02	312.46	69.78
310.40	0.00	311.44	11.82	312.48	71.19
310.42	0.00	311.46	12.64	312.50	72.61
310.44	0.00	311.48	13.47	312.52	74.04
310.46	0.00	311.50	14.32	312.54	75.48
310.48	0.00	311.52	15.19	312.56	76.92
310.50	0.00	311.54	16.07	312.58	78.38
310.52	0.00	311.56	16.97	312.60	79.84
310.54	0.00	311.58	17.89	312.62	81.34
310.56	0.00	311.60	18.82	312.64	82.85
310.58	0.00	311.62	19.73	312.66	84.37
310.60	0.00	311.64	20.64	312.68	85.90
310.62	0.00	311.66	21.57	312.70	87.44
310.64	0.00	311.68	22.51	312.72	88.99
310.66	0.00	311.70	23.46	312.74	<b>90.55</b>
310.68	0.00	311.72	24.41		
310.70	0.00	311.74	25.38		
310.72	0.00	311.76	26.36		
310.74	0.00	311.78	27.34		
310.76	0.00	311.80	28.34		
310.78	0.00	311.82	29.39		
310.80	0.00	311.84	30.46		
310.82	0.00	311.86	31.55		

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond FB-A1: FOREBAY A1**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	2,919	0	312.40	6,325	12,212
309.85	3,038	149	312.45	6,386	12,529
309.90	3,158	304	312.50	6,447	12,850
309.95	3,278	465	312.55	6,508	13,174
310.00	3,398	632	312.60	6,569	13,501
310.05	3,454	803	312.65	6,630	13,831
310.10	3,511	977	312.70	6,691	14,164
310.15	3,568	1,154	312.75	<b>6,752</b>	<b>14,500</b>
310.20	3,624	1,334			
310.25	3,681	1,516			
310.30	3,737	1,702			
310.35	3,794	1,890			
310.40	3,851	2,081			
310.45	3,907	2,275			
310.50	3,964	2,472			
310.55	4,021	2,672			
310.60	4,077	2,874			
310.65	4,134	3,079			
310.70	4,190	3,287			
310.75	4,247	3,498			
310.80	4,304	3,712			
310.85	4,360	3,929			
310.90	4,417	4,148			
310.95	4,474	4,370			
<b>311.00</b>	<b>4,530</b>	<b>4,596</b>			
311.05	4,596	4,824			
311.10	4,661	5,055			
311.15	4,726	5,290			
311.20	4,792	5,528			
311.25	4,857	5,769			
311.30	4,922	6,013			
311.35	4,988	6,261			
311.40	5,053	6,512			
311.45	5,118	6,767			
311.50	5,184	7,024			
311.55	5,249	7,285			
311.60	5,314	7,549			
311.65	5,380	7,816			
311.70	5,445	8,087			
311.75	5,510	8,361			
311.80	5,576	8,638			
311.85	5,641	8,918			
311.90	5,706	9,202			
311.95	5,772	9,489			
312.00	5,837	9,779			
312.05	5,898	10,073			
312.10	5,959	10,369			
312.15	6,020	10,668			
312.20	6,081	10,971			
312.25	6,142	11,277			
312.30	6,203	11,585			
312.35	6,264	11,897			

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**Summary for Pond FB-A2: FOREBAY A2**

Inflow Area = 2.710 ac, 72.32% Impervious, Inflow Depth = 6.63" for 100-yr event  
 Inflow = 20.89 cfs @ 11.99 hrs, Volume= 1.498 af  
 Outflow = 16.45 cfs @ 12.04 hrs, Volume= 1.399 af, Atten= 21%, Lag= 2.7 min  
 Primary = 16.45 cfs @ 12.04 hrs, Volume= 1.399 af  
 Routed to Pond BA-A : AG INF BASIN A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 310.95' @ 12.04 hrs Surf.Area= 8,342 sf Storage= 8,665 cf

Plug-Flow detention time= 72.3 min calculated for 1.399 af (93% of inflow)  
 Center-of-Mass det. time= 35.0 min ( 839.1 - 804.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	26,127 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

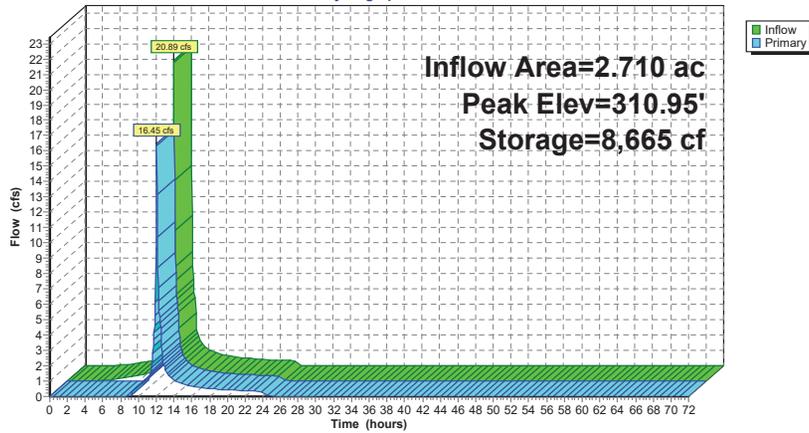
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	6,055	0	0
310.00	7,144	1,320	1,320
311.00	8,407	7,775	9,095
312.00	9,845	9,126	18,221
312.75	11,238	7,906	26,127

Device	Routing	Invert	Outlet Devices
#1	Primary	310.40'	<b>15.0' long x 15.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=16.05 cfs @ 12.04 hrs HW=310.94' (Free Discharge)  
 ↳=Broad-Crested Rectangular Weir (Weir Controls 16.05 cfs @ 1.98 fps)

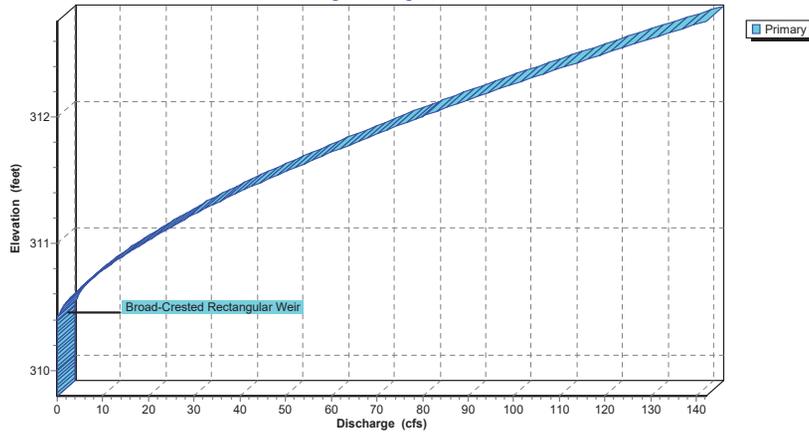
Pond FB-A2: FOREBAY A2

Hydrograph



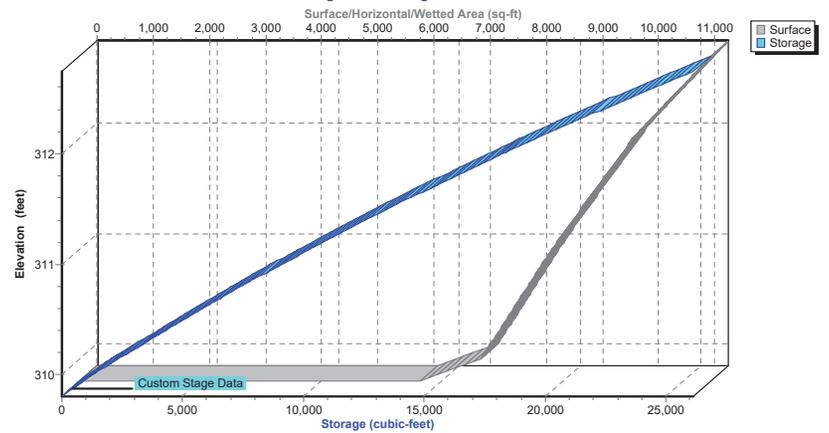
Pond FB-A2: FOREBAY A2

Stage-Discharge



Pond FB-A2: FOREBAY A2

Stage-Area-Storage



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**Hydrograph for Pond FB-A2: FOREBAY A2**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	309.80	0.00
2.50	0.00	0	309.80	0.00
5.00	0.10	322	309.85	0.00
7.50	0.30	2,061	310.10	0.00
10.00	<b>0.72</b>	<b>4,779</b>	<b>310.47</b>	<b>0.68</b>
12.50	<b>4.09</b>	<b>6,079</b>	<b>310.63</b>	<b>4.47</b>
15.00	0.80	4,852	310.47	0.82
17.50	0.54	4,711	310.46	0.55
20.00	0.42	4,648	310.45	0.43
22.50	0.35	4,599	310.44	0.36
25.00	0.00	4,299	310.40	0.02
27.50	0.00	4,278	310.40	0.00
30.00	0.00	4,278	310.40	0.00
32.50	0.00	4,278	310.40	0.00
35.00	0.00	4,278	310.40	0.00
37.50	0.00	4,278	310.40	0.00
40.00	0.00	4,278	310.40	0.00
42.50	0.00	4,278	310.40	0.00
45.00	0.00	4,278	310.40	0.00
47.50	0.00	4,278	310.40	0.00
50.00	0.00	4,278	310.40	0.00
52.50	0.00	4,278	310.40	0.00
55.00	0.00	4,278	310.40	0.00
57.50	0.00	4,278	310.40	0.00
60.00	0.00	4,278	310.40	0.00
62.50	0.00	4,278	310.40	0.00
65.00	0.00	4,278	310.40	0.00
67.50	0.00	4,278	310.40	0.00
70.00	0.00	4,278	310.40	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond FB-A2: FOREBAY A2**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.80	0.00	310.84	11.82	311.88	71.19
309.82	0.00	310.86	12.64	311.90	72.61
309.84	0.00	310.88	13.47	311.92	74.04
309.86	0.00	310.90	14.32	311.94	75.48
309.88	0.00	310.92	15.19	311.96	76.92
309.90	0.00	310.94	16.07	311.98	78.38
309.92	0.00	310.96	16.97	312.00	79.84
309.94	0.00	310.98	17.89	312.02	81.34
309.96	0.00	311.00	18.82	312.04	82.85
309.98	0.00	311.02	19.73	312.06	84.37
310.00	0.00	311.04	20.64	312.08	85.90
310.02	0.00	311.06	21.57	312.10	87.44
310.04	0.00	311.08	22.51	312.12	88.99
310.06	0.00	311.10	23.46	312.14	90.55
310.08	0.00	311.12	24.41	312.16	92.11
310.10	0.00	311.14	25.38	312.18	93.69
310.12	0.00	311.16	26.36	312.20	95.27
310.14	0.00	311.18	27.34	312.22	96.86
310.16	0.00	311.20	28.34	312.24	98.46
310.18	0.00	311.22	29.39	312.26	100.07
310.20	0.00	311.24	30.46	312.28	101.69
310.22	0.00	311.26	31.55	312.30	103.32
310.24	0.00	311.28	32.64	312.32	104.95
310.26	0.00	311.30	33.75	312.34	106.60
310.28	0.00	311.32	34.86	312.36	108.25
310.30	0.00	311.34	35.99	312.38	109.91
310.32	0.00	311.36	37.14	312.40	111.58
310.34	0.00	311.38	38.29	312.42	113.26
310.36	0.00	311.40	39.45	312.44	114.95
310.38	0.00	311.42	40.65	312.46	116.64
310.40	0.00	311.44	41.87	312.48	118.34
310.42	0.11	311.46	43.10	312.50	120.05
310.44	0.32	311.48	44.34	312.52	121.77
310.46	0.59	311.50	45.60	312.54	123.50
310.48	0.91	311.52	46.87	312.56	125.24
310.50	1.27	311.54	48.15	312.58	126.98
310.52	1.67	311.56	49.44	312.60	128.73
310.54	2.11	311.58	50.74	312.62	130.49
310.56	2.57	311.60	52.06	312.64	132.26
310.58	3.07	311.62	53.36	312.66	134.03
310.60	3.60	311.64	54.68	312.68	135.82
310.62	4.15	311.66	56.01	312.70	137.61
310.64	4.73	311.68	57.35	312.72	139.41
310.66	5.34	311.70	58.70	312.74	<b>141.21</b>
310.68	5.97	311.72	60.06		
310.70	6.63	311.74	61.43		
310.72	7.31	311.76	62.81		
310.74	8.01	311.78	64.20		
310.76	8.74	311.80	65.60		
310.78	9.48	311.82	66.98		
310.80	10.25	311.84	68.38		
310.82	11.02	311.86	69.78		

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond FB-A2: FOREBAY A2**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	6,055	0	312.40	10,588	22,308
309.85	6,327	310	312.45	10,681	22,839
309.90	6,599	633	312.50	10,774	23,376
309.95	6,872	969	312.55	10,867	23,917
310.00	7,144	1,320	312.60	10,960	24,462
310.05	7,207	1,679	312.65	11,053	25,013
310.10	7,270	2,041	312.70	11,146	25,568
310.15	7,333	2,406	312.75	<b>11,238</b>	<b>26,127</b>
310.20	7,396	2,774			
310.25	7,460	3,145			
310.30	7,523	3,520			
310.35	7,586	3,898			
<b>310.40</b>	<b>7,649</b>	<b>4,278</b>			
310.45	7,712	4,662			
310.50	7,775	5,050			
310.55	7,839	5,440			
310.60	7,902	5,834			
310.65	7,965	6,230			
310.70	8,028	6,630			
310.75	8,091	7,033			
310.80	8,154	7,439			
310.85	8,218	7,848			
310.90	8,281	8,261			
310.95	8,344	8,677			
311.00	8,407	9,095			
311.05	8,479	9,517			
311.10	8,551	9,943			
311.15	8,623	10,373			
311.20	8,695	10,805			
311.25	8,766	11,242			
311.30	8,838	11,682			
311.35	8,910	12,126			
311.40	8,982	12,573			
311.45	9,054	13,024			
311.50	9,126	13,479			
311.55	9,198	13,937			
311.60	9,270	14,398			
311.65	9,341	14,864			
311.70	9,413	15,332			
311.75	9,485	15,805			
311.80	9,557	16,281			
311.85	9,629	16,761			
311.90	9,701	17,244			
311.95	9,773	17,731			
312.00	9,845	18,221			
312.05	9,937	18,716			
312.10	10,030	19,215			
312.15	10,123	19,719			
312.20	10,216	20,227			
312.25	10,309	20,740			
312.30	10,402	21,258			
312.35	10,495	21,781			

**2024-01-15 Proposed Conditions**

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**Summary for Pond FB-B: FOREBAY B**

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.560 ac, 66.03% Impervious, Inflow Depth = 7.24" for 100-yr event  
 Inflow = 12.86 cfs @ 11.99 hrs, Volume= 0.941 af  
 Outflow = 13.10 cfs @ 11.99 hrs, Volume= 0.923 af, Atten= 0%, Lag= 0.2 min  
 Primary = 13.10 cfs @ 11.99 hrs, Volume= 0.923 af  
 Routed to Pond BA-B : AG INF BASIN B

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 306.95' @ 11.99 hrs Surf.Area= 624 sf Storage= 953 cf

Plug-Flow detention time= 23.0 min calculated for 0.922 af (98% of inflow)  
 Center-of-Mass det. time= 10.7 min ( 798.3 - 787.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	304.00'	1,720 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

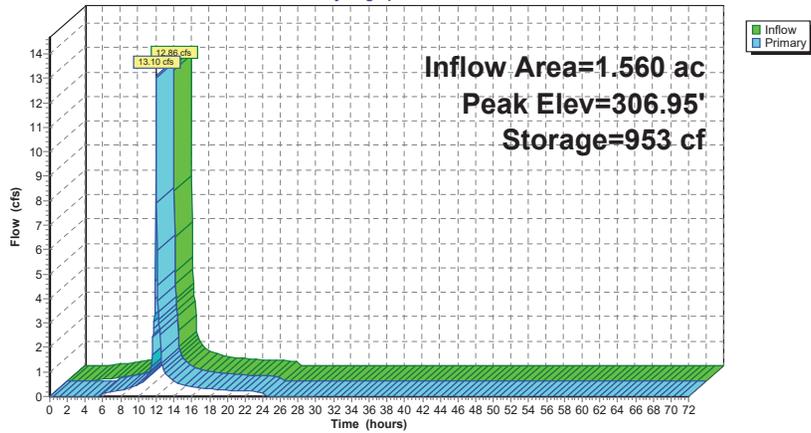
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
304.00	45	0	0
305.00	192	119	119
306.00	451	322	440
307.00	633	542	982
308.00	842	738	1,720

Device	Routing	Invert	Outlet Devices
#1	Primary	306.70'	<b>31.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=12.60 cfs @ 11.99 hrs HW=306.95' (Free Discharge)  
 ↳1=Sharp-Crested Rectangular Weir(Weir Controls 12.60 cfs @ 1.62 fps)

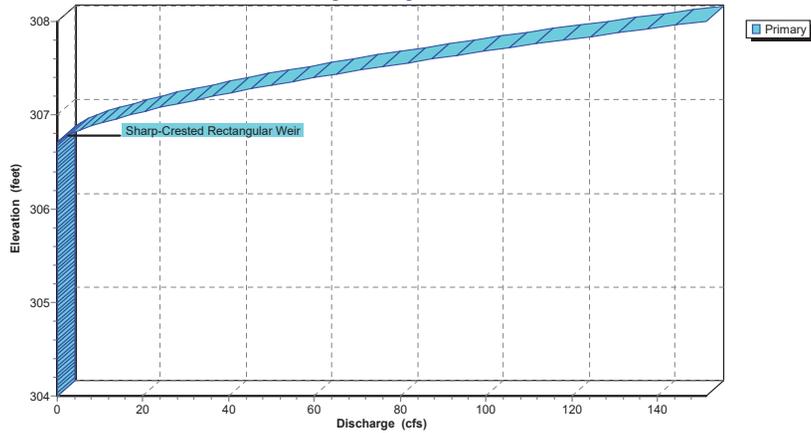
### Pond FB-B: FOREBAY B

Hydrograph



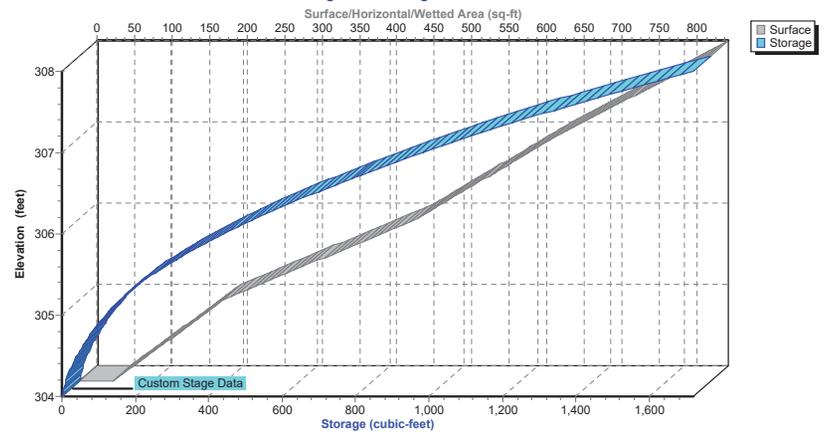
### Pond FB-B: FOREBAY B

Stage-Discharge



### Pond FB-B: FOREBAY B

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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**Hydrograph for Pond FB-B: FOREBAY B**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	304.00	0.00
2.50	0.01	3	304.06	0.00
5.00	0.11	534	306.20	0.00
7.50	0.23	809	306.72	0.23
10.00	<b>0.49</b>	<b>816</b>	<b>306.73</b>	<b>0.49</b>
12.50	<b>2.45</b>	<b>848</b>	<b>306.78</b>	<b>2.42</b>
15.00	0.47	815	306.73	0.47
17.50	0.32	812	306.72	0.32
20.00	0.25	810	306.72	0.25
22.50	0.21	809	306.71	0.21
25.00	0.00	800	306.70	0.00
27.50	0.00	800	306.70	0.00
30.00	0.00	800	306.70	0.00
32.50	0.00	800	306.70	0.00
35.00	0.00	800	306.70	0.00
37.50	0.00	800	306.70	0.00
40.00	0.00	800	306.70	0.00
42.50	0.00	800	306.70	0.00
45.00	0.00	800	306.70	0.00
47.50	0.00	800	306.70	0.00
50.00	0.00	800	306.70	0.00
52.50	0.00	800	306.70	0.00
55.00	0.00	800	306.70	0.00
57.50	0.00	800	306.70	0.00
60.00	0.00	800	306.70	0.00
62.50	0.00	800	306.70	0.00
65.00	0.00	800	306.70	0.00
67.50	0.00	800	306.70	0.00
70.00	0.00	800	306.70	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond FB-B: FOREBAY B**

Elevation (feet)	Primary (cfs)						
304.00	0.00	305.04	0.00	306.08	0.00	307.12	27.96
304.02	0.00	305.06	0.00	306.10	0.00	307.14	29.98
304.04	0.00	305.08	0.00	306.12	0.00	307.16	32.04
304.06	0.00	305.10	0.00	306.14	0.00	307.18	34.15
304.08	0.00	305.12	0.00	306.16	0.00	307.20	36.30
304.10	0.00	305.14	0.00	306.18	0.00	307.22	38.50
304.12	0.00	305.16	0.00	306.20	0.00	307.24	40.73
304.14	0.00	305.18	0.00	306.22	0.00	307.26	43.01
304.16	0.00	305.20	0.00	306.24	0.00	307.28	45.33
304.18	0.00	305.22	0.00	306.26	0.00	307.30	47.69
304.20	0.00	305.24	0.00	306.28	0.00	307.32	50.09
304.22	0.00	305.26	0.00	306.30	0.00	307.34	52.52
304.24	0.00	305.28	0.00	306.32	0.00	307.36	55.00
304.26	0.00	305.30	0.00	306.34	0.00	307.38	57.51
304.28	0.00	305.32	0.00	306.36	0.00	307.40	60.06
304.30	0.00	305.34	0.00	306.38	0.00	307.42	62.64
304.32	0.00	305.36	0.00	306.40	0.00	307.44	65.26
304.34	0.00	305.38	0.00	306.42	0.00	307.46	67.92
304.36	0.00	305.40	0.00	306.44	0.00	307.48	70.61
304.38	0.00	305.42	0.00	306.46	0.00	307.50	73.33
304.40	0.00	305.44	0.00	306.48	0.00	307.52	76.09
304.42	0.00	305.46	0.00	306.50	0.00	307.54	78.88
304.44	0.00	305.48	0.00	306.52	0.00	307.56	81.70
304.46	0.00	305.50	0.00	306.54	0.00	307.58	84.56
304.48	0.00	305.52	0.00	306.56	0.00	307.60	87.44
304.50	0.00	305.54	0.00	306.58	0.00	307.62	90.36
304.52	0.00	305.56	0.00	306.60	0.00	307.64	93.31
304.54	0.00	305.58	0.00	306.62	0.00	307.66	96.30
304.56	0.00	305.60	0.00	306.64	0.00	307.68	99.31
304.58	0.00	305.62	0.00	306.66	0.00	307.70	102.35
304.60	0.00	305.64	0.00	306.68	0.00	307.72	105.42
304.62	0.00	305.66	0.00	306.70	0.00	307.74	108.53
304.64	0.00	305.68	0.00	306.72	0.29	307.76	111.66
304.66	0.00	305.70	0.00	306.74	0.82	307.78	114.82
304.68	0.00	305.72	0.00	306.76	1.51	307.80	118.01
304.70	0.00	305.74	0.00	306.78	2.33	307.82	121.22
304.72	0.00	305.76	0.00	306.80	3.26	307.84	124.47
304.74	0.00	305.78	0.00	306.82	4.28	307.86	127.74
304.76	0.00	305.80	0.00	306.84	5.39	307.88	131.04
304.78	0.00	305.82	0.00	306.86	6.59	307.90	134.37
304.80	0.00	305.84	0.00	306.88	7.86	307.92	137.73
304.82	0.00	305.86	0.00	306.90	9.20	307.94	141.11
304.84	0.00	305.88	0.00	306.92	10.61	307.96	144.52
304.86	0.00	305.90	0.00	306.94	12.09	307.98	147.95
304.88	0.00	305.92	0.00	306.96	13.63	308.00	<b>151.42</b>
304.90	0.00	305.94	0.00	306.98	15.23		
304.92	0.00	305.96	0.00	307.00	16.89		
304.94	0.00	305.98	0.00	307.02	18.61		
304.96	0.00	306.00	0.00	307.04	20.38		
304.98	0.00	306.02	0.00	307.06	22.20		
305.00	0.00	306.04	0.00	307.08	24.07		
305.02	0.00	306.06	0.00	307.10	25.99		

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond FB-B: FOREBAY B**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
304.00	45	0	306.60	560	743
304.05	52	2	306.65	569	772
304.10	60	5	306.70	578	800
304.15	67	8	306.75	588	829
304.20	74	12	306.80	597	859
304.25	82	16	306.85	606	889
304.30	89	20	306.90	615	920
304.35	96	25	306.95	624	951
304.40	104	30	307.00	633	982
304.45	111	35	307.05	643	1,014
304.50	119	41	307.10	654	1,046
304.55	126	47	307.15	664	1,079
304.60	133	53	307.20	675	1,113
304.65	141	60	307.25	685	1,147
304.70	148	68	307.30	696	1,181
304.75	155	75	307.35	706	1,216
304.80	163	83	307.40	717	1,252
304.85	170	91	307.45	727	1,288
304.90	177	100	307.50	738	1,325
304.95	185	109	307.55	748	1,362
305.00	192	119	307.60	758	1,399
305.05	205	128	307.65	769	1,438
305.10	218	139	307.70	779	1,476
305.15	231	150	307.75	790	1,516
305.20	244	162	307.80	800	1,555
305.25	257	175	307.85	811	1,596
305.30	270	188	307.90	821	1,636
305.35	283	202	307.95	832	1,678
305.40	296	216	308.00	842	1,720
305.45	309	231			
305.50	322	247			
305.55	334	263			
305.60	347	280			
305.65	360	298			
305.70	373	316			
305.75	386	335			
305.80	399	355			
305.85	412	375			
305.90	425	396			
305.95	438	418			
306.00	451	440			
306.05	460	463			
306.10	469	486			
306.15	478	510			
306.20	487	534			
306.25	497	558			
306.30	506	583			
306.35	515	609			
306.40	524	635			
306.45	533	661			
306.50	542	688			
306.55	551	716			

**2024-01-15 Proposed Conditions**

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**Summary for Pond FB-G: FOREBAY G**

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.700 ac, 60.00% Impervious, Inflow Depth = 5.66" for 100-yr event  
 Inflow = 4.79 cfs @ 11.98 hrs, Volume= 0.330 af  
 Outflow = 4.93 cfs @ 11.99 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.7 min  
 Primary = 4.93 cfs @ 11.99 hrs, Volume= 0.291 af  
 Routed to Pond BA-G : AG INF BASIN G

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 311.26' @ 11.99 hrs Surf.Area= 1,384 sf Storage= 1,824 cf

Plug-Flow detention time= 94.4 min calculated for 0.291 af (88% of inflow)  
 Center-of-Mass det. time= 34.4 min ( 860.7 - 826.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	309.50'	2,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

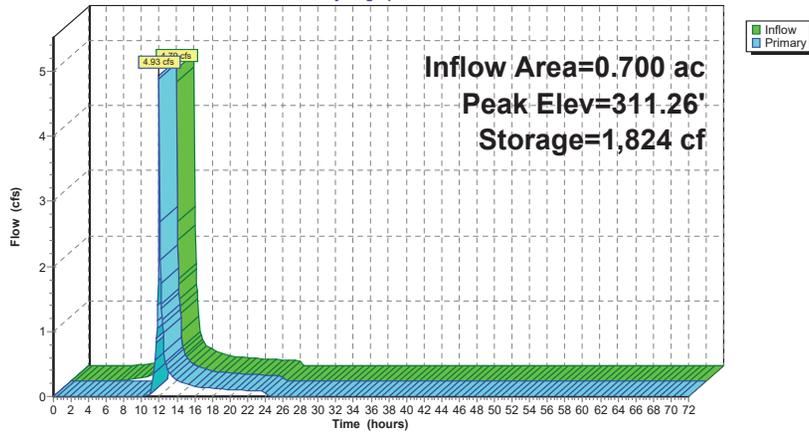
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.50	676	0	0
310.00	890	392	392
311.00	1,284	1,087	1,479
312.00	1,671	1,478	2,956

Device	Routing	Invert	Outlet Devices
#1	Primary	311.15'	42.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=4.66 cfs @ 11.99 hrs HW=311.25' (Free Discharge)  
 ↑=Sharp-Crested Rectangular Weir(Weir Controls 4.66 cfs @ 1.06 fps)

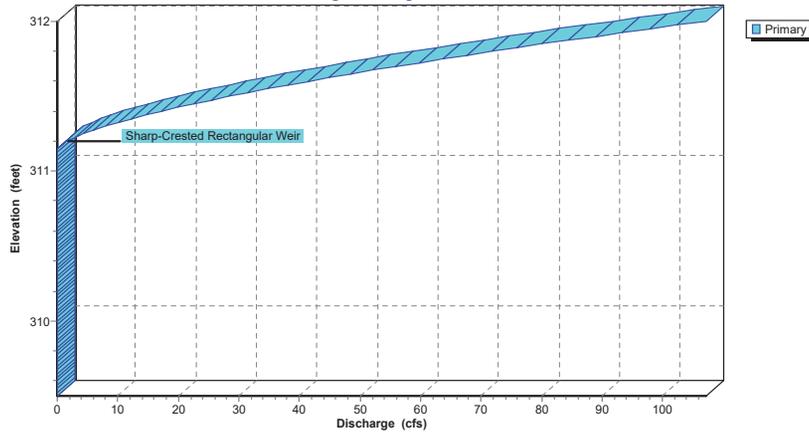
Pond FB-G: FOREBAY G

Hydrograph



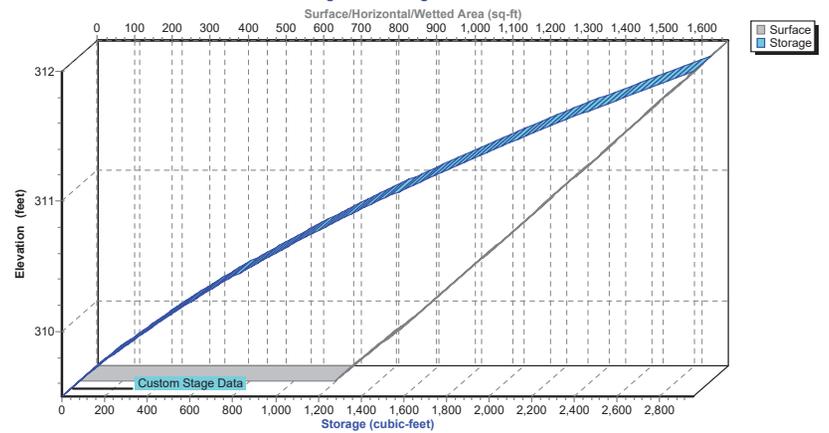
Pond FB-G: FOREBAY G

Stage-Discharge



Pond FB-G: FOREBAY G

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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**Hydrograph for Pond FB-G: FOREBAY G**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	309.50	0.00
2.50	0.00	0	309.50	0.00
5.00	0.00	0	309.50	0.00
7.50	0.04	177	309.74	0.00
10.00	<b>0.13</b>	<b>876</b>	<b>310.49</b>	<b>0.00</b>
12.50	<b>0.93</b>	<b>1,722</b>	<b>311.18</b>	<b>0.93</b>
15.00	0.19	1,687	311.16	0.19
17.50	0.13	1,684	311.16	0.13
20.00	0.10	1,682	311.15	0.10
22.50	0.09	1,681	311.15	0.09
25.00	0.00	1,675	311.15	0.00
27.50	0.00	1,675	311.15	0.00
30.00	0.00	1,675	311.15	0.00
32.50	0.00	1,675	311.15	0.00
35.00	0.00	1,675	311.15	0.00
37.50	0.00	1,675	311.15	0.00
40.00	0.00	1,675	311.15	0.00
42.50	0.00	1,675	311.15	0.00
45.00	0.00	1,675	311.15	0.00
47.50	0.00	1,675	311.15	0.00
50.00	0.00	1,675	311.15	0.00
52.50	0.00	1,675	311.15	0.00
55.00	0.00	1,675	311.15	0.00
57.50	0.00	1,675	311.15	0.00
60.00	0.00	1,675	311.15	0.00
62.50	0.00	1,675	311.15	0.00
65.00	0.00	1,675	311.15	0.00
67.50	0.00	1,675	311.15	0.00
70.00	0.00	1,675	311.15	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond FB-G: FOREBAY G**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.50	0.00	310.54	0.00	311.58	38.65
309.52	0.00	310.56	0.00	311.60	41.37
309.54	0.00	310.58	0.00	311.62	44.15
309.56	0.00	310.60	0.00	311.64	47.00
309.58	0.00	310.62	0.00	311.66	49.90
309.60	0.00	310.64	0.00	311.68	52.86
309.62	0.00	310.66	0.00	311.70	55.87
309.64	0.00	310.68	0.00	311.72	58.94
309.66	0.00	310.70	0.00	311.74	62.07
309.68	0.00	310.72	0.00	311.76	65.24
309.70	0.00	310.74	0.00	311.78	68.47
309.72	0.00	310.76	0.00	311.80	71.75
309.74	0.00	310.78	0.00	311.82	75.08
309.76	0.00	310.80	0.00	311.84	78.46
309.78	0.00	310.82	0.00	311.86	81.89
309.80	0.00	310.84	0.00	311.88	85.36
309.82	0.00	310.86	0.00	311.90	88.89
309.84	0.00	310.88	0.00	311.92	92.46
309.86	0.00	310.90	0.00	311.94	96.07
309.88	0.00	310.92	0.00	311.96	99.73
309.90	0.00	310.94	0.00	311.98	103.44
309.92	0.00	310.96	0.00	312.00	<b>107.19</b>
309.94	0.00	310.98	0.00		
309.96	0.00	311.00	0.00		
309.98	0.00	311.02	0.00		
310.00	0.00	311.04	0.00		
310.02	0.00	311.06	0.00		
310.04	0.00	311.08	0.00		
310.06	0.00	311.10	0.00		
310.08	0.00	311.12	0.00		
310.10	0.00	311.14	0.00		
310.12	0.00	311.16	0.14		
310.14	0.00	311.18	0.71		
310.16	0.00	311.20	1.54		
310.18	0.00	311.22	2.54		
310.20	0.00	311.24	3.71		
310.22	0.00	311.26	5.01		
310.24	0.00	311.28	6.43		
310.26	0.00	311.30	7.97		
310.28	0.00	311.32	9.62		
310.30	0.00	311.34	11.36		
310.32	0.00	311.36	13.20		
310.34	0.00	311.38	15.13		
310.36	0.00	311.40	17.15		
310.38	0.00	311.42	19.24		
310.40	0.00	311.44	21.42		
310.42	0.00	311.46	23.67		
310.44	0.00	311.48	25.99		
310.46	0.00	311.50	28.39		
310.48	0.00	311.52	30.86		
310.50	0.00	311.54	33.39		
310.52	0.00	311.56	35.99		

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond FB-G: FOREBAY G**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.50	676	0
309.55	697	34
309.60	719	70
309.65	740	106
309.70	762	144
309.75	783	182
309.80	804	222
309.85	826	263
309.90	847	305
309.95	869	348
310.00	890	392
310.05	910	436
310.10	929	482
310.15	949	529
310.20	969	577
310.25	989	626
310.30	1,008	676
310.35	1,028	727
310.40	1,048	779
310.45	1,067	832
310.50	1,087	886
310.55	1,107	941
310.60	1,126	996
310.65	1,146	1,053
310.70	1,166	1,111
310.75	1,186	1,170
310.80	1,205	1,230
310.85	1,225	1,290
310.90	1,245	1,352
310.95	1,264	1,415
311.00	1,284	1,479
311.05	1,303	1,543
311.10	1,323	1,609
311.15	1,342	1,675
311.20	1,361	1,743
311.25	1,381	1,812
311.30	1,400	1,881
311.35	1,419	1,952
311.40	1,439	2,023
311.45	1,458	2,095
311.50	1,478	2,169
311.55	1,497	2,243
311.60	1,516	2,319
311.65	1,536	2,395
311.70	1,555	2,472
311.75	1,574	2,550
311.80	1,594	2,630
311.85	1,613	2,710
311.90	1,632	2,791
311.95	1,652	2,873
312.00	1,671	2,956

**2024-01-15 Proposed Conditions**

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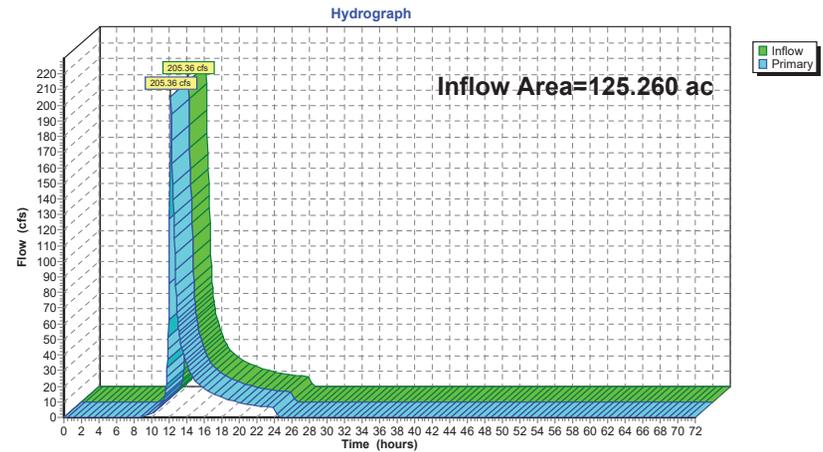
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**Summary for Link 42L: POA STREAM TOTAL**

Inflow Area = 125.260 ac, 42.22% Impervious, Inflow Depth = 2.64" for 100-yr event  
 Inflow = 205.36 cfs @ 12.19 hrs, Volume= 27.529 af  
 Primary = 205.36 cfs @ 12.19 hrs, Volume= 27.529 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 42L: POA STREAM TOTAL**



**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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**Hydrograph for Link 42L: POA STREAM TOTAL**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.35	0.00	0.35	61.00	0.00	0.00	0.00
10.00	2.55	0.00	2.55	62.00	0.00	0.00	0.00
11.00	7.58	0.00	7.58	63.00	0.00	0.00	0.00
12.00	<b>85.83</b>	0.00	<b>85.83</b>	64.00	0.00	0.00	0.00
13.00	<b>60.32</b>	0.00	<b>60.32</b>	65.00	0.00	0.00	0.00
14.00	33.97	0.00	33.97	66.00	0.00	0.00	0.00
15.00	23.51	0.00	23.51	67.00	0.00	0.00	0.00
16.00	18.23	0.00	18.23	68.00	0.00	0.00	0.00
17.00	15.21	0.00	15.21	69.00	0.00	0.00	0.00
18.00	12.90	0.00	12.90	70.00	0.00	0.00	0.00
19.00	10.89	0.00	10.89	71.00	0.00	0.00	0.00
20.00	9.44	0.00	9.44	72.00	0.00	0.00	0.00
21.00	8.38	0.00	8.38				
22.00	7.57	0.00	7.57				
23.00	6.86	0.00	6.86				
24.00	6.39	0.00	6.39				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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NY-Suffern 24-hr S1 100-yr Rainfall=8.81"

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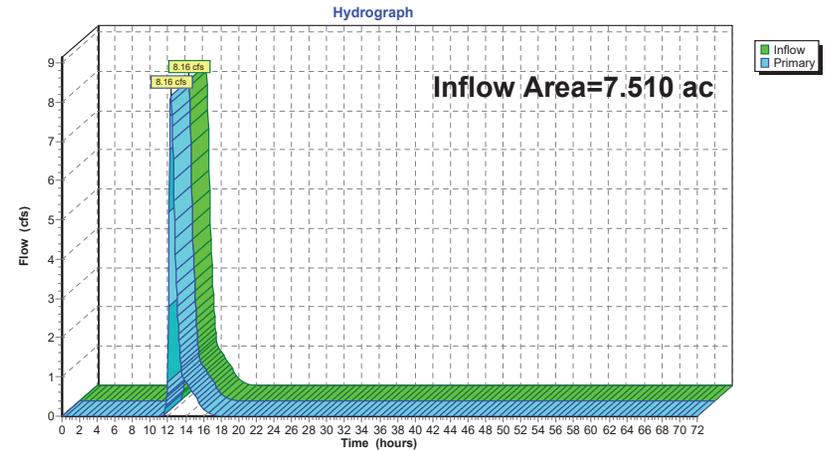
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**Summary for Link 43L: TOTAL AG INF BASINS**

Inflow Area = 7.510 ac, 74.03% Impervious, Inflow Depth = 1.15" for 100-yr event  
 Inflow = 8.16 cfs @ 12.30 hrs, Volume= 0.719 af  
 Primary = 8.16 cfs @ 12.30 hrs, Volume= 0.719 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 43L: TOTAL AG INF BASINS**



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**Hydrograph for Link 43L: TOTAL AG INF BASINS**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.86	0.00	0.86	64.00	0.00	0.00	0.00
13.00	3.07	0.00	3.07	65.00	0.00	0.00	0.00
14.00	0.88	0.00	0.88	66.00	0.00	0.00	0.00
15.00	0.54	0.00	0.54	67.00	0.00	0.00	0.00
16.00	0.19	0.00	0.19	68.00	0.00	0.00	0.00
17.00	0.04	0.00	0.04	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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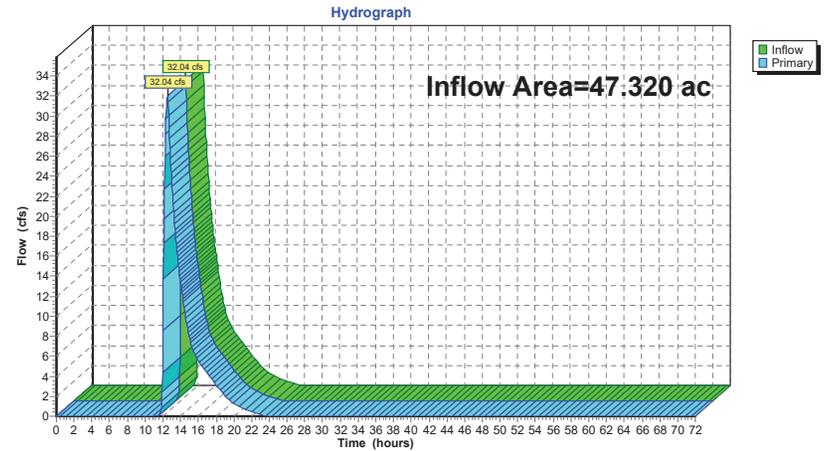
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**Summary for Link 44L: Total UG INF BASINS**

Inflow Area = 47.320 ac, 95.33% Impervious, Inflow Depth = 1.59" for 100-yr event  
 Inflow = 32.04 cfs @ 12.50 hrs, Volume= 6.272 af  
 Primary = 32.04 cfs @ 12.50 hrs, Volume= 6.272 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 44L: Total UG INF BASINS**



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**Hydrograph for Link 44L: Total UG INF BASINS**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	8.52	0.00	8.52	64.00	0.00	0.00	0.00
13.00	23.67	0.00	23.67	65.00	0.00	0.00	0.00
14.00	13.39	0.00	13.39	66.00	0.00	0.00	0.00
15.00	7.90	0.00	7.90	67.00	0.00	0.00	0.00
16.00	5.50	0.00	5.50	68.00	0.00	0.00	0.00
17.00	4.26	0.00	4.26	69.00	0.00	0.00	0.00
18.00	3.15	0.00	3.15	70.00	0.00	0.00	0.00
19.00	2.02	0.00	2.02	71.00	0.00	0.00	0.00
20.00	1.27	0.00	1.27	72.00	0.00	0.00	0.00
21.00	0.78	0.00	0.78				
22.00	0.44	0.00	0.44				
23.00	0.13	0.00	0.13				
24.00	0.01	0.00	0.01				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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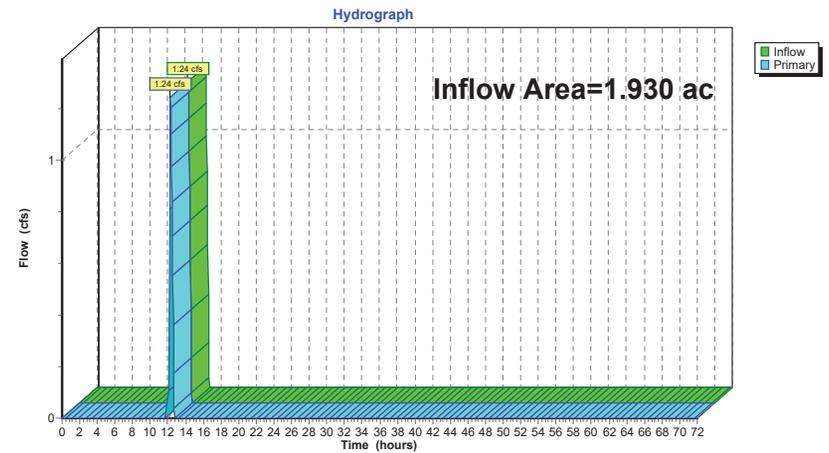
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**Summary for Link 48L: TOTAL INF TRENCH**

Inflow Area = 1.930 ac, 60.10% Impervious, Inflow Depth = 0.24" for 100-yr event  
 Inflow = 1.24 cfs @ 12.26 hrs, Volume= 0.039 af  
 Primary = 1.24 cfs @ 12.26 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 48L: TOTAL INF TRENCH**



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**Hydrograph for Link 48L: TOTAL INF TRENCH**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>SubcatchmentBASIN C IN: SA BASIN C</b>	Runoff Area=8.090 ac 94.93% Impervious Runoff Depth=1.01" Flow Length=135' Tc=5.0 min CN=95 Runoff=9.56 cfs 0.683 af
<b>SubcatchmentBASIN D IN: SA BASIN D</b>	Runoff Area=8.240 ac 95.51% Impervious Runoff Depth=1.18" Flow Length=133' Tc=5.0 min CN=97 Runoff=11.04 cfs 0.813 af
<b>SubcatchmentBASIN E IN: SA BASIN E</b>	Runoff Area=8.220 ac 95.13% Impervious Runoff Depth=1.01" Flow Length=215' Tc=5.2 min CN=95 Runoff=9.61 cfs 0.694 af
<b>SubcatchmentBASIN F IN: SA BASIN F</b>	Runoff Area=9.660 ac 93.79% Impervious Runoff Depth=1.01" Flow Length=95' Tc=3.8 min CN=95 Runoff=12.01 cfs 0.815 af
<b>SubcatchmentBASIN H IN: SA BASIN H</b>	Runoff Area=1.430 ac 98.60% Impervious Runoff Depth=1.18" Flow Length=77' Slope=0.0118 1/1 Tc=1.2 min CN=97 Runoff=2.10 cfs 0.141 af
<b>SubcatchmentBASIN I IN: SA BASIN I</b>	Runoff Area=1.930 ac 60.10% Impervious Runoff Depth=0.17" Flow Length=80' Slope=0.0100 1/1 Tc=4.5 min CN=75 Runoff=0.19 cfs 0.027 af
<b>SubcatchmentBASIN K IN: SA BASIN K</b>	Runoff Area=3.850 ac 100.00% Impervious Runoff Depth=1.28" Flow Length=158' Slope=0.0120 1/1 Tc=1.9 min CN=98 Runoff=5.86 cfs 0.411 af
<b>SubcatchmentBASIN M IN: SA BASIN M</b>	Runoff Area=7.830 ac 94.76% Impervious Runoff Depth=1.01" Flow Length=162' Tc=5.3 min CN=95 Runoff=9.13 cfs 0.661 af
<b>SubcatchmentFB A1 IN: SA FOREBAY A1</b>	Runoff Area=2.540 ac 84.65% Impervious Runoff Depth=0.63" Flow Length=134' Slope=0.0100 1/1 Tc=1.9 min CN=89 Runoff=2.04 cfs 0.133 af
<b>SubcatchmentFB A2 IN: SA FOREBAY A2</b>	Runoff Area=2.710 ac 72.32% Impervious Runoff Depth=0.35" Flow Length=50' Slope=0.1400 1/1 Tc=2.5 min CN=82 Runoff=1.05 cfs 0.078 af
<b>SubcatchmentFB-B IN: SA BASIN B</b>	Runoff Area=1.560 ac 66.03% Impervious Runoff Depth=0.54" Flow Length=53' Slope=0.1700 1/1 Tc=2.4 min CN=87 Runoff=1.04 cfs 0.070 af
<b>SubcatchmentFB-G IN: SA BASIN G</b>	Runoff Area=0.700 ac 60.00% Impervious Runoff Depth=0.15" Flow Length=30' Slope=0.1600 1/1 Tc=1.6 min CN=74 Runoff=0.05 cfs 0.009 af
<b>SubcatchmentSTRM-UNDT: STUDY AREA</b>	Runoff Area=68.500 ac 1.55% Impervious Runoff Depth=0.00" Flow Length=1,340' Tc=15.6 min CN=57 Runoff=0.00 cfs 0.000 af
<b>Pond BA-A: AG INF BASIN A</b>	Peak Elev=309.82' Storage=200 cf Inflow=1.63 cfs 0.147 af Discarded=1.53 cfs 0.147 af Primary=0.00 cfs 0.000 af Outflow=1.53 cfs 0.147 af
<b>Pond BA-B: AG INF BASIN B</b>	Peak Elev=304.15' Storage=331 cf Inflow=1.03 cfs 0.051 af Discarded=0.21 cfs 0.051 af Primary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.051 af
<b>Pond BA-CR: UG INF BASIN C (RTANK)</b>	Peak Elev=303.97' Storage=8.220 cf Inflow=9.56 cfs 0.683 af Discarded=1.86 cfs 0.683 af Primary=0.00 cfs 0.000 af Outflow=1.86 cfs 0.683 af

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Pond BA-DR: UG INF BASIN D (RTANK)** Peak Elev=305.45' Storage=9,081 cf Inflow=11.04 cfs 0.813 af  
Discarded=2.27 cfs 0.813 af Primary=0.00 cfs 0.000 af Outflow=2.27 cfs 0.813 af

**Pond BA-ER: UG INF BASIN E (RTANK)** Peak Elev=305.48' Storage=7,484 cf Inflow=9.61 cfs 0.694 af  
Discarded=2.18 cfs 0.694 af Primary=0.00 cfs 0.000 af Outflow=2.18 cfs 0.694 af

**Pond BA-FR: UG INF BASIN F (RTANK)** Peak Elev=306.47' Storage=2,517 cf Inflow=12.01 cfs 0.815 af  
Discarded=6.74 cfs 0.815 af Primary=0.00 cfs 0.000 af Outflow=6.74 cfs 0.815 af

**Pond BA-G: AG INF BASIN G** Peak Elev=309.50' Storage=0 cf Inflow=0.00 cfs 0.000 af  
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

**Pond BA-HR: UG INF BASIN H (RTANK)** Peak Elev=307.92' Storage=1,575 cf Inflow=2.10 cfs 0.141 af  
Discarded=0.40 cfs 0.141 af Primary=0.00 cfs 0.000 af Outflow=0.40 cfs 0.141 af

**Pond BA-KR: UG INF BASIN K (RTANK)** Peak Elev=308.20' Storage=3,444 cf Inflow=5.86 cfs 0.411 af  
Discarded=1.52 cfs 0.411 af Primary=0.00 cfs 0.000 af Outflow=1.52 cfs 0.411 af

**Pond BA-MR: UG INF BASIN M (RTANK)** Peak Elev=304.34' Storage=9,790 cf Inflow=9.13 cfs 0.661 af  
Discarded=1.18 cfs 0.661 af Primary=0.00 cfs 0.000 af Outflow=1.18 cfs 0.661 af

**Pond BASIN I: INF TRENCH I** Peak Elev=312.50' Storage=7 cf Inflow=0.19 cfs 0.027 af  
Discarded=0.19 cfs 0.027 af Primary=0.00 cfs 0.000 af Outflow=0.19 cfs 0.027 af

**Pond FB-A1: FOREBAY A1** Peak Elev=311.12' Storage=5,138 cf Inflow=2.04 cfs 0.133 af  
Outflow=1.63 cfs 0.147 af

**Pond FB-A2: FOREBAY A2** Peak Elev=310.28' Storage=3,401 cf Inflow=1.05 cfs 0.078 af  
Outflow=0.00 cfs 0.000 af

**Pond FB-B: FOREBAY B** Peak Elev=306.74' Storage=826 cf Inflow=1.04 cfs 0.070 af  
Outflow=1.03 cfs 0.051 af

**Pond FB-G: FOREBAY G** Peak Elev=309.98' Storage=375 cf Inflow=0.05 cfs 0.009 af  
Outflow=0.00 cfs 0.000 af

**Link 42L: POA STREAM TOTAL** Inflow=0.00 cfs 0.000 af  
Primary=0.00 cfs 0.000 af

**Link 43L: TOTAL AG INF BASINS** Inflow=0.00 cfs 0.000 af  
Primary=0.00 cfs 0.000 af

**Link 44L: Total UG INF BASINS** Inflow=0.00 cfs 0.000 af  
Primary=0.00 cfs 0.000 af

**Link 48L: TOTAL INF TRENCH** Inflow=0.00 cfs 0.000 af  
Primary=0.00 cfs 0.000 af

**Total Runoff Area = 125.260 ac Runoff Volume = 4.533 af Average Runoff Depth = 0.43"**  
**57.78% Pervious = 72.370 ac 42.22% Impervious = 52.890 ac**

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment BASIN C IN: SA BASIN C**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 9.56 cfs @ 12.07 hrs, Volume= 0.683 af, Depth= 1.01"  
Routed to Pond BA-CR : UG INF BASIN C (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
7.680	98	Paved parking, HSG A
0.380	39	>75% Grass cover, Good, HSG A
0.030	80	>75% Grass cover, Good, HSG D
8.090	95	Weighted Average
0.410		5.07% Pervious Area
7.680		94.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	61	0.0735	0.27		<b>Sheet Flow, Sheet Flow (open space)</b> Grass: Short n= 0.150 P2= 3.35"
0.9	39	0.0067	0.75		<b>Sheet Flow, Sheet Flow (Paved)</b> Smooth surfaces n= 0.011 P2= 3.35"
0.3	35	0.0068	1.67		<b>Shallow Concentrated Flow, Shallow Concentrated Flow</b> Paved Kv= 20.3 fps
5.0	135	Total			

**2024-01-15 Proposed Conditions**

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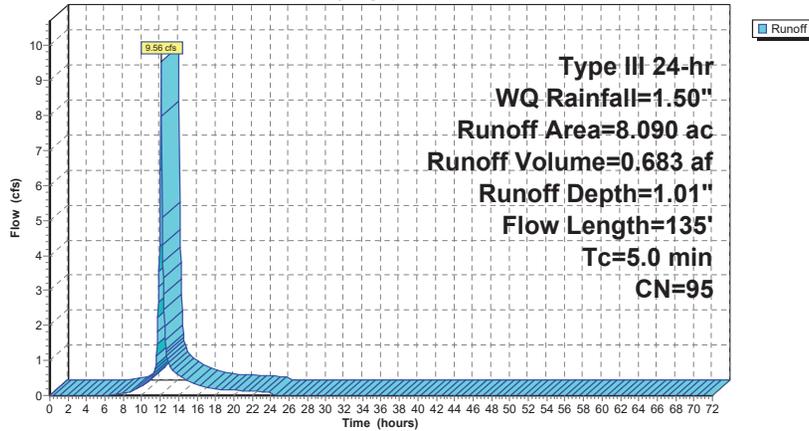
Type III 24-hr WQ Rainfall=1.50"

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**Subcatchment BASIN C IN: SA BASIN C**

Hydrograph



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment BASIN C IN: SA BASIN C**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	1.01	0.00
1.00	0.02	0.00	0.00	53.00	1.50	1.01	0.00
2.00	0.03	0.00	0.00	54.00	1.50	1.01	0.00
3.00	0.05	0.00	0.00	55.00	1.50	1.01	0.00
4.00	0.06	0.00	0.00	56.00	1.50	1.01	0.00
5.00	0.09	0.00	0.00	57.00	1.50	1.01	0.00
6.00	0.11	0.00	0.00	58.00	1.50	1.01	0.00
7.00	0.14	0.00	0.02	59.00	1.50	1.01	0.00
8.00	0.17	0.01	0.06	60.00	1.50	1.01	0.00
9.00	0.22	0.02	0.14	61.00	1.50	1.01	0.00
10.00	0.28	0.05	0.25	62.00	1.50	1.01	0.00
11.00	0.38	0.09	0.48	63.00	1.50	1.01	0.00
12.00	0.75	0.35	<b>6.42</b>	64.00	1.50	1.01	0.00
13.00	1.12	0.67	<b>0.87</b>	65.00	1.50	1.01	0.00
14.00	1.22	0.75	0.56	66.00	1.50	1.01	0.00
15.00	1.28	0.81	0.42	67.00	1.50	1.01	0.00
16.00	1.33	0.86	0.30	68.00	1.50	1.01	0.00
17.00	1.36	0.89	0.24	69.00	1.50	1.01	0.00
18.00	1.39	0.91	0.18	70.00	1.50	1.01	0.00
19.00	1.41	0.93	0.16	71.00	1.50	1.01	0.00
20.00	1.44	0.95	0.15	72.00	1.50	1.01	0.00
21.00	1.45	0.97	0.13				
22.00	1.47	0.99	0.12				
23.00	1.49	1.00	0.11				
24.00	<b>1.50</b>	<b>1.01</b>	0.10				
25.00	1.50	1.01	0.00				
26.00	1.50	1.01	0.00				
27.00	1.50	1.01	0.00				
28.00	1.50	1.01	0.00				
29.00	1.50	1.01	0.00				
30.00	1.50	1.01	0.00				
31.00	1.50	1.01	0.00				
32.00	1.50	1.01	0.00				
33.00	1.50	1.01	0.00				
34.00	1.50	1.01	0.00				
35.00	1.50	1.01	0.00				
36.00	1.50	1.01	0.00				
37.00	1.50	1.01	0.00				
38.00	1.50	1.01	0.00				
39.00	1.50	1.01	0.00				
40.00	1.50	1.01	0.00				
41.00	1.50	1.01	0.00				
42.00	1.50	1.01	0.00				
43.00	1.50	1.01	0.00				
44.00	1.50	1.01	0.00				
45.00	1.50	1.01	0.00				
46.00	1.50	1.01	0.00				
47.00	1.50	1.01	0.00				
48.00	1.50	1.01	0.00				
49.00	1.50	1.01	0.00				
50.00	1.50	1.01	0.00				
51.00	1.50	1.01	0.00				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment BASIN D IN: SA BASIN D**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 11.04 cfs @ 12.07 hrs, Volume= 0.813 af, Depth= 1.18"  
 Routed to Pond BA-DR : UG INF BASIN D (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 7.870	98	Paved parking- Impervious
0.010	39	>75% Grass cover, Good, HSG A
0.360	80	>75% Grass cover, Good, HSG D
8.240	97	Weighted Average
0.370		4.49% Pervious Area
7.870		95.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	68	0.0713	0.27		<b>Sheet Flow, Sheet Flow - Grass</b> Grass: Short n= 0.150 P2= 3.35"
0.6	32	0.0130	0.94		<b>Sheet Flow, Sheet Flow - Asphalt</b> Smooth surfaces n= 0.011 P2= 3.35"
0.2	33	0.0131	2.32		<b>Shallow Concentrated Flow, Shallow Con. - Asphalt</b> Paved Kv= 20.3 fps
5.0	133	Total			

**2024-01-15 Proposed Conditions**

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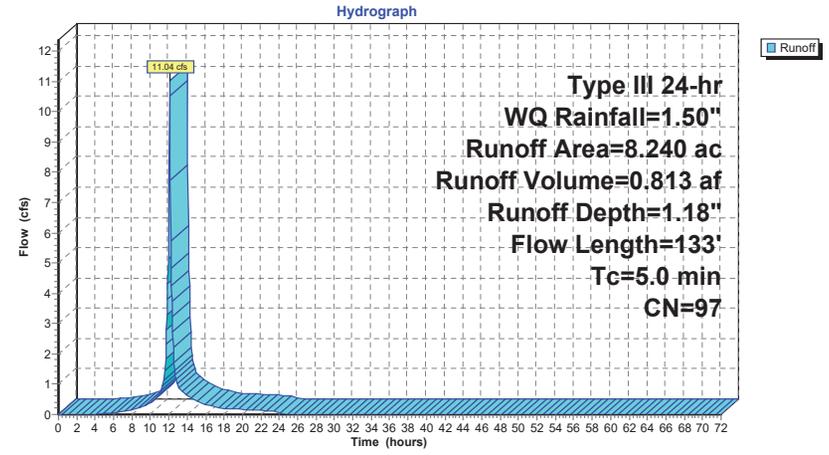
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Type III 24-hr WQ Rainfall=1.50"

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**Subcatchment BASIN D IN: SA BASIN D**



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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment BASIN D IN: SA BASIN D**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	1.18	0.00
1.00	0.02	0.00	0.00	53.00	1.50	1.18	0.00
2.00	0.03	0.00	0.00	54.00	1.50	1.18	0.00
3.00	0.05	0.00	0.00	55.00	1.50	1.18	0.00
4.00	0.06	0.00	0.00	56.00	1.50	1.18	0.00
5.00	0.09	0.00	0.02	57.00	1.50	1.18	0.00
6.00	0.11	0.01	0.05	58.00	1.50	1.18	0.00
7.00	0.14	0.01	0.09	59.00	1.50	1.18	0.00
8.00	0.17	0.03	0.14	60.00	1.50	1.18	0.00
9.00	0.22	0.05	0.25	61.00	1.50	1.18	0.00
10.00	0.28	0.09	0.39	62.00	1.50	1.18	0.00
11.00	0.38	0.16	0.66	63.00	1.50	1.18	0.00
12.00	0.75	0.47	<b>7.58</b>	64.00	1.50	1.18	0.00
13.00	1.12	0.82	<b>0.95</b>	65.00	1.50	1.18	0.00
14.00	1.22	0.91	0.61	66.00	1.50	1.18	0.00
15.00	1.28	0.97	0.46	67.00	1.50	1.18	0.00
16.00	1.33	1.02	0.32	68.00	1.50	1.18	0.00
17.00	1.36	1.05	0.26	69.00	1.50	1.18	0.00
18.00	1.39	1.08	0.20	70.00	1.50	1.18	0.00
19.00	1.41	1.10	0.18	71.00	1.50	1.18	0.00
20.00	1.44	1.12	0.16	72.00	1.50	1.18	0.00
21.00	1.45	1.14	0.14				
22.00	1.47	1.16	0.13				
23.00	1.49	1.17	0.12				
24.00	<b>1.50</b>	<b>1.18</b>	0.10				
25.00	1.50	1.18	0.00				
26.00	1.50	1.18	0.00				
27.00	1.50	1.18	0.00				
28.00	1.50	1.18	0.00				
29.00	1.50	1.18	0.00				
30.00	1.50	1.18	0.00				
31.00	1.50	1.18	0.00				
32.00	1.50	1.18	0.00				
33.00	1.50	1.18	0.00				
34.00	1.50	1.18	0.00				
35.00	1.50	1.18	0.00				
36.00	1.50	1.18	0.00				
37.00	1.50	1.18	0.00				
38.00	1.50	1.18	0.00				
39.00	1.50	1.18	0.00				
40.00	1.50	1.18	0.00				
41.00	1.50	1.18	0.00				
42.00	1.50	1.18	0.00				
43.00	1.50	1.18	0.00				
44.00	1.50	1.18	0.00				
45.00	1.50	1.18	0.00				
46.00	1.50	1.18	0.00				
47.00	1.50	1.18	0.00				
48.00	1.50	1.18	0.00				
49.00	1.50	1.18	0.00				
50.00	1.50	1.18	0.00				
51.00	1.50	1.18	0.00				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment BASIN E IN: SA BASIN E**

[49] Hint: Tc<2dt may require smaller dt

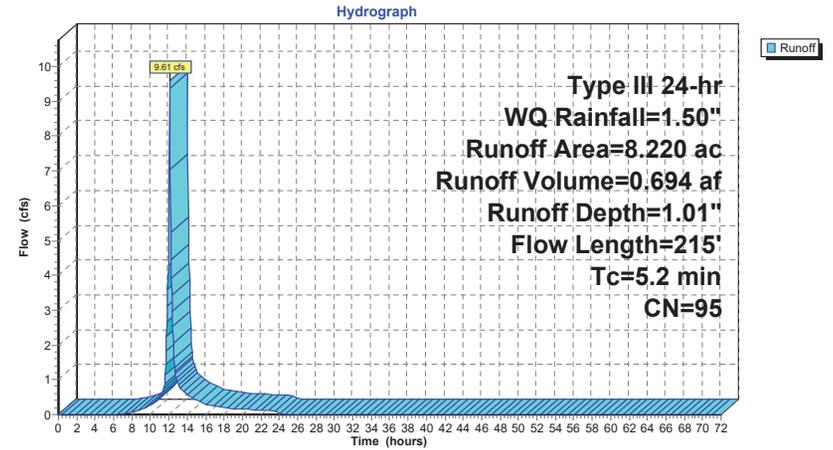
Runoff = 9.61 cfs @ 12.08 hrs, Volume= 0.694 af, Depth= 1.01"  
 Routed to Pond BA-ER : UG INF BASIN E (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
7.820	98	Paved parking, HSG A
0.400	39	>75% Grass cover, Good, HSG A
8.220	95	Weighted Average
0.400		4.87% Pervious Area
7.820		95.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	40	0.0313	0.17		<b>Sheet Flow, Sheet Flow</b> Grass: Short n= 0.150 P2= 3.35"
0.8	60	0.0225	1.33		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.35"
0.6	115	0.0230	3.08		<b>Shallow Concentrated Flow, Shallow concentrated Flow (Paved)</b> Paved Kv= 20.3 fps
5.2	215	Total			

**Subcatchment BASIN E IN: SA BASIN E**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment BASIN E IN: SA BASIN E**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	1.01	0.00
1.00	0.02	0.00	0.00	53.00	1.50	1.01	0.00
2.00	0.03	0.00	0.00	54.00	1.50	1.01	0.00
3.00	0.05	0.00	0.00	55.00	1.50	1.01	0.00
4.00	0.06	0.00	0.00	56.00	1.50	1.01	0.00
5.00	0.09	0.00	0.00	57.00	1.50	1.01	0.00
6.00	0.11	0.00	0.00	58.00	1.50	1.01	0.00
7.00	0.14	0.00	0.03	59.00	1.50	1.01	0.00
8.00	0.17	0.01	0.06	60.00	1.50	1.01	0.00
9.00	0.22	0.02	0.14	61.00	1.50	1.01	0.00
10.00	0.28	0.05	0.26	62.00	1.50	1.01	0.00
11.00	0.38	0.09	0.49	63.00	1.50	1.01	0.00
12.00	0.75	0.35	<b>6.38</b>	64.00	1.50	1.01	0.00
13.00	1.12	0.67	<b>0.88</b>	65.00	1.50	1.01	0.00
14.00	1.22	0.75	0.57	66.00	1.50	1.01	0.00
15.00	1.28	0.81	0.43	67.00	1.50	1.01	0.00
16.00	1.33	0.86	0.30	68.00	1.50	1.01	0.00
17.00	1.36	0.89	0.24	69.00	1.50	1.01	0.00
18.00	1.39	0.91	0.19	70.00	1.50	1.01	0.00
19.00	1.41	0.93	0.17	71.00	1.50	1.01	0.00
20.00	1.44	0.95	0.15	72.00	1.50	1.01	0.00
21.00	1.45	0.97	0.14				
22.00	1.47	0.99	0.12				
23.00	1.49	1.00	0.11				
24.00	<b>1.50</b>	<b>1.01</b>	0.10				
25.00	1.50	1.01	0.00				
26.00	1.50	1.01	0.00				
27.00	1.50	1.01	0.00				
28.00	1.50	1.01	0.00				
29.00	1.50	1.01	0.00				
30.00	1.50	1.01	0.00				
31.00	1.50	1.01	0.00				
32.00	1.50	1.01	0.00				
33.00	1.50	1.01	0.00				
34.00	1.50	1.01	0.00				
35.00	1.50	1.01	0.00				
36.00	1.50	1.01	0.00				
37.00	1.50	1.01	0.00				
38.00	1.50	1.01	0.00				
39.00	1.50	1.01	0.00				
40.00	1.50	1.01	0.00				
41.00	1.50	1.01	0.00				
42.00	1.50	1.01	0.00				
43.00	1.50	1.01	0.00				
44.00	1.50	1.01	0.00				
45.00	1.50	1.01	0.00				
46.00	1.50	1.01	0.00				
47.00	1.50	1.01	0.00				
48.00	1.50	1.01	0.00				
49.00	1.50	1.01	0.00				
50.00	1.50	1.01	0.00				
51.00	1.50	1.01	0.00				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment BASIN F IN: SA BASIN F**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 12.01 cfs @ 12.06 hrs, Volume= 0.815 af, Depth= 1.01"  
 Routed to Pond BA-FR : UG INF BASIN F (RTANK)

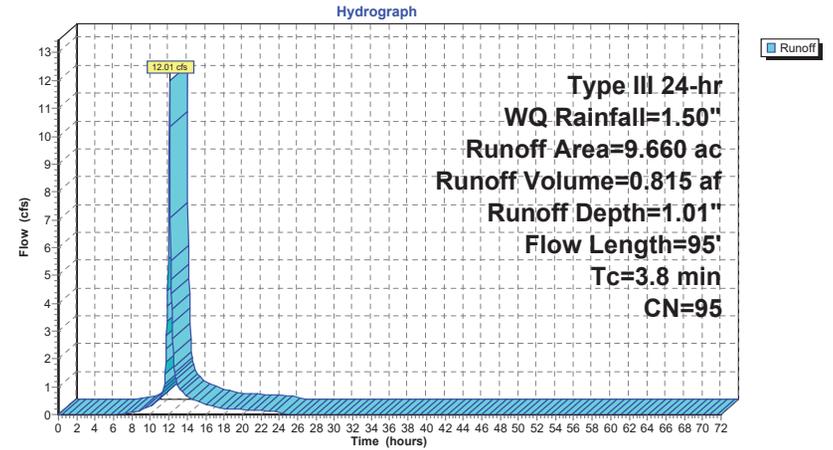
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
9.060	98	Paved parking, HSG A
0.450	39	>75% Grass cover, Good, HSG A
0.100	74	>75% Grass cover, Good, HSG C
0.050	80	>75% Grass cover, Good, HSG D
9.660	95	Weighted Average
0.600		6.21% Pervious Area
9.060		93.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	43	0.0550	0.22		Sheet Flow, Sheet Flow - Grass Grass: Short n= 0.150 P2= 3.35"
0.5	52	0.0380	1.60		Sheet Flow, Sheet Flow - Asphalt Smooth surfaces n= 0.011 P2= 3.35"
3.8	95	Total			

**Subcatchment BASIN F IN: SA BASIN F**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment BASIN F IN: SA BASIN F**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	1.01	0.00
1.00	0.02	0.00	0.00	53.00	1.50	1.01	0.00
2.00	0.03	0.00	0.00	54.00	1.50	1.01	0.00
3.00	0.05	0.00	0.00	55.00	1.50	1.01	0.00
4.00	0.06	0.00	0.00	56.00	1.50	1.01	0.00
5.00	0.09	0.00	0.00	57.00	1.50	1.01	0.00
6.00	0.11	0.00	0.00	58.00	1.50	1.01	0.00
7.00	0.14	0.00	0.03	59.00	1.50	1.01	0.00
8.00	0.17	0.01	0.08	60.00	1.50	1.01	0.00
9.00	0.22	0.02	0.17	61.00	1.50	1.01	0.00
10.00	0.28	0.05	0.31	62.00	1.50	1.01	0.00
11.00	0.38	0.09	0.58	63.00	1.50	1.01	0.00
12.00	0.75	0.35	<b>8.88</b>	64.00	1.50	1.01	0.00
13.00	1.12	0.67	<b>1.01</b>	65.00	1.50	1.01	0.00
14.00	1.22	0.75	0.66	66.00	1.50	1.01	0.00
15.00	1.28	0.81	0.50	67.00	1.50	1.01	0.00
16.00	1.33	0.86	0.35	68.00	1.50	1.01	0.00
17.00	1.36	0.89	0.28	69.00	1.50	1.01	0.00
18.00	1.39	0.91	0.22	70.00	1.50	1.01	0.00
19.00	1.41	0.93	0.20	71.00	1.50	1.01	0.00
20.00	1.44	0.95	0.18	72.00	1.50	1.01	0.00
21.00	1.45	0.97	0.16				
22.00	1.47	0.99	0.15				
23.00	1.49	1.00	0.13				
24.00	<b>1.50</b>	<b>1.01</b>	0.11				
25.00	1.50	1.01	0.00				
26.00	1.50	1.01	0.00				
27.00	1.50	1.01	0.00				
28.00	1.50	1.01	0.00				
29.00	1.50	1.01	0.00				
30.00	1.50	1.01	0.00				
31.00	1.50	1.01	0.00				
32.00	1.50	1.01	0.00				
33.00	1.50	1.01	0.00				
34.00	1.50	1.01	0.00				
35.00	1.50	1.01	0.00				
36.00	1.50	1.01	0.00				
37.00	1.50	1.01	0.00				
38.00	1.50	1.01	0.00				
39.00	1.50	1.01	0.00				
40.00	1.50	1.01	0.00				
41.00	1.50	1.01	0.00				
42.00	1.50	1.01	0.00				
43.00	1.50	1.01	0.00				
44.00	1.50	1.01	0.00				
45.00	1.50	1.01	0.00				
46.00	1.50	1.01	0.00				
47.00	1.50	1.01	0.00				
48.00	1.50	1.01	0.00				
49.00	1.50	1.01	0.00				
50.00	1.50	1.01	0.00				
51.00	1.50	1.01	0.00				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment BASIN H IN: SA BASIN H**

[49] Hint: Tc<2dt may require smaller dt

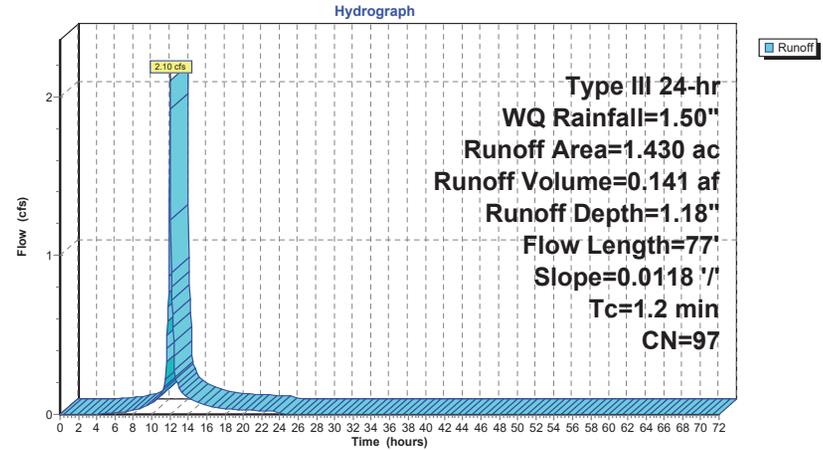
Runoff = 2.10 cfs @ 12.02 hrs, Volume= 0.141 af, Depth= 1.18"  
 Routed to Pond BA-HR : UG INF BASIN H (RTANK)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
1.410	98	IMP
0.020	39	>75% Grass cover, Good, HSG A
1.430	97	Weighted Average
0.020		1.40% Pervious Area
1.410		98.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	77	0.0118	1.08		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.35"

**Subcatchment BASIN H IN: SA BASIN H**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment BASIN H IN: SA BASIN H**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	1.18	0.00
1.00	0.02	0.00	0.00	53.00	1.50	1.18	0.00
2.00	0.03	0.00	0.00	54.00	1.50	1.18	0.00
3.00	0.05	0.00	0.00	55.00	1.50	1.18	0.00
4.00	0.06	0.00	0.00	56.00	1.50	1.18	0.00
5.00	0.09	0.00	0.00	57.00	1.50	1.18	0.00
6.00	0.11	0.01	0.01	58.00	1.50	1.18	0.00
7.00	0.14	0.01	0.02	59.00	1.50	1.18	0.00
8.00	0.17	0.03	0.03	60.00	1.50	1.18	0.00
9.00	0.22	0.05	0.04	61.00	1.50	1.18	0.00
10.00	0.28	0.09	0.07	62.00	1.50	1.18	0.00
11.00	0.38	0.16	0.12	63.00	1.50	1.18	0.00
12.00	0.75	0.47	<b>2.05</b>	64.00	1.50	1.18	0.00
13.00	1.12	0.82	0.15	65.00	1.50	1.18	0.00
14.00	1.22	0.91	0.10	66.00	1.50	1.18	0.00
15.00	1.28	0.97	0.08	67.00	1.50	1.18	0.00
16.00	1.33	1.02	0.05	68.00	1.50	1.18	0.00
17.00	1.36	1.05	0.04	69.00	1.50	1.18	0.00
18.00	1.39	1.08	0.03	70.00	1.50	1.18	0.00
19.00	1.41	1.10	0.03	71.00	1.50	1.18	0.00
20.00	1.44	1.12	0.03	72.00	1.50	1.18	0.00
21.00	1.45	1.14	0.02				
22.00	1.47	1.16	0.02				
23.00	1.49	1.17	0.02				
24.00	<b>1.50</b>	<b>1.18</b>	0.02				
25.00	1.50	1.18	0.00				
26.00	1.50	1.18	0.00				
27.00	1.50	1.18	0.00				
28.00	1.50	1.18	0.00				
29.00	1.50	1.18	0.00				
30.00	1.50	1.18	0.00				
31.00	1.50	1.18	0.00				
32.00	1.50	1.18	0.00				
33.00	1.50	1.18	0.00				
34.00	1.50	1.18	0.00				
35.00	1.50	1.18	0.00				
36.00	1.50	1.18	0.00				
37.00	1.50	1.18	0.00				
38.00	1.50	1.18	0.00				
39.00	1.50	1.18	0.00				
40.00	1.50	1.18	0.00				
41.00	1.50	1.18	0.00				
42.00	1.50	1.18	0.00				
43.00	1.50	1.18	0.00				
44.00	1.50	1.18	0.00				
45.00	1.50	1.18	0.00				
46.00	1.50	1.18	0.00				
47.00	1.50	1.18	0.00				
48.00	1.50	1.18	0.00				
49.00	1.50	1.18	0.00				
50.00	1.50	1.18	0.00				
51.00	1.50	1.18	0.00				

**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment BASIN I IN: SA BASIN I**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.19 cfs @ 12.12 hrs, Volume= 0.027 af, Depth= 0.17"  
Routed to Pond BASIN I : INF TRENCH I

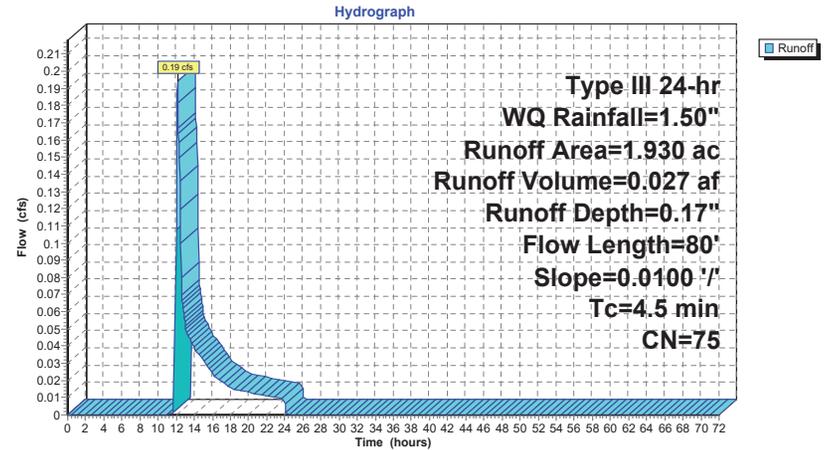
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 1.160	98	Paved parking
0.730	39	>75% Grass cover, Good, HSG A
0.040	80	>75% Grass cover, Good, HSG D
1.930	75	Weighted Average
0.770		39.90% Pervious Area
1.160		60.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	60	0.0100	0.96		<b>Sheet Flow</b> , Smooth surfaces n= 0.011 P2= 3.35"
3.5	20	0.0100	0.10		<b>Sheet Flow</b> , Grass: Short n= 0.150 P2= 3.35"
4.5	80	Total			

**Subcatchment BASIN I IN: SA BASIN I**



**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment BASIN I IN: SA BASIN I**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	0.17	0.00
1.00	0.02	0.00	0.00	53.00	1.50	0.17	0.00
2.00	0.03	0.00	0.00	54.00	1.50	0.17	0.00
3.00	0.05	0.00	0.00	55.00	1.50	0.17	0.00
4.00	0.06	0.00	0.00	56.00	1.50	0.17	0.00
5.00	0.09	0.00	0.00	57.00	1.50	0.17	0.00
6.00	0.11	0.00	0.00	58.00	1.50	0.17	0.00
7.00	0.14	0.00	0.00	59.00	1.50	0.17	0.00
8.00	0.17	0.00	0.00	60.00	1.50	0.17	0.00
9.00	0.22	0.00	0.00	61.00	1.50	0.17	0.00
10.00	0.28	0.00	0.00	62.00	1.50	0.17	0.00
11.00	0.38	0.00	0.00	63.00	1.50	0.17	0.00
12.00	0.75	0.00	<b>0.02</b>	64.00	1.50	0.17	0.00
13.00	1.12	0.06	<b>0.05</b>	65.00	1.50	0.17	0.00
14.00	1.22	0.08	0.04	66.00	1.50	0.17	0.00
15.00	1.28	0.10	0.03	67.00	1.50	0.17	0.00
16.00	1.33	0.11	0.02	68.00	1.50	0.17	0.00
17.00	1.36	0.12	0.02	69.00	1.50	0.17	0.00
18.00	1.39	0.13	0.02	70.00	1.50	0.17	0.00
19.00	1.41	0.14	0.01	71.00	1.50	0.17	0.00
20.00	1.44	0.14	0.01	72.00	1.50	0.17	0.00
21.00	1.45	0.15	0.01				
22.00	1.47	0.16	0.01				
23.00	1.49	0.16	0.01				
24.00	<b>1.50</b>	<b>0.17</b>	0.01				
25.00	1.50	0.17	0.00				
26.00	1.50	0.17	0.00				
27.00	1.50	0.17	0.00				
28.00	1.50	0.17	0.00				
29.00	1.50	0.17	0.00				
30.00	1.50	0.17	0.00				
31.00	1.50	0.17	0.00				
32.00	1.50	0.17	0.00				
33.00	1.50	0.17	0.00				
34.00	1.50	0.17	0.00				
35.00	1.50	0.17	0.00				
36.00	1.50	0.17	0.00				
37.00	1.50	0.17	0.00				
38.00	1.50	0.17	0.00				
39.00	1.50	0.17	0.00				
40.00	1.50	0.17	0.00				
41.00	1.50	0.17	0.00				
42.00	1.50	0.17	0.00				
43.00	1.50	0.17	0.00				
44.00	1.50	0.17	0.00				
45.00	1.50	0.17	0.00				
46.00	1.50	0.17	0.00				
47.00	1.50	0.17	0.00				
48.00	1.50	0.17	0.00				
49.00	1.50	0.17	0.00				
50.00	1.50	0.17	0.00				
51.00	1.50	0.17	0.00				

**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment BASIN K IN: SA BASIN K**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 5.86 cfs @ 12.03 hrs, Volume= 0.411 af, Depth= 1.28"  
 Routed to Pond BA-KR : UG INF BASIN K (RTANK)

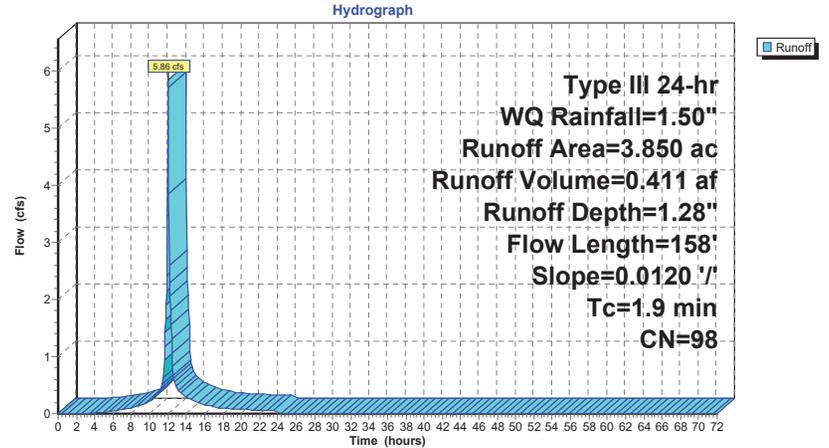
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 3.850	98	Paved parking
3.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0120	1.15		Sheet Flow, A to B Smooth surfaces n= 0.011 P2= 3.35"
0.4	58	0.0120	2.22		Shallow Concentrated Flow, B to C Paved Kv= 20.3 fps
1.9	158	Total			

**Subcatchment BASIN K IN: SA BASIN K**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment BASIN K IN: SA BASIN K**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	1.28	0.00
1.00	0.02	0.00	0.00	53.00	1.50	1.28	0.00
2.00	0.03	0.00	0.00	54.00	1.50	1.28	0.00
3.00	0.05	0.00	0.00	55.00	1.50	1.28	0.00
4.00	0.06	0.00	0.01	56.00	1.50	1.28	0.00
5.00	0.09	0.01	0.03	57.00	1.50	1.28	0.00
6.00	0.11	0.02	0.04	58.00	1.50	1.28	0.00
7.00	0.14	0.03	0.06	59.00	1.50	1.28	0.00
8.00	0.17	0.05	0.09	60.00	1.50	1.28	0.00
9.00	0.22	0.08	0.15	61.00	1.50	1.28	0.00
10.00	0.28	0.13	0.22	62.00	1.50	1.28	0.00
11.00	0.38	0.21	0.36	63.00	1.50	1.28	0.00
12.00	0.75	0.55	<b>5.43</b>	64.00	1.50	1.28	0.00
13.00	1.12	0.91	<b>0.43</b>	65.00	1.50	1.28	0.00
14.00	1.22	1.00	0.28	66.00	1.50	1.28	0.00
15.00	1.28	1.07	0.22	67.00	1.50	1.28	0.00
16.00	1.33	1.11	0.15	68.00	1.50	1.28	0.00
17.00	1.36	1.15	0.12	69.00	1.50	1.28	0.00
18.00	1.39	1.17	0.09	70.00	1.50	1.28	0.00
19.00	1.41	1.20	0.08	71.00	1.50	1.28	0.00
20.00	1.44	1.22	0.07	72.00	1.50	1.28	0.00
21.00	1.45	1.24	0.07				
22.00	1.47	1.25	0.06				
23.00	1.49	1.27	0.06				
24.00	<b>1.50</b>	<b>1.28</b>	0.05				
25.00	1.50	1.28	0.00				
26.00	1.50	1.28	0.00				
27.00	1.50	1.28	0.00				
28.00	1.50	1.28	0.00				
29.00	1.50	1.28	0.00				
30.00	1.50	1.28	0.00				
31.00	1.50	1.28	0.00				
32.00	1.50	1.28	0.00				
33.00	1.50	1.28	0.00				
34.00	1.50	1.28	0.00				
35.00	1.50	1.28	0.00				
36.00	1.50	1.28	0.00				
37.00	1.50	1.28	0.00				
38.00	1.50	1.28	0.00				
39.00	1.50	1.28	0.00				
40.00	1.50	1.28	0.00				
41.00	1.50	1.28	0.00				
42.00	1.50	1.28	0.00				
43.00	1.50	1.28	0.00				
44.00	1.50	1.28	0.00				
45.00	1.50	1.28	0.00				
46.00	1.50	1.28	0.00				
47.00	1.50	1.28	0.00				
48.00	1.50	1.28	0.00				
49.00	1.50	1.28	0.00				
50.00	1.50	1.28	0.00				
51.00	1.50	1.28	0.00				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment BASIN M IN: SA BASIN M**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 9.13 cfs @ 12.08 hrs, Volume= 0.661 af, Depth= 1.01"  
Routed to Pond BA-MR : UG INF BASIN M (RTANK)

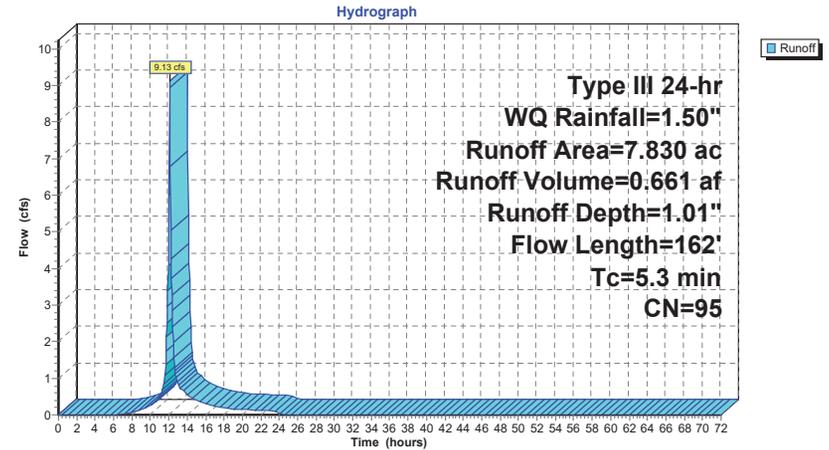
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
7.420	98	Paved parking, HSG A
0.360	39	>75% Grass cover, Good, HSG A
0.050	74	>75% Grass cover, Good, HSG C
7.830	95	Weighted Average
0.410		5.24% Pervious Area
7.420		94.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	70	0.0571	0.25		Sheet Flow, A to B
					Grass: Short n= 0.150 P2= 3.35"
0.6	92	0.0163	2.59		Shallow Concentrated Flow, B to C
					Paved Kv= 20.3 fps
5.3	162	Total			

**Subcatchment BASIN M IN: SA BASIN M**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment BASIN M IN: SA BASIN M**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	1.01	0.00
1.00	0.02	0.00	0.00	53.00	1.50	1.01	0.00
2.00	0.03	0.00	0.00	54.00	1.50	1.01	0.00
3.00	0.05	0.00	0.00	55.00	1.50	1.01	0.00
4.00	0.06	0.00	0.00	56.00	1.50	1.01	0.00
5.00	0.09	0.00	0.00	57.00	1.50	1.01	0.00
6.00	0.11	0.00	0.00	58.00	1.50	1.01	0.00
7.00	0.14	0.00	0.02	59.00	1.50	1.01	0.00
8.00	0.17	0.01	0.06	60.00	1.50	1.01	0.00
9.00	0.22	0.02	0.14	61.00	1.50	1.01	0.00
10.00	0.28	0.05	0.25	62.00	1.50	1.01	0.00
11.00	0.38	0.09	0.47	63.00	1.50	1.01	0.00
12.00	0.75	0.35	<b>6.00</b>	64.00	1.50	1.01	0.00
13.00	1.12	0.67	<b>0.84</b>	65.00	1.50	1.01	0.00
14.00	1.22	0.75	0.54	66.00	1.50	1.01	0.00
15.00	1.28	0.81	0.41	67.00	1.50	1.01	0.00
16.00	1.33	0.86	0.29	68.00	1.50	1.01	0.00
17.00	1.36	0.89	0.23	69.00	1.50	1.01	0.00
18.00	1.39	0.91	0.18	70.00	1.50	1.01	0.00
19.00	1.41	0.93	0.16	71.00	1.50	1.01	0.00
20.00	1.44	0.95	0.14	72.00	1.50	1.01	0.00
21.00	1.45	0.97	0.13				
22.00	1.47	0.99	0.12				
23.00	1.49	1.00	0.11				
24.00	<b>1.50</b>	<b>1.01</b>	0.09				
25.00	1.50	1.01	0.00				
26.00	1.50	1.01	0.00				
27.00	1.50	1.01	0.00				
28.00	1.50	1.01	0.00				
29.00	1.50	1.01	0.00				
30.00	1.50	1.01	0.00				
31.00	1.50	1.01	0.00				
32.00	1.50	1.01	0.00				
33.00	1.50	1.01	0.00				
34.00	1.50	1.01	0.00				
35.00	1.50	1.01	0.00				
36.00	1.50	1.01	0.00				
37.00	1.50	1.01	0.00				
38.00	1.50	1.01	0.00				
39.00	1.50	1.01	0.00				
40.00	1.50	1.01	0.00				
41.00	1.50	1.01	0.00				
42.00	1.50	1.01	0.00				
43.00	1.50	1.01	0.00				
44.00	1.50	1.01	0.00				
45.00	1.50	1.01	0.00				
46.00	1.50	1.01	0.00				
47.00	1.50	1.01	0.00				
48.00	1.50	1.01	0.00				
49.00	1.50	1.01	0.00				
50.00	1.50	1.01	0.00				
51.00	1.50	1.01	0.00				

**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment FB A1 IN: SA FOREBAY A1**

[49] Hint: Tc<2dt may require smaller dt

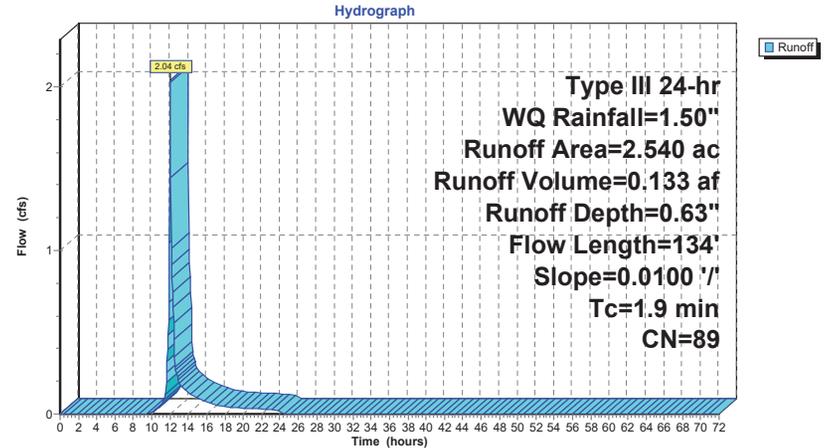
Runoff = 2.04 cfs @ 12.04 hrs, Volume= 0.133 af, Depth= 0.63"  
Routed to Pond FB-A1 : FOREBAY A1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
2.150	98	Paved parking and roof area, HSG A
0.390	39	>75% Grass cover, Good, HSG A
2.540	89	Weighted Average
0.390		15.35% Pervious Area
2.150		84.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.35"
0.3	34	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow Concentrated Flow</b> Paved Kv= 20.3 fps
1.9	134	Total			

**Subcatchment FB A1 IN: SA FOREBAY A1**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment FB A1 IN: SA FOREBAY A1**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	0.63	0.00
1.00	0.02	0.00	0.00	53.00	1.50	0.63	0.00
2.00	0.03	0.00	0.00	54.00	1.50	0.63	0.00
3.00	0.05	0.00	0.00	55.00	1.50	0.63	0.00
4.00	0.06	0.00	0.00	56.00	1.50	0.63	0.00
5.00	0.09	0.00	0.00	57.00	1.50	0.63	0.00
6.00	0.11	0.00	0.00	58.00	1.50	0.63	0.00
7.00	0.14	0.00	0.00	59.00	1.50	0.63	0.00
8.00	0.17	0.00	0.00	60.00	1.50	0.63	0.00
9.00	0.22	0.00	0.00	61.00	1.50	0.63	0.00
10.00	0.28	0.00	0.01	62.00	1.50	0.63	0.00
11.00	0.38	0.01	0.05	63.00	1.50	0.63	0.00
12.00	0.75	0.15	<b>1.78</b>	64.00	1.50	0.63	0.00
13.00	1.12	0.36	<b>0.19</b>	65.00	1.50	0.63	0.00
14.00	1.22	0.43	0.13	66.00	1.50	0.63	0.00
15.00	1.28	0.47	0.10	67.00	1.50	0.63	0.00
16.00	1.33	0.50	0.07	68.00	1.50	0.63	0.00
17.00	1.36	0.53	0.06	69.00	1.50	0.63	0.00
18.00	1.39	0.55	0.05	70.00	1.50	0.63	0.00
19.00	1.41	0.57	0.04	71.00	1.50	0.63	0.00
20.00	1.44	0.58	0.04	72.00	1.50	0.63	0.00
21.00	1.45	0.60	0.03				
22.00	1.47	0.61	0.03				
23.00	1.49	0.62	0.03				
24.00	<b>1.50</b>	<b>0.63</b>	0.02				
25.00	1.50	0.63	0.00				
26.00	1.50	0.63	0.00				
27.00	1.50	0.63	0.00				
28.00	1.50	0.63	0.00				
29.00	1.50	0.63	0.00				
30.00	1.50	0.63	0.00				
31.00	1.50	0.63	0.00				
32.00	1.50	0.63	0.00				
33.00	1.50	0.63	0.00				
34.00	1.50	0.63	0.00				
35.00	1.50	0.63	0.00				
36.00	1.50	0.63	0.00				
37.00	1.50	0.63	0.00				
38.00	1.50	0.63	0.00				
39.00	1.50	0.63	0.00				
40.00	1.50	0.63	0.00				
41.00	1.50	0.63	0.00				
42.00	1.50	0.63	0.00				
43.00	1.50	0.63	0.00				
44.00	1.50	0.63	0.00				
45.00	1.50	0.63	0.00				
46.00	1.50	0.63	0.00				
47.00	1.50	0.63	0.00				
48.00	1.50	0.63	0.00				
49.00	1.50	0.63	0.00				
50.00	1.50	0.63	0.00				
51.00	1.50	0.63	0.00				

**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment FB A2 IN: SA FOREBAY A2**

[49] Hint: Tc<2dt may require smaller dt

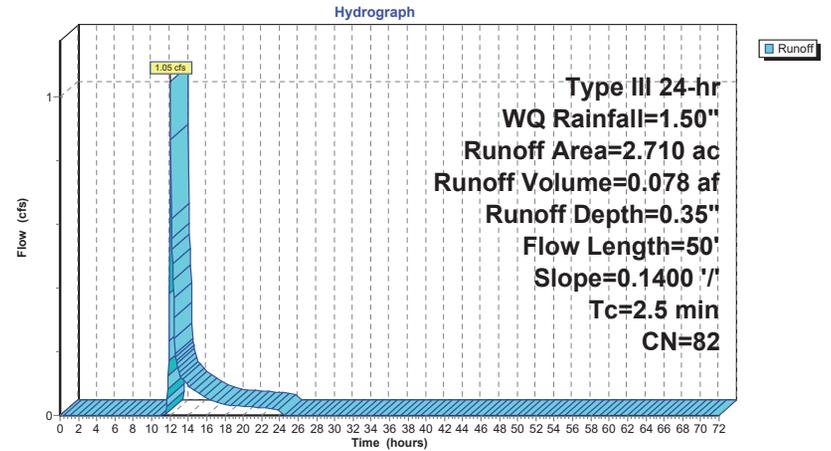
Runoff = 1.05 cfs @ 12.06 hrs, Volume= 0.078 af, Depth= 0.35"  
 Routed to Pond FB-A2 : FOREBAY A2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
1.960	98	Paved parking, roof area
0.750	39	>75% Grass cover, Good, HSG A
2.710	82	Weighted Average
0.750		27.68% Pervious Area
1.960		72.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	50	0.1400	0.33		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.35"

**Subcatchment FB A2 IN: SA FOREBAY A2**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment FB A2 IN: SA FOREBAY A2**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	0.35	0.00
1.00	0.02	0.00	0.00	53.00	1.50	0.35	0.00
2.00	0.03	0.00	0.00	54.00	1.50	0.35	0.00
3.00	0.05	0.00	0.00	55.00	1.50	0.35	0.00
4.00	0.06	0.00	0.00	56.00	1.50	0.35	0.00
5.00	0.09	0.00	0.00	57.00	1.50	0.35	0.00
6.00	0.11	0.00	0.00	58.00	1.50	0.35	0.00
7.00	0.14	0.00	0.00	59.00	1.50	0.35	0.00
8.00	0.17	0.00	0.00	60.00	1.50	0.35	0.00
9.00	0.22	0.00	0.00	61.00	1.50	0.35	0.00
10.00	0.28	0.00	0.00	62.00	1.50	0.35	0.00
11.00	0.38	0.00	0.00	63.00	1.50	0.35	0.00
12.00	0.75	0.04	<b>0.75</b>	64.00	1.50	0.35	0.00
13.00	1.12	0.16	<b>0.13</b>	65.00	1.50	0.35	0.00
14.00	1.22	0.20	0.09	66.00	1.50	0.35	0.00
15.00	1.28	0.23	0.07	67.00	1.50	0.35	0.00
16.00	1.33	0.26	0.05	68.00	1.50	0.35	0.00
17.00	1.36	0.27	0.04	69.00	1.50	0.35	0.00
18.00	1.39	0.29	0.03	70.00	1.50	0.35	0.00
19.00	1.41	0.30	0.03	71.00	1.50	0.35	0.00
20.00	1.44	0.31	0.03	72.00	1.50	0.35	0.00
21.00	1.45	0.32	0.03				
22.00	1.47	0.33	0.02				
23.00	1.49	0.34	0.02				
24.00	<b>1.50</b>	<b>0.35</b>	0.02				
25.00	1.50	0.35	0.00				
26.00	1.50	0.35	0.00				
27.00	1.50	0.35	0.00				
28.00	1.50	0.35	0.00				
29.00	1.50	0.35	0.00				
30.00	1.50	0.35	0.00				
31.00	1.50	0.35	0.00				
32.00	1.50	0.35	0.00				
33.00	1.50	0.35	0.00				
34.00	1.50	0.35	0.00				
35.00	1.50	0.35	0.00				
36.00	1.50	0.35	0.00				
37.00	1.50	0.35	0.00				
38.00	1.50	0.35	0.00				
39.00	1.50	0.35	0.00				
40.00	1.50	0.35	0.00				
41.00	1.50	0.35	0.00				
42.00	1.50	0.35	0.00				
43.00	1.50	0.35	0.00				
44.00	1.50	0.35	0.00				
45.00	1.50	0.35	0.00				
46.00	1.50	0.35	0.00				
47.00	1.50	0.35	0.00				
48.00	1.50	0.35	0.00				
49.00	1.50	0.35	0.00				
50.00	1.50	0.35	0.00				
51.00	1.50	0.35	0.00				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment FB-B IN: SA BASIN B**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.04 cfs @ 12.05 hrs, Volume= 0.070 af, Depth= 0.54"  
 Routed to Pond FB-B : FOREBAY B

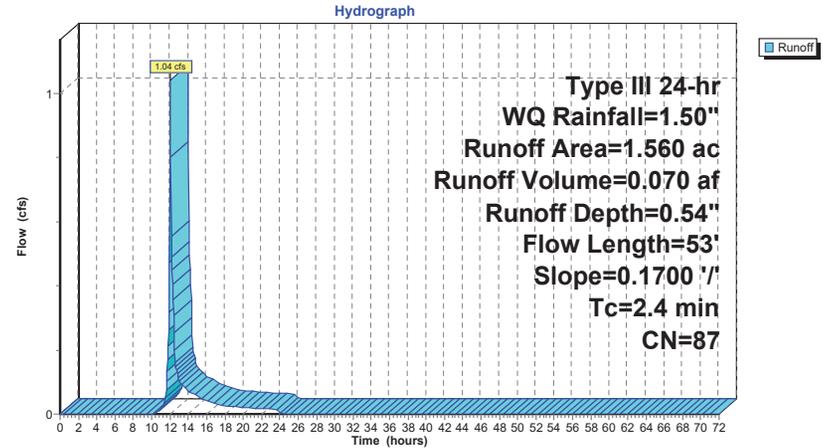
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
1.030	98	Paved parking, HSG A
0.180	39	>75% Grass cover, Good, HSG A
0.350	80	>75% Grass cover, Good, HSG D
1.560	87	Weighted Average
0.530		33.97% Pervious Area
1.030		66.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	53	0.1700	0.36		<b>Sheet Flow, A to B</b> Grass: Short n= 0.150 P2= 3.35"

**Subcatchment FB-B IN: SA BASIN B**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment FB-B IN: SA BASIN B**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	0.54	0.00
1.00	0.02	0.00	0.00	53.00	1.50	0.54	0.00
2.00	0.03	0.00	0.00	54.00	1.50	0.54	0.00
3.00	0.05	0.00	0.00	55.00	1.50	0.54	0.00
4.00	0.06	0.00	0.00	56.00	1.50	0.54	0.00
5.00	0.09	0.00	0.00	57.00	1.50	0.54	0.00
6.00	0.11	0.00	0.00	58.00	1.50	0.54	0.00
7.00	0.14	0.00	0.00	59.00	1.50	0.54	0.00
8.00	0.17	0.00	0.00	60.00	1.50	0.54	0.00
9.00	0.22	0.00	0.00	61.00	1.50	0.54	0.00
10.00	0.28	0.00	0.00	62.00	1.50	0.54	0.00
11.00	0.38	0.00	0.02	63.00	1.50	0.54	0.00
12.00	0.75	0.10	<b>0.83</b>	64.00	1.50	0.54	0.00
13.00	1.12	0.29	<b>0.11</b>	65.00	1.50	0.54	0.00
14.00	1.22	0.35	0.07	66.00	1.50	0.54	0.00
15.00	1.28	0.39	0.06	67.00	1.50	0.54	0.00
16.00	1.33	0.42	0.04	68.00	1.50	0.54	0.00
17.00	1.36	0.44	0.03	69.00	1.50	0.54	0.00
18.00	1.39	0.46	0.03	70.00	1.50	0.54	0.00
19.00	1.41	0.48	0.02	71.00	1.50	0.54	0.00
20.00	1.44	0.49	0.02	72.00	1.50	0.54	0.00
21.00	1.45	0.50	0.02				
22.00	1.47	0.52	0.02				
23.00	1.49	0.53	0.02				
24.00	<b>1.50</b>	<b>0.54</b>	0.01				
25.00	1.50	0.54	0.00				
26.00	1.50	0.54	0.00				
27.00	1.50	0.54	0.00				
28.00	1.50	0.54	0.00				
29.00	1.50	0.54	0.00				
30.00	1.50	0.54	0.00				
31.00	1.50	0.54	0.00				
32.00	1.50	0.54	0.00				
33.00	1.50	0.54	0.00				
34.00	1.50	0.54	0.00				
35.00	1.50	0.54	0.00				
36.00	1.50	0.54	0.00				
37.00	1.50	0.54	0.00				
38.00	1.50	0.54	0.00				
39.00	1.50	0.54	0.00				
40.00	1.50	0.54	0.00				
41.00	1.50	0.54	0.00				
42.00	1.50	0.54	0.00				
43.00	1.50	0.54	0.00				
44.00	1.50	0.54	0.00				
45.00	1.50	0.54	0.00				
46.00	1.50	0.54	0.00				
47.00	1.50	0.54	0.00				
48.00	1.50	0.54	0.00				
49.00	1.50	0.54	0.00				
50.00	1.50	0.54	0.00				
51.00	1.50	0.54	0.00				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment FB-G IN: SA BASIN G**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.05 cfs @ 12.10 hrs, Volume= 0.009 af, Depth= 0.15"  
Routed to Pond FB-G : FOREBAY G

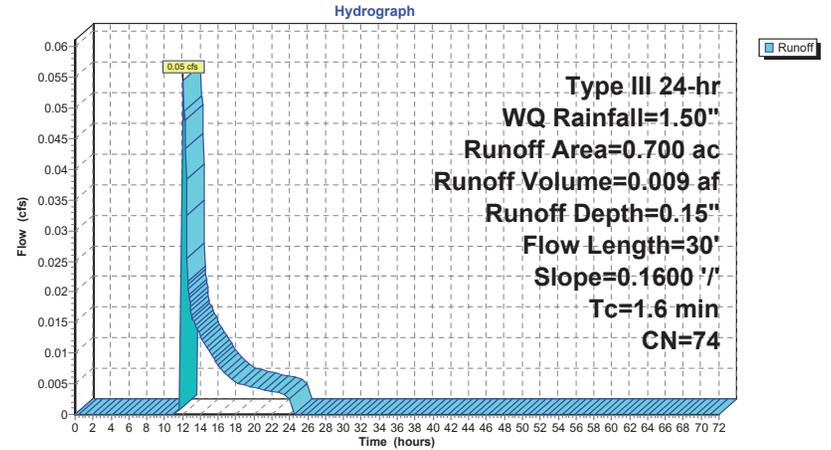
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG A
0.280	39	>75% Grass cover, Good, HSG A
0.700	74	Weighted Average
0.280		40.00% Pervious Area
0.420		60.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	30	0.1600	0.31		Sheet Flow, A to B

Grass: Short n= 0.150 P2= 3.35"

**Subcatchment FB-G IN: SA BASIN G**



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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment FB-G IN: SA BASIN G**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	0.15	0.00
1.00	0.02	0.00	0.00	53.00	1.50	0.15	0.00
2.00	0.03	0.00	0.00	54.00	1.50	0.15	0.00
3.00	0.05	0.00	0.00	55.00	1.50	0.15	0.00
4.00	0.06	0.00	0.00	56.00	1.50	0.15	0.00
5.00	0.09	0.00	0.00	57.00	1.50	0.15	0.00
6.00	0.11	0.00	0.00	58.00	1.50	0.15	0.00
7.00	0.14	0.00	0.00	59.00	1.50	0.15	0.00
8.00	0.17	0.00	0.00	60.00	1.50	0.15	0.00
9.00	0.22	0.00	0.00	61.00	1.50	0.15	0.00
10.00	0.28	0.00	0.00	62.00	1.50	0.15	0.00
11.00	0.38	0.00	0.00	63.00	1.50	0.15	0.00
12.00	0.75	0.00	0.01	64.00	1.50	0.15	0.00
13.00	1.12	0.05	0.02	65.00	1.50	0.15	0.00
14.00	1.22	0.07	0.01	66.00	1.50	0.15	0.00
15.00	1.28	0.08	0.01	67.00	1.50	0.15	0.00
16.00	1.33	0.09	0.01	68.00	1.50	0.15	0.00
17.00	1.36	0.10	0.01	69.00	1.50	0.15	0.00
18.00	1.39	0.11	0.01	70.00	1.50	0.15	0.00
19.00	1.41	0.12	0.00	71.00	1.50	0.15	0.00
20.00	1.44	0.13	0.00	72.00	1.50	0.15	0.00
21.00	1.45	0.13	0.00				
22.00	1.47	0.14	0.00				
23.00	1.49	0.14	0.00				
24.00	1.50	0.15	0.00				
25.00	1.50	0.15	0.00				
26.00	1.50	0.15	0.00				
27.00	1.50	0.15	0.00				
28.00	1.50	0.15	0.00				
29.00	1.50	0.15	0.00				
30.00	1.50	0.15	0.00				
31.00	1.50	0.15	0.00				
32.00	1.50	0.15	0.00				
33.00	1.50	0.15	0.00				
34.00	1.50	0.15	0.00				
35.00	1.50	0.15	0.00				
36.00	1.50	0.15	0.00				
37.00	1.50	0.15	0.00				
38.00	1.50	0.15	0.00				
39.00	1.50	0.15	0.00				
40.00	1.50	0.15	0.00				
41.00	1.50	0.15	0.00				
42.00	1.50	0.15	0.00				
43.00	1.50	0.15	0.00				
44.00	1.50	0.15	0.00				
45.00	1.50	0.15	0.00				
46.00	1.50	0.15	0.00				
47.00	1.50	0.15	0.00				
48.00	1.50	0.15	0.00				
49.00	1.50	0.15	0.00				
50.00	1.50	0.15	0.00				
51.00	1.50	0.15	0.00				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"  
 Routed to Link 42L : POA STREAM TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 1.060	98	IMP
25.050	30	Woods, Good, HSG A
31.620	70	Woods, Good, HSG C
10.770	77	Woods, Good, HSG D
68.500	57	Weighted Average
67.440		98.45% Pervious Area
1.060		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	49	0.1300	0.15		<b>Sheet Flow, SHEET FLOW</b> Woods: Light underbrush n= 0.400 P2= 3.35"
5.3	51	0.0170	0.16		<b>Sheet Flow, SHEET FLOW</b> Range n= 0.130 P2= 3.35"
4.7	1,240	0.0760	4.44		<b>Shallow Concentrated Flow, SHALLOW CONCENTRATED</b> Unpaved Kv= 16.1 fps
15.6	1,340	Total			

**2024-01-15 Proposed Conditions**

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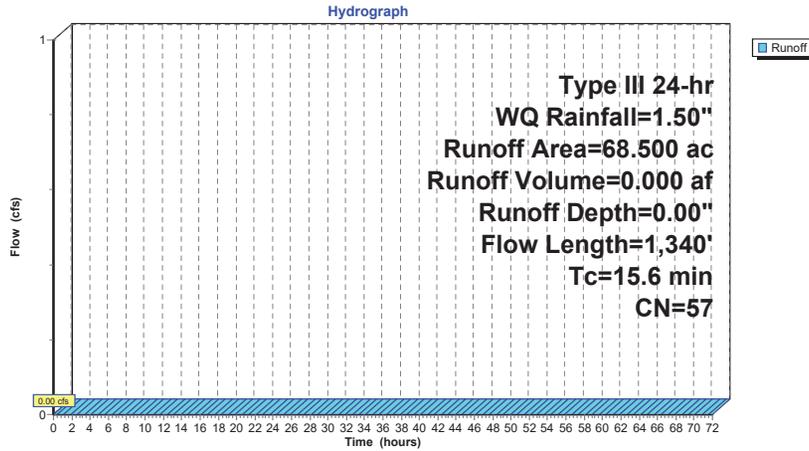
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**Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Subcatchment STRM-UNDT: STUDY AREA STREAM UNDETAINED**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.50	0.00	0.00
1.00	0.02	0.00	0.00	53.00	1.50	0.00	0.00
2.00	0.03	0.00	0.00	54.00	1.50	0.00	0.00
3.00	0.05	0.00	0.00	55.00	1.50	0.00	0.00
4.00	0.06	0.00	0.00	56.00	1.50	0.00	0.00
5.00	0.09	0.00	0.00	57.00	1.50	0.00	0.00
6.00	0.11	0.00	0.00	58.00	1.50	0.00	0.00
7.00	0.14	0.00	0.00	59.00	1.50	0.00	0.00
8.00	0.17	0.00	0.00	60.00	1.50	0.00	0.00
9.00	0.22	0.00	0.00	61.00	1.50	0.00	0.00
10.00	0.28	0.00	0.00	62.00	1.50	0.00	0.00
11.00	0.38	0.00	0.00	63.00	1.50	0.00	0.00
12.00	0.75	0.00	0.00	64.00	1.50	0.00	0.00
13.00	1.12	0.00	0.00	65.00	1.50	0.00	0.00
14.00	1.22	0.00	0.00	66.00	1.50	0.00	0.00
15.00	1.28	0.00	0.00	67.00	1.50	0.00	0.00
16.00	1.33	0.00	0.00	68.00	1.50	0.00	0.00
17.00	1.36	0.00	0.00	69.00	1.50	0.00	0.00
18.00	1.39	0.00	0.00	70.00	1.50	0.00	0.00
19.00	1.41	0.00	0.00	71.00	1.50	0.00	0.00
20.00	1.44	0.00	0.00	72.00	1.50	0.00	0.00
21.00	1.45	0.00	0.00				
22.00	1.47	0.00	0.00				
23.00	1.49	0.00	0.00				
24.00	1.50	0.00	0.00				
25.00	1.50	0.00	0.00				
26.00	1.50	0.00	0.00				
27.00	1.50	0.00	0.00				
28.00	1.50	0.00	0.00				
29.00	1.50	0.00	0.00				
30.00	1.50	0.00	0.00				
31.00	1.50	0.00	0.00				
32.00	1.50	0.00	0.00				
33.00	1.50	0.00	0.00				
34.00	1.50	0.00	0.00				
35.00	1.50	0.00	0.00				
36.00	1.50	0.00	0.00				
37.00	1.50	0.00	0.00				
38.00	1.50	0.00	0.00				
39.00	1.50	0.00	0.00				
40.00	1.50	0.00	0.00				
41.00	1.50	0.00	0.00				
42.00	1.50	0.00	0.00				
43.00	1.50	0.00	0.00				
44.00	1.50	0.00	0.00				
45.00	1.50	0.00	0.00				
46.00	1.50	0.00	0.00				
47.00	1.50	0.00	0.00				
48.00	1.50	0.00	0.00				
49.00	1.50	0.00	0.00				
50.00	1.50	0.00	0.00				
51.00	1.50	0.00	0.00				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Pond BA-A: AG INF BASIN A**

[92] Warning: Device #5 is above defined storage

Inflow Area = 5.250 ac, 78.29% Impervious, Inflow Depth = 0.34" for WQ event  
 Inflow = 1.63 cfs @ 12.09 hrs, Volume= 0.147 af  
 Outflow = 1.53 cfs @ 12.13 hrs, Volume= 0.147 af, Atten= 6%, Lag= 2.2 min  
 Discarded = 1.53 cfs @ 12.13 hrs, Volume= 0.147 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.82' @ 12.13 hrs Surf.Area= 10,471 sf Storage= 200 cf

Plug-Flow detention time= 17.5 min calculated for 0.145 af (99% of inflow)  
 Center-of-Mass det. time= 2.2 min ( 778.7 - 776.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	43,288 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	10,324	0	0
310.00	11,848	2,217	2,217
311.00	14,026	12,937	15,154
312.00	16,335	15,181	30,335
312.75	18,208	12,954	43,288

Device	Routing	Invert	Outlet Devices
#1	Primary	309.00'	<b>18.0" Round Culvert</b> L= 129.0' Ke= 1.000 Inlet / Outlet Invert= 309.00' / 306.42' S= 0.0200 ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	309.80'	<b>9.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 305.80'
#3	Device 1	311.10'	<b>3.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Device 1	312.60'	<b>48.0" x 48.0" Horiz. Top Gate</b> C= 0.600 Limited to weir flow at low heads
#5	Primary	312.75'	<b>48.0' long x 11.0' breadth Broad-Crested Rectangular Weir (Emergency Spillway)</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64

Discarded OutFlow Max=2.31 cfs @ 12.13 hrs HW=309.82' (Free Discharge)  
 ↳ 2=Exfiltration ( Controls 2.31 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=309.81' (Free Discharge)  
 ↳ 1=Culvert (Passes 0.00 cfs of 2.22 cfs potential flow)  
 ↳ 3=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)  
 ↳ 4=Top Gate ( Controls 0.00 cfs)  
 ↳ 5=Broad-Crested Rectangular Weir (Emergency Spillway) ( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

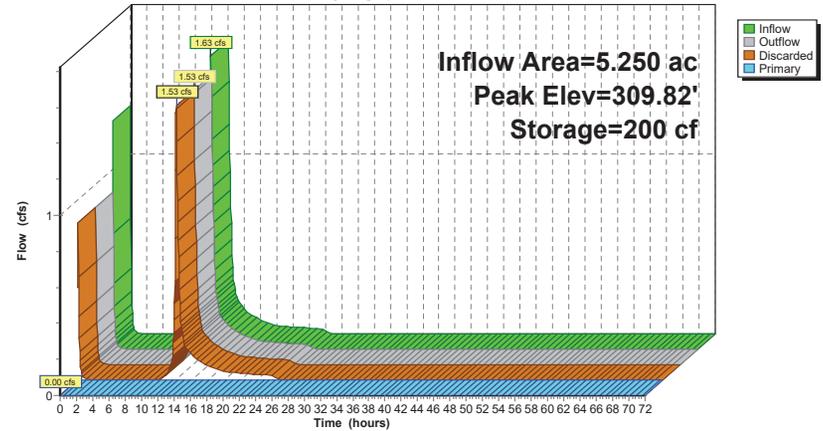
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Type III 24-hr WQ Rainfall=1.50"

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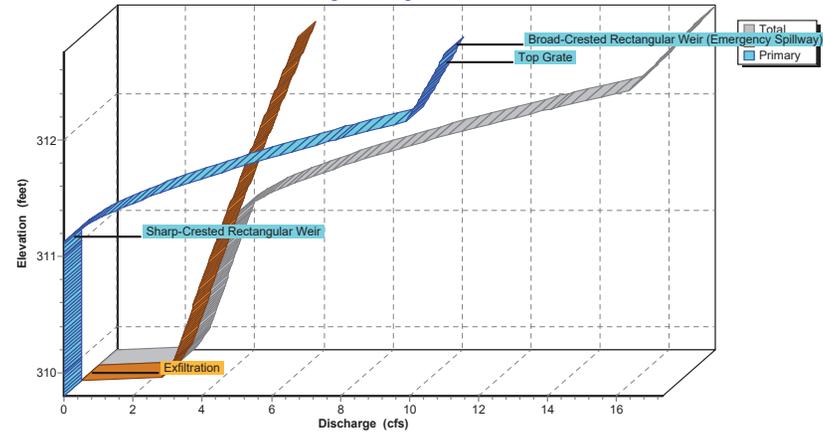
**Pond BA-A: AG INF BASIN A**

Hydrograph



**Pond BA-A: AG INF BASIN A**

Stage-Discharge



**2024-01-15 Proposed Conditions**

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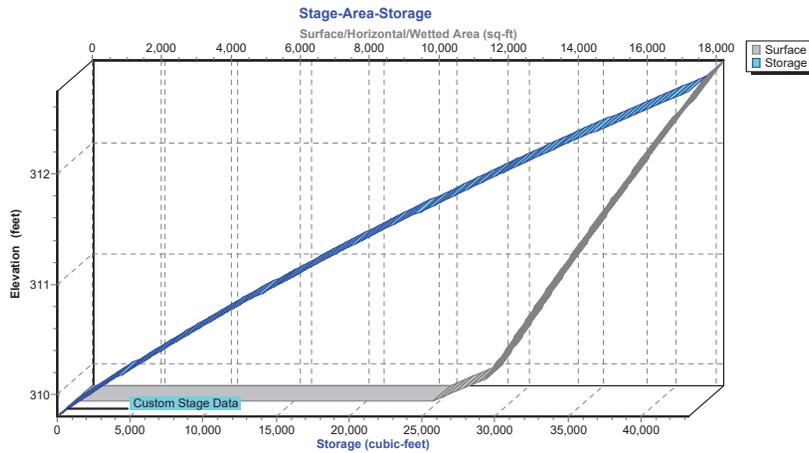
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**Pond BA-A: AG INF BASIN A**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Pond BA-A: AG INF BASIN A**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	1.27	68	309.81	0.52	0.52	0.00
2.50	0.00	0	309.80	0.00	0.00	0.00
5.00	0.00	0	309.80	0.00	0.00	0.00
7.50	0.00	0	309.80	0.00	0.00	0.00
10.00	0.00	1	309.80	0.00	0.00	0.00
12.50	0.53	78	309.81	0.59	0.59	0.00
15.00	0.11	14	309.80	0.11	0.11	0.00
17.50	0.05	7	309.80	0.05	0.05	0.00
20.00	0.04	5	309.80	0.04	0.04	0.00
22.50	0.03	4	309.80	0.03	0.03	0.00
25.00	0.00	0	309.80	0.00	0.00	0.00
27.50	0.00	0	309.80	0.00	0.00	0.00
30.00	0.00	0	309.80	0.00	0.00	0.00
32.50	0.00	0	309.80	0.00	0.00	0.00
35.00	0.00	0	309.80	0.00	0.00	0.00
37.50	0.00	0	309.80	0.00	0.00	0.00
40.00	0.00	0	309.80	0.00	0.00	0.00
42.50	0.00	0	309.80	0.00	0.00	0.00
45.00	0.00	0	309.80	0.00	0.00	0.00
47.50	0.00	0	309.80	0.00	0.00	0.00
50.00	0.00	0	309.80	0.00	0.00	0.00
52.50	0.00	0	309.80	0.00	0.00	0.00
55.00	0.00	0	309.80	0.00	0.00	0.00
57.50	0.00	0	309.80	0.00	0.00	0.00
60.00	0.00	0	309.80	0.00	0.00	0.00
62.50	0.00	0	309.80	0.00	0.00	0.00
65.00	0.00	0	309.80	0.00	0.00	0.00
67.50	0.00	0	309.80	0.00	0.00	0.00
70.00	0.00	0	309.80	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Discharge for Pond BA-A: AG INF BASIN A**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
309.80	0.00	0.00	0.00	312.40	16.16	5.77	10.39
309.85	2.38	2.38	0.00	312.45	16.33	5.84	10.49
309.90	2.50	2.50	0.00	312.50	16.50	5.91	10.58
309.95	2.61	2.61	0.00	312.55	16.66	5.98	10.68
310.00	2.73	2.73	0.00	312.60	16.83	6.06	10.77
310.05	2.78	2.78	0.00	312.65	17.00	6.13	10.87
310.10	2.84	2.84	0.00	312.70	17.16	6.20	10.96
310.15	2.90	2.90	0.00	312.75	<b>17.33</b>	<b>6.27</b>	<b>11.05</b>
310.20	2.95	2.95	0.00				
310.25	3.01	3.01	0.00				
310.30	3.07	3.07	0.00				
310.35	3.13	3.13	0.00				
310.40	3.19	3.19	0.00				
310.45	3.24	3.24	0.00				
310.50	3.30	3.30	0.00				
310.55	3.36	3.36	0.00				
310.60	3.42	3.42	0.00				
310.65	3.48	3.48	0.00				
310.70	3.54	3.54	0.00				
310.75	3.60	3.60	0.00				
310.80	3.66	3.66	0.00				
310.85	3.72	3.72	0.00				
310.90	3.78	3.78	0.00				
310.95	3.84	3.84	0.00				
311.00	3.91	3.91	0.00				
311.05	3.97	3.97	0.00				
311.10	4.03	4.03	0.00				
311.15	4.20	4.09	0.11				
311.20	4.47	4.16	0.31				
311.25	4.79	4.22	0.56				
311.30	5.15	4.29	0.87				
311.35	5.56	4.35	1.21				
311.40	6.00	4.42	1.58				
311.45	6.46	4.48	1.98				
311.50	6.96	4.55	2.42				
311.55	7.48	4.61	2.87				
311.60	8.03	4.68	3.35				
311.65	8.60	4.74	3.85				
311.70	9.19	4.81	4.38				
311.75	9.79	4.87	4.92				
311.80	10.42	4.94	5.48				
311.85	11.06	5.01	6.05				
311.90	11.72	5.07	6.65				
311.95	12.39	5.14	7.25				
312.00	13.08	5.21	7.87				
312.05	13.79	5.28	8.51				
312.10	14.50	5.35	9.16				
312.15	15.23	5.42	9.82				
312.20	15.48	5.49	9.99				
312.25	15.65	5.56	10.09				
312.30	15.82	5.63	10.19				
312.35	15.99	5.70	10.29				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Area-Storage for Pond BA-A: AG INF BASIN A**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	10,324	0	312.40	17,334	37,068
309.85	10,705	526	312.45	17,459	37,938
309.90	11,086	1,071	312.50	17,584	38,814
309.95	11,467	1,634	312.55	17,709	39,697
310.00	11,848	2,217	312.60	17,833	40,585
310.05	11,957	2,812	312.65	17,958	41,480
310.10	12,066	3,413	312.70	18,083	42,381
310.15	12,175	4,019	312.75	<b>18,208</b>	<b>43,288</b>
310.20	12,284	4,630			
310.25	12,393	5,247			
310.30	12,501	5,870			
310.35	12,610	6,497			
310.40	12,719	7,131			
310.45	12,828	7,769			
310.50	12,937	8,413			
310.55	13,046	9,063			
310.60	13,155	9,718			
310.65	13,264	10,379			
310.70	13,373	11,044			
310.75	13,482	11,716			
310.80	13,590	12,393			
310.85	13,699	13,075			
310.90	13,808	13,762			
310.95	13,917	14,456			
311.00	14,026	15,154			
311.05	14,141	15,858			
311.10	14,257	16,568			
311.15	14,372	17,284			
311.20	14,488	18,006			
311.25	14,603	18,733			
311.30	14,719	19,466			
311.35	14,834	20,205			
311.40	14,950	20,949			
311.45	15,065	21,700			
311.50	15,181	22,456			
311.55	15,296	23,218			
311.60	15,411	23,985			
311.65	15,527	24,759			
311.70	15,642	25,538			
311.75	15,758	26,323			
311.80	15,873	27,114			
311.85	15,989	27,910			
311.90	16,104	28,713			
311.95	16,220	29,521			
312.00	16,335	30,335			
312.05	16,460	31,155			
312.10	16,585	31,981			
312.15	16,710	32,813			
312.20	16,834	33,652			
312.25	16,959	34,496			
312.30	17,084	35,348			
312.35	17,209	36,205			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-B: AG INF BASIN B**

Inflow Area = 1,560 ac, 66.03% Impervious, Inflow Depth = 0.39" for WQ event  
 Inflow = 1.03 cfs @ 12.15 hrs, Volume= 0.051 af  
 Outflow = 0.21 cfs @ 12.51 hrs, Volume= 0.051 af, Atten= 80%, Lag= 21.4 min  
 Discarded = 0.21 cfs @ 12.51 hrs, Volume= 0.051 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 304.15' @ 12.51 hrs Surf.Area= 2,463 sf Storage= 331 cf

Plug-Flow detention time= 12.6 min calculated for 0.051 af (100% of inflow)  
 Center-of-Mass det. time= 12.6 min ( 916.5 - 903.8 )

Volume #1	Invert	Avail.Storage	Storage Description
	304.00'	26,598 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
304.00	2,100	0	0
305.00	4,600	3,350	3,350
306.00	6,700	5,650	9,000
307.00	8,777	7,739	16,739
308.00	10,941	9,859	26,598

Device	Routing	Invert	Outlet Devices
#1	Primary	303.00'	<b>18.0" Round Culvert</b> L= 11.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 303.00' / 302.89' S= 0.0100 ' ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	304.00'	<b>3,500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 300.00'
#3	Device 1	305.00'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.00'	<b>48.0" x 48.0" Horiz. Top Grate</b> C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.21 cfs @ 12.51 hrs HW=304.14' (Free Discharge)  
 ↳2=Exfiltration ( Controls 0.21 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=304.00' (Free Discharge)  
 ↳1=Culvert (Passes 0.00 cfs of 3.29 cfs potential flow)  
 ↳3=Orifice/Grate ( Controls 0.00 cfs)  
 ↳4=Top Grate ( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

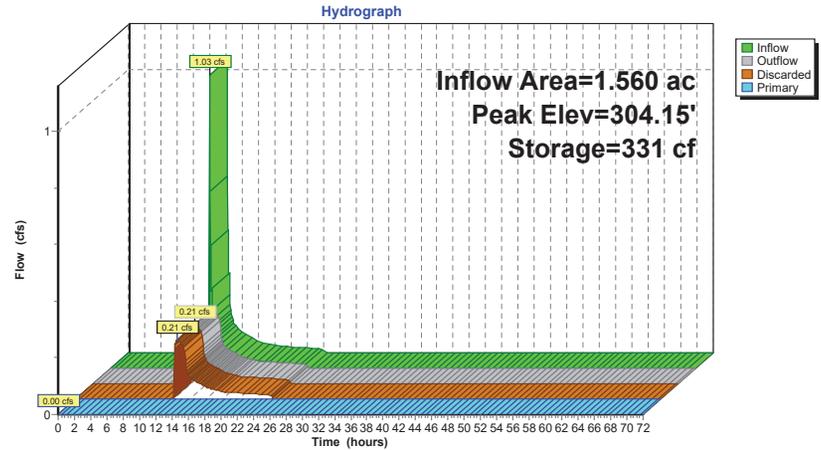
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Type III 24-hr WQ Rainfall=1.50"

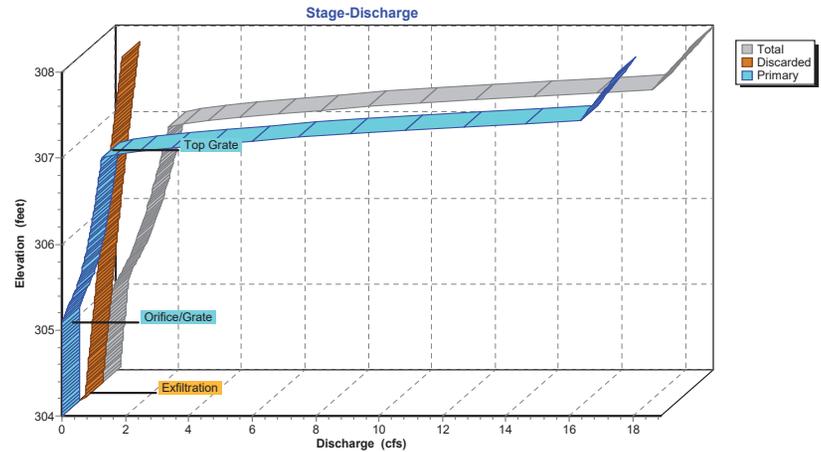
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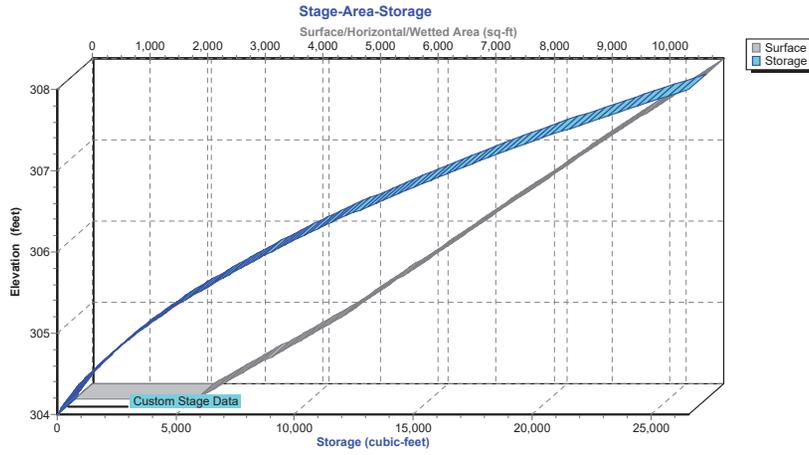
**Pond BA-B: AG INF BASIN B**



**Pond BA-B: AG INF BASIN B**



**Pond BA-B: AG INF BASIN B**



**Hydrograph for Pond BA-B: AG INF BASIN B**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	304.00	0.00	0.00	0.00
2.50	0.00	0	304.00	0.00	0.00	0.00
5.00	0.00	0	304.00	0.00	0.00	0.00
7.50	0.00	0	304.00	0.00	0.00	0.00
10.00	0.00	0	304.00	0.00	0.00	0.00
12.50	0.20	331	304.14	0.21	0.21	0.00
15.00	0.06	28	304.01	0.06	0.06	0.00
17.50	0.03	14	304.01	0.03	0.03	0.00
20.00	0.02	10	304.00	0.02	0.02	0.00
22.50	0.02	8	304.00	0.02	0.02	0.00
25.00	0.00	0	304.00	0.00	0.00	0.00
27.50	0.00	0	304.00	0.00	0.00	0.00
30.00	0.00	0	304.00	0.00	0.00	0.00
32.50	0.00	0	304.00	0.00	0.00	0.00
35.00	0.00	0	304.00	0.00	0.00	0.00
37.50	0.00	0	304.00	0.00	0.00	0.00
40.00	0.00	0	304.00	0.00	0.00	0.00
42.50	0.00	0	304.00	0.00	0.00	0.00
45.00	0.00	0	304.00	0.00	0.00	0.00
47.50	0.00	0	304.00	0.00	0.00	0.00
50.00	0.00	0	304.00	0.00	0.00	0.00
52.50	0.00	0	304.00	0.00	0.00	0.00
55.00	0.00	0	304.00	0.00	0.00	0.00
57.50	0.00	0	304.00	0.00	0.00	0.00
60.00	0.00	0	304.00	0.00	0.00	0.00
62.50	0.00	0	304.00	0.00	0.00	0.00
65.00	0.00	0	304.00	0.00	0.00	0.00
67.50	0.00	0	304.00	0.00	0.00	0.00
70.00	0.00	0	304.00	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-B: AG INF BASIN B**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
304.00	0.00	0.00	0.00	306.60	1.99	0.89	1.10
304.05	0.18	0.18	0.00	306.65	2.02	0.90	1.12
304.10	0.19	0.19	0.00	306.70	2.06	0.92	1.14
304.15	0.21	0.21	0.00	306.75	2.09	0.93	1.16
304.20	0.22	0.22	0.00	306.80	2.13	0.95	1.18
304.25	0.23	0.23	0.00	306.85	2.16	0.96	1.20
304.30	0.25	0.25	0.00	306.90	2.19	0.98	1.21
304.35	0.26	0.26	0.00	306.95	2.23	0.99	1.23
304.40	0.27	0.27	0.00	307.00	2.26	1.01	1.25
304.45	0.28	0.28	0.00	307.05	2.88	1.03	1.85
304.50	0.30	0.30	0.00	307.10	3.98	1.04	2.94
304.55	0.31	0.31	0.00	307.15	5.40	1.06	4.34
304.60	0.33	0.33	0.00	307.20	7.07	1.07	6.00
304.65	0.34	0.34	0.00	307.25	8.97	1.09	7.88
304.70	0.35	0.35	0.00	307.30	11.06	1.11	9.95
304.75	0.37	0.37	0.00	307.35	13.33	1.12	12.20
304.80	0.38	0.38	0.00	307.40	15.76	1.14	14.62
304.85	0.39	0.39	0.00	307.45	17.52	1.16	16.37
304.90	0.41	0.41	0.00	307.50	17.65	1.17	16.48
304.95	0.42	0.42	0.00	307.55	17.78	1.19	16.59
305.00	0.44	0.44	0.00	307.60	17.90	1.21	16.70
305.05	0.46	0.45	0.01	307.65	18.03	1.22	16.80
305.10	0.49	0.46	0.03	307.70	18.15	1.24	16.91
305.15	0.54	0.48	0.07	307.75	18.27	1.26	17.02
305.20	0.60	0.49	0.11	307.80	18.40	1.27	17.12
305.25	0.67	0.50	0.17	307.85	18.52	1.29	17.23
305.30	0.75	0.52	0.23	307.90	18.64	1.31	17.33
305.35	0.83	0.53	0.30	307.95	18.76	1.32	17.44
305.40	0.91	0.54	0.36	308.00	<b>18.88</b>	<b>1.34</b>	<b>17.54</b>
305.45	0.98	0.56	0.43				
305.50	1.04	0.57	0.47				
305.55	1.10	0.58	0.52				
305.60	1.16	0.60	0.56				
305.65	1.21	0.61	0.60				
305.70	1.26	0.63	0.63				
305.75	1.31	0.64	0.67				
305.80	1.35	0.65	0.70				
305.85	1.40	0.67	0.73				
305.90	1.44	0.68	0.76				
305.95	1.49	0.70	0.79				
306.00	1.53	0.71	0.82				
306.05	1.57	0.72	0.85				
306.10	1.61	0.74	0.87				
306.15	1.65	0.75	0.90				
306.20	1.69	0.77	0.92				
306.25	1.73	0.78	0.95				
306.30	1.77	0.80	0.97				
306.35	1.80	0.81	0.99				
306.40	1.84	0.83	1.01				
306.45	1.88	0.84	1.04				
306.50	1.91	0.86	1.06				
306.55	1.95	0.87	1.08				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-B: AG INF BASIN B**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
304.00	2,100	0	306.60	7,946	13,394
304.05	2,225	108	306.65	8,050	13,794
304.10	2,350	223	306.70	8,154	14,199
304.15	2,475	343	306.75	8,258	14,609
304.20	2,600	470	306.80	8,362	15,025
304.25	2,725	603	306.85	8,465	15,445
304.30	2,850	743	306.90	8,569	15,871
304.35	2,975	888	306.95	8,673	16,302
304.40	3,100	1,040	307.00	8,777	16,739
304.45	3,225	1,198	307.05	8,885	17,180
304.50	3,350	1,363	307.10	8,993	17,627
304.55	3,475	1,533	307.15	9,102	18,079
304.60	3,600	1,710	307.20	9,210	18,537
304.65	3,725	1,893	307.25	9,318	19,000
304.70	3,850	2,082	307.30	9,426	19,469
304.75	3,975	2,278	307.35	9,534	19,943
304.80	4,100	2,480	307.40	9,643	20,422
304.85	4,225	2,688	307.45	9,751	20,907
304.90	4,350	2,902	307.50	9,859	21,398
304.95	4,475	3,123	307.55	9,967	21,893
305.00	4,600	3,350	307.60	10,075	22,394
305.05	4,705	3,583	307.65	10,184	22,901
305.10	4,810	3,821	307.70	10,292	23,413
305.15	4,915	4,064	307.75	10,400	23,930
305.20	5,020	4,312	307.80	10,508	24,453
305.25	5,125	4,566	307.85	10,616	24,981
305.30	5,230	4,825	307.90	10,725	25,514
305.35	5,335	5,089	307.95	10,833	26,053
305.40	5,440	5,358	308.00	<b>10,941</b>	<b>26,598</b>
305.45	5,545	5,633			
305.50	5,650	5,913			
305.55	5,755	6,198			
305.60	5,860	6,488			
305.65	5,965	6,784			
305.70	6,070	7,084			
305.75	6,175	7,391			
305.80	6,280	7,702			
305.85	6,385	8,019			
305.90	6,490	8,340			
305.95	6,595	8,668			
306.00	6,700	9,000			
306.05	6,804	9,338			
306.10	6,908	9,680			
306.15	7,012	10,028			
306.20	7,115	10,382			
306.25	7,219	10,740			
306.30	7,323	11,103			
306.35	7,427	11,472			
306.40	7,531	11,846			
306.45	7,635	12,225			
306.50	7,739	12,610			
306.55	7,842	12,999			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-CR: UG INF BASIN C (RTANK)**

Inflow Area = 8.090 ac, 94.93% Impervious, Inflow Depth = 1.01" for WQ event  
 Inflow = 9.56 cfs @ 12.07 hrs, Volume= 0.683 af  
 Outflow = 1.86 cfs @ 12.52 hrs, Volume= 0.683 af, Atten= 81%, Lag= 26.5 min  
 Discarded = 1.86 cfs @ 12.52 hrs, Volume= 0.683 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 303.97' @ 12.52 hrs Surf.Area= 27,305 sf Storage= 8,220 cf

Plug-Flow detention time= 29.3 min calculated for 0.682 af (100% of inflow)  
 Center-of-Mass det. time= 29.3 min ( 835.7 - 806.4 )

Volume	Invert	Avail.Storage	Storage Description
#1A	303.50'	14,951 cf	<b>41.40'W x 659.51'L x 5.35'H Field A</b> 145,966 cf Overall - 108,590 cf Embedded = 37,376 cf x 40.0% Voids
#2A	303.75'	103,160 cf	<b>Ferguson R-Tank UD 4</b> x 6327 Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 6327 Chambers in 19 Rows
		118,111 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	303.75'	<b>18.0" Round Culvert</b> L= 85.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 303.75' / 302.65' S= 0.0129 ' /' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	303.50'	<b>2.600 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 299.90'
#3	Device 1	304.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.50'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=1.86 cfs @ 12.52 hrs HW=303.97' (Free Discharge)  
 ↳2=Exfiltration ( Controls 1.86 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=303.50' (Free Discharge)  
 ↳1=Culvert ( Controls 0.00 cfs)  
 ↳3=Orifice/Grate ( Controls 0.00 cfs)  
 ↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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**Pond BA-CR: UG INF BASIN C (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf  
 Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

333 Chambers/Row x 1.97' Long = 655.51' Row Length +24.0" End Stone x 2 = 659.51' Base Length  
 19 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 41.40' Base Width  
 3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

6,327 Chambers x 16.3 cf = 103,160.4 cf Chamber Storage  
 6,327 Chambers x 17.2 cf = 108,589.8 cf Displacement

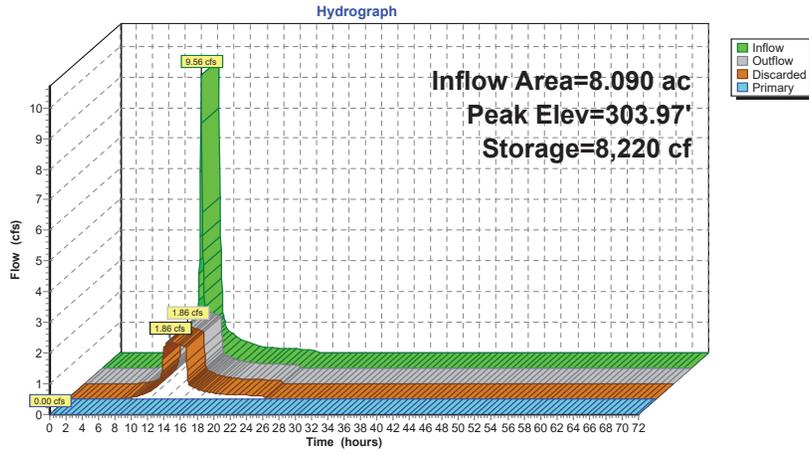
145,966.2 cf Field - 108,589.8 cf Chambers = 37,376.3 cf Stone x 40.0% Voids = 14,950.5 cf Stone Storage

Chamber Storage + Stone Storage = 118,110.9 cf = 2.711 af  
 Overall Storage Efficiency = 80.9%  
 Overall System Size = 659.51' x 41.40' x 5.35'

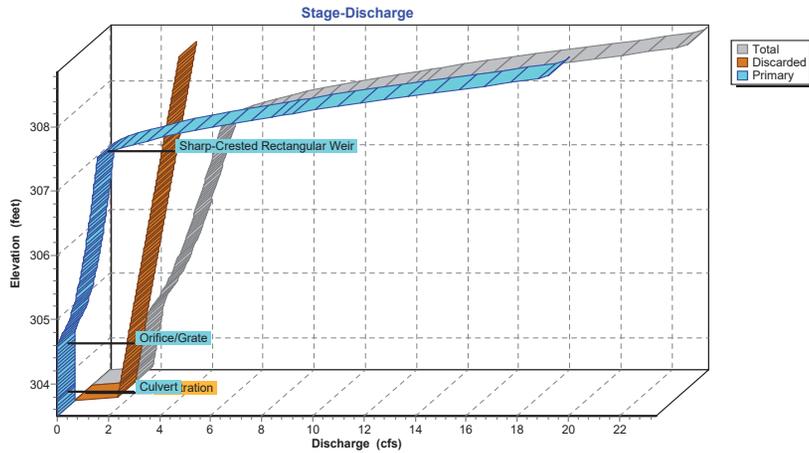
6,327 Chambers  
 5,406.2 cy Field  
 1,384.3 cy Stone



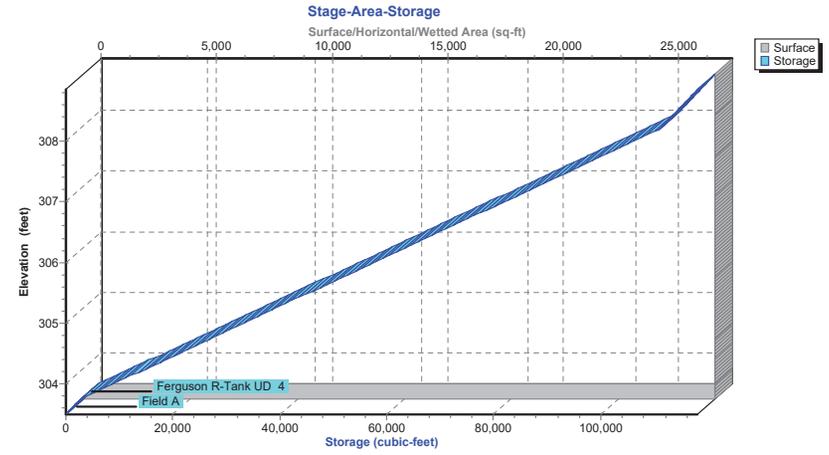
**Pond BA-CR: UG INF BASIN C (RTANK)**



**Pond BA-CR: UG INF BASIN C (RTANK)**



**Pond BA-CR: UG INF BASIN C (RTANK)**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Pond BA-CR: UG INF BASIN C (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	303.50	0.00	0.00	<b>0.00</b>
2.50	0.00	0	303.50	0.00	0.00	0.00
5.00	0.00	0	303.50	0.00	0.00	0.00
7.50	0.04	14	303.50	0.04	0.04	0.00
10.00	<b>0.25</b>	85	303.51	0.24	0.24	0.00
12.50	<b>1.99</b>	<b>8,216</b>	<b>303.97</b>	<b>1.86</b>	<b>1.86</b>	0.00
15.00	0.42	157	303.51	0.45	0.45	0.00
17.50	0.21	76	303.51	0.22	0.22	0.00
20.00	0.15	52	303.50	0.15	0.15	0.00
22.50	0.12	41	303.50	0.12	0.12	0.00
25.00	0.00	0	303.50	0.00	0.00	0.00
27.50	0.00	0	303.50	0.00	0.00	0.00
30.00	0.00	0	303.50	0.00	0.00	0.00
32.50	0.00	0	303.50	0.00	0.00	0.00
35.00	0.00	0	303.50	0.00	0.00	0.00
37.50	0.00	0	303.50	0.00	0.00	0.00
40.00	0.00	0	303.50	0.00	0.00	0.00
42.50	0.00	0	303.50	0.00	0.00	0.00
45.00	0.00	0	303.50	0.00	0.00	0.00
47.50	0.00	0	303.50	0.00	0.00	0.00
50.00	0.00	0	303.50	0.00	0.00	0.00
52.50	0.00	0	303.50	0.00	0.00	0.00
55.00	0.00	0	303.50	0.00	0.00	0.00
57.50	0.00	0	303.50	0.00	0.00	0.00
60.00	0.00	0	303.50	0.00	0.00	0.00
62.50	0.00	0	303.50	0.00	0.00	0.00
65.00	0.00	0	303.50	0.00	0.00	0.00
67.50	0.00	0	303.50	0.00	0.00	0.00
70.00	0.00	0	303.50	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-CR: UG INF BASIN C (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
303.50	0.00	0.00	0.00	308.70	22.06	4.02	18.04
303.60	1.69	1.69	0.00	308.80	<b>23.31</b>	<b>4.06</b>	<b>19.25</b>
303.70	1.73	1.73	0.00				
303.80	1.78	1.78	0.00				
303.90	1.83	1.83	0.00				
304.00	1.87	1.87	0.00				
304.10	1.92	1.92	0.00				
304.20	1.96	1.96	0.00				
304.30	2.01	2.01	0.00				
304.40	2.05	2.05	0.00				
304.50	2.10	2.10	0.00				
304.60	2.18	2.15	0.03				
304.70	2.30	2.19	0.11				
304.80	2.47	2.24	0.23				
304.90	2.65	2.28	0.36				
305.00	2.80	2.33	0.47				
305.10	2.93	2.37	0.56				
305.20	3.05	2.42	0.63				
305.30	3.17	2.47	0.70				
305.40	3.27	2.51	0.76				
305.50	3.38	2.56	0.82				
305.60	3.47	2.60	0.87				
305.70	3.57	2.65	0.92				
305.80	3.66	2.69	0.97				
305.90	3.75	2.74	1.01				
306.00	3.84	2.78	1.06				
306.10	3.93	2.83	1.10				
306.20	4.01	2.88	1.14				
306.30	4.10	2.92	1.18				
306.40	4.18	2.97	1.21				
306.50	4.26	3.01	1.25				
306.60	4.34	3.06	1.29				
306.70	4.42	3.10	1.32				
306.80	4.50	3.15	1.35				
306.90	4.58	3.20	1.39				
307.00	4.66	3.24	1.42				
307.10	4.74	3.29	1.45				
307.20	4.81	3.33	1.48				
307.30	4.89	3.38	1.51				
307.40	4.96	3.42	1.54				
307.50	5.04	3.47	1.57				
307.60	5.52	3.51	2.01				
307.70	6.34	3.56	2.78				
307.80	7.37	3.61	3.77				
307.90	8.57	3.65	4.92				
308.00	9.91	3.70	6.21				
308.10	11.37	3.74	7.63				
308.20	12.94	3.79	9.15				
308.30	14.60	3.83	10.77				
308.40	16.35	3.88	12.47				
308.50	18.18	3.93	14.26				
308.60	20.09	3.97	16.12				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Area-Storage for Pond BA-CR: UG INF BASIN C (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
303.50	27,305	0	308.70	27,305	116,518
303.60	27,305	1,092	308.80	27,305	117,611
303.70	27,305	2,184			
303.80	27,305	3,951			
303.90	27,305	6,391			
304.00	27,305	8,832			
304.10	27,305	11,273			
304.20	27,305	13,713			
304.30	27,305	16,154			
304.40	27,305	18,595			
304.50	27,305	21,035			
304.60	27,305	23,476			
304.70	27,305	25,917			
304.80	27,305	28,357			
304.90	27,305	30,798			
305.00	27,305	33,238			
305.10	27,305	35,679			
305.20	27,305	38,120			
305.30	27,305	40,560			
305.40	27,305	43,001			
305.50	27,305	45,442			
305.60	27,305	47,882			
305.70	27,305	50,323			
305.80	27,305	52,764			
305.90	27,305	55,204			
306.00	27,305	57,645			
306.10	27,305	60,085			
306.20	27,305	62,526			
306.30	27,305	64,967			
306.40	27,305	67,407			
306.50	27,305	69,848			
306.60	27,305	72,289			
306.70	27,305	74,729			
306.80	27,305	77,170			
306.90	27,305	79,611			
307.00	27,305	82,051			
307.10	27,305	84,492			
307.20	27,305	86,932			
307.30	27,305	89,373			
307.40	27,305	91,814			
307.50	27,305	94,254			
307.60	27,305	96,695			
307.70	27,305	99,136			
307.80	27,305	101,576			
307.90	27,305	104,017			
308.00	27,305	106,458			
308.10	27,305	108,898			
308.20	27,305	111,057			
308.30	27,305	112,150			
308.40	27,305	113,242			
308.50	27,305	114,334			
308.60	27,305	115,426			

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Pond BA-DR: UG INF BASIN D (RTANK)**

Inflow Area = 8.240 ac, 95.51% Impervious, Inflow Depth = 1.18" for WQ event  
 Inflow = 11.04 cfs @ 12.07 hrs, Volume= 0.813 af  
 Outflow = 2.27 cfs @ 12.49 hrs, Volume= 0.813 af, Atten= 79%, Lag= 25.3 min  
 Discarded = 2.27 cfs @ 12.49 hrs, Volume= 0.813 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 305.45' @ 12.49 hrs Surf.Area= 32,692 sf Storage= 9,081 cf

Plug-Flow detention time= 24.5 min calculated for 0.813 af (100% of inflow)  
 Center-of-Mass det. time= 24.5 min ( 811.8 - 787.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	305.00'	15,782 cf	<b>49.28'W x 663.45'L x 4.26'H Field A</b> 139,369 cf Overall - 99,915 cf Embedded = 39,454 cf x 40.0% Voids
#2A	305.25'	94,919 cf	<b>Ferguson R-Tank UD 3 x 7705</b> Inside #1 Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf 7705 Chambers in 23 Rows
		110,701 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	305.25'	<b>18.0" Round Culvert</b> L= 7.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 305.25' / 305.18' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	305.00'	<b>2.700 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 301.00'
#3	Device 1	305.75'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.00'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Device 1	308.25'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=2.27 cfs @ 12.49 hrs HW=305.45' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 2.27 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=305.00' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
     ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)  
         ↳ **4=Orifice/Grate** ( Controls 0.00 cfs)  
             ↳ **5=Sharp-Crested Rectangular Weir**( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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**Pond BA-DR: UG INF BASIN D (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 3 (Ferguson R-Tank UD)**

Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf  
Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf

335 Chambers/Row x 1.97' Long = 659.45' Row Length +24.0" End Stone x 2 = 663.45' Base Length  
23 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 49.28' Base Width  
3.0" Stone Base + 40.2" Chamber Height + 8.0" Stone Cover = 4.26' Field Height

7,705 Chambers x 12.3 cf = 94,919.2 cf Chamber Storage  
7,705 Chambers x 13.0 cf = 99,914.9 cf Displacement

139,369.3 cf Field - 99,914.9 cf of Chambers = 39,454.4 cf Stone x 40.0% Voids = 15,781.8 cf of Stone Storage

Chamber Storage + Stone Storage = 110,700.9 cf = 2.541 af  
Overall Storage Efficiency = 79.4%  
Overall System Size = 663.45' x 49.28' x 4.26'

7,705 Chambers  
5,161.8 cy Field  
1,461.3 cy Stone



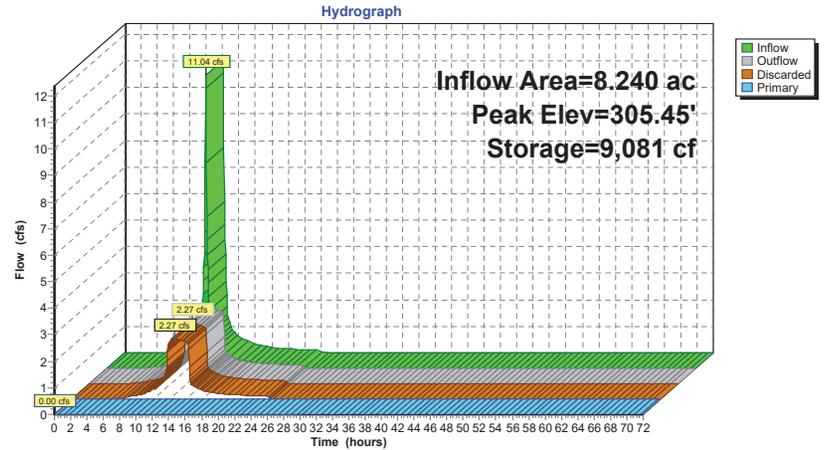
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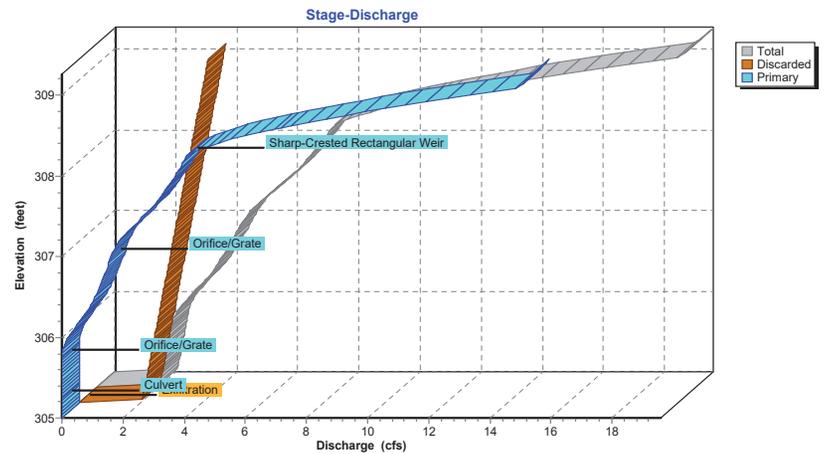
Type III 24-hr WQ Rainfall=1.50"

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**Pond BA-DR: UG INF BASIN D (RTANK)**



**Pond BA-DR: UG INF BASIN D (RTANK)**



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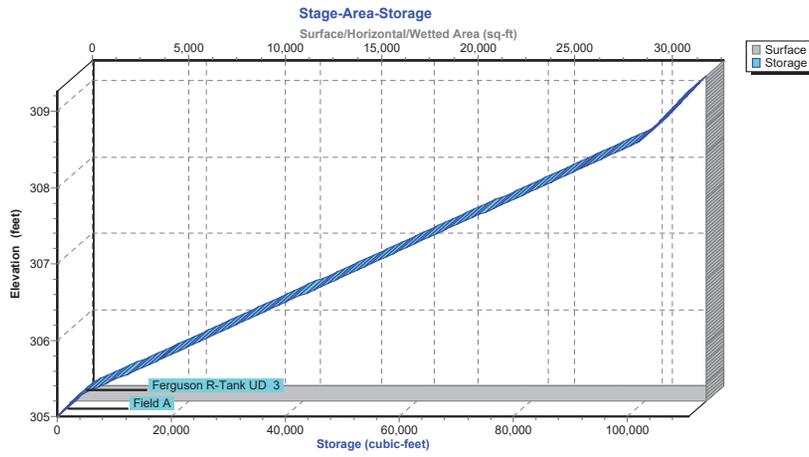
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Type III 24-hr WQ Rainfall=1.50"

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**Pond BA-DR: UG INF BASIN D (RTANK)**



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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Pond BA-DR: UG INF BASIN D (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	305.00	0.00	0.00	<b>0.00</b>
2.50	0.00	0	305.00	0.00	0.00	0.00
5.00	0.02	6	305.00	0.02	0.02	0.00
7.50	0.11	30	305.00	0.11	0.11	0.00
10.00	<b>0.39</b>	103	305.01	0.38	0.38	0.00
12.50	<b>2.19</b>	<b>9,080</b>	<b>305.45</b>	<b>2.27</b>	<b>2.27</b>	0.00
15.00	0.46	127	305.01	0.47	0.47	0.00
17.50	0.23	62	305.00	0.23	0.23	0.00
20.00	0.16	43	305.00	0.16	0.16	0.00
22.50	0.12	34	305.00	0.12	0.12	0.00
25.00	0.00	0	305.00	0.00	0.00	0.00
27.50	0.00	0	305.00	0.00	0.00	0.00
30.00	0.00	0	305.00	0.00	0.00	0.00
32.50	0.00	0	305.00	0.00	0.00	0.00
35.00	0.00	0	305.00	0.00	0.00	0.00
37.50	0.00	0	305.00	0.00	0.00	0.00
40.00	0.00	0	305.00	0.00	0.00	0.00
42.50	0.00	0	305.00	0.00	0.00	0.00
45.00	0.00	0	305.00	0.00	0.00	0.00
47.50	0.00	0	305.00	0.00	0.00	0.00
50.00	0.00	0	305.00	0.00	0.00	0.00
52.50	0.00	0	305.00	0.00	0.00	0.00
55.00	0.00	0	305.00	0.00	0.00	0.00
57.50	0.00	0	305.00	0.00	0.00	0.00
60.00	0.00	0	305.00	0.00	0.00	0.00
62.50	0.00	0	305.00	0.00	0.00	0.00
65.00	0.00	0	305.00	0.00	0.00	0.00
67.50	0.00	0	305.00	0.00	0.00	0.00
70.00	0.00	0	305.00	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Discharge for Pond BA-DR: UG INF BASIN D (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
305.00	0.00	0.00	0.00	307.60	6.31	3.37	2.94
305.05	2.07	2.07	0.00	307.65	6.45	3.40	3.06
305.10	2.09	2.09	0.00	307.70	6.58	3.42	3.15
305.15	2.12	2.12	0.00	307.75	6.70	3.45	3.25
305.20	2.15	2.15	0.00	307.80	6.82	3.47	3.35
305.25	2.17	2.17	0.00	307.85	6.94	3.50	3.44
305.30	2.20	2.20	0.00	307.90	7.06	3.52	3.53
305.35	2.22	2.22	0.00	307.95	7.17	3.55	3.62
305.40	2.25	2.25	0.00	308.00	7.27	3.58	3.70
305.45	2.27	2.27	0.00	308.05	7.38	3.60	3.78
305.50	2.30	2.30	0.00	308.10	7.49	3.63	3.86
305.55	2.32	2.32	0.00	308.15	7.59	3.65	3.94
305.60	2.35	2.35	0.00	308.20	7.69	3.68	4.01
305.65	2.38	2.38	0.00	308.25	7.79	3.70	4.08
305.70	2.40	2.40	0.00	308.30	8.03	3.73	4.30
305.75	2.43	2.43	0.00	308.35	8.39	3.75	4.64
305.80	2.46	2.45	0.01	308.40	8.83	3.78	5.05
305.85	2.51	2.48	0.04	308.45	9.33	3.81	5.52
305.90	2.58	2.50	0.08	308.50	9.87	3.83	6.04
305.95	2.66	2.53	0.13	308.55	10.47	3.86	6.61
306.00	2.76	2.55	0.20	308.60	11.10	3.88	7.22
306.05	2.86	2.58	0.28	308.65	11.77	3.91	7.86
306.10	2.98	2.61	0.37	308.70	12.48	3.93	8.54
306.15	3.10	2.63	0.47	308.75	13.21	3.96	9.25
306.20	3.23	2.66	0.57	308.80	13.98	3.98	9.99
306.25	3.36	2.68	0.68	308.85	14.77	4.01	10.76
306.30	3.49	2.71	0.78	308.90	15.59	4.04	11.56
306.35	3.61	2.73	0.87	308.95	16.44	4.06	12.38
306.40	3.71	2.76	0.95	309.00	17.30	4.09	13.22
306.45	3.80	2.78	1.02	309.05	18.19	4.11	14.08
306.50	3.89	2.81	1.08	309.10	19.11	4.14	14.97
306.55	3.98	2.83	1.15	309.15	19.26	4.16	15.10
306.60	4.07	2.86	1.21	309.20	19.41	4.19	15.22
306.65	4.15	2.89	1.27	309.25	<b>19.55</b>	<b>4.21</b>	<b>15.34</b>
306.70	4.23	2.91	1.32				
306.75	4.31	2.94	1.37				
306.80	4.39	2.96	1.42				
306.85	4.46	2.99	1.47				
306.90	4.53	3.01	1.52				
306.95	4.60	3.04	1.56				
307.00	4.67	3.06	1.61				
307.05	4.75	3.09	1.66				
307.10	4.85	3.12	1.73				
307.15	4.95	3.14	1.81				
307.20	5.08	3.17	1.91				
307.25	5.21	3.19	2.02				
307.30	5.36	3.22	2.14				
307.35	5.51	3.24	2.27				
307.40	5.67	3.27	2.40				
307.45	5.83	3.29	2.54				
307.50	6.00	3.32	2.68				
307.55	6.16	3.35	2.81				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Area-Storage for Pond BA-DR: UG INF BASIN D (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
305.00	<b>32,692</b>	0	307.60	32,692	72,590
305.05	32,692	654	307.65	32,692	74,064
305.10	32,692	1,308	307.70	32,692	75,539
305.15	32,692	1,962	307.75	32,692	77,014
305.20	32,692	2,615	307.80	32,692	78,489
305.25	32,692	3,269	307.85	32,692	79,964
305.30	32,692	4,744	307.90	32,692	81,439
305.35	32,692	6,219	307.95	32,692	82,914
305.40	32,692	7,694	308.00	32,692	84,389
305.45	32,692	9,169	308.05	32,692	85,864
305.50	32,692	10,644	308.10	32,692	87,339
305.55	32,692	12,119	308.15	32,692	88,814
305.60	32,692	13,593	308.20	32,692	90,288
305.65	32,692	15,068	308.25	32,692	91,763
305.70	32,692	16,543	308.30	32,692	93,238
305.75	32,692	18,018	308.35	32,692	94,713
305.80	32,692	19,493	308.40	32,692	96,188
305.85	32,692	20,968	308.45	32,692	97,663
305.90	32,692	22,443	308.50	32,692	99,138
305.95	32,692	23,918	308.55	32,692	100,613
306.00	32,692	25,393	308.60	32,692	102,029
306.05	32,692	26,868	308.65	32,692	102,683
306.10	32,692	28,343	308.70	32,692	103,337
306.15	32,692	29,817	308.75	32,692	103,991
306.20	32,692	31,292	308.80	32,692	104,645
306.25	32,692	32,767	308.85	32,692	105,299
306.30	32,692	34,242	308.90	32,692	105,952
306.35	32,692	35,717	308.95	32,692	106,606
306.40	32,692	37,192	309.00	32,692	107,260
306.45	32,692	38,667	309.05	32,692	107,914
306.50	32,692	40,142	309.10	32,692	108,568
306.55	32,692	41,617	309.15	32,692	109,222
306.60	32,692	43,092	309.20	32,692	109,875
306.65	32,692	44,566	309.25	32,692	<b>110,529</b>
306.70	32,692	46,041			
306.75	32,692	47,516			
306.80	32,692	48,991			
306.85	32,692	50,466			
306.90	32,692	51,941			
306.95	32,692	53,416			
307.00	32,692	54,891			
307.05	32,692	56,366			
307.10	32,692	57,841			
307.15	32,692	59,315			
307.20	32,692	60,790			
307.25	32,692	62,265			
307.30	32,692	63,740			
307.35	32,692	65,215			
307.40	32,692	66,690			
307.45	32,692	68,165			
307.50	32,692	69,640			
307.55	32,692	71,115			

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Pond BA-ER: UG INF BASIN E (RTANK)**

Inflow Area = 8.220 ac, 95.13% Impervious, Inflow Depth = 1.01" for WQ event  
 Inflow = 9.61 cfs @ 12.08 hrs, Volume= 0.694 af  
 Outflow = 2.18 cfs @ 12.49 hrs, Volume= 0.694 af, Atten= 77%, Lag= 24.5 min  
 Discarded = 2.18 cfs @ 12.49 hrs, Volume= 0.694 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 305.48' @ 12.49 hrs Surf.Area= 24,100 sf Storage= 7,484 cf

Plug-Flow detention time= 21.5 min calculated for 0.693 af (100% of inflow)  
 Center-of-Mass det. time= 21.5 min ( 828.0 - 806.6 )

Volume	Invert	Avail.Storage	Storage Description
#1A	305.00'	12,897 cf	<b>45.34'W x 531.56'L x 5.35'H Field A</b> 128,835 cf Overall - 96,593 cf Embedded = 32,242 cf x 40.0% Voids
#2A	305.25'	91,763 cf	<b>Ferguson R-Tank UD 4</b> x 5628 Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 5628 Chambers in 21 Rows
		104,660 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	305.25'	<b>18.0" Round Culvert</b> L= 55.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 305.25' / 304.15' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	305.00'	<b>3.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 300.75'
#3	Device 1	306.90'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	308.50'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=2.17 cfs @ 12.49 hrs HW=305.48' (Free Discharge)  
 ↳2=Exfiltration ( Controls 2.17 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=305.00' (Free Discharge)  
 ↳1=Culvert ( Controls 0.00 cfs)  
 ↳3=Orifice/Grate ( Controls 0.00 cfs)  
 ↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

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Type III 24-hr WQ Rainfall=1.50"

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**Pond BA-ER: UG INF BASIN E (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf  
 Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

268 Chambers/Row x 1.97' Long = 527.56' Row Length +24.0" End Stone x 2 = 531.56' Base Length  
 21 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 45.34' Base Width  
 3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

5,628 Chambers x 16.3 cf = 91,763.3 cf Chamber Storage  
 5,628 Chambers x 17.2 cf = 96,593.0 cf Displacement

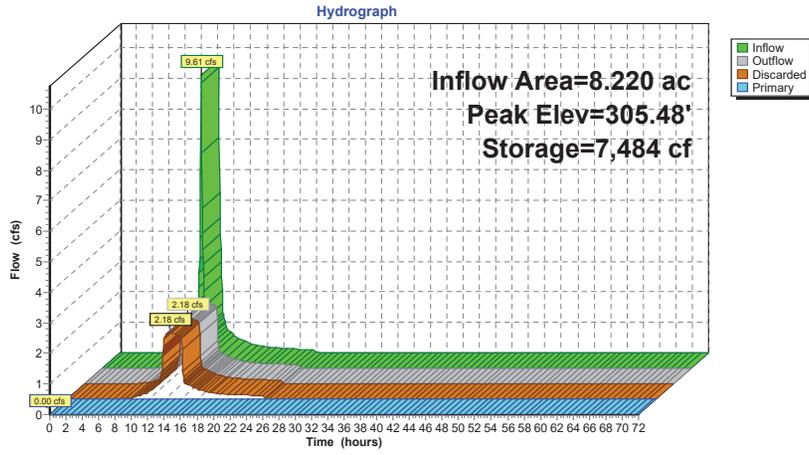
128,834.5 cf Field - 96,593.0 cf Chambers = 32,241.6 cf Stone x 40.0% Voids = 12,896.6 cf Stone Storage

Chamber Storage + Stone Storage = 104,659.9 cf = 2.403 af  
 Overall Storage Efficiency = 81.2%  
 Overall System Size = 531.56' x 45.34' x 5.35'

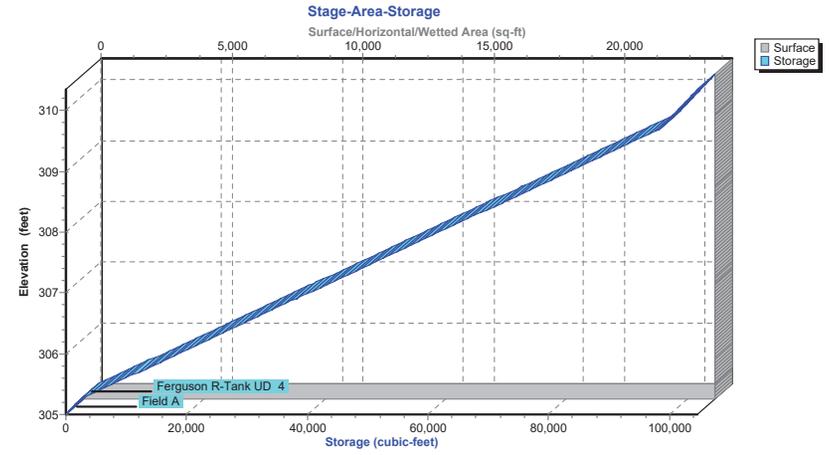
5,628 Chambers  
 4,771.6 cy Field  
 1,194.1 cy Stone



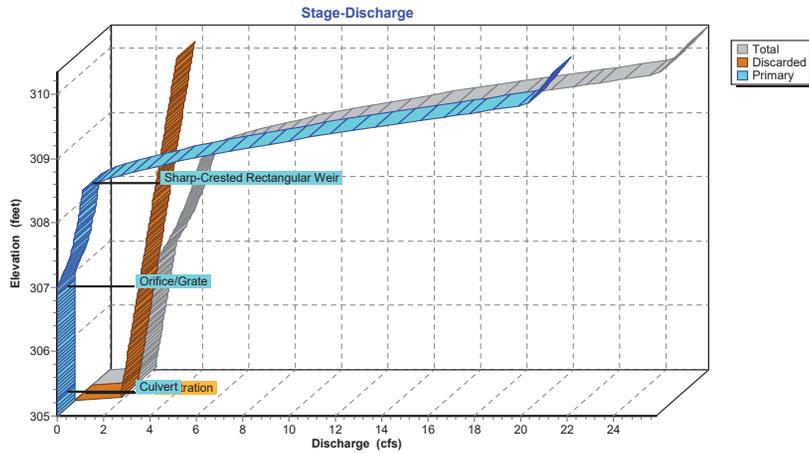
**Pond BA-ER: UG INF BASIN E (RTANK)**



**Pond BA-ER: UG INF BASIN E (RTANK)**



**Pond BA-ER: UG INF BASIN E (RTANK)**



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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Pond BA-ER: UG INF BASIN E (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	305.00	0.00	0.00	<b>0.00</b>
2.50	0.00	0	305.00	0.00	0.00	0.00
5.00	0.00	0	305.00	0.00	0.00	0.00
7.50	0.04	10	305.00	0.04	0.04	0.00
10.00	<b>0.26</b>	65	305.01	0.25	0.25	0.00
12.50	<b>2.05</b>	<b>7,481</b>	<b>305.48</b>	<b>2.18</b>	<b>2.18</b>	0.00
15.00	0.43	115	305.01	0.44	0.44	0.00
17.50	0.21	57	305.01	0.22	0.22	0.00
20.00	0.15	39	305.00	0.15	0.15	0.00
22.50	0.12	31	305.00	0.12	0.12	0.00
25.00	0.00	0	305.00	0.00	0.00	0.00
27.50	0.00	0	305.00	0.00	0.00	0.00
30.00	0.00	0	305.00	0.00	0.00	0.00
32.50	0.00	0	305.00	0.00	0.00	0.00
35.00	0.00	0	305.00	0.00	0.00	0.00
37.50	0.00	0	305.00	0.00	0.00	0.00
40.00	0.00	0	305.00	0.00	0.00	0.00
42.50	0.00	0	305.00	0.00	0.00	0.00
45.00	0.00	0	305.00	0.00	0.00	0.00
47.50	0.00	0	305.00	0.00	0.00	0.00
50.00	0.00	0	305.00	0.00	0.00	0.00
52.50	0.00	0	305.00	0.00	0.00	0.00
55.00	0.00	0	305.00	0.00	0.00	0.00
57.50	0.00	0	305.00	0.00	0.00	0.00
60.00	0.00	0	305.00	0.00	0.00	0.00
62.50	0.00	0	305.00	0.00	0.00	0.00
65.00	0.00	0	305.00	0.00	0.00	0.00
67.50	0.00	0	305.00	0.00	0.00	0.00
70.00	0.00	0	305.00	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Discharge for Pond BA-ER: UG INF BASIN E (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
305.00	0.00	0.00	0.00	310.20	25.43	4.34	21.09
305.10	2.00	2.00	0.00	310.30	<b>25.71</b>	<b>4.39</b>	<b>21.32</b>
305.20	2.04	2.04	0.00				
305.30	2.09	2.09	0.00				
305.40	2.14	2.14	0.00				
305.50	2.18	2.18	0.00				
305.60	2.23	2.23	0.00				
305.70	2.27	2.27	0.00				
305.80	2.32	2.32	0.00				
305.90	2.37	2.37	0.00				
306.00	2.41	2.41	0.00				
306.10	2.46	2.46	0.00				
306.20	2.50	2.50	0.00				
306.30	2.55	2.55	0.00				
306.40	2.60	2.60	0.00				
306.50	2.64	2.64	0.00				
306.60	2.69	2.69	0.00				
306.70	2.73	2.73	0.00				
306.80	2.78	2.78	0.00				
306.90	2.83	2.83	0.00				
307.00	2.90	2.87	0.03				
307.10	3.03	2.92	0.11				
307.20	3.19	2.96	0.23				
307.30	3.37	3.01	0.36				
307.40	3.53	3.06	0.47				
307.50	3.66	3.10	0.56				
307.60	3.78	3.15	0.63				
307.70	3.89	3.19	0.70				
307.80	4.00	3.24	0.76				
307.90	4.10	3.28	0.82				
308.00	4.20	3.33	0.87				
308.10	4.30	3.38	0.92				
308.20	4.39	3.42	0.97				
308.30	4.48	3.47	1.01				
308.40	4.57	3.51	1.06				
308.50	4.66	3.56	1.10				
308.60	5.16	3.61	1.55				
308.70	5.99	3.65	2.34				
308.80	7.03	3.70	3.33				
308.90	8.24	3.74	4.49				
309.00	9.59	3.79	5.79				
309.10	11.05	3.84	7.22				
309.20	12.63	3.88	8.75				
309.30	14.30	3.93	10.37				
309.40	16.06	3.97	12.08				
309.50	17.90	4.02	13.88				
309.60	19.81	4.07	15.74				
309.70	21.78	4.11	17.67				
309.80	23.82	4.16	19.67				
309.90	24.59	4.20	20.38				
310.00	24.87	4.25	20.62				
310.10	25.15	4.30	20.86				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Area-Storage for Pond BA-ER: UG INF BASIN E (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
305.00	24,100	0	310.20	24,100	103,254
305.10	24,100	964	310.30	24,100	104,218
305.20	24,100	1,928			
305.30	24,100	3,492			
305.40	24,100	5,655			
305.50	24,100	7,819			
305.60	24,100	9,982			
305.70	24,100	12,146			
305.80	24,100	14,309			
305.90	24,100	16,473			
306.00	24,100	18,636			
306.10	24,100	20,800			
306.20	24,100	22,963			
306.30	24,100	25,127			
306.40	24,100	27,290			
306.50	24,100	29,453			
306.60	24,100	31,617			
306.70	24,100	33,780			
306.80	24,100	35,944			
306.90	24,100	38,107			
307.00	24,100	40,271			
307.10	24,100	42,434			
307.20	24,100	44,598			
307.30	24,100	46,761			
307.40	24,100	48,925			
307.50	24,100	51,088			
307.60	24,100	53,252			
307.70	24,100	55,415			
307.80	24,100	57,579			
307.90	24,100	59,742			
308.00	24,100	61,906			
308.10	24,100	64,069			
308.20	24,100	66,233			
308.30	24,100	68,396			
308.40	24,100	70,559			
308.50	24,100	72,723			
308.60	24,100	74,886			
308.70	24,100	77,050			
308.80	24,100	79,213			
308.90	24,100	81,377			
309.00	24,100	83,540			
309.10	24,100	85,704			
309.20	24,100	87,867			
309.30	24,100	90,031			
309.40	24,100	92,194			
309.50	24,100	94,358			
309.60	24,100	96,521			
309.70	24,100	98,684			
309.80	24,100	99,398			
309.90	24,100	100,362			
310.00	24,100	101,326			
310.10	24,100	102,290			

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Pond BA-FR: UG INF BASIN F (RTANK)**

Inflow Area = 9.660 ac, 93.79% Impervious, Inflow Depth = 1.01" for WQ event  
 Inflow = 12.01 cfs @ 12.06 hrs, Volume= 0.815 af  
 Outflow = 6.74 cfs @ 12.17 hrs, Volume= 0.815 af, Atten= 44%, Lag= 6.5 min  
 Discarded = 6.74 cfs @ 12.17 hrs, Volume= 0.815 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 306.47' @ 12.17 hrs Surf.Area= 28,685 sf Storage= 2,517 cf

Plug-Flow detention time= 2.1 min calculated for 0.815 af (100% of inflow)  
 Center-of-Mass det. time= 2.1 min ( 807.4 - 805.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	306.25'	13,996 cf	<b>47.31'W x 606.36'L x 4.26'H Field A</b> 122,289 cf Overall - 87,298 cf Embedded = 34,991 cf x 40.0% Voids
#2A	306.50'	82,933 cf	<b>Ferguson R-Tank UD 3</b> x 6732 Inside #1 Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf 6732 Chambers in 22 Rows
		96,929 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	306.50'	<b>24.0" Round Culvert</b> L= 692.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 306.50' / 303.04' S= 0.0050 '/' Cc= 0.900 n= 0.120, Flow Area= 3.14 sf
#2	Discarded	306.25'	<b>9.750 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 301.00'
#3	Device 1	307.65'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	308.75'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=6.74 cfs @ 12.17 hrs HW=306.47' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 6.74 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=306.25' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)  
 ↳ **4=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

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Type III 24-hr WQ Rainfall=1.50"

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**Pond BA-FR: UG INF BASIN F (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 3 (Ferguson R-Tank UD)**

Inside= 23.6"W x 40.2"H => 6.26 sf x 1.97'L = 12.3 cf  
Outside= 23.6"W x 40.2"H => 6.59 sf x 1.97'L = 13.0 cf

306 Chambers/Row x 1.97' Long = 602.36' Row Length +24.0" End Stone x 2 = 606.36' Base Length  
22 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 47.31' Base Width  
3.0" Stone Base + 40.2" Chamber Height + 8.0" Stone Cover = 4.26' Field Height

6,732 Chambers x 12.3 cf = 82,932.6 cf Chamber Storage  
6,732 Chambers x 13.0 cf = 87,297.5 cf Displacement

122,288.7 cf Field - 87,297.5 cf Chambers = 34,991.2 cf Stone x 40.0% Voids = 13,996.5 cf Stone Storage

Chamber Storage + Stone Storage = 96,929.1 cf = 2.225 af  
Overall Storage Efficiency = 79.3%  
Overall System Size = 606.36' x 47.31' x 4.26'

6,732 Chambers  
4,529.2 cy Field  
1,296.0 cy Stone



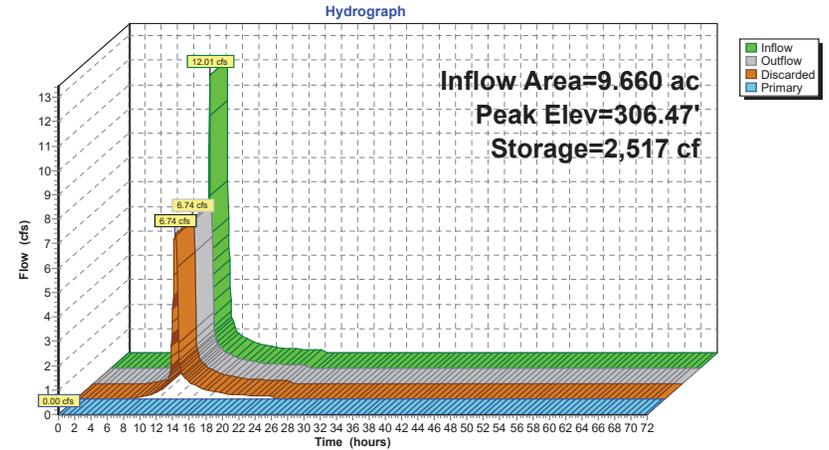
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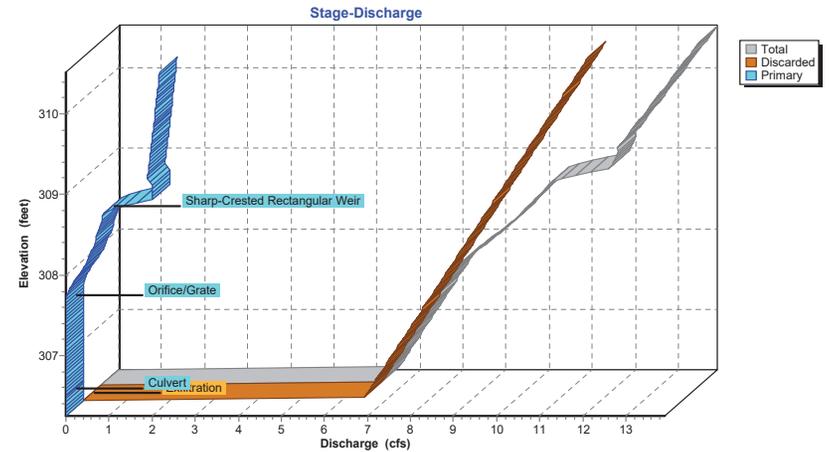
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**Pond BA-FR: UG INF BASIN F (RTANK)**



**Pond BA-FR: UG INF BASIN F (RTANK)**



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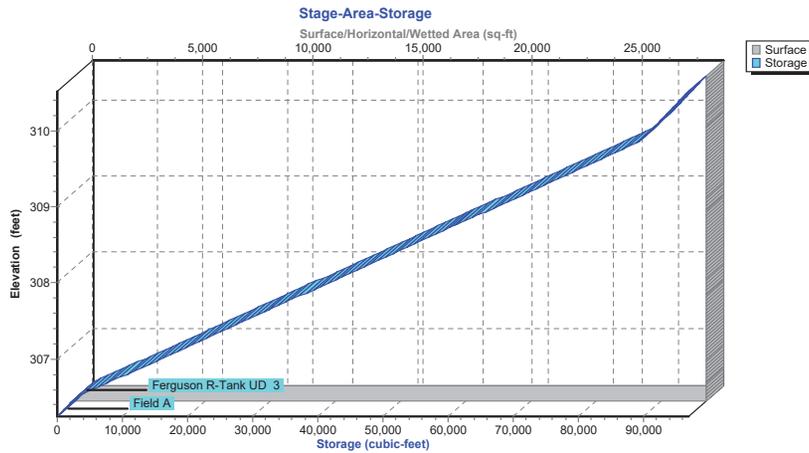
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Type III 24-hr WQ Rainfall=1.50"

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**Pond BA-FR: UG INF BASIN F (RTANK)**



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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Pond BA-FR: UG INF BASIN F (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	306.25	0.00	0.00	<b>0.00</b>
2.50	0.00	0	306.25	0.00	0.00	0.00
5.00	0.00	0	306.25	0.00	0.00	0.00
7.50	0.05	4	306.25	0.05	0.05	0.00
10.00	<b>0.31</b>	<b>23</b>	<b>306.25</b>	<b>0.30</b>	<b>0.30</b>	0.00
12.50	<b>2.17</b>	<b>171</b>	<b>306.26</b>	<b>2.28</b>	<b>2.28</b>	0.00
15.00	0.50	38	306.25	0.51	0.51	0.00
17.50	0.25	19	306.25	0.25	0.25	0.00
20.00	0.18	13	306.25	0.18	0.18	0.00
22.50	0.14	10	306.25	0.14	0.14	0.00
25.00	0.00	0	306.25	0.00	0.00	0.00
27.50	0.00	0	306.25	0.00	0.00	0.00
30.00	0.00	0	306.25	0.00	0.00	0.00
32.50	0.00	0	306.25	0.00	0.00	0.00
35.00	0.00	0	306.25	0.00	0.00	0.00
37.50	0.00	0	306.25	0.00	0.00	0.00
40.00	0.00	0	306.25	0.00	0.00	0.00
42.50	0.00	0	306.25	0.00	0.00	0.00
45.00	0.00	0	306.25	0.00	0.00	0.00
47.50	0.00	0	306.25	0.00	0.00	0.00
50.00	0.00	0	306.25	0.00	0.00	0.00
52.50	0.00	0	306.25	0.00	0.00	0.00
55.00	0.00	0	306.25	0.00	0.00	0.00
57.50	0.00	0	306.25	0.00	0.00	0.00
60.00	0.00	0	306.25	0.00	0.00	0.00
62.50	0.00	0	306.25	0.00	0.00	0.00
65.00	0.00	0	306.25	0.00	0.00	0.00
67.50	0.00	0	306.25	0.00	0.00	0.00
70.00	0.00	0	306.25	0.00	0.00	0.00

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Discharge for Pond BA-FR: UG INF BASIN F (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
306.25	0.00	0.00	0.00	308.85	11.01	9.68	1.33
306.30	6.54	6.54	0.00	308.90	11.44	9.74	1.70
306.35	6.60	6.60	0.00	308.95	11.81	9.80	2.01
306.40	6.66	6.66	0.00	309.00	11.88	9.87	2.02
306.45	6.72	6.72	0.00	309.05	11.94	9.93	2.02
306.50	6.78	6.78	0.00	309.10	11.99	9.99	2.00
306.55	6.84	6.84	0.00	309.15	12.00	10.05	1.95
306.60	6.91	6.91	0.00	309.20	12.01	10.11	1.89
306.65	6.97	6.97	0.00	309.25	12.08	10.17	1.91
306.70	7.03	7.03	0.00	309.30	12.15	10.24	1.92
306.75	7.09	7.09	0.00	309.35	12.23	10.30	1.93
306.80	7.15	7.15	0.00	309.40	12.30	10.36	1.94
306.85	7.21	7.21	0.00	309.45	12.37	10.42	1.95
306.90	7.28	7.28	0.00	309.50	12.44	10.48	1.96
306.95	7.34	7.34	0.00	309.55	12.52	10.54	1.97
307.00	7.40	7.40	0.00	309.60	12.59	10.61	1.98
307.05	7.46	7.46	0.00	309.65	12.66	10.67	1.99
307.10	7.52	7.52	0.00	309.70	12.73	10.73	2.01
307.15	7.58	7.58	0.00	309.75	12.81	10.79	2.02
307.20	7.65	7.65	0.00	309.80	12.88	10.85	2.03
307.25	7.71	7.71	0.00	309.85	12.95	10.91	2.04
307.30	7.77	7.77	0.00	309.90	13.02	10.98	2.05
307.35	7.83	7.83	0.00	309.95	13.10	11.04	2.06
307.40	7.89	7.89	0.00	310.00	13.17	11.10	2.07
307.45	7.95	7.95	0.00	310.05	13.24	11.16	2.08
307.50	8.02	8.02	0.00	310.10	13.31	11.22	2.09
307.55	8.08	8.08	0.00	310.15	13.38	11.28	2.10
307.60	8.14	8.14	0.00	310.20	13.46	11.35	2.11
307.65	8.20	8.20	0.00	310.25	13.53	11.41	2.12
307.70	8.27	8.26	0.01	310.30	13.60	11.47	2.13
307.75	8.35	8.32	0.03	310.35	13.67	11.53	2.14
307.80	8.45	8.39	0.07	310.40	13.74	11.59	2.15
307.85	8.56	8.45	0.11	310.45	13.81	11.65	2.16
307.90	8.68	8.51	0.17	310.50	<b>13.89</b>	<b>11.72</b>	<b>2.17</b>
307.95	8.80	8.57	0.23				
308.00	8.93	8.63	0.30				
308.05	9.06	8.69	0.36				
308.10	9.18	8.76	0.43				
308.15	9.29	8.82	0.47				
308.20	9.40	8.88	0.52				
308.25	9.50	8.94	0.56				
308.30	9.60	9.00	0.60				
308.35	9.70	9.06	0.63				
308.40	9.79	9.13	0.67				
308.45	9.89	9.19	0.70				
308.50	9.98	9.25	0.73				
308.55	10.07	9.31	0.76				
308.60	10.16	9.37	0.79				
308.65	10.25	9.43	0.82				
308.70	10.34	9.50	0.85				
308.75	10.43	9.56	0.87				
308.80	10.66	9.62	1.04				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-FR: UG INF BASIN F (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
306.25	<b>28,685</b>	0	308.85	28,685	63,550
306.30	28,685	574	308.90	28,685	64,841
306.35	28,685	1,147	308.95	28,685	66,132
306.40	28,685	1,721	309.00	28,685	67,423
306.45	28,685	2,295	309.05	28,685	68,714
306.50	28,685	2,869	309.10	28,685	70,005
306.55	28,685	4,160	309.15	28,685	71,296
306.60	28,685	5,451	309.20	28,685	72,587
306.65	28,685	6,742	309.25	28,685	73,878
306.70	28,685	8,033	309.30	28,685	75,169
306.75	28,685	9,324	309.35	28,685	76,460
306.80	28,685	10,615	309.40	28,685	77,751
306.85	28,685	11,906	309.45	28,685	79,043
306.90	28,685	13,197	309.50	28,685	80,334
306.95	28,685	14,488	309.55	28,685	81,625
307.00	28,685	15,779	309.60	28,685	82,916
307.05	28,685	17,070	309.65	28,685	84,207
307.10	28,685	18,362	309.70	28,685	85,498
307.15	28,685	19,653	309.75	28,685	86,789
307.20	28,685	20,944	309.80	28,685	88,080
307.25	28,685	22,235	309.85	28,685	89,320
307.30	28,685	23,526	309.90	28,685	89,894
307.35	28,685	24,817	309.95	28,685	90,468
307.40	28,685	26,108	310.00	28,685	91,041
307.45	28,685	27,399	310.05	28,685	91,615
307.50	28,685	28,690	310.10	28,685	92,189
307.55	28,685	29,981	310.15	28,685	92,763
307.60	28,685	31,272	310.20	28,685	93,336
307.65	28,685	32,563	310.25	28,685	93,910
307.70	28,685	33,855	310.30	28,685	94,484
307.75	28,685	35,146	310.35	28,685	95,057
307.80	28,685	36,437	310.40	28,685	95,631
307.85	28,685	37,728	310.45	28,685	96,205
307.90	28,685	39,019	310.50	28,685	<b>96,779</b>
307.95	28,685	40,310			
308.00	28,685	41,601			
308.05	28,685	42,892			
308.10	28,685	44,183			
308.15	28,685	45,474			
308.20	28,685	46,765			
308.25	28,685	48,056			
308.30	28,685	49,348			
308.35	28,685	50,639			
308.40	28,685	51,930			
308.45	28,685	53,221			
308.50	28,685	54,512			
308.55	28,685	55,803			
308.60	28,685	57,094			
308.65	28,685	58,385			
308.70	28,685	59,676			
308.75	28,685	60,967			
308.80	28,685	62,258			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-G: AG INF BASIN G**

Inflow Area = 0.700 ac, 60.00% Impervious, Inflow Depth = 0.00" for WQ event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 43L : TOTAL AG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.50' @ 0.00 hrs Surf.Area= 6,110 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	309.50'	18,077 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.50	6,110	0	0
310.00	6,548	3,165	3,165
311.00	7,475	7,012	10,176
312.00	8,326	7,901	18,077

Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	<b>18.0" Round Culvert</b> L= 61.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 308.50' / 308.19' S= 0.0050'/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	309.50'	<b>2.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 304.60'
#3	Device 1	309.90'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	311.00'	<b>48.0" x 48.0" Horiz. Top Grate</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=0.00 cfs @ 0.00 hrs HW=309.50' (Free Discharge)  
 ↳2=Exfiltration (Passes 0.00 cfs of 0.35 cfs potential flow)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=309.50' (Free Discharge)  
 ↳1=Culvert (Passes 0.00 cfs of 3.61 cfs potential flow)  
 ↳3=Orifice/Grate ( Controls 0.00 cfs)  
 ↳4=Top Grate ( Controls 0.00 cfs)

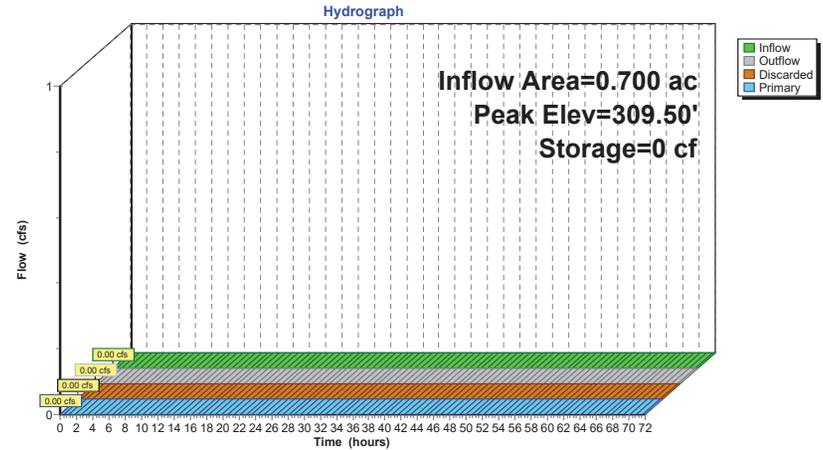
**2024-01-15 Proposed Conditions**

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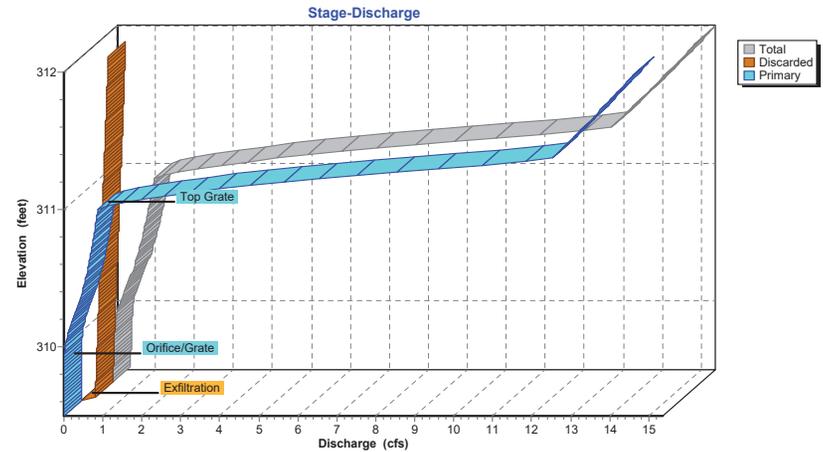
Type III 24-hr WQ Rainfall=1.50"

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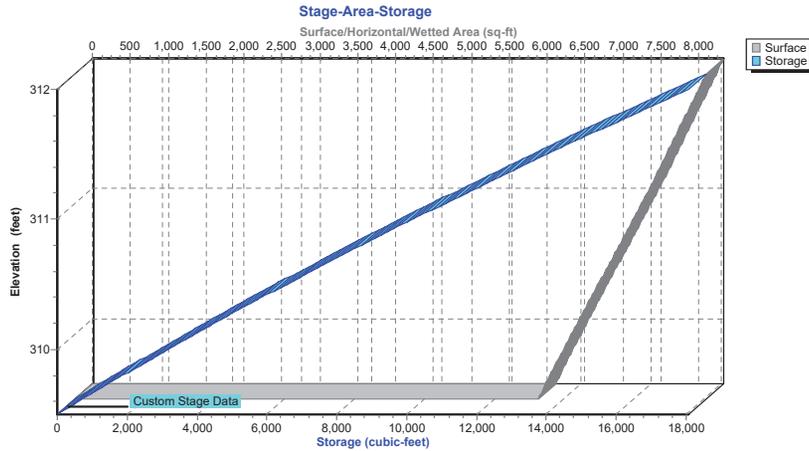
**Pond BA-G: AG INF BASIN G**



**Pond BA-G: AG INF BASIN G**



**Pond BA-G: AG INF BASIN G**



**Hydrograph for Pond BA-G: AG INF BASIN G**

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	309.50	0.00	0.00	0.00
2.50	0.00	309.50	0.00	0.00	0.00
5.00	0.00	309.50	0.00	0.00	0.00
7.50	0.00	309.50	0.00	0.00	0.00
10.00	0.00	309.50	0.00	0.00	0.00
12.50	0.00	309.50	0.00	0.00	0.00
15.00	0.00	309.50	0.00	0.00	0.00
17.50	0.00	309.50	0.00	0.00	0.00
20.00	0.00	309.50	0.00	0.00	0.00
22.50	0.00	309.50	0.00	0.00	0.00
25.00	0.00	309.50	0.00	0.00	0.00
27.50	0.00	309.50	0.00	0.00	0.00
30.00	0.00	309.50	0.00	0.00	0.00
32.50	0.00	309.50	0.00	0.00	0.00
35.00	0.00	309.50	0.00	0.00	0.00
37.50	0.00	309.50	0.00	0.00	0.00
40.00	0.00	309.50	0.00	0.00	0.00
42.50	0.00	309.50	0.00	0.00	0.00
45.00	0.00	309.50	0.00	0.00	0.00
47.50	0.00	309.50	0.00	0.00	0.00
50.00	0.00	309.50	0.00	0.00	0.00
52.50	0.00	309.50	0.00	0.00	0.00
55.00	0.00	309.50	0.00	0.00	0.00
57.50	0.00	309.50	0.00	0.00	0.00
60.00	0.00	309.50	0.00	0.00	0.00
62.50	0.00	309.50	0.00	0.00	0.00
65.00	0.00	309.50	0.00	0.00	0.00
67.50	0.00	309.50	0.00	0.00	0.00
70.00	0.00	309.50	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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**Stage-Discharge for Pond BA-G: AG INF BASIN G**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
309.50	0.00	0.00	0.00
309.55	0.36	0.36	0.00
309.60	0.37	0.37	0.00
309.65	0.37	0.37	0.00
309.70	0.38	0.38	0.00
309.75	0.38	0.38	0.00
309.80	0.39	0.39	0.00
309.85	0.40	0.40	0.00
309.90	0.40	0.40	0.00
309.95	0.42	0.41	0.01
310.00	0.45	0.42	0.03
310.05	0.49	0.42	0.07
310.10	0.54	0.43	0.11
310.15	0.60	0.44	0.17
310.20	0.67	0.44	0.23
310.25	0.74	0.45	0.30
310.30	0.82	0.46	0.36
310.35	0.89	0.46	0.43
310.40	0.94	0.47	0.47
310.45	0.99	0.48	0.52
310.50	1.04	0.48	0.56
310.55	1.09	0.49	0.60
310.60	1.13	0.50	0.63
310.65	1.17	0.50	0.67
310.70	1.21	0.51	0.70
310.75	1.25	0.52	0.73
310.80	1.29	0.52	0.76
310.85	1.32	0.53	0.79
310.90	1.36	0.54	0.82
310.95	1.39	0.54	0.85
311.00	1.42	0.55	0.87
311.05	2.04	0.56	1.48
311.10	3.14	0.57	2.58
311.15	4.56	0.57	3.98
311.20	6.23	0.58	5.65
311.25	8.12	0.59	7.53
311.30	10.20	0.59	9.61
311.35	12.47	0.60	11.87
311.40	13.23	0.61	12.62
311.45	13.42	0.61	12.81
311.50	13.61	0.62	12.99
311.55	13.79	0.63	13.16
311.60	13.97	0.63	13.34
311.65	14.16	0.64	13.51
311.70	14.33	0.65	13.69
311.75	14.51	0.66	13.85
311.80	14.68	0.66	14.02
311.85	14.86	0.67	14.19
311.90	15.03	0.68	14.35
311.95	15.19	0.68	14.51
312.00	<b>15.36</b>	<b>0.69</b>	<b>14.67</b>

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-G: AG INF BASIN G**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.50	6,110	0
309.55	6,154	307
309.60	6,198	615
309.65	6,241	926
309.70	6,285	1,240
309.75	6,329	1,555
309.80	6,373	1,872
309.85	6,417	2,192
309.90	6,460	2,514
309.95	6,504	2,838
310.00	6,548	3,165
310.05	6,594	3,493
310.10	6,641	3,824
310.15	6,687	4,157
310.20	6,733	4,493
310.25	6,780	4,830
310.30	6,826	5,171
310.35	6,872	5,513
310.40	6,919	5,858
310.45	6,965	6,205
310.50	7,012	6,554
310.55	7,058	6,906
310.60	7,104	7,260
310.65	7,151	7,617
310.70	7,197	7,975
310.75	7,243	8,336
310.80	7,290	8,700
310.85	7,336	9,065
310.90	7,382	9,433
310.95	7,429	9,803
311.00	7,475	10,176
311.05	7,518	10,551
311.10	7,560	10,928
311.15	7,603	11,307
311.20	7,645	11,688
311.25	7,688	12,071
311.30	7,730	12,457
311.35	7,773	12,844
311.40	7,815	13,234
311.45	7,858	13,626
311.50	7,901	14,020
311.55	7,943	14,416
311.60	7,986	14,814
311.65	8,028	15,215
311.70	8,071	15,617
311.75	8,113	16,022
311.80	8,156	16,428
311.85	8,198	16,837
311.90	8,241	17,248
311.95	8,283	17,661
312.00	<b>8,326</b>	<b>18,077</b>

**2024-01-15 Proposed Conditions**

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**Summary for Pond BA-HR: UG INF BASIN H (RTANK)**

Inflow Area = 1.430 ac, 98.60% Impervious, Inflow Depth = 1.18" for WQ event  
 Inflow = 2.10 cfs @ 12.02 hrs, Volume= 0.141 af  
 Outflow = 0.40 cfs @ 12.43 hrs, Volume= 0.141 af, Atten= 81%, Lag= 24.9 min  
 Discarded = 0.40 cfs @ 12.43 hrs, Volume= 0.141 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 307.92' @ 12.43 hrs Surf.Area= 3,728 sf Storage= 1,575 cf

Plug-Flow detention time= 24.1 min calculated for 0.141 af (100% of inflow)  
 Center-of-Mass det. time= 24.0 min ( 807.8 - 783.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	307.30'	2,288 cf	<b>39.43'W x 94.55'L x 5.35'H Field A</b> 19,932 cf Overall - 14,211 cf Embedded = 5,721 cf x 40.0% Voids
#2A	307.55'	13,500 cf	<b>Ferguson R-Tank UD 4</b> x 828 Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 828 Chambers in 18 Rows
		15,789 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	307.55'	<b>18.0" Round Culvert</b> L= 45.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 307.55' / 306.65' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	307.30'	<b>4.000 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 303.30'
#3	Device 1	309.60'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	310.85'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.40 cfs @ 12.43 hrs HW=307.92' (Free Discharge)  
 ↳2=Exfiltration ( Controls 0.40 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=307.30' (Free Discharge)  
 ↳1=Culvert ( Controls 0.00 cfs)  
 ↳3=Orifice/Grate ( Controls 0.00 cfs)  
 ↳4=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

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**Pond BA-HR: UG INF BASIN H (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf  
 Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

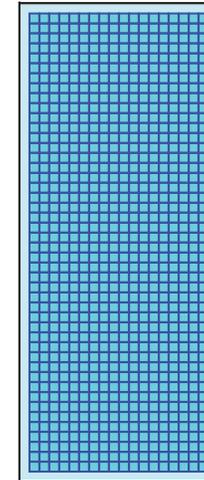
46 Chambers/Row x 1.97' Long = 90.55' Row Length +24.0" End Stone x 2 = 94.55' Base Length  
 18 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 39.43' Base Width  
 3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

828 Chambers x 16.3 cf = 13,500.4 cf Chamber Storage  
 828 Chambers x 17.2 cf = 14,210.9 cf Displacement

19,931.5 cf of Field - 14,210.9 cf of Chambers = 5,720.6 cf Stone x 40.0% Voids = 2,288.2 cf Stone Storage

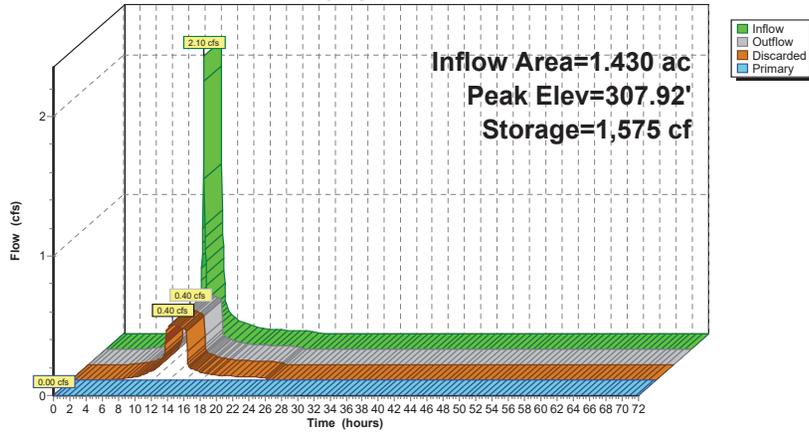
Chamber Storage + Stone Storage = 15,788.6 cf = 0.362 af  
 Overall Storage Efficiency = 79.2%  
 Overall System Size = 94.55' x 39.43' x 5.35'

828 Chambers  
 738.2 cy Field  
 211.9 cy Stone



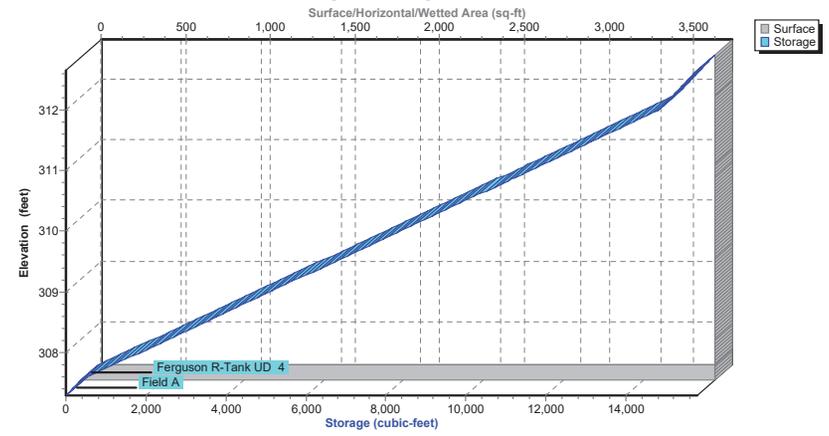
Pond BA-HR: UG INF BASIN H (RTANK)

Hydrograph



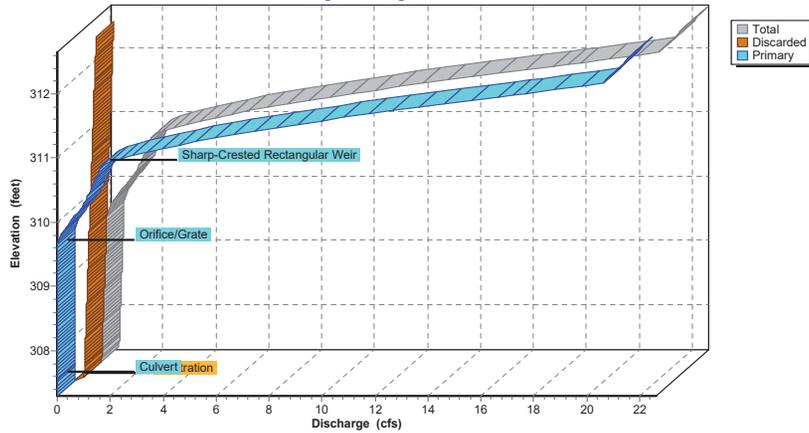
Pond BA-HR: UG INF BASIN H (RTANK)

Stage-Area-Storage



Pond BA-HR: UG INF BASIN H (RTANK)

Stage-Discharge



**2024-01-15 Proposed Conditions**

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**Hydrograph for Pond BA-HR: UG INF BASIN H (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	307.30	0.00	0.00	<b>0.00</b>
2.50	0.00	0	307.30	0.00	0.00	0.00
5.00	0.00	1	307.30	0.00	0.00	0.00
7.50	0.02	4	307.30	0.02	0.02	0.00
10.00	<b>0.07</b>	<b>15</b>	<b>307.31</b>	<b>0.07</b>	<b>0.07</b>	0.00
12.50	<b>0.28</b>	<b>1,560</b>	<b>307.91</b>	<b>0.40</b>	<b>0.40</b>	0.00
15.00	0.08	18	307.31	0.08	0.08	0.00
17.50	0.04	9	307.31	0.04	0.04	0.00
20.00	0.03	6	307.30	0.03	0.03	0.00
22.50	0.02	5	307.30	0.02	0.02	0.00
25.00	0.00	0	307.30	0.00	0.00	0.00
27.50	0.00	0	307.30	0.00	0.00	0.00
30.00	0.00	0	307.30	0.00	0.00	0.00
32.50	0.00	0	307.30	0.00	0.00	0.00
35.00	0.00	0	307.30	0.00	0.00	0.00
37.50	0.00	0	307.30	0.00	0.00	0.00
40.00	0.00	0	307.30	0.00	0.00	0.00
42.50	0.00	0	307.30	0.00	0.00	0.00
45.00	0.00	0	307.30	0.00	0.00	0.00
47.50	0.00	0	307.30	0.00	0.00	0.00
50.00	0.00	0	307.30	0.00	0.00	0.00
52.50	0.00	0	307.30	0.00	0.00	0.00
55.00	0.00	0	307.30	0.00	0.00	0.00
57.50	0.00	0	307.30	0.00	0.00	0.00
60.00	0.00	0	307.30	0.00	0.00	0.00
62.50	0.00	0	307.30	0.00	0.00	0.00
65.00	0.00	0	307.30	0.00	0.00	0.00
67.50	0.00	0	307.30	0.00	0.00	0.00
70.00	0.00	0	307.30	0.00	0.00	0.00

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**Stage-Discharge for Pond BA-HR: UG INF BASIN H (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
307.30	0.00	0.00	0.00	312.50	22.24	0.79	21.45
307.40	0.35	0.35	0.00	312.60	<b>22.50</b>	<b>0.80</b>	<b>21.70</b>
307.50	0.36	0.36	0.00				
307.60	0.37	0.37	0.00				
307.70	0.38	0.38	0.00				
307.80	0.39	0.39	0.00				
307.90	0.40	0.40	0.00				
308.00	0.41	0.41	0.00				
308.10	0.41	0.41	0.00				
308.20	0.42	0.42	0.00				
308.30	0.43	0.43	0.00				
308.40	0.44	0.44	0.00				
308.50	0.45	0.45	0.00				
308.60	0.46	0.46	0.00				
308.70	0.47	0.47	0.00				
308.80	0.47	0.47	0.00				
308.90	0.48	0.48	0.00				
309.00	0.49	0.49	0.00				
309.10	0.50	0.50	0.00				
309.20	0.51	0.51	0.00				
309.30	0.52	0.52	0.00				
309.40	0.53	0.53	0.00				
309.50	0.54	0.54	0.00				
309.60	0.54	0.54	0.00				
309.70	0.59	0.55	0.04				
309.80	0.70	0.56	0.13				
309.90	0.85	0.57	0.28				
310.00	1.05	0.58	0.47				
310.10	1.26	0.59	0.68				
310.20	1.47	0.60	0.87				
310.30	1.62	0.60	1.02				
310.40	1.76	0.61	1.15				
310.50	1.89	0.62	1.27				
310.60	2.00	0.63	1.37				
310.70	2.11	0.64	1.47				
310.80	2.21	0.65	1.56				
310.90	2.45	0.66	1.80				
311.00	3.15	0.66	2.49				
311.10	4.10	0.67	3.43				
311.20	5.23	0.68	4.55				
311.30	6.51	0.69	5.82				
311.40	7.92	0.70	7.22				
311.50	9.44	0.71	8.74				
311.60	11.06	0.72	10.35				
311.70	12.77	0.72	12.05				
311.80	14.57	0.73	13.83				
311.90	16.43	0.74	15.69				
312.00	18.37	0.75	17.62				
312.10	20.37	0.76	19.61				
312.20	21.47	0.77	20.70				
312.30	21.73	0.78	20.95				
312.40	21.99	0.79	21.20				

**2024-01-15 Proposed Conditions**

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**Stage-Area-Storage for Pond BA-HR: UG INF BASIN H (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
307.30	3,728	0	312.50	3,728	15,571
307.40	3,728	149	312.60	3,728	15,720
307.50	3,728	298			
307.60	3,728	536			
307.70	3,728	861			
307.80	3,728	1,187			
307.90	3,728	1,512			
308.00	3,728	1,838			
308.10	3,728	2,164			
308.20	3,728	2,489			
308.30	3,728	2,815			
308.40	3,728	3,140			
308.50	3,728	3,466			
308.60	3,728	3,792			
308.70	3,728	4,117			
308.80	3,728	4,443			
308.90	3,728	4,769			
309.00	3,728	5,094			
309.10	3,728	5,420			
309.20	3,728	5,745			
309.30	3,728	6,071			
309.40	3,728	6,397			
309.50	3,728	6,722			
309.60	3,728	7,048			
309.70	3,728	7,373			
309.80	3,728	7,699			
309.90	3,728	8,025			
310.00	3,728	8,350			
310.10	3,728	8,676			
310.20	3,728	9,001			
310.30	3,728	9,327			
310.40	3,728	9,653			
310.50	3,728	9,978			
310.60	3,728	10,304			
310.70	3,728	10,629			
310.80	3,728	10,955			
310.90	3,728	11,281			
311.00	3,728	11,606			
311.10	3,728	11,932			
311.20	3,728	12,257			
311.30	3,728	12,583			
311.40	3,728	12,909			
311.50	3,728	13,234			
311.60	3,728	13,560			
311.70	3,728	13,885			
311.80	3,728	14,211			
311.90	3,728	14,537			
312.00	3,728	14,825			
312.10	3,728	14,975			
312.20	3,728	15,124			
312.30	3,728	15,273			
312.40	3,728	15,422			

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Pond BA-KR: UG INF BASIN K (RTANK)**

Inflow Area = 3.850 ac, 100.00% Impervious, Inflow Depth = 1.28" for WQ event  
 Inflow = 5.86 cfs @ 12.03 hrs, Volume= 0.411 af  
 Outflow = 1.52 cfs @ 12.36 hrs, Volume= 0.411 af, Atten= 74%, Lag= 19.6 min  
 Discarded = 1.52 cfs @ 12.36 hrs, Volume= 0.411 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 308.20' @ 12.36 hrs Surf.Area= 10,650 sf Storage= 3,444 cf

Plug-Flow detention time= 12.4 min calculated for 0.411 af (100% of inflow)  
 Center-of-Mass det. time= 12.3 min ( 783.8 - 771.5 )

Volume	Invert	Avail.Storage	Storage Description
#1A	307.70'	5,356 cf	<b>88.65'W x 120.14'L x 5.35'H Field A</b> 56,933 cf Overall - 43,542 cf Embedded = 13,391 cf x 40.0% Voids
#2A	307.95'	41,365 cf	<b>Ferguson R-Tank UD 4 x 2537</b> Inside #1 Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf 2537 Chambers in 43 Rows
		46,721 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	307.95'	<b>18.0" Round Culvert</b> L= 30.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 307.95' / 307.65' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	307.70'	<b>5.500 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 303.70'
#3	Device 1	309.85'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	311.00'	<b>3.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=1.52 cfs @ 12.36 hrs HW=308.20' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 1.52 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=307.70' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)  
 ↳ **4=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Pond BA-KR: UG INF BASIN K (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank UD 4 (Ferguson R-Tank UD)**

Inside= 23.6"W x 53.1"H => 8.28 sf x 1.97'L = 16.3 cf

Outside= 23.6"W x 53.1"H => 8.72 sf x 1.97'L = 17.2 cf

59 Chambers/Row x 1.97' Long = 116.14' Row Length +24.0" End Stone x 2 = 120.14' Base Length

43 Rows x 23.6" Wide + 24.0" Side Stone x 2 = 88.65' Base Width

3.0" Stone Base + 53.1" Chamber Height + 8.0" Stone Cover = 5.35' Field Height

2,537 Chambers x 16.3 cf = 41,365.2 cf Chamber Storage

2,537 Chambers x 17.2 cf = 43,542.3 cf Displacement

56,933.0 cf Field - 43,542.3 cf Chambers = 13,390.7 cf Stone x 40.0% Voids = 5,356.3 cf Stone Storage

Chamber Storage + Stone Storage = 46,721.5 cf = 1.073 af

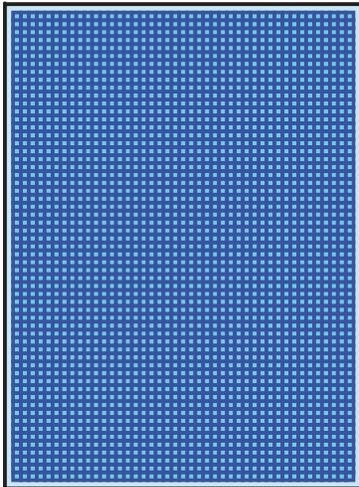
Overall Storage Efficiency = 82.1%

Overall System Size = 120.14' x 88.65' x 5.35'

2,537 Chambers

2,108.6 cy Field

496.0 cy Stone



**2024-01-15 Proposed Conditions**

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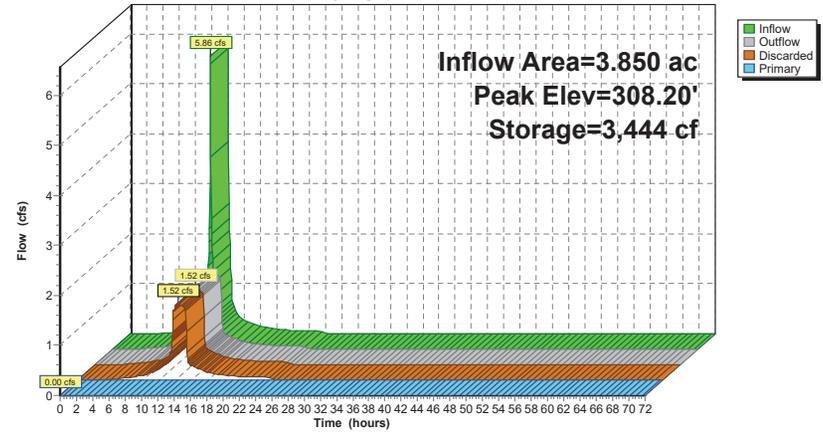
Type III 24-hr WQ Rainfall=1.50"

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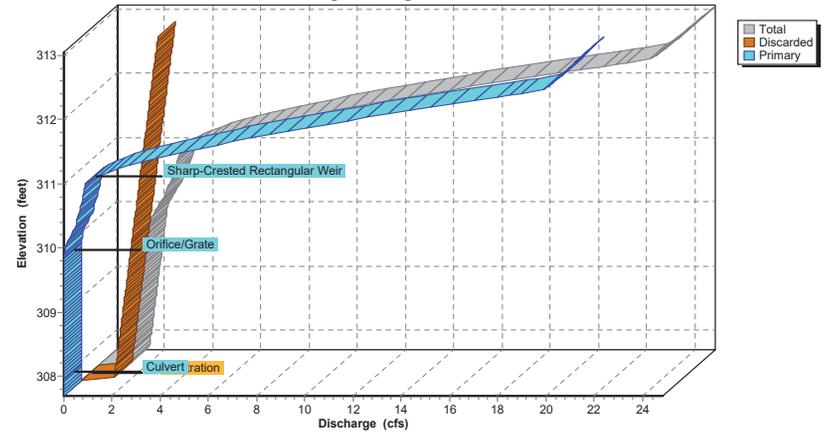
**Pond BA-KR: UG INF BASIN K (RTANK)**

Hydrograph

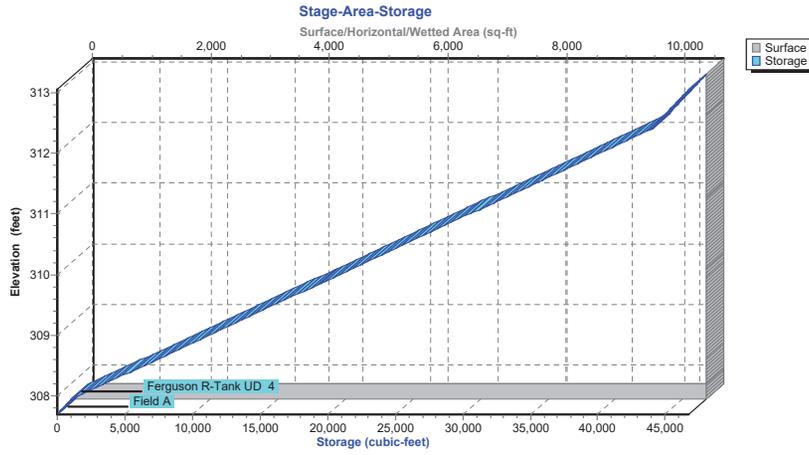


**Pond BA-KR: UG INF BASIN K (RTANK)**

Stage-Discharge



Pond BA-KR: UG INF BASIN K (RTANK)



Hydrograph for Pond BA-KR: UG INF BASIN K (RTANK)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	307.70	0.00	0.00	0.00
2.50	0.00	0	307.70	0.00	0.00	0.00
5.00	0.03	4	307.70	0.03	0.03	0.00
7.50	0.08	13	307.70	0.08	0.08	0.00
10.00	0.22	37	307.71	0.22	0.22	0.00
12.50	0.82	3,265	308.18	1.52	1.52	0.00
15.00	0.22	36	307.71	0.22	0.22	0.00
17.50	0.11	18	307.70	0.11	0.11	0.00
20.00	0.07	12	307.70	0.08	0.08	0.00
22.50	0.06	10	307.70	0.06	0.06	0.00
25.00	0.00	0	307.70	0.00	0.00	0.00
27.50	0.00	0	307.70	0.00	0.00	0.00
30.00	0.00	0	307.70	0.00	0.00	0.00
32.50	0.00	0	307.70	0.00	0.00	0.00
35.00	0.00	0	307.70	0.00	0.00	0.00
37.50	0.00	0	307.70	0.00	0.00	0.00
40.00	0.00	0	307.70	0.00	0.00	0.00
42.50	0.00	0	307.70	0.00	0.00	0.00
45.00	0.00	0	307.70	0.00	0.00	0.00
47.50	0.00	0	307.70	0.00	0.00	0.00
50.00	0.00	0	307.70	0.00	0.00	0.00
52.50	0.00	0	307.70	0.00	0.00	0.00
55.00	0.00	0	307.70	0.00	0.00	0.00
57.50	0.00	0	307.70	0.00	0.00	0.00
60.00	0.00	0	307.70	0.00	0.00	0.00
62.50	0.00	0	307.70	0.00	0.00	0.00
65.00	0.00	0	307.70	0.00	0.00	0.00
67.50	0.00	0	307.70	0.00	0.00	0.00
70.00	0.00	0	307.70	0.00	0.00	0.00

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**Stage-Discharge for Pond BA-KR: UG INF BASIN K (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
307.70	0.00	0.00	0.00	312.90	24.39	3.12	21.27
307.80	1.39	1.39	0.00	313.00	<b>24.70</b>	<b>3.15</b>	<b>21.55</b>
307.90	1.42	1.42	0.00				
308.00	1.46	1.46	0.00				
308.10	1.49	1.49	0.00				
308.20	1.53	1.53	0.00				
308.30	1.56	1.56	0.00				
308.40	1.59	1.59	0.00				
308.50	1.63	1.63	0.00				
308.60	1.66	1.66	0.00				
308.70	1.69	1.69	0.00				
308.80	1.73	1.73	0.00				
308.90	1.76	1.76	0.00				
309.00	1.80	1.80	0.00				
309.10	1.83	1.83	0.00				
309.20	1.86	1.86	0.00				
309.30	1.90	1.90	0.00				
309.40	1.93	1.93	0.00				
309.50	1.97	1.97	0.00				
309.60	2.00	2.00	0.00				
309.70	2.03	2.03	0.00				
309.80	2.07	2.07	0.00				
309.90	2.11	2.10	0.01				
310.00	2.20	2.14	0.07				
310.10	2.34	2.17	0.17				
310.20	2.50	2.20	0.30				
310.30	2.66	2.24	0.43				
310.40	2.79	2.27	0.52				
310.50	2.90	2.31	0.60				
310.60	3.01	2.34	0.67				
310.70	3.11	2.37	0.73				
310.80	3.20	2.41	0.79				
310.90	3.29	2.44	0.85				
311.00	3.37	2.47	0.90				
311.10	3.81	2.51	1.31				
311.20	4.55	2.54	2.00				
311.30	5.46	2.58	2.88				
311.40	6.52	2.61	3.91				
311.50	7.69	2.64	5.05				
311.60	8.97	2.68	6.29				
311.70	10.34	2.71	7.63				
311.80	11.79	2.75	9.05				
311.90	13.32	2.78	10.54				
312.00	14.91	2.81	12.09				
312.10	16.56	2.85	13.71				
312.20	18.26	2.88	15.38				
312.30	20.02	2.92	17.11				
312.40	21.82	2.95	18.88				
312.50	23.08	2.98	20.10				
312.60	23.42	3.02	20.40				
312.70	23.74	3.05	20.69				
312.80	24.07	3.08	20.98				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Area-Storage for Pond BA-KR: UG INF BASIN K (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
307.70	<b>10,650</b>	0	312.90	10,650	46,100
307.80	10,650	426	313.00	10,650	<b>46,526</b>
307.90	10,650	852			
308.00	10,650	1,548			
308.10	10,650	2,515			
308.20	10,650	3,482			
308.30	10,650	4,448			
308.40	10,650	5,415			
308.50	10,650	6,382			
308.60	10,650	7,349			
308.70	10,650	8,315			
308.80	10,650	9,282			
308.90	10,650	10,249			
309.00	10,650	11,215			
309.10	10,650	12,182			
309.20	10,650	13,149			
309.30	10,650	14,115			
309.40	10,650	15,082			
309.50	10,650	16,049			
309.60	10,650	17,016			
309.70	10,650	17,982			
309.80	10,650	18,949			
309.90	10,650	19,916			
310.00	10,650	20,882			
310.10	10,650	21,849			
310.20	10,650	22,816			
310.30	10,650	23,782			
310.40	10,650	24,749			
310.50	10,650	25,716			
310.60	10,650	26,683			
310.70	10,650	27,649			
310.80	10,650	28,616			
310.90	10,650	29,583			
311.00	10,650	30,549			
311.10	10,650	31,516			
311.20	10,650	32,483			
311.30	10,650	33,449			
311.40	10,650	34,416			
311.50	10,650	35,383			
311.60	10,650	36,350			
311.70	10,650	37,316			
311.80	10,650	38,283			
311.90	10,650	39,250			
312.00	10,650	40,216			
312.10	10,650	41,183			
312.20	10,650	42,150			
312.30	10,650	43,116			
312.40	10,650	43,970			
312.50	10,650	44,396			
312.60	10,650	44,822			
312.70	10,650	45,248			
312.80	10,650	45,674			

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Pond BA-MR: UG INF BASIN M (RTANK)**

Inflow Area = 7.830 ac, 94.76% Impervious, Inflow Depth = 1.01" for WQ event  
 Inflow = 9.13 cfs @ 12.08 hrs, Volume= 0.661 af  
 Outflow = 1.18 cfs @ 12.66 hrs, Volume= 0.661 af, Atten= 87%, Lag= 34.9 min  
 Discarded = 1.18 cfs @ 12.66 hrs, Volume= 0.661 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 44L : Total UG INF BASINS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 304.34' @ 12.66 hrs Surf.Area= 24,066 sf Storage= 9,790 cf

Plug-Flow detention time= 62.6 min calculated for 0.660 af (100% of inflow)  
 Center-of-Mass det. time= 62.6 min ( 869.2 - 806.7 )

Volume	Invert	Avail.Storage	Storage Description
#1A	303.75'	14,995 cf	<b>63.06'W x 381.67'L x 5.45'H Field A</b> 131,150 cf Overall - 93,663 cf Embedded = 37,486 cf x 40.0% Voids
#2A	304.00'	88,980 cf	<b>Ferguson R-Tank HD 3</b> x 7245 Inside #1 Inside= 15.7"W x 50.4"H => 5.24 sf x 2.35'L = 12.3 cf Outside= 15.7"W x 50.4"H => 5.51 sf x 2.35'L = 12.9 cf 7245 Chambers in 45 Rows
		103,975 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	304.00'	<b>18.0" Round Culvert</b> L= 65.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 304.00' / 303.35' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Discarded	303.75'	<b>2.000 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 293.50'
#3	Device 1	305.75'	<b>18.0" W x 12.0" H Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	307.75'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=1.18 cfs @ 12.66 hrs HW=304.34' (Free Discharge)  
 ↳ **2=Exfiltration** ( Controls 1.18 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=303.75' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **3=Orifice** ( Controls 0.00 cfs)  
 ↳ **4=Sharp-Crested Rectangular Weir**( Controls 0.00 cfs)

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Pond BA-MR: UG INF BASIN M (RTANK) - Chamber Wizard Field A**

**Chamber Model = Ferguson R-Tank HD 3 (Ferguson R-Tank HD)**

Inside= 15.7"W x 50.4"H => 5.24 sf x 2.35'L = 12.3 cf  
 Outside= 15.7"W x 50.4"H => 5.51 sf x 2.35'L = 12.9 cf

161 Chambers/Row x 2.35' Long = 377.67' Row Length +24.0" End Stone x 2 = 381.67' Base Length  
 45 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 63.06' Base Width  
 3.0" Stone Base + 50.4" Chamber Height + 12.0" Stone Cover = 5.45' Field Height

7,245 Chambers x 12.3 cf = 88,980.1 cf Chamber Storage  
 7,245 Chambers x 12.9 cf = 93,663.3 cf Displacement

131,149.7 cf Field - 93,663.3 cf Chambers = 37,486.4 cf Stone x 40.0% Voids = 14,994.6 cf Stone Storage

Chamber Storage + Stone Storage = 103,974.7 cf = 2.387 af  
 Overall Storage Efficiency = 79.3%  
 Overall System Size = 381.67' x 63.06' x 5.45'

7,245 Chambers  
 4,857.4 cy Field  
 1,388.4 cy Stone



2024-01-15 Proposed Conditions

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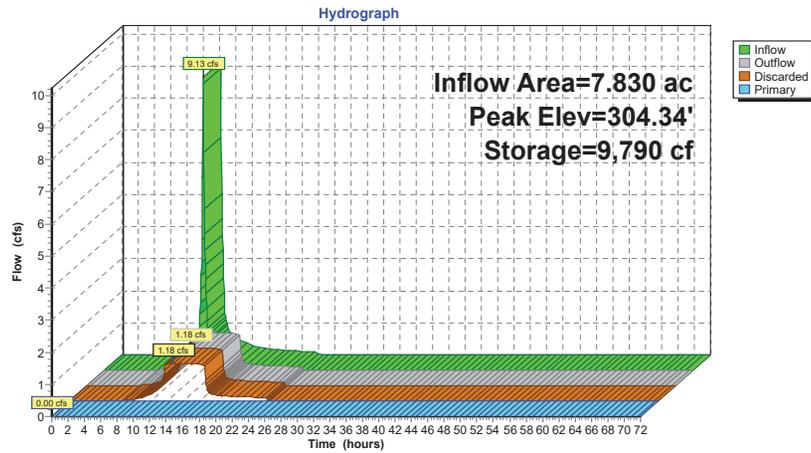
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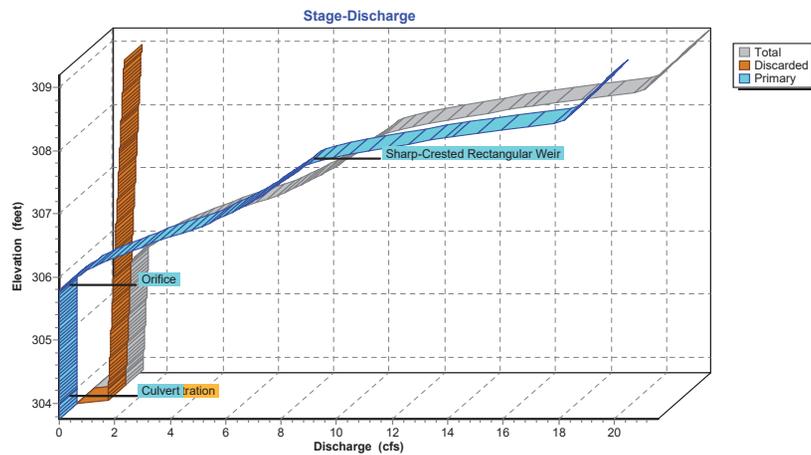
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### Pond BA-MR: UG INF BASIN M (RTANK)



### Pond BA-MR: UG INF BASIN M (RTANK)



2024-01-15 Proposed Conditions

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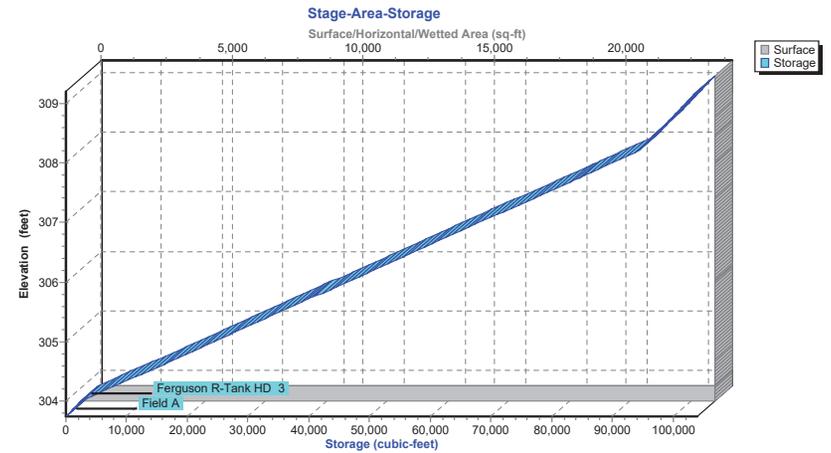
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Type III 24-hr WQ Rainfall=1.50"

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### Pond BA-MR: UG INF BASIN M (RTANK)



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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Pond BA-MR: UG INF BASIN M (RTANK)**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	303.75	0.00	0.00	<b>0.00</b>
2.50	0.00	0	303.75	0.00	0.00	0.00
5.00	0.00	0	303.75	0.00	0.00	0.00
7.50	0.04	17	303.75	0.04	0.04	0.00
10.00	<b>0.25</b>	108	303.76	0.23	0.23	0.00
12.50	<b>1.97</b>	<b>9,631</b>	<b>304.33</b>	<b>1.18</b>	<b>1.18</b>	0.00
15.00	0.41	<b>5,267</b>	<b>304.13</b>	<b>1.16</b>	<b>1.16</b>	0.00
17.50	0.20	100	303.76	0.21	0.21	0.00
20.00	0.14	68	303.76	0.14	0.14	0.00
22.50	0.11	53	303.76	0.11	0.11	0.00
25.00	0.00	0	303.75	0.00	0.00	0.00
27.50	0.00	0	303.75	0.00	0.00	0.00
30.00	0.00	0	303.75	0.00	0.00	0.00
32.50	0.00	0	303.75	0.00	0.00	0.00
35.00	0.00	0	303.75	0.00	0.00	0.00
37.50	0.00	0	303.75	0.00	0.00	0.00
40.00	0.00	0	303.75	0.00	0.00	0.00
42.50	0.00	0	303.75	0.00	0.00	0.00
45.00	0.00	0	303.75	0.00	0.00	0.00
47.50	0.00	0	303.75	0.00	0.00	0.00
50.00	0.00	0	303.75	0.00	0.00	0.00
52.50	0.00	0	303.75	0.00	0.00	0.00
55.00	0.00	0	303.75	0.00	0.00	0.00
57.50	0.00	0	303.75	0.00	0.00	0.00
60.00	0.00	0	303.75	0.00	0.00	0.00
62.50	0.00	0	303.75	0.00	0.00	0.00
65.00	0.00	0	303.75	0.00	0.00	0.00
67.50	0.00	0	303.75	0.00	0.00	0.00
70.00	0.00	0	303.75	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Discharge for Pond BA-MR: UG INF BASIN M (RTANK)**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
303.75	0.00	0.00	0.00	308.95	20.98	1.68	19.30
303.85	1.13	1.13	0.00	309.05	21.23	1.69	19.54
303.95	1.14	1.14	0.00	309.15	<b>21.47</b>	<b>1.70</b>	<b>19.77</b>
304.05	1.15	1.15	0.00				
304.15	1.16	1.16	0.00				
304.25	1.17	1.17	0.00				
304.35	1.18	1.18	0.00				
304.45	1.19	1.19	0.00				
304.55	1.20	1.20	0.00				
304.65	1.21	1.21	0.00				
304.75	1.22	1.22	0.00				
304.85	1.23	1.23	0.00				
304.95	1.24	1.24	0.00				
305.05	1.26	1.26	0.00				
305.15	1.27	1.27	0.00				
305.25	1.28	1.28	0.00				
305.35	1.29	1.29	0.00				
305.45	1.30	1.30	0.00				
305.55	1.31	1.31	0.00				
305.65	1.32	1.32	0.00				
305.75	1.33	1.33	0.00				
305.85	1.49	1.34	0.15				
305.95	1.78	1.35	0.43				
306.05	2.16	1.36	0.79				
306.15	2.59	1.38	1.22				
306.25	3.09	1.39	1.70				
306.35	3.63	1.40	2.24				
306.45	4.23	1.41	2.82				
306.55	4.86	1.42	3.45				
306.65	5.54	1.43	4.11				
306.75	6.26	1.44	4.81				
306.85	6.85	1.45	5.40				
306.95	7.36	1.46	5.90				
307.05	7.82	1.47	6.35				
307.15	8.24	1.48	6.76				
307.25	8.64	1.49	7.14				
307.35	9.01	1.51	7.51				
307.45	9.37	1.52	7.85				
307.55	9.71	1.53	8.18				
307.65	10.04	1.54	8.50				
307.75	10.35	1.55	8.80				
307.85	11.07	1.56	9.51				
307.95	12.11	1.57	10.54				
308.05	13.36	1.58	11.78				
308.15	14.76	1.59	13.17				
308.25	16.30	1.60	14.70				
308.35	17.95	1.61	16.34				
308.45	19.71	1.63	18.08				
308.55	19.97	1.64	18.34				
308.65	20.23	1.65	18.58				
308.75	20.48	1.66	18.83				
308.85	20.73	1.67	19.07				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Area-Storage for Pond BA-MR: UG INF BASIN M (RTANK)**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
303.75	24,066	0	308.95	24,066	101,573
303.85	24,066	963	309.05	24,066	102,536
303.95	24,066	1,925	309.15	24,066	103,498
304.05	24,066	3,501			
304.15	24,066	5,691			
304.25	24,066	7,880			
304.35	24,066	10,069			
304.45	24,066	12,259			
304.55	24,066	14,448			
304.65	24,066	16,637			
304.75	24,066	18,827			
304.85	24,066	21,016			
304.95	24,066	23,206			
305.05	24,066	25,395			
305.15	24,066	27,584			
305.25	24,066	29,774			
305.35	24,066	31,963			
305.45	24,066	34,152			
305.55	24,066	36,342			
305.65	24,066	38,531			
305.75	24,066	40,720			
305.85	24,066	42,910			
305.95	24,066	45,099			
306.05	24,066	47,288			
306.15	24,066	49,478			
306.25	24,066	51,667			
306.35	24,066	53,857			
306.45	24,066	56,046			
306.55	24,066	58,235			
306.65	24,066	60,425			
306.75	24,066	62,614			
306.85	24,066	64,803			
306.95	24,066	66,993			
307.05	24,066	69,182			
307.15	24,066	71,371			
307.25	24,066	73,561			
307.35	24,066	75,750			
307.45	24,066	77,939			
307.55	24,066	80,129			
307.65	24,066	82,318			
307.75	24,066	84,508			
307.85	24,066	86,697			
307.95	24,066	88,886			
308.05	24,066	91,076			
308.15	24,066	93,265			
308.25	24,066	94,835			
308.35	24,066	95,797			
308.45	24,066	96,760			
308.55	24,066	97,722			
308.65	24,066	98,685			
308.75	24,066	99,648			
308.85	24,066	100,610			

**2024-01-15 Proposed Conditions**

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**Summary for Pond BASIN I: INF TRENCH I**

Inflow Area = 1.930 ac, 60.10% Impervious, Inflow Depth = 0.17" for WQ event  
 Inflow = 0.19 cfs @ 12.12 hrs, Volume= 0.027 af  
 Outflow = 0.19 cfs @ 12.15 hrs, Volume= 0.027 af, Atten= 3%, Lag= 1.5 min  
 Discarded = 0.19 cfs @ 12.15 hrs, Volume= 0.027 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 48L : TOTAL INF TRENCH

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 312.50' @ 12.15 hrs Surf.Area= 13,450 sf Storage= 7 cf

Plug-Flow detention time= 0.7 min calculated for 0.027 af (100% of inflow)  
 Center-of-Mass det. time= 0.7 min ( 929.2 - 928.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	312.50'	8,339 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 20,848 cf Overall x 40.0% Voids

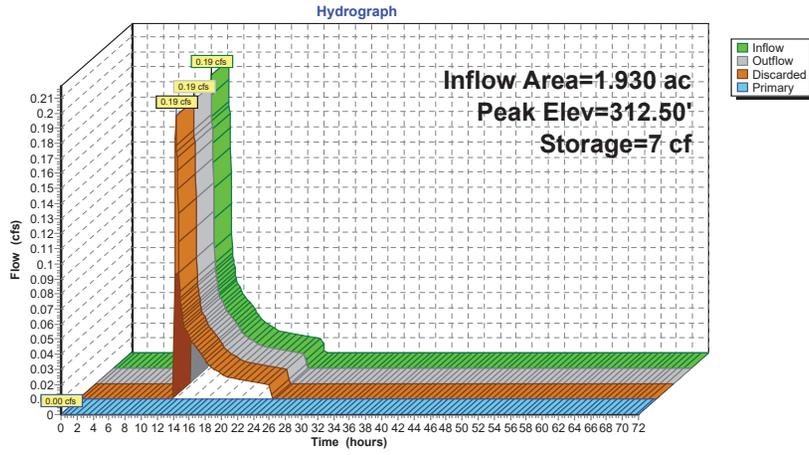
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
312.50	13,450	0	0
314.05	13,450	20,848	20,848

Device	Routing	Invert	Outlet Devices
#1	Primary	309.00'	<b>18.0" Round Culvert</b> L= 50.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 309.00' / 308.00' S= 0.0200 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf
#2	Discarded	312.50'	<b>6.800 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 308.50'
#3	Device 1	313.45'	<b>3.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Device 1	313.90'	<b>48.0" x 48.0" Horiz. Top Grate X 2.00</b> C= 0.600 Limited to weir flow at low heads

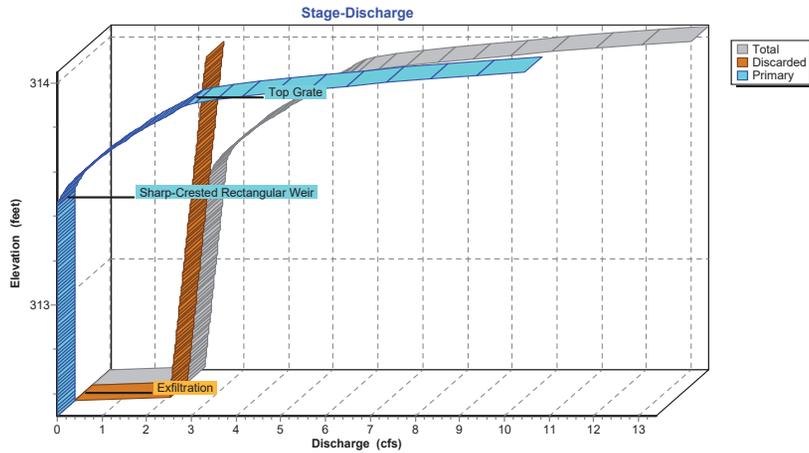
**Discarded OutFlow** Max=2.12 cfs @ 12.15 hrs HW=312.50' (Free Discharge)  
 ↳2=Exfiltration ( Controls 2.12 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=312.50' (Free Discharge)  
 ↳1=Culvert (Passes 0.00 cfs of 17.46 cfs potential flow)  
 ↳3=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)  
 ↳4=Top Grate ( Controls 0.00 cfs)

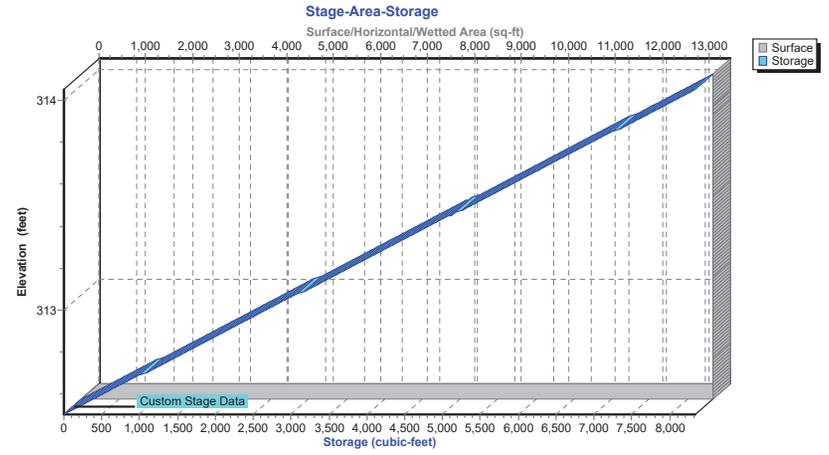
**Pond BASIN I: INF TRENCH I**



**Pond BASIN I: INF TRENCH I**



**Pond BASIN I: INF TRENCH I**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Pond BASIN I: INF TRENCH I**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	312.50	0.00	0.00	<b>0.00</b>
2.50	0.00	0	312.50	0.00	0.00	0.00
5.00	0.00	0	312.50	0.00	0.00	0.00
7.50	0.00	0	312.50	0.00	0.00	0.00
10.00	<b>0.00</b>	<b>0</b>	<b>312.50</b>	<b>0.00</b>	<b>0.00</b>	0.00
12.50	<b>0.10</b>	<b>4</b>	<b>312.50</b>	<b>0.10</b>	<b>0.10</b>	0.00
15.00	0.03	1	312.50	0.03	0.03	0.00
17.50	0.02	1	312.50	0.02	0.02	0.00
20.00	0.01	1	312.50	0.01	0.01	0.00
22.50	0.01	0	312.50	0.01	0.01	0.00
25.00	0.00	0	312.50	0.00	0.00	0.00
27.50	0.00	0	312.50	0.00	0.00	0.00
30.00	0.00	0	312.50	0.00	0.00	0.00
32.50	0.00	0	312.50	0.00	0.00	0.00
35.00	0.00	0	312.50	0.00	0.00	0.00
37.50	0.00	0	312.50	0.00	0.00	0.00
40.00	0.00	0	312.50	0.00	0.00	0.00
42.50	0.00	0	312.50	0.00	0.00	0.00
45.00	0.00	0	312.50	0.00	0.00	0.00
47.50	0.00	0	312.50	0.00	0.00	0.00
50.00	0.00	0	312.50	0.00	0.00	0.00
52.50	0.00	0	312.50	0.00	0.00	0.00
55.00	0.00	0	312.50	0.00	0.00	0.00
57.50	0.00	0	312.50	0.00	0.00	0.00
60.00	0.00	0	312.50	0.00	0.00	0.00
62.50	0.00	0	312.50	0.00	0.00	0.00
65.00	0.00	0	312.50	0.00	0.00	0.00
67.50	0.00	0	312.50	0.00	0.00	0.00
70.00	0.00	0	312.50	0.00	0.00	0.00

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Discharge for Pond BASIN I: INF TRENCH I**

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
312.50	0.00	0.00	0.00	313.54	2.93	2.67	0.26
312.52	2.13	2.13	0.00	313.56	3.03	2.68	0.36
312.54	2.14	2.14	0.00	313.58	3.14	2.69	0.46
312.56	2.15	2.15	0.00	313.60	3.26	2.70	0.56
312.58	2.16	2.16	0.00	313.62	3.39	2.71	0.68
312.60	2.17	2.17	0.00	313.64	3.52	2.72	0.80
312.62	2.18	2.18	0.00	313.66	3.66	2.73	0.93
312.64	2.19	2.19	0.00	313.68	3.81	2.74	1.07
312.66	2.20	2.20	0.00	313.70	3.96	2.75	1.21
312.68	2.21	2.21	0.00	313.72	4.11	2.76	1.35
312.70	2.22	2.22	0.00	313.74	4.28	2.77	1.50
312.72	2.23	2.23	0.00	313.76	4.44	2.78	1.66
312.74	2.24	2.24	0.00	313.78	4.61	2.79	1.82
312.76	2.25	2.25	0.00	313.80	4.79	2.81	1.98
312.78	2.27	2.27	0.00	313.82	4.97	2.82	2.15
312.80	2.28	2.28	0.00	313.84	5.15	2.83	2.33
312.82	2.29	2.29	0.00	313.86	5.34	2.84	2.51
312.84	2.30	2.30	0.00	313.88	5.53	2.85	2.69
312.86	2.31	2.31	0.00	313.90	5.73	2.86	2.87
312.88	2.32	2.32	0.00	313.92	6.23	2.87	3.36
312.90	2.33	2.33	0.00	313.94	6.97	2.88	4.09
312.92	2.34	2.34	0.00	313.96	7.88	2.89	4.99
312.94	2.35	2.35	0.00	313.98	8.92	2.90	6.02
312.96	2.36	2.36	0.00	314.00	10.07	2.91	7.16
312.98	2.37	2.37	0.00	314.02	11.33	2.92	8.41
313.00	2.38	2.38	0.00	314.04	<b>12.68</b>	<b>2.93</b>	<b>9.75</b>
313.02	2.39	2.39	0.00				
313.04	2.40	2.40	0.00				
313.06	2.41	2.41	0.00				
313.08	2.42	2.42	0.00				
313.10	2.43	2.43	0.00				
313.12	2.45	2.45	0.00				
313.14	2.46	2.46	0.00				
313.16	2.47	2.47	0.00				
313.18	2.48	2.48	0.00				
313.20	2.49	2.49	0.00				
313.22	2.50	2.50	0.00				
313.24	2.51	2.51	0.00				
313.26	2.52	2.52	0.00				
313.28	2.53	2.53	0.00				
313.30	2.54	2.54	0.00				
313.32	2.55	2.55	0.00				
313.34	2.56	2.56	0.00				
313.36	2.57	2.57	0.00				
313.38	2.58	2.58	0.00				
313.40	2.59	2.59	0.00				
313.42	2.60	2.60	0.00				
313.44	2.61	2.61	0.00				
313.46	2.64	2.63	0.01				
313.48	2.69	2.64	0.05				
313.50	2.76	2.65	0.11				
313.52	2.84	2.66	0.18				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Area-Storage for Pond BASIN I: INF TRENCH I**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
312.50	13,450	0	313.54	13,450	5,595
312.52	13,450	108	313.56	13,450	5,703
312.54	13,450	215	313.58	13,450	5,810
312.56	13,450	323	313.60	13,450	5,918
312.58	13,450	430	313.62	13,450	6,026
312.60	13,450	538	313.64	13,450	6,133
312.62	13,450	646	313.66	13,450	6,241
312.64	13,450	753	313.68	13,450	6,348
312.66	13,450	861	313.70	13,450	6,456
312.68	13,450	968	313.72	13,450	6,564
312.70	13,450	1,076	313.74	13,450	6,671
312.72	13,450	1,184	313.76	13,450	6,779
312.74	13,450	1,291	313.78	13,450	6,886
312.76	13,450	1,399	313.80	13,450	6,994
312.78	13,450	1,506	313.82	13,450	7,102
312.80	13,450	1,614	313.84	13,450	7,209
312.82	13,450	1,722	313.86	13,450	7,317
312.84	13,450	1,829	313.88	13,450	7,424
312.86	13,450	1,937	313.90	13,450	7,532
312.88	13,450	2,044	313.92	13,450	7,640
312.90	13,450	2,152	313.94	13,450	7,747
312.92	13,450	2,260	313.96	13,450	7,855
312.94	13,450	2,367	313.98	13,450	7,962
312.96	13,450	2,475	314.00	13,450	8,070
312.98	13,450	2,582	314.02	13,450	8,178
313.00	13,450	2,690	314.04	13,450	<b>8,285</b>
313.02	13,450	2,798			
313.04	13,450	2,905			
313.06	13,450	3,013			
313.08	13,450	3,120			
313.10	13,450	3,228			
313.12	13,450	3,336			
313.14	13,450	3,443			
313.16	13,450	3,551			
313.18	13,450	3,658			
313.20	13,450	3,766			
313.22	13,450	3,874			
313.24	13,450	3,981			
313.26	13,450	4,089			
313.28	13,450	4,196			
313.30	13,450	4,304			
313.32	13,450	4,412			
313.34	13,450	4,519			
313.36	13,450	4,627			
313.38	13,450	4,734			
313.40	13,450	4,842			
313.42	13,450	4,950			
313.44	13,450	5,057			
313.46	13,450	5,165			
313.48	13,450	5,272			
313.50	13,450	5,380			
313.52	13,450	5,488			

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Pond FB-A1: FOREBAY A1**

Inflow Area = 2.540 ac, 84.65% Impervious, Inflow Depth = 0.63" for WQ event  
 Inflow = 2.04 cfs @ 12.04 hrs, Volume= 0.133 af  
 Outflow = 1.63 cfs @ 12.09 hrs, Volume= 0.147 af, Atten= 20%, Lag= 3.2 min  
 Primary = 1.63 cfs @ 12.09 hrs, Volume= 0.147 af  
 Routed to Pond BA-A : AG INF BASIN A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Starting Elev= 311.10' Surf.Area= 4,661 sf Storage= 5,055 cf  
 Peak Elev= 311.12' @ 12.09 hrs Surf.Area= 4,684 sf Storage= 5,138 cf (83 cf above start)

Plug-Flow detention time= 448.2 min calculated for 0.031 af (23% of inflow)  
 Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	14,500 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

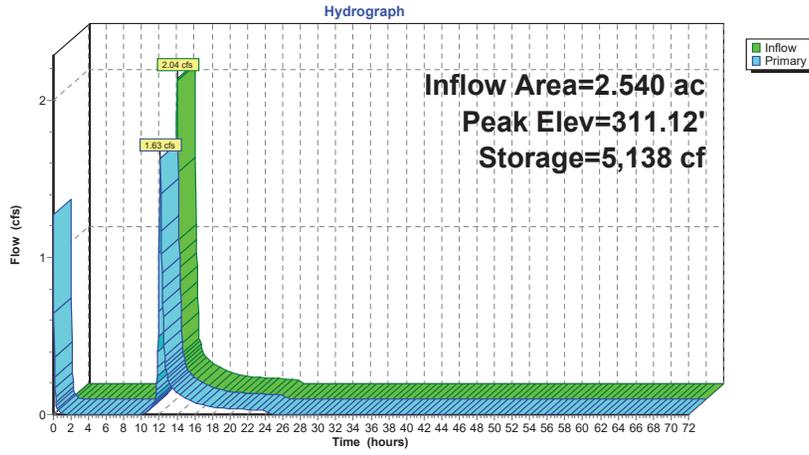
  

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	2,919	0	0
310.00	3,398	632	632
311.00	4,530	3,964	4,596
312.00	5,837	5,184	9,779
312.75	6,752	4,721	14,500

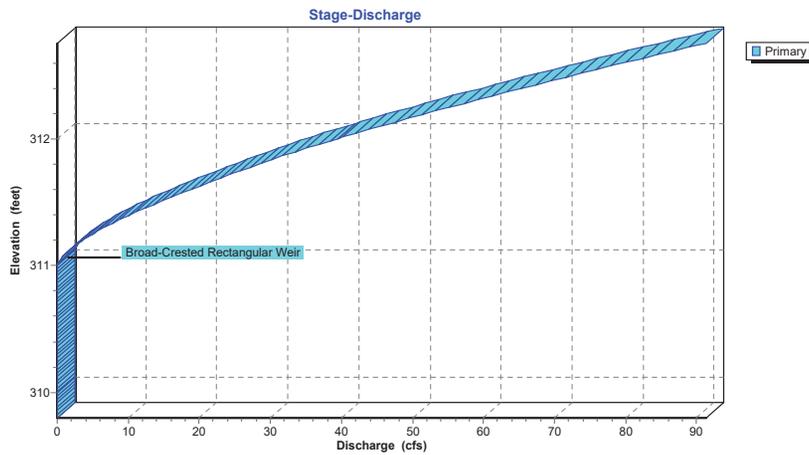
Device	Routing	Invert	Outlet Devices
#1	Primary	311.00'	<b>15.0' long x 15.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=1.60 cfs @ 12.09 hrs HW=311.12' (Free Discharge)  
 1=Broad-Crested Rectangular Weir(Weir Controls 1.60 cfs @ 0.92 fps)

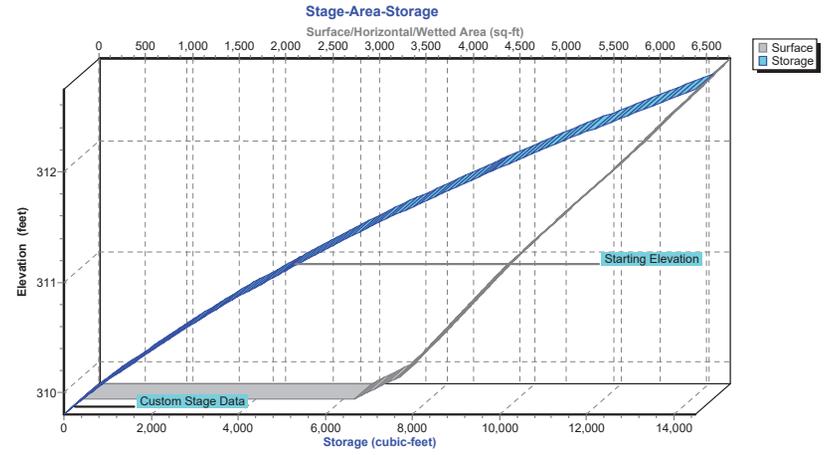
**Pond FB-A1: FOREBAY A1**



**Pond FB-A1: FOREBAY A1**



**Pond FB-A1: FOREBAY A1**



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Pond FB-A1: FOREBAY A1**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	5,055	311.10	1.27
2.50	0.00	4,596	311.00	0.00
5.00	0.00	4,596	311.00	0.00
7.50	0.00	4,596	311.00	0.00
10.00	<b>0.01</b>	<b>4,601</b>	<b>311.00</b>	<b>0.00</b>
12.50	<b>0.35</b>	<b>4,845</b>	<b>311.05</b>	<b>0.53</b>
15.00	0.10	4,673	311.02	0.11
17.50	0.05	4,647	311.01	0.05
20.00	0.04	4,639	311.01	0.04
22.50	0.03	4,631	311.01	0.03
25.00	0.00	4,597	311.00	0.00
27.50	0.00	4,596	311.00	0.00
30.00	0.00	4,596	311.00	0.00
32.50	0.00	4,596	311.00	0.00
35.00	0.00	4,596	311.00	0.00
37.50	0.00	4,596	311.00	0.00
40.00	0.00	4,596	311.00	0.00
42.50	0.00	4,596	311.00	0.00
45.00	0.00	4,596	311.00	0.00
47.50	0.00	4,596	311.00	0.00
50.00	0.00	4,596	311.00	0.00
52.50	0.00	4,596	311.00	0.00
55.00	0.00	4,596	311.00	0.00
57.50	0.00	4,596	311.00	0.00
60.00	0.00	4,596	311.00	0.00
62.50	0.00	4,596	311.00	0.00
65.00	0.00	4,596	311.00	0.00
67.50	0.00	4,596	311.00	0.00
70.00	0.00	4,596	311.00	0.00

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Discharge for Pond FB-A1: FOREBAY A1**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.80	0.00	310.84	0.00	311.88	32.64
309.82	0.00	310.86	0.00	311.90	33.75
309.84	0.00	310.88	0.00	311.92	34.86
309.86	0.00	310.90	0.00	311.94	35.99
309.88	0.00	310.92	0.00	311.96	37.14
309.90	0.00	310.94	0.00	311.98	38.29
309.92	0.00	310.96	0.00	312.00	39.45
309.94	0.00	310.98	0.00	312.02	40.65
309.96	0.00	311.00	0.00	312.04	41.87
309.98	0.00	311.02	0.11	312.06	43.10
310.00	0.00	311.04	0.32	312.08	44.34
310.02	0.00	311.06	0.59	312.10	45.60
310.04	0.00	311.08	0.91	312.12	46.87
310.06	0.00	311.10	1.27	312.14	48.15
310.08	0.00	311.12	1.67	312.16	49.44
310.10	0.00	311.14	2.11	312.18	50.74
310.12	0.00	311.16	2.57	312.20	52.06
310.14	0.00	311.18	3.07	312.22	53.36
310.16	0.00	311.20	3.60	312.24	54.68
310.18	0.00	311.22	4.15	312.26	56.01
310.20	0.00	311.24	4.73	312.28	57.35
310.22	0.00	311.26	5.34	312.30	58.70
310.24	0.00	311.28	5.97	312.32	60.06
310.26	0.00	311.30	6.63	312.34	61.43
310.28	0.00	311.32	7.31	312.36	62.81
310.30	0.00	311.34	8.01	312.38	64.20
310.32	0.00	311.36	8.74	312.40	65.60
310.34	0.00	311.38	9.48	312.42	66.98
310.36	0.00	311.40	10.25	312.44	68.38
310.38	0.00	311.42	11.02	312.46	69.78
310.40	0.00	311.44	11.82	312.48	71.19
310.42	0.00	311.46	12.64	312.50	72.61
310.44	0.00	311.48	13.47	312.52	74.04
310.46	0.00	311.50	14.32	312.54	75.48
310.48	0.00	311.52	15.19	312.56	76.92
310.50	0.00	311.54	16.07	312.58	78.38
310.52	0.00	311.56	16.97	312.60	79.84
310.54	0.00	311.58	17.89	312.62	81.34
310.56	0.00	311.60	18.82	312.64	82.85
310.58	0.00	311.62	19.73	312.66	84.37
310.60	0.00	311.64	20.64	312.68	85.90
310.62	0.00	311.66	21.57	312.70	87.44
310.64	0.00	311.68	22.51	312.72	88.99
310.66	0.00	311.70	23.46	312.74	<b>90.55</b>
310.68	0.00	311.72	24.41		
310.70	0.00	311.74	25.38		
310.72	0.00	311.76	26.36		
310.74	0.00	311.78	27.34		
310.76	0.00	311.80	28.34		
310.78	0.00	311.82	29.39		
310.80	0.00	311.84	30.46		
310.82	0.00	311.86	31.55		

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Area-Storage for Pond FB-A1: FOREBAY A1**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	2,919	0	312.40	6,325	12,212
309.85	3,038	149	312.45	6,386	12,529
309.90	3,158	304	312.50	6,447	12,850
309.95	3,278	465	312.55	6,508	13,174
310.00	3,398	632	312.60	6,569	13,501
310.05	3,454	803	312.65	6,630	13,831
310.10	3,511	977	312.70	6,691	14,164
310.15	3,568	1,154	312.75	<b>6,752</b>	<b>14,500</b>
310.20	3,624	1,334			
310.25	3,681	1,516			
310.30	3,737	1,702			
310.35	3,794	1,890			
310.40	3,851	2,081			
310.45	3,907	2,275			
310.50	3,964	2,472			
310.55	4,021	2,672			
310.60	4,077	2,874			
310.65	4,134	3,079			
310.70	4,190	3,287			
310.75	4,247	3,498			
310.80	4,304	3,712			
310.85	4,360	3,929			
310.90	4,417	4,148			
310.95	4,474	4,370			
311.00	4,530	4,596			
311.05	4,586	4,824			
311.10	4,641	5,055			
311.15	4,726	5,290			
311.20	4,792	5,528			
311.25	4,857	5,769			
311.30	4,922	6,013			
311.35	4,988	6,261			
311.40	5,053	6,512			
311.45	5,118	6,767			
311.50	5,184	7,024			
311.55	5,249	7,285			
311.60	5,314	7,549			
311.65	5,380	7,816			
311.70	5,445	8,087			
311.75	5,510	8,361			
311.80	5,576	8,638			
311.85	5,641	8,918			
311.90	5,706	9,202			
311.95	5,772	9,489			
312.00	5,837	9,779			
312.05	5,898	10,073			
312.10	5,959	10,369			
312.15	6,020	10,668			
312.20	6,081	10,971			
312.25	6,142	11,277			
312.30	6,203	11,585			
312.35	6,264	11,897			

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Pond FB-A2: FOREBAY A2**

Inflow Area = 2.710 ac, 72.32% Impervious, Inflow Depth = 0.35" for WQ event  
 Inflow = 1.05 cfs @ 12.06 hrs, Volume= 0.078 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond BA-A : AG INF BASIN A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 310.28' @ 24.20 hrs Surf.Area= 7,503 sf Storage= 3,401 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

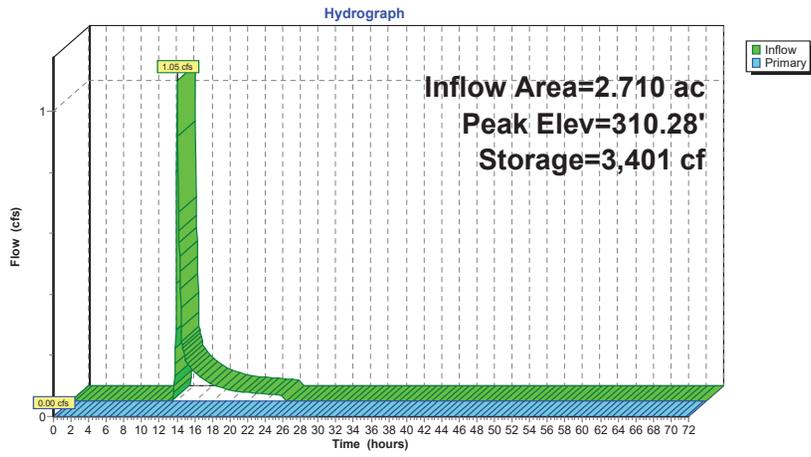
Volume	Invert	Avail.Storage	Storage Description
#1	309.80'	26,127 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.80	6,055	0	0
310.00	7,144	1,320	1,320
311.00	8,407	7,775	9,095
312.00	9,845	9,126	18,221
312.75	11,238	7,906	26,127

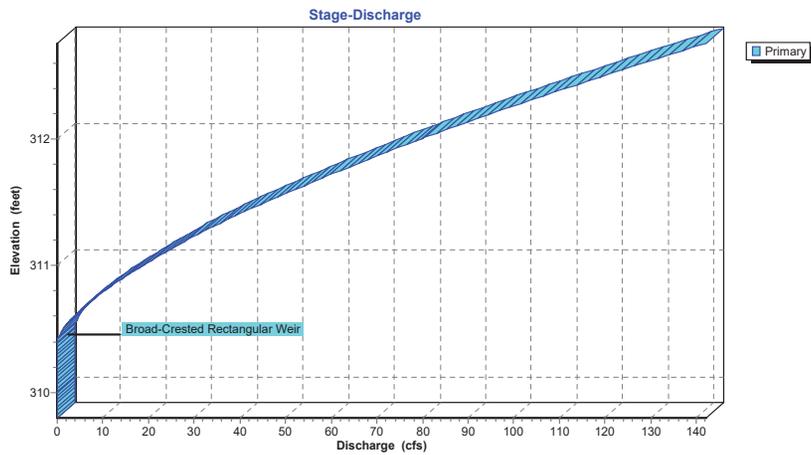
Device	Routing	Invert	Outlet Devices
#1	Primary	310.40'	<b>15.0' long x 15.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=309.80' (Free Discharge)  
 ↳=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

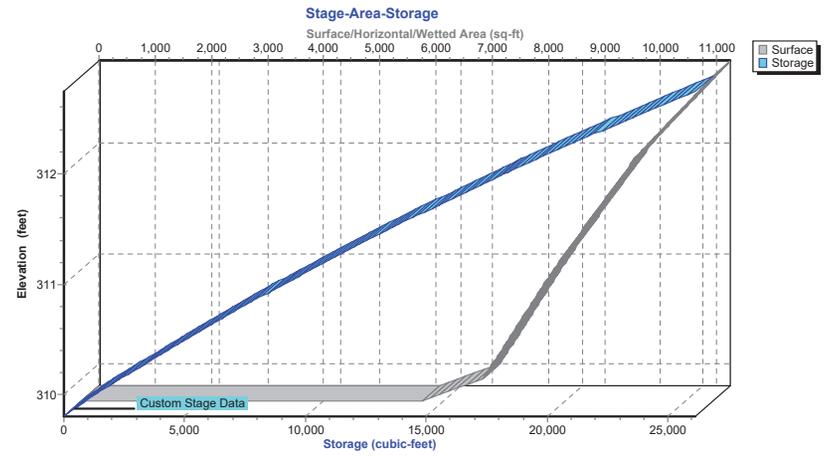
**Pond FB-A2: FOREBAY A2**



**Pond FB-A2: FOREBAY A2**



**Pond FB-A2: FOREBAY A2**



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**Hydrograph for Pond FB-A2: FOREBAY A2**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	309.80	0.00
2.50	0.00	0	309.80	0.00
5.00	0.00	0	309.80	0.00
7.50	0.00	0	309.80	0.00
10.00	0.00	0	309.80	0.00
12.50	0.24	1,288	310.00	0.00
15.00	0.07	2,288	310.13	0.00
17.50	0.04	2,767	310.20	0.00
20.00	0.03	3,057	310.24	0.00
22.50	0.02	3,286	310.27	0.00
25.00	0.00	3,401	310.28	0.00
27.50	0.00	3,401	310.28	0.00
30.00	0.00	3,401	310.28	0.00
32.50	0.00	3,401	310.28	0.00
35.00	0.00	3,401	310.28	0.00
37.50	0.00	3,401	310.28	0.00
40.00	0.00	3,401	310.28	0.00
42.50	0.00	3,401	310.28	0.00
45.00	0.00	3,401	310.28	0.00
47.50	0.00	3,401	310.28	0.00
50.00	0.00	3,401	310.28	0.00
52.50	0.00	3,401	310.28	0.00
55.00	0.00	3,401	310.28	0.00
57.50	0.00	3,401	310.28	0.00
60.00	0.00	3,401	310.28	0.00
62.50	0.00	3,401	310.28	0.00
65.00	0.00	3,401	310.28	0.00
67.50	0.00	3,401	310.28	0.00
70.00	0.00	3,401	310.28	0.00

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Discharge for Pond FB-A2: FOREBAY A2**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.80	0.00	310.84	11.82	311.88	71.19
309.82	0.00	310.86	12.64	311.90	72.61
309.84	0.00	310.88	13.47	311.92	74.04
309.86	0.00	310.90	14.32	311.94	75.48
309.88	0.00	310.92	15.19	311.96	76.92
309.90	0.00	310.94	16.07	311.98	78.38
309.92	0.00	310.96	16.97	312.00	79.84
309.94	0.00	310.98	17.89	312.02	81.34
309.96	0.00	311.00	18.82	312.04	82.85
309.98	0.00	311.02	19.73	312.06	84.37
310.00	0.00	311.04	20.64	312.08	85.90
310.02	0.00	311.06	21.57	312.10	87.44
310.04	0.00	311.08	22.51	312.12	88.99
310.06	0.00	311.10	23.46	312.14	90.55
310.08	0.00	311.12	24.41	312.16	92.11
310.10	0.00	311.14	25.38	312.18	93.69
310.12	0.00	311.16	26.36	312.20	95.27
310.14	0.00	311.18	27.34	312.22	96.86
310.16	0.00	311.20	28.34	312.24	98.46
310.18	0.00	311.22	29.39	312.26	100.07
310.20	0.00	311.24	30.46	312.28	101.69
310.22	0.00	311.26	31.55	312.30	103.32
310.24	0.00	311.28	32.64	312.32	104.95
310.26	0.00	311.30	33.75	312.34	106.60
310.28	0.00	311.32	34.86	312.36	108.25
310.30	0.00	311.34	35.99	312.38	109.91
310.32	0.00	311.36	37.14	312.40	111.58
310.34	0.00	311.38	38.29	312.42	113.26
310.36	0.00	311.40	39.45	312.44	114.95
310.38	0.00	311.42	40.65	312.46	116.64
310.40	0.00	311.44	41.87	312.48	118.34
310.42	0.11	311.46	43.10	312.50	120.05
310.44	0.32	311.48	44.34	312.52	121.77
310.46	0.59	311.50	45.60	312.54	123.50
310.48	0.91	311.52	46.87	312.56	125.24
310.50	1.27	311.54	48.15	312.58	126.98
310.52	1.67	311.56	49.44	312.60	128.73
310.54	2.11	311.58	50.74	312.62	130.49
310.56	2.57	311.60	52.06	312.64	132.26
310.58	3.07	311.62	53.36	312.66	134.03
310.60	3.60	311.64	54.68	312.68	135.82
310.62	4.15	311.66	56.01	312.70	137.61
310.64	4.73	311.68	57.35	312.72	139.41
310.66	5.34	311.70	58.70	312.74	141.21
310.68	5.97	311.72	60.06		
310.70	6.63	311.74	61.43		
310.72	7.31	311.76	62.81		
310.74	8.01	311.78	64.20		
310.76	8.74	311.80	65.60		
310.78	9.48	311.82	66.98		
310.80	10.25	311.84	68.38		
310.82	11.02	311.86	69.78		

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Area-Storage for Pond FB-A2: FOREBAY A2**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.80	6,055	0	312.40	10,588	22,308
309.85	6,327	310	312.45	10,681	22,839
309.90	6,599	633	312.50	10,774	23,376
309.95	6,872	969	312.55	10,867	23,917
310.00	7,144	1,320	312.60	10,960	24,462
310.05	7,207	1,679	312.65	11,053	25,013
310.10	7,270	2,041	312.70	11,146	25,568
310.15	7,333	2,406	312.75	<b>11,238</b>	<b>26,127</b>
310.20	7,396	2,774			
310.25	7,460	3,145			
310.30	7,523	3,520			
310.35	7,586	3,898			
310.40	7,649	4,278			
310.45	7,712	4,662			
310.50	7,775	5,050			
310.55	7,839	5,440			
310.60	7,902	5,834			
310.65	7,965	6,230			
310.70	8,028	6,630			
310.75	8,091	7,033			
310.80	8,154	7,439			
310.85	8,218	7,848			
310.90	8,281	8,261			
310.95	8,344	8,677			
311.00	8,407	9,095			
311.05	8,479	9,517			
311.10	8,551	9,943			
311.15	8,623	10,373			
311.20	8,695	10,805			
311.25	8,766	11,242			
311.30	8,838	11,682			
311.35	8,910	12,126			
311.40	8,982	12,573			
311.45	9,054	13,024			
311.50	9,126	13,479			
311.55	9,198	13,937			
311.60	9,270	14,398			
311.65	9,341	14,864			
311.70	9,413	15,332			
311.75	9,485	15,805			
311.80	9,557	16,281			
311.85	9,629	16,761			
311.90	9,701	17,244			
311.95	9,773	17,731			
312.00	9,845	18,221			
312.05	9,937	18,716			
312.10	10,030	19,215			
312.15	10,123	19,719			
312.20	10,216	20,227			
312.25	10,309	20,740			
312.30	10,402	21,258			
312.35	10,495	21,781			

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Pond FB-B: FOREBAY B**

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 1.560 ac, 66.03% Impervious, Inflow Depth = 0.54" for WQ event  
 Inflow = 1.04 cfs @ 12.05 hrs, Volume= 0.070 af  
 Outflow = 1.03 cfs @ 12.15 hrs, Volume= 0.051 af, Atten= 1%, Lag= 6.2 min  
 Primary = 1.03 cfs @ 12.15 hrs, Volume= 0.051 af  
 Routed to Pond BA-B : AG INF BASIN B

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 306.74' @ 12.15 hrs Surf.Area= 586 sf Storage= 826 cf

Plug-Flow detention time= 146.7 min calculated for 0.051 af (74% of inflow)  
 Center-of-Mass det. time= 51.1 min ( 903.8 - 852.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	304.00'	1,720 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

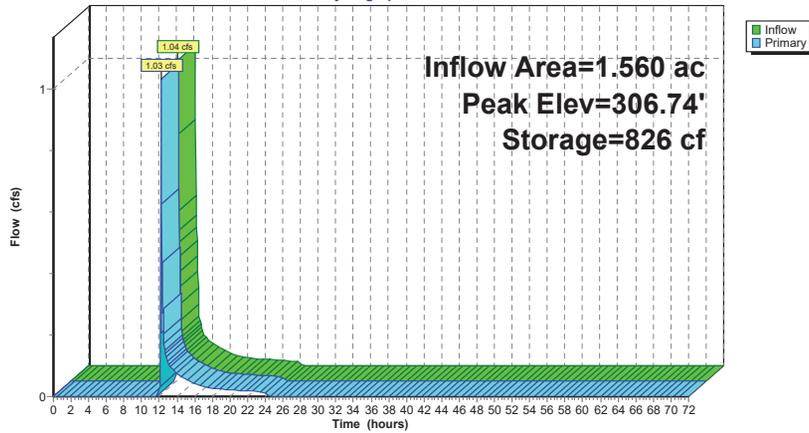
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
304.00	45	0	0
305.00	192	119	119
306.00	451	322	440
307.00	633	542	982
308.00	842	738	1,720

Device	Routing	Invert	Outlet Devices
#1	Primary	306.70'	<b>31.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=0.92 cfs @ 12.15 hrs HW=306.74' (Free Discharge)  
 ↳1=Sharp-Crested Rectangular Weir(Weir Controls 0.92 cfs @ 0.68 fps)

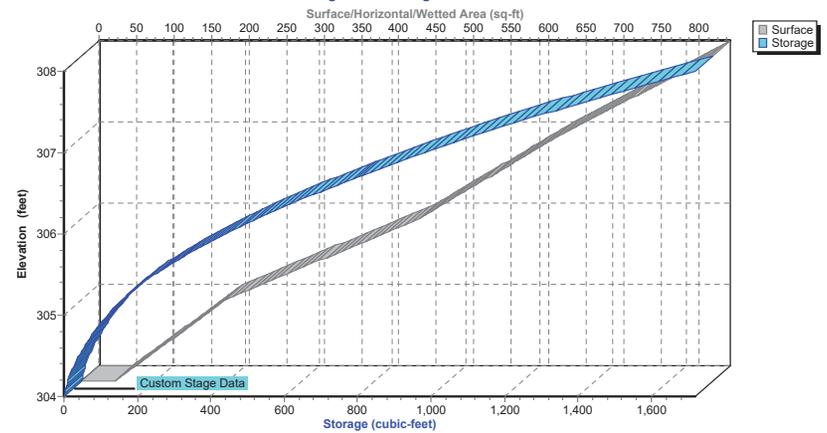
Pond FB-B: FOREBAY B

Hydrograph



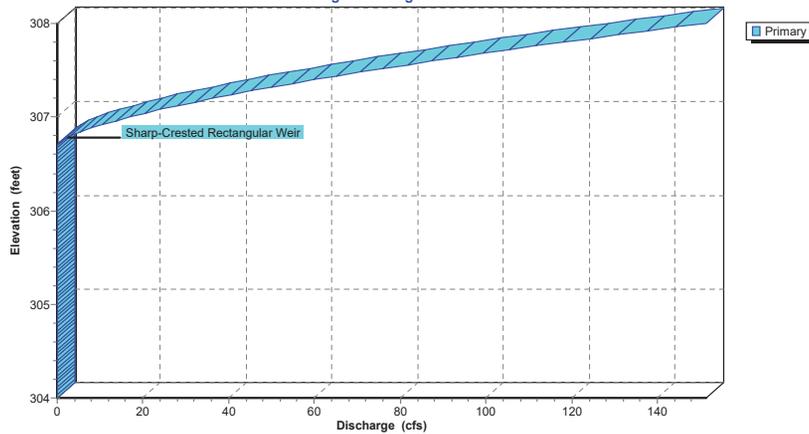
Pond FB-B: FOREBAY B

Stage-Area-Storage



Pond FB-B: FOREBAY B

Stage-Discharge



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Pond FB-B: FOREBAY B**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	304.00	0.00
2.50	0.00	0	304.00	0.00
5.00	0.00	0	304.00	0.00
7.50	0.00	0	304.00	0.00
10.00	<b>0.00</b>	<b>0</b>	<b>304.00</b>	<b>0.00</b>
12.50	<b>0.20</b>	<b>808</b>	<b>306.71</b>	<b>0.20</b>
15.00	0.06	803	306.70	0.06
17.50	0.03	801	306.70	0.03
20.00	0.02	801	306.70	0.02
22.50	0.02	801	306.70	0.02
25.00	0.00	800	306.70	0.00
27.50	0.00	800	306.70	0.00
30.00	0.00	800	306.70	0.00
32.50	0.00	800	306.70	0.00
35.00	0.00	800	306.70	0.00
37.50	0.00	800	306.70	0.00
40.00	0.00	800	306.70	0.00
42.50	0.00	800	306.70	0.00
45.00	0.00	800	306.70	0.00
47.50	0.00	800	306.70	0.00
50.00	0.00	800	306.70	0.00
52.50	0.00	800	306.70	0.00
55.00	0.00	800	306.70	0.00
57.50	0.00	800	306.70	0.00
60.00	0.00	800	306.70	0.00
62.50	0.00	800	306.70	0.00
65.00	0.00	800	306.70	0.00
67.50	0.00	800	306.70	0.00
70.00	0.00	800	306.70	0.00

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Discharge for Pond FB-B: FOREBAY B**

Elevation (feet)	Primary (cfs)						
304.00	0.00	305.04	0.00	306.08	0.00	307.12	27.96
304.02	0.00	305.06	0.00	306.10	0.00	307.14	29.98
304.04	0.00	305.08	0.00	306.12	0.00	307.16	32.04
304.06	0.00	305.10	0.00	306.14	0.00	307.18	34.15
304.08	0.00	305.12	0.00	306.16	0.00	307.20	36.30
304.10	0.00	305.14	0.00	306.18	0.00	307.22	38.50
304.12	0.00	305.16	0.00	306.20	0.00	307.24	40.73
304.14	0.00	305.18	0.00	306.22	0.00	307.26	43.01
304.16	0.00	305.20	0.00	306.24	0.00	307.28	45.33
304.18	0.00	305.22	0.00	306.26	0.00	307.30	47.69
304.20	0.00	305.24	0.00	306.28	0.00	307.32	50.09
304.22	0.00	305.26	0.00	306.30	0.00	307.34	52.52
304.24	0.00	305.28	0.00	306.32	0.00	307.36	55.00
304.26	0.00	305.30	0.00	306.34	0.00	307.38	57.51
304.28	0.00	305.32	0.00	306.36	0.00	307.40	60.06
304.30	0.00	305.34	0.00	306.38	0.00	307.42	62.64
304.32	0.00	305.36	0.00	306.40	0.00	307.44	65.26
304.34	0.00	305.38	0.00	306.42	0.00	307.46	67.92
304.36	0.00	305.40	0.00	306.44	0.00	307.48	70.61
304.38	0.00	305.42	0.00	306.46	0.00	307.50	73.33
304.40	0.00	305.44	0.00	306.48	0.00	307.52	76.09
304.42	0.00	305.46	0.00	306.50	0.00	307.54	78.88
304.44	0.00	305.48	0.00	306.52	0.00	307.56	81.70
304.46	0.00	305.50	0.00	306.54	0.00	307.58	84.56
304.48	0.00	305.52	0.00	306.56	0.00	307.60	87.44
304.50	0.00	305.54	0.00	306.58	0.00	307.62	90.36
304.52	0.00	305.56	0.00	306.60	0.00	307.64	93.31
304.54	0.00	305.58	0.00	306.62	0.00	307.66	96.30
304.56	0.00	305.60	0.00	306.64	0.00	307.68	99.31
304.58	0.00	305.62	0.00	306.66	0.00	307.70	102.35
304.60	0.00	305.64	0.00	306.68	0.00	307.72	105.42
304.62	0.00	305.66	0.00	306.70	0.00	307.74	108.53
304.64	0.00	305.68	0.00	306.72	0.29	307.76	111.66
304.66	0.00	305.70	0.00	306.74	0.82	307.78	114.82
304.68	0.00	305.72	0.00	306.76	1.51	307.80	118.01
304.70	0.00	305.74	0.00	306.78	2.33	307.82	121.22
304.72	0.00	305.76	0.00	306.80	3.26	307.84	124.47
304.74	0.00	305.78	0.00	306.82	4.28	307.86	127.74
304.76	0.00	305.80	0.00	306.84	5.39	307.88	131.04
304.78	0.00	305.82	0.00	306.86	6.59	307.90	134.37
304.80	0.00	305.84	0.00	306.88	7.86	307.92	137.73
304.82	0.00	305.86	0.00	306.90	9.20	307.94	141.11
304.84	0.00	305.88	0.00	306.92	10.61	307.96	144.52
304.86	0.00	305.90	0.00	306.94	12.09	307.98	147.95
304.88	0.00	305.92	0.00	306.96	13.63	308.00	<b>151.42</b>
304.90	0.00	305.94	0.00	306.98	15.23		
304.92	0.00	305.96	0.00	307.00	16.89		
304.94	0.00	305.98	0.00	307.02	18.61		
304.96	0.00	306.00	0.00	307.04	20.38		
304.98	0.00	306.02	0.00	307.06	22.20		
305.00	0.00	306.04	0.00	307.08	24.07		
305.02	0.00	306.06	0.00	307.10	25.99		

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Area-Storage for Pond FB-B: FOREBAY B**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
304.00	45	0	306.60	560	743
304.05	52	2	306.65	569	772
304.10	60	5	306.70	578	800
304.15	67	8	306.75	588	829
304.20	74	12	306.80	597	859
304.25	82	16	306.85	606	889
304.30	89	20	306.90	615	920
304.35	96	25	306.95	624	951
304.40	104	30	307.00	633	982
304.45	111	35	307.05	643	1,014
304.50	119	41	307.10	654	1,046
304.55	126	47	307.15	664	1,079
304.60	133	53	307.20	675	1,113
304.65	141	60	307.25	685	1,147
304.70	148	68	307.30	696	1,181
304.75	155	75	307.35	706	1,216
304.80	163	83	307.40	717	1,252
304.85	170	91	307.45	727	1,288
304.90	177	100	307.50	738	1,325
304.95	185	109	307.55	748	1,362
305.00	192	119	307.60	758	1,399
305.05	205	128	307.65	769	1,438
305.10	218	139	307.70	779	1,476
305.15	231	150	307.75	790	1,516
305.20	244	162	307.80	800	1,555
305.25	257	175	307.85	811	1,596
305.30	270	188	307.90	821	1,636
305.35	283	202	307.95	832	1,678
305.40	296	216	308.00	<b>842</b>	<b>1,720</b>
305.45	309	231			
305.50	322	247			
305.55	334	263			
305.60	347	280			
305.65	360	298			
305.70	373	316			
305.75	386	335			
305.80	399	355			
305.85	412	375			
305.90	425	396			
305.95	438	418			
306.00	451	440			
306.05	460	463			
306.10	469	486			
306.15	478	510			
306.20	487	534			
306.25	497	558			
306.30	506	583			
306.35	515	609			
306.40	524	635			
306.45	533	661			
306.50	542	688			
306.55	551	716			

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Pond FB-G: FOREBAY G**

Inflow Area = 0.700 ac, 60.00% Impervious, Inflow Depth = 0.15" for WQ event  
 Inflow = 0.05 cfs @ 12.10 hrs, Volume= 0.009 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond BA-G : AG INF BASIN G

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.98' @ 24.15 hrs Surf.Area= 882 sf Storage= 375 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	309.50'	2,956 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

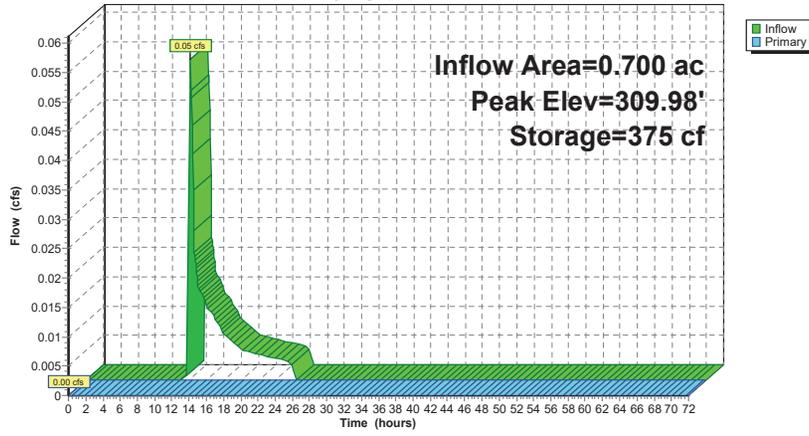
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.50	676	0	0
310.00	890	392	392
311.00	1,284	1,087	1,479
312.00	1,671	1,478	2,956

Device	Routing	Invert	Outlet Devices
#1	Primary	311.15'	<b>42.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=309.50' (Free Discharge)  
 ↳1=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)

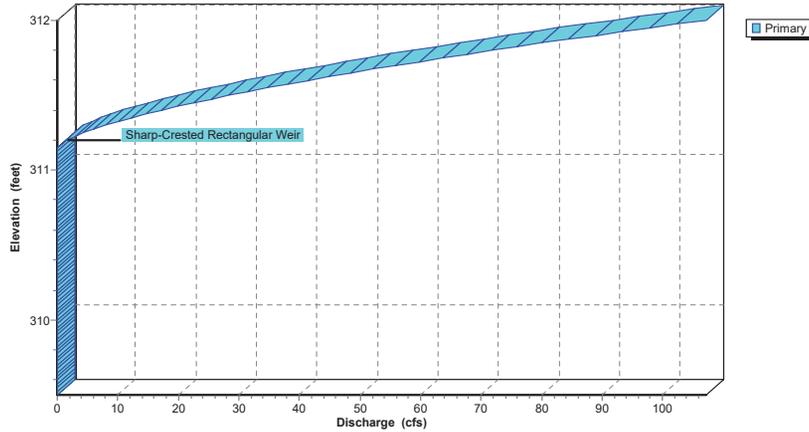
**Pond FB-G: FOREBAY G**

Hydrograph



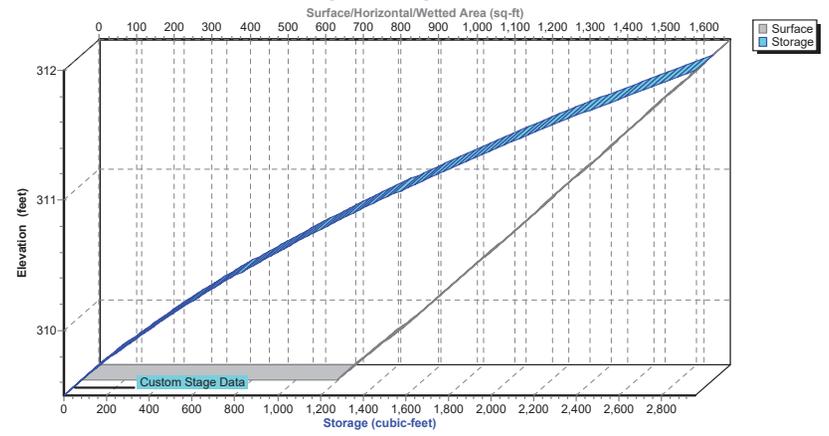
**Pond FB-G: FOREBAY G**

Stage-Discharge



**Pond FB-G: FOREBAY G**

Stage-Area-Storage



**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Pond FB-G: FOREBAY G**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	309.50	0.00
2.50	0.00	0	309.50	0.00
5.00	0.00	0	309.50	0.00
7.50	0.00	0	309.50	0.00
10.00	0.00	0	309.50	0.00
12.50	0.03	78	309.61	0.00
15.00	0.01	207	309.78	0.00
17.50	0.01	277	309.87	0.00
20.00	0.00	321	309.92	0.00
22.50	0.00	357	309.96	0.00
25.00	0.00	375	309.98	0.00
27.50	0.00	375	309.98	0.00
30.00	0.00	375	309.98	0.00
32.50	0.00	375	309.98	0.00
35.00	0.00	375	309.98	0.00
37.50	0.00	375	309.98	0.00
40.00	0.00	375	309.98	0.00
42.50	0.00	375	309.98	0.00
45.00	0.00	375	309.98	0.00
47.50	0.00	375	309.98	0.00
50.00	0.00	375	309.98	0.00
52.50	0.00	375	309.98	0.00
55.00	0.00	375	309.98	0.00
57.50	0.00	375	309.98	0.00
60.00	0.00	375	309.98	0.00
62.50	0.00	375	309.98	0.00
65.00	0.00	375	309.98	0.00
67.50	0.00	375	309.98	0.00
70.00	0.00	375	309.98	0.00

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Discharge for Pond FB-G: FOREBAY G**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
309.50	0.00	310.54	0.00	311.58	38.65
309.52	0.00	310.56	0.00	311.60	41.37
309.54	0.00	310.58	0.00	311.62	44.15
309.56	0.00	310.60	0.00	311.64	47.00
309.58	0.00	310.62	0.00	311.66	49.90
309.60	0.00	310.64	0.00	311.68	52.86
309.62	0.00	310.66	0.00	311.70	55.87
309.64	0.00	310.68	0.00	311.72	58.94
309.66	0.00	310.70	0.00	311.74	62.07
309.68	0.00	310.72	0.00	311.76	65.24
309.70	0.00	310.74	0.00	311.78	68.47
309.72	0.00	310.76	0.00	311.80	71.75
309.74	0.00	310.78	0.00	311.82	75.08
309.76	0.00	310.80	0.00	311.84	78.46
309.78	0.00	310.82	0.00	311.86	81.89
309.80	0.00	310.84	0.00	311.88	85.36
309.82	0.00	310.86	0.00	311.90	88.89
309.84	0.00	310.88	0.00	311.92	92.46
309.86	0.00	310.90	0.00	311.94	96.07
309.88	0.00	310.92	0.00	311.96	99.73
309.90	0.00	310.94	0.00	311.98	103.44
309.92	0.00	310.96	0.00	312.00	107.19
309.94	0.00	310.98	0.00		
309.96	0.00	311.00	0.00		
309.98	0.00	311.02	0.00		
310.00	0.00	311.04	0.00		
310.02	0.00	311.06	0.00		
310.04	0.00	311.08	0.00		
310.06	0.00	311.10	0.00		
310.08	0.00	311.12	0.00		
310.10	0.00	311.14	0.00		
310.12	0.00	311.16	0.14		
310.14	0.00	311.18	0.71		
310.16	0.00	311.20	1.54		
310.18	0.00	311.22	2.54		
310.20	0.00	311.24	3.71		
310.22	0.00	311.26	5.01		
310.24	0.00	311.28	6.43		
310.26	0.00	311.30	7.97		
310.28	0.00	311.32	9.62		
310.30	0.00	311.34	11.36		
310.32	0.00	311.36	13.20		
310.34	0.00	311.38	15.13		
310.36	0.00	311.40	17.15		
310.38	0.00	311.42	19.24		
310.40	0.00	311.44	21.42		
310.42	0.00	311.46	23.67		
310.44	0.00	311.48	25.99		
310.46	0.00	311.50	28.39		
310.48	0.00	311.52	30.86		
310.50	0.00	311.54	33.39		
310.52	0.00	311.56	35.99		

**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Stage-Area-Storage for Pond FB-G: FOREBAY G**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
309.50	676	0
309.55	697	34
309.60	719	70
309.65	740	106
309.70	762	144
309.75	783	182
309.80	804	222
309.85	826	263
309.90	847	305
309.95	869	348
310.00	890	392
310.05	910	436
310.10	929	482
310.15	949	529
310.20	969	577
310.25	989	626
310.30	1,008	676
310.35	1,028	727
310.40	1,048	779
310.45	1,067	832
310.50	1,087	886
310.55	1,107	941
310.60	1,126	996
310.65	1,146	1,053
310.70	1,166	1,111
310.75	1,186	1,170
310.80	1,205	1,230
310.85	1,225	1,290
310.90	1,245	1,352
310.95	1,264	1,415
311.00	1,284	1,479
311.05	1,303	1,543
311.10	1,323	1,609
311.15	1,342	1,675
311.20	1,361	1,743
311.25	1,381	1,812
311.30	1,400	1,881
311.35	1,419	1,952
311.40	1,439	2,023
311.45	1,458	2,095
311.50	1,478	2,169
311.55	1,497	2,243
311.60	1,516	2,319
311.65	1,536	2,395
311.70	1,555	2,472
311.75	1,574	2,550
311.80	1,594	2,630
311.85	1,613	2,710
311.90	1,632	2,791
311.95	1,652	2,873
312.00	<b>1,671</b>	<b>2,956</b>

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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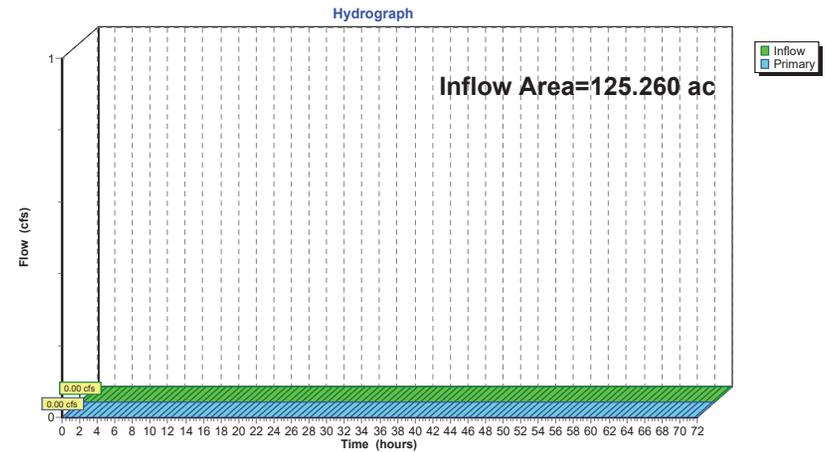
Page 542

**Summary for Link 42L: POA STREAM TOTAL**

Inflow Area = 125.260 ac, 42.22% Impervious, Inflow Depth = 0.00" for WQ event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 42L: POA STREAM TOTAL**



**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

Printed 1/15/2024

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**Hydrograph for Link 42L: POA STREAM TOTAL**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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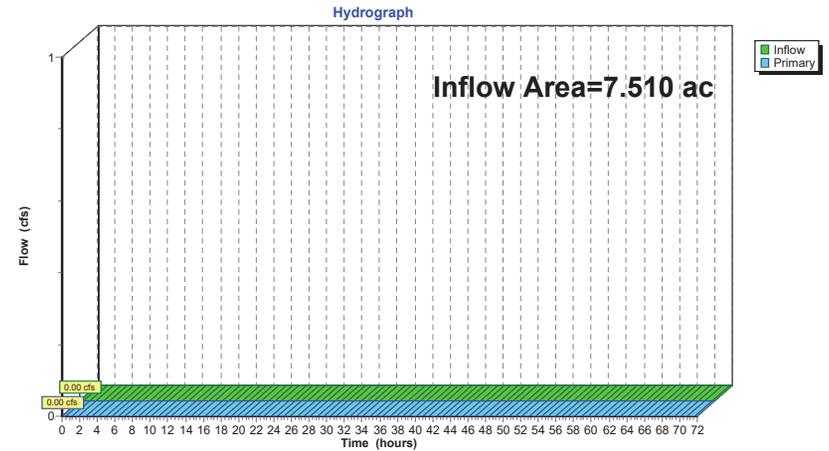
Page 544

**Summary for Link 43L: TOTAL AG INF BASINS**

Inflow Area = 7.510 ac, 74.03% Impervious, Inflow Depth = 0.00" for WQ event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 43L: TOTAL AG INF BASINS**



**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Link 43L: TOTAL AG INF BASINS**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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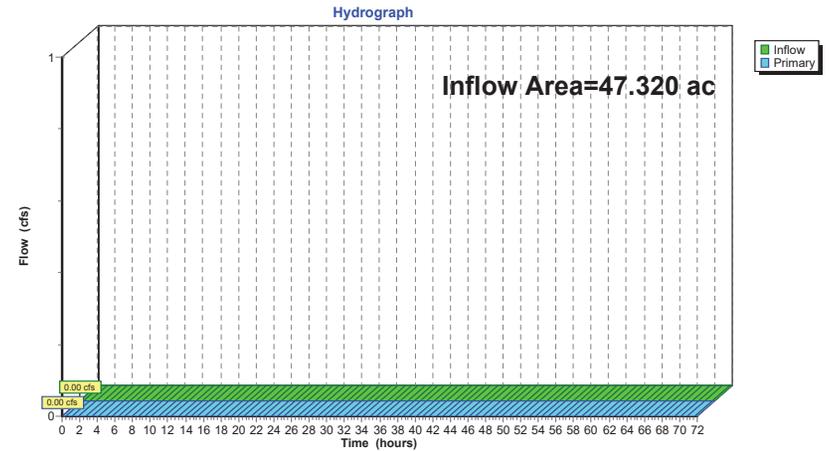
Page 546

**Summary for Link 44L: Total UG INF BASINS**

Inflow Area = 47.320 ac, 95.33% Impervious, Inflow Depth = 0.00" for WQ event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 44L: Total UG INF BASINS**



**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Link 44L: Total UG INF BASINS**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**2024-01-15 Proposed Conditions**

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Type III 24-hr WQ Rainfall=1.50"

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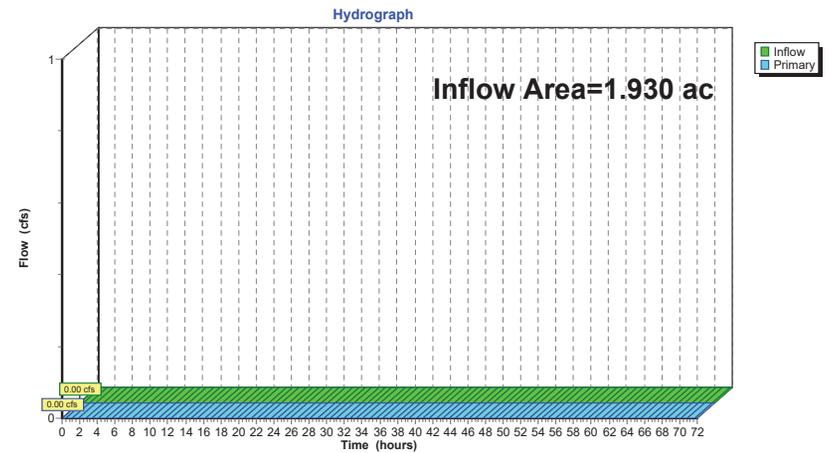
Page 548

**Summary for Link 48L: TOTAL INF TRENCH**

Inflow Area = 1.930 ac, 60.10% Impervious, Inflow Depth = 0.00" for WQ event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 42L : POA STREAM TOTAL

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

**Link 48L: TOTAL INF TRENCH**



**2024-01-15 Proposed Conditions**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Hydrograph for Link 48L: TOTAL INF TRENCH**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**PROPOSED MTD PRE-TREATMENT HYDROCAD OUTPUT  
– WATER QUALITY STORM EVENT**

**2023-12-27 MTD Calculation**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment C-1: MTD C-1**

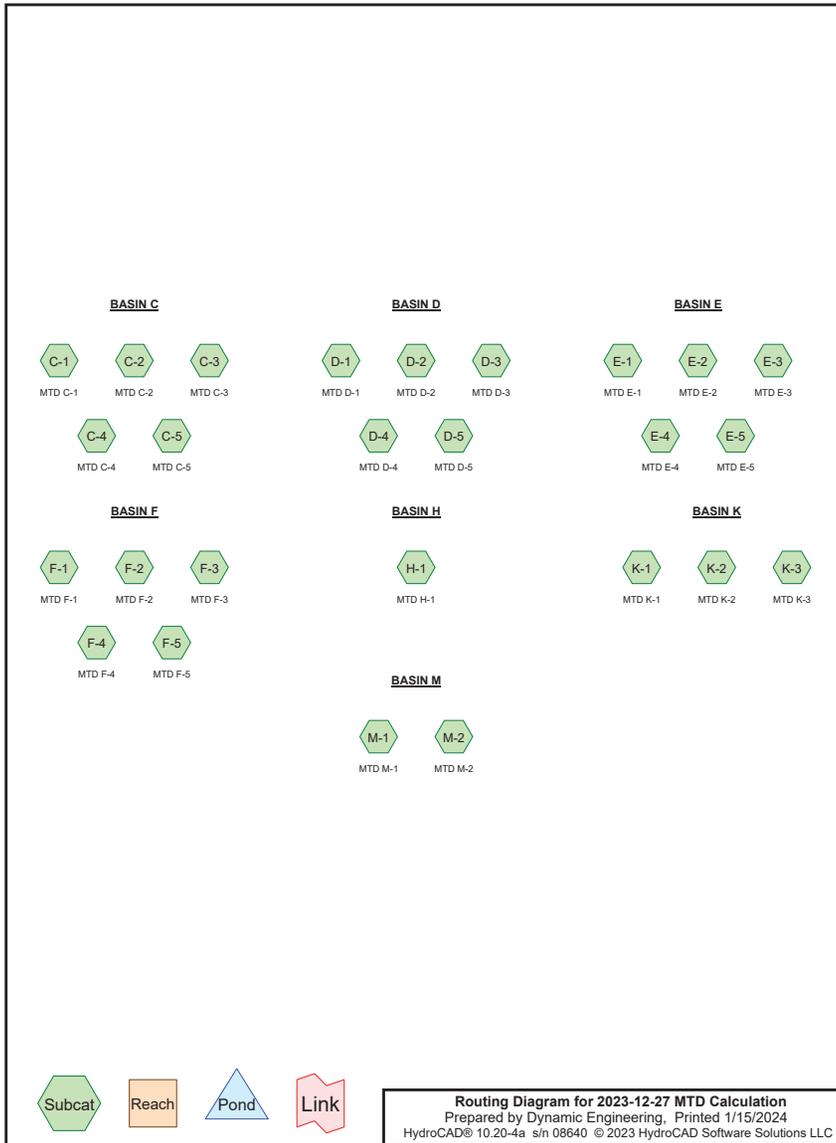
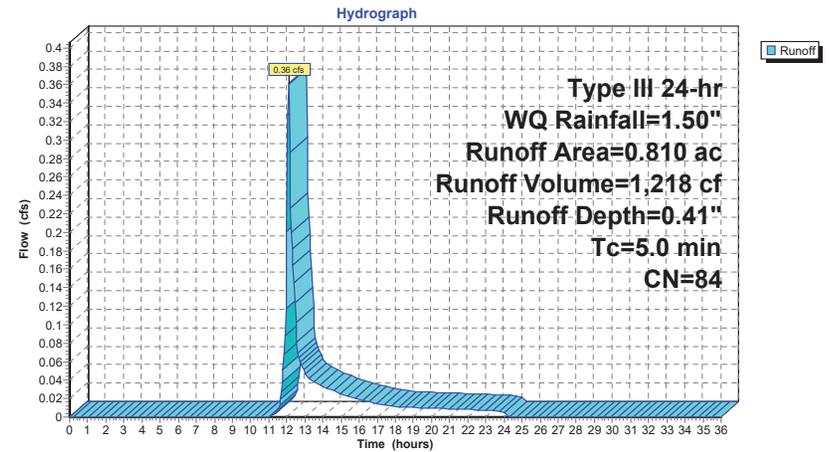
Runoff = 0.36 cfs @ 12.09 hrs, Volume= 1,218 cf, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.550	98	IMP
0.160	39	>75% Grass cover, Good, HSG A
0.100	80	>75% Grass cover, Good, HSG D
0.810	84	Weighted Average
0.260		32.10% Pervious Area
0.550		67.90% Impervious Area

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

**Subcatchment C-1: MTD C-1**



**2023-12-27 MTD Calculation**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment C-2: MTD C-2**

Runoff = 0.77 cfs @ 12.07 hrs, Volume= 2,389 cf, Depth= 1.01"

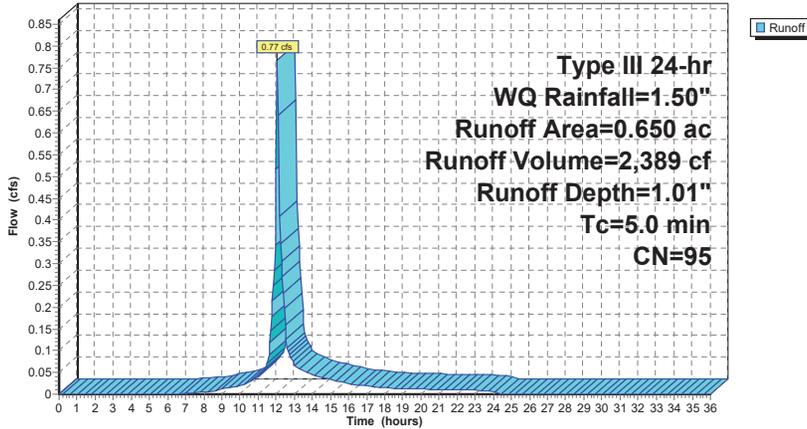
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.620	98	IMP
0.030	39	>75% Grass cover, Good, HSG A
0.650	95	Weighted Average
0.030		4.62% Pervious Area
0.620		95.38% Impervious Area

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

**Subcatchment C-2: MTD C-2**

Hydrograph



**2023-12-27 MTD Calculation**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment C-3: MTD C-3**

Runoff = 0.78 cfs @ 12.07 hrs, Volume= 2,426 cf, Depth= 1.01"

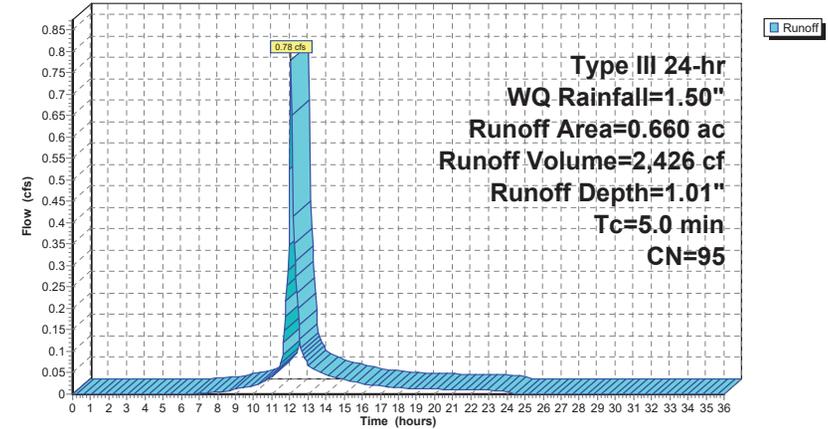
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.630	98	IMP
0.030	39	>75% Grass cover, Good, HSG A
0.660	95	Weighted Average
0.030		4.55% Pervious Area
0.630		95.45% Impervious Area

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

**Subcatchment C-3: MTD C-3**

Hydrograph



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment C-4: MTD C-4**

Runoff = 0.78 cfs @ 12.07 hrs, Volume= 2,426 cf, Depth= 1.01"

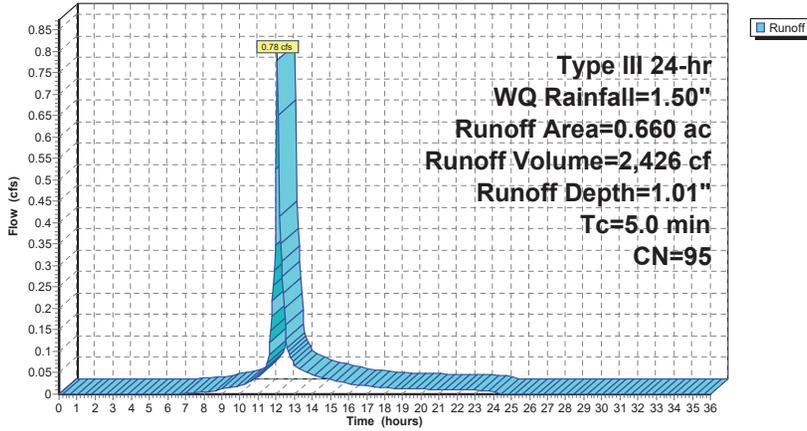
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.630	98	IMP
0.030	39	>75% Grass cover, Good, HSG A
0.660	95	Weighted Average
0.030		4.55% Pervious Area
0.630		95.45% Impervious Area

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

**Subcatchment C-4: MTD C-4**

Hydrograph



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment C-5: MTD C-5**

Runoff = 0.78 cfs @ 12.07 hrs, Volume= 2,426 cf, Depth= 1.01"

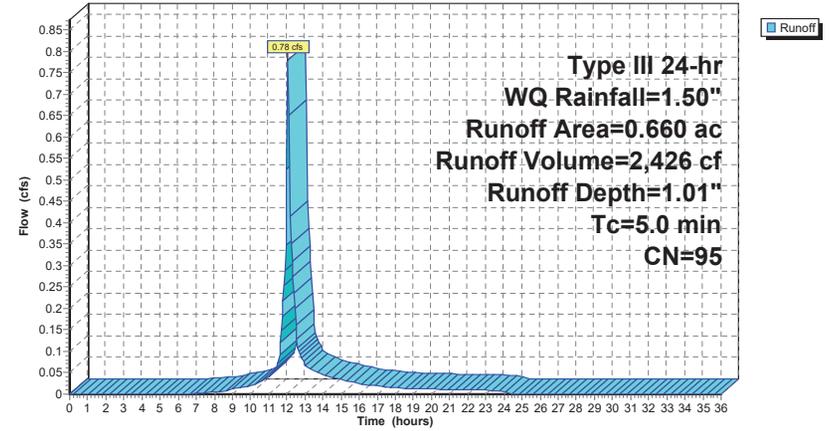
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.630	98	IMP
0.030	39	>75% Grass cover, Good, HSG A
0.660	95	Weighted Average
0.030		4.55% Pervious Area
0.630		95.45% Impervious Area

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

**Subcatchment C-5: MTD C-5**

Hydrograph



**2023-12-27 MTD Calculation**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment D-1: MTD D-1**

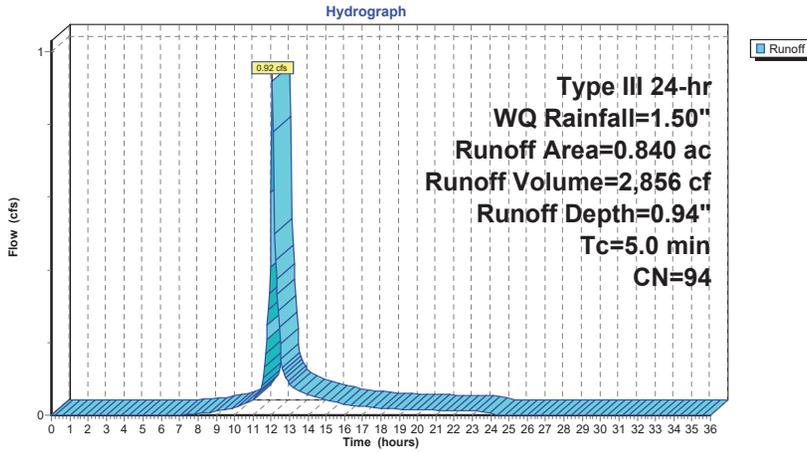
Runoff = 0.92 cfs @ 12.08 hrs, Volume= 2,856 cf, Depth= 0.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.630	98	IMP
0.210	80	>75% Grass cover, Good, HSG D
0.840	94	Weighted Average
0.210		25.00% Pervious Area
0.630		75.00% Impervious Area

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

**Subcatchment D-1: MTD D-1**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment D-2: MTD D-2**

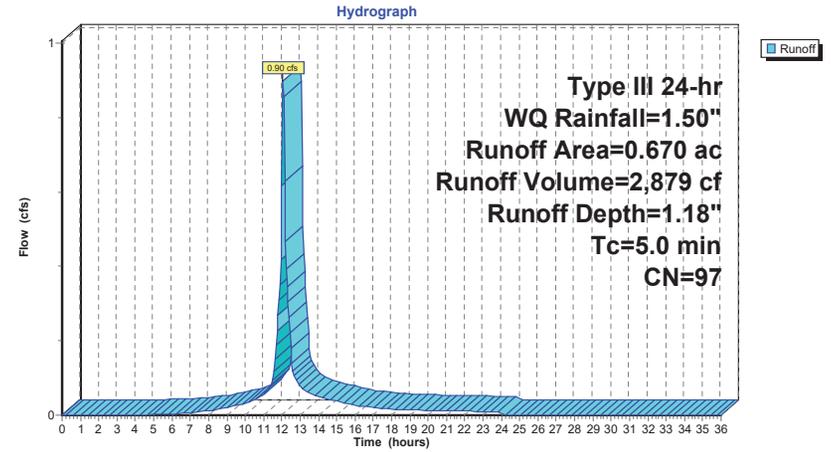
Runoff = 0.90 cfs @ 12.07 hrs, Volume= 2,879 cf, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.630	98	IMP
0.040	80	>75% Grass cover, Good, HSG D
0.670	97	Weighted Average
0.040		5.97% Pervious Area
0.630		94.03% Impervious Area

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

**Subcatchment D-2: MTD D-2**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment D-3: MTD D-3**

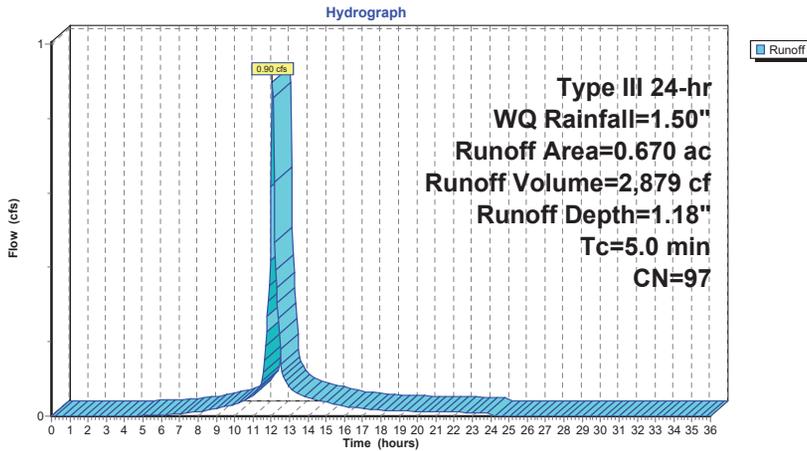
Runoff = 0.90 cfs @ 12.07 hrs, Volume= 2,879 cf, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.630	98	IMP
0.040	80	>75% Grass cover, Good, HSG D
0.670	97	Weighted Average
0.040		5.97% Pervious Area
0.630		94.03% Impervious Area

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

**Subcatchment D-3: MTD D-3**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment D-4: MTD D-4**

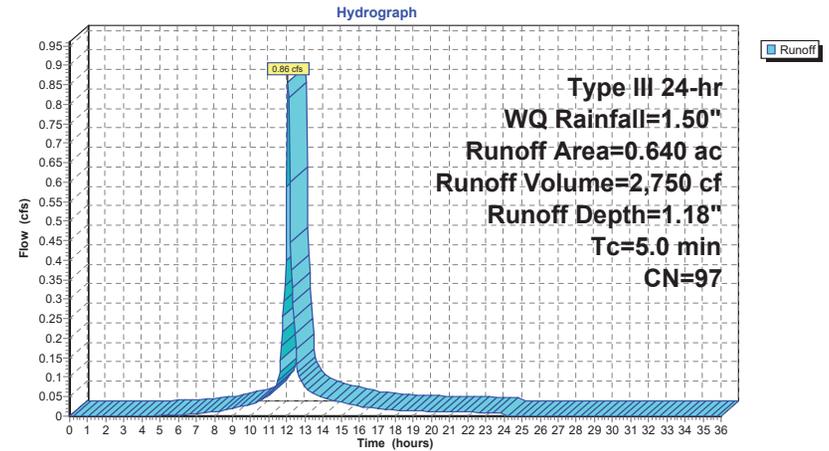
Runoff = 0.86 cfs @ 12.07 hrs, Volume= 2,750 cf, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.610	98	IMP
0.030	80	>75% Grass cover, Good, HSG D
0.640	97	Weighted Average
0.030		4.69% Pervious Area
0.610		95.31% Impervious Area

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

**Subcatchment D-4: MTD D-4**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment D-5: MTD D-5**

Runoff = 0.92 cfs @ 12.07 hrs, Volume= 2,965 cf, Depth= 1.18"

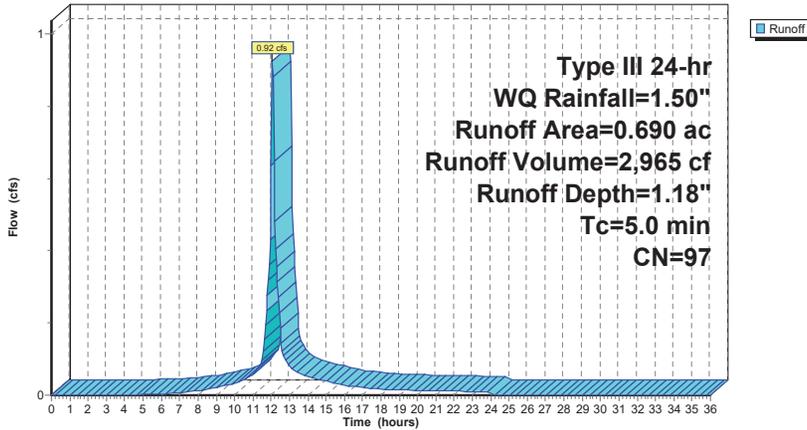
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.650	98	IMP
0.040	80	>75% Grass cover, Good, HSG D
0.690	97	Weighted Average
0.040		5.80% Pervious Area
0.650		94.20% Impervious Area

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

**Subcatchment D-5: MTD D-5**

Hydrograph



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment E-1: MTD E-1**

Runoff = 0.78 cfs @ 12.07 hrs, Volume= 2,426 cf, Depth= 1.01"

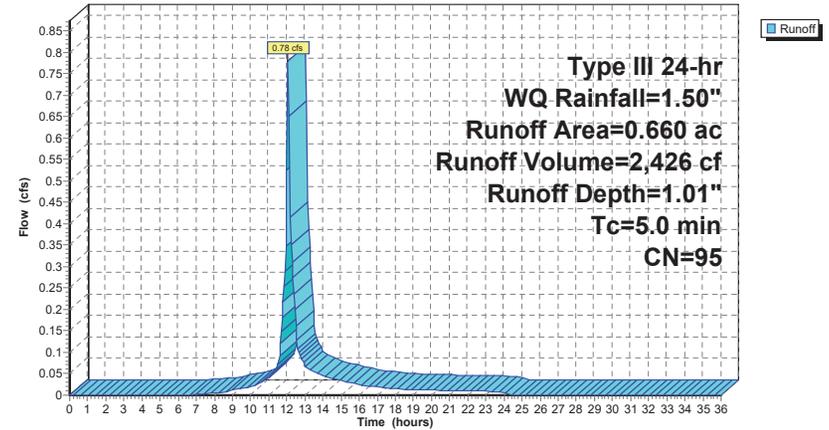
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.630	98	IMP
0.030	39	>75% Grass cover, Good, HSG A
0.660	95	Weighted Average
0.030		4.55% Pervious Area
0.630		95.45% Impervious Area

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

**Subcatchment E-1: MTD E-1**

Hydrograph



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment E-2: MTD E-2**

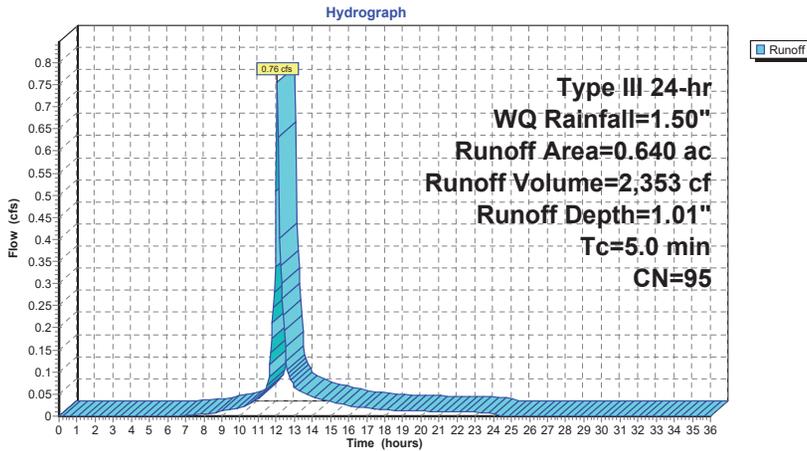
Runoff = 0.76 cfs @ 12.07 hrs, Volume= 2,353 cf, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.610	98	IMP
0.030	39	>75% Grass cover, Good, HSG A
0.640	95	Weighted Average
0.030		4.69% Pervious Area
0.610		95.31% Impervious Area

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

**Subcatchment E-2: MTD E-2**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment E-3: MTD E-3**

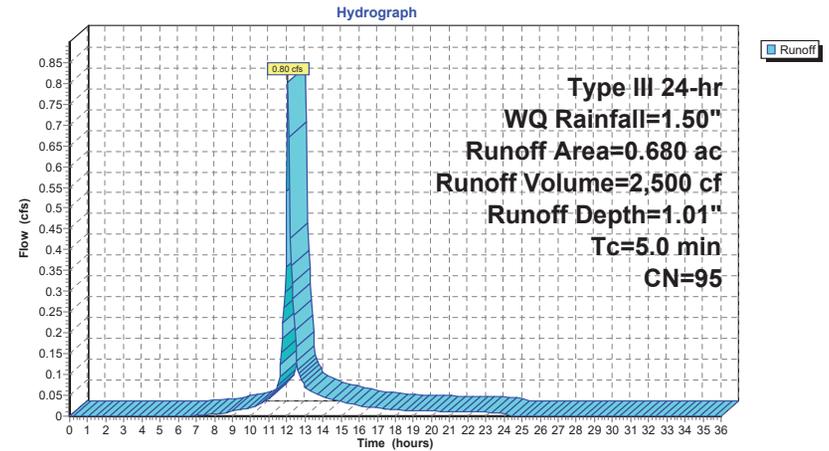
Runoff = 0.80 cfs @ 12.07 hrs, Volume= 2,500 cf, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.650	98	IMP
0.030	39	>75% Grass cover, Good, HSG A
0.680	95	Weighted Average
0.030		4.41% Pervious Area
0.650		95.59% Impervious Area

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

**Subcatchment E-3: MTD E-3**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment E-4: MTD E-4**

Runoff = 0.73 cfs @ 12.08 hrs, Volume= 2,278 cf, Depth= 0.94"

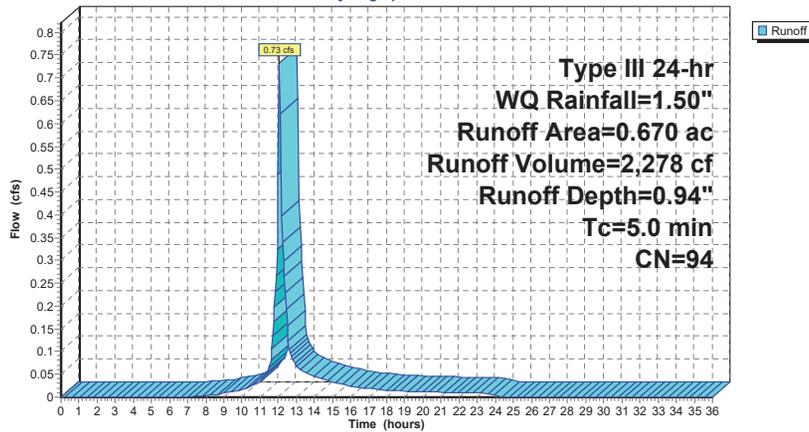
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.630	98	IMP
0.040	39	>75% Grass cover, Good, HSG A
0.670	94	Weighted Average
0.040		5.97% Pervious Area
0.630		94.03% Impervious Area

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

**Subcatchment E-4: MTD E-4**

Hydrograph



**2023-12-27 MTD Calculation**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment E-5: MTD E-5**

Runoff = 0.20 cfs @ 12.10 hrs, Volume= 807 cf, Depth= 0.26"

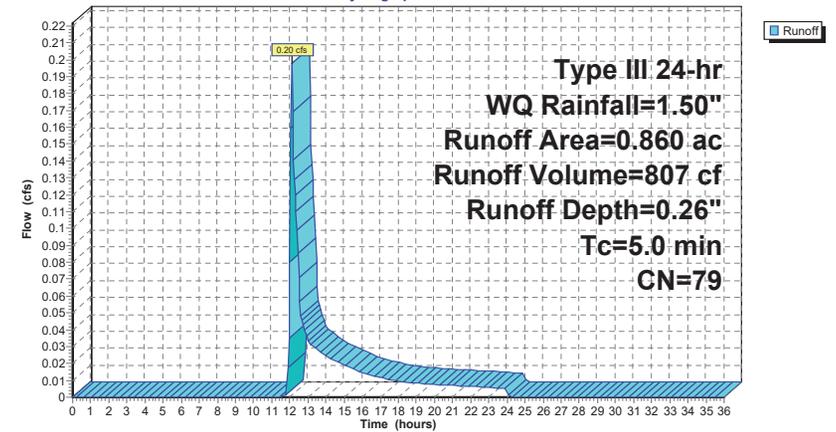
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.590	98	IMP
0.270	39	>75% Grass cover, Good, HSG A
0.860	79	Weighted Average
0.270		31.40% Pervious Area
0.590		68.60% Impervious Area

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

**Subcatchment E-5: MTD E-5**

Hydrograph



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment F-1: MTD F-1**

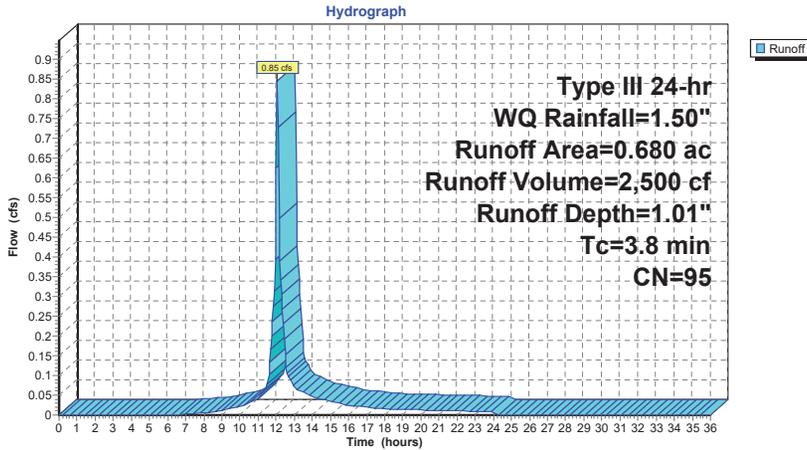
Runoff = 0.85 cfs @ 12.06 hrs, Volume= 2,500 cf, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.640	98	IMP
0.030	39	>75% Grass cover, Good, HSG A
0.010	80	>75% Grass cover, Good, HSG D
0.680	95	Weighted Average
0.040		5.88% Pervious Area
0.640		94.12% Impervious Area

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

**Subcatchment F-1: MTD F-1**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment F-2: MTD F-2**

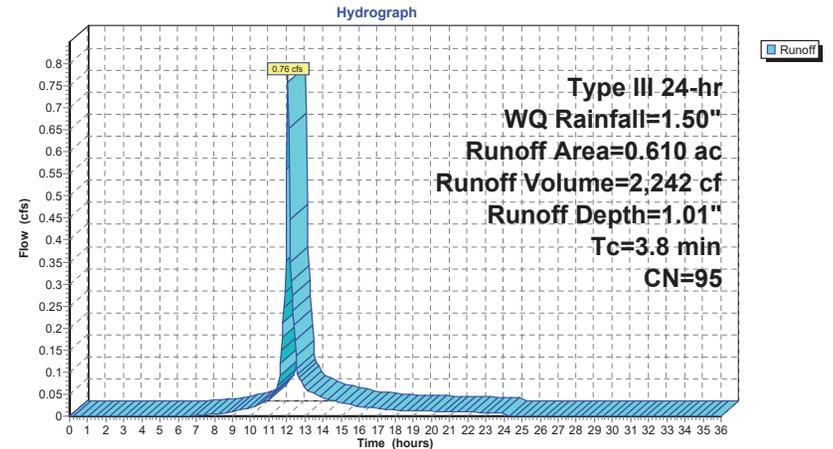
Runoff = 0.76 cfs @ 12.06 hrs, Volume= 2,242 cf, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.580	98	IMP
0.030	39	>75% Grass cover, Good, HSG A
0.610	95	Weighted Average
0.030		4.92% Pervious Area
0.580		95.08% Impervious Area

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

**Subcatchment F-2: MTD F-2**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment F-3: MTD F-3**

Runoff = 0.90 cfs @ 12.06 hrs, Volume= 2,647 cf, Depth= 1.01"

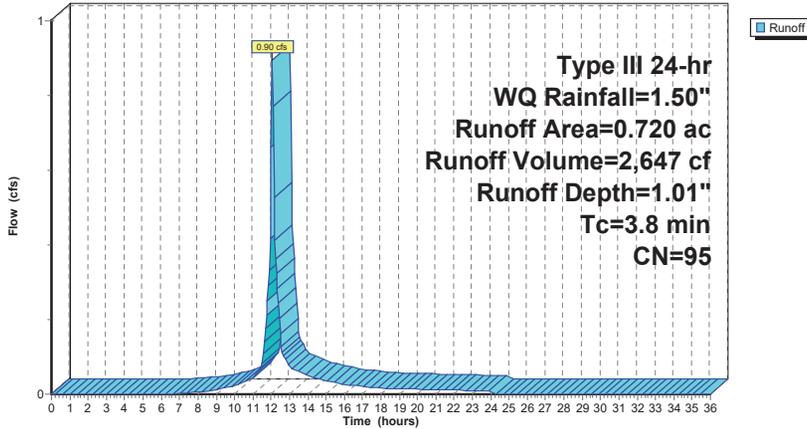
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.680	98	IMP
0.040	39	>75% Grass cover, Good, HSG A
0.720	95	Weighted Average
0.040		5.56% Pervious Area
0.680		94.44% Impervious Area

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

**Subcatchment F-3: MTD F-3**

Hydrograph



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment F-4: MTD F-4**

Runoff = 0.78 cfs @ 12.06 hrs, Volume= 2,278 cf, Depth= 0.94"

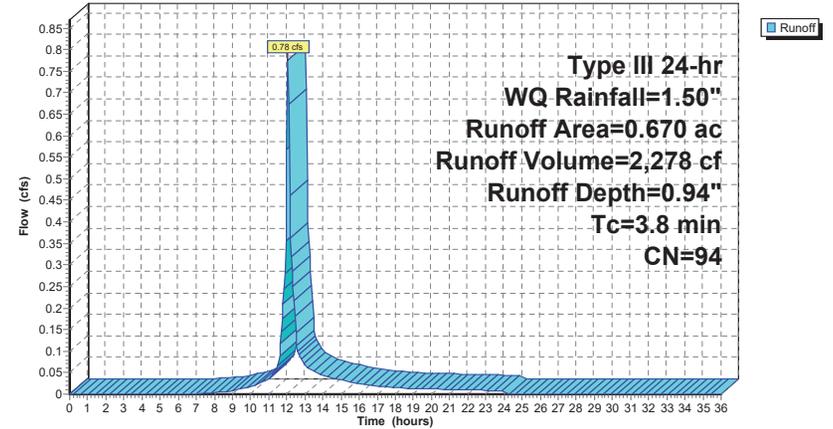
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.630	98	IMP
0.040	39	>75% Grass cover, Good, HSG A
0.670	94	Weighted Average
0.040		5.97% Pervious Area
0.630		94.03% Impervious Area

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

**Subcatchment F-4: MTD F-4**

Hydrograph



**2023-12-27 MTD Calculation**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment F-5: MTD F-5**

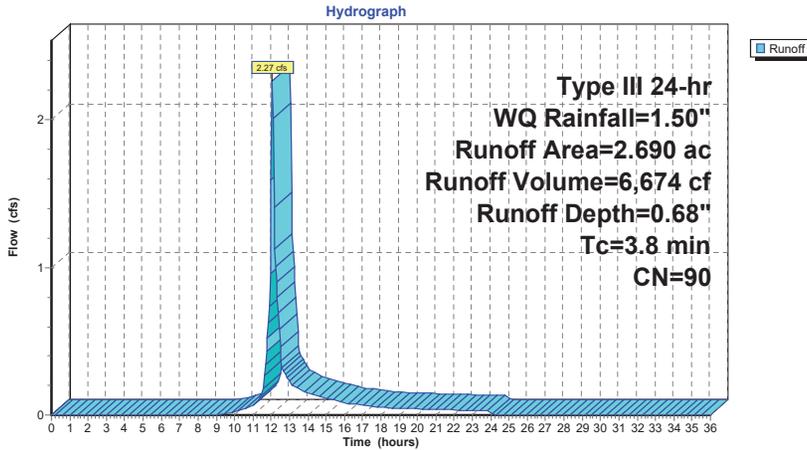
Runoff = 2.27 cfs @ 12.06 hrs, Volume= 6,674 cf, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 2.260	98	IMP
0.300	39	>75% Grass cover, Good, HSG A
0.130	74	>75% Grass cover, Good, HSG C
2.690	90	Weighted Average
0.430		15.99% Pervious Area
2.260		84.01% Impervious Area

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

**Subcatchment F-5: MTD F-5**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment H-1: MTD H-1**

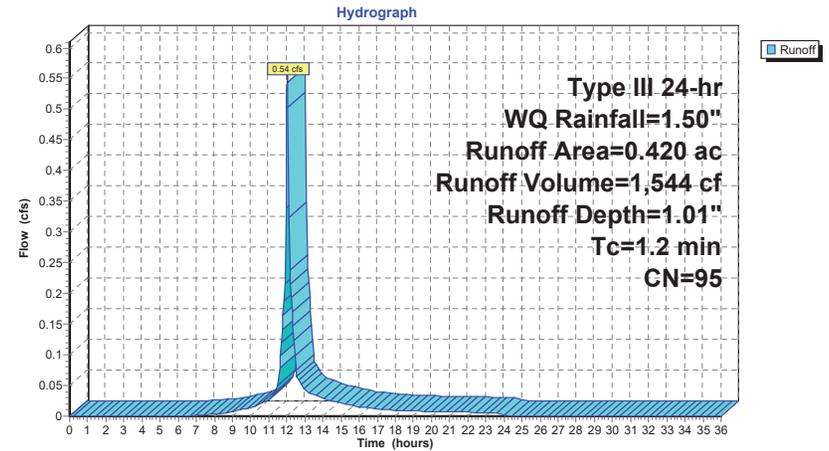
Runoff = 0.54 cfs @ 12.02 hrs, Volume= 1,544 cf, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.400	98	IMP
0.020	39	>75% Grass cover, Good, HSG A
0.420	95	Weighted Average
0.020		4.76% Pervious Area
0.400		95.24% Impervious Area

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

**Subcatchment H-1: MTD H-1**



**2023-12-27 MTD Calculation**

Prepared by Dynamic Engineering

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment K-1: MTD K-1**

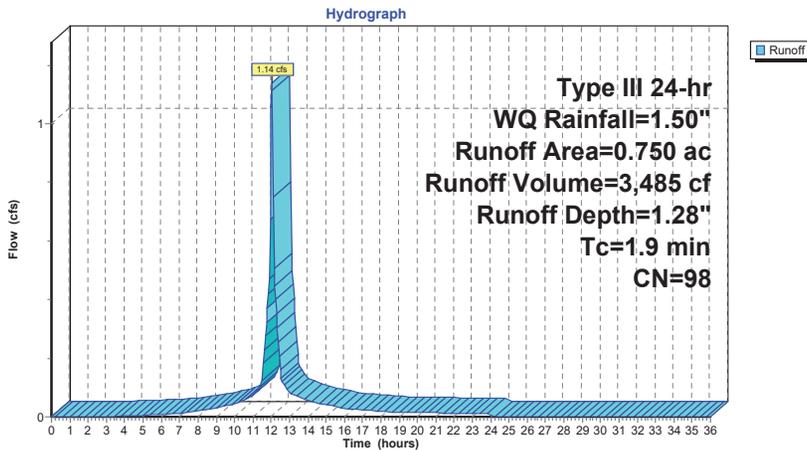
Runoff = 1.14 cfs @ 12.03 hrs, Volume= 3,485 cf, Depth= 1.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.750	98	IMP
0.750		100.00% Impervious Area

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

**Subcatchment K-1: MTD K-1**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment K-2: MTD K-2**

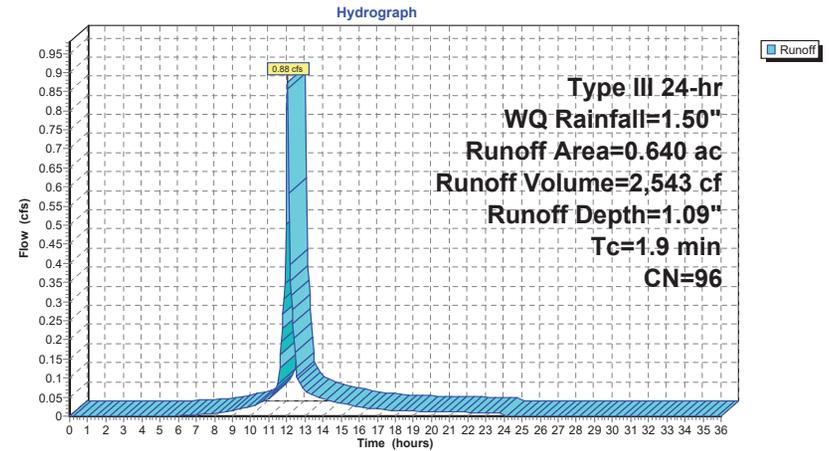
Runoff = 0.88 cfs @ 12.03 hrs, Volume= 2,543 cf, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.620	98	IMP
0.020	39	>75% Grass cover, Good, HSG A
0.640	96	Weighted Average
0.020		3.13% Pervious Area
0.620		96.88% Impervious Area

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

**Subcatchment K-2: MTD K-2**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment K-3: MTD K-3**

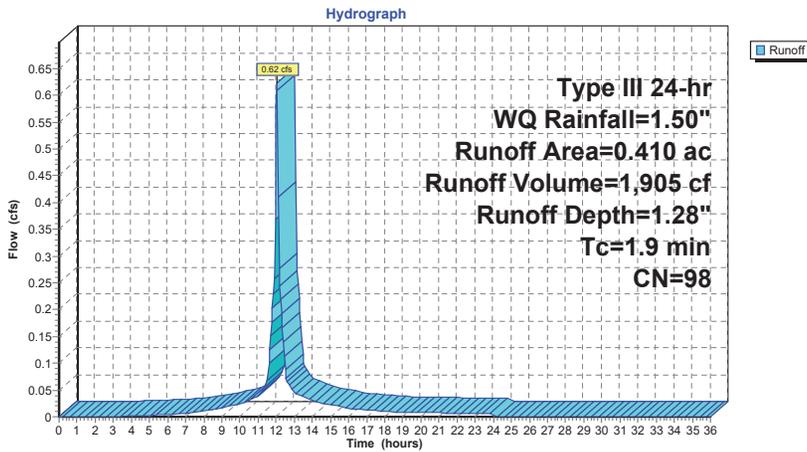
Runoff = 0.62 cfs @ 12.03 hrs, Volume= 1,905 cf, Depth= 1.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 0.410	98	IMP
0.410		100.00% Impervious Area

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

**Subcatchment K-3: MTD K-3**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment M-1: MTD M-1**

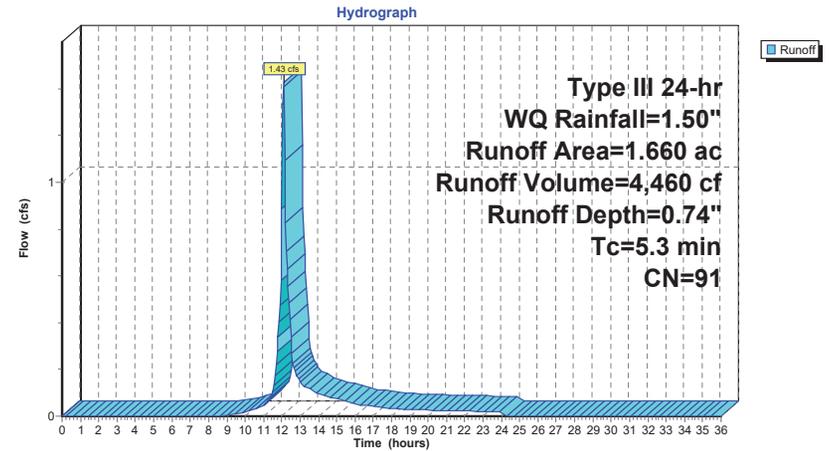
Runoff = 1.43 cfs @ 12.08 hrs, Volume= 4,460 cf, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
* 1.460	98	IMP
0.200	39	>75% Grass cover, Good, HSG A
1.660	91	Weighted Average
0.200		12.05% Pervious Area
1.460		87.95% Impervious Area

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

**Subcatchment M-1: MTD M-1**



**2023-12-27 MTD Calculation**

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Type III 24-hr WQ Rainfall=1.50"

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**Summary for Subcatchment M-2: MTD M-2**

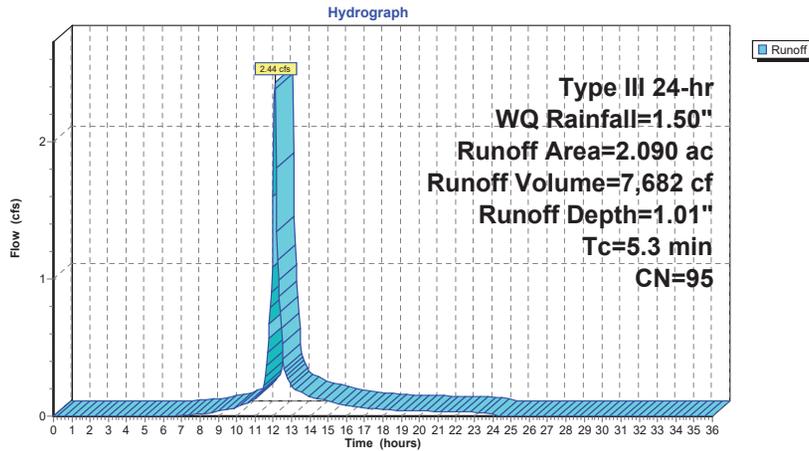
Runoff = 2.44 cfs @ 12.08 hrs, Volume= 7,682 cf, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
 Type III 24-hr WQ Rainfall=1.50"

Area (ac)	CN	Description
1.990	98	IMP
0.100	39	>75% Grass cover, Good, HSG A
2.090	95	Weighted Average
0.100		4.78% Pervious Area
1.990		95.22% Impervious Area

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

**Subcatchment M-2: MTD M-2**



**STORMWATER CONVEYANCE SYSTEM CAPACITY  
ANALYSIS**



## Stormwater Conveyance System Capacity Analysis

Project: Brookfield Properties, LLC      Computed By: JSK  
 Job #: 3709-99-004                      Checked By: JZ/ZK  
 Location: Suffern, NY                      Date: 1/18/2022  
 Design Storm: 100-year                      Revised: 1/12/2024

NOTES:  
 1) Design method used is Rational Method  
 2) Refer to Weighted Runoff Coefficient table for calculation of incremental areas and C values for all subcatchment areas with multiple surface runoff  
 3) A Runoff Coefficient of 95 has been utilized for all subcatchment areas consisting solely of impervious surface runoff.  
 4) Q from all OCS obtained from 100-YR outflow hydrograph for the respective stormwater management practice

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Full Pipe Velocity (fps)
BASIN A																	
A-R-1	Y-A-1	0.61	0.95	0.58	0.58	10	0.18	10	8.15	4.73	4.73	15	52	0.012	0.0071	5.89	4.8
A-R-2	Y-A-1	0.41	0.95	0.39	0.39	10	0.31	10	8.15	3.18	3.18	15	74	0.012	0.005	4.95	4.04
Y-A-1	A-1	0	0.00	0.00	0.97	10	0.29	10.31	8.15	0.00	7.91	18	78	0.012	0.005	8.04	4.55
A-3	A-2	0.38	0.95	0.36	0.36	10	0.52	10	8.15	2.93	2.93	15	126	0.012	0.005	4.95	4.04
A-2	A-1	0.38	0.95	0.36	0.72	10	0.46	10.52	7.97	2.87	5.74	18	126	0.012	0.005	8.04	4.55
A-1	FB-A-1	0.38	0.95	0.36	2.05	10	0.05	10.98	7.97	2.87	16.35	24	15	0.012	0.005	17.33	5.52
A-R-3	Y-A-2	0.61	0.95	0.58	0.58	10	0.16	10	8.15	4.73	4.73	15	47	0.012	0.0071	5.89	4.8
A-R-4	Y-A-2	0.41	0.95	0.39	0.39	10	0.31	10	8.15	3.18	3.18	15	74	0.012	0.005	4.95	4.04
Y-A-2	A-5	0	0.00	0.00	0.97	10	0.29	10.31	8.15	0.00	7.91	18	78	0.012	0.005	8.04	4.55
A-4	A-5	0.38	0.95	0.36	0.36	10	0.52	10	8.15	2.93	2.93	15	126	0.012	0.005	4.95	4.04
A-5	FB-A-2	0.59	0.94	0.55	1.88	10	0.05	10.6	7.97	4.39	14.99	24	15	0.012	0.005	17.33	5.52
OCS-A	MH-A-1	0	0.00	0.00	0.00	10	0.24	10	8.15	6.93	6.93	18	133	0.012	0.02	16.09	9.11
MH-A-1	MH-A-2	0	0.00	0.00	0.00	10	0.28	13.57	6.92	0.00	17.43	36	120	0.012	0.005	51.09	7.23
MH-A-2	MH-A-3	0	0.00	0.00	0.00	10	0.5	13.85	6.92	0.00	17.43	36	218	0.012	0.005	51.09	7.23
MH-A-3	MH-C-1	0	0.00	0.00	0.00	10	0.38	14.35	6.74	0.00	16.99	36	167	0.012	0.005	51.09	7.23
BASIN B																	
B-1	B-2	0.13	0.84	0.11	0.11	10	0.63	10	8.15	0.90	0.9	12	132	0.012	0.005	2.73	3.48
B-2	B-3	0.13	0.84	0.11	0.22	10	0.63	10.63	7.97	0.88	1.75	12	132	0.012	0.005	2.73	3.48
B-3	B-4	0.13	0.84	0.11	0.33	10	0.63	11.26	7.80	0.86	2.57	12	132	0.012	0.005	2.73	3.48
B-4	B-5	0.13	0.84	0.11	0.44	10	0.54	11.89	7.62	0.84	3.35	15	132	0.012	0.005	4.95	4.04
B-5	B-6	0.13	0.84	0.11	0.55	10	0.54	12.43	7.45	0.82	4.1	15	132	0.012	0.005	4.95	4.04
B-6	B-7	0.13	0.84	0.11	0.66	10	0.54	12.97	7.27	0.80	4.8	15	132	0.012	0.005	4.95	4.04

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Full Pipe Velocity (fps)
B-7	B-8	0.13	0.84	0.11	0.77	10	0.48	13.51	6.92	0.76	5.33	18	132	0.012	0.005	8.04	4.55
B-8	B-9	0.13	0.84	0.11	0.88	10	0.48	13.99	6.92	0.76	6.09	18	132	0.012	0.005	8.04	4.55
B-9	MH-B-1	0.23	0.65	0.15	1.03	10	0.26	14.47	6.74	1.01	6.94	18	71	0.012	0.005	8.04	4.55
MH-B-1	FB-B	0	0.00	0.00	1.03	10	0.09	14.73	6.57	0.00	6.76	18	24	0.012	0.005	8.04	4.55
OCS-B	MH-B-2	0	0.00	0.00	0.00	10	0.03	10	8.15	1.14	1.14	18	11	0.012	0.01	11.38	6.44
MH-B-2	HDWL-B	0	0.00	0.00	0.00	10	0.03	15.32	6.39	0.00	18.66	36	24	0.012	0.021	104.7	14.82
BASIN C																	
C-1	C-2	0.12	0.84	0.10	0.10	10	0.15	10	8.15	0.82	0.82	15	31	0.012	0.0035	4.14	3.38
C-2	BASIN-C	0.24	0.77	0.18	0.28	10	0.58	10.15	8.15	1.47	2.28	15	140	0.012	0.005	4.95	4.04
MTD-C-1	BASIN-C	0.76	0.81	0.62	0.62	10	0.13	10	8.15	5.05	5.05	15	45	0.012	0.01	7	5.71
C-R-1	Y-C-1	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
C-R-2	Y-C-1	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
Y-C-1	BASIN-C	0	0.00	0.00	0.78	10	0.19	10.34	8.15	0.00	6.36	18	57	0.012	0.006	8.81	4.99
MTD-C-2	BASIN-C	0.64	0.95	0.61	0.61	10	0.13	10	8.15	4.97	4.97	15	45	0.012	0.01	7	5.71
C-R-3	Y-C-2	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
C-R-4	Y-C-2	0.41	0.95	0.39	0.39	10	0.18	10	8.15	3.18	3.18	15	53	0.012	0.0071	5.89	4.8
Y-C-2	BASIN-C	0	0.00	0.00	0.78	10	0.19	10.34	8.15	0.00	6.36	18	57	0.012	0.006	8.81	4.99
MTD-C-3	BASIN-C	0.64	0.95	0.61	0.61	10	0.13	10	8.15	4.97	4.97	15	45	0.012	0.01	7	5.71
C-R-5	Y-C-3	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
C-R-6	Y-C-3	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-C-3	BASIN-C	0	0.00	0.00	0.78	10	0.19	10.34	8.15	0.00	6.36	18	57	0.012	0.006	8.81	4.99
C-R-7	BASIN-C	0.41	0.95	0.39	0.39	10	0.42	10	8.15	3.18	3.18	15	115	0.012	0.0065	5.64	4.6
MTD-C-4	BASIN-C	0.64	0.95	0.61	0.61	10	0.13	10	8.15	4.97	4.97	15	45	0.012	0.01	7	5.71
C-R-8	Y-C-4	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
C-R-9	Y-C-4	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-C-4	BASIN-C	0	0.00	0.00	0.78	10	0.19	10.34	8.15	0.00	6.36	18	57	0.012	0.006	8.81	4.99
C-R-10	Y-C-5	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
C-R-11	Y-C-5	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-C-5	BASIN-C	0	0.00	0.00	0.78	10	0.19	10.34	8.15	0.00	6.36	18	57	0.012	0.006	8.81	4.99
MTD-C-5	BASIN-C	0.64	0.95	0.61	0.61	10	0.13	10	8.15	4.97	4.97	15	45	0.012	0.01	7	5.71
C-R-12	BASIN-C	0.41	0.95	0.39	0.39	10	0.42	10	8.15	3.18	3.18	15	115	0.012	0.0065	5.64	4.6

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Full Pipe Velocity (fps)
OCS-C	MH-C-1	0	0.00	0.00	0.00	10	0.26	10	8.15	2.12	2.12	18	125	0.012	0.015	13.93	7.89
MH-C-1	MH-C-2	0	0.00	0.00	0.00	10	0.18	14.73	6.57	0.00	18.25	36	80	0.012	0.005	51.09	7.23
MH-C-2	MH-C-3	0	0.00	0.00	0.00	10	0.12	14.91	6.57	0.00	18.25	36	51	0.012	0.005	51.09	7.23
MH-C-3	MH-B-2	0	0.00	0.00	0.00	10	0.29	15.03	6.39	0.00	17.76	36	127	0.012	0.005	51.09	7.23
BASIN D																	
MTD-D-1	BASIN-D	0.86	0.79	0.68	0.68	10	0.07	10	8.15	5.54	5.54	15	24	0.012	0.01	7	5.71
D-R-1	Y-D-1	0.41	0.95	0.39	0.39	10	0.21	10	8.15	3.18	3.18	15	52	0.012	0.005	4.95	4.04
D-R-2	Y-D-1	0.41	0.95	0.39	0.39	10	0.18	10	8.15	3.18	3.18	15	53	0.012	0.0071	5.89	4.8
Y-D-1	BASIN-D	0	0.00	0.00	0.78	10	0.13	10.21	8.15	0.00	6.36	18	36	0.012	0.0052	8.2	4.64
MTD-D-2	BASIN-D	0.67	0.92	0.62	0.62	10	0.07	10	8.15	5.05	5.05	15	24	0.012	0.01	7	5.71
D-R-3	Y-D-2	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
D-R-4	Y-D-2	0.41	0.95	0.39	0.39	10	0.18	10	8.15	3.18	3.18	15	53	0.012	0.0071	5.89	4.8
Y-D-2	BASIN-D	0	0.00	0.00	0.78	10	0.13	10.34	8.15	0.00	6.36	18	36	0.012	0.0052	8.2	4.64
MTD-D-3	BASIN-D	0.67	0.92	0.62	0.62	10	0.07	10	8.15	5.05	5.05	15	24	0.012	0.01	7	5.71
D-R-5	Y-D-3	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
D-R-6	Y-D-3	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-D-3	BASIN-D	0	0.00	0.00	0.78	10	0.13	10.34	8.15	0.00	6.36	18	36	0.012	0.0052	8.2	4.64
D-R-7	BASIN-D	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	94	0.012	0.0064	5.6	4.57
MTD-D-4	BASIN-D	0.67	0.92	0.62	0.62	10	0.07	10	8.15	5.05	5.05	15	24	0.012	0.01	7	5.71
D-R-8	Y-D-4	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
D-R-9	Y-D-4	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-D-4	BASIN-D	0	0.00	0.00	0.78	10	0.13	10.34	8.15	0.00	6.36	18	36	0.012	0.0052	8.2	4.64
D-R-10	Y-D-5	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
D-R-11	Y-D-5	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-D-5	BASIN-D	0	0.00	0.00	0.78	10	0.13	10.34	8.15	0.00	6.36	18	36	0.012	0.0052	8.2	4.64
MTD-D-5	BASIN-D	0.67	0.92	0.62	0.62	10	0.07	10	8.15	5.05	5.05	15	24	0.012	0.0103	7.1	5.79
OCS-D	MH-D-1	0	0.00	0.00	0.00	10	0.27	12.34	7.45	3.20	12.43	24	90	0.012	0.005	17.33	5.52
MH-D-1	MH-D-2	0	0.00	0.00	0.00	10	0.66	12.61	7.27	0.00	12.14	24	218	0.012	0.005	17.33	5.52
MH-D-2	MH-A-1	0	0.00	0.00	0.00	10	0.3	13.27	7.09	0.00	11.85	24	98	0.012	0.005	17.33	5.52
BASIN E																	
E-R-1	Y-E-1	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Full Pipe Velocity (fps)
E-R-2	Y-E-1	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-E-1	BASIN-E	0	0.00	0.00	0.78	10	0.13	10.34	8.15	0.00	6.36	18	40	0.012	0.006	8.81	4.99
MTD-E-1	BASIN-E	0.64	0.95	0.61	0.61	10	0.08	10	8.15	4.97	4.97	15	28	0.012	0.01	7	5.71
E-R-3	Y-E-2	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
E-R-4	Y-E-2	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-E-2	BASIN-E	0	0.00	0.00	0.78	10	0.13	10.34	8.15	0.00	6.36	18	40	0.012	0.006	8.81	4.99
MTD-E-2	BASIN-E	0.64	0.95	0.61	0.61	10	0.08	10	8.15	4.97	4.97	15	28	0.012	0.01	7	5.71
E-R-5	Y-E-3	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
E-R-6	Y-E-3	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-E-3	BASIN-E	0	0.00	0.00	0.78	10	0.13	10.34	8.15	0.00	6.36	18	40	0.012	0.006	8.81	4.99
MTD-E-3	BASIN-E	0.64	0.95	0.61	0.61	10	0.08	10	8.15	4.97	4.97	15	28	0.012	0.01	7	5.71
E-R-7	Y-E-4	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
E-R-8	Y-E-4	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-E-4	BASIN-E	0	0.00	0.00	0.78	10	0.13	10.34	8.15	0.00	6.36	18	40	0.012	0.006	8.81	4.99
MTD-E-4	BASIN-E	0.64	0.95	0.61	0.61	10	0.08	10	8.15	4.97	4.97	15	28	0.012	0.01	7	5.71
E-R-9	Y-E-5	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
E-R-10	Y-E-5	0.41	0.95	0.39	0.39	10	0.23	10	8.15	3.18	3.18	12	58	0.012	0.0071	3.25	4.14
Y-E-5	BASIN-E	0	0.00	0.00	0.78	10	0.13	10.34	8.15	0.00	6.36	18	40	0.012	0.006	8.81	4.99
E-R-11	Y-E-6	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
E-R-12	Y-E-6	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
Y-E-6	BASIN-E	0	0.00	0.00	0.78	10	0.13	10.34	8.15	0.00	6.36	18	40	0.012	0.006	8.81	4.99
MTD-E-5	BASIN-E	0.86	0.78	0.67	0.67	10	0.19	10	8.15	5.46	5.46	15	64	0.012	0.01	7	5.71
OCS-E	MH-E-1	0	0.00	0.00	0.00	10	0.13	10	8.15	7.82	7.82	18	73	0.012	0.02	16.09	9.11
MH-E-1	MH-G-1	0	0.00	0.00	0.00	10	0.06	11.17	7.80	0.00	12.71	24	30	0.012	0.01	24.5	7.8
BASIN F																	
F-R-1	Y-F-1	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
F-R-2	Y-F-1	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-F-1	BASIN-F	0	0.00	0.00	0.78	10	0.17	10.34	8.15	0.00	6.36	18	51	0.012	0.0057	8.59	4.86
MTD-F-1	BASIN-F	0.67	0.92	0.62	0.62	10	0.11	10	8.15	5.05	5.05	15	39	0.012	0.01	7	5.71
F-R-3	Y-F-2	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
F-R-4	Y-F-2	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Full Pipe Velocity (fps)
Y-F-2	BASIN-F	0	0.00	0.00	0.78	10	0.17	10.34	8.15	0.00	6.36	18	51	0.012	0.0057	8.59	4.86
MTD-F-2	BASIN-F	0.64	0.92	0.59	0.59	10	0.11	10	8.15	4.81	4.81	15	39	0.012	0.01	7	5.71
F-R-5	Y-F-3	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
F-R-6	Y-F-3	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-F-3	BASIN-F	0	0.00	0.00	0.78	10	0.17	10.34	8.15	0.00	6.36	18	51	0.012	0.0057	8.59	4.86
F-R-7	Y-F-4	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
F-R-8	Y-F-4	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-F-4	BASIN-F	0	0.00	0.00	0.78	10	0.17	10.34	8.15	0.00	6.36	18	51	0.012	0.0057	8.59	4.86
MTD-F-3	BASIN-F	0.67	0.92	0.62	0.62	10	0.11	10	8.15	5.05	5.05	15	39	0.012	0.01	7	5.71
F-R-9	Y-F-5	0.41	0.95	0.39	0.39	10	0.34	10	8.15	3.18	3.18	15	82	0.012	0.005	4.95	4.04
F-R-10	Y-F-5	0.41	0.95	0.39	0.39	10	0.2	10	8.15	3.18	3.18	15	58	0.012	0.0071	5.89	4.8
Y-F-5	BASIN-F	0	0.00	0.00	0.78	10	0.17	10.34	8.15	0.00	6.36	18	51	0.012	0.0057	8.59	4.86
MTD-F-4	BASIN-E	0.67	0.92	0.62	0.62	10	0.11	10	8.15	5.05	5.05	15	39	0.012	0.01	7	5.71
F-R-11	BASIN-F	0.41	0.95	0.39	0.39	10	0.45	10	8.15	3.18	3.18	15	109	0.012	0.005	4.95	4.04
F-1	F-2	0.25	0.81	0.20	0.20	10	0.68	10	8.15	1.63	1.63	15	166	0.012	0.005	4.95	4.04
F-2	F-3	0.25	0.75	0.19	0.39	10	0.3	10.68	7.97	1.52	3.11	15	73	0.012	0.005	4.95	4.04
F-3	F-4	0.11	0.79	0.09	0.48	10	0.23	10.98	7.97	0.72	3.83	15	56	0.012	0.005	4.95	4.04
F-4	MH-F-1	0.21	0.91	0.19	0.67	10	0.21	11.21	7.80	1.48	5.22	18	58	0.012	0.005	8.04	4.55
F-R-15	Y-F-6	0.51	0.95	0.48	0.48	10	0.34	10	8.15	3.91	3.91	15	82	0.012	0.005	4.95	4.04
F-R-14	Y-F-6	0.41	0.95	0.39	0.39	10	0.25	10	8.15	3.18	3.18	15	58	0.012	0.0045	4.69	3.82
Y-F-6	MH-F-1	0	0.00	0.00	0.87	10	0.04	10.34	8.15	0.00	7.09	18	12	0.012	0.005	8.04	4.55
MH-F-1	F-5	0	0.00	0.00	1.54	10	0.07	11.42	7.80	0.00	12.01	24	33	0.012	0.01	24.5	7.8
F-5	MTD-F-5	0.88	0.77	0.68	2.22	10	0.16	11.49	7.80	5.30	17.31	24	90	0.012	0.015	30.01	9.56
MTD-F-5	BASIN-F	0	0.00	0.00	2.22	10	0.02	11.65	7.62	0.00	16.92	24	10	0.012	0.015	30.01	9.56
F-R-13	MH-F-2	0.41	0.95	0.39	0.39	10	0.13	10	8.15	3.18	3.18	15	45	0.012	0.0095	6.82	5.56
F-R-12	MH-F-2	0.41	0.95	0.39	0.39	10	0.31	10	8.15	3.18	3.18	15	77	0.012	0.0051	5	4.08
MH-F-2	BASIN-F	0	0.00	0.00	0.78	10	0.1	10.31	8.15	0.00	6.36	18	40	0.012	0.01	11.38	6.44
OCS-F	MH-F-3	0	0.00	0.00	0.00	10	1.04	10	8.15	10.11	10.11	24	345	0.012	0.005	17.33	5.52
MH-F-3	MH-F-4	0	0.00	0.00	0.00	10	1.07	11.04	7.80	0.98	9.67	24	355	0.012	0.005	17.33	5.52
MH-F-4	OCS-D	0	0.00	0.00	0.00	10	0.23	12.11	7.45	0.98	9.23	24	75	0.012	0.005	17.33	5.52
<b>BASIN G</b>																	
G-1	G-2	0.13	0.84	0.11	0.11	10	0.54	10	8.15	0.90	0.9	15	132	0.012	0.005	4.95	4.04

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Full Pipe Velocity (fps)
G-2	G-3	0.13	0.82	0.11	0.22	10	0.54	10.54	7.97	0.88	1.75	15	132	0.012	0.005	4.95	4.04
G-3	FB-G	0.19	0.95	0.18	0.40	10	0.06	11.08	7.80	1.40	3.12	15	15	0.012	0.005	4.95	4.04
OCS-G	MH-G-1	0	0.00	0.00	0.00	10	0.05	10	8.15	0.24	0.24	18	20	0.012	0.01	11.38	6.44
MH-G-1	HDWL-G	0	0.00	0.00	0.00	10	0.06	11.23	7.80	0.24	12.94	24	20	0.012	0.006	18.98	6.04
BASIN H																	
H-R-1	BASIN-H	0.41	0.95	0.39	0.39	10	0.21	10	8.15	3.18	3.18	15	50	0.012	0.005	4.95	4.04
H-R-2	BASIN-H	0.51	0.95	0.48	0.48	10	0.06	10	8.15	3.91	3.91	15	20	0.012	0.01	7	5.71
H-1	MTD-H-1	0.2	0.91	0.19	0.19	10	0.17	10	8.15	1.55	1.55	15	81	0.012	0.02	9.89	8.06
MTD-H-1	BASIN-H	0.21	0.93	0.20	0.39	10	0.01	10.17	8.15	1.63	3.18	15	7	0.012	0.02	9.89	8.06
OCS-H	MH-H-1	0	0.00	0.00	0.00	10	0.1	10	8.15	3.91	3.91	18	53	0.012	0.02	16.09	9.11
MH-H-1	MH-E-1	0	0.00	0.00	0.00	10	0.51	10.66	7.97	3.91	5.34	24	241	0.012	0.01	24.5	7.8
BASIN I																	
OCS-I	MH-I-1	0	0.00	0.00	0.00	10	0.05	10	8.15	1.55	1.55	18	32	0.012	0.0287	19.27	10.91
MH-I-1	MH-H-1	0	0.00	0.00	0.00	10	0.61	10.05	8.15	0.00	1.55	18	237	0.012	0.01	11.38	6.44
BASIN K																	
K-1	K-2	0.09	0.95	0.09	0.09	10	0.27	10	8.15	0.73	0.73	12	56	0.012	0.005	2.73	3.48
K-2	MH-K-1	0.07	0.95	0.07	0.16	10	0.22	10.27	8.15	0.57	1.3	12	45	0.012	0.005	2.73	3.48
MH-K-1	MH-K-2	0	0.00	0.00	0.16	10	0.25	10.49	8.15	0.00	1.3	12	52	0.012	0.005	2.73	3.48
MH-K-2	K-3	0	0.00	0.00	0.16	10	0.5	10.74	7.97	0.00	1.28	12	105	0.012	0.005	2.73	3.48
K-3	MTD-K-2	0.26	0.95	0.25	0.41	10	0.56	11.24	7.80	1.95	3.2	15	150	0.012	0.0061	5.46	4.45
MTD-K-2	MH-K-3	0.28	0.95	0.27	0.68	10	0.18	11.8	7.62	2.06	5.18	15	60	0.012	0.0097	6.89	5.62
MH-K-3	MH-K-4	0	0.00	0.00	0.68	10	0.07	11.98	7.62	0.00	5.18	15	27	0.012	0.0125	7.82	6.38
MH-K-R-1	MH-K-R-2	0	0.00	0.00	0.36	10	0.23	10.05	8.15	0.00	2.93	15	56	0.012	0.005	4.95	4.04
K-R-2	MH-K-R-2	0.18	0.95	0.17	0.17	10	0.05	10	8.15	1.39	1.39	15	13	0.012	0.005	4.95	4.04
MH-K-R-2	MH-K-R-3	0	0.00	0.00	0.53	10	0.23	10.28	8.15	0.00	4.32	15	56	0.012	0.005	4.95	4.04
K-R-3	MH-K-R-3	0.18	0.95	0.17	0.17	10	0.05	10	8.15	1.39	1.39	15	13	0.012	0.005	4.95	4.04
MH-K-R-3	MH-K-R-4	0	0.00	0.00	0.70	10	0.21	10.51	7.97	0.00	5.58	18	56	0.012	0.005	8.04	4.55
K-R-4	MH-K-R-4	0.27	0.95	0.26	0.26	10	0.05	10	8.15	2.12	2.12	15	13	0.012	0.005	4.95	4.04
MH-K-R-4	MH-K-4	0	0.00	0.00	0.96	10	0.24	10.72	7.97	0.00	7.66	18	66	0.012	0.005	8.04	4.55
MH-K-4	MH-K-5	0	0.00	0.00	1.64	10	0.58	12.05	7.45	0.00	12.21	24	303	0.012	0.0125	27.39	8.72
MH-K-5	MH-K-6	0	0.00	0.00	1.64	10	0.13	12.63	7.27	0.00	11.92	24	66	0.012	0.0125	27.39	8.72
K-R-5	MH-K-6	0.27	0.95	0.26	0.26	10	0.04	10	8.15	2.12	2.12	15	10	0.012	0.005	4.95	4.04
MH-K-6	MH-K-7	0	0.00	0.00	1.90	10	0.11	12.76	7.27	0.00	13.81	24	56	0.012	0.0125	27.39	8.72
K-R-6	MH-K-7	0.36	0.95	0.34	0.34	10	0.04	10	8.15	2.77	2.77	15	10	0.012	0.005	4.95	4.04
MH-K-7	BASIN-K	0	0.00	0.00	2.24	10	0.11	12.87	7.27	0.00	16.28	24	55	0.012	0.0125	27.39	8.72

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Full Pipe Velocity (fps)
K-R-7	BASIN-K	0.38	0.95	0.36	0.36	10	0.19	10	8.15	2.93	2.93	15	65	0.012	0.01	7	5.71
MTD-K-3	BASIN-K	0.42	0.95	0.40	0.40	10	0.17	10	8.15	3.26	3.26	12	80	0.012	0.0257	6.18	7.87
K-4	MH-K-8	0.17	0.95	0.16	0.16	10	0.93	10	8.15	1.30	1.3	12	195	0.012	0.005	2.73	3.48
MH-K-8	MTD-K-1	0	0.00	0.00	0.16	10	0.43	10.93	7.97	0.00	1.28	12	90	0.012	0.005	2.73	3.48
MTD-K-1	BASIN-K	0.56	0.95	0.53	0.69	10	0.04	11.36	7.80	4.13	5.38	15	19	0.012	0.02	9.89	8.06
OCS-K	HDWL-K	0	0.00	0.00	0.00	10	0.14	10	8.15	4.08	4.08	18	38	0.012	0.005	8.04	4.55
BASIN M																	
M-R-4	Y-M-1	0.2	0.95	0.19	0.19	10	0.34	10	8.15	1.55	1.55	15	82	0.012	0.005	4.95	4.04
M-R-5	Y-M-1	0.2	0.95	0.19	0.19	10	0.2	10	8.15	1.55	1.55	15	58	0.012	0.0071	5.89	4.8
Y-M-1	BASIN-M	0	0.00	0.00	0.38	10	0.05	10.34	8.15	0.00	3.1	18	17	0.012	0.0082	10.3	5.83
M-R-6	Y-M-2	0.2	0.95	0.19	0.19	10	0.34	10	8.15	1.55	1.55	15	82	0.012	0.005	4.95	4.04
M-R-7	Y-M-2	0.2	0.95	0.19	0.19	10	0.2	10	8.15	1.55	1.55	15	58	0.012	0.0071	5.89	4.8
Y-M-2	BASIN-M	0	0.00	0.00	0.38	10	0.05	10.34	8.15	0.00	3.1	18	17	0.012	0.0068	9.38	5.31
M-R-8	Y-M-3	0.2	0.95	0.19	0.19	10	0.14	10	8.15	1.55	1.55	15	35	0.012	0.0057	5.28	4.3
M-R-9	Y-M-3	0.3	0.95	0.29	0.29	10	0.21	10	8.15	2.36	2.36	15	50	0.012	0.005	4.95	4.04
Y-M-3	BASIN-M	0	0.00	0.00	0.48	10	0.12	10.21	8.15	0.00	3.91	18	40	0.012	0.0076	9.92	5.62
M-1	MTD-M-2	0.52	0.95	0.49	0.49	10	0.26	10	8.15	3.99	3.99	18	143	0.012	0.02	16.09	9.11
M-3	MTD-M-2	0.91	0.88	0.80	0.80	10	0.29	10	8.15	6.52	6.52	18	156	0.012	0.02	16.09	9.11
MTD-M-2	BASIN-M	0.68	0.95	0.65	1.94	10	0.02	10.29	8.15	5.30	15.81	24	10	0.012	0.02	34.65	11.04
M-4	M-5	0.04	0.35	0.01	0.01	10	0.4	10	8.15	0.08	0.08	10	105	0.012	0.01	2.37	4.35
M-5	MH-M-1	0.06	0.35	0.02	0.03	10	0.34	10.4	8.15	0.16	0.24	10	88	0.012	0.01	2.37	4.35
MH-M-1	MH-M-R-17	0	0.00	0.00	0.03	10	0.34	10.74	7.97	0.00	0.24	10	88	0.012	0.01	2.37	4.35
M-R-17	MH-M-R-17	0.3	0.95	0.29	0.29	10	0.05	10	8.15	2.36	2.36	15	13	0.012	0.005	4.95	4.04
MH-M-R-17	MH-M-R-16	0	0.00	0.00	0.32	10	0.23	11.08	7.80	0.00	2.5	15	56	0.012	0.005	4.95	4.04
M-R-16	MH-M-R-16	0.3	0.95	0.29	0.29	10	0.05	10	8.15	2.36	2.36	15	13	0.012	0.005	4.95	4.04
MH-M-R-16	MH-M-R-15	0	0.00	0.00	0.61	10	0.46	11.31	7.80	0.00	4.76	15	112	0.012	0.005	4.95	4.04

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Full Pipe Velocity (fps)
M-R-15	MH-M-R-15	0.3	0.95	0.29	0.29	10	0.05	10	8.15	2.36	2.36	15	13	0.012	0.005	4.95	4.04
MH-M-R-15	MH-M-R-14	0	0.00	0.00	0.90	10	0.21	11.77	7.62	0.00	6.86	18	56	0.012	0.005	8.04	4.55
M-R-14	MH-M-R-14	0.2	0.95	0.19	0.19	10	0.05	10	8.15	1.55	1.55	15	13	0.012	0.005	4.95	4.04
MH-M-R-14	MH-M-R-13	0	0.00	0.00	1.09	10	0.17	11.98	7.62	0.00	8.31	24	56	0.012	0.005	17.33	5.52
M-R-13	MH-M-R-13	0.2	0.95	0.19	0.19	10	0.05	10	8.15	1.55	1.55	15	13	0.012	0.005	4.95	4.04
MH-M-R-13	MH-M-R-12	0	0.00	0.00	1.28	10	0.17	12.15	7.45	0.00	9.53	24	56	0.012	0.005	17.33	5.52
M-R-12	MH-M-R-12	0.2	0.95	0.19	0.19	10	0.05	10	8.15	1.55	1.55	15	13	0.012	0.005	4.95	4.04
MH-M-R-12	MH-M-R-11	0	0.00	0.00	1.47	10	0.17	12.32	7.45	0.00	10.95	24	56	0.012	0.005	17.33	5.52
M-R-11	MH-M-R-11	0.2	0.95	0.19	0.19	10	0.05	10	8.15	1.55	1.55	15	13	0.012	0.005	4.95	4.04
MH-M-R-11	MH-M-R-10	0	0.00	0.00	1.66	10	0.21	12.49	7.45	0.00	12.36	24	68	0.012	0.005	17.33	5.52
M-R-10	MH-M-R-10	0.26	0.95	0.25	0.25	10	0.09	10	8.15	2.04	2.04	15	18	0.012	0.0037	4.26	3.47
MH-M-R-10	MH-M-2	0	0.00	0.00	1.91	10	0.13	12.7	7.27	0.00	13.89	24	44	0.012	0.005	17.33	5.52
MH-M-2	MH-M-3	0	0.00	0.00	1.91	10	0.68	12.83	7.27	0.00	13.89	24	225	0.012	0.005	17.33	5.52
M-6	M-7	0.23	0.73	0.17	0.17	10	0.35	10	8.15	1.39	1.39	12	104	0.012	0.01	3.86	4.92
M-7	MH-M-4	0.18	0.85	0.15	0.32	10	0.2	10.35	8.15	1.22	2.61	12	58	0.012	0.01	3.86	4.92
MH-M-4	MH-M-5	0	0.00	0.00	0.32	10	0.39	10.55	7.97	0.00	2.55	12	82	0.012	0.005	2.73	3.48
M-8	MH-M-5	0.28	0.83	0.23	0.23	10	0.1	10	8.15	1.87	1.87	12	30	0.012	0.01	3.86	4.92
MH-M-5	MH-M-6	0	0.00	0.00	0.55	10	0.24	10.94	7.97	0.00	4.39	15	83	0.012	0.01	7	5.71
M-9	MH-M-6	0.46	0.89	0.41	0.41	10	0.26	10	8.15	3.34	3.34	15	90	0.012	0.01	7	5.71
MH-M-6	MH-M-7	0	0.00	0.00	0.96	10	0.35	11.18	7.80	0.00	7.49	15	198	0.012	0.0271	11.52	9.39
M-10	MH-M-7	0.31	0.87	0.27	0.27	10	0.31	10	8.15	2.20	2.2	15	76	0.012	0.005	4.95	4.04
MH-M-7	MTD-M-1	0	0.00	0.00	1.23	10	0.43	11.53	7.62	0.00	9.38	24	202	0.012	0.01	24.5	7.8
MTD-M-1	MH-M-3	0.38	0.75	0.29	1.52	10	0.16	11.96	7.62	2.21	11.59	24	75	0.012	0.01	24.5	7.8
MH-M-3	MH-M-8	0	0.00	0.00	3.43	10	0.23	13.51	6.92	0.00	23.73	24	108	0.012	0.01	24.5	7.8
MH-M-8	MH-M-9	0	0.00	0.00	3.68	10	0.12	13.74	6.92	0.00	25.46	24	56	0.012	0.01	24.5	7.8
M-R-1	MH-M-9	0.26	0.95	0.25	0.25	10	0.04	10	8.15	2.04	2.04	15	10	0.012	0.005	4.95	4.04
MH-M-9	MH-M-10	0	0.00	0.00	3.93	10	0.09	13.86	6.92	0.00	27.19	36	56	0.012	0.01	72.25	10.23
M-R-2	MH-M-10	0.2	0.95	0.19	0.19	10	0.04	10	8.15	1.55	1.55	15	10	0.012	0.005	4.95	4.04
M-R-3	MH-M-R-3	0.2	0.95	0.19	0.19	10	0.04	10	8.15	1.55	1.55	15	10	0.012	0.005	4.95	4.04
MH-M-R-3	MH-M-10	0	0.00	0.00	0.19	10	0.24	10.04	8.15	0.00	1.55	15	57	0.012	0.005	4.95	4.04
MH-M-10	BASIN-M	0	0.00	0.00	4.31	10	0.11	13.95	6.92	0.00	29.82	36	65	0.012	0.01	72.25	10.23
OCS-M	HDWL-M	0	0.00	0.00	0.00	10	0.17	10	8.15	11.25	11.25	18	65	0.012	0.01	11.38	6.44



# DYNAMIC ENGINEERING

## Inlet Area Summary and Average Coefficient (C) Calculations

Project: Brookfield Properties, LLC  
 Job #: 3709-99-004  
 Location: Suffern, NY

Computed By: JSK  
 Checked By: JZ/ZK  
 Date: 1/18/2022

Drainage Area	Impervious Area (SF)	Coefficient (C) Used	Open Space/Woods (SF)	Coefficient (C) Used	Average Coefficient (C) Used	Total Area (SF)	Total Area (acres)
Basin A							
A-5	25162	0.95	538	0.35	0.94	25700	0.59
Basin B							
B-1 to B-8	4613	0.95	1050	0.35	0.84	5663	0.13
B-9	5039	0.95	4980	0.35	0.65	10019	0.23
Basin C							
C-1	4356	0.95	1030	0.35	0.84	5386	0.12
C-2	7405	0.95	3182	0.35	0.77	10587	0.24
MTD-C-1	25265	0.95	7900	0.35	0.81	33165	0.76
Basin D							
MTD-D-1	27878	0.95	9777	0.35	0.79	37655	0.86
MTD-D-2	27878	0.95	1425	0.35	0.92	29303	0.67
MTD-D-3	27878	0.95	1425	0.35	0.92	29303	0.67
MTD-D-4	27878	0.95	1425	0.35	0.92	29303	0.67
MTD-D-5	27878	0.95	1425	0.35	0.92	29303	0.67
Basin E							
MTD-E-5	26572	0.95	10872	0.35	0.78	37444	0.86
Basin F							
MTD-F-1	27878	0.95	1425	0.35	0.92	29303	0.67
MTD-F-2	27878	0.95	1425	0.35	0.92	29303	0.67
MTD-F-3	27878	0.95	1425	0.35	0.92	29303	0.67
MTD-F-4	27878	0.95	1425	0.35	0.92	29303	0.67
F-1	8276	0.95	2576	0.35	0.81	10852	0.25
F-2	7405	0.95	3700	0.35	0.75	11105	0.25
F-3	3485	0.95	1243	0.35	0.79	4728	0.11
F-4	8276	0.95	664	0.35	0.91	8940	0.21
F-5	27007	0.95	11540	0.35	0.77	38547	0.88
Basin G							
G-1	4792	0.95	860	0.35	0.86	5652	0.13
G-2	4792	0.95	860	0.35	0.86	5652	0.13
Basin H							
H-1	8276	0.95	326	0.35	0.93	8602	0.20
MTD-H-1	8712	0.95	646	0.35	0.91	9358	0.21
Basin M							
M-3	35284	0.95	4530	0.35	0.88	39814	0.91
M-4	0	0.95	1742	0.35	0.35	1742	0.04
M-5	0	0.95	2614	0.35	0.35	2614	0.06
M-6	6343	0.95	3562	0.35	0.73	9905	0.23
M-7	6534	0.95	1350	0.35	0.85	7884	0.18
M-8	9583	0.95	2430	0.35	0.83	12013	0.28
M-9	17860	0.95	2089	0.35	0.89	19949	0.46
M-10	11761	0.95	1690	0.35	0.87	13451	0.31
MTD-M-1	10890	0.95	5557	0.35	0.75	16447	0.38



**CONDUIT OUTLET PROTECTION (SCOUR HOLE)  
CALCULATIONS**



# DYNAMIC ENGINEERING

## SCOUR HOLE DESIGN

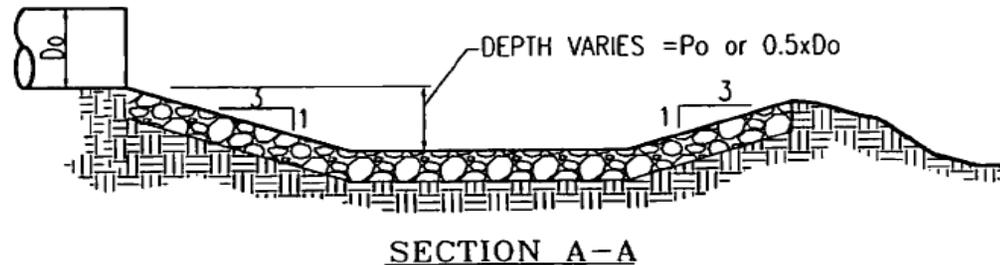
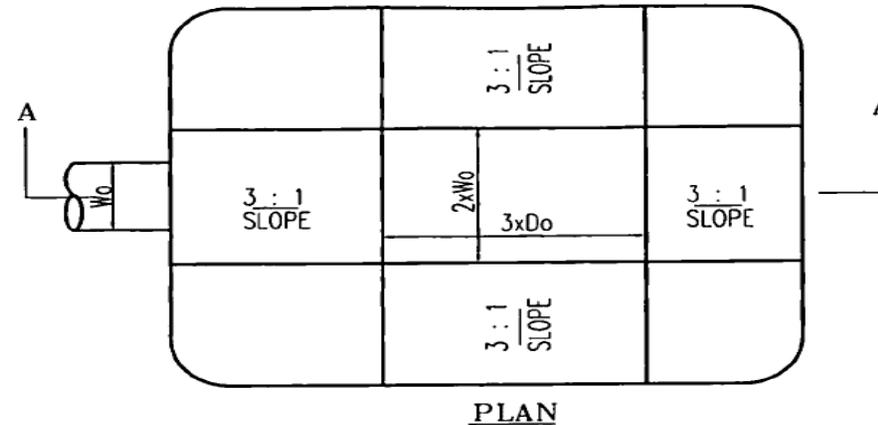
Project: Prop. Industrial Park at 25 Old Mill Road  
 Job #: 3709-99-004  
 Location: Suffern  
 Design Storm: 100 Yr  
 Computed By: JCD  
 Checked By: JZ/ZK  
 Date: 1/12/2024

***Discharge in Basin, Therefore Tailwater is greater than 0.5 x Do***

Discharge Point	Headwall #A-100
Q (100-yr storm cfs)	21.63
Inside Height of Outlet Culvert, Do (in)	24
Inside Height of Outlet Culvert, Do (ft)	2.0
Tailwater (ft), Tw	1.520
Length of Apron, L (ft)	6.00
Width of Culvert, Wo(in)	24
Width of Culvert, Wo(ft)	2.0
Width of Apron, W(ft)	4.00
Where Y = 1/2 Do, Y(ft)	1.000
Median Stone Diameter, D50 (ft)	0.20
Where Y = Do, Y(ft)	2.000
Median Stone Diameter, D50 (ft)	0.13

Note: Use D50 of 6 inches minimum

Equations used:  
 $L=3*Do$   
 $W=2*Wo$   
 Where  $Y=1/2 Do$   
 $D50=(0.0125/Tw)*(q^{1.33})$   
 Where  $Y=Do$   
 $D50=(0.0082/Tw)*(q^{1.33})$



Peak Water Surface Elevation for 2 Yr. Storm is  FES Invert:  therefore Tailwater:

- Notes:
1. The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to the possible problems with mosquito breeding.
  2. No bends or curves at the intersection of the conduit and apron or scour hole will be permitted.
  3. There shall be no over fall from the end of the apron to the receiving material.
  4. The thickness of the riprap lining, filter, and quality shall meet the requirements in the New York State Standards and Specifications for Erosion and Sediment Control.



# DYNAMIC ENGINEERING

## SCOUR HOLE DESIGN

Project: Prop. Industrial Park at 25 Old Mill Road  
 Job #: 3709-99-004  
 Location: Suffern  
 Design Storm: 100 Yr  
 Computed By: JCD  
 Checked By: JZ/ZK  
 Date: 1/12/2024

***Discharge in Basin, Therefore Tailwater is greater than 0.5 x Do***

Discharge Point	Headwall #A-500
Q (100-yr storm cfs)	<b>20.89</b>
Inside Height of Outlet Culvert, Do (in)	<b>24</b>
Inside Height of Outlet Culvert, Do (ft)	2.0
Tailwater (ft), Tw	<b>0.760</b>
Length of Apron, L (ft)	<b>6.00</b>
Width of Culvert, Wo(in)	<b>24</b>
Width of Culvert, Wo(ft)	<b>2.0</b>
Width of Apron, W(ft)	<b>4.00</b>
Where Y = 1/2 Do, Y(ft)	<b>1.000</b>
Median Stone Diameter, D50 (ft)	<b>0.37</b>
Where Y = Do, Y(ft)	<b>2.000</b>
Median Stone Diameter, D50 (ft)	<b>0.24</b>

Note: Use D50 of 6 inches minimum

Equations used:

$$L=3*Do$$

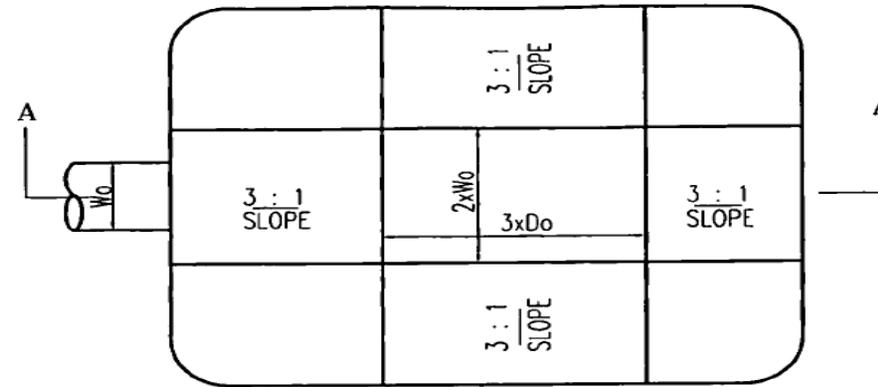
$$W=2*Wo$$

Where Y=1/2 Do

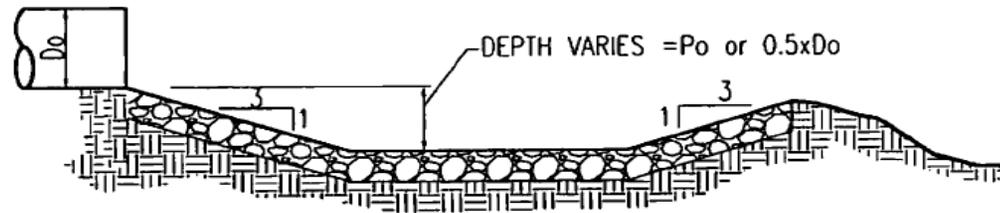
$$D50=(0.0125/Tw)*(q^{1.33})$$

Where Y=Do

$$D50=(0.0082/Tw)*(q^{1.33})$$



PLAN



SECTION A-A

Peak Water Surface Elevation for 2 Yr. Storm is  FES Invert:  therefore Tailwater:

Notes:

1. The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to the possible problems with mosquito breeding.
2. No bends or curves at the intersection of the conduit and apron or scour hole will be permitted.
3. There shall be no over fall from the end of the apron to the receiving material.
4. The thickness of the riprap lining, filter, and quality shall meet the requirements in the New York State Standards and Specifications for Erosion and Sediment Control.



# DYNAMIC ENGINEERING

## SCOUR HOLE DESIGN

Project: Prop. Industrial Park at 25 Old Mill Road  
 Job #: 3709-99-004  
 Location: Suffern  
 Design Storm: 100 Yr  
 Computed By: JCD  
 Checked By: JZ/ZK  
 Date: 1/12/2024

***Discharge in Basin, Therefore Tailwater is greater than 0.5 x Do***

Discharge Point	Headwall #B-100
Q (100-yr storm cfs)	<b>12.86</b>
Inside Height of Outlet Culvert, Do (in)	<b>18</b>
Inside Height of Outlet Culvert, Do (ft)	1.5
Tailwater (ft), Tw	<b>2.830</b>
Length of Apron, L (ft)	<b>4.50</b>
Width of Culvert, Wo(in)	<b>18</b>
Width of Culvert, Wo(ft)	<b>1.5</b>
Width of Apron, W(ft)	<b>3.00</b>
Where Y = 1/2 Do, Y(ft)	<b>0.750</b>
Median Stone Diameter, D50 (ft)	<b>0.08</b>
Where Y = Do, Y(ft)	<b>1.500</b>
Median Stone Diameter, D50 (ft)	<b>0.05</b>

Note: Use D50 of 6 inches minimum

Equations used:

$$L=3*Do$$

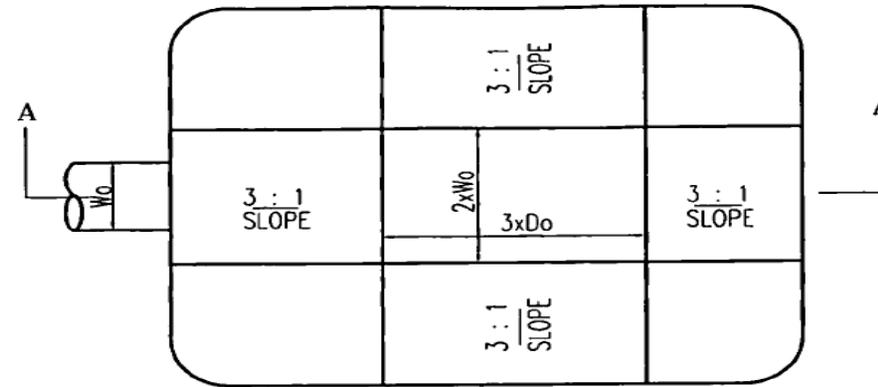
$$W=2*Wo$$

Where Y=1/2 Do

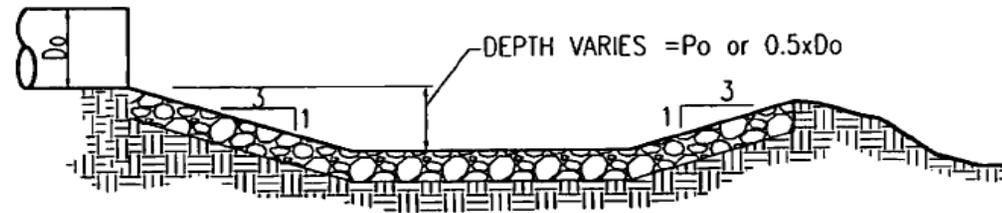
$$D50=(0.0125/Tw)*(q^1.33)$$

Where Y=Do

$$D50=(0.0082/Tw)*(q^1.33)$$



PLAN



SECTION A-A

Peak Water Surface Elevation for 2 Yr. Storm is  FES Invert:  therefore Tailwater:

Notes:

1. The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to the possible problems with mosquito breeding.
2. No bends or curves at the intersection of the conduit and apron or scour hole will be permitted.
3. There shall be no over fall from the end of the apron to the receiving material.
4. The thickness of the riprap lining, filter, and quality shall meet the requirements in the New York State Standards and Specifications for Erosion and Sediment Control.



# DYNAMIC ENGINEERING

## SCOUR HOLE DESIGN

Project: Prop. Industrial Park at 25 Old Mill Road  
 Job #: 3709-99-004  
 Location: Suffern  
 Design Storm: 100 Yr  
 Computed By: JCD  
 Checked By: JZ/ZK  
 Date: 1/12/2024

***Discharge in Basin, Therefore Tailwater is greater than 0.5 x Do***

Discharge Point	Headwall #G-100
Q (100-yr storm cfs)	4.79
Inside Height of Outlet Culvert, Do (in)	15
Inside Height of Outlet Culvert, Do (ft)	1.3
Tailwater (ft), Tw	1.650
Length of Apron, L (ft)	3.75
Width of Culvert, Wo(in)	15
Width of Culvert, Wo(ft)	1.3
Width of Apron, W(ft)	2.50
Where Y = 1/2 Do, Y(ft)	0.625
Median Stone Diameter, D50 (ft)	0.05
Where Y = Do, Y(ft)	1.250
Median Stone Diameter, D50 (ft)	0.03

Note: Use D50 of 6 inches minimum

Equations used:

$$L=3*Do$$

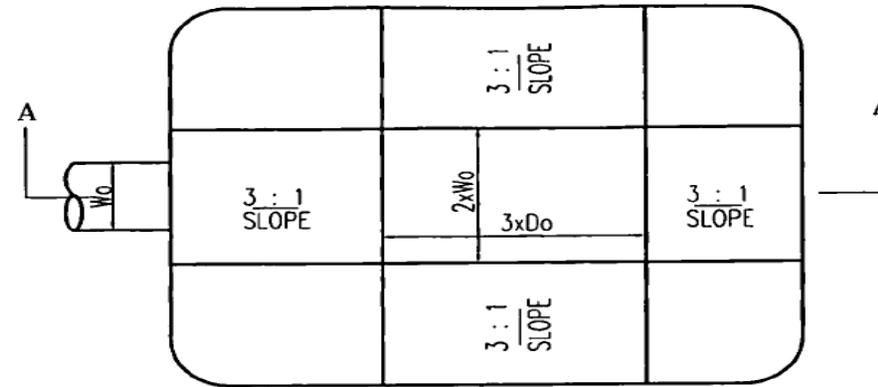
$$W=2*Wo$$

Where Y=1/2 Do

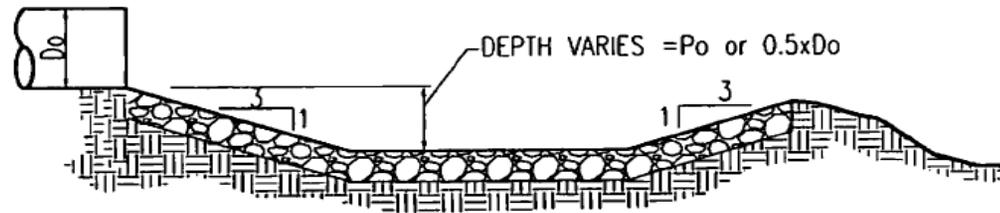
$$D50=(0.0125/Tw)*(q^1.33)$$

Where Y=Do

$$D50=(0.0082/Tw)*(q^1.33)$$



PLAN



SECTION A-A

Peak Water Surface Elevation for 2 Yr. Storm is  FES Invert:  therefore Tailwater:

- Notes:
1. The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to the possible problems with mosquito breeding.
  2. No bends or curves at the intersection of the conduit and apron or scour hole will be permitted.
  3. There shall be no over fall from the end of the apron to the receiving material.
  4. The thickness of the riprap lining, filter, and quality shall meet the requirements in the New York State Standards and Specifications for Erosion and Sediment Control.

**CONDUIT OUTLET PROTECTION (RIP RAP)  
CALCULATIONS**

50 Park Place, Suite 901, Newark, NJ 07102  
 (908) 879-9229

Calculated By: JCD  
 Checked By: JZ/ZK

**Conduit Outlet Protection Calculations**  
 Rip Rap Pad # B-500

**Design Parameters:**

Design Storm Flow, Q ..... **24.32** cfs  
 Diameter of Outlet Pipe,  $D_o$  ..... **36** in  
 Tailwater Depth,  $TW^1$  ..... **0.60** ft

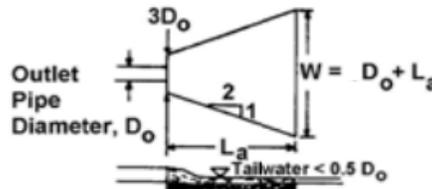
**Apron Dimension Calculations:**

- **Case I (Minimum Tailwater Condition):  $TW < 1/2 D_o$**

Based on Figure 3.16 of the NY State Standards and Specifications for Erosion and Sediment Control:

Apron Length,  $L_a$  = 22  $L_a = 22$  ft

Width,  $W_1 = 3D_o = 9$   $W_1 = 9$  ft  
 Width,  $W_2 = D_o + L_a = 25$  or  $W_2 = 25$  ft

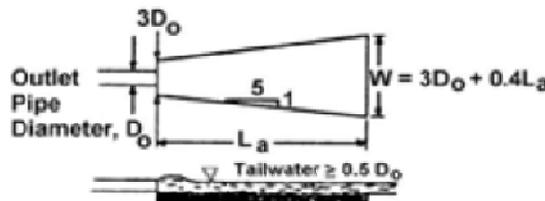


- **Case II (Maximum Tailwater condition) :  $TW \geq 1/2 D_o$**

Based on Figure 3.17 of the NY State Standards and Specifications for Erosion and Sediment Control:

Apron Length,  $L_a$  =   $L_a = 0$  ft

Width,  $W_1 = 3D_o =$   $W_1 =$   
 Width,  $W_2 = 3D_o + 0.4L_a =$   $W_2 =$



**Rip Rap Stone Size:**

See figures to find Median Stone,  $d_{50} =$   $d_{50} = 4$  in

**Notes:**

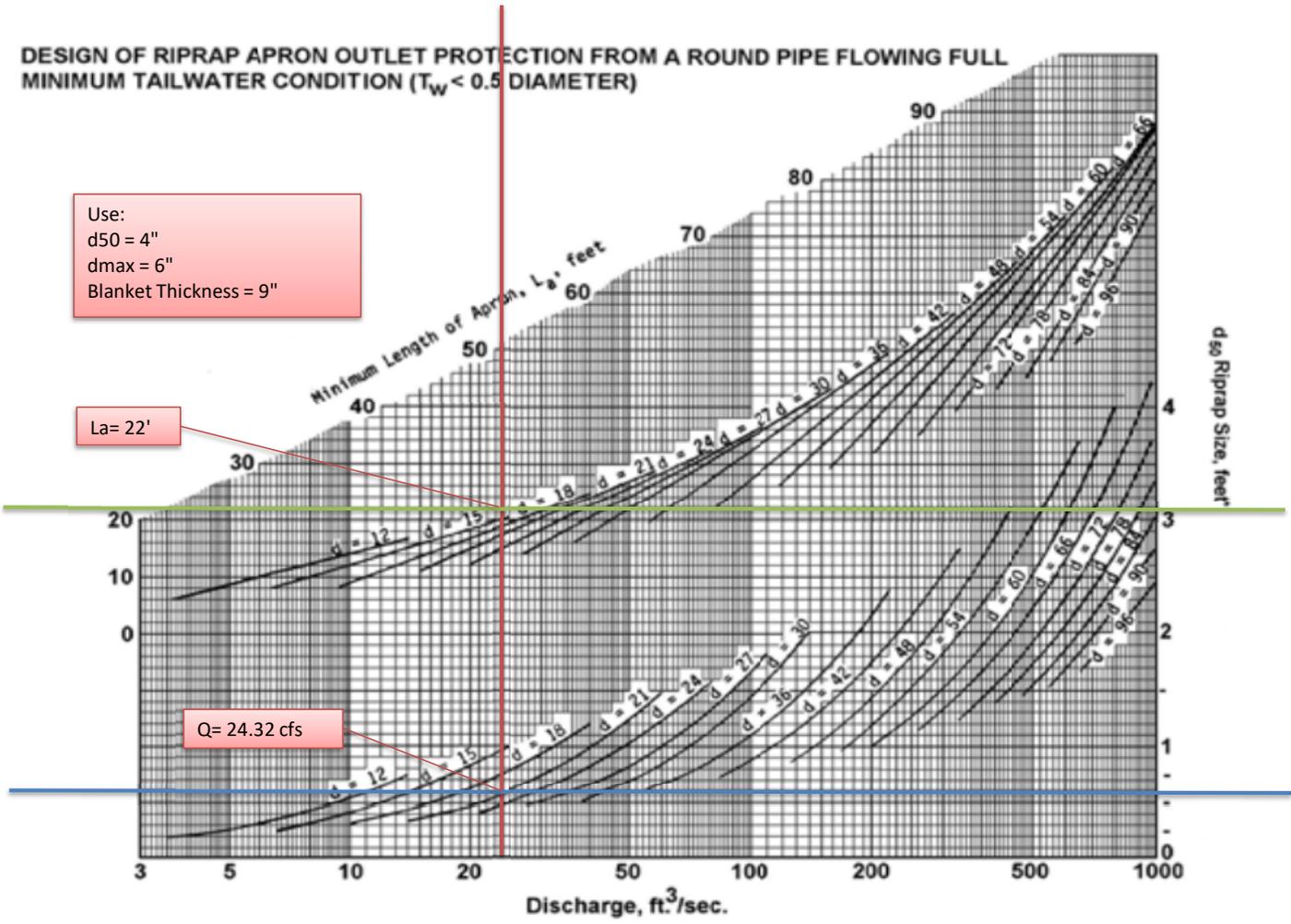
- 1 Pipes which outlet onto flat areas with no defined channel have a Minimum Tailwater condition
- 2 If the pipe discharges directly into a well defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank, whichever is less
- 3 The upstream end of the apron, adjacent to the pipe, shall have a width two (2) times the diameter of the outlet pipe or conform to the end of the pipe section if used.
- 4 The bottom grade shall be 0.0% (level).
- 5 There shall be no overfall at the end of the apron or at the end of the culvert.
- 6 Fifty (50) percent by weight of the rip-rap mixture shall be larger than the median size stone designated as  $d_{50}$ . The largest stone size in the mixture shall be 1.5 times the  $d_{50}$  size. The rip-rap shall be reasonably well graded.
- 7 The minimum thickness of the rip-rap layer shall be 1.5 times the maximum rock diameter for  $d_{50}$  of 15 inches or less; and 1.2 times the maximum rock size for  $d_{50}$  greater than 15 inches.
- 8 Rock for riprap shall consist of field rock or rough unhewn quarry rock. The specific gravity of individual rocks shall be at least 2.5. A filter must be placed under riprap, made of either a gravel layer or a plastic filter cloth. The plastic filter cloth must have a thickness of 20-60 mils, grab strength 90-120 lb, and shall conform to ASTM D-1777 and ASTM D-1682.
- 9 Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
- 10 No bends or curves at the intersection of the conduit and apron will be permitted. The outlet protection apron shall be located so that there are no bends in the horizontal alignment.

**DESIGN OF RIPRAP APRON OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MINIMUM TAILWATER CONDITION ( $T_w < 0.5$  DIAMETER)**

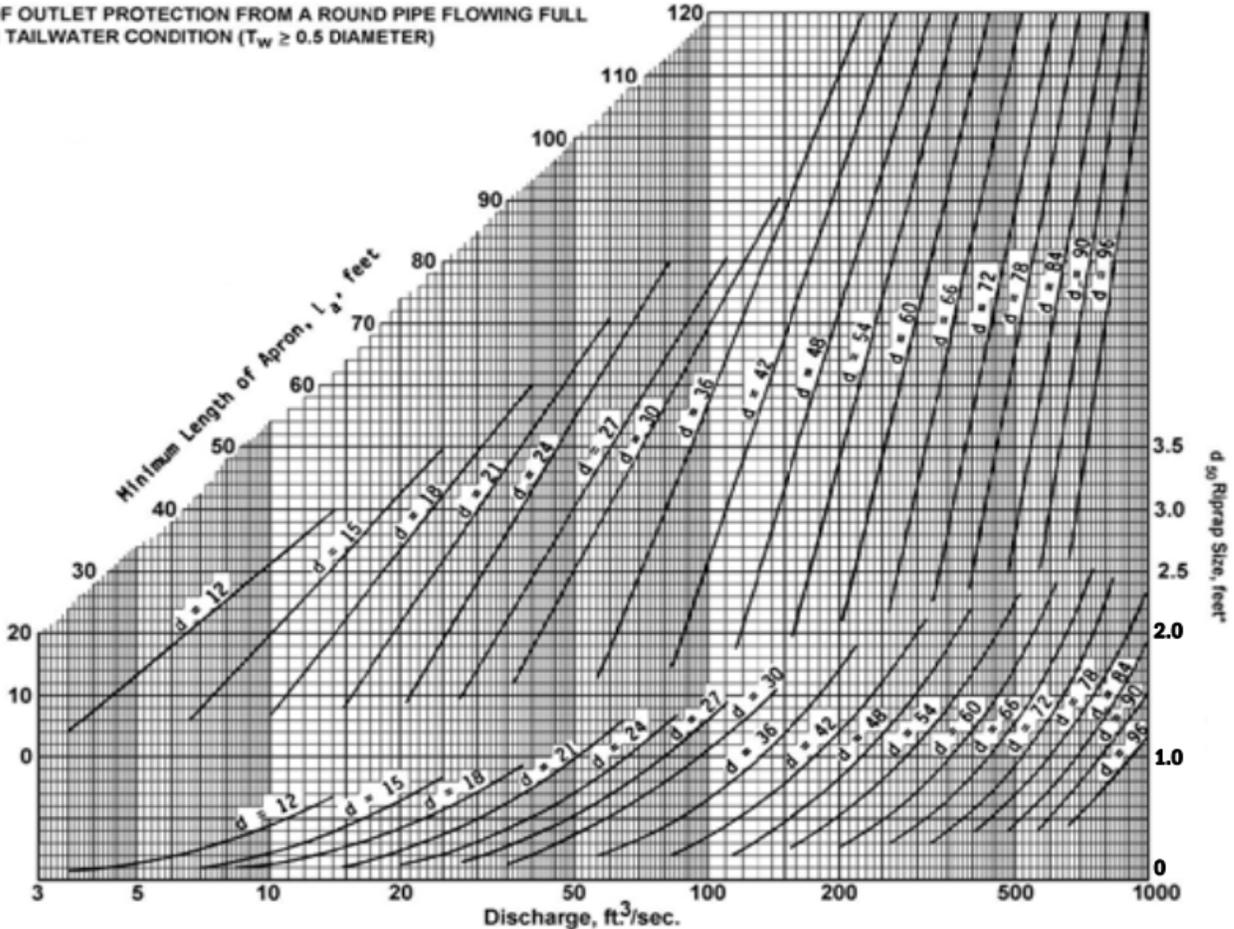
Use:  
 $d_{50} = 4''$   
 $d_{max} = 6''$   
 Blanket Thickness = 9''

$L_a = 22'$

$Q = 24.32$  cfs



**DESIGN OF OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MAXIMUM TAILWATER CONDITION ( $T_w \geq 0.5$  DIAMETER)**



\* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase  $d_{50}$  stone size and/or provide velocity reduction device.

50 Park Place, Suite 901, Newark, NJ 07102  
 (908) 879-9229

Calculated By: JCD  
 Checked By: JZ/ZK

**Conduit Outlet Protection Calculations**  
 Rip Rap Pad # K-100

**Design Parameters:**

Design Storm Flow, Q ..... **3.99** cfs  
 Diameter of Outlet Pipe,  $D_o$  ..... **18** in  
 Tailwater Depth,  $TW^1$  ..... **0.30** ft

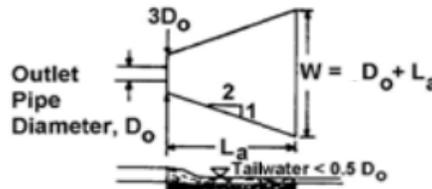
**Apron Dimension Calculations:**

- **Case I (Minimum Tailwater Condition):  $TW < 1/2 D_o$**

Based on Figure 3.16 of the NY State Standards and Specifications for Erosion and Sediment Control:

Apron Length,  $L_a$  = 8  $L_a = 10$  ft

Width,  $W_1 = 3D_o = 4.5$   $W_1 = 5$  ft  
 Width,  $W_2 = D_o + L_a = 11.5$  or  $W_2 = 12$  ft

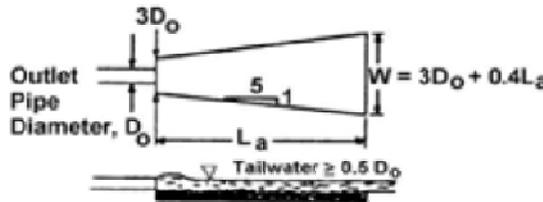


- **Case II (Maximum Tailwater condition) :  $TW \geq 1/2 D_o$**

Based on Figure 3.17 of the NY State Standards and Specifications for Erosion and Sediment Control:

Apron Length,  $L_a$  =    $L_a = 0$  ft

Width,  $W_1 = 3D_o =$   $W_1 =$   
 Width,  $W_2 = 3D_o + 0.4L_a =$   $W_2 =$



**Rip Rap Stone Size:**

See figures to find Median Stone,  $d_{50} =$   $d_{50} = 4$  in

**Notes:**

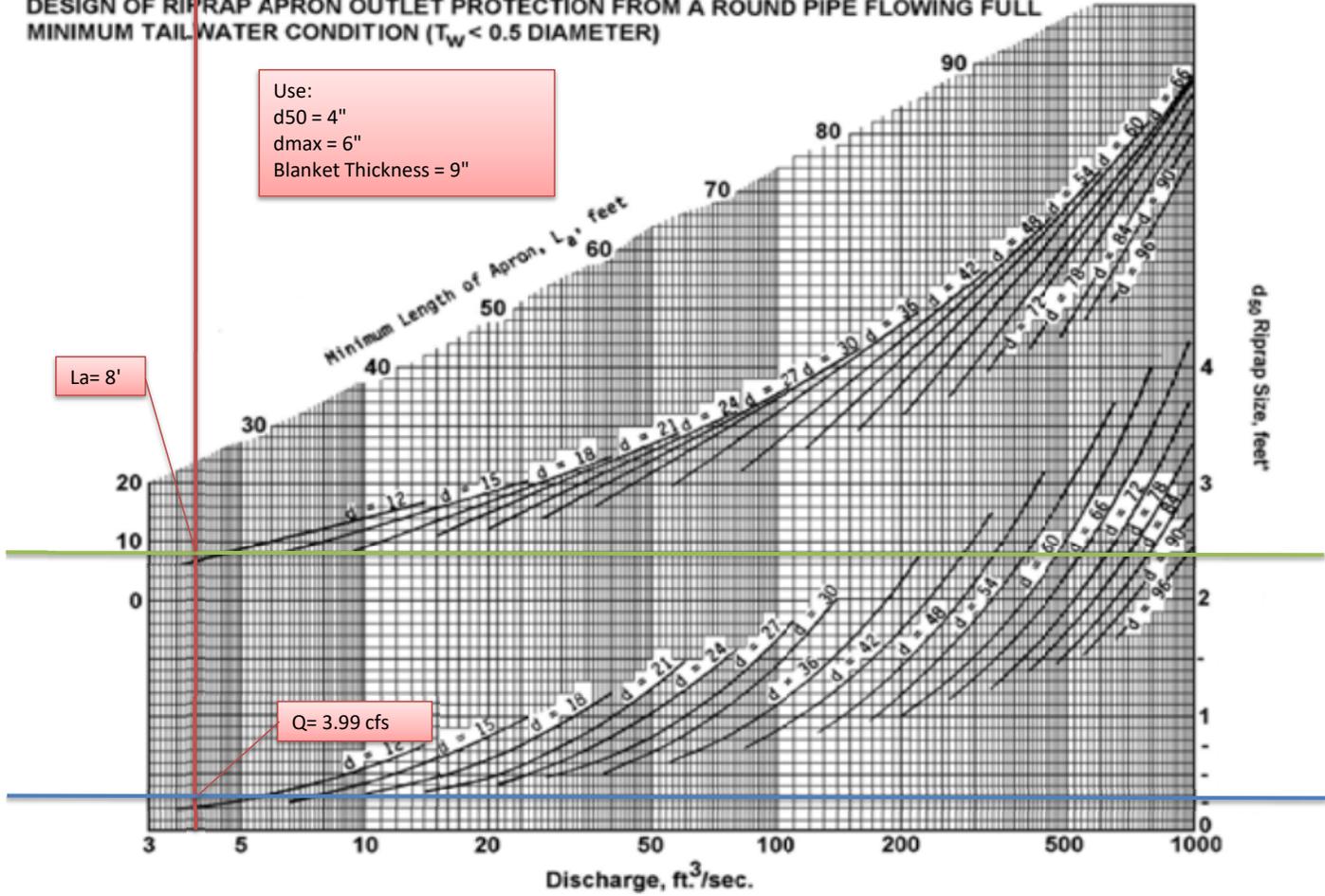
- 1 Pipes which outlet onto flat areas with no defined channel have a Minimum Tailwater condition
- 2 If the pipe discharges directly into a well defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank, whichever is less
- 3 The upstream end of the apron, adjacent to the pipe, shall have a width two (2) times the diameter of the outlet pipe or conform to the end of the pipe section if used.
- 4 The bottom grade shall be 0.0% (level).
- 5 There shall be no overfall at the end of the apron or at the end of the culvert.
- 6 Fifty (50) percent by weight of the rip-rap mixture shall be larger than the median size stone designated as  $d_{50}$ . The largest stone size in the mixture shall be 1.5 times the  $d_{50}$  size. The rip-rap shall be reasonably well graded.
- 7 The minimum thickness of the rip-rap layer shall be 1.5 times the maximum rock diameter for  $d_{50}$  of 15 inches or less; and 1.2 times the maximum rock size for  $d_{50}$  greater than 15 inches.
- 8 Rock for riprap shall consist of field rock or rough unhewn quarry rock. The specific gravity of individual rocks shall be at least 2.5. A filter must be placed under riprap, made of either a gravel layer or a plastic filter cloth. The plastic filter cloth must have a thickness of 20-60 mils, grab strength 90-120 lb, and shall conform to ASTM D-1777 and ASTM D-1682.
- 9 Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
- 10 No bends or curves at the intersection of the conduit and apron will be permitted. The outlet protection apron shall be located so that there are no bends in the horizontal alignment.

**DESIGN OF RIPRAP APRON OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MINIMUM TAILWATER CONDITION ( $T_w < 0.5$  DIAMETER)**

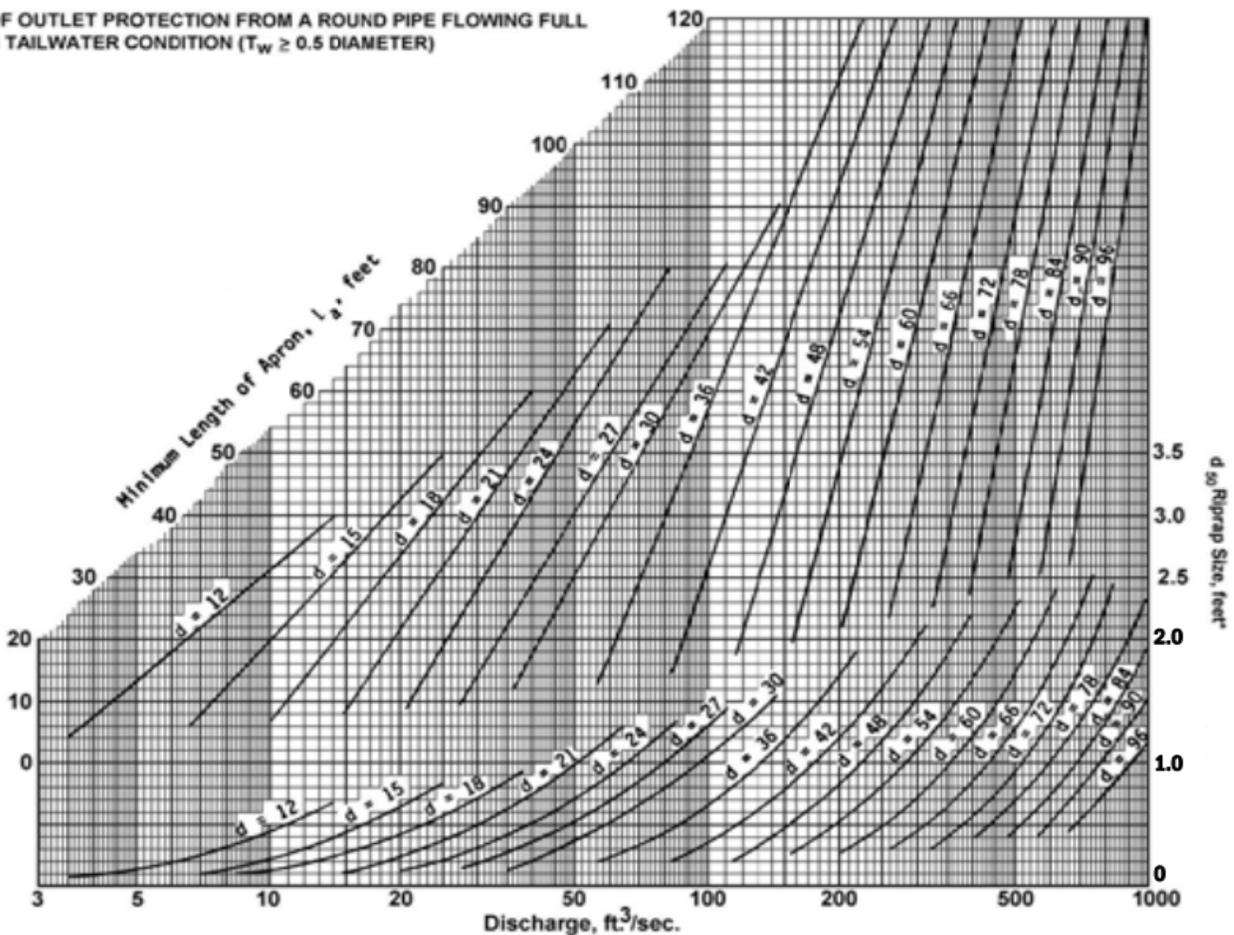
Use:  
 $d_{50} = 4"$   
 $d_{max} = 6"$   
 Blanket Thickness = 9"

$L_a = 8'$

$Q = 3.99$  cfs



**DESIGN OF OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MAXIMUM TAILWATER CONDITION ( $T_w \geq 0.5$  DIAMETER)**



\* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase  $d_{50}$  stone size and/or provide velocity reduction device.

50 Park Place, Suite 901, Newark, NJ 07102  
 (908) 879-9229

Calculated By: JCD  
 Checked By: JZ/ZK

**Conduit Outlet Protection Calculations**  
 Rip Rap Pad # M-100

**Design Parameters:**

Design Storm Flow, Q ..... 11.16 cfs  
 Diameter of Outlet Pipe,  $D_o$  ..... 18 in  
 Tailwater Depth,  $TW^1$  ..... 0.30 ft

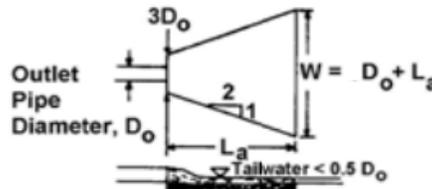
**Apron Dimension Calculations:**

- **Case I (Minimum Tailwater Condition):**  $TW < 1/2 D_o$

Based on Figure 3.16 of the NY State Standards and Specifications for Erosion and Sediment Control:

Apron Length,  $L_a =$  8  $L_a = 8$  ft

Width,  $W_1 = 3D_o = 4.5$   $W_1 = 5$  ft  
 Width,  $W_2 = D_o + L_a = 9.5$  or  $W_2 = 10$  ft

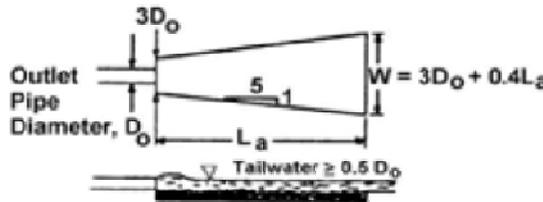


- **Case II (Maximum Tailwater condition):**  $TW \geq 1/2 D_o$

Based on Figure 3.17 of the NY State Standards and Specifications for Erosion and Sediment Control:

Apron Length,  $L_a =$     $L_a = 0$  ft

Width,  $W_1 = 3D_o =$   $W_1 =$   
 Width,  $W_2 = 3D_o + 0.4L_a =$   $W_2 =$



**Rip Rap Stone Size:**

See figures to find Median Stone,  $d_{50} =$   $d_{50} = 4$  in

**Notes:**

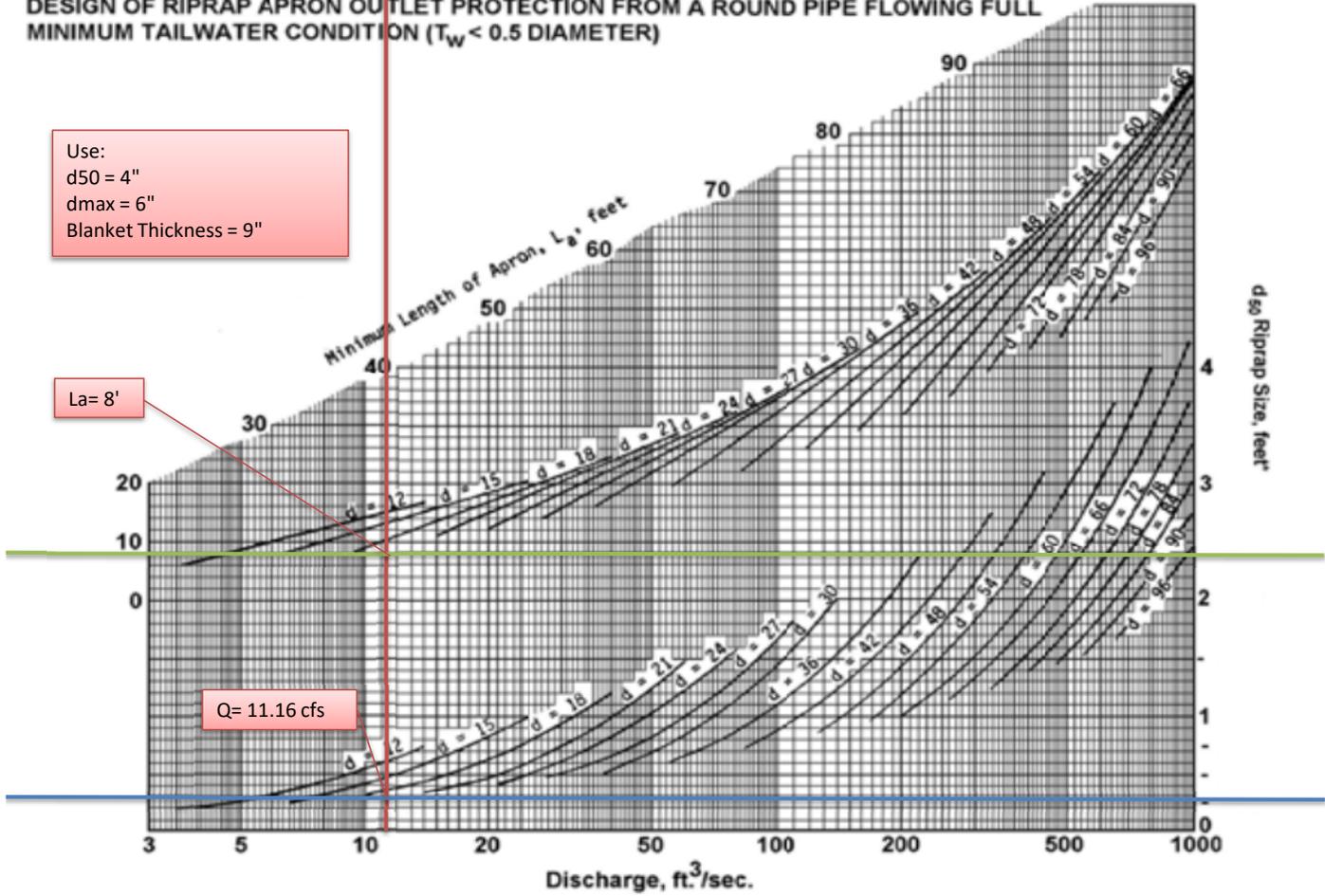
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- 4 The bottom grade shall be 0.0% (level).
- 5 There shall be no overfall at the end of the apron or at the end of the culvert.
- 6 Fifty (50) percent by weight of the rip-rap mixture shall be larger than the median size stone designated as  $d_{50}$ . The largest stone size in the mixture shall be 1.5 times the  $d_{50}$  size. The rip-rap shall be reasonably well graded.
- 7 The minimum thickness of the rip-rap layer shall be 1.5 times the maximum rock diameter for  $d_{50}$  of 15 inches or less; and 1.2 times the maximum rock size for  $d_{50}$  greater than 15 inches.
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- 9 Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
- 10 No bends or curves at the intersection of the conduit and apron will be permitted. The outlet protection apron shall be located so that there are no bends in the horizontal alignment.

**DESIGN OF RIPRAP APRON OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MINIMUM TAILWATER CONDITION ( $T_w < 0.5$  DIAMETER)**

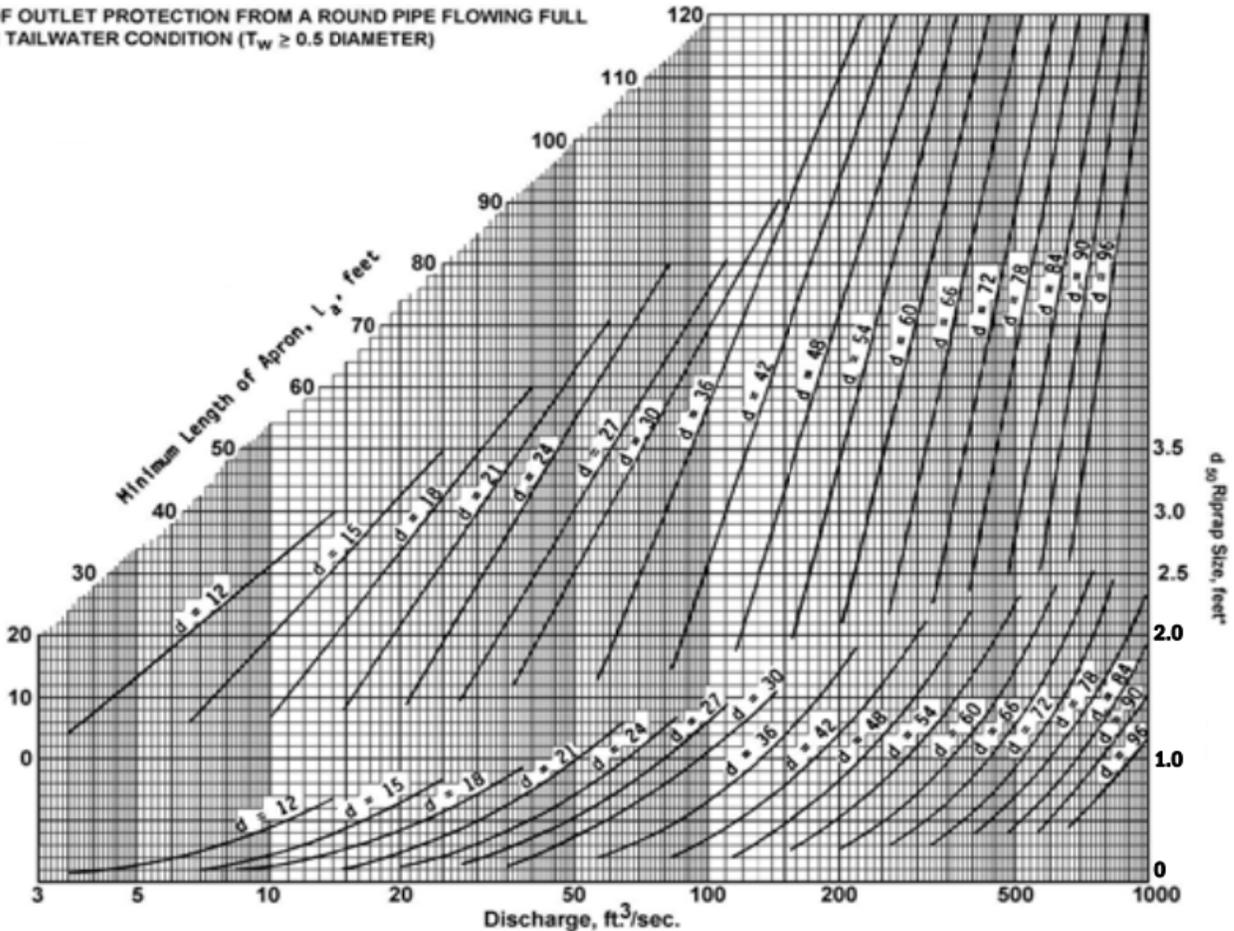
Use:  
 $d_{50} = 4''$   
 $d_{max} = 6''$   
 Blanket Thickness = 9''

$L_a = 8'$

$Q = 11.16$  cfs



**DESIGN OF OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MAXIMUM TAILWATER CONDITION ( $T_w \geq 0.5$  DIAMETER)**



\* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase  $d_{50}$  stone size and/or provide velocity reduction device.

**Conduit Outlet Protection Calculations**  
 Rip Rap Pad # O-100

**Design Parameters:**

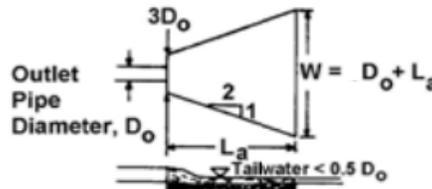
Design Storm Flow, Q .....	14.41 cfs
Diameter of Outlet Pipe, $D_o$ .....	24 in
Tailwater Depth, $TW^1$ .....	0.40 ft

**Apron Dimension Calculations:**

- **Case I (Minimum Tailwater Condition):**  $TW < 1/2 D_o$

Based on Figure 3.16 of the NY State Standards and Specifications for Erosion and Sediment Control:

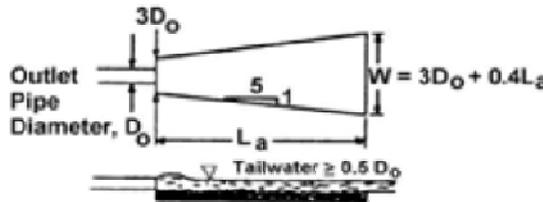
Apron Length, $L_a =$	12	$L_a =$	12 ft
Width, $W_1 = 3D_o =$	6	$W_1 =$	6 ft
Width, $W_2 = D_o + L_a =$	14	or $W_2 =$	14 ft



- **Case II (Maximum Tailwater condition):**  $TW \geq 1/2 D_o$

Based on Figure 3.17 of the NY State Standards and Specifications for Erosion and Sediment Control:

Apron Length, $L_a =$		$L_a =$	0 ft
Width, $W_1 = 3D_o =$		$W_1 =$	
Width, $W_2 = 3D_o + 0.4L_a =$		$W_2 =$	



**Rip Rap Stone Size:**

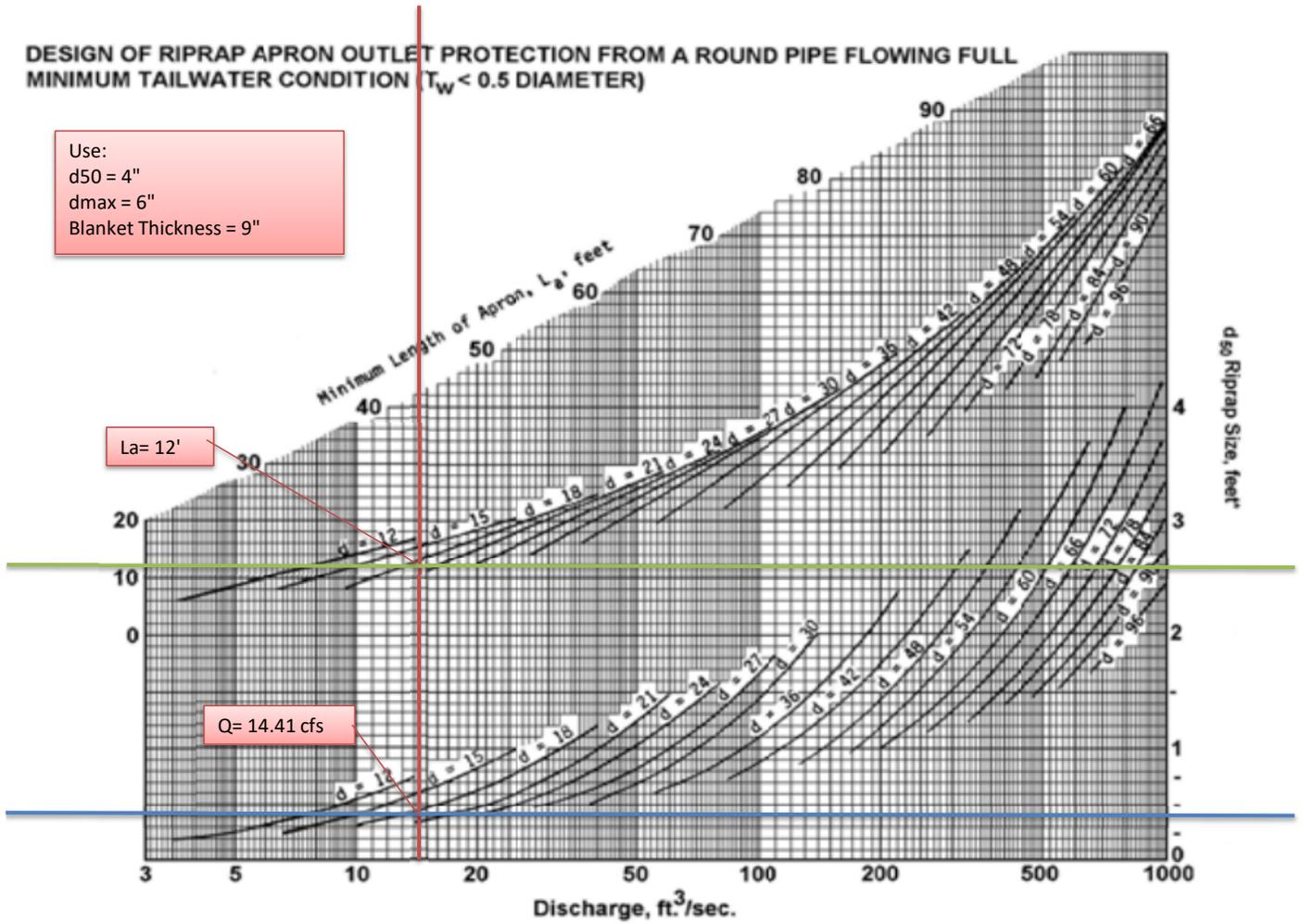
See figures to find Median Stone,  $d_{50} =$   $d_{50} =$  4 in

**Notes:**

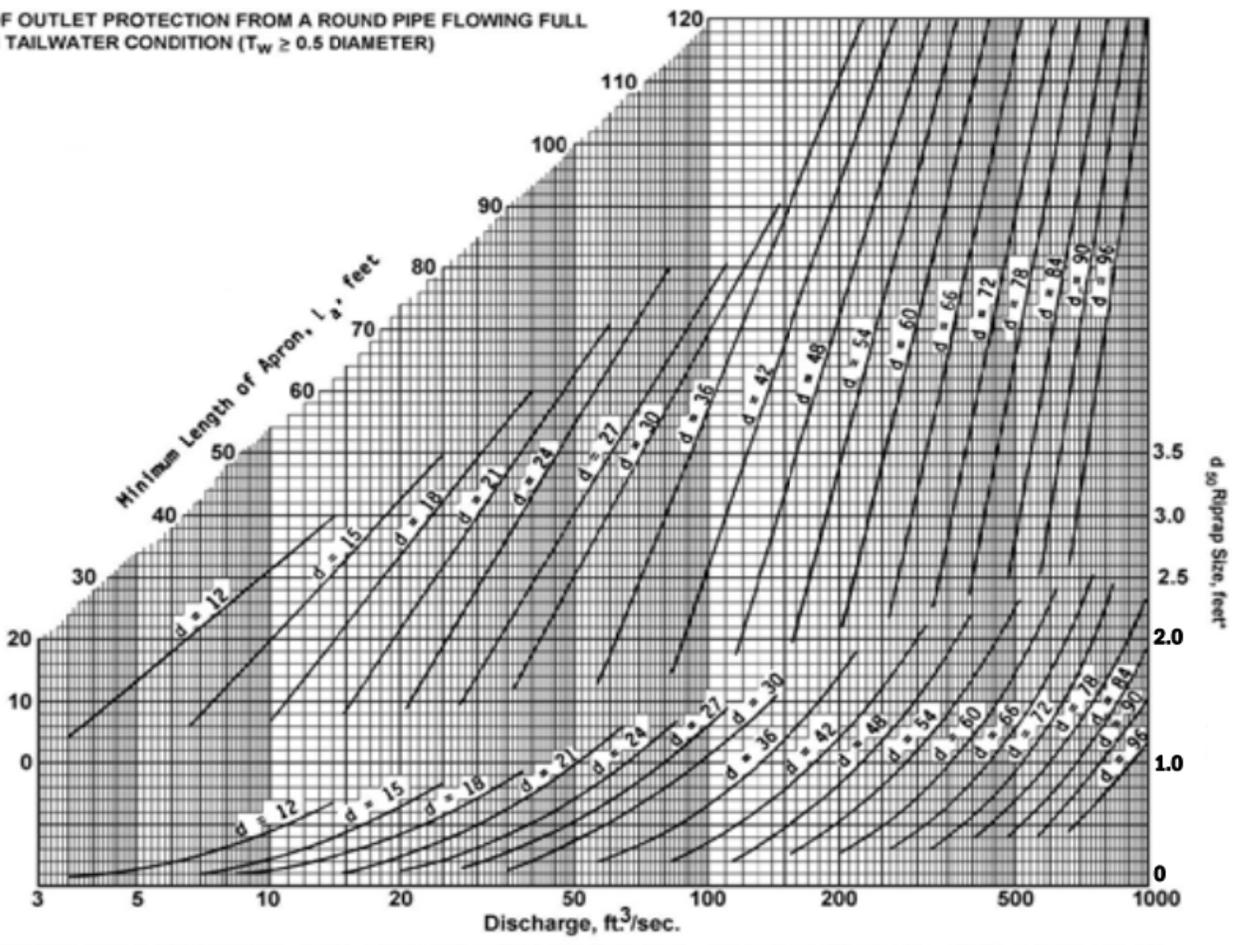
- 1 Pipes which outlet onto flat areas with no defined channel have a Minimum Tailwater condition
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- 3 The upstream end of the apron, adjacent to the pipe, shall have a width two (2) times the diameter of the outlet pipe or conform to the end of the pipe section if used.
- 4 The bottom grade shall be 0.0% (level).
- 5 There shall be no overfall at the end of the apron or at the end of the culvert.
- 6 Fifty (50) percent by weight of the rip-rap mixture shall be larger than the median size stone designated as  $d_{50}$ . The largest stone size in the mixture shall be 1.5 times the  $d_{50}$  size. The rip-rap shall be reasonably well graded.
- 7 The minimum thickness of the rip-rap layer shall be 1.5 times the maximum rock diameter for  $d_{50}$  of 15 inches or less; and 1.2 times the maximum rock size for  $d_{50}$  greater than 15 inches.
- 8 Rock for riprap shall consist of field rock or rough unhewn quarry rock. The specific gravity of individual rocks shall be at least 2.5. A filter must be placed under riprap, made of either a gravel layer or a plastic filter cloth. The plastic filter cloth must have a thickness of 20-60 mils, grab strength 90-120 lb, and shall conform to ASTM D-1777 and ASTM D-1682.
- 9 Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
- 10 No bends or curves at the intersection of the conduit and apron will be permitted. The outlet protection apron shall be located so that there are no bends in the horizontal alignment.

**DESIGN OF RIPRAP APRON OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MINIMUM TAILWATER CONDITION ( $T_w < 0.5$  DIAMETER)**

Use:  
 $d_{50} = 4"$   
 $d_{max} = 6"$   
 Blanket Thickness = 9"



**DESIGN OF OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MAXIMUM TAILWATER CONDITION ( $T_w \geq 0.5$  DIAMETER)**



\* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase  $d_{50}$  stone size and/or provide velocity reduction device.

Conduit Outlet Protection Calculations

Rip Rap Pad # 655

Design Parameters:

Design Storm Flow, Q ..... 13.70 cfs  
 Diameter of Outlet Pipe,  $D_o$  ..... 24 in  
 Tailwater Depth,  $TW^1$  ..... 0.40 ft

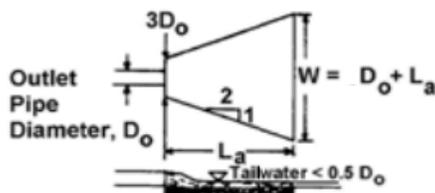
Apron Dimension Calculations:

- **Case I (Minimum Tailwater Condition):**  $TW < 1/2 D_o$

Based on Figure 3.16 of the NY State Standards and Specifications for Erosion and Sediment Control:

Apron Length,  $L_a =$  12  $L_a =$  12 ft

Width,  $W_1 = 3D_o =$  6  $W_1 =$  6 ft  
 Width,  $W_2 = D_o + L_a =$  14 or  $W_2 =$  14 ft

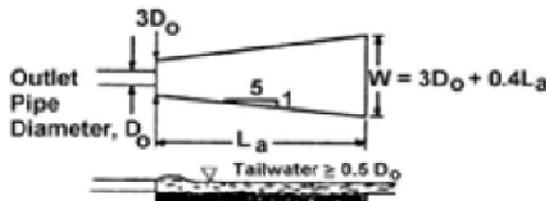


- **Case II (Maximum Tailwater condition):**  $TW \geq 1/2 D_o$

Based on Figure 3.17 of the NY State Standards and Specifications for Erosion and Sediment Control:

Apron Length,  $L_a =$    $L_a =$  0 ft

Width,  $W_1 = 3D_o =$  .....  $W_1 =$  .....  
 Width,  $W_2 = 3D_o + 0.4L_a =$  .....  $W_2 =$  .....



Rip Rap Stone Size:

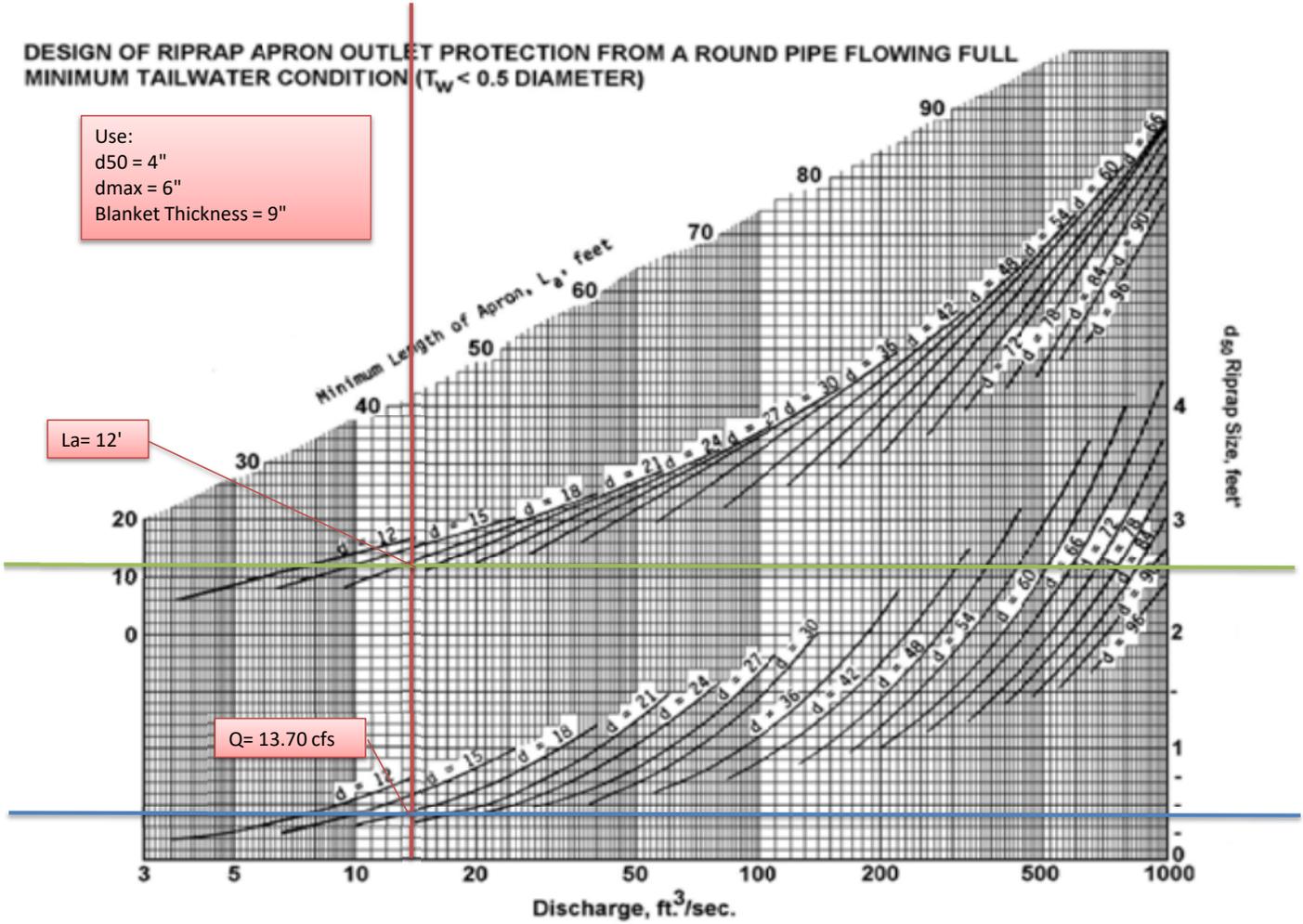
See figures to find Median Stone,  $d_{50} =$   $d_{50} =$  4 in

Notes:

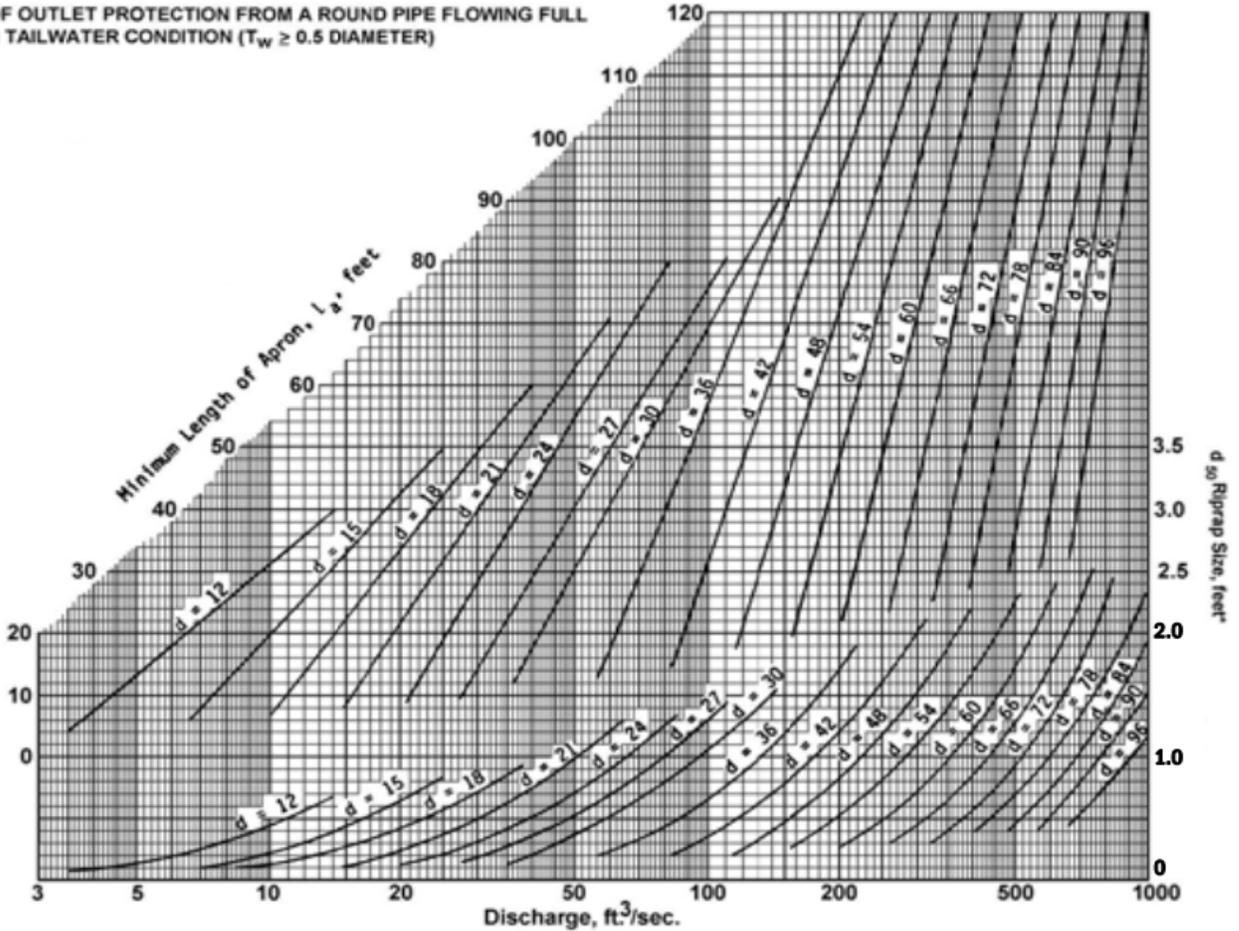
- 1 Pipes which outlet onto flat areas with no defined channel have a Minimum Tailwater condition
- 2 If the pipe discharges directly into a well defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank, whichever is less
- 3 The upstream end of the apron, adjacent to the pipe, shall have a width two (2) times the diameter of the outlet pipe or conform to the end of the pipe section if used.
- 4 The bottom grade shall be 0.0% (level).
- 5 There shall be no overfall at the end of the apron or at the end of the culvert.
- 6 Fifty (50) percent by weight of the rip-rap mixture shall be larger than the median size stone designated as  $d_{50}$ . The largest stone size in the mixture shall be 1.5 times the  $d_{50}$  size. The rip-rap shall be reasonably well graded.
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- 9 Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
- 10 No bends or curves at the intersection of the conduit and apron will be permitted. The outlet protection apron shall be located so that there are no bends in the horizontal alignment.

**DESIGN OF RIPRAP APRON OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MINIMUM TAILWATER CONDITION ( $T_w < 0.5$  DIAMETER)**

Use:  
 $d_{50} = 4"$   
 $d_{max} = 6"$   
 Blanket Thickness = 9"



**DESIGN OF OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MAXIMUM TAILWATER CONDITION ( $T_w \geq 0.5$  DIAMETER)**



\* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase  $d_{50}$  stone size and/or provide velocity reduction device.

50 Park Place, Suite 901, Newark, NJ 07102  
 (908) 879-9229

Calculated By: JCD  
 Checked By: JZ/ZK

**Conduit Outlet Protection Calculations**  
 Rip Rap Pad # 682

**Design Parameters:**

Design Storm Flow, Q ..... **5.21** cfs  
 Diameter of Outlet Pipe,  $D_o$  ..... **24** in  
 Tailwater Depth,  $TW^1$  ..... **0.40** ft

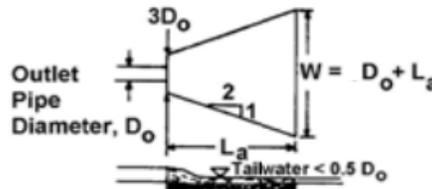
**Apron Dimension Calculations:**

- **Case I (Minimum Tailwater Condition):  $TW < 1/2 D_o$**

Based on Figure 3.16 of the NY State Standards and Specifications for Erosion and Sediment Control:

Apron Length,  $L_a$  = 12  $L_a = 12$  ft

Width,  $W_1 = 3D_o = 6$   $W_1 = 6$  ft  
 Width,  $W_2 = D_o + L_a = 14$  or  $W_2 = 14$  ft

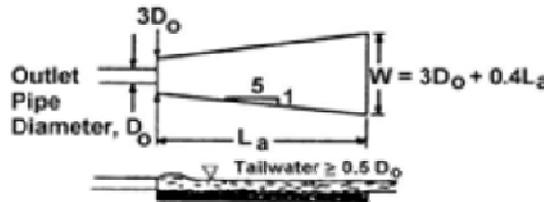


- **Case II (Maximum Tailwater condition) :  $TW \geq 1/2 D_o$**

Based on Figure 3.17 of the NY State Standards and Specifications for Erosion and Sediment Control:

Apron Length,  $L_a$  =   $L_a = 0$  ft

Width,  $W_1 = 3D_o =$   $W_1 =$   
 Width,  $W_2 = 3D_o + 0.4L_a =$   $W_2 =$



**Rip Rap Stone Size:**

See figures to find Median Stone,  $d_{50} =$   $d_{50} = 4$  in

**Notes:**

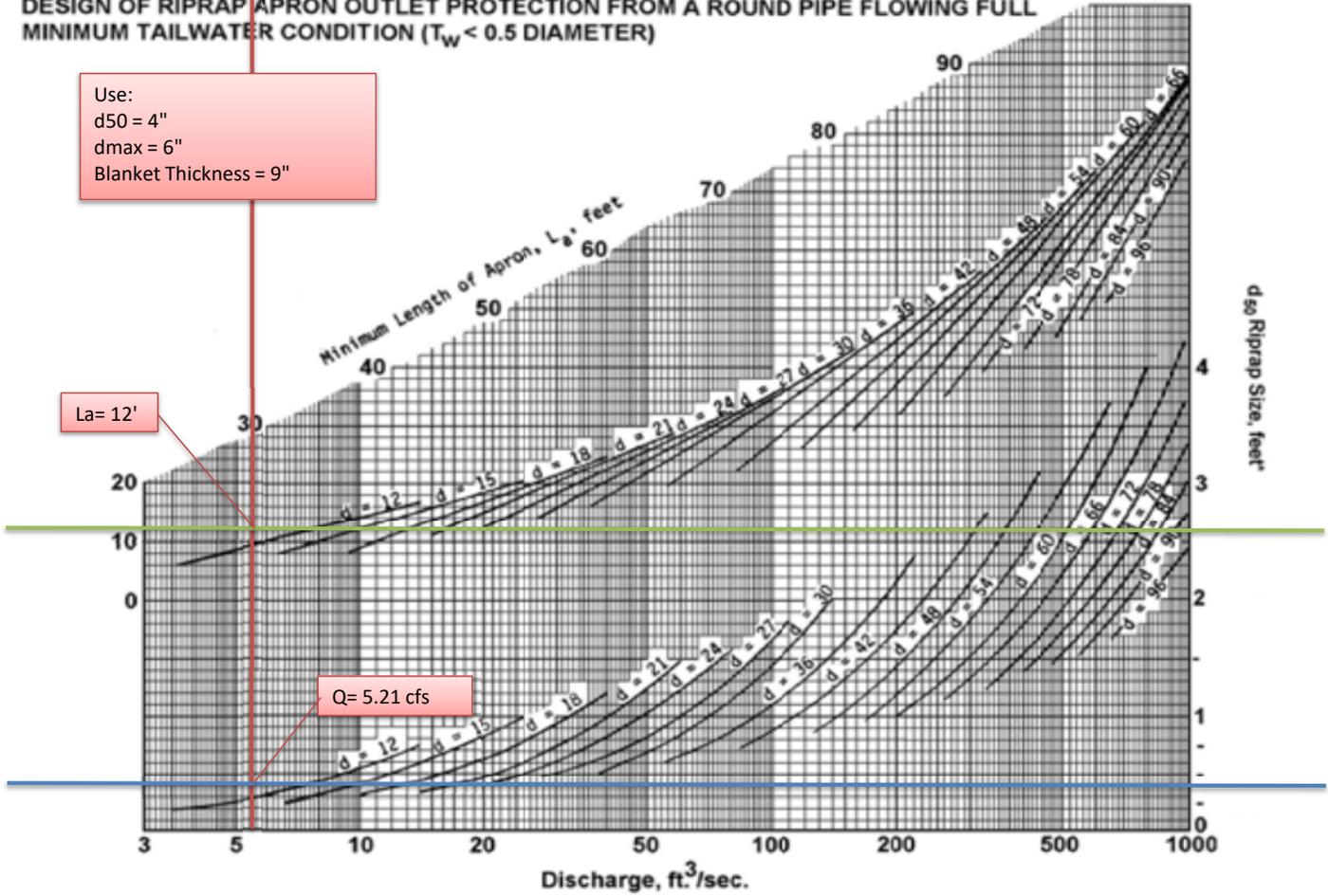
- 1 Pipes which outlet onto flat areas with no defined channel have a Minimum Tailwater condition
- 2 If the pipe discharges directly into a well defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank, whichever is less
- 3 The upstream end of the apron, adjacent to the pipe, shall have a width two (2) times the diameter of the outlet pipe or conform to the end of the pipe section if used.
- 4 The bottom grade shall be 0.0% (level).
- 5 There shall be no overfall at the end of the apron or at the end of the culvert.
- 6 Fifty (50) percent by weight of the rip-rap mixture shall be larger than the median size stone designated as  $d_{50}$ . The largest stone size in the mixture shall be 1.5 times the  $d_{50}$  size. The rip-rap shall be reasonably well graded.
- 7 The minimum thickness of the rip-rap layer shall be 1.5 times the maximum rock diameter for  $d_{50}$  of 15 inches or less; and 1.2 times the maximum rock size for  $d_{50}$  greater than 15 inches.
- 8 Rock for riprap shall consist of field rock or rough unhewn quarry rock. The specific gravity of individual rocks shall be at least 2.5. A filter must be placed under riprap, made of either a gravel layer or a plastic filter cloth. The plastic filter cloth must have a thickness of 20-60 mils, grab strength 90-120 lb, and shall conform to ASTM D-1777 and ASTM D-1682.
- 9 Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
- 10 No bends or curves at the intersection of the conduit and apron will be permitted. The outlet protection apron shall be located so that there are no bends in the horizontal alignment.

**DESIGN OF RIPRAP APRON OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MINIMUM TAILWATER CONDITION ( $T_w < 0.5$  DIAMETER)**

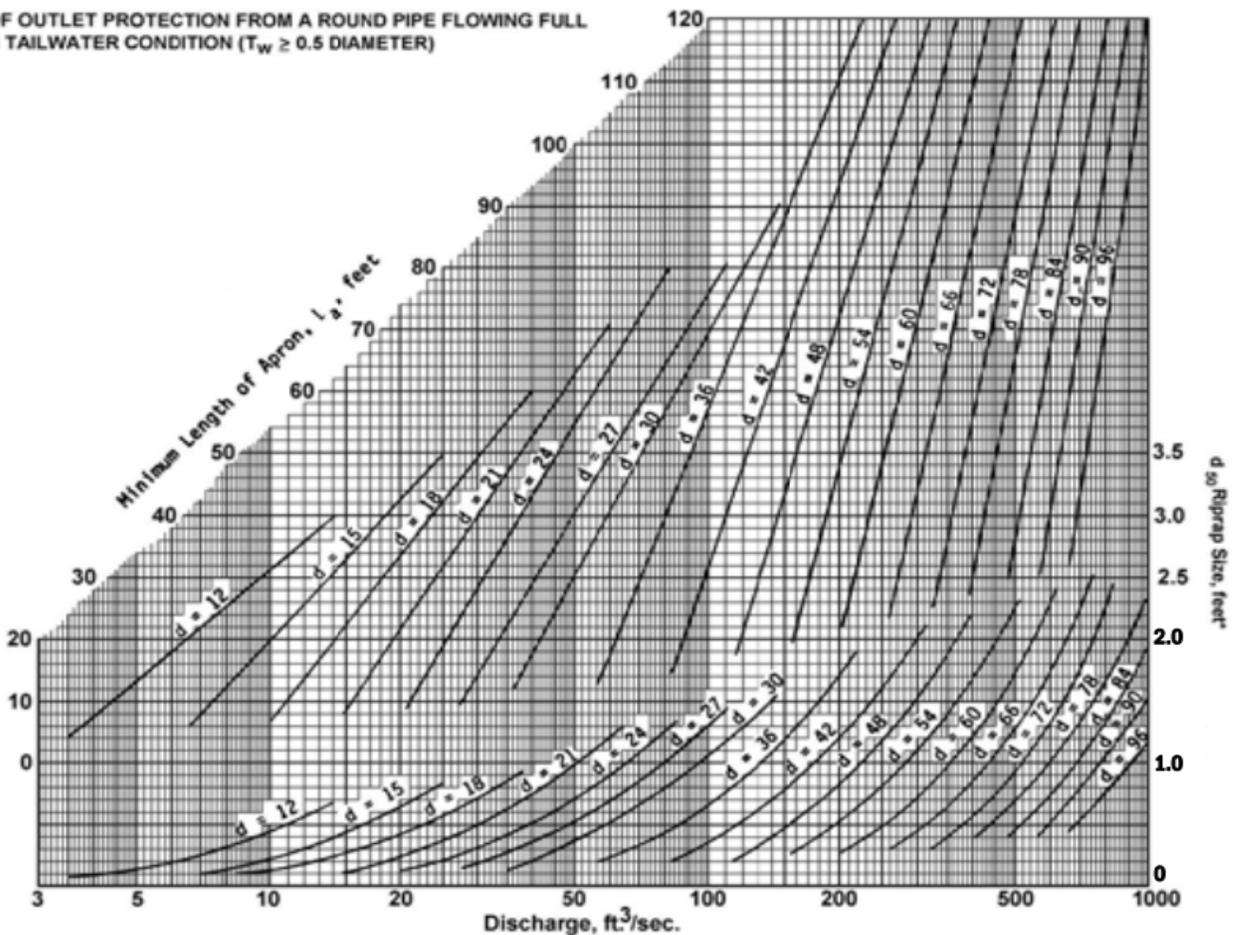
Use:  
 $d_{50} = 4"$   
 $d_{max} = 6"$   
 Blanket Thickness = 9"

$L_a = 12'$

$Q = 5.21$  cfs



**DESIGN OF OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
MAXIMUM TAILWATER CONDITION ( $T_w \geq 0.5$  DIAMETER)**



\* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase  $d_{50}$  stone size and/or provide velocity reduction device.

# **MAINTENANCE INSPECTION CHECKLIST**

**Stormwater Pond/Wetland Operation, Maintenance and Management Inspection Checklist**

Project \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Site Status: \_\_\_\_\_  
  
 Date: \_\_\_\_\_  
 Time: \_\_\_\_\_  
  
 Inspector: \_\_\_\_\_

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
<b>1. Embankment and emergency spillway (Annual, After Major Storms)</b>		
1. Vegetation and ground cover adequate		
2. Embankment erosion		
3. Animal burrows		
4. Unauthorized planting		
5. Cracking, bulging, or sliding of dam		
a. Upstream face		
b. Downstream face		
c. At or beyond toe		
downstream		
upstream		
d. Emergency spillway		
6. Pond, toe & chimney drains clear and functioning		
7. Seeps/leaks on downstream face		
8. Slope protection or riprap failure		
9. Vertical/horizontal alignment of top of dam "As-Built"		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
10. Emergency spillway clear of obstructions and debris		
11. Other (specify)		
<b>2. Riser and principal spillway (Annual)</b>		
Type: Reinforced concrete _____ Corrugated pipe _____ Masonry _____		
1. Low flow orifice obstructed		
2. Low flow trash rack. a. Debris removal necessary		
b. Corrosion control		
3. Weir trash rack maintenance a. Debris removal necessary		
b. corrosion control		
4. Excessive sediment accumulation insider riser		
5. Concrete/masonry condition riser and barrels a. cracks or displacement		
b. Minor spalling (<1" )		
c. Major spalling (rebars exposed)		
d. Joint failures		
e. Water tightness		
6. Metal pipe condition		
7. Control valve a. Operational/exercised		
b. Chained and locked		
8. Pond drain valve a. Operational/exercised		
b. Chained and locked		
9. Outfall channels functioning		
10. Other (specify)		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
<b>3. Permanent Pool (Wet Ponds) (monthly)</b>		
1. Undesirable vegetative growth		
2. Floating or floatable debris removal required		
3. Visible pollution		
4. Shoreline problem		
5. Other (specify)		
<b>4. Sediment Forebays</b>		
1. Sedimentation noted		
2. Sediment cleanout when depth < 50% design depth		
<b>5. Dry Pond Areas</b>		
1. Vegetation adequate		
2. Undesirable vegetative growth		
3. Undesirable woody vegetation		
4. Low flow channels clear of obstructions		
5. Standing water or wet spots		
6. Sediment and / or trash accumulation		
7. Other (specify)		
<b>6. Condition of Outfalls (Annual , After Major Storms)</b>		
1. Riprap failures		
2. Slope erosion		
3. Storm drain pipes		
4. Endwalls / Headwalls		
5. Other (specify)		
<b>7. Other (Monthly)</b>		
1. Encroachment on pond, wetland or easement area		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
2. Complaints from residents		
3. Aesthetics a. Grass growing required		
b. Graffiti removal needed		
c. Other (specify)		
4. Conditions of maintenance access routes.		
5. Signs of hydrocarbon build-up		
6. Any public hazards (specify)		
<b>8. Wetland Vegetation (Annual)</b>		
1. Vegetation healthy and growing Wetland maintaining 50% surface area coverage of wetland plants after the second growing season. (If unsatisfactory, reinforcement plantings needed)		
2. Dominant wetland plants: Survival of desired wetland plant species Distribution according to landscaping plan?		
3. Evidence of invasive species		
4. Maintenance of adequate water depths for desired wetland plant species		
5. Harvesting of emergent plantings needed		
6. Have sediment accumulations reduced pool volume significantly or are plants “choked” with sediment		
7. Eutrophication level of the wetland.		
8. Other (specify)		

**Comments:**

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**Actions to be Taken:**

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## Infiltration Trench Operation, Maintenance, and Management Inspection Checklist

Project:  
 Location:  
 Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
<b>1. Debris Cleanout (Monthly)</b>		
Trench surface clear of debris		
Inflow pipes clear of debris		
Overflow spillway clear of debris		
Inlet area clear of debris		
<b>2. Sediment Traps or Forebays (Annual)</b>		
Obviously trapping sediment		
Greater than 50% of storage volume remaining		
<b>3. Dewatering (Monthly)</b>		
Trench dewaterers between storms		
<b>4. Sediment Cleanout of Trench (Annual)</b>		
No evidence of sedimentation in trench		
Sediment accumulation doesn't yet require cleanout		
<b>5. Inlets (Annual)</b>		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Good condition		
No evidence of erosion		
<b>6. Outlet/Overflow Spillway (Annual)</b>		
Good condition, no need for repair		
No evidence of erosion		
<b>7. Aggregate Repairs (Annual)</b>		
Surface of aggregate clean		
Top layer of stone does not need replacement		
Trench does not need rehabilitation		

**Comments:**

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**Actions to be Taken:**

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## Sand/Organic Filter Operation, Maintenance and Management Inspection Checklist

Project:  
Location:  
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
<b>1. Debris Cleanout (Monthly)</b>		
Contributing areas clean of debris		
Filtration facility clean of debris		
Inlet and outlets clear of debris		
<b>2. Oil and Grease (Monthly)</b>		
No evidence of filter surface clogging		
Activities in drainage area minimize oil and grease entry		
<b>3. Vegetation (Monthly)</b>		
Contributing drainage area stabilized		
No evidence of erosion		
Area mowed and clipping removed		
<b>4. Water Retention Where Required (Monthly)</b>		
Water holding chambers at normal pool		
No evidence of leakage		
<b>5. Sediment Deposition (Annual)</b>		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Filter chamber free of sediments		
Sedimentation chamber not more than half full of sediments		
<b>6. Structural Components (Annual)</b>		
No evidence of structural deterioration		
Any grates are in good condition		
No evidence of spalling or cracking of structural parts		
<b>7. Outlet/Overflow Spillway (Annual)</b>		
Good condition, no need for repairs		
No evidence of erosion (if draining into a natural channel)		
<b>8. Overall Function of Facility (Annual)</b>		
Evidence of flow bypassing facility		
No noticeable odors outside of facility		

**Comments:**

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**Actions to be Taken:**

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## Bioretention Operation, Maintenance and Management Inspection Checklist

Project:  
 Location:  
 Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
<b>1. Debris Cleanout (Monthly)</b>		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
<b>2. Vegetation (Monthly)</b>		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
<b>3. Check Dams/Energy Dissipaters/Sumps (Annual, After Major Storms)</b>		
No evidence of sediment buildup		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
<b>4. Dewatering (Monthly)</b>		
Dewaterers between storms		
No evidence of standing water		
<b>5. Sediment Deposition (Annual)</b>		
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		
<b>6. Outlet/Overflow Spillway (Annual, After Major Storms)</b>		
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
<b>7. Integrity of Filter Bed (Annual)</b>		
Filter bed has not been blocked or filled inappropriately		

**Comments:**

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**Actions to be Taken:**

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## Open Channel Operation, Maintenance, and Management Inspection Checklist

Project:  
 Location:  
 Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
<b>1. Debris Cleanout (Monthly)</b>		
Contributing areas clean of debris		
<b>2. Check Dams or Energy Dissipators (Annual, After Major Storms)</b>		
No evidence of flow going around structures		
No evidence of erosion at downstream toe		
Soil permeability		
Groundwater / bedrock		
<b>3. Vegetation (Monthly)</b>		
Mowing done when needed		
Minimum mowing depth not exceeded		
No evidence of erosion		
Fertilized per specification		
<b>4. Dewatering (Monthly)</b>		
Dewaterers between storms		

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
<b>5. Sediment deposition (Annual)</b>		
Clean of sediment		
<b>6. Outlet/Overflow Spillway (Annual)</b>		
Good condition, no need for repairs		
No evidence of erosion		

**Comments:**

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**Actions to be Taken:**

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# **SITE LOGBOOK**

**APPENDIX F**  
**CONSTRUCTION SITE INSPECTION**  
**AND MAINTENANCE LOG BOOK**

**STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION**  
**ACTIVITIES**

**SAMPLE CONSTRUCTION SITE LOG BOOK**

Table of Contents

---

- I. Pre-Construction Meeting Documents
  - a. Preamble to Site Assessment and Inspections
  - b. Pre-Construction Site Assessment Checklist
  
- II. Construction Duration Inspections
  - a. Directions
  - b. Modification to the SWPPP

**I. PRE-CONSTRUCTION MEETING DOCUMENTS**

**Project Name** \_\_\_\_\_  
**Permit No.** \_\_\_\_\_ **Date of Authorization** \_\_\_\_\_  
**Name of Operator** \_\_\_\_\_  
**Prime Contractor** \_\_\_\_\_

**a. Preamble to Site Assessment and Inspections**

The Following Information To Be Read By All Person’s Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified inspector<sup>1</sup> conduct an assessment of the site prior to the commencement of construction<sup>2</sup> and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State’s standards and meets all Federal, State and local erosion and sediment control requirements. A preconstruction meeting should be held to review all of the SWPPP requirements with construction personnel.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization<sup>3</sup> using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to “Qualified Inspector” inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.  
2 “Commencement of construction” means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.  
3 “Final stabilization” means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

**b. Pre-construction Site Assessment Checklist**

**(NOTE: Provide comments below as necessary)**

1. Notice of Intent, SWPPP, and Contractors Certification:

**Yes No NA**

- Has a Notice of Intent been filed with the NYS Department of Conservation?
- Is the SWPPP on-site? Where? \_\_\_\_\_
- Is the Plan current? What is the latest revision date? \_\_\_\_\_
- Is a copy of the NOI (with brief description) onsite? Where? \_\_\_\_\_
- Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

**Yes No NA**

- Are construction limits clearly flagged or fenced?
- Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
- Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

**Yes No NA**

- Clean stormwater runoff has been diverted from areas to be disturbed.
- Bodies of water located either on site or in the vicinity of the site have been identified and protected.
- Appropriate practices to protect on-site or downstream surface water are installed.
- Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Access

**Yes No NA**

- A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
- Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
- Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Sediment Controls

**Yes No NA**

- Silt fence material and installation comply with the standard drawing and specifications.
- Silt fences are installed at appropriate spacing intervals
- Sediment/detention basin was installed as first land disturbing activity.
- Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

**Yes No NA**

- The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
- The plan is contained in the SWPPP on page \_\_\_\_\_
- Appropriate materials to control spills are onsite. Where? \_\_\_\_\_

## II. CONSTRUCTION DURATION INSPECTIONS

### a. Directions:

**Inspection Forms will be filled out during the entire construction phase of the project.**

Required Elements:

- 1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;
- 2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;
- 3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;
- 4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);
- 5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and
- 6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

**SITE PLAN/SKETCH**

\_\_\_\_\_  
**Inspector (print name)**

\_\_\_\_\_  
**Date of Inspection**

\_\_\_\_\_  
**Qualified Inspector (print name)**

\_\_\_\_\_  
**Qualified Inspector Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

**Maintaining Water Quality**

**Yes No NA**

- Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
- Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
- All disturbance is within the limits of the approved plans.
- Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

**Housekeeping**

1. General Site Conditions

**Yes No NA**

- Is construction site litter, debris and spoils appropriately managed?
- Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
- Is construction impacting the adjacent property?
- Is dust adequately controlled?

2. Temporary Stream Crossing

**Yes No NA**

- Maximum diameter pipes necessary to span creek without dredging are installed.
- Installed non-woven geotextile fabric beneath approaches.
- Is fill composed of aggregate (no earth or soil)?
- Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

3. Stabilized Construction Access

**Yes No NA**

- Stone is clean enough to effectively remove mud from vehicles.
- Installed per standards and specifications?
- Does all traffic use the stabilized entrance to enter and leave site?
- Is adequate drainage provided to prevent ponding at entrance?

**Runoff Control Practices**

1. Excavation Dewatering

**Yes No NA**

- Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
- Clean water from upstream pool is being pumped to the downstream pool.
- Sediment laden water from work area is being discharged to a silt-trapping device.
- Constructed upstream berm with one-foot minimum freeboard.

**Runoff Control Practices (continued)**

2. Flow Spreader

**Yes No NA**

- Installed per plan.
- Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
- Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

**Yes No NA**

- Installed per plan with minimum side slopes 2H:1V or flatter.
- Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
- Sediment-laden runoff directed to sediment trapping structure

4. Stone Check Dam

**Yes No NA**

- Is channel stable? (flow is not eroding soil underneath or around the structure).
- Check is in good condition (rocks in place and no permanent pools behind the structure).
- Has accumulated sediment been removed?.

5. Rock Outlet Protection

**Yes No NA**

- Installed per plan.
- Installed concurrently with pipe installation.

**Soil Stabilization**

1. Topsoil and Spoil Stockpiles

**Yes No NA**

- Stockpiles are stabilized with vegetation and/or mulch.
- Sediment control is installed at the toe of the slope.

2. Revegetation

**Yes No NA**

- Temporary seedings and mulch have been applied to idle areas.
- 4 inches minimum of topsoil has been applied under permanent seedings

**Sediment Control Practices**

1. Silt Fence and Linear Barriers

**Yes No NA**

- Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
- Joints constructed by wrapping the two ends together for continuous support.
- Fabric buried 6 inches minimum.
- Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation is \_\_\_% of design capacity.

**Sediment Control Practices (continued)**

2. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated; Filter Sock or Manufactured practices)

**Yes No NA**

- Installed concrete blocks lengthwise so open ends face outward, not upward.
  - Placed wire screen between No. 3 crushed stone and concrete blocks.
  - Drainage area is 1 acre or less.
  - Excavated area is 900 cubic feet.
  - Excavated side slopes should be 2:1.
  - 2" x 4" frame is constructed and structurally sound.
  - Posts 3-foot maximum spacing between posts.
  - Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
  - Posts are stable, fabric is tight and without rips or frayed areas.
  - Manufactured insert fabric is free of tears and punctures.
  - Filter Sock is not torn or flattened and fill material is contained within the mesh sock.
- Sediment accumulation \_\_\_% of design capacity.

3. Temporary Sediment Trap

**Yes No NA**

- Outlet structure is constructed per the approved plan or drawing.
  - Geotextile fabric has been placed beneath rock fill.
  - Sediment trap slopes and disturbed areas are stabilized.
- Sediment accumulation is \_\_\_% of design capacity.

4. Temporary Sediment Basin

**Yes No NA**

- Basin and outlet structure constructed per the approved plan.
  - Basin side slopes are stabilized with seed/mulch.
  - Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
  - Sediment basin dewatering pool is dewatering at appropriate rate.
- Sediment accumulation is \_\_\_% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.



## **CONTRACTOR CERTIFICATION FORMS**

## Contractor's Certifications & Forms

### CONTRACTOR'S CERTIFICATION STATEMENT

#### I. SITE INFORMATION

Project Location: Section 55.22, Block 1, Lot 1; Section 55.37, Block 1, Lot 31  
25 Old Mill Road  
Village of Suffern, Rockland County, New York

#### II. CONTRACTORS INFORMATION

Contracting Firm Name: \_\_\_\_\_  
Contracting Firm Address: \_\_\_\_\_  
Telephone Number(s): \_\_\_\_\_  
Contact(s): 1) \_\_\_\_\_  
                  2) \_\_\_\_\_

#### III. CERTIFICATION

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the developer must comply with the terms and conditions of the NYC Stormwater Construction Permit, the most current version of the New York State Pollutant Discharge Elimination System (SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

\_\_\_\_\_  
Contractor (print name)

\_\_\_\_\_  
Contractor Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

## SUBCONTRACTOR'S CERTIFICATION STATEMENT

### I. SITE INFORMATION

Project Location: Section 55.22, Block 1, Lot 1; Section 55.37, Block 1, Lot 31  
25 Old Mill Road  
Village of Suffern, Rockland County, New York

### II. CONTRACTORS INFORMATION

Contracting Firm Name: \_\_\_\_\_  
Contracting Firm Address: \_\_\_\_\_  
Telephone Number(s): \_\_\_\_\_  
Contact(s): 1) \_\_\_\_\_  
2) \_\_\_\_\_

### III. CERTIFICATION

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the developer must comply with the terms and conditions of the NYC Stormwater Construction Permit, the most current version of the New York State Pollutant Discharge Elimination System (SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

\_\_\_\_\_  
Subcontractor (print name)

\_\_\_\_\_  
Subcontractor Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date



Stormwater Pollution Prevention Plan (SWPPP)  
Proposed Industrial Park at 25 Old Mill Road

Stormwater Pollution Prevention Plan (SWPPP)  
Proposed Industrial Park at 25 Old Mill Road

Stormwater Pollution Prevention Plan (SWPPP)  
Proposed Industrial Park at 25 Old Mill Road

**MS4 ACCEPTANCE FORM**



Department of  
Environmental  
Conservation

NYS Department of Environmental Conservation  
Division of Water  
625 Broadway, 4th Floor  
Albany, New York 12233-3505

## MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit  
\*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

### I. Project Owner/Operator Information

1. Owner/Operator Name:

2. Contact Person:

3. Street Address:

4. City/State/Zip:

### II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/State/Zip:

### III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information

8. SWPPP Reviewed by:

9. Title/Position:

10. Date Final SWPPP Reviewed and Accepted:

### IV. Regulated MS4 Information

11. Name of MS4:

12. MS4 SPDES Permit Identification Number: NYR20A

13. Contact Person:

14. Street Address:

15. City/State/Zip:

16. Telephone Number:

**MS4 SWPPP Acceptance Form - continued**

**V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative**

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

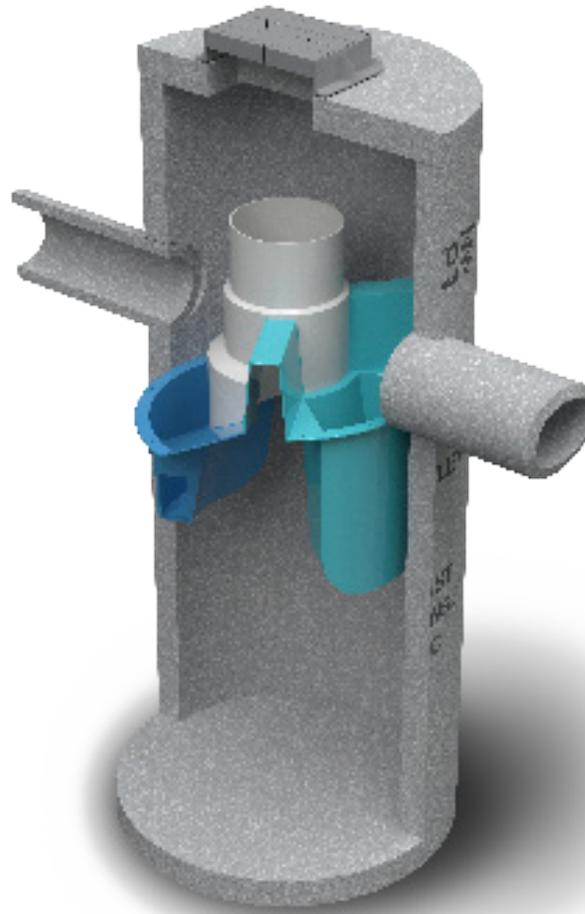
Signature:

Date:

**VI. Additional Information**

**POST CONSTRUCTION STORMWATER MANAGEMENT  
AGREEMENT & STORMWATER MANAGEMENT  
PRACTICE INSPECTION DOCS  
(TO BE PROVIDED WITH SUBSEQUENT SUBMISSION)**

**HYDRO INTERNATIONAL OPERATIONS AND  
MAINTENANCE MANUAL**



## Operation and Maintenance Manual

**First Defense<sup>®</sup> High Capacity and First Defense<sup>®</sup> Optimum**

---

Vortex Separator for Stormwater Treatment

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<b>3</b>	<b>FIRST DEFENSE® BY HYDRO INTERNATIONAL</b> <ul style="list-style-type: none"><li>- INTRODUCTION</li><li>- OPERATION</li><li>- POLLUTANT CAPTURE AND RETENTION</li></ul>
<b>4</b>	<b>MODEL SIZES &amp; CONFIGURATIONS</b> <ul style="list-style-type: none"><li>- FIRST DEFENSE® COMPONENTS</li></ul>
<b>5</b>	<b>MAINTENANCE</b> <ul style="list-style-type: none"><li>- OVERVIEW</li><li>- MAINTENANCE EQUIPMENT CONSIDERATIONS</li><li>- DETERMINING YOUR MAINTENANCE SCHEDULE</li></ul>
<b>6</b>	<b>MAINTENANCE PROCEDURES</b> <ul style="list-style-type: none"><li>- INSPECTION</li><li>- FLOATABLES AND SEDIMENT CLEAN OUT</li></ul>
<b>8</b>	<b>FIRST DEFENSE® INSTALLATION LOG</b>
<b>9</b>	<b>FIRST DEFENSE® INSPECTION AND MAINTENANCE LOG</b>

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**DISCLAIMER:** Information and data contained in this manual is exclusively for the purpose of assisting in the operation and maintenance of Hydro International plc's First Defense®. No warranty is given nor can liability be accepted for use of this information for any other purpose. Hydro International plc has a policy of continuous product development and reserves the right to amend specifications without notice.

# I. First Defense® by Hydro International

## Introduction

The First Defense® is an enhanced vortex separator that combines an effective and economical stormwater treatment chamber with an integral peak flow bypass. It efficiently removes total suspended solids (TSS), trash and hydrocarbons from stormwater runoff without washing out previously captured pollutants. The First Defense® is available in several model configurations to accommodate a wide range of pipe sizes, peak flows and depth constraints.

The two product models described in this guide are the First Defense® High Capacity and the First Defense® Optimum; they are inspected and maintained identically.

## Operation

The First Defense® operates on simple fluid hydraulics. It is self-activating, has no moving parts, no external power requirement and is fabricated with durable non-corrosive components. No manual procedures are required to operate the unit and maintenance is limited to monitoring accumulations of stored pollutants and periodic clean-outs. The First Defense® has been designed to allow for easy and safe access for inspection, monitoring and clean-out procedures. Neither entry into the unit nor removal of the internal components is necessary for maintenance, thus safety concerns related to confined-space-entry are avoided.

## Pollutant Capture and Retention

The internal components of the First Defense® have been designed to optimize pollutant capture. Sediment is captured and retained in the base of the unit, while oil and floatables are stored on the water surface in the inner volume (Fig.1).

The pollutant storage volumes are isolated from the built-in bypass chamber to prevent washout during high-flow storm events. The sump of the First Defense® retains a standing water level between storm events. This ensures a quiescent flow regime at the onset of a storm, preventing resuspension and washout of pollutants captured during previous events.

Accessories such as oil absorbent pads are available for enhanced oil removal and storage. Due to the separation of the oil and floatable storage volume from the outlet, the potential for washout of stored pollutants between clean-outs is minimized.

## Applications

- Stormwater treatment at the point of entry into the drainage line
- Sites constrained by space, topography or drainage profiles with limited slope and depth of cover
- Retrofit installations where stormwater treatment is placed on or tied into an existing storm drain line
- Pretreatment for filters, infiltration and storage

## Advantages

- Inlet options include surface grate or multiple inlet pipes
- Integral high capacity bypass conveys large peak flows without the need for "offline" arrangements using separate junction manholes
- Long flow path through the device ensures a long residence time within the treatment chamber, enhancing pollutant settling
- Delivered to site pre-assembled and ready for installation

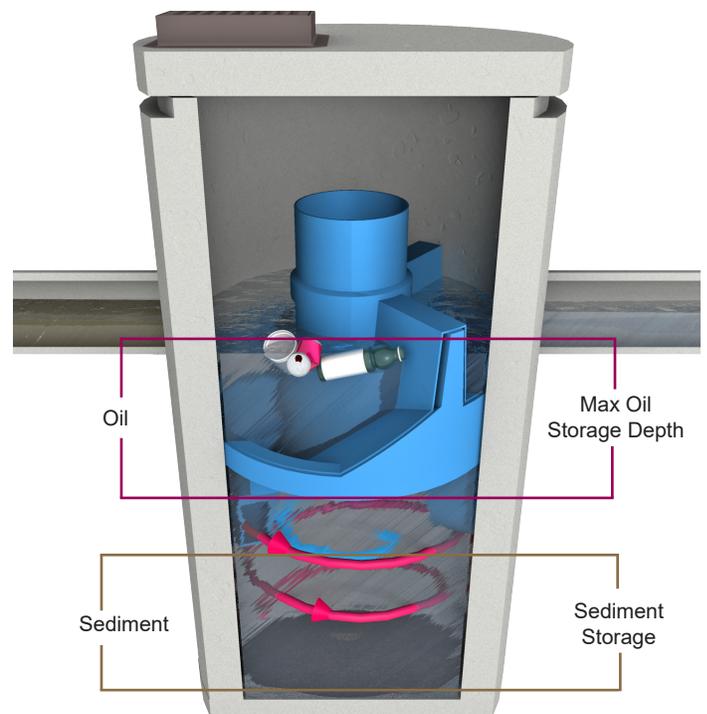


Fig.1 Pollutant storage volumes in the First Defense®.

## II. Model Sizes & Configurations

The First Defense® inlet and internal bypass arrangements are available in several model sizes and configurations. The components have modified geometries allowing greater design flexibility to accommodate various site constraints.

All First Defense® models include the internal components that are designed to remove and retain total suspended solids (TSS), gross solids, floatable trash and hydrocarbons (Fig.2). First Defense® model sizes (diameter) are shown in Table 1.

## III. Maintenance

### First Defense® Components

- |                    |                             |                         |
|--------------------|-----------------------------|-------------------------|
| 1. Built-In Bypass | 4. Floatables Draw-off Port | 7. Sediment Storage     |
| 2. Inlet Pipe      | 5. Outlet Pipe              | 8. Inlet Grate or Cover |
| 3. Inlet Chute     | 6. Floatables Storage       |                         |

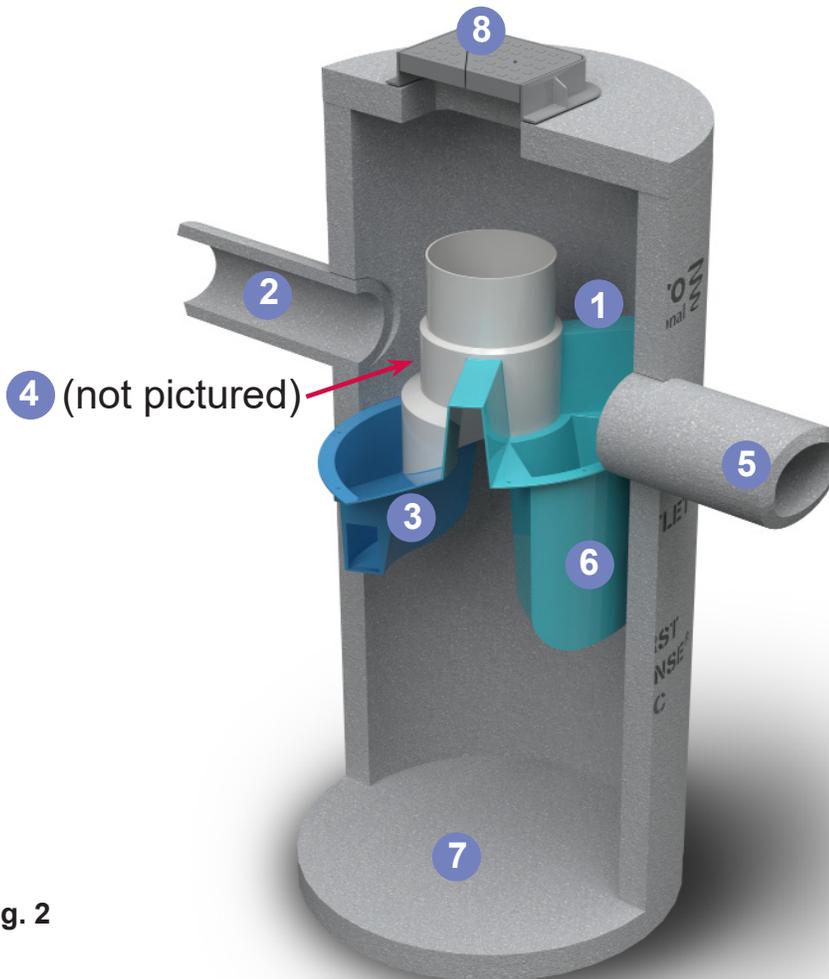


Fig. 2

Table 1

First Defense® Model Sizes
(ft / m) diameter
3 / 0.9
4 / 1.2
5 / 1.5
6 / 1.8
7 / 2.1
8 / 2.4
10 / 3.0

## Overview

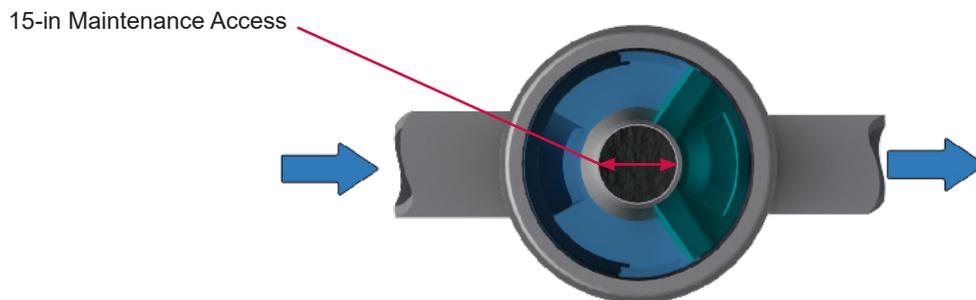
The First Defense® protects the environment by removing a wide range of pollutants from stormwater runoff. Periodic removal of these captured pollutants is essential to the continuous, long-term functioning of the First Defense®. The First Defense® will capture and retain sediment and oil until the sediment and oil storage volumes are full to capacity. When sediment and oil storage capacities are reached, the First Defense® will no longer be able to store removed sediment and oil.

The First Defense® allows for easy and safe inspection, monitoring and clean-out procedures. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables. Access ports are located in the top of the manhole.

Maintenance events may include Inspection, Oil & Floatables Removal, and Sediment Removal. Maintenance events do not require entry into the First Defense®, nor do they require the internal components of the First Defense® to be removed. In the case of inspection and floatables removal, a vactor truck is not required. However, a vactor truck is required if the maintenance event is to include oil removal and/or sediment removal.

## Maintenance Equipment Considerations

The internal components of the First Defense® have a centrally located circular shaft through which the sediment storage sump can be accessed with a sump vac hose. The open diameter of this access shaft is 15 inches in diameter (Fig.3). Therefore, the nozzle fitting of any vactor hose used for maintenance should be less than 15 inches in diameter.



*Fig.3 The central opening to the sump of the First Defense® is 15 inches in diameter.*

## Determining Your Maintenance Schedule

The frequency of clean out is determined in the field after installation. During the first year of operation, the unit should be inspected every six months to determine the rate of sediment and floatables accumulation. A simple probe such as a Sludge-Judge® can be used to determine the level of accumulated solids stored in the sump. This information can be recorded in the maintenance log (see page 9) to establish a routine maintenance schedule.

The vactor procedure, including both sediment and oil / floatables removal, for First Defense® typically takes less than 30 minutes and removes a combined water/oil volume of about 765 gallons.

### Inspection Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate or lid to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities. Fig.4 shows the standing water level that should be observed.
4. Without entering the vessel, use the pole with the skimmer net to remove floatables and loose debris from the components and water surface.
5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel.
6. On the Maintenance Log (see page 9), record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.
7. Securely replace the grate or lid.
8. Take down safety equipment.
9. Notify Hydro International of any irregularities noted during inspection.

### Floatables and Sediment Clean Out

Floatables clean out is typically done in conjunction with sediment removal. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables (Fig.4).

Floatables and loose debris can also be netted with a skimmer and pole. The access port located at the top of the manhole provides unobstructed access for a vactor hose to be lowered to the base of the sump.

### Scheduling

- Floatables and sump clean out are typically conducted once a year during any season.
- Floatables and sump clean out should occur as soon as possible following a spill in the contributing drainage area.



Fig.4 Floatables are removed with a vactor hose

### Recommended Equipment

- Safety Equipment (traffic cones, etc)
- Crow bar or other tool to remove grate or lid
- Pole with skimmer or net (if only floatables are being removed)
- Sediment probe (such as a Sludge Judge®)
- Vactor truck (flexible hose recommended)
- First Defense® Maintenance Log

### *Floatables and Sediment Clean Out Procedures*

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate or lid to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.
4. Remove oil and floatables stored on the surface of the water with the vacator hose or with the skimmer or net
5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel and record it in the Maintenance Log (page 9).
6. Once all floatables have been removed, drop the vacator hose to the base of the sump. Vacator out the sediment and gross debris off the sump floor
7. Retract the vacator hose from the vessel.
8. On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components, blockages, or irregularly high or low water levels.
9. Securely replace the grate or lid.

## Maintenance at a Glance

Inspection	<ul style="list-style-type: none"> <li>- Regularly during first year of installation</li> <li>- Every 6 months after the first year of installation</li> </ul>
Oil and Floatables Removal	<ul style="list-style-type: none"> <li>- Once per year, with sediment removal</li> <li>- Following a spill in the drainage area</li> </ul>
Sediment Removal	<ul style="list-style-type: none"> <li>- Once per year or as needed</li> <li>- Following a spill in the drainage area</li> </ul>

NOTE: For most clean outs the entire volume of liquid does not need to be removed from the manhole. Only remove the first few inches of oils and floatables from the water surface to reduce the total volume of liquid removed during a clean out.



## First Defense® Installation Log

HYDRO INTERNATIONAL REFERENCE NUMBER:	
SITE NAME:	
SITE LOCATION:	
OWNER:	CONTRACTOR:
CONTACT NAME:	CONTACT NAME:
COMPANY NAME:	COMPANY NAME:
ADDRESS:	ADDRESS:
TELEPHONE:	TELEPHONE:
FAX:	FAX:

INSTALLATION DATE:    /    /

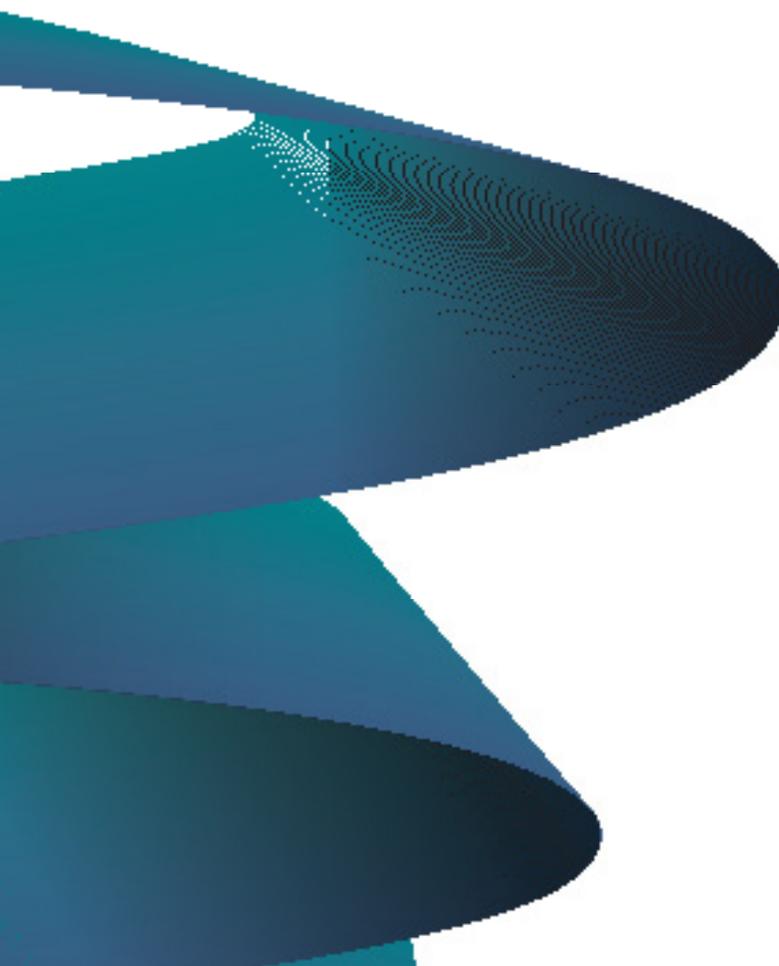
MODEL SIZE (CIRCLE ONE):    [3-FT]    [4-FT]    [5-FT]    [6-FT]    [7-FT]    [8-FT]    [10-FT]

INLET (CIRCLE ALL THAT APPLY):    GRATED INLET (CATCH BASIN)    INLET PIPE (FLOW THROUGH)









## Stormwater Solutions

94 Hutchins Drive  
Portland, ME 04102

Tel: (207) 756-6200

Fax: (207) 756-6212

[stormwaterinquiry@hydro-int.com](mailto:stormwaterinquiry@hydro-int.com)

[www.hydro-int.com](http://www.hydro-int.com)

**FERGUSON R-TANK OPERATIONS AND MAINTENANCE  
MANUAL**



# R-TANK<sup>®</sup> OPERATION, INSPECTION AND MAINTENANCE

### Operation

Your R-Tank System has been designed to function in conjunction with the engineered drainage system on your site, the existing municipal infrastructure, and/or the existing soils and geography of the receiving watershed. Unless your site included certain unique and rare features, the operation of your R-Tank System will be driven by naturally occurring systems and will function autonomously. However, upholding a proper schedule of Inspection & Maintenance is critical to ensuring continued functionality and optimum performance of the system.

### Inspection

Both the R-Tank and all stormwater pre-treatment features incorporated into your site must be inspected regularly. Inspections should be done every six months for the first year of operation, and at least yearly thereafter. Inspections may be required more frequently for pre-treatment systems. You should refer to the manufacturer requirements for the proper inspection schedule.

With the right equipment most inspections and measurements can be accomplished from the surface without physically entering any confined spaces. If your inspection does require confined space entry, you must follow all local, regional, and OSHA requirements.

All maintenance features of your system can be accessed through a covering at the surface. With the lid removed, you can visually inspect each component to identify sediment, trash, and other contaminants within the structure. Check your construction plans to identify the maintenance features engineered into your R-Tank system, which may include:

#### Upstream Pipes, Inlets, and Manholes

- Working from the structures adjacent the R-Tank toward those farther away, check for debris and sediment in both the structures and the pipes. Be sure to include all structures that contain pre-treatment systems. Some structures may include a sump.

#### Maintenance Ports

- Located near the inlet and outlet connections and throughout the system, check sediment depth at each port.

### Inspection Ports

- Less common, inspection ports are primarily located within the Treatment Row of an R-Tank System. These should be used to check for sediment deposits but are typically too small to access for backflushing.

### Treatment Row

- On installations in 2018 or later, inlet pipes may connect to a row of modules with 12" diameter access holes running horizontally through the module that can be jet vacuumed. Check these rows for accumulation of sediment and debris.

All observations and measurements should be recorded on an Inspection Log kept on file. We've included a form you can use at the end of this guide.

### Maintenance

For modules taller than 40" the R-Tank System should be back-flushed once sediment accumulation has reached 6". For modules less than 40" tall, perform maintenance when sediment depths are greater than 15% of the total system height.

If your system includes a Treatment Row with linear access through the modules from the inlet pipe, backflush this area when sediment depths reach 6".

### **BEFORE ANY MAINTENANCE IS PERFORMED ON YOUR SYSTEM - PLUG THE OUTLET PIPE TO PREVENT CONTAMINATION OF THE DOWNSTREAM SYSTEMS.**

Begin by cleaning all upstream structures, pipes, and pre-treatment systems containing sediment and/or debris. If your system includes a Treatment Row, this portion of the system should be cleaned with traditional jet-vac equipment. Add a centralizer to the jet for easiest access through the modules.

To back-flush the R-Tank, water is pumped into the system through the Maintenance Ports as rapidly as possible. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out. If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well.

For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

**STEP BY STEP INSTRUCTIONS FOR INSPECTION AND MAINTENANCE CAN BE FOUND ON THE NEXT PAGE, WITH A MAINTENANCE LOG ON THE LAST PAGE.**

## INSPECTION

1. Upstream Structures
  - a. Remove cover
  - b. Use flashlight to detect sediment deposits If present, measure sediment depth
  - c. Inspect pipes connecting to R-Tank
    - i. If inlet pipes connect to Treatment Row, check sediment depth within these modules
    - ii. If access for measurement inside the Treatment Row is difficult, sediment depth can be estimated based on the coverage of the round, 12" opening of the module
  - d. Inspect pre-treatment systems (if present)
  - e. Record results on Maintenance Log
  - f. Replace cover
  - g. Repeat for ALL Manholes upstream of R-Tank until no sedimentation is observed and all pre- treatment systems have been checked
2. Maintenance Ports
  - a. Remove cap
  - b. Use flashlight to detect sediment deposits
  - c. If present, measure sediment depth with stadia rod
  - d. Record results on maintenance log
  - e. Replace cap
  - f. Repeat for ALL Maintenance Ports
3. Inspection Port
  - a. Remove cap
  - b. Use flashlight to detect sediment deposits
  - c. If present, measure sediment depth with stadia rod
  - d. Record results on Maintenance Log
  - e. Replace cap

## MAINTENANCE

1. Plug system outlet to prevent discharge of back-flush water
2. Vacuum all upstream structures, inlet pipes, and stormwater pre-treatment systems
3. If a Treatment Row is present, vacuum this row of modules
4. Determine best location to pump out back-flush water. Typically, the outlet structure will work best, but sometimes the Maintenance Ports must be used.
5. Remove cap from Maintenance Port and pump water as rapidly as possible into system through port to suspend sediments, pumping dirty water out of the system from the outlet or nearby Maintenance Port
6. Repeat at all Maintenance Ports until sediment levels are reduced to a satisfactory level
7. Sediment-laden water shall be disposed of per local regulations
8. Replace any remaining caps or covers and remove outlet plug
9. Record the back-flushing event in your Maintenance Log with any relevant specifics



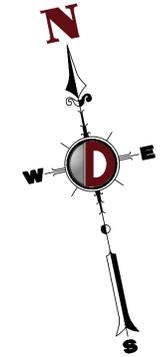
**EXISTING AND PROPOSED DRAINAGE AREA MAPS**

NEW YORK STATE THRUWAY  
(A.K.A. GOVERNOR THOMAS E. DEWEY THRUWAY)  
(VARIABLE ROW WIDTH PER TAX MAP)

Notice of Appropriation  
(Liber 581 Page 581  
& Liber 574 Page 61)

PROPOSED LOT B  
BLOCK 1  
(SECTION 48.79)  
65,541 SF, 1.505 AC.

L=242.99'  
R=1,098.10'  
Δ=12°40'42"  
CB=556' 21" 10"E  
CD=242.49'



PROPOSED LOT A  
BLOCK 1  
(SECTIONS 48.77, 48.78, 48.79)  
138,395 SF, 3.176 AC.

LANDS N/F  
GUSTAVE MAYER

L=1,089.81'  
R=4,172.18'  
Δ=14°41'20"  
CB=557' 23"

OLD MILL ROAD  
(VARIABLE ROW WIDTH PER TAX MAP)

MUNICIPAL BOUNDARY LINE

VILLAGE OF SUFFERN  
(SECTION 55.22  
BLOCK 1, LOT 1)

VILLAGE OF MONTEBELLO

HEMION ROAD  
(VARIABLE ROW WIDTH PER TAX MAP)

Rights of Utility Companies to Maintain  
their Poles and Wires Along the  
Abutting Streets Together with the  
Right to Trim Trees Along said Roads  
as Necessary to Keep Wires Clear

SECTION 55.22  
BLOCK 1, LOT 1  
& SECTION 55.06  
BLOCK 1, LOT 1  
N/F SUFFERN PARTNERS LLC  
INSTRUMENT NO.  
2019-00028909  
7,035,176 SF, 161.505 AC.

SECTION 55.21  
BLOCK 1, LOT 1  
N/F TOWN OF RAMAPO

TC: 16.6 MIN

TC: 15.6 MIN

EX. STUDY AREA (SA) STREAM  
TOTAL AREA: 123.97  
IMP: 20.25 AC  
PER: 103.72 AC  
HSG A: 49.33 AC  
HSG D: 7.87 AC  
HSG Hd: 12.07 AC  
HSG C: 34.45 AC  
HSG A DIRT RD: 0.09 AC  
HSG C DIRT RD: 0.03 AC  
TC: 16.6 MIN

EX. STUDY AREA (SA) POND  
TOTAL AREA: 4.53 AC  
IMP: 0.85 AC  
PER: 3.68 AC  
HSG A: 3.18 AC  
HSG D: 0.50 AC  
WATER SURFACE: 1.85 AC  
TC: 15.6 MIN

LANDS N/F  
GERTRUDE  
CONKLIN

20' Wide Utility Easement  
(Liber 858 Page 95)  
(Liber 849 Page 405)

SECTION 55.10  
BLOCK 1, LOT 4  
N/F OZARK REALTY, LLC  
INSTR. 2011 - 00045964

SECTION 55.10  
BLOCK 1, LOT 2  
N/F MONTEBELLO CROSSING, LLC

SECTION 55.38  
BLOCK 1, LOT 2  
N/F FATHERS OF THE  
AUGUSTINIAN RECOLLECT  
INSTR. 2012 - 00032397

CONSOLIDATED RAIL  
CORPORATION

SECTION 55.38  
BLOCK 1, LOT 2  
N/F SUFFERN FREE LIBRARY

SECTION 55.37  
BLOCK 1, LOT 30.2  
N/F ESTER GITLOW TOWERS II HOUSING  
DEVELOPMENT FUND CORP.

SECTION 55.37  
BLOCK 1, LOT 30.11  
N/F ROCKLAND HOME FOR THE AGED

SECTION 55.37  
BLOCK 1, LOT 30.12  
N/F ROCKLAND HOME  
FOR THE AGED

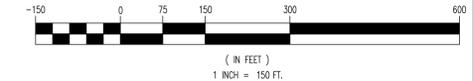
SECTION 55.37  
BLOCK 1, LOT 31  
27,184 SF, 0.624 AC.

Approximate Location of 12' Wide Private Road (Map No.  
1413, Liber 276, Page 151, Liber 756, Page 937)

15' Wide Orange &  
Rockland Utilities Easement  
(Liber 984, Page 737 &  
Liber 1068, Page 181)

N.Y.S.H. ROUTE 59  
(A.K.A. LAFAYETTE AVENUE)  
(A.K.A. N.Y.S.H. ROUTE 9000)  
(VARIABLE ROW WIDTH PER TAX MAP)

GRAPHIC SCALE



THIS PLAN SET IS FOR PERMITTING PURPOSES ONLY AND MAY NOT BE USED FOR CONSTRUCTION

**DYNAMIC ENGINEERING**  
LAND DEVELOPMENT CONSULTING • PERMITTING • GEOTECHNICAL • ENVIRONMENTAL • SURVEY • PLANNING & ZONING

1964 Main Street  
Lake Como, NJ 07719  
T: 732.974.0198  
F: 732.974.3521  
www.dynamiceng.com

TITLE: **EXISTING DRAINAGE MAP**

PROJECT: **IV2 ROCKLAND LOGISTICS, LLC  
PROPOSED INDUSTRIAL PARK AT 25 OLD MILL ROAD**  
SECTION 55.22 BLOCK 1, LOT 1; SECTION 55.37; BLOCK 1, LOT 31  
OLD MILL ROAD AND HEMION ROAD (CR 93)  
VILLAGE OF SUFFERN, ROCKLAND COUNTY, NEW YORK

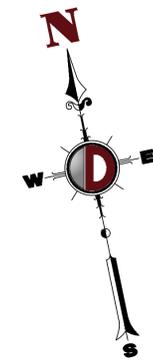
JOB No: 3709-99-004  
DATE: 07/28/2022  
DRAWN BY: UV  
SCALE: (H) 1"=150'  
(V)  
DESIGNED BY: JMS  
SHEET No:  
CHECKED BY: JMS  
1  
OF 2

ZACHARY A. KAMM  
PROFESSIONAL ENGINEER  
NEW YORK LICENSE No. 107671

JOSHUA M. SEWALD  
PROFESSIONAL ENGINEER  
NEW YORK LICENSE No. 097639

811 PROTECT YOURSELF  
ALL UTILITIES REQUIRE NOTIFICATION OF  
LOCATION, DEPTH, OR ANY OTHER  
INFORMATION TO AVOID ACCIDENTS.  
CALL 811 OR VISIT  
WWW.CALL811.COM

Plotted: 01/17/24 - 9:57 AM, By: lverose, Product: Veri 24.3s (LMS Tech) File: P:\BECPC PROJECTS\3709 Brookfield Properties\99-004 Suffern NY\DWG\DA Mapa D370999004ED1.dwg, ---> 01 EXISTING DRAINAGE MAP



**NEW YORK STATE THRUWAY**  
(A.K.A. GOVERNOR THOMAS E. DEWEY THRUWAY)  
(VARIABLE ROW WIDTH PER TAX MAP)

Notice of Appropriation  
(Liber 581 Page 581  
& Liber 574 Page 61)

PROPOSED LOT B  
BLOCK 1  
(SECTION 48.79)  
65,541 SF, 1,505 AC.

PROPOSED LOT A  
BLOCK 1  
(SECTIONS 48.77, 48.78, 48.79)  
138,395 SF, 3,176 AC.

**STUDY AREA (SA)  
FOREBAY A1**  
TOTAL AREA: 2.54 AC  
IMP AREA: 2.15 AC  
PERV AREA: 0.39 AC  
HSG A: 0.39 AC  
TC: 1.9 MIN.

**STUDY AREA (SA)  
FOREBAY A2**  
TOTAL AREA: 2.71 AC  
IMP AREA: 1.96 AC  
PERV AREA: 0.75 AC  
HSG A: 0.75 AC  
TC: 2.6 MIN.

**STUDY AREA (SA) AG  
INFILTRATION BASIN B**  
TOTAL AREA: 1.56 AC  
IMP AREA: 1.03 AC  
PERV AREA: 0.53 AC  
HSG A: 0.18 AC  
HSG D: 0.35 AC  
TC: 2.4 MIN.

**STUDY AREA (SA) LC  
INFILTRATION BASIN C**  
TOTAL AREA: 8.09 AC  
IMP AREA: 7.68 AC  
PERV AREA: 0.41 AC  
HSG A: 0.38 AC  
HSG N/A (D): 0.03 AC  
TC: 5.0 MIN.

**STUDY AREA (SA) UC  
INFILTRATION BASIN D**  
TOTAL AREA: 8.24 AC  
IMP AREA: 7.87 AC  
PERV AREA: 0.37 AC  
HSG A: 0.01 AC  
HSG N/A (D): 0.36 AC  
TC: 5.0 MIN.

**STUDY AREA (SA)  
STREAM UNDETAINED**

**STUDY AREA (SA)  
STREAM UNDETAINED**

**STUDY AREA (SA)  
INFILTRATION BASIN H**  
TOTAL AREA: 1.43 AC  
IMP AREA: 1.41 AC  
PERV AREA: 0.02 AC  
HSG A: 0.02 AC  
TC: 1.2 MIN.

**STUDY AREA (SA) UE  
INFILTRATION BASIN E**  
TOTAL AREA: 8.22 AC  
IMP AREA: 7.82 AC  
PERV AREA: 0.40 AC  
HSG A: 0.40 AC  
TC: 5.2 MIN.

**STUDY AREA (SA) UG  
INFILTRATION BASIN F**  
TOTAL AREA: 9.66 AC  
IMP AREA: 9.06 AC  
PERV AREA: 0.60 AC  
HSG A: 0.45 AC  
HSG C: 0.10 AC  
HSG N/A (D): 0.05 AC  
TC: 3.8 MIN.

**STUDY AREA (SA)  
INFILTRATION BASIN G**  
TOTAL AREA: 0.70 AC  
IMP AREA: 0.42 AC  
PERV AREA: 0.28 AC  
HSG A: 0.28 AC  
TC: 1.6 MIN.

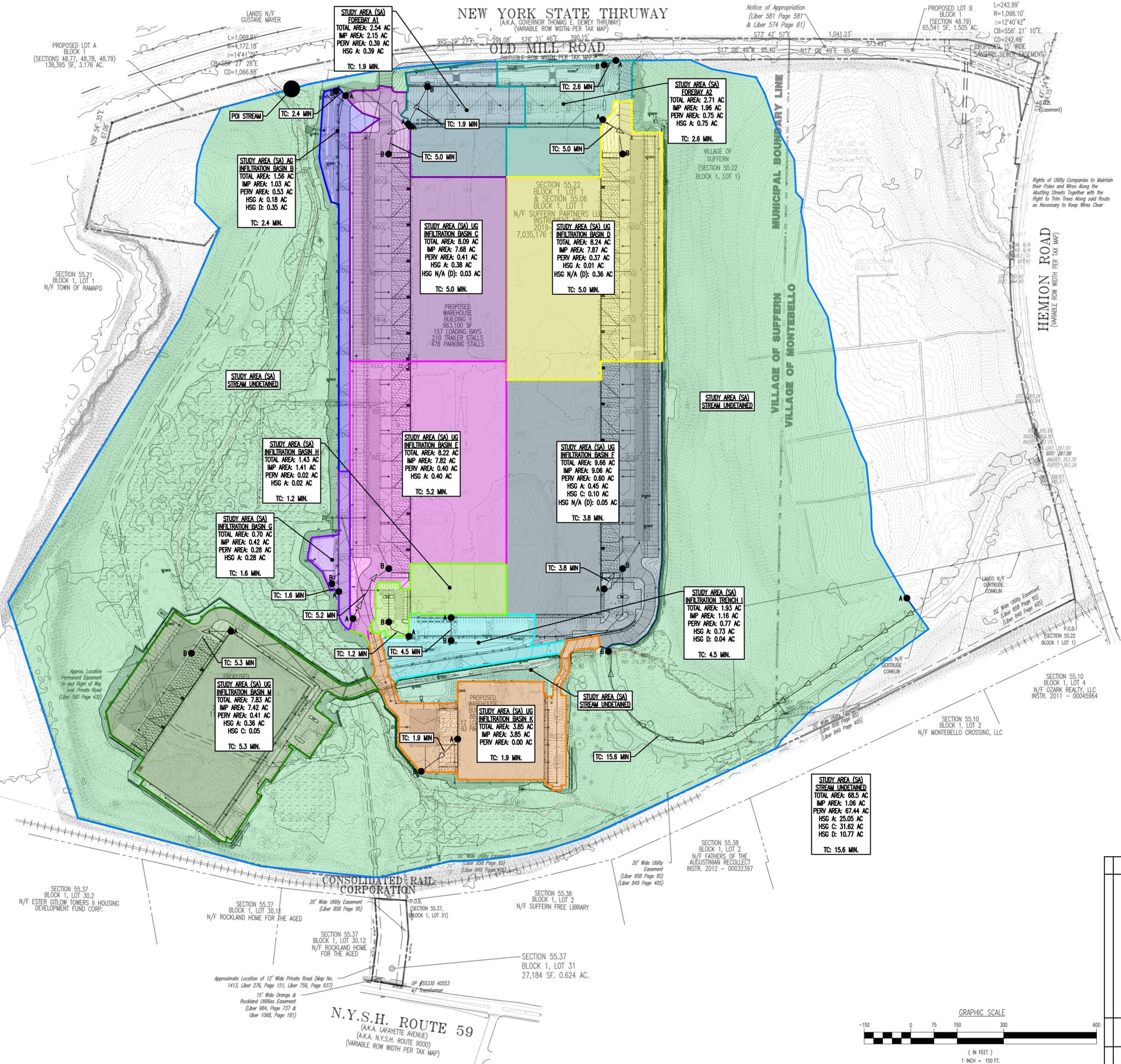
**STUDY AREA (SA) UG  
INFILTRATION BASIN I**  
TOTAL AREA: 1.93 AC  
IMP AREA: 1.16 AC  
PERV AREA: 0.77 AC  
HSG A: 0.73 AC  
HSG D: 0.04 AC  
TC: 4.5 MIN.

**STUDY AREA (SA) UG  
INFILTRATION BASIN M**  
TOTAL AREA: 7.83 AC  
IMP AREA: 7.42 AC  
PERV AREA: 0.41 AC  
HSG A: 0.36 AC  
HSG C: 0.05  
TC: 5.3 MIN.

**STUDY AREA (SA) UG  
INFILTRATION BASIN K**  
TOTAL AREA: 3.85 AC  
IMP AREA: 3.85 AC  
PERV AREA: 0.00 AC  
TC: 1.9 MIN.

**STUDY AREA (SA)  
STREAM UNDETAINED**  
TC: 15.6 MIN.

**STUDY AREA (SA)  
STREAM UNDETAINED**  
TOTAL AREA: 68.5 AC  
IMP AREA: 1.06 AC  
PERV AREA: 67.44 AC  
HSG A: 25.05 AC  
HSG C: 31.62 AC  
HSG D: 10.77 AC  
TC: 15.6 MIN.



THIS PLAN SET IS FOR PERMITTING PURPOSES ONLY AND MAY NOT BE USED FOR CONSTRUCTION

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TITLE: **PROPOSED DRAINAGE MAP**

PROJECT: **IV2 ROCKLAND LOGISTICS, LLC  
PROPOSED INDUSTRIAL PARK AT 25 OLD MILL ROAD**  
SECTION 55.22 BLOCK 1, LOT 1; SECTION 55.37; BLOCK 1, LOT 31  
OLD MILL ROAD AND HEMION ROAD (CR 93)  
VILLAGE OF SUFFERN, ROCKLAND COUNTY, NEW YORK

JOB No: 3709-99-004  
DATE: 07/28/2022  
DRAWN BY: UV  
SCALE: (H) 1"=150'  
(V)  
DESIGNED BY: JMS  
SHEET No:  
CHECKED BY: JMS  
CHECKED BY: -

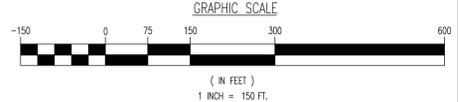
**ZACHARY A. KAMM** **JOSHUA M. SEWALD**

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 File: P:\BECPC PROJECTS\3709 Brookfield Properties\99-004 Suffern NY.Dwg (A Maps D370999004P01.dwg, ---> 02 PROPOSED DRAINAGE MAP

**OVERALL PHASING PLAN  
(TO BE PROVIDED WITH SUBSEQUENT SUBMISSION)**

**PRELIMINARY AND FINAL MAJOR SITE PLANS  
(ATTACHED SEPARATELY)**