

**APPLICATION OF THE HARTFORD DISPENSARY D/B/A ROOT  
CENTER FOR ADVANCED RECOVERY AND HARTFORD  
DISPENSARY REAL ESTATE, INC. FOR SPECIAL PERMIT WITH SITE  
PLAN APPROVAL FOR SUBSTANCE USE REHABILITATION CLINIC  
AT 35 LAFAYETTE STREET AND SURROUNDING PARCELS,  
HARTFORD, CT**

**Planning & Zoning Commission – January 24, 2023**



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### Via DDS Website and Email

January 24, 2023

Ms. Josye Utick, Chair,  
and Commission Members  
Planning & Zoning Commission  
City of Hartford  
260 Constitution Plaza  
Hartford, CT 06103

Mr. I Charles Mathews, Director of  
Department of Development Services  
Ms. Aimee Chambers, AICP, Director of  
Planning  
City of Hartford  
260 Constitution Plaza  
Hartford, CT 06103

Re: Application of The Hartford Dispensary d/b/a Root Center for Advanced Recovery and Hartford Dispensary Real Estate, Inc. for Special Permit with Site Plan Approval for Substance Use Rehabilitation Clinic at 35 Lafayette Street and Surrounding Parcels, Hartford, CT

Dear Chair Utick, Commission Members, Mr. Mathews, and Ms. Chambers:

On behalf of The Hartford Dispensary d/b/a Root Center for Advanced Recovery and Hartford Dispensary Real Estate, Inc. we hereby submit this application for special permit with site plan approval for the construction of a Substance Use Rehabilitation Clinic at 35-39 Lafayette Street (Parcel ID 225-440-113), 152-154 Oak Street (Parcel ID 226-440-108), 156-158 Oak Street (Parcel ID 226-440-109), and 162-164 Oak Street (Parcel ID 226-440-110) in Hartford, Connecticut (collectively, the “subject property”). Hartford Dispensary Real Estate Inc., an affiliate of Root Center for Advanced Recovery, is under contract to purchase the subject property. For ease of reference, the applicants will be referred to herein as “Root Center.”

### The Applicants

Root Center is a private, non-profit, health care agency that provides behavioral health and substance use services to the greater Hartford community. Root Center currently operates

two Substance Use Rehabilitation Clinics in Hartford at 345 Main Street and 16-18 Weston Street, which together serve approximately 1,400 patients suffering from substance use disorders. A more detailed mission statement and a narrative summary of Root Center’s operations and services is at Tab 2.

In an effort to better serve its existing and future patients, Root Center recently has embarked on a mission to construct several new, state-of-the-art clinics. Most recently, Root Center closed its clinic on Whiting Street in New Britain, Connecticut, and relocated its operations to a newly-constructed clinic at 542 East Main Street in New Britain with much success. Architectural (pre-construction) perspectives and as-built photographs of the New Britain clinic are at Tab 5. An October 2021 New Britain Herald article discussing the East Main Street clinic, and highlighting the City’s support for Root Center’s mission and the newly-constructed clinic, is also at Tab 5.

### **The Subject Property**

The subject property, which is comprised of four parcels totaling approximately 0.98 acres, is located at the southwest corner of the Grand Street and Lafayette Street intersection, and extends southwest, also fronting on Oak Street. The subject property is presently unimproved, and used as a parking lot. Photos of the subject property are attached here as Exhibit A.

The area has a number of commercial, healthcare and institutional uses, including the Hartford Superior Court and Connecticut State Police Troop H to the north / northeast; Family Dollar, Walgreens, and Bank of America to the south / southeast; and Charter Oak Family Health Center, ImmaCare, Inc., and RisCassi & Davis, P.C. law firm to the west. The Bell Pump / Simons Company abuts the site to the southeast; the Law Offices of Angel A. Lugo abut the site to the northwest. There are a number of public bus stops near the site, including at the Park Street / Oak Street intersection, the Park Street / Wolcott Street intersection, and along Washington Street, near the Connecticut Superior Court building.

The subject property is located in the Multi-Use Mix “MX-1” Zoning District where Substance Use Rehabilitation Clinics are permitted by special permit. In accordance with Regulation §§ 3.3.5.P(5) and (6), the subject property is not located within a 1,500-foot radius of another Substance Use Rehabilitation Clinic, or within a 500-foot radius of an existing school, park, or municipal library.

### **Approvals To Date; NRZ Outreach**

On September 13, 2022, this Commission approved Root Center’s application to amend the Hartford Zoning Regulations (“Regulations”) to incorporate Substance Use Rehabilitation Clinics as a specially permitted use in the MX-1 Zoning District. A copy of that approval is at Tab 3.

The subject property also is located in the Frog Hollow Historic District, which is listed on the National Register of Historic Places. As such, the applicants filed, in September 2022, an application for historic review with the Historic Preservation Commission. The public hearing

opened in September, but was continued over several meetings to December 2022.

In the interim, on November 15, 2022, members of the applicants' development team attended a Frog Hollow NRZ meeting to discuss the proposed Clinic. The applicants revised the design of the Clinic in response to comments received at that meeting. On December 21, 2022, the Historic Preservation Commission unanimously approved the proposed Clinic. The draft minutes of that meeting are at Tab 4.

### **The Proposal**

Root Center is now seeking approval to construct a new, state-of-the art Clinic on the subject property, totaling approximately 7,974 square feet, with associated stormwater, parking, landscaping, lighting, and other improvements. If Root Center's application is approved, the four parcels comprising the subject property will be merged into one. Once constructed, Root Center will relocate its 345 Main Street operations to the new Clinic.

The civil plans, architectural renderings, elevations, and a floor plan for the proposed Clinic are at Tab 6. The floor plan specifically has been designed to eliminate the need for outdoor queuing, as required by Regulation § 3.3.5.P(3).

When asked to describe the design of the building, Root Center's consulting architect, Ted Cutler, AIA, provided this narrative:

The proposed Clinic represents Root's groundbreaking new paradigm in addiction treatment, with modern clinical functions blended with open, daylit group and individual counseling spaces for an inviting yet safe environment for patients and professional staff alike. All Clinic operations reside on a single floor to meet programmatic requirements and to ensure well-monitored care and service flow.

While the main entrance resides at the rear of the Clinic building to ensure patient privacy in accordance with federal law, the street-facing facades on Lafayette Street and Grand Street integrate small entry courts. This elevates the pedestrian experience and the site's ability to adapt to future uses with functional on-street entrances - ensuring the design is a resilient contribution to the streetscape for many years to come.

In keeping with Hartford's Historic Guidelines, the new design respects the street edge, accentuates the pedestrian scale, and locates parking behind the building to improve the sightlines to both new and existing architecture. The design meets the blank wall and fenestration requirements in the Regulations while drawing from the rhythmic punched windows and monolithic facades of the Community Partners buildings across Lafayette Street, and from the ribbon glass geometry at the Bell Pump factory to the south.

The exterior materials blend dark brick, clear glass, and horizontal shiplap metal siding of soothing tones and woodgrain finish – providing a warm backdrop for the Root Center brand. These familiar architectural details and materials, together with approachable landscapes and subtle but safe site lighting, foster a truly healing setting. The result is a modern new building of its own time, yet one that respects the ongoing investment and future potential of the Frog Hollow neighborhood.

In accordance with the Regulations, ample, aesthetically-pleasing landscaping has been incorporated throughout the site, as depicted on the landscape plan at Tab 6, Sheet L-1.01. The lighting proposed for the site will be full cutoff.

### **Clinic Operations And Parking**

Root Center anticipates that the estimated 650 patients from the Main Street site will relocate to the proposed Clinic once constructed. Of those patients, approximately 435 patients visit the Clinic on any given day, primarily during the hours of 5:30 AM to 10:00 AM; afternoon appointments are typically virtual. Conservatively, over half of those patients traveling to the site utilize public transportation. A typical Clinic visit takes approximately 10-20 minutes, although this is a conservative estimate. A maximum of 22 staff members will be on-site during the morning period.

Given the above parameters, the proposed Clinic provides 43 parking spaces on-site, including three handicapped spaces, plus two “drop off” spaces to the west of the Clinic building. Root Center maintains that, in its experience, the parking provided is more than sufficient for the proposed Clinic. When asked to opine on the sufficiency of the parking, Root Center’s consulting traffic engineer, Mark Vertucci, P.E., P.T.O.E., provided the following conservative analysis:

- 22 of the 43 proposed parking spaces will be needed to accommodate the maximum 22 staff members on-site at one time.
- Based on Root Center’s existing Clinic on Main Street, assume that half of the 435 patients expected during the peak morning hours – or 217 patients – drive to the Clinic. If equally distributed over the 4.5 hour peak morning period, that equates to roughly 48 patients per hour.
- With a patient turnaround time of 10-20 minutes, the maximum parking demand would be 16 spaces every 20 minutes.
- Given the above (22 maximum staff spaces, plus the required 16 patient spaces at any given time), the proposed Clinic will require 38 parking spaces on-site.
- With 43 spaces proposed, there will be an additional five parking spaces for overflow patient parking, if needed. The above calculation does not take credit

for the two drop-off spaces provided to the west of the Clinic building, or street parking, which provides additional capacity.

Accordingly, the parking proposed on-site is sufficient for the proposed Clinic. It should be noted that, in accordance with Regulation § 7.2.2.D(2), two of the 43 proposed parking spaces have been wired to support a Level 2 electric vehicle charging station.

### **Site Circulation and Pedestrian Access; Request for Third Driveway**

To ensure safe and efficient site circulation, and given the unusual configuration of the subject property, the proposed Clinic has been designed to provide three driveways – one entry-only driveway and one exit-only driveway on Oak Street, together with one exit-only driveway on Grand Street.

Regulation § 4.8.2.A(11) permits two driveways into the subject property. Accordingly, Root Center asks that the Commission utilize the power granted to it in Regulation § 1.3.4.D(3) to permit a third driveway into the proposed Clinic property. This adjustment is consistent with the Regulations, including, in particular, the reduction of vehicular and pedestrian safety hazards, and the maintenance of traffic levels of service, pursuant to § 1.3.4.D. Moreover, the adjustment will not have an adverse effect on the property or area, but will be an improvement, as the proposed Clinic will provide a benefit to the community, while putting an underutilized parcel to a productive use in an attractive manner.

As noted above, a large number of patients will visit the Clinic on foot, having arrived at one of the many public bus stops nearby via public transportation. As such, and as requested by the Historic Preservation Commission, a pedestrian walkway and crosswalk has been incorporated along the northerly portion of the Oak Street parking area, *see* Sheet 3 at Tab 6.

### **Traffic**

A traffic impact study is contained in this application package at Tab 8. Using manual turning movement counts conducted at Root Center’s existing clinic at 345 Main Street in Hartford, the total anticipated traffic from the proposed Clinic totals 77 trips vehicle trips during the weekday morning peak hour, including both entering and exiting traffic. As noted above, the majority of Root Center’s patients are treated in the morning hours (approximately 5:30 AM to 10:00 AM), most patient visits in the afternoon hours are virtual, during which period on-site staff also is reduced. As such, the Clinic is not anticipated to generate any new trips during the afternoon peak hour.

The report also includes a traffic delay calculation, which is translated to a “Level of Service” or “LOS” rating. Based on as-built conditions, none of the four intersections studied (Capitol Avenue at I-84 On/Off Ramps; Capitol Avenue at Trinity Street/Washington Street; Park Street at Lafayette Street; and Park Street at Oak Street) will experience a decrease in LOS as a result of the proposed Clinic. The proposed Clinic also is not expected to exacerbate existing crash patterns, or negatively impact overall traffic safety in the area. Finally, sight lines from the exit-only driveways on Oak Street and Grand Street are sufficient. Accordingly, the



proposed Clinic will not impede or adversely affect traffic operations on the adjacent roadway network.

### **Security and Operations Plan**

In accordance with Regulation § 3.3.5.P(4), a Security and Operations Plan for the proposed Clinic is at Tab 9. As noted therein, the Clinic will utilize a state-of-the-art, Drug Enforcement Administration-compliant security camera system to mitigate the risk of loitering while monitoring patient circulation on-site. If an alarm is generated during business hours, an outdoor speaker will be activated, allowing trained staff to direct the person(s) to vacate the premises, before exiting the Clinic to speak in-person, or notifying local police, if necessary. If an alarm is generated after hours, operators for Root Center's security vendor will verify the alarm before contacting local police.

### **Stormwater Management**

The proposed Clinic will be constructed with best management practices and low impact design techniques for stormwater and erosion, and in accordance with the DEEP Stormwater Manual. Specifically, the Clinic plan incorporates extensive landscaping, pervious sidewalk pavers, rain gardens within the parking lot, and an underground detention system. All of these measures will maintain or reduce post-development stormwater runoff to below pre-development conditions and improve the quality of the stormwater runoff from this site. There will be no increases in runoff to the existing drainage system in Oak Street, and there will be a reduction in runoff to the existing combined storm & sanitary sewer in Grand Street. A complete Stormwater Management Report, meeting the State's guidelines, is at Tab 7.

### **Compliance with Hartford's Plan of Conservation and Development**

One of the eight overall priorities outlined in Hartford's Plan of Conservation and Development ("POCD") (p. 6) is health by becoming a healthy city with a holistic approach to addressing the well-being of individuals and families. The proposed Clinic is consistent with this goal, and furthers a number of other goals in the POCD, including:

- Supporting healthy neighborhoods and developing and publicizing wellness programs and services, which will connect people to the healthy future they deserve (p. 37);
- Eliminating overdose deaths (p. 37);
- Treating toxic stress resulting from substance use disorders, among other things, which will in turn improve education, employment, and overall well-being of residents (p. 37); and
- Connecting anchor institutions to citywide efforts on community development to improve residents' well-being and support healthy neighborhoods (p. 37).

### **Americans with Disabilities Act**

As noted above, Root Center has requested that the Commission allow, pursuant to Regulation § 1.3.4.D(3), a third driveway into the Clinic property to ensure safe and efficient site circulation. If, however, the Commission elects not to utilize that power with respect to the third driveway, or if the Commission finds the application deficient in any other way, a special permit with site plan approval is nevertheless appropriate here as a reasonable accommodation pursuant to the Americans with Disabilities Act (“ADA” or “Act”).

Under the ADA, individuals with substance use disorders who are participating in a rehabilitation program are defined as having a "disability," and thus, discrimination against such individuals is a violation of the Act. *See* 42 U.S.C. § 12132 and 28 C.F.R. § 35.108.

A municipality is required to reasonably accommodate disabled persons by modifying its zoning policies, practices and procedures. *See, e.g., Dadian v. Village of Wilmette*, 269 F.3d 831 (7th Cir. 2001) (Board’s denial of front driveway permit in accordance with ordinance constituted failure to accommodate); *see also* 28 C.F.R. § 35.130(b)(7). The U.S. Department of Justice explained: “Reasonable modifications can include modifications to local laws, ordinances, and regulations that adversely impact people with disabilities. For example, it may be a reasonable modification to grant a variance for zoning requirements and setbacks. In addition, city governments may consider granting exceptions to the enforcement of certain laws as a form of reasonable modification.” *See* The ADA and City Governments: Common Problems, U.S. Department of Justice, Civil Rights Division, Disability Rights Section.

What constitutes a reasonable accommodation is a fact-specific question, determined on a case-by-case basis. *See, e.g., Swanston v. City of Plano, Texas*, 2021 WL 3847471, at \*18 (E.D. Tex. Aug. 27, 2021) (alteration to eight-person residency limit to allow 15 residents in a group home was a reasonable accommodation). More specifically, the “reasonable accommodation test” requires that the requesting party prove (1) it is disabled within the meaning of the ADA; (2) that it requested a reasonable accommodation; (3) that the requested accommodation was reasonable; and (4) that the requested accommodation was necessary. *Id.*

Root Center has met the elements of the reasonable accommodation test. As we mention above, persons suffering from substance use disorders are considered disabled, and Root Center has requested in this letter a reasonable accommodation (elements 1 and 2). The reasonableness inquiry, element 3, turns on whether the request imposes “undue financial and administrative burdens or necessitates a fundamental alteration in the nature of a program.” *See Swanston*, at \*18. Root Center is entitled, regardless of the reasonable accommodation request, to file an application with the Commission for a special permit with site plan approval. Thus, Root Center’s request for a reasonable accommodation, incorporated into its special permit application, will not result in undue financial or administrative burden to the City. Moreover, if the Commission were to approve Root’s application, that approval would be specific to the subject property and, therefore, would not fundamentally alter zoning in the City of Hartford.

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Lastly, as to the necessity requirement (element 4), the *Swanston* court explained: “The word [n]ecessary means ‘indispensable, requisite, essential, needful; that cannot be done without.’” *Id.*, at \*11. As noted above, absent the requested reasonable accommodation to allow a third driveway into the Clinic property, the safe and efficient site circulation provided for in Root Center’s site design will be impacted, and Root Center will be unable to proceed with the Clinic as proposed.

We appreciate the opportunity to present this application to the Commission at its earliest possible meeting. Thank you.

Very truly yours,



Andrea L. Gomes

#### Attachments

cc: Steven Zuckerman (w/ att.)  
Timothy Hollister, Esq. (w/ att.)

**EXHIBIT A**

**View of Oak Street parcels, looking northeast**



**View of Oak Street parcels, looking southeast**



View of Lafayette Street parcel, looking southeast



View of Lafayette Street parcel from corner of Lafayette Street and Grand Street, looking southwest



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# ROOT CENTER FOR ADVANCED RECOVERY

## Who we are:

Root Center for Advanced Recovery (a trade name of Hartford Dispensary) is a private, non-profit, health care agency providing behavioral health treatment and prevention services to eligible and appropriate persons. Originally established in 1871 as an outpatient medical/dental clinic, the Hartford Dispensary changed its focus in 1971 to substance use and mental health services in response to the economic and medical problems associated with opioid dependence in the greater Hartford community.

Root Center for Advanced Recovery seeks to provide clients with prompt, effective, quality care that will assist them in their efforts to achieve their goals.

**Our Mission Statement** “Compassionate, comprehensive care for sustained recovery”

**Our Values:**                   **Honor the power in everyone. Renew ourselves to share our strengths.**  
**Embrace new perspectives. Progress is the destination.**

## What we do:

Root Center is the largest provider and most well-known for our work with Medication Assisted Treatment (MAT) for Substance Use Disorders, specifically Opioid Use Disorders. Our primary service is Methadone Maintenance; however, we offer additional services for substance use as well as treatment and therapy related to mental health. Some of these include outpatient individual and group therapy. We have a team of staff which include physicians, licensed counselors, and nurses who work together to treat the whole person. We work with teens and adults on any behavioral health need on an outpatient basis.

### Hours of Operation:

Monday – Friday from 5:30am to 8:30pm

Saturdays from 6:00am to 9:00am

**Methadone Maintenance** clients are required to be present depending on the individual and the circumstances. One might be permitted to manage doses offsite and visit the clinic less frequently, as treatment continues and progress attained, and others may need to present daily to receive their dose of medication. Each person works with a physician, nurse, and counselor to improve their overall condition.

**Intensive Outpatient Program** is group talk therapy which meets 3-5 days a week for 3 hours a day. These counseling sessions are led by trained therapists and run from 10:30-1:30 Monday through Friday with an evening track that runs from 5:30pm to 8:30pm, mainly for working professionals. These services can be in person or virtual.

**Mental Health Outpatient Program** is counseling paired often with psychiatric evaluation and medication for mental health symptoms. This is often one time a week for 1 hour. These services can be in person or virtual.

## Community Need:

Root Center currently serves approximately 650 clients at our Doctor's Clinic on 345 Main Street in Hartford. Oftentimes, residents are having to travel daily to receive their medication, others have earned take home bottles up

to 14 days. Empirically, we know that the longer a person must travel to receive their treatment, the greater likelihood of disengagement. Hence, why we have another clinic on Weston Street currently serving approximately 750+ clients.

According to Connecticut's Department of Public Health, 1,378 people died by an unintentional drug overdose in 2020. Predictions look to be about the same for 2021 despite numerous efforts to reduce this number. In CT, residents are more likely to die from an unintentional drug overdose than a motor vehicle accident. The majority of these deaths are linked to prescription opioid painkillers and illicit opioids.

Our intention is to provide the opportunity for Hartford residents to obtain methadone treatment services in their neighborhood. By doing such, we reduce barriers and increase the likelihood of being successful in treatment and decreasing overdose deaths. The Doctor's Clinic has grown in census and needs and is no longer conducive to the needs of the community. The facility is small and located directly on Main Street with no ability/space to queue the client lines inside. We also struggle with the safety of traffic flow of cars through the very small parking lot.

Methadone is an evidence-based treatment approach that is heavily regulated by the federal government's Drug Enforcement Agency, and SAMHSA (Substance Abuse and Mental Health Services Administration) as well as state governments, Department of Public Health and DMHAS (Department of Mental Health and Addiction Services). Methadone is proven to be effective at reducing illicit opioid use and drug overdose deaths as well at reducing infectious diseases associated with opioid use, and crime.

Methadone is a federally-regulated medication that, by law, is dispensed only by licensed treatment settings when used to treat opioid addiction. It has been studied exhaustively and many of its benefits are undisputed in the research literature. The [Centers for Disease Prevention and Control reports that the benefits of methadone maintenance therapy include:](#)

- reduced or stopped use of injection drugs;
- reduced risk of overdose and of acquiring or transmitting diseases such as HIV, hepatitis B or C, bacterial infections, endocarditis, soft tissue infections, thrombophlebitis, tuberculosis, and STDs;
- reduced mortality – the median death rate of opiate-dependent individuals in MMT is 30 percent of the rate of those not in MMT;
- possible reduction in sexual risk behaviors, although evidence on this point is conflicting;
- reduced criminal activity;
- improved family stability and employment potential; and
- improved pregnancy outcomes.

## Community Collaboration

Root Center is committed to continue to be a partner in the Hartford Community. We currently operate two clinics in Hartford, one on Main Street and one on Weston Street.

Our organization has vital relationships with Hartford Healthcare, Intercommunity, St. Francis, DCF, DMHAS, and CSSD, to provide services to Hartford residents on a daily basis. Hartford Hospital has been a welcoming partner, encouraging, and a strong advocate for methadone services in Hartford and across the state, as they have recognized this as a long standing need in which immediate access is imperative. In 2020, we partnered with

Immacare to open the HARBOR (Housing and Recovery Builds Our Roots) Program. We have funded 6 specialized shelter rooms for Root Center Clients in Hartford whose recovery is supported by obtaining housing, basic needs, and other recovery supports including vocational/employment. In 2021, we partnered with the Urban League of Greater Hartford and provided a donation to support their on-going programs for youth. CEO, David Hopkins and his staff joined us in strengthening our commitment to our Diversity and Equity Committee work and eventually he joined our Board of Directors. We are financial supporters of the CT Food Bank and CCAR as well, both organizations that heavily support Hartford residents. Root Center is committed to being a good neighbor and active contributor to the needs of this town.

It is important to us that we work to reduce stigma and discrimination associated with individuals needing help to improve their lives. We understand the importance of creating a safe space that not only feels welcoming, but looks like a place anyone would be proud to enter. Root Center has high standards in terms of aesthetics, material, and ambiance not only for those who may drive by, but also for those that may decide to enter. We are committed to being an organization that is trusted and chosen by residents of Hartford to assist their most loved assets, people. Our most recent new location in New Britain is a good example of the investment we have made in designing and building state of the art, beautiful buildings that offer high quality care to individuals.

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**LUKE BRONIN**  
MAYOR

# CITY OF HARTFORD

DEPARTMENT OF DEVELOPMENT SERVICES

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**I. CHARLES MATHEWS**  
DIRECTOR

**AIMEE CHAMBERS**  
DIRECTOR OF PLANNING

September 23, 2022

The Hartford Dispensary d/b/a Root Center for Advanced Recovery  
c/o Andrea Gomes  
335 Broad St  
Manchester, CT 06040

**Sent via Email**

**Re: Text Amendment, Planning & Zoning Commission Decision Letter  
Energov ID: COMM-2022-0662**

Dear Applicant:

At its regular meeting of September 13, 2022, the Planning & Zoning Commission (PZC) met to consider the Proposed Changes to Figure 3.2-A of the Zoning Regulations regarding Methadone or Substance Use Rehabilitation Clinics as a new service use to be allowed in the MX-1 district with a Special Permit. In this regard, the PZC approved the proposal as follows:

**CITY OF HARTFORD  
PLANNING & ZONING COMMISSION RESOLUTION  
TEXT AMENDMENT TO ADD METHADONE OR SUBSTANCE USE REHABILITATION  
CLINICS AS A NEW USE UNDER THE “SERVICE USE” CATEGORY**

- Whereas,** The City of Hartford Planning and Zoning Commission reviewed the proposed zoning text amendment to Hartford’s Zoning Regulations (the Regulations) to amend Figure 3.2-A and various other sections of the Regulations to define “Methadone or Substance Use Rehabilitation Clinics” as a new use, under the Service Use category, to be permitted by special permit subject to use-specific conditions in the MX-1, Multi-Use Mix district; and
- Whereas,** Section 1.3.5 of the Regulations requires that the Commission consider the plan of conservation and development (POCD) and state on the record its findings on the consistency of the proposed amendment with such plan; and
- Whereas,** The Regulations currently prohibit “methadone or drug rehabilitation clinics” in all districts; specific mentions of this use in the Regulations can be found under Medical Clinics (Neighborhood Service use) and Medical Offices (Office use) where this type of facility is strictly prohibited; the Zoning Board of Appeals is also currently prohibited from granting variance for this use in DT, MS, MX, NX, and N districts; and
- Whereas,** This broad prohibition of “methadone or drug rehabilitation clinic” could be seen as discriminatory towards people with disabilities, given that under the Americans with Disabilities Act (ADA), Title II, 28 CFR 37.103, it is unlawful for any public entity to discriminate on the basis of disability in its services, programs, or activities. This prohibition could be seen as discriminatory towards people with disabilities, given that under the Americans with Disabilities Act (ADA), Title II, 28 CFR 37.103, it is unlawful for any public entity to discriminate on the basis of disability in its services, programs, or activities.
- TextAmendment\_COMM-2022-0662\_PZC\_DecisionLetter\_091322

Disabilities Act (ADA), individuals with substance use disorders who are participating in a rehabilitation program are defined as having a "disability"; and

- Whereas,** It has been well documented that opioid addiction and overdose deaths have become a pressing public health crisis in Connecticut and the United States; and
- Whereas,** Medication-assisted treatment (MAT) is a well-recognized treatment for opioid addiction and is highly regulated at the federal and state level; and
- Whereas,** As of the time of writing, the City of Hartford had a total of three methadone clinics within city boundaries per data compiled by the State Department of Mental Health and Addiction Services (DMHAS); and
- Whereas,** The proposed text amendment defines the proposed use as distinct from Medical Clinics and Medical Offices; and
- Whereas,** The proposed text amendment includes a number of use-specific conditions meant to mitigate potential negative externalities and to encourage appropriate neighborhood-scale design that would also allow the use's effective operation; and
- Whereas,** The proposed text amendment would allow this use to locate only in the General Building type and would provide flexibility around specific building regulations to allow for the use's effective operation (such as the principal entrance location, building height, and entrance type); and
- Whereas,** The proposed text amendment is generally consistent with Hartford's Plan of Conservation & Development: namely, the Live400 chapter recognizes the elimination of overdose deaths as a goal given that this health crisis has "hit Hartford very hard in recent years"; the Live400 chapter also discusses the need for a holistic approach to physical and mental health and acknowledges that exposure to substance use can negatively impact households and communities; it would seem therefore that allowing methadone clinics in at least one district in the city, and ensuring that existing methadone clinics can modernize or relocate, is consistent with the POCD; and
- Whereas,** The POCD also highlights the need to advocate for a more equitable region and to build bridges with neighboring communities. For instance, the POCD states that "Hartford has the highest concentration of social services in Connecticut", and providing services to address the opioid crisis could be framed as a regional need that should also be addressed at a regional scale. As such, the current concentration of methadone clinics in Hartford relative to neighboring towns may be a reason to narrow and/or restrict the use, even while allowing it;

Now therefore Be It

- Resolved,** The City of Hartford Planning & Zoning Commission hereby finds that the proposed Zoning Text Amendment is consistent with the Plan of Conservation & Development: and
- Resolved,** The City of Hartford Planning & Zoning Commission hereby approves the proposed zoning text amendment to Hartford's Zoning Regulations shown in Exhibit B below, which proposes to amend Figure 3.2-A and various other sections of the Regulations to define "Substance Use Rehabilitation Clinics" as a new use, under the Service Use category, to be

permitted by special permit subject to use-specific conditions in the MX-1, Multi-Use Mix district;

Be It Further,

**Resolved,** This 13<sup>th</sup> day of September 2022.

## **EXHIBIT B.**

### **FIGURE 3.2-A. TABLE OF PRINCIPAL USES**

- Include “Substance Use Rehabilitation Clinic” as new, standalone special permit use in MX-1, under “Service Use” category.

### **SECTION 3.3.5 (SERVICE USES):**

- New subsection “P” (3.3.5.P) to include “Substance Use Rehabilitation Clinic” as new service use.

**P. Substance Use Rehabilitation Clinic.** A Substance Use Rehabilitation Clinic is a licensed facility, with 8,000 square feet of gross floor area or less, that administers methadone, and that may include one or more of the following: alternative Medication Assisted Treatment, mental health treatment services with or without medication management, substance use counseling services, and wellness and community services. The term “licensed facility” shall mean a legal entity formed for the treatment of out-patients in which at least two medical professionals, licensed by the State, practice cooperatively. A Substance Use Rehabilitation Clinic shall be registered as accredited opioid treatment program with the Substance Abuse and Mental Health Service Administration. Such a clinic shall not provide inpatient or residential care. Note that this use is distinct from Medical Clinics per Section 3.3.5.A.(1) and Medical Offices per Section 3.3.7.A.(1).

When noted as subject to conditions (“●”) or requires a special permit (“○”) in Figure 3.2 -A Table of Principal Uses, the following regulations apply:

- (1) **Minimum Lot Area.** There shall be a minimum lot area of 0.5 acres for Substance Use Rehabilitation Clinic.
- (2) **Building Type.** Substance Use Rehabilitation Clinic may only locate in single-occupant, General Building Types. This shall mean that a Substance Use Rehabilitation Clinic may fully occupy 100% of a General Building Type’s ground floor and upper floors, as long as the maximum gross square footage (8,000 gsf) is not exceeded.
- (3) **Queueing.** Indoor queueing is required.
- (4) **Security Plan.** Applicants are required to submit a security plan for review by the zoning administrator. Refer to Section 1.3.3.B.(16)(d). Additional documentation may be requested of the applicant per Section 1.3.4.B.
- (5) **Proximity to Substance Use Rehabilitation Clinics.** No Substance Use Rehabilitation Clinic shall be located within a 1,500-foot radius in any direction of any parcel where a Substance Use Rehabilitation Clinic is located.
- (6) **Proximity to Certain Uses.** No new Substance Use Rehabilitation Clinic shall be located within a 500-foot radius of any part of an existing school, park, or municipal library.

### **SECTION 1.3.6. VARIANCE**

Section 1.3.6.E.(5) The zoning board of appeals may not issue a variance for any of the following new or expanded principal uses (or for any such use as an accessory use) or conditions:

- (c) Substance Use Rehabilitation Clinics in any DT, MS, MX-2, NX, or N district.

## SECTION 3.3.5 - SERVICE USES

**Section 3.3.5.A. Neighborhood Service.** A service use with a gross floor area of less than 8,000 square feet. Neighborhood service includes such uses as those listed in Figure 3.3-C Typical Service Uses.

- (1) **Medical Clinic.** Medical clinic means a licensed institution providing same-day, walk-in, or urgent medical care and health services to the community, primarily ill or injured out-patients, which is not a hospital per Section 3.3.2.B and which is not a medical office per Section 3.3.7.A.(1), and which is not a Substance Use Rehabilitation Clinic per Section 3.3.5.P. Provision of an indoor waiting area for use by individuals when a portion of the facility is not opened for operation is required, so that clients will not be required or allowed to queue for services outdoors. The term licensed institution as used in this section shall mean a single legal entity formed for the diagnosis and treatment of out-patients in which at least 2 medical professionals, licensed by the State and having related specialties, practice cooperatively. The term medical professionals shall only mean medical doctors, dentists, clinical psychologists, osteopaths, podiatrists, chiropractors, acupuncturists, nurses or nurse practitioners, or physiotherapists so licensed by the State. A medical clinic shall not provide rental services, storage of hazardous materials in large quantities, or dormitory facilities.

## SECTION 3.3.7 - EMPLOYMENT USES

- A. **Office Uses.** A category of uses for businesses that involve the transaction of affairs and/or the training of a profession, service, industry, or government. Patrons of these businesses usually have set appointments or meeting times; the businesses do not typically rely on walk-in customers. Office uses include those listed in Figure 3.3-D Typical Office Uses.

- 1) **Medical Office.** Medical office means a facility in which medical professional(s) licensed by the State have their offices and provide medical care and health services primarily on a pre-scheduled basis (not primarily on a same-day or urgent care basis), which is not a hospital per Section 3.3.2.B and which is not a medical clinic per Section 3.3.5.A.(1), and which is not a Substance Use Rehabilitation Clinic per Section 3.3.5.P. The term medical professionals shall only mean medical doctors, dentists, clinical psychologists, osteopaths, podiatrists, chiropractors, acupuncturists, nurses or nurse practitioners, or physiotherapists so licensed by the State. A medical office may also contain in-house ancillary services such as in-house diagnostic testing facilities, medical counseling services, in-house research, and similar services. A medical office shall not provide rental services, storage of hazardous materials in large quantities, or dormitory facilities.

## SECTION 4.8 GENERAL BUILDING TYPE REGULATIONS

**Section 4.8.2.B. Height.** Under the MX-1 column, in the “Ground Story Maximum Height” row, add “Note 3.a.”.

Note 3.a. For any Substance Use Rehabilitation Clinic (refer to Section 3.3.5.P), if ground floor is 18 feet or more in height, the ground story shall count as 2 stories towards maximum building height.

**Section 4.8.2.C Uses.** In the Ground Story and Upper Story rows, add a “Note 5”.

Note 5. Per Section 3.3.5.P, a Substance Use Rehabilitation Clinic may occupy 100% of the building’s ground floor or upper floors.

## SECTION 7. PARKING

Figure 7.2-A Maximum Off-Street Automobile Parking

- Automobile Fueling & Limited Service, Automobile Service/Car Wash, Drinking Places, Entertainment Assembly, Smoking Places, and Substance Use Rehabilitation Clinic: In accordance with special permit review or, if special permit not required, in accordance with site plan review.



Figure 7.2-B Bicycle Parking (*NO CHANGES PROPOSED*)

- Retail & Service Uses
  - Minimum long-term: No minimum requirement
  - Minimum short-term: 1 per every 3,000 square feet.

Thank you for your investment in the City of Hartford.

Respectfully,

Aimee Chambers, AICP  
Director of Planning

AC/pb

CC: Planning File

4



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**CITY OF HARTFORD  
VIRTUAL MEETING OF THE  
HARTFORD HISTORIC PROPERTIES &  
HISTORIC PRESERVATION COMMISSIONS**

**DRAFT MINUTES**

Wednesday, December 21, 2022 at 4:00 p.m.

**MINUTES**

The Hartford Historic Properties & Preservation Commissions held a Virtual Public Hearing at  
**4:00 p.m. on Wednesday, November 16, 2022.**

Virtual Access: <https://tinyurl.com/ddsHPC2022>

Meeting number (access code): 2337 801 8002 Meeting password: ddsHPC

**OR** Join by phone: 408-418-9388 Access code: 2337 801 8002##

**ATTENDANCE**

**Present:** Chair Jeffrey Jahnke, Commissioners Jonathan Clark, Albert Gary, Virginia Seeley, and Edith Pestana, Alternate Commissioner Carey Shea.

**Absent:** Alternate Commissioner Zoe Chatfield.

**Staff Present:** Aimee Chambers, Richard Vassallo.

**CALL TO ORDER**

Chair Jeffrey Jahnke called the meeting to order at 4:00 p.m.

**ROLL CALL:** *Present* – Commissioners Albert Gary, Jonathan Clark, Virginia Seeley, and Edith Pestana. Alternative Commissioner, Carey Shea, will be a full voting member for tonight’s meeting.

**APPROVAL OF:**

Commissioner Virginia Seeley made **MOTION** to **APPROVE** *Agenda* for December 21, 2022. Commissioner Edith Pestana **seconded** the motion. Commission unanimously **APPROVED** the agenda.

Commissioner Virginia Seeley made **MOTION** to **APPROVE** the November 16, 2022 *Minutes*. Commissioner Edith Pestana **seconded** the motion. Commission unanimously **APPROVED** the agenda.

**REGULAR MEETING OF THE HISTORIC PROPERTIES COMMISSION**

**I. Historic Reviews**

a. There are no historic reviews for this meeting.

47 **REGULAR MEETING OF THE HISTORIC PRESERVATION COMMISSION**

48 I. **Report of the Historic Preservation Planner**

49 a. **Staff Approvals** (Administrative/Section 106)

50 b. **General Communications/New Business**

- 51 i. Director, **Aimee Chambers**, reported that the Planning & Zoning Division is  
52 utilizing a new platform called Accela Civic Platform. Also, tangential from the  
53 Historic reporting, neighborhood plans – including the Parking Study and the  
54 Arrowhead Gateway plans – will be presented at the next Planning & Zoning  
55 Commission meeting on January 10, 2022 at 6pm.

56 II. **Public Hearing – Continued Cases**

- 57 a. **251 Collins St – COMM-2022-0709** – Proposed replacement of front and side doors  
58 with steel doors. **Owner:** Jagdish Parmar; **Applicant:** Gateway to Life, Inc. c/o  
59 Sylvia Denise Reid.

60  
61 Commissioner Jonathan Clark made **MOTION** to **DENY** this application at this time  
62 due to insufficient information. Commissioner Virginia Seeley **seconded** the motion.  
63 The Commission unanimously **DENIED** the application without prejudice.

- 64  
65 b. **119 Vine St – COMM-2022-0713** - Proposed enclosure of front porch with  
66 windows. **Owner & Applicant:** Alicia Smith.

67  
68 **Mary Falvey**, from Hartford Preservation Alliance (HPA), recommends that the  
69 applicant install temporary storm windows to help protect and shield from severe  
70 weather.

71  
72 Chair Jahnke made **MOTION** to **CONTINUE** this application to **January 18, 2023**  
73 and recommended that she seek guidance and assistance from Mary Falvey from the  
74 Hartford Preservation Alliance.

- 75  
76 c. **189 Vine St – COMM-2022-0714** - Proposed repairs to slate front steps and soffits,  
77 and replacement of window. **Owner & Applicant:** Emroth, LLC c/o Sanike Whyte.

78  
79 Applicant, **Sanike Whyte**, states she is looking to replace the stairs with in-kind pressure  
80 treated wood, which is the same as the existing material that is already there. She is also  
81 requesting vinyl window replacement.

82  
83 Commissioner Jonathan Clark made **MOTION** to **APPROVE** this application.  
84 Commissioner Virginia Seeley **seconded** the motion. The Commission unanimously  
85 **APPROVED** the application.

- 86  
87 d. **35 Lafayette St – COMM-2022-0691** – Proposed new construction of two-story  
88 building. **Owner:** Courthouse Lenders, LLC; **Applicant:** The Hartford Dispensary  
89 d/b/a Root Center for Advanced Recovery c/o Andrea Gomes.

90

91 Commissioner Virginia Seeley made **MOTION** to **APPROVE** this application.  
92 Commissioner Edith Pestana **seconded** the motion. The Commission unanimously  
93 **APPROVED** the application.

- 94  
95 e. **251 Maxim Rd – COMM-2022-0681** - Proposed demolition of the former Hartford  
96 Brainard Airport administration building. **Owner:** State of Conn Airport Div. –  
97 Aeronautics; **Applicant:** CT Airport Authority c/o Bob Bruno.

98  
99 Commissioner Albert Gary made **MOTION** to **TABLE** this application to the end of  
100 the meeting. Commissioner Virginia Seeley **seconded** the motion. The Commission  
101 unanimously **TABLE** the meeting to the end of the agenda.

102  
103 **Alyssa Peterson**, from the public, requests **denial** of this application due to the lack  
104 of effort of connecting with the public to discuss other uses of the building other than  
105 demolition.

106  
107 Commissioner Virginia Seeley made **MOTION** to **DENY** the application.  
108 Commissioner Jonathan Clark **seconded** the motion. The Commission unanimously  
109 **DENIED** the application.

- 110  
111 f. **CONTINUED to January 18, 2023 - 96 Main St – COMM-2022-0699** - Proposed Barnard  
112 Park improvements including dog park amenities, fencing, and related features. **Owner &**  
113 **Applicant:** City of Hartford.

- 114  
115 g. **CONTINUED to January 18, 2023 - 126 Homestead Ave – COMM-2022-0710** -  
116 Proposed installation of vinyl siding over the existing wood clapboard siding. **Owner:**  
117 Jamaica Ex Police Assoc of Connecticut Inc; **Applicant:** Errol Samuels.

- 118  
119 h. **CONTINUED to January 18, 2023 - 1115 Broad St – COMM-2022-0701** – Proposed  
120 Buddhist gates for decoration/landscaping purposes, and proposed gazebo, signage, and  
121 fencing. **Owner & Applicant:** Huong Son Mediation Temple, Inc c/o Wendy Nguyen.

122  
123 **III. Public Hearing – New Cases**

- 124 a. **97 Elm St** – Proposed replacement of wood and vinyl windows with wood windows,  
125 new projecting bay window with wood trim, and various repairs. **Owner:** The Horace  
126 Bushnell Memorial Hall Corporation; **Applicant:** Crosskey Architects, LLC c/o  
127 Michael Weissbrod.

128  
129 Chair Jahnke made **MOTION** to **APPROVE** the resolution. Commissioner Virginia  
130 Seeley **seconded** the motion. The Commission unanimously **APPROVE** the  
131 application.

- 132  
133 b. **192 Ashley St** – Proposed replacement of 3 wood windows with fibrex windows.  
134 **Owner:** Lucene Brewster; **Applicant:** Southern New England Windows c/o Gregory  
135 Mazares.

136  
137 Commissioner Virginia Seeley made **MOTION** to **CONTINUE** this application to  
138 **January 18, 2023**, and requested more information on the status of window and

139 window sash. Alternate Commissioner Carey Shea **seconded** the motion. The  
140 Commission unanimously **CONTINUE** this application the 1/18/23.

141

142 c. **32 Lorraine St** – Proposed replacement of 18 wood windows with fibrex windows.  
143 **Owner:** Andrew Lindh; **Applicant:** Southern New England Windows c/o Gregory  
144 Mazares.

145

146 Commissioner Virginia Seeley made **MOTION** to **CONTINUE** this application to  
147 **January 18, 2023**, and requested more information on the status of window and  
148 window sash. Alternate Commissioner Carey Shea **seconded** the motion. The  
149 Commission unanimously **CONTINUE** this application the 1/18/23.

150

151 d. **151 Ward St** – Proposed demolition of building. **Owner & Applicant:** Congregation  
152 Beth Israel.

153

154 Commissioner Virginia Seeley made **MOTION** to **APPROVE** this proposal, subject  
155 to the court order. Commissioner Jonathan Clark **seconded** the motion. Chair Jahnke  
156 **denies** the proposed resolution. Commissioner Carey Shea **abstains**. The  
157 Commission **APPROVE** the application, with one objection, and one abstention.

158

159 **IV. New Business**

160 a. Pre-Application Discussion with LAZ Properties, LLC regarding 7 parcels at the corner of  
161 Washington St and Lincoln St.

162

163 V. Chair’s Report

164 VI. Adjournment

165

166 Plans and documents are available at <https://www.meetinginfo.org/groups/29>

167

168 **Respectfully Submitted by:**

169 **Maliha Ahsan, *Executive Assistant***

**5**

# EXTERIOR VIEWS – NEW BRITAIN

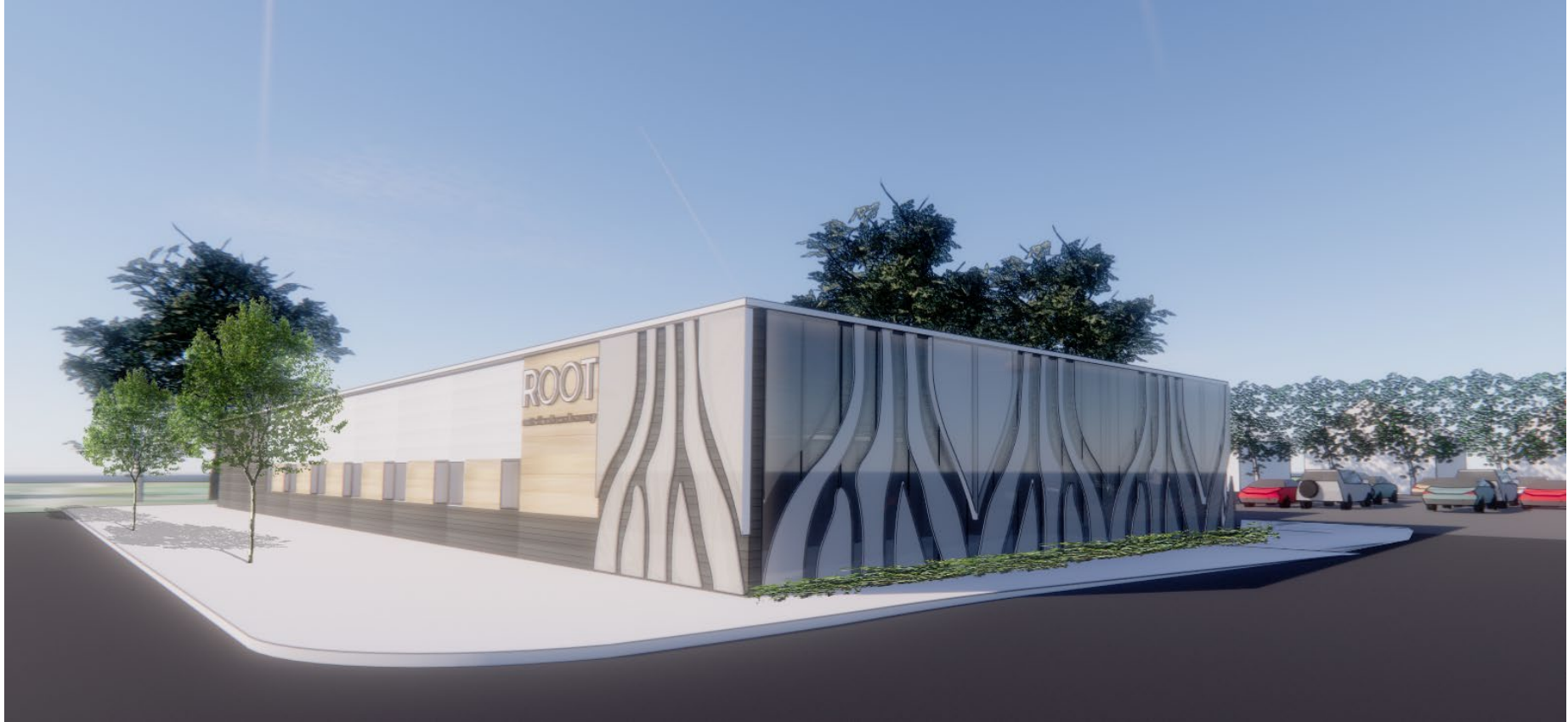




▶ EXTERIOR VIEWS – NEW BRITAIN



▶ EXTERIOR VIEWS – NEW BRITAIN



▶ EXTERIOR PHOTO – NEW BRITAIN



# INTERIOR PHOTOS – NEW BRITAIN



# Just nine months after breaking ground, Root Center for Advanced Recovery in New Britain near completion

**Published: Tuesday, 19 October 2021 17:24**

@Hooks\_Ciara

NEW BRITAIN – Just nine months after breaking ground on the corner where Angelico’s Café once stood, the construction for the brand-new Root Center for Advanced Recovery facility is near completion.

“We’re very pleased at the fact that we’re ahead of schedule on this building and just the way that everything has turned out has exceeded expectations,” said Jenn Succi, CFO of Root Center for Advanced Recovery.

The city broke ground at 542 East Main St. back on January 7 of this year.

“Things have been extremely difficult due to the material delays, supply chain, labor shortages; it’s a struggle every day, but we got it done,” said George Taweh, president of T Long Construction. “When we hit some snags, we went the extra mile. When we started the foundation it snowed, and instead of waiting for the snow to melt and the ice to go away, we just bought heat systems and blankets to warm up the ground and keep on going so we didn’t slow down. Those days paid off to be ahead of schedule today.”

The new facility will be an approximately 10,351 square foot single story building with floor to ceiling windows on one side of the building. The finished 8,398 square foot space of the building will solely be structured for one tenant but includes an unoccupied space of 1,953 square feet.

“Things have been really great; it’s been moving really quickly,” said Amy Di Mauro, COO of Root Center for Advanced Recovery. “There are still some things that aren’t complete yet, but we’re hoping to move in, in January.”

The Root Center is currently located at 70 Whiting St. and will be relocating its services and staff to the new facility.

“We’ve just outgrown it and parking is such a challenge,” Di Mauro said. “And historically the common methods of clinics people are accruing lines outside. At the current site that’s one of the biggest challenges



Amy Di Mauro, COO of Root Center for Advanced Recovery Photo Provided By Ciara Hooks

also.”

The Root Center for Advanced Recovery helps people with mental health and addiction issues throughout the state of Connecticut. The center serves 700-740 clients a day at their New Britain site.

“One of the biggest things we started working on with Tecton Architects last spring was how can we make that experience better for the community and better for the patients, so that was the idea of the canopy (in back) for the weather,” Di Mauro said. “The second thing we created was if we needed to have a cue line they would come through here (first door on the left) and come out there (second door of the room) so that they can cue inside instead of outside.”

The space is also equipped with dividers and could be used as group room space or a training space.

“We also added a fourth dosing window so that will make people go quicker through the process and we’ll be adding more staff for that,” Di Mauro said. “We created a workflow where they (patients) come in one way and go out another way, so they’re not crossing each other.”

The facility will also include a host of other things like unique waiting areas, counselor offices, staggered dosing windows and a pharmacy.

“This will be our flagship model for our facilities going forward,” Succi said. “Future models will look like this.”

The new facility will also serve as a resource for New Britain Recovers as it continues its mission to reduce opioid related overdoses. Mayor Erin Stewart launched the New Britain Opioid Task Force, now known as New Britain Recovers, in response to the growing opioid crisis back in January 2019. The task force analyzes data and trends, offers Naloxone training workshops and more.

“This is a really important addition to the New Britain Recovers community and it’s an incredibly unique and inspiring building,” said Jack Benjamin, director of planning and development. “It kind of moved beyond the clinical model that so many places use and the sort of spirit of recovery is encapsulated in the way they built the building.”

Stewart said the construction came out beautifully and plans to continue to build a relationship with the Root Center.

“We feel strongly that it fulfills a need in our community and it’s not something that can be ignored,” she said. “There are hundreds of people a day that will utilize this facility and help keep them healthy and I think that’s what matters the most. We’ll look at this as a healthcare facility being able to fulfill a need in our community and I think it’s a great fit. I don’t think anybody would have ever thought Angelico’s would be transformed into the Root Center for Advanced Recovery but it’s beautiful and a nice addition to the neighborhood too.”

6

# SPECIAL PERMIT APPLICATION

## SUBSTANCE USE REHABILITATION CLINIC

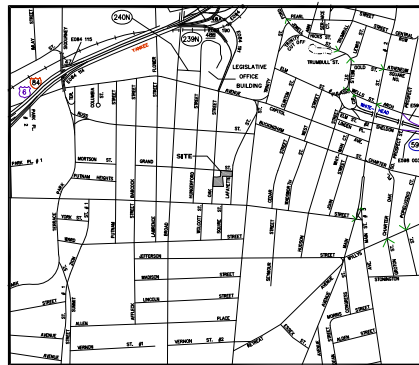
PREPARED FOR  
 ROOT CENTER FOR ADVANCED RECOVERY  
 PROPERTY LOCATED AT  
 35, 37, 39 LAFAYETTE STREET,  
 & 152, 156, 162 OAK STREET  
 HARTFORD, CONNECTICUT  
 SUBMISSION DATE: JANUARY 24, 2023

**OWNER**

Courthouse Lenders, LLC  
 1 Financial Plaza  
 Hartford, CT 06103

**APPLICANT & DEVELOPER**

Hartford Dispensary Real Estate, Inc. and  
 The Hartford Dispensary d/b/a Root Center for Advanced Recovery  
 335 Broad Street  
 Manchester, CT 06040  
 c/o Andrea Gomes, Esq., Hinckley Allen, (860) 331-2603



**LOCATION MAP**  
 SCALE: 1" = 1000'

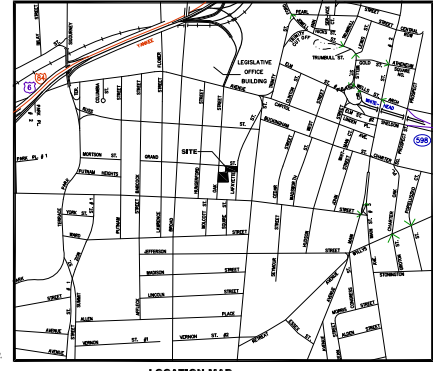
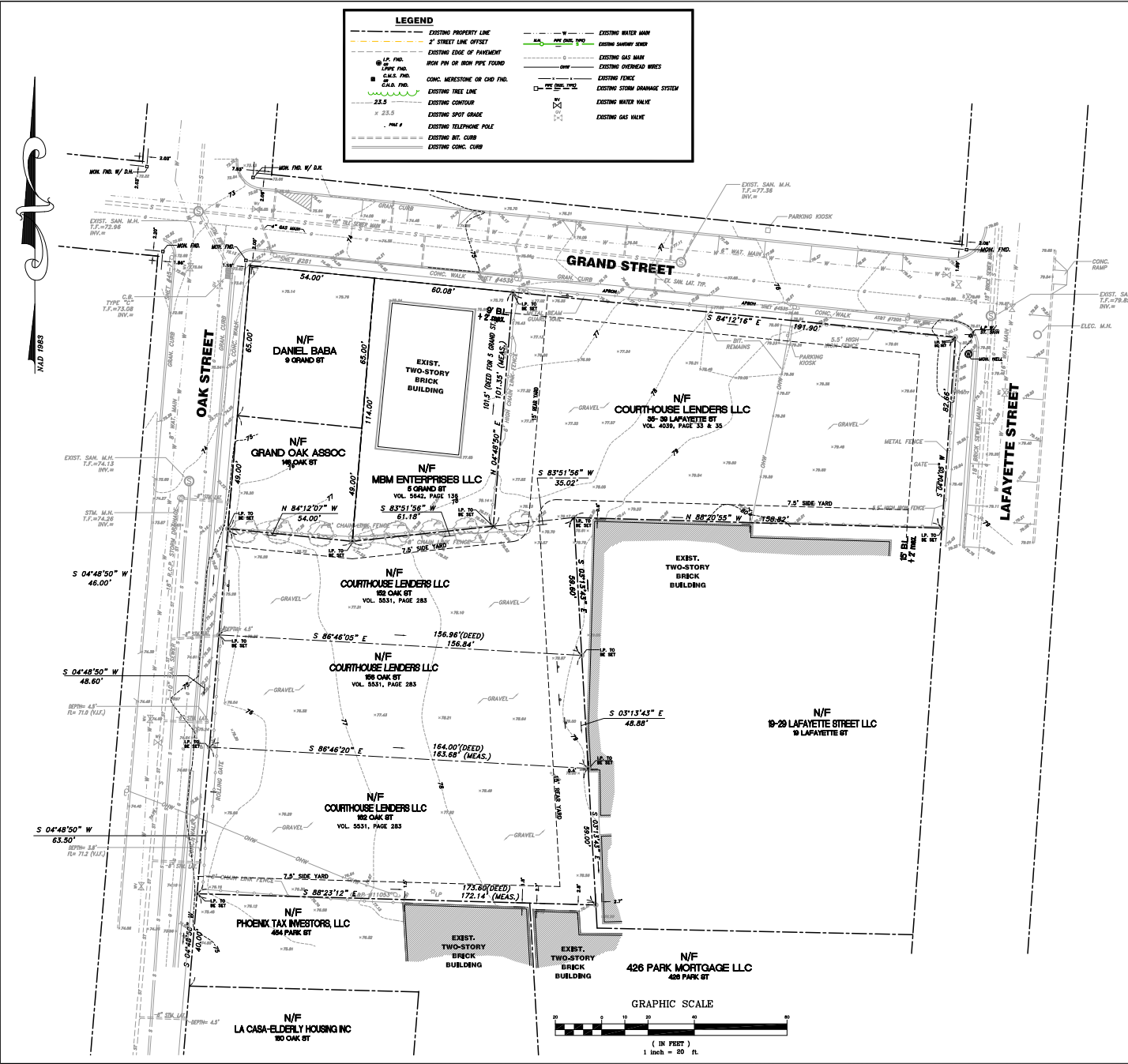
**SHEET INDEX**

SHEET #	DRAWING TITLE
1	PROPERTY/ TOPOGRAPHIC SURVEY - EXISTING CONDITIONS
2	SITE DEMOLITION PLAN
3	ZONING IMPROVEMENT LOCATION PLAN
4	SITE GRADING & STORMWATER MANAGEMENT PLAN
5	SITE UTILITIES PLAN
6	UNDERGROUND DETENTION SYSTEM - DETAILS
7	EROSION & SEDIMENT CONTROL PLAN
8	SEDIMENT AND EROSION CONTROL NOTES
9	GENERAL NOTES
10 - 13	SITE DETAILS
PH-1.01	SITE LIGHTING PLAN
PH-1.02	SITE LIGHTING PLAN
L-1.01	SCHEMATIC LANDSCAPE PLAN RENDERING
L-1.02	LANDSCAPE PLAN
L-1.03	LANDSCAPE DETAILS
A1.00	FIRST FLOOR PLAN
A1.01	EXTERIOR ELEVATIONS (B&W)
A1.02	EXTERIOR ELEVATIONS (COLOR)
A1.03	EXTERIOR 3D VIEWS
A1.04	EXTERIOR ELEVATION (ZONING COMPLIANCE)
A1.05	SIGNAGE COMPLIANCE


**HALLISEY, PEARSON & CASSIDY**  
 CIVIL ENGINEERS & LAND SURVEYORS  
 630 MAIN STREET, UNIT #1A  
 CROMWELL, CONNECTICUT 06416  
 PHONE: (860)-529-8812, FAX: (860)-721-7709

NO.	DATE	DESCRIPTION	BY





- NOTES:**
- SURVEY NOTES:**
    - This survey has been prepared pursuant to the Regulation of Connecticut State Agencies Section 30-200b-1 through 30-200b-20 and the "Standards for Survey and Maps in the State of Connecticut" as ordered by the Connecticut Association of Land Surveyors, Inc. on September 28, 1998.
    - Type of Survey is PROPERTY/TOPOGRAPHIC.
    - Boundary Determination Category is DEPENDENT SURVEY.
    - Close of Accuracy is: HOR. - "A-2", TOPO. - "T-2", VERT. - "V-2".
  - PROPERTY IS ZONED: MK-1 (MULTI USE M1)
  - PROPERTY LIES IN FLOOD ZONE "X" (AREA OF MINIMAL FLOOD HAZARD) PER F.U.M. COMMUNITY MAP NO. 80000000468, PAGE 18 OF 400 DATED: AUGUST 28, 2008.
  - MAP REFERENCES:**
    - A.) "PROPERTY OF GRMF REALTY ASSOCIATES, 30-38 LAFAYETTE STREET, 183 GRAND STREET, HARTFORD, CONNECTICUT", SCALE: 1"=10', DATED: NOV. 24, 1989. PREPARED BY: FLOWN LAND SURVEYING ASSOCIATES.
    - B.) "CITY OF HARTFORD", SCALE: 1"=50'
    - C.) "PROPERTY OF QUART HOUSE BUILDING, 38, 23, 38 LAFAYETTE STREET, 183 GRAND STREET TOWN OF HARTFORD CONN.", SCALE: 1"=10', DATED: OCT. 28, 1989. PREPARED BY: ALCA SURVEY ASSOCIATES.
    - D.) "WATER BUREAU, THE METROPOLITAN DISTRICT, HARTFORD, CONNECTICUT OAK STREET - HYD.", SCALE: 1"=40', DATED: AUGUST 1988. PREPARED BY: THE METROPOLITAN DISTRICT.
    - E.) "WATER BUREAU, THE METROPOLITAN DISTRICT, HARTFORD, CONNECTICUT GRAND STREET - HYD.", SCALE: 1"=40', DATED: AUGUST 1988. PREPARED BY: THE METROPOLITAN DISTRICT.
    - F.) "WATER BUREAU, THE METROPOLITAN DISTRICT, HARTFORD, CONNECTICUT LAFAYETTE STREET - HYD.", SCALE: 1"=40', DATED: AUGUST 1988. PREPARED BY: THE METROPOLITAN DISTRICT.
  - STOTAL PARCEL AREA= 42,890 SQ. FT. OR 0.9846 ACRES.
  - HORIZONTAL DATUM BASED ON N.A.D. OF 1983.
  - VERTICAL DATUM BASED ON NAVD 83. CONTOUR INTERVAL=1 FOOT
  - PROPERTY MAY BE BENEFITED AND/OR BURDENED BY RECORDED AND/OR UNRECORDED EASEMENTS.
  - UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN CORRELATED TO PARTIAL RECORD MAPS SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENT AGENCIES. HOWEVER, ADDITIONALLY, OTHER FEATURES MAY EXIST ON THE SITE, THE EXISTENCE OF WHICH ARE UNKNOWN TO HALLISEY, PEARSON & CASSIDY. FIELD LOCATIONS ARE BE CONSIDERED AS APPROXIMATE. FIELD FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG "811".

SCALE: 1"=50'  
CHECKED BY: JFC  
DATE: JAN. 24, 2023  
DRAWN BY: JAMP  
JOB NO.: 1331  
ACAD FILE: 1331-D  
SHEET: 1 OF 13  
REVISIONS:

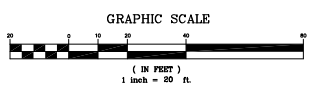
**HALLISEY, PEARSON & CASSIDY**  
CIVIL ENGINEERS & LAND SURVEYORS  
404 MAIN STREET, SUITE #416  
CROWELL, CONNECTICUT 06416  
PHONE: (860)-558-4812, FAX: (860)-721-7799

PROPERTY/TOPOGRAPHIC SURVEY  
SHOWING EXISTING CONDITIONS  
AND PROPOSED CONSTRUCTION  
ROOT CENTER FOR ADVANCED RECOVERY  
36-37, 39 LAFAYETTE STREET  
HARTFORD, CONNECTICUT

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON:

*Paul A. Hallisey* DATE: DECEMBER 29, 2022  
PAUL A. HALLISEY, LIC. NO. 7781

THIS DOCUMENT AND COPIES THEREOF ARE VALID ONLY IF THEY BEAR THE SIGNATURE AND EMBOSSED SEAL OF THE DESIGNATED LICENSED PROFESSIONAL. UNAUTHORIZED ALTERATIONS TO THIS PLAN RENDER THE DECLARATION HEREON NULL AND VOID. VALID ONLY ON MAPS BEARING EMBOSSED SURVEYOR'S SEAL.



EXIST. BIT. PAVEMENT, POST AND KIOSK WITHIN CROSSED-HATCHED AREA TO BE REMOVED

EXIST. IRON FENCE TO BE REMOVED

PROF. "POUR" PAVEMENT STEPS (1) 6" X 1/4" ROSS & (2) 3" X 4" BEAMS (SEE TYPICAL DETAIL ON SHEET #11)

GRAND STREET

LAFAYETTE STREET

OAK STREET

N/F DANIEL BABA 9 GRAND ST

EXIST. TWO-STORY BRICK BUILDING

N/F GRAND OAK ASSOC 16 OAK ST

N/F MBM ENTERPRISES LLC 9 GRAND ST

EXIST. OVERHEAD WIRE TO BE REMOVED

EXIST. IRON FENCE TO BE REMOVED

EXIST. CHAIN LINK FENCE TO BE REMOVED

EXIST. TWO-STORY BRICK BUILDING

N/F 19-29 LAFAYETTE STREET LLC 19 LAFAYETTE ST

N/F PHOENIX TAX INVESTORS LLC 484 PARK ST

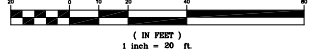
EXIST. TWO-STORY BRICK BUILDING

EXIST. TWO-STORY BRICK BUILDING

N/F 426 PARK MORTGAGE LLC 426 PARK ST

N/F LA CASA-ELDERLY HOUSING INC 180 OAK ST

GRAPHIC SCALE



GENERAL DEMOLITION NOTES:

- 1. PRIOR TO ANY CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL PROVIDE ADEQUATE LAYOUT AND GRADING INFORMATION FOR PROPOSED WORK TO ALLOW FOR THE EVALUATION OF ITS RELATIONSHIP TO THE EXISTING SITE FEATURES AND VEGETATION. IF REQUIRED, FIELD MODIFICATIONS SHALL BE MADE AS AUTHORIZED BY THE ENGINEER TO ADDRESS EXISTING SITE CONDITIONS.
2. SITE LAYOUT & PROPOSED GRADES ARE TO BE STAKED IN THE FIELD AND APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO BEGINNING OF THE CONSTRUCTION OPERATIONS.
3. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE INSIDE AND OUTSIDE THE PROPERTY LIMIT LINE DUE TO CONSTRUCTION OPERATIONS FROM THE PROPOSED WORK.
4. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES IN THE FIELD BEFORE BEGINNING ANY EXCAVATION. THE CONTRACTOR SHALL CONTACT "CALL-BEFORE-YOU-DIG" - 811 AT LEAST 72 HOURS PRIOR TO START OF WORK.
5. THE CONTRACTOR SHALL MAINTAIN ACCESS TO FIRE HYDRANT AND SITE EMERGENCY SERVICES AT ALL TIMES.
6. THE CONTRACTOR SHALL COMPLY WITH ALL STATE, LOCAL AND FEDERAL REGULATIONS.
7. INSTALL SEDIMENT AND EROSION CONTROL MEASURES AT THE DIRECTION OF THE ENGINEER AND IN ACCORDANCE WITH THE STATE OF CONNECTICUT DEEP OUBLES FOR SEDIMENT AND EROSION CONTROL.
8. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED PRIOR COMMENCEMENT OF DEMOLITION.
9. MATERIAL STAGING AREAS SHALL BE ESTABLISHED IN COORDINATION WITH THE OWNER, OR THEIR REPRESENTATIVE AT THE SITE.
10. CONTAMINATED SOILS, IF ENCOUNTERED, SHALL BE STOCKPILED ON-SITE (SEE PREVIOUS NOTE) AT THE DIRECTION OF THE ENGINEER, PRIOR TO OFF-SITE DISPOSAL/RECYCLING.
11. BACKFILL AND SURBERM SHALL BE BROUGHT UP IN 6" LIFTS AND COMPACTED OR 8% MAXIMUM DRY DENSITY EVERY OTHER LIFT. PERCENT COMPACTING SHALL BE DEFINED AS THE RATIO OF THE FIELD DRY DENSITY, DETERMINED BY AASHTO METHOD D, TO THE MAXIMUM DRY DENSITY.
12. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHASE OF THIS PROJECT. CONTRACTOR SHALL REVIEW ALL SHEETS FOR ADDITIONAL DEMOLITION SCOPE.
13. CONTRACTOR SHALL VERIFY EXISTING SITE AND BUILDING CONDITIONS AND DIMENSIONS IN THE FIELD PRIOR TO DEMOLITION ACTIVITIES AND WORK.
14. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES IN WRITING.
15. CONTRACTOR SHALL NOTIFY ARCHITECT AND OWNER OF ANY POSSIBLE ASBESTOS CONTAINING MATERIALS DISCOVERED BEFORE PROCEEDING WITH WORK.
16. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS BEFORE COMMENCING WORK.
17. OTHER AWARD OF THE CONTRACT CHANGES ORDER REQUESTS FOR ADDITIONAL WORK WILL NOT BE APPROVED IF THE WORK COULD HAVE BEEN ANTICIPATED DURING A SITE VISIT BY THE CONTRACTOR.
18. CONTRACTOR SHALL NOT TAKE DRAWINGS.
19. CONTRACTOR SHALL PROVIDE ALL NECESSARY TEMPORARY SHORING, TEMPORARY BRACING, AND OR TEMPORARY SUPPORTS AS REQUIRED TO MAINTAIN STRUCTURAL INTEGRITY OF EXISTING STRUCTURE TO REMAIN AND OR EXISTING BUILDING ELEMENTS TO REMAIN.
20. CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO DEMOLITION ACTIVITIES AND WORK.
21. CONTRACTOR SHALL REMOVE TRASH AND DEBRIS REGULARLY AS NECESSARY TO ELIMINATED INTERFERENCE WITH ROADS, STREET, WALLS, AND ALL OTHER ADJACENT FACILITIES.
22. CONTRACTOR SHALL REMOVE TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
23. CONTRACTOR SHALL REPAIR, REPLACE, OR PATCH EXISTING BUILDINGS, DRIVEWAYS, SIDEWALKS, CANPENS, AND OR PARKING AREAS DAMAGED, MODIFIED, OR DISTURBED BY DEMOLITION WORK AT NO COST TO THE OWNER.
24. ALL EXISTING EQUIPMENT THAT REMAINS SHALL BE PROTECTED DURING DEMOLITION AND OR CONSTRUCTION TO PREVENT DAMAGE. ANY DAMAGE TO REMAINING EXISTING EQUIPMENT SUSTAINED DURING DEMOLITION AND OR CONSTRUCTION SHALL BE EQUIVALENTLY REPAIRED OR EQUIVALENTLY REPAIRED AT NO COST TO THE OWNER.
25. CONTRACTOR SHALL PROVIDE TRAFFIC HANDLING MEASURES TO PROTECT THE GENERAL PUBLIC AT ALL TIMES AS NECESSARY AND AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
26. DO NOT INTERRUPT EXISTING UTILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY AUTHORITIES HAVING JURISDICTION. PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXISTING UTILITIES, AS ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.
27. WHEN UTILITY SERVICES ARE REQUIRED TO BE REMOVED, RELOCATED, OR ABANDONED, PROVIDE BYPASS CONNECTIONS TO MAINTAIN CONTINUITY OF SERVICE BEFORE PROCEEDING WITH DEMOLITION.
28. CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES INCLUDING BUT NOT LIMITED TO THE FOLLOWING: ELECTRIC, GAS, WATER, TELEPHONE, STORM SEWER, AND SANITARY SEWER FOR FIELD LOCATION OF ALL UNDERGROUND AND OVERHEAD UTILITY LINES. PRIOR TO COMMENCEMENT OF ANY DEMOLITION WORK, CONTRACTOR SHALL IDENTIFY ALL ELECTRICAL CIRCUITS SERVING THE AREA IMPROVED WITH THIS DEMOLITION. THESE CIRCUITS SHALL BE LOCATED, IDENTIFIED AND EITHER REMOVED OR IF THEY DO NOT SERVICE ANY OF THE REMAINING BUILDINGS, THESE CIRCUITS WHICH ARE IDENTIFIED TO SERVICE BOTH THE AREA TO BE DEMOLISHED AND THE REMAINING PORTION OF THE BUILDING.
29. PROTECT EXISTING SITE ELEMENTS AND EXISTING LANDSCAPING TO REMAIN. PROTECTION SHALL INCLUDE BUT NOT BE LIMITED TO EXISTING TREES AND OTHER EXISTING VEGETATION INDICATED TO REMAIN BY PLACE AGAINST UNNECESSARY CUTTING, BRACING, OR STAKING OF ROOTS, STAKING OR BRACING OF MAIN. SMOOTHING OF TREES BY STOCKPILING CONSTRUCTION MATERIAL OR EXCAVATED MATERIAL WITHIN DROP LIMITS.
30. CONTRACTOR SHALL REGRADE AND HYDROMULCH AREAS AFFECTED BY DEMOLITION.
31. OWNER HAS RIGHT OF FIRST REFUSAL OF ALL ITEMS REMOVED AS PART OF THE SCOPE OF WORK, WHETHER IDENTIFIED AS SALVAGE OR NOT.
32. NOTIFY THE BUILDING OWNER OF ANY MATERIALS, FIXTURES, ETC. TO BE REMOVED THAT ARE DEEMED SALVAGEABLE. TURN OVER ANY REQUESTED ITEMS TO THE BUILDING OWNER IN GOOD AND CLEAN CONDITION.
33. ALL FURNITURE WILL BE REMOVED OR RELOCATED BY THE OWNER AS NECESSARY PRIOR TO THE DEMOLITION WORK OF THIS PROJECT. CONTRACTOR SHALL COORDINATE WITH OWNER AS REQUIRED.
34. REMOVE EXISTING CONSTRUCTION TO THE EXTENT INDICATED ON THE DRAWINGS. SHOULD ANY DAMAGE OCCUR TO ANY EXISTING CONSTRUCTION TO REMAIN, THE CONTRACTOR SHALL REPAIR THE DAMAGE TO MATCH EXISTING AND OR ADJACENT CONSTRUCTION AT NO COST TO THE OWNER.
35. THE LINE WITH THE "LOG" DESIGNATION DEPICTS THE LIMIT OF DISTURBANCE.
36. EXISTING GENERATOR SHALL BE DISCONNECTED FROM UTILITIES. THE BUILDING OWNER WILL REMOVE THE GENERATOR FROM THE SITE.
37. CONTRACTOR SHALL NOT TAKE DRAWINGS.

LEGEND

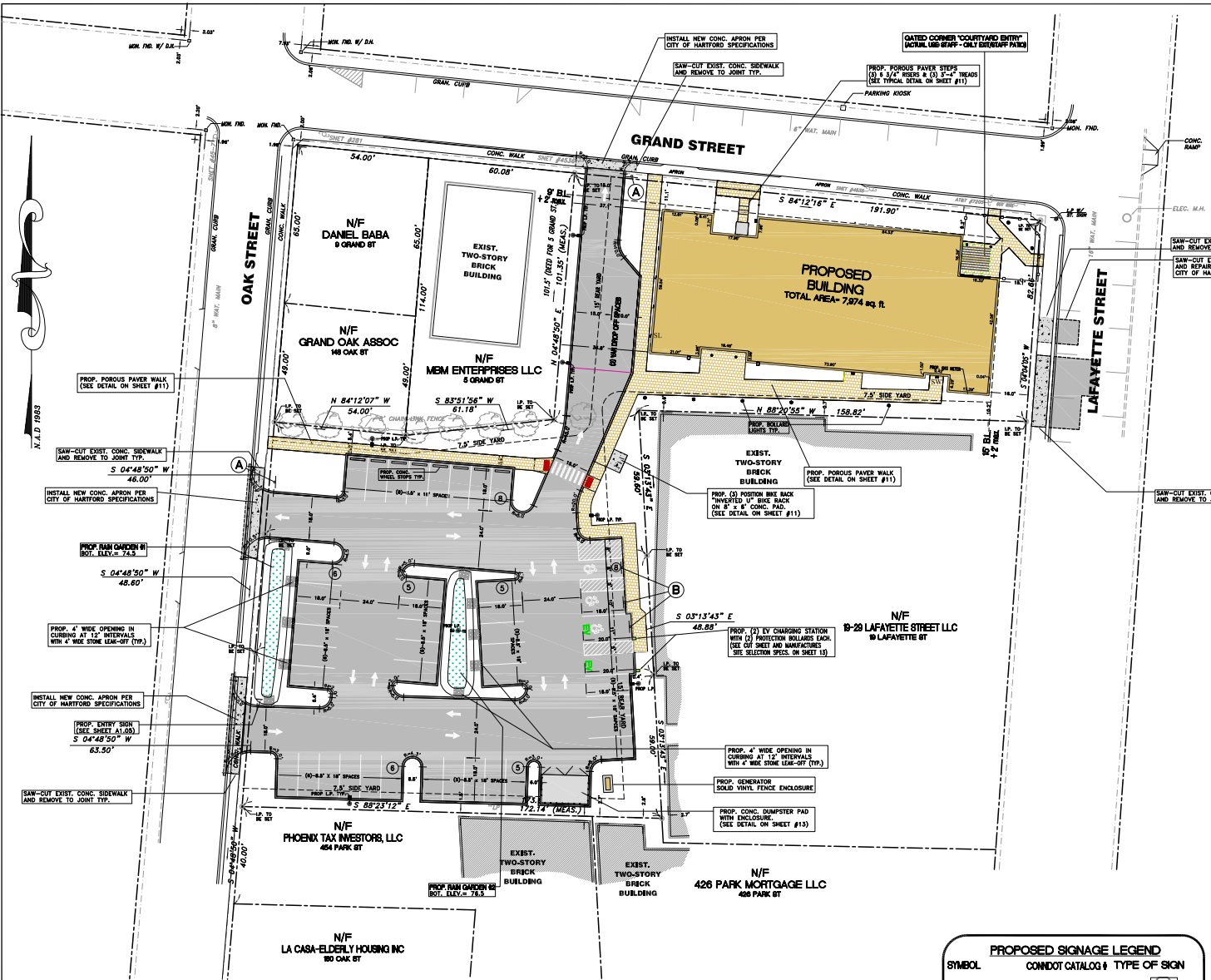
Table with 2 columns: Symbol and Description. Includes: EXISTING PROPERTY LINE, EXISTING EDGE OF PAVEMENT, IRON PIN OR IRON PIPE FOUND, CONC. MORTARSTONE OR CHD FND., EXISTING TREE LINE, EXISTING CONTOUR, EXISTING SPOT GRADE, EXISTING TELEPHONE POLE, EXISTING BIT. CURB, EXISTING CONC. CURB, EXISTING STORM DRAINAGE SYSTEM, EXISTING WATER MAIN, EXISTING SANITARY SEWER, EXISTING GAS MAIN, EXISTING OVERHEAD WIRES, LIMITS OF FLAGGED WETLANDS, LIMITS OF 100' UPLAND REVIEW AREA, EXISTING FENCE, EXISTING VEGETATION OR ISLAND TO BE REMOVED, EXISTING STRUCTURE TO BE REMOVED, EXISTING STRUCTURE AND PIPE TO BE REMOVED, LIMITS OF DISTURBANCE.

DATE: JAN. 24, 2023
JOB NO.: 1331
SHEET: 2 OF 13
REVISIONS:

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
140 MAIN STREET, SUITE #1114
CROWELL, CONNECTICUT 06416
PHONE: (860)-558-4812, FAX: (860)-721-7709

SITE DEMOLITION PLAN
SUBSTANCE USE REHABILITATION CLINIC
PROPERTY LOCATED AT:
180 OAK STREET
& 150, 156, 163 OAK STREET
HARTFORD, CONNECTICUT



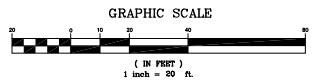
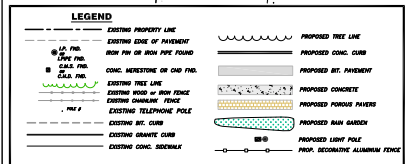


NOTES:

- 1. SURVEY NOTES:
- This survey has been prepared pursuant to the Regulation of Connecticut State Agencies Section 20-206b-1 through 20-206b-20 and the Standards for Survey and Maps in the State of Connecticut...
2. PROPERTY IS ZONED: ME-1 (MULTI USE MIX)
3. PROPERTY LIES IN FLOOD ZONE 'X' (AREA OF MINIMAL FLOOD HAZARD)...
4. MAP REFERENCES:
A) 'PROPERTY OF OAK REALTY ASSOCIATES, 28-30 LAFAYETTE STREET, 183 GRAND STREET, HARTFORD, CONNECTICUT...'
B) 'CITY OF HARTFORD', SCALE: 1"=40'
C) 'PROPERTY OF COURT HOUSE PARKING, 28, 37, 50 LAFAYETTE STREET, 183 GRAND STREET, TOWN OF HARTFORD COM', SCALE: 1"=10', DATED: OCT. 28, 1998...

ZONING BULK TABLE

Table with 5 columns: ITEM #, ILLUSTRATION, ITEM, REQUIREMENTS, and COMMENTS. It lists various zoning items with their respective requirements and comments.



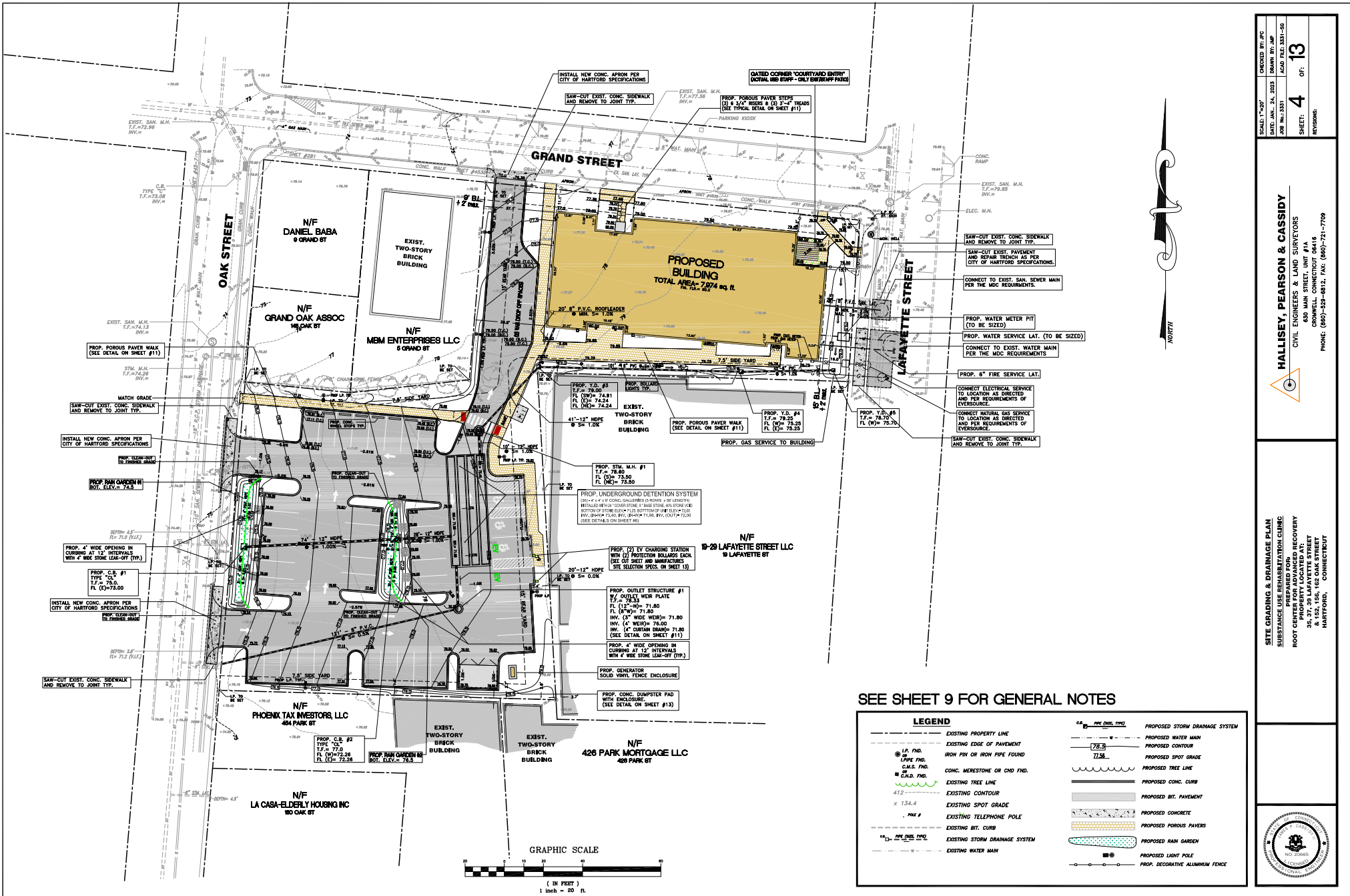
PROPOSED SIGNAGE LEGEND
SYMBOL CONDOT CATALOG # TYPE OF SIGN
(A) INSTALL 31-0552
(B) INSTALL 31-0629 + 31-0648 (WHERE REQUIRED)

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.
Paul A. Hallisey, L.S., LIC. NO. 7781, DATE DECEMBER 29, 2022
THIS DOCUMENT AND COPIES THEREOF ARE VALID ONLY IF THEY BEAR THE SIGNATURE AND EMBOSSED SEAL OF THE DESIGNATED LICENSED PROFESSIONAL. UNAUTHORIZED ALTERATIONS TO THIS PLAN RENDER THE DECLARATION HEREON NULL AND VOID. VALID ONLY ON MAPS BEARING EMBOSSED SURVEYOR'S SEAL.

ZONING IMPROVEMENT LOCATION SURVEY-PROPOSED
SUBSTANCE USE AND REHABILITATION CLINIC
PREPARED FOR:
ROOT CENTER FOR ADVANCED RECOVERY
35, 37, 39 LAFAYETTE STREET
& 152, 154, 162 OAK STREET
HARTFORD, CONNECTICUT



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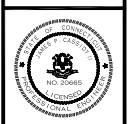
SEE SHEET 9 FOR GENERAL NOTES

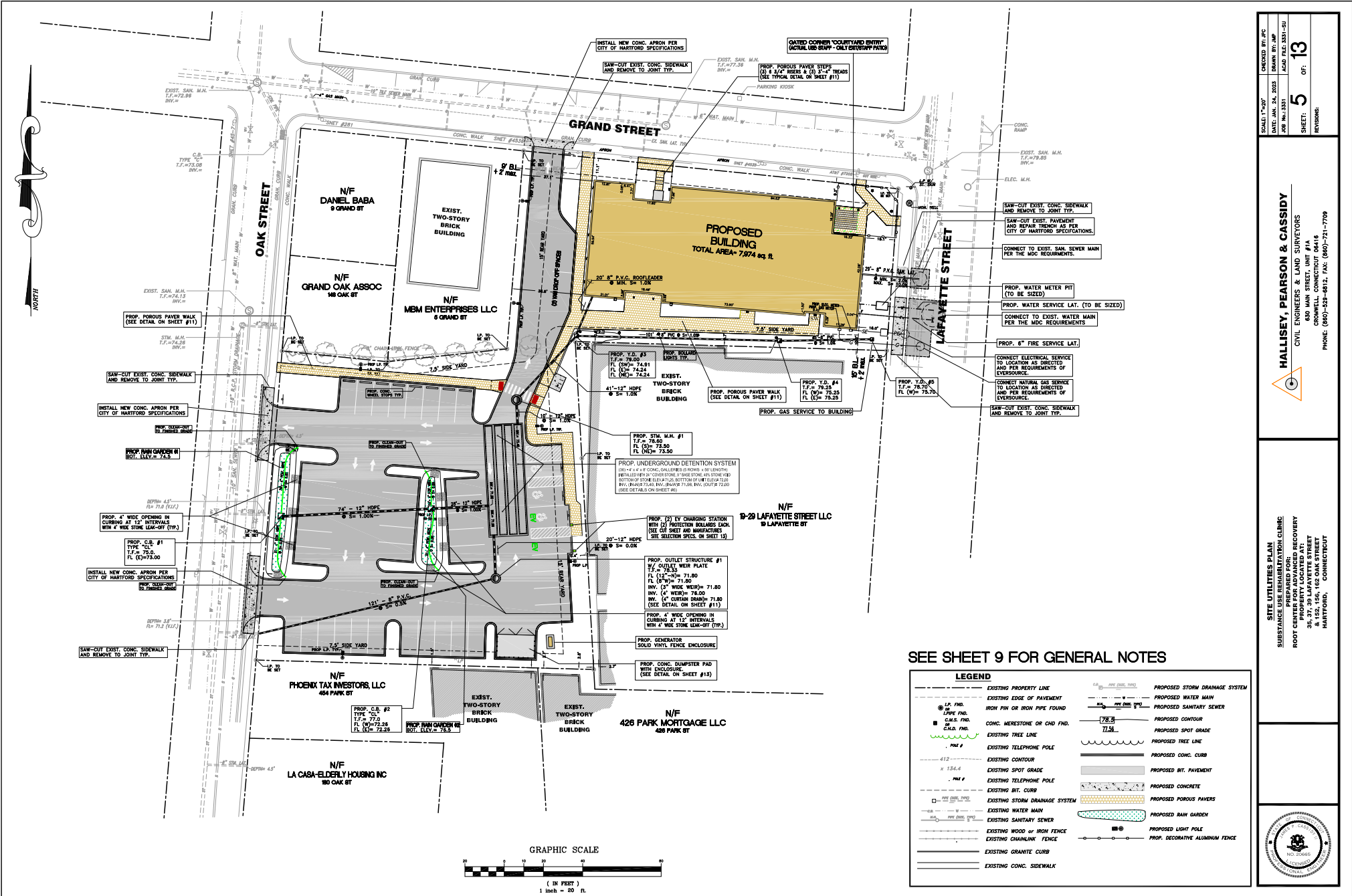
LEGEND	
---	EXISTING PROPERTY LINE
---	EXISTING EDGE OF PAVEMENT
⊙ I.P. FND.	IRON PIPE OR IRON PIPE FOUND
⊙ C.M.S. FND.	CONC. MEXESTONE OR CHD FND.
⊙ C.A.D. FND.	EXISTING TREE LINE
412	EXISTING CONTOUR
x 154.4	EXISTING SPOT GRADE
---	EXISTING TELEPHONE POLE
---	EXISTING BIT. CURB
---	EXISTING STORM DRAINAGE SYSTEM
---	EXISTING WATER MAIN
---	PROPOSED STORM DRAINAGE SYSTEM
---	PROPOSED WATER MAIN
---	PROPOSED CONTOUR
---	PROPOSED SPOT GRADE
---	PROPOSED TREE LINE
---	PROPOSED CONC. CURB
---	PROPOSED BIT. PAVEMENT
---	PROPOSED CONCRETE
---	PROPOSED POROUS PAVEMENT
---	PROPOSED RAIN GARDEN
---	PROPOSED LIGHT POLE
---	PROPOSED DECORATIVE ALUMINUM FENCE

SCALE: 1"=20'  
 DATE: JAN. 24, 2023  
 JOB NO.: 1331  
 SHEET: 4 OF 13  
 REVISIONS:

**HALLISEY, PEARSON & CASSIDY**  
 CIVIL ENGINEERS & LAND SURVEYORS  
 840 MAIN STREET, UNIT #114  
 CROMWELL, CONNECTICUT 06416  
 PHONE: (860)-558-4812, FAX: (860)-721-7709

**SITE GRADING & DRAINAGE PLAN**  
 PREPARED FOR SUBSTANCE USE REHABILITATION CLINIC  
 ROOT CENTER FOR SUBSTANCE RECOVERY  
 PROPERTY LOCATED AT:  
 34-37-39 LAFAYETTE STREET  
 CROMWELL, CONNECTICUT  
 HARTFORD, CONNECTICUT





SHEET: 5 OF 13  
 DATE: JAN. 24, 2023  
 DRAWN BY: JWP  
 JOB NO.: 1331  
 ACAD FILE: 1331-SU  
 REVISIONS:

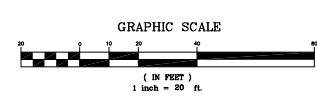
**HALLISEY, PEARSON & CASSIDY**  
 CIVIL ENGINEERS & LAND SURVEYORS  
 800 MAIN STREET, SUITE #114  
 CROMWELL, CONNECTICUT 06416  
 PHONE: (860)-558-4812, FAX: (860)-721-7709

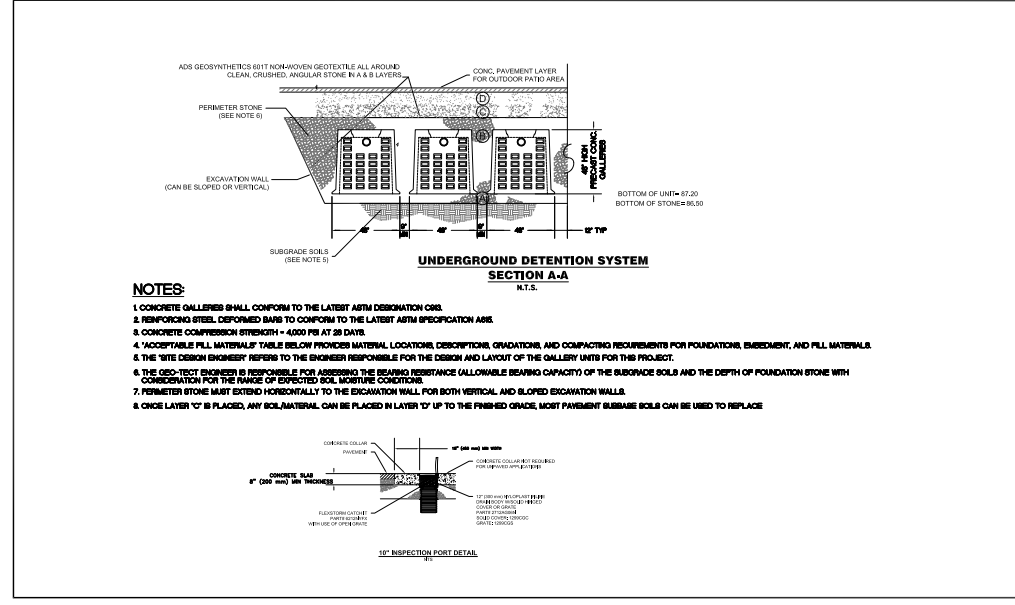
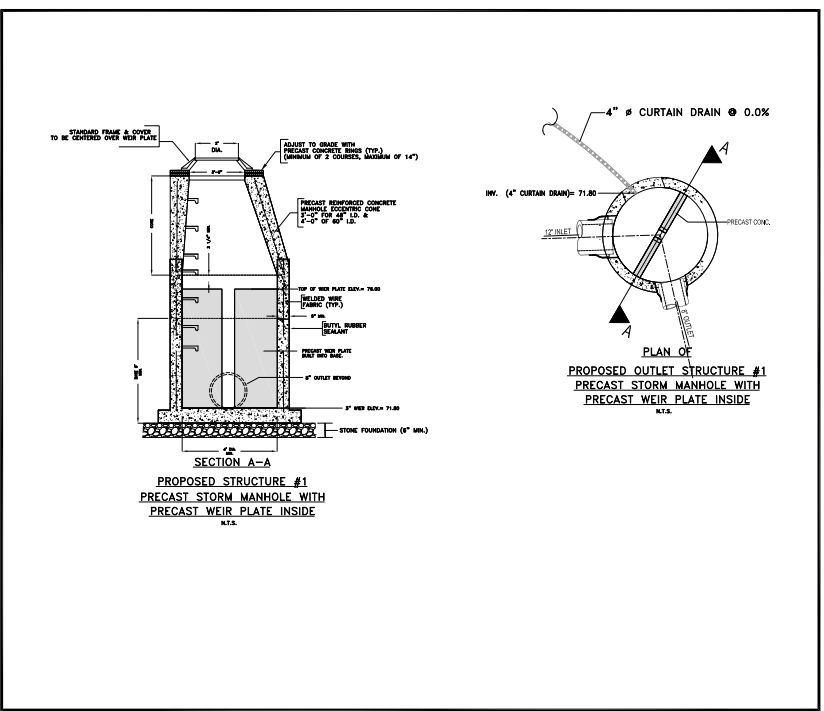
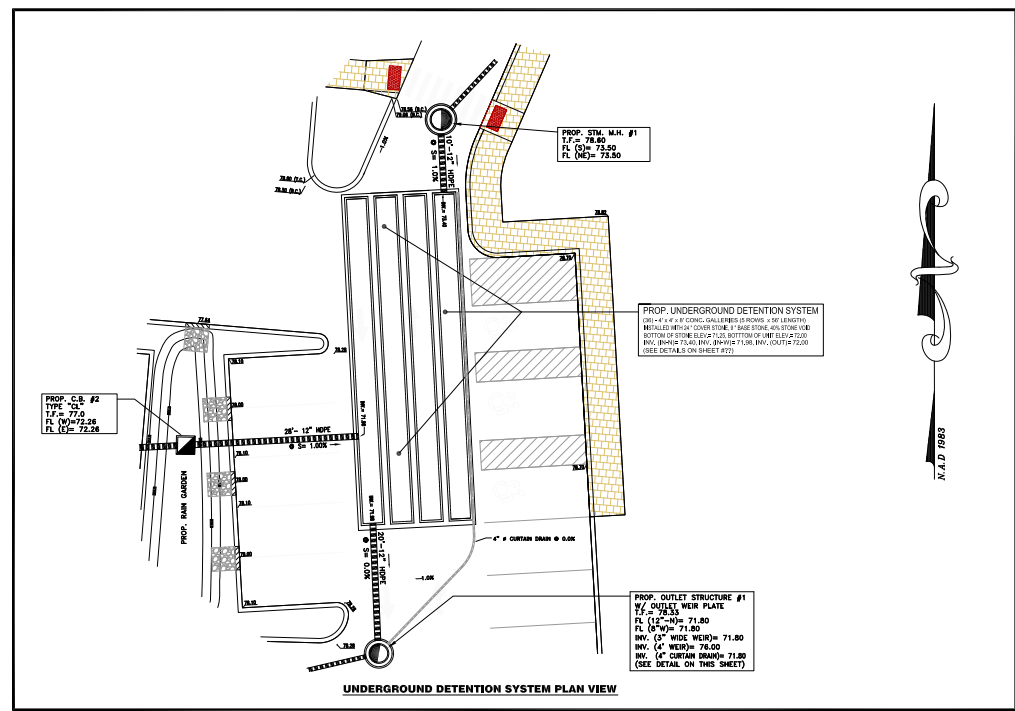
**SITE UTILITIES PLAN**  
 SUBSTANCE USE REHABILITATION CLINIC  
 ROOT CENTER FOR ADVANCED RECOVERY  
 PROPERTY LOCATED AT:  
 426 PARK MORTGAGE LLC  
 & 155, 156, 183 OAK STREET  
 HARTFORD, CONNECTICUT



**SEE SHEET 9 FOR GENERAL NOTES**

LEGEND			
---	EXISTING PROPERTY LINE	---	PROPOSED STORM DRAINAGE SYSTEM
---	EXISTING EDGE OF PAVEMENT	---	PROPOSED WATER MAIN
---	IRON PIN OR IRON PIPE FOUND	---	PROPOSED SANITARY SEWER
---	CONC. MARESTONE OR CHD FND.	---	PROPOSED CONTOUR
---	EXISTING TREE LINE	---	PROPOSED SPOT GRADE
---	EXISTING TELEPHONE POLE	---	PROPOSED TREE LINE
---	EXISTING CONTOUR	---	PROPOSED CONC. CURB
---	EXISTING SPOT GRADE	---	PROPOSED BIT. PAVEMENT
---	EXISTING TELEPHONE POLE	---	PROPOSED CONCRETE
---	EXISTING BIT. CURB	---	PROPOSED POROUS PAVERS
---	EXISTING STORM DRAINAGE SYSTEM	---	PROPOSED RAIN GARDEN
---	EXISTING WATER MAIN	---	PROPOSED LIGHT POLE
---	EXISTING SANITARY SEWER	---	PROF. DECORATIVE ALUMINUM FENCE
---	EXISTING WOOD OR IRON FENCE	---	
---	EXISTING CHAINLINK FENCE	---	
---	EXISTING GRANITE CURB	---	
---	EXISTING CONC. SIDEWALK	---	





**ACCEPTABLE MATERIALS FOR CONCRETE GALLERIES (H-20 LOADING)**

MATERIAL LOCATION	DESCRIPTION	ASHTO MATERIAL CLASSIFICATION	COMPACTION/DENSITY REQUIREMENTS
D	FILL ALL PILL MATERIAL FOR LAYERS OF STONE FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF THE FINISHED CHAMBER FLOOR. CHAMBER FLOOR SHALL BE FINISHED WITH 1\"/>		
C	CHAMBER WALL MATERIAL FOR LAYERS 'C' THROUGH 'E' SHALL BE FINISHED WITH 1\"/>		
B	CHAMBER FLOOR MATERIAL FOR LAYERS 'C' THROUGH 'E' SHALL BE FINISHED WITH 1\"/>		
A	FOUNDATION STONE PILL BELOW CHAMBER FROM THE BOTTOM UP TO THE BOTTOM OF THE CHAMBER FLOOR.	ASHTO M80.1 & 2	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.

**PLEASE NOTE:**

- THE LISTED ASHTO DESIGNATION ARE FOR GRANULARS ONLY. THE STONE MUST BE CLEAN, CRUSHED, ANGULAR, FOR EXAMPLE, A SPECIFICATION FOR 48 STONE WOULD STATE 'COARSE, CRUSHED, ANGULAR STONE'.
- COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6\"/>

**INSPECTION & MAINTENANCE**

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT

- INSPECTION PORTS IF PRESENT
  - REMOVE/REPLACE ON NYLON PLAST INLINE DRAIN
  - REMOVE AND CLEAN FILTER/STORM FILTER
  - USING A FLASHLIGHT AND STACK ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - IF SEDIMENT IS AT, OR ABOVE, 3\"/>
- ISOLATOR ROWS
  - REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - USING A FLASHLIGHT, PERFECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE('H) - MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY('H) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - IF SEDIMENT IS AT, OR ABOVE, 3\"/>

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS

- A JETVAC CURTAIN CLEANING NOZZLE WITH REAR FACING SPREAD OF 45\"/>

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LOGS-RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

**NOTES**

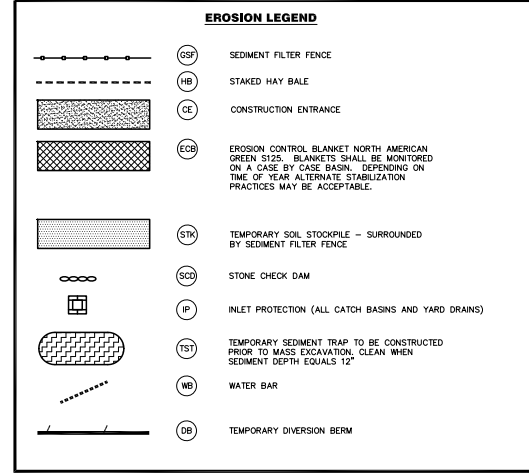
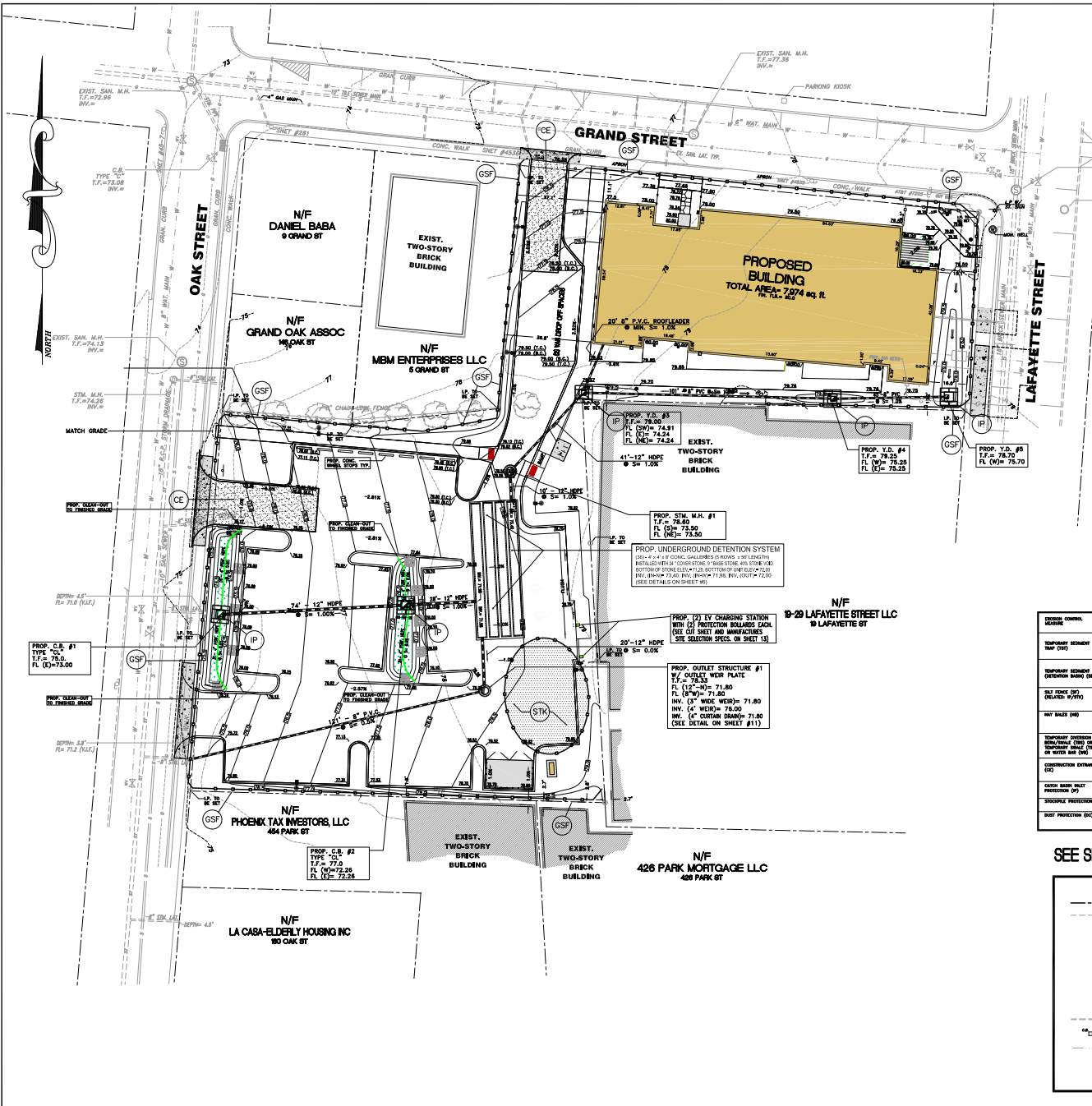
- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND UNDERWATER ELEVATIONS.
- CONDUCT JETTING AND VACUUMING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

SCALE: 1"=20'  
 CHECKED BY: JFC  
 DATE: JAN. 24, 2023  
 DRAWN BY: JHP  
 JOB NO.: 1331  
 ACD FILE: 1331-DIT  
 SHEET: 6 OF 13  
 REVISIONS:

**HALLISEY, PEARSON & CASSIDY**  
 CIVIL ENGINEERS & LAND SURVEYORS  
 840 MAIN STREET, UNIT #616  
 CROMWELL, CONNECTICUT 06416  
 PHONE: (860)-558-4812, FAX: (860)-721-7709

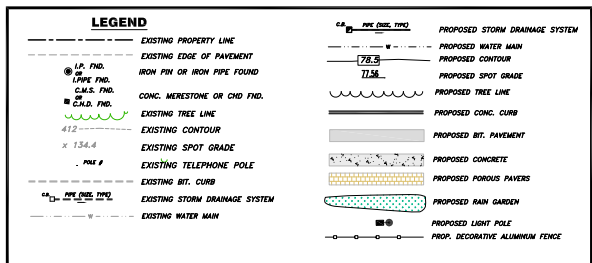
**UNDERGROUND DETENTION SYSTEM DETAILS**  
 PREPARED FOR: [REDACTED]  
 ROOT CAUSE ANALYSIS AND RECOVERY PROPERTY LOCATED AT:  
 35-37-39 LAVANETTE STREET  
 CROMWELL, CONNECTICUT  
 HARTFORD, CT





ISSUE CONTROL NUMBER	CONTROL OBJECTIVE	INSPECTION/MAINTENANCE	FAILURE INDICATORS	REPAIRS
TEMPORARY SEDIMENT TRAP (TST)	... (text)	... (text)	... (text)	... (text)
TEMPORARY SEDIMENT BARRIERS (STK)	... (text)	... (text)	... (text)	... (text)
STY BRACK (SB)	... (text)	... (text)	... (text)	... (text)
CONSTRUCTION ENTRANCE (CE)	... (text)	... (text)	... (text)	... (text)
CONSTRUCTION ENTRY PROTECTION (CY)	... (text)	... (text)	... (text)	... (text)
SOIL STOCKPILE PROTECTION (STK)	... (text)	... (text)	... (text)	... (text)
WATER PROTECTION (WB)	... (text)	... (text)	... (text)	... (text)

SEE SHEET #8 FOR SEDIMENT AND EROSION CONTROL NARRATIVE AND NOTES



SCALE: 1"=20'  
DATE: JAN. 24, 2023  
JOB NO.: 1331  
SHEET: 7 OF 13  
REVISIONS:

**HALLISEY, PEARSON & CASSIDY**  
CIVIL ENGINEERS & LAND SURVEYORS  
404 MAIN STREET, SUITE #114  
CROMWELL, CONNECTICUT 06416  
PHONE: (860)-558-4812, FAX: (860)-721-7709

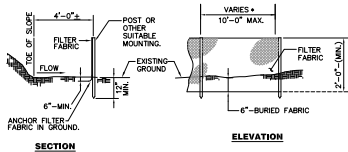
**EROSION AND SEDIMENT CONTROL PLAN**  
PREPARED FOR: [Client Name]  
PROJECT: [Project Name]  
PROPERTY LOCATED AT:  
34-37-39 LAFAYETTE STREET  
CROMWELL, CONNECTICUT











NOTE:  
\* POST SPACING AND EMBEDMENT VARIES BASED ON THE MANUFACTURERS REQUIREMENTS.

**SILT FENCE**  
NO SCALE

**MAINTENANCE OF SILT FENCE**

INSPECT THE SILT FENCE AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL AMOUNT OF 0.5 INCH OR GREATER TO DETERMINE MAINTENANCE NEEDED. WHEN USED FOR DEMANDING OPERATIONS, INSPECT FREQUENTLY BEFORE, DURING AND AFTER PUMPING OPERATIONS.

REMOVE THE SEDIMENT DEPOSITS OR, IF ROOM ALLOWS, INSTALL A SECONDARY SEDIMENT FENCE UP SLOPE OF THE EXISTING FENCE WHEN SEDIMENT DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE EXISTING FENCE.

REPLACE OR REPAIR THE FENCE WITHIN 24 HOURS OF OBSERVED FAILURE. FAILURE OF THE FENCE HAS OCCURRED WHEN SEDIMENT FAILS TO BE RETAINED BY THE FENCE BECAUSE:

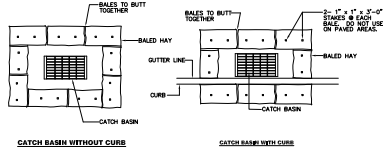
- (A) THE FENCE HAS BEEN OVER TOPPED, UNDERCUT, OR BYPASSED BY RUNOFF WATER.
- (B) THE FENCE HAS BEEN MOVED OUT OF POSITION (KNOCKED OVER), OR
- (C) THE GEOTEXTILE HAS DECOMPOSED OR BEEN DAMAGED.

WHEN REPETITIVE FAILURES OCCUR AT THE SAME LOCATION, REVIEW CONDITIONS AND LIMITATION FOR USE AND DETERMINE IF ADDITIONAL CONTROLS (E.G. TEMPORARY STABILIZATION OF CONTRIBUTING AREA, DIVERSIONS, STONE BARRIERS) ARE NEEDED TO REDUCE FAILURE RATE OR REPLACE FENCE.

MAINTAIN THE FENCE UNTIL THE CONTRIBUTING AREA IS STABILIZED.

AFTER THE CONTRIBUTING AREA IS STABILIZED DETERMINE IF SEDIMENT CONTAINED BY THE SILT FENCE REQUIRES REMOVAL OR REGRADING AND STABILIZATION. IF THE DEPTH IS GREATER THAN OR EQUAL TO 8 INCHES, REMOVAL OR REGRADING OF THE ACCUMULATED SEDIMENT IS REQUIRED. NO REMOVAL OR REGRADING IS REQUIRED IF SEDIMENT DEPTH IS LESS THAN 8 INCHES.

REMOVE THE FENCE BY PULLING UP THE SUPPORT POSTS AND CUTTING THE GEOTEXTILE AT GROUND LEVEL. REGRADE OR REMOVE SEDIMENT AS NEEDED, AND STABILIZE DISTURBED SOILS.



**MAINTENANCE OF HAY BALE CHECK DAM**

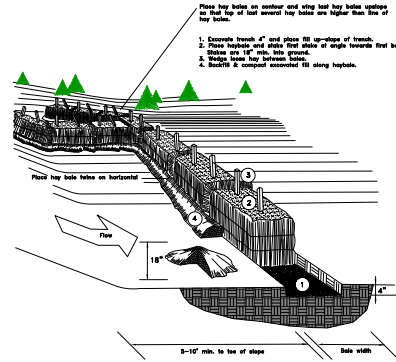
INSPECT THE HAY BALE CHECK DAM AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL AMOUNT OF 0.5 INCHES OR GREATER TO DETERMINE MAINTENANCE NEEDED. FOR DE WATERING OPERATIONS, INSPECT FREQUENTLY BEFORE, DURING AND AFTER PUMPING OPERATIONS.

REMOVE THE SEDIMENT DEPOSITS OR INSTALL A SECONDARY BARRIER WHEN SEDIMENT DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. REPLACE OR REPAIR THE BARRIER WITHIN 24 HOURS OF OBSERVED FAILURE. FAILURE OF THE BARRIER HAS OCCURRED WHEN SEDIMENT FAILS TO BE RETAINED BY THE BARRIER BECAUSE:

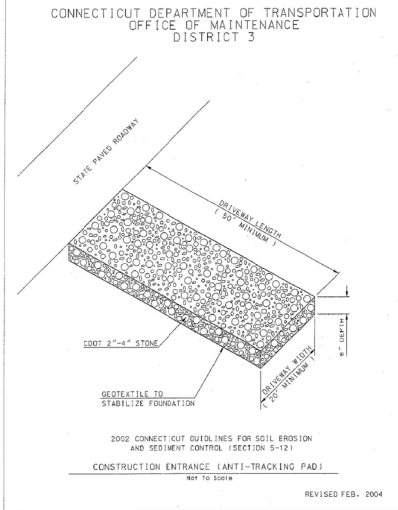
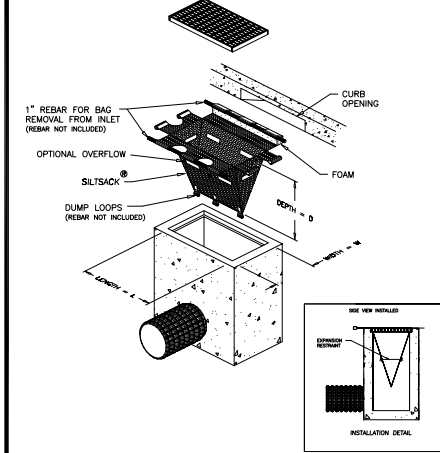
- A) THE BARRIER HAS BEEN OVERTOPPED, UNDERCUT, OR BYPASSED BY RUNOFF WATER.
- B) THE BARRIER HAS BEEN MOVED OUT OF POSITION.
- C) THE HAY BALES HAVE DETROGATED.

WHEN REPETITIVE FAILURES OCCUR AT THE SAME LOCATION REVIEW CONDITIONS AND LIMITATIONS FOR USE AND DETERMINE IF ADDITIONAL CONTROLS ARE NEEDED TO REDUCE FAILURE RATE OR REPLACE HAY BALE BARRIER.

MAINTAIN HAY BALE BARRIER UNTIL CONTRIBUTING AREA IS STABILIZED. AFTER UP-SLOPE AREAS HAVE BEEN STABILIZED PULL THE STAKES OUT OF THE HAYBALES UNLESS OTHERWISE REQUIRED BY REMOVAL OR REGRADING OF ACCUMULATED SEDIMENT IS NECESSARY. THE HAY BALES MAY THEN BE LEFT IN PLACE OR BROKEN UP FOR GROUND COVER.



**TOE OF SLOPE HAY BALE BARRIER**  
NO SCALE



SCALE: 1"=20'  
CHECKED BY: JFC  
DATE: JAN. 24, 2022  
DRAWN BY: JAMP  
JOB NO.: 3331  
ACID FILE: 3331-017  
SHEET: 10 OF 13  
REVISIONS:

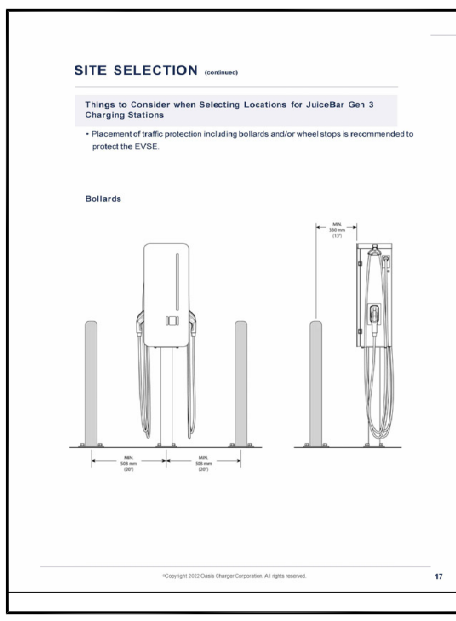
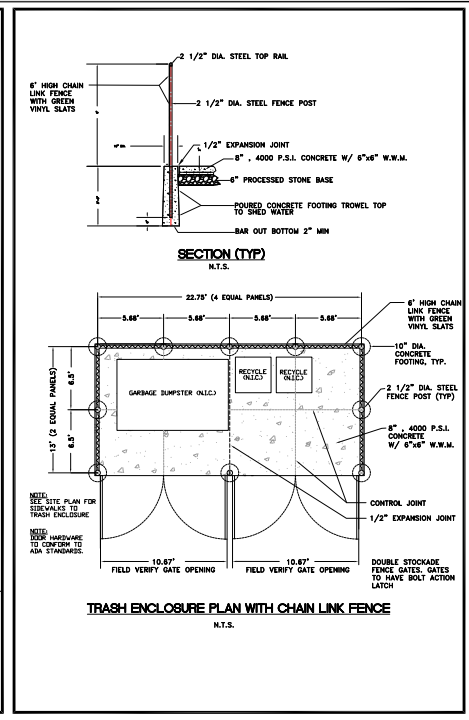
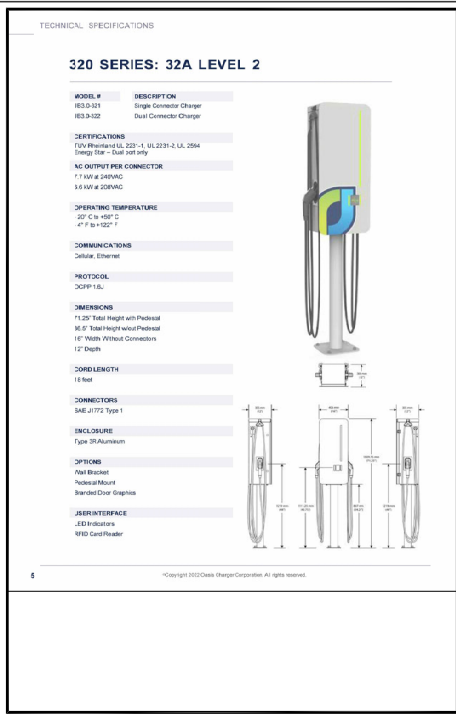
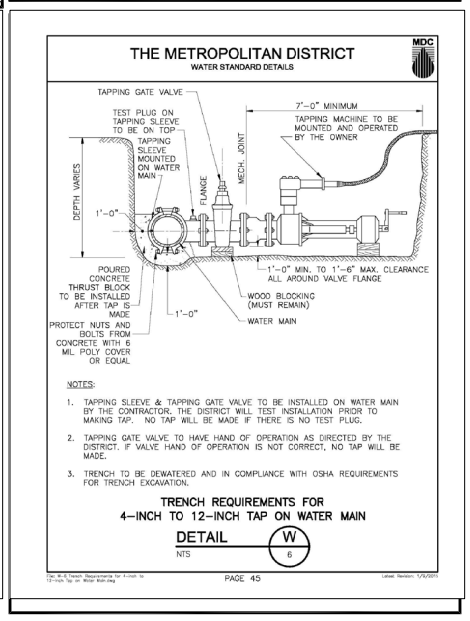
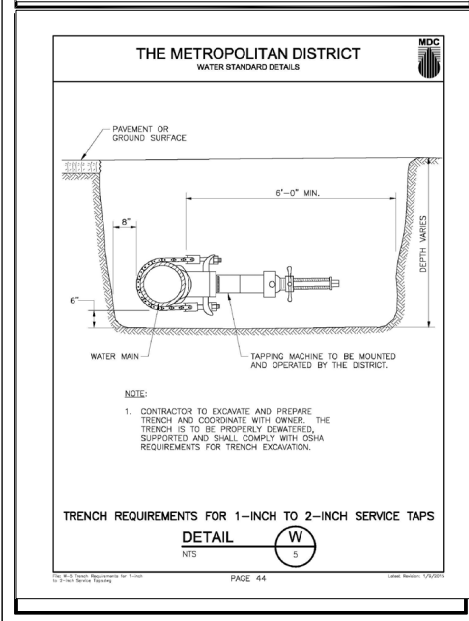
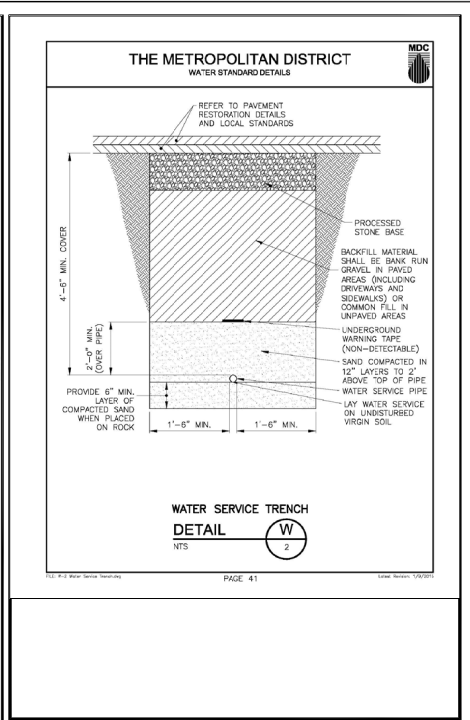
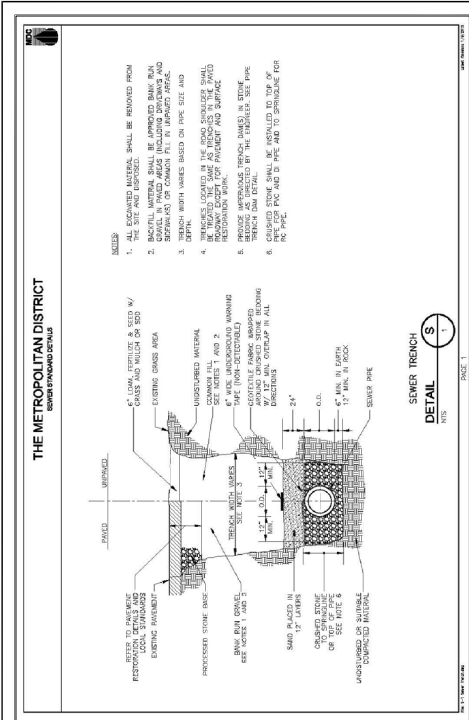
**HALLISEY, PEARSON & CASSIDY**  
CIVIL ENGINEERS & LAND SURVEYORS  
840 MAIN STREET, UNIT #616  
CROMWELL, CONNECTICUT 06416  
PHONE: (860)-558-8812 FAX: (860)-721-7709

**SITE DETAILS**  
SUBSTANCE USE REHABILITATION CLINIC  
PREPARED FOR: ENVIRONMENTAL RECOVERY  
PROPERTY LOCATED AT:  
38-37-30 LAVAYETTE STREET  
CROMWELL, CONNECTICUT  
HARTFORD, CONNECTICUT





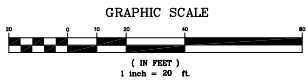
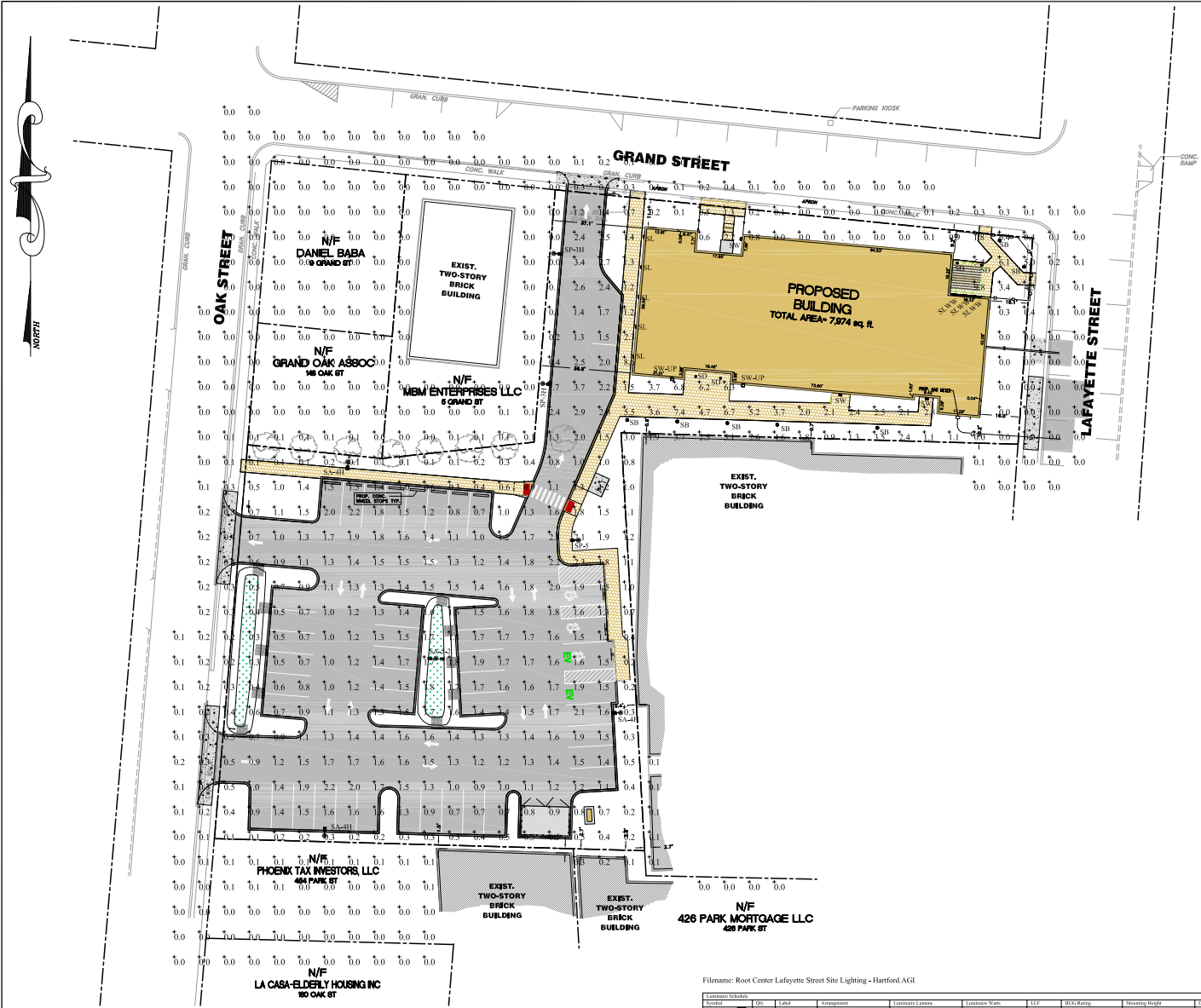




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 CHECKED BY: JPC  
 DATE: JUN. 24, 2022  
 DRAWN BY: JWP  
 JOB NO.: 1331  
 ACID FILE: 1331-DIT  
 SHEET: 13 OF 13  
 REVISIONS:

**HALLISEY, PEARSON & LAND SURVEYORS**  
 CIVIL ENGINEERS & LAND SURVEYORS  
 840 MAIN STREET, SUITE #116  
 CROMWELL, CONNECTICUT 06416  
 PHONE: (860)-558-8872, FAX: (860)-721-7799

**SITE DETAILS**  
 SUBSTANCE USE REHABILITATION CLINIC  
 PREPARED FOR: HARTFORD RECOVERY  
 PROPERTY LOCATED AT:  
 35-37-39 LAVAYETTE STREET  
 CROMWELL, CONNECTICUT  
 HARTFORD, CONNECTICUT



Filename: Root Center Lafayette Street Site Lighting - Hartford.AGI

Fixture Schedule	Symbol	On	Label	Arrangement	Luminaire Layout	Luminaire Watts	LED	Beam Rating	Mounting Height	Description
1	☐	1	12-5-5	Single	7071	5014	0.500	0.500	20	Luminaire (ON) LIGHT FOR 10 FT BY 4 FT WALL 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL
2	☐	1	12-5-5	Single	7071	5014	0.500	0.500	20	Luminaire (ON) LIGHT FOR 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL
3	☐	1	12-5-5	Single	7071	5014	0.500	0.500	20	Luminaire (ON) LIGHT FOR 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL
4	☐	1	12-5-5	Single	7071	5014	0.500	0.500	20	Luminaire (ON) LIGHT FOR 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL
5	☐	1	12-5-5	Single	7071	5014	0.500	0.500	20	Luminaire (ON) LIGHT FOR 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL
6	☐	1	12-5-5	Single	7071	5014	0.500	0.500	20	Luminaire (ON) LIGHT FOR 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL
7	☐	1	12-5-5	Single	7071	5014	0.500	0.500	20	Luminaire (ON) LIGHT FOR 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL
8	☐	1	12-5-5	Single	7071	5014	0.500	0.500	20	Luminaire (ON) LIGHT FOR 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL
9	☐	1	12-5-5	Single	7071	5014	0.500	0.500	20	Luminaire (ON) LIGHT FOR 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL
10	☐	1	12-5-5	Single	7071	5014	0.500	0.500	20	Luminaire (ON) LIGHT FOR 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL 10 FT BY 10 FT WALL

Characteristic	Unit	Min	Max	Typ	Req Min	Req Max
Color	Color	1000	1000	1000	1000	1000
Beam Spread	Beam Spread	10	10	10	10	10
Mounting Height	Mounting Height	10	10	10	10	10
Beam Spread	Beam Spread	10	10	10	10	10
Beam Spread	Beam Spread	10	10	10	10	10
Beam Spread	Beam Spread	10	10	10	10	10
Beam Spread	Beam Spread	10	10	10	10	10
Beam Spread	Beam Spread	10	10	10	10	10
Beam Spread	Beam Spread	10	10	10	10	10
Beam Spread	Beam Spread	10	10	10	10	10

Greg Loda / Evan White  
Lighting Affiliates  
1208 Cromwell Ave  
Rocky Hill, CT 06067

website: www.lightingaffiliates.com  
Voice Number: (860) 721-1171 x 219  
Email Address: gloda@lightingaffiliates.com

SCALE: 1"=20'  
DATE: JAN. 24, 2023  
JOB NO.: 1331  
SHEET: PH OF 1  
REVISIONS:

**HALLISEY, PEARSON & CASSIDY**  
CIVIL ENGINEERS & LAND SURVEYORS  
100 MAIN STREET, SUITE #416  
CROMWELL, CONNECTICUT 06416  
PHONE: (860)-558-4812, FAX: (860)-721-7799

**SEE LEAVING PLAN**  
PREPARED FOR:  
ROOT CENTER FOR ADVANCED RECOVERY  
PROPERTY LOCATED AT  
35, 155, 156, 162 OAK STREET  
HARTFORD, CONNECTICUT



### D-Series Size 1 LED Area Luminaire

**Specifications**

- EPH: 0.09 ft
- Length: 32.37" (823mm)
- Width: 14.18" (359mm)
- Height: 7.50" (190mm)
- Height H2: 7.50" (190mm)
- Height H3: 14.18" (359mm)
- Height H4: 32.37" (823mm)

**Ordering Information**

**EXAMPLE: DSX1 LED P7 40K 70CR 1TM MVOLT SPN NIA2R2 191HN DDSD**

Series	Color	Beam Angle	Color Temperature	Life Expectancy	Warranty	Notes
DSX1S	Standard	40°	4000K	70,000 hrs	5Yr	Standard mounting
	High Bay	40°	4000K	70,000 hrs	5Yr	High Bay mounting

### D-Series LED Bollard

**Specifications**

- Series: 4" Round
- Height: 42" (1067mm)
- Weight: 27 lbs (12.2kg)

**Ordering Information**

**EXAMPLE: DSXB LED 14C 70R 40K 5YM MVOLT DBDSD**

Series	Color	Beam Angle	Color Temperature	Life Expectancy	Warranty	Notes
DSXB1S	Standard	30°	4000K	50,000 hrs	5Yr	Standard mounting
	High Bay	30°	4000K	50,000 hrs	5Yr	High Bay mounting

### JUNO SLIMFORM™ LED SURFACE MOUNT DOWNLIGHTS FOR ROW INSTALLATION S7, 11, 13' ROUND J5F SERIES

**Product Description**

**PROFIT SPECIFICATIONS**

**Dimensions**

**ROUND SPECIFICATIONS**

**Installation**

**Accessories**

### RISE

**OVERVIEW - SPECIFICATIONS - ORDERING**

**EXAMPLE: R10B 95-LED-228-05-K-X-A**

Series	Color	Beam Angle	Color Temperature	Life Expectancy	Warranty	Notes
R10B	Standard	22°	4000K	100,000 hrs	5Yr	Standard mounting
	High Bay	22°	4000K	100,000 hrs	5Yr	High Bay mounting

### VIA SPLASH LED WALL DIRECT/INDIRECT LUMENWERX

**DESCRIPTION**

**ORDER GUIDE**

**EXAMPLE: VSD1 LED P7 40K 70CR 1TM MVOLT SPN NIA2R2 191HN DDSD**

Series	Color	Beam Angle	Color Temperature	Life Expectancy	Warranty	Notes
VSD1S	Standard	40°	4000K	70,000 hrs	5Yr	Standard mounting
	High Bay	40°	4000K	70,000 hrs	5Yr	High Bay mounting

### D-Series Size 0 LED Area Luminaire

**Specifications**

- EPH: 0.09 ft
- Length: 32.37" (823mm)
- Width: 14.18" (359mm)
- Height: 7.50" (190mm)
- Height H2: 7.50" (190mm)
- Height H3: 14.18" (359mm)
- Height H4: 32.37" (823mm)

**Ordering Information**

**EXAMPLE: DSX0 LED P6 40K 70CR 1TM MVOLT SPN NIA2R2 191HN DDSD**

Series	Color	Beam Angle	Color Temperature	Life Expectancy	Warranty	Notes
DSX0S	Standard	40°	4000K	70,000 hrs	5Yr	Standard mounting
	High Bay	40°	4000K	70,000 hrs	5Yr	High Bay mounting

### D-Series Size 1 LED Wall Luminaire

**Specifications**

- Width: 13.34" (339mm)
- Height: 6.33" (161mm)

**Ordering Information**

**EXAMPLE: DSXW1 LED 20C 1000 40K 1TM MVOLT DBDSD**

Series	Color	Beam Angle	Color Temperature	Life Expectancy	Warranty	Notes
DSXW1S	Standard	20°	4000K	100,000 hrs	5Yr	Standard mounting
	High Bay	20°	4000K	100,000 hrs	5Yr	High Bay mounting

### Echo Reflections 9.0 LED

**DESCRIPTION**

**FEATURES & BENEFITS**

**SPECIFICATIONS**

**SPILIGHTING PROJECT DETAILS**

### HALLISEY, PEARSON & CASSIDY

CIVIL ENGINEERS & LAND SURVEYORS

30 MAIN STREET, SUITE #110  
CROWLAND, CONNECTICUT 06416

PHONE: (860)-558-4817 FAX: (860)-721-7709

DATE: JAN. 24, 2023 DRAWN BY: JWP CHECKED BY: JPC JOB NO.: 1531 ACAD FILE: 1531-PH SHEET: PH OF: 2 REVISIONS:



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Consultant  
**FREEMAN COMPANIES**  
16 SANDEWICH STREET, HARTFORD, CT 06120  
 WWW.FREEMAN.CO  
 860.254.7200  
 ELEVATE YOUR EXPECTATIONS

Client/ Contractor  
**ROOT - CENTER FOR ADVANCED RECOVERY**

335 BROAD STREET  
 MANCHESTER, CT 06040

Project  
**SUBSTANCE USE REHABILITATION CLINIC**

35, 37, 39 LAFAYETTE STREET  
 & 152, 156, 162 OAK STREET  
 HARTFORD, CT 06120

PROJECT NORTH



Scale

NOT FOR CONSTRUCTION  
 12-19-2022

Issues / Revisions

No.	Date	Description
01/26/2022		SITE PLAN SUBMISSION

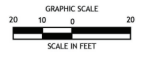
Drawing Title  
**SCHEMATIC LANDSCAPE PLAN RENDERING**

Project Manager: JMA Project No: PCA-HAR  
 Project Architect: GL Production Leader:  
 Project Designer: PPR Peer Reviewer:

Drawing Number  
**L-1.01**

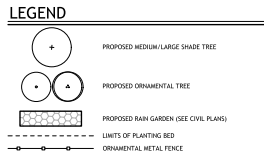
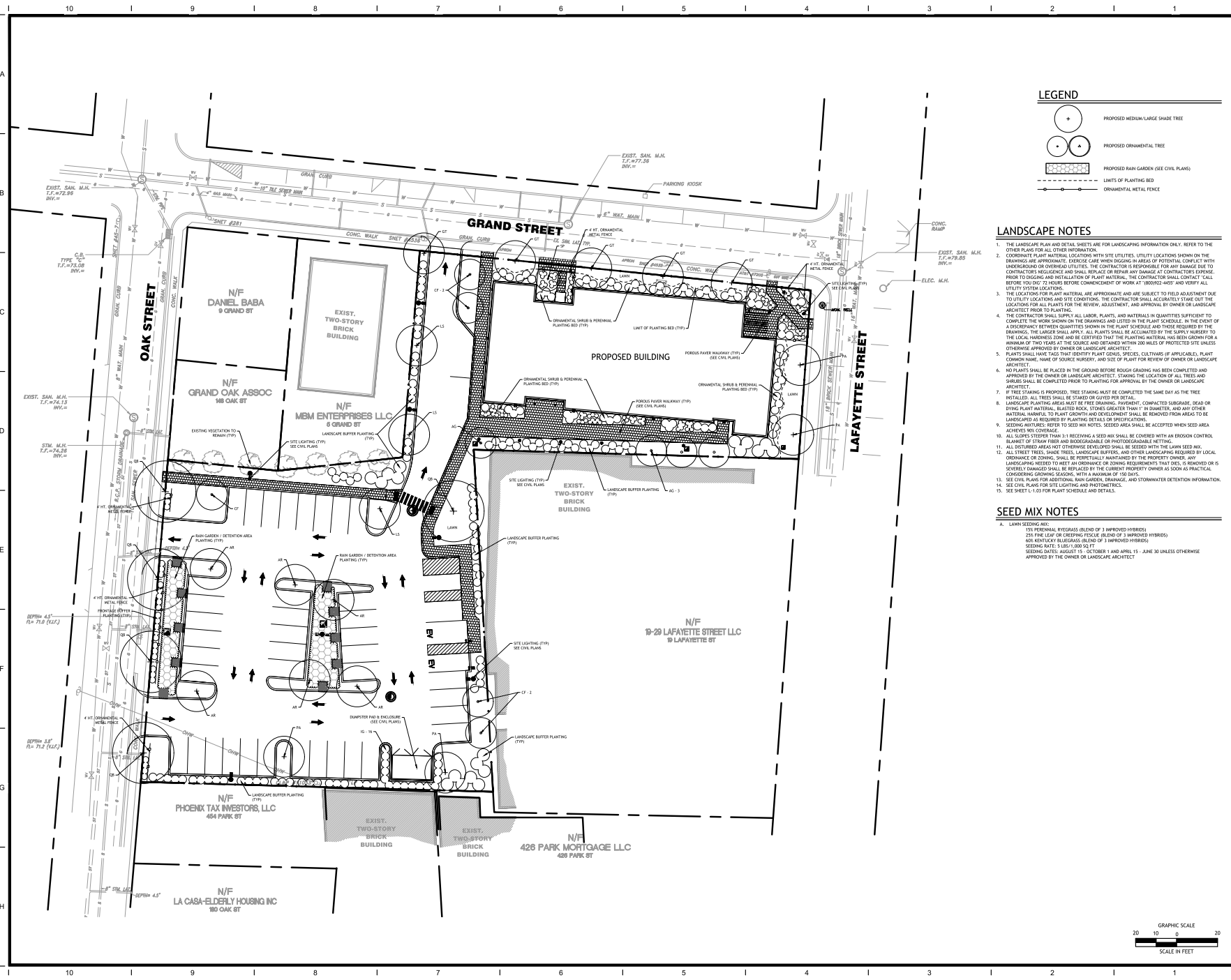


Freeman Companies, LLC - R:\2022\2022-0914 ROOT Center\DWG\2022-0914 - LAND.dwg Date 09-29-2022 5:30pm Plotted By: G. Caspeiro





Freeman Companies, LLC - R:\2022\2022-0614 ROOT Center\JWD\2022-0614 - LAND.dwg Jun 20, 2023-11:36am Plotted By: G.dang



LANDSCAPE NOTES

- 1. THE LANDSCAPE PLAN AND DETAIL SHEETS ARE FOR LANDSCAPING INFORMATION ONLY. REFER TO THE OTHER PLAN FOR ALL OTHER INFORMATION.
2. COORDINATE PLANT MATERIAL LOCATIONS WITH SITE UTILITIES. UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. EXERCISE CARE WHEN DIGGING IN AREAS OF POTENTIAL CONFLICT WITH UNDERGROUND OR OVERHEAD UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DUE TO CONTRACTORS NEGLIGENCE AND SHALL REPLACE OR REPAIR ANY DAMAGE AT CONTRACTOR'S EXPENSE.
3. THE LOCATIONS FOR PLANT MATERIAL ARE APPROXIMATE AND ARE SUBJECT TO FIELD ADJUSTMENT DUE TO UTILITY LOCATIONS AND SITE CONDITIONS. THE CONTRACTOR SHALL ACCURATELY STAKE OUT THE LOCATIONS FOR ALL PLANTS FOR THE REVIEW, ADJUSTMENT, AND APPROVAL BY OWNER OR LANDSCAPE ARCHITECT PRIOR TO PLANTING.
4. THE CONTRACTOR SHALL SUPPLY ALL LABOR, PLANTS, AND MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND LISTED IN THE PLANT SCHEDULE. IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES SHOWN IN THE PLANT SCHEDULE AND THOSE REQUIRED BY THE DRAWINGS, THE LARGER SHALL APPLY. ALL PLANTS SHALL BE ACCURATELY STAKED BY THE SUPPLY NURSERY TO THE LOCAL HARDNESS ZONE AND BE CERTIFIED THAT THE PLANTING MATERIAL HAS BEEN GROWN FOR A MINIMUM OF TWO YEARS AT THE SOURCE AND OBTAINED WITHIN 200 MILES OF PROTECTED SITE UNLESS OTHERWISE APPROVED BY OWNER OR LANDSCAPE ARCHITECT.
5. PLANTS SHALL HAVE TAGS THAT IDENTIFY PLANT GENUS, SPECIES, CULTIVARS (IF APPLICABLE), PLANT COMMON NAME, NAME OF SOURCE NURSERY, AND SIZE OF PLANT FOR REVIEW BY OWNER OR LANDSCAPE ARCHITECT.
6. NO PLANTS SHALL BE PLACED IN THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT. STAKING THE LOCATION OF ALL TREES AND SHRUBS SHALL BE COMPLETED PRIOR TO PLANTING FOR APPROVAL BY THE OWNER OR LANDSCAPE ARCHITECT.
7. IF TREE STAKING IS PROPOSED, TREE STAKING MUST BE COMPLETED THE SAME DAY AS THE TREE INSTALLED. ALL TREES SHALL BE STAKED ON EITHER PER SIDE.
8. LANDSCAPE PLANTING AREAS MUST BE FREE GRADING, PAVED, FINISHED, COMPACTED SUBGRADE, GRADE OR DRAIN PLANT MATERIAL, BLENDED ROCK, STONE, GRAVEL, THIN 1/4 INCHES, AND ANY OTHER MATERIAL. HAWKLE, TO PLANT GROWTH AND DEVELOPMENT SHALL BE REMOVED FROM AREAS TO BE LANDSCAPED AS REQUIRED BY PLANTING DETAIL OR SPECIFICATION.
9. SEEDING MATERIAL REFER TO SEED MIX NOTES. SEEDING AREA SHALL BE ACCEPTED WHEN SEED AREA ALL SLOPES GREATER THAN 3% RECEIVING A SEED MIX SHALL BE COVERED WITH AN BROOK CONTROL BLANKET OF STRAW FIBER AND BIODEGRADABLE OR PHOTODEGRADABLE NETTING.
10. ALL SLOPES GREATER THAN 3% RECEIVING A SEED MIX SHALL BE COVERED WITH AN BROOK CONTROL BLANKET OF STRAW FIBER AND BIODEGRADABLE OR PHOTODEGRADABLE NETTING.
11. ALL DISTURBED AREAS NOT OTHERWISE DEVELOPED SHALL BE SEEDED WITH THE SAME SEED MIX.
12. ALL STREET TREES, SHADE TREES, LANDSCAPE BUFFERS, AND OTHER LANDSCAPING REQUIRED BY LOCAL ORDINANCE OR ZONING, SHALL BE FULLY MAINTAINED BY THE PROPERTY OWNER. ANY LANDSCAPING NEEDED TO MEET AN ORDINANCE OR ZONING REQUIREMENTS THAT DIES, IS REMOVED OR IS SEVERELY DAMAGED SHALL BE REPLACED BY THE CURRENT PROPERTY OWNER AS SOON AS PRACTICAL.
13. SEE CIVIL PLANS FOR ADDITIONAL RAIN GARDENS, DRAINAGE, AND STORMWATER DETENTION INFORMATION.
14. SEE CIVIL PLANS FOR SITE LIGHTING AND PHOTOGRAPHICS.
15. SEE SHEET L-1.03 FOR PLANT SCHEDULE AND DETAILS.

SEED MIX NOTES

- 1. LAWN SEEDING MIX:
1/3 PERENNIAL BLUEGRASS (BLEND OF 3 IMPROVED HYBRIDS)
2/3 THE LEAF OR SHEEPING FESCUE (BLEND OF 3 IMPROVED HYBRIDS)
60% KENTUCKY BLUEGRASS (BLEND OF 3 IMPROVED HYBRIDS)
SEEDING RATE: 5.5 LB/1000 SQ FT
SEEDING DATES: AUGUST 15 - OCTOBER 15 AND APRIL 15 - JUNE 30 UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT



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Freeman CONSULTANT
C O M P A N Y S
18 ANN STREET, MANCHESTER, CT 06042
603.271.9300
FREEMAN@FREEMAN.COM
ELEVATE YOUR EXPECTATIONS

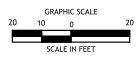
Client/ Contractor
ROOT - CENTER FOR
ADVANCED RECOVERY
335 BROAD STREET
MANCHESTER, CT 06040

Project
SUBSTANCE USE
REHABILITATION
CLINIC
35, 37, 39 LAFAYETTE STREET & 152, 156, 162 OAK STREET
HARTFORD, CT 06120

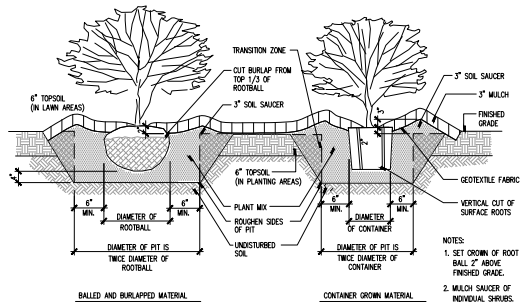


Table with 3 columns: Issues / Revisions No., Date, Description. Row 1: 01/24/2023, SITE PLAN SUBMISSION.

Drawing Title
LANDSCAPE PLAN
Project Manager: JMM Project No: BCLA18AR
Project Architect: GL Production Leader:
Project Designer: Peer Reviewer:
Drawing Number

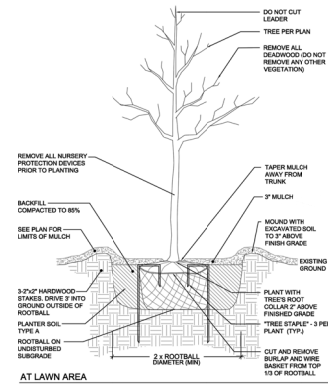


L-1.02



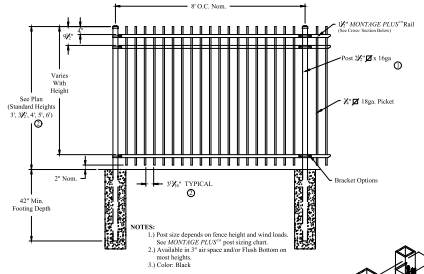
SHRUB PLANTING

N.T.S.

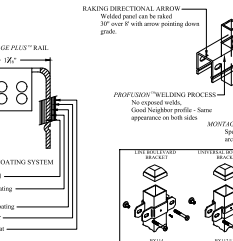


TREE PLANTING AND STAKING

N.T.S.



MONTAGE PLUS GENESIS 3-RAIL



ORNAMENTAL METAL FENCE

N.T.S.

COMMERCIAL STRENGTH WELDED STEEL PANEL  
PRE-ASSEMBLED

MONTAGE PLUS GENESIS 3-RAIL

SH	of	SCALE	DO NOT SCALE
<b>AMERISTAR</b> 1555 N. Mingo Tulsa, OK 74116 1-888-333-3422 www.ameristarfence.com			

PLANT SCHEDULE						
Qty.	Key	Name-Botanical/Common	Size at Maturity	Planted Size	Light Preference	Comments
<b>DECIDUOUS TREES</b>						
6	AR	Acer rubrum 'Red Sunset'	50' ht	3 - 3-1/2" cal.	Full Sun	B&B
5	GT	Quercus prinus 'Shademoor'	40' ht	2-1/2 - 3" cal.	Part Sun	B&B
3	LD	Liquidambar styraciflua 'Rotundifolia'	50' ht. 30' spd.	2-1/2-3" cal.	Full Sun	B&B
4	PA	Platanus x acerifolia 'Morton's Circle'	50' ht.	3 - 3-1/2" cal.	Full Sun	B&B
5	QB	Quercus bicolor 'Swamp White Oak'	50-60' ht./spd.	3 - 3-1/2" cal.	Full Sun	B&B
<b>ORNAMENTAL TREES</b>						
4	AG	Amelanchier grand 'Autumn Brilliance'	20-25' ht./15-20' spd.	10-12" ht.	Full Sun	B&B
5	CF	Cornus florida 'Dogwood'	20ft. 20' spd.	2 - 2-1/2"	Part Shade	B&B
1	SP	Shoreaia pseudoacaciella	15-20' ht. 10-15' spd.	3 - 3-1/2" cal.	Full Sun	B&B
<b>EVERGREEN SHRUBS</b>						
6	BN	Buxus microphylla 'Green Velvet'	2-4' ht.	18-24" ht.	Full Sun	cont.
1	KS	Keteleeria pinnata 'Steady'	6-8' ht./4-5' spd.	24-30"	Full Sun	B&B or cont.
1	IG	Ilex glabra 'Compacta'	4-5' ht.	30-36"	Full Sun	B&B or cont.
1	RC	Rhododendron catawbiense 'Album'	5-6' ht/spd.	3-4'	Full sun	B&B
1	RS	Rhododendron 'Sunlitara'	5-7' ht/spd.	4' heavy	Full Sun	B&B
1	RV	Rhododendron 'Viviparum West's Innocent'	5' ht./spd.	24-30"	Part Shade	B&B
<b>DECIDUOUS SHRUBS</b>						
1	AD	Azalea 'Odawara Valley White'	2-4' ht.	24-30"	Part Sun	B&B or cont.
1	AM	Amelanchier 'Low Scape Mount'	12-24" ht.	1 gal.	Full Sun/SHade	cont.
1	CA	Ceanothus 'Blue Boy'	4-6' ht./spd.	5 gal.	Full Sun/SHade	B&B or cont.
1	CS	Cornus sericea 'Kelsey'	2-3' ht./spd.	18-24" ht.	Full Sun	B&B or cont.
1	KA	Keteleeria pinnata 'Steady'	6-8' ht./4-5' spd.	24-30"	Full Sun/SHade	B&B or cont.
1	HA	Hydrangea arborescens 'Annabelle'	3-5' ht./4-6' spd.	24-30"	Full Sun/SHade	B&B or cont.
1	HE	Hydrangea 'Endless Summer'	3-5' ht./spd.	24-30"	Full Sun	B&B or cont.
1	HO	Hydrangea quercifolia 'Snow Queen'	4-5' ht./5-6' spd.	24-30"	Part Sun	B&B or cont.
1	IT	Itea virginica 'Little Henry'	2-3' ht./spd.	1 gal.	Full Sun	cont.
1	IV	Ilex verticillata 'Red Spike' (Female)	3-5' ht./spd.	24-30"	Full Sun	B&B or cont.
1	IV	Ilex verticillata 'Jim Dandy' (Male)	6-10' ht./spd.	30-36"	Full Sun	B&B or cont.
1	RF	Rosa 'The Fairy'	2-3' ht./spd.	18-24"	Full Sun	cont.
1	RF	Rosa 'Pink Double Knockout'	3' ht.	18-24"	Full Sun	cont.
1	SE	Syringa x 'Pendula' 'Blossmerang'	4-5' ht./3-4' spd.	18-24"	Full Sun	B&B or cont.
1	VP	Viburnum plicatum var. tomentosum	6-8' ht.	24-30"	Full Sun	B&B or cont.
<b>PERENNIALS &amp; GROUNDCOVERS</b>						
1	HH	Hemerocallis 'Happy Returns'	18" ht./18-24" spd.	1 gal.	Full Sun	cont.
1	NF	Nepeta faassenii 'Walkers Low'	2-3' ht/spd.	1 gal.	Full Sun	cont.
1	RO	Rubus chingii 'Goldsum'	24 - 36" ht.	1 gal.	Full Sun	cont.
1	VM	Vincetoxicum 'Black Eye Susan'	24" spd.	1 gal.	Part Sun	cont.
1	VM	Vincetoxicum 'Common Periwinkle'	6" ht.	2 1/2" Rooted Cutting	Full Shade	10' o.o./cont.



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Consultant



Client/ Contractor

**ROOT - CENTER FOR ADVANCED RECOVERY**

335 BROAD STREET  
MANCHESTER, CT 06040

Project

**SUBSTANCE USE REHABILITATION CLINIC**

35, 37, 39 LAFAYETTE STREET  
HARTFORD, CT 06120

PROJECT NORTH



Scale

Issues / Revisions	Date	Description
1	01/24/2023	SITE PLAN SUBMISSION

Drawing Title

**LANDSCAPE DETAILS**

Project Manager: JMM  
Project No: BCL18AR

Project Architect: GL  
Production Leader:

Project Designer:  
Peer Reviewer:

Drawing Number

L-1.03



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MANCHESTER, CT 06040

**Project**  
**SUBSTANCE USE  
REHABILITATION  
CLINIC**  
35, 37, 39 LAFAYETTE STREET  
& 152, 156, 162 OAK STREET  
HARTFORD, CT 06120



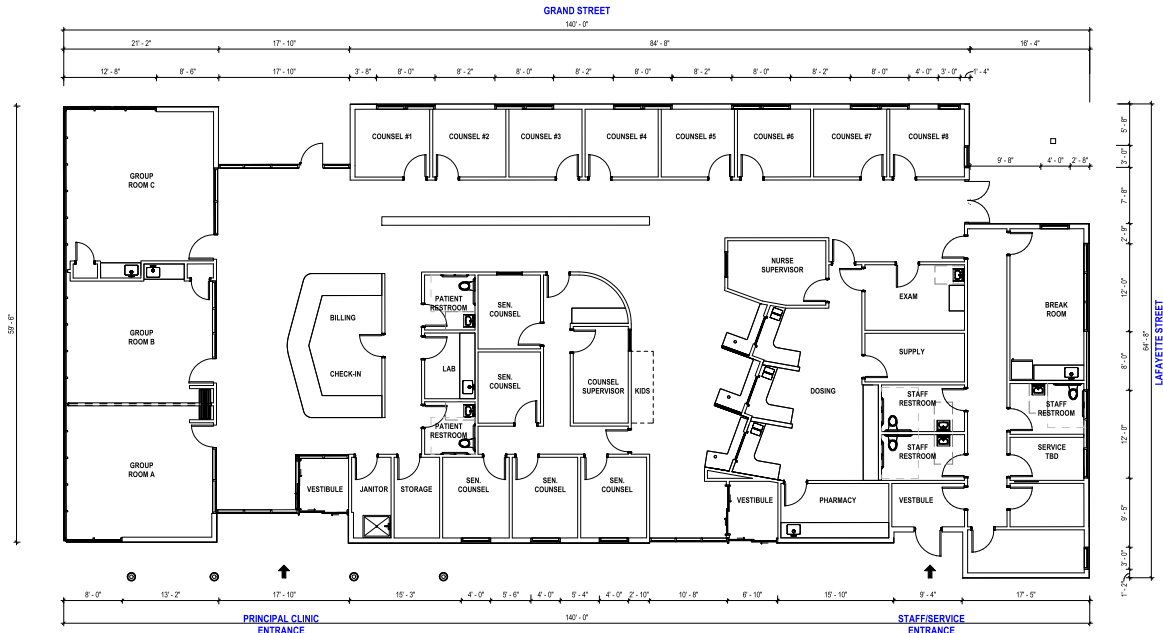
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Issues / Revisions	Date	Description
1	01/24/2023	SITE PLAN SUBMISSION

Drawing Title  
**FIRST FLOOR  
PLAN**

Project Manager: TC	Project No: RICA14AR
Project Architect:	Production Leader: SM
Project Designer:	Peer Reviewer:

Drawing Number  
**A1.00**



**1 FIRST FLOOR PLAN**  
1/8" = 1'-0"

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**Tecton**  
ARCHITECTS

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RECOVERY**

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MANCHESTER, CT 06040

Project

**SUBSTANCE USE  
REHABILITATION  
CLINIC**  
35, 37, 39 LAFAYETTE STREET  
& 155, 156, 162 OAK STREET  
HARTFORD, CT 06120

Scale

Issues / Revisions

No. Date Description

01/24/2023 SITE PLAN SUBMISSION

Drawing Title  
**EXTERIOR  
ELEVATIONS  
(B&W)**

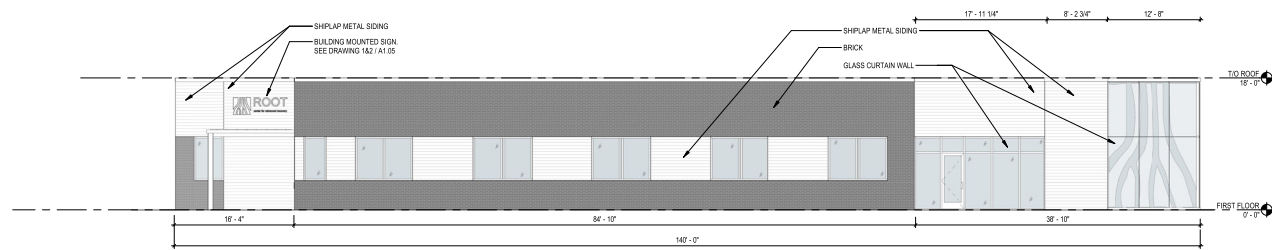
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Project Architect: PA Production Leader: PL

Project Designer: ID Peer Reviewer: PR

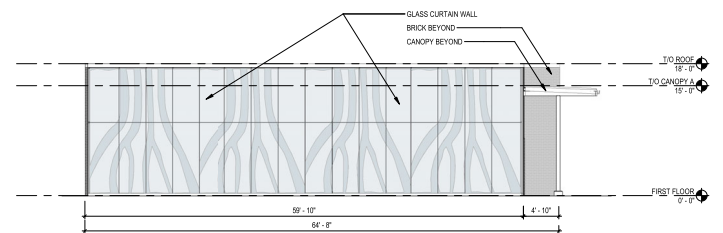
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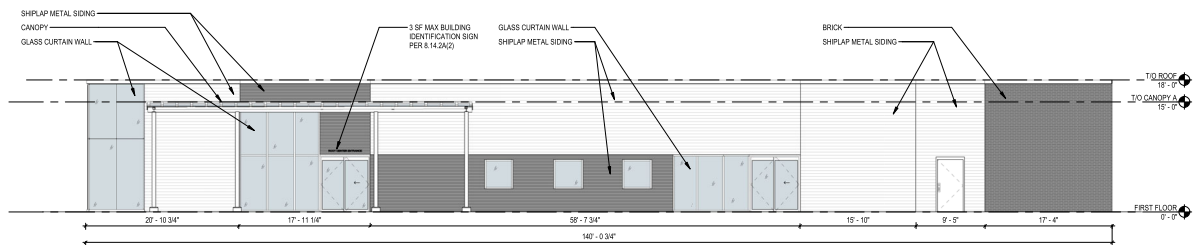
1 EXTERIOR ELEVATION - NORTH (GRAND STREET)

1/8" = 1'-0"



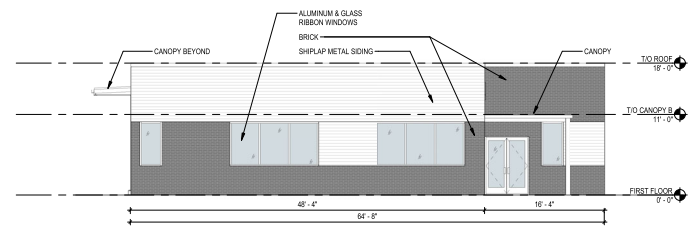
2 EXTERIOR ELEVATION - WEST

1/8" = 1'-0"



3 EXTERIOR ELEVATION - SOUTH

1/8" = 1'-0"



4 EXTERIOR ELEVATION - EAST (LAFAYETTE STREET)

1/8" = 1'-0"

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RECOVERY**  
255 BROAD ST  
MANCHESTER, CT 06040

Project  
**SUBSTANCE USE  
REHABILITATION  
CLINIC**  
35, 37, 39 LAFAYETTE STREET  
& 152, 156, 162 OAK STREET  
HARTFORD, CT 06120

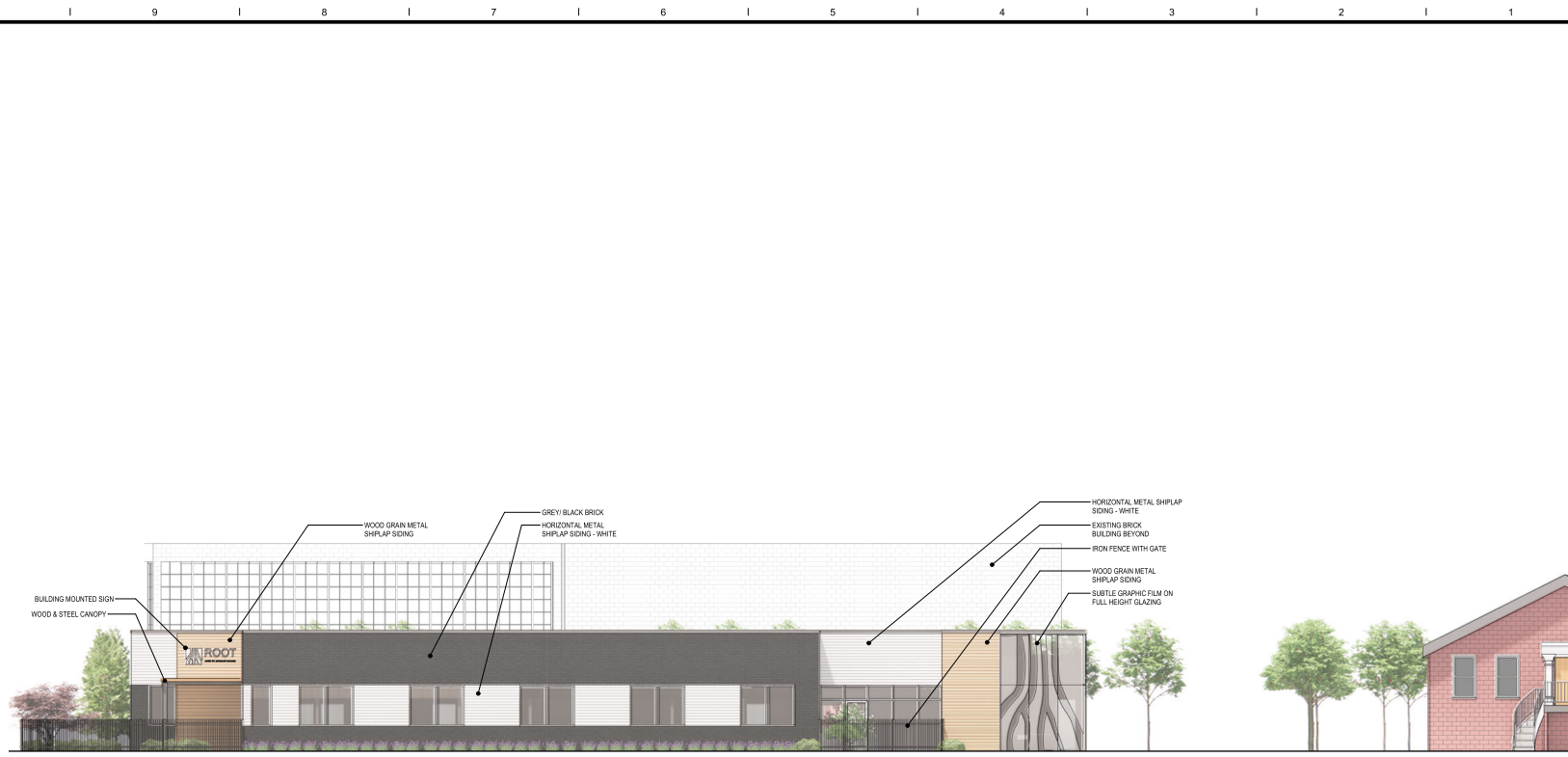
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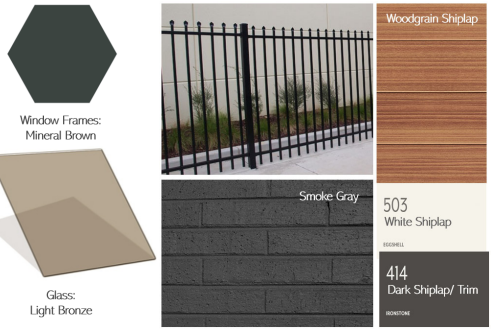
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**EXTERIOR  
ELEVATIONS  
(COLOR)**

Project Manager:	TC	Project No.:	RC21A18R
Project Architect:		Production Leader:	SM
Project Designer:		Peer Reviewer:	

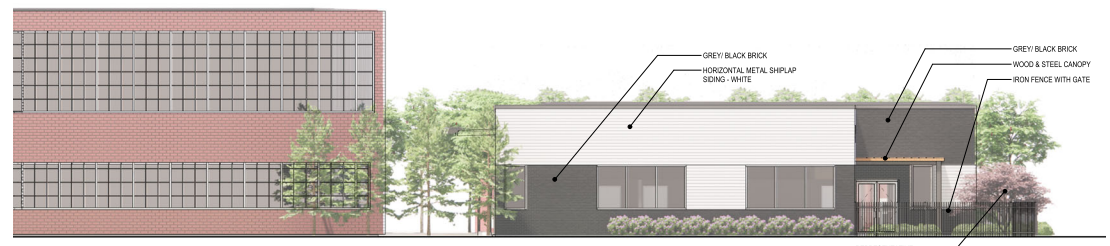
Drawing Number  
**A1.02**



**1 EXTERIOR ELEVATION - GRAND STREET**  
1/16" = 1'-0"



**3 EXTERIOR MATERIALS PALETTE**  
1/4" = 1'-0"



**2 EXTERIOR ELEVATION - LAFAYETTE STREET**  
1/16" = 1'-0"

REPRESENTATIVE  
LANDSCAPING, REFER TO  
LANDSCAPE PLANS FOR  
ACTUAL PLANTINGS

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P:\Root\BCHAR - HARTFORD Lafayette02 Dwg & Specs\01 Dwg\01 Arch\01 Arch\01 CHA14AR - Site Tree Floor



VIEW FROM CORNER OF LAFAYETTE & GRAND STREET



VIEW FROM GRAND STREET



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255 BROAD ST  
MANCHESTER, CT 06040  
Project  
**SUBSTANCE USE  
REHABILITATION  
CLINIC**  
35, 37, 39 LAFAYETTE STREET  
& 152, 156, 162 OAK STREET  
HARTFORD, CT 06120

Seals

Issues / Revisions		
No.	Date	Description
0104/2023		SITE PLAN SUBMISSION

Drawing Title  
**EXTERIOR 3D  
VIEWS**

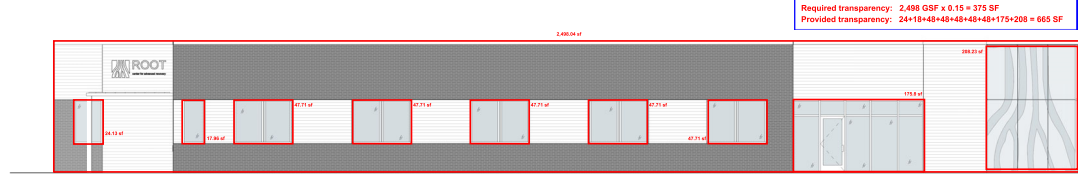
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Project Architect:		Production Leader:	SM
Project Designer:		Peer Reviewer:	

Drawing Number  
**A1.03**

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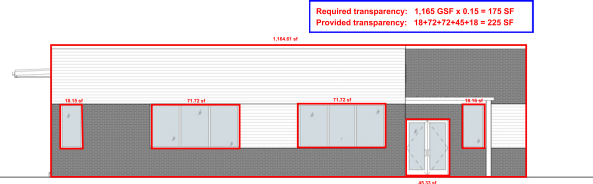
B HEIGHT	
12	Min overall height - 2 stories (refer to 4.8.2.B, new note 3.g)
13	Max overall height - 8.5 stories
14	Second story min height - 11.4'
15	Upper story min height - 7'
C USE	
16	Ground story - service uses limited to 25% w/ refer to 4.8.2.C, new note 3.i
17	Upper story - service and retail used allowed
18	Structured parking allowed within building
19	Entrance to parking within 100ft
20	Reserved occupied space - 30% deep on upper floors
D Street Facade Requirements	
21	Min transparency on Ground story front facade
22	Blank wall limitations - per 4.18.4.B
23	Front entrance type - Shop or Arcade
24	Principal entry location - front or courtyard
25	Number of street entrances - 1 per 100 ft
26	Ground Story facade dividers - ea. 100 ft per 4.8.D
27	Horizontal facade dividers, per 4.8.D
28	Permitted post types - post-and-rail

Overall Building Height is 1-story and 18', therefore counted as 2-story
Not applicable
Refer to 3.12
Not applicable
100% Service Use, as permitted in single-occupancy Substance Use Rehabilitation Clinic in a General Building Type
Not Applicable
Not Applicable
Not Applicable
Not Applicable
Not Applicable
Not Applicable
Not Applicable
Not applicable
Not Applicable
Not applicable
Refer to Recovery Program
Refer to Recovery Program
Not Applicable, Public entrance is in the rear
Principal public entry is located at the rear of the building, to best foster patient privacy and safety in accordance with applicable clinical care standards
Not Applicable, 1 per 100ft
Blank only entrances are provided within 100 or each other - 1 on Lafayette St. on Grand
Facade division provided within requirements - 84' 6" max width provided (on Grand Street)
Not Applicable
Not Applicable, single story building with no basement
Full Root provided



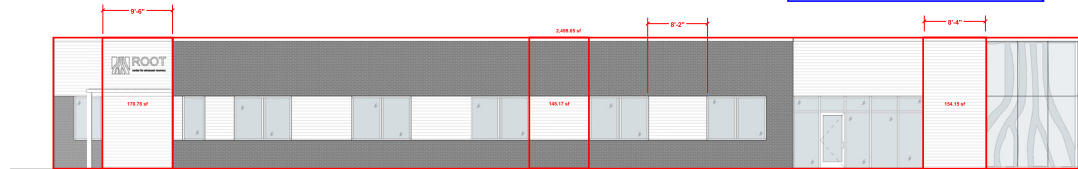
1 EXTERIOR ELEVATION - NORTH (GRAND STREET)  
1/8" = 1'-0"

STREET FACADE REQUIREMENTS - TRANSPARENCY:  
(COMPLIANCE DIAGRAMS PER 4.18.4.A)



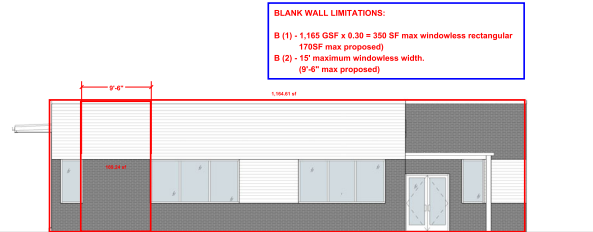
2 EXTERIOR ELEVATION - EAST (LAFAYETTE STREET)  
1/8" = 1'-0"

BLANK WALL LIMITATIONS:  
B (1) - 2,498 GSF x 0.30 = 950 SF max windowless rectangular (1705F max proposed)  
B (2) - 15' maximum windowless width. (9'-6" max proposed)



3 EXTERIOR ELEVATION - NORTH (GRAND STREET)  
1/8" = 1'-0"

STREET FACADE REQUIREMENTS - BLANK WALL  
(COMPLIANCE DIAGRAMS PER 4.18.4.B)



4 EXTERIOR ELEVATION - EAST (LAFAYETTE STREET)  
1/8" = 1'-0"



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Client/ Contractor  
**ROOT CENTER FOR  
ADVANCED  
RECOVERY**  
255 BROAD ST  
MANCHESTER, CT 06040  
Project  
**SUBSTANCE USE  
REHABILITATION  
CLINIC**  
35, 37, 39 LAFAYETTE STREET  
& 152, 156, 162 OAK STREET  
HARTFORD, CT 06120

Issues / Revisions	No.	Date	Description
		01/24/2023	SITE PLAN SUBMISSION

Drawing Title  
**EXTERIOR  
ELEVATIONS  
(ZONING  
COMPLIANCE)**

Project Manager:	PM	Project No:	RC2141AR
Project Architect:	PA	Production Leader:	PL
Project Designer:	ID	Peer Reviewer:	PR

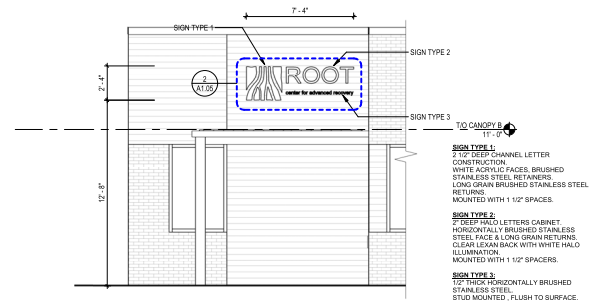
Drawing Number  
**A1.04**

Client/ Contractor  
**ROOT CENTER FOR ADVANCED RECOVERY**  
 255 BROAD ST  
 MANCHESTER, CT 06040

Project  
**SUBSTANCE USE REHABILITATION CLINIC**  
 35, 37, 39 LAFAYETTE STREET  
 & 152, 156, 162 OAK STREET  
 HARTFORD, CT 06120

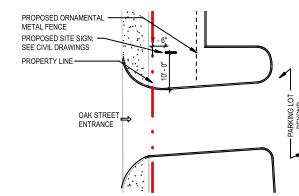
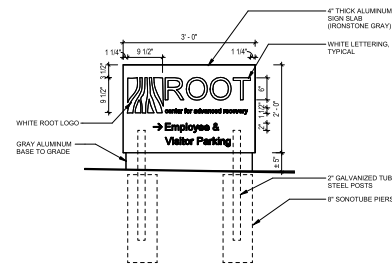
**STREET FACADE REQUIREMENTS - SIGNAGE:  
 (COMPLIANCE DIAGRAMS PER 8.2.1)**

- SIGN LIMITATIONS:**  
 (2) PERMITTED SIGNS PER LOT
- PROVIDED SITE SIGNAGE:**
- WALL SIGN: 7'-4"W x 2'-4"H = 17 SF TOTAL PROVIDED (140' LINEAR FT. FACADE x .75 = 105 SF PROPOSED)
  - MONUMENT SIGN: 2'-6"H x 3'-0"W = 7.5 SF TOTAL PROVIDED (66 SF MAX PROPOSED)



**2** ENLARGED WALL MOUNTED SIGNAGE  
 3/4" = 1'-0"

**1** GRAND STREET ELEVATION - BUILDING SIGNAGE  
 1/4" = 1'-0"



**4** ENLARGED SIGNAGE ELEVATION  
 3/4" = 1'-0"

**3** SITE SIGN - KEY PLAN  
 1/16" = 1'-0"

Scale

Issues / Revisions	Date	Description
1	01/24/2023	SITE PLAN SUBMISSION

Drawing Title  
**SIGNAGE COMPLIANCE**

Project Manager: TC Project No: RCH148R  
 Project Architect: Production Leader: SM  
 Project Designer: Peer Reviewer:

Drawing Number  
**A1.05**



**7**



**HALLISEY, PEARSON & CASSIDY  
Engineering Associates, Inc.**

630 Main Street  
Cromwell, CT 06416-1444

TELEPHONE: (860) 529-6812  
FAX: (860) 721-7709  
Paul A. Hallisey, P.E. & L.S.  
James P. Cassidy, P.E.

**Drainage Calculations**

**&**

**Stormwater Management Report**

**FOR**

**Substance Use Rehabilitation Clinic**

**Prepared for**

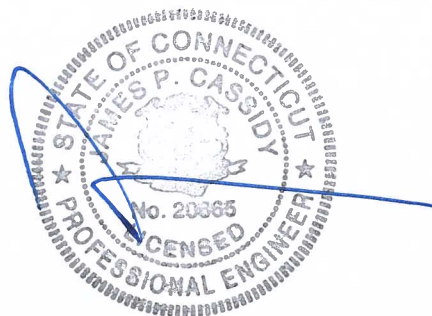
**Root Center for Advanced Recovery**

**Property Located at**

**35, 37, 39 Lafayette Street  
& 152, 156, 162 Oak Street**

**Hartford, Connecticut**

---



January 18, 2023

## TABLE OF CONTENTS

1	Project Overview _____	page 1
2	Existing Site Conditions _____	page 2
3	Stormwater Management Design _____	page 3
4	Hydrology Analysis _____	pages 4-6
5	Water Quality Management _____	pages 6
6	Best Management Practices _____	pages 7-8
7	Conclusion Statement _____	page 9

### APPENDIX

- A. FEMA Flood Insurance Map, USDA Web Soil Survey National Cooperative Soil Survey, Soil Map-State of Connecticut and “Natural Drainage Basins, Major, Regional, Sub-regional and Local Hartford, Connecticut, map created by CT DEEP dated May 2011”
- B. Storm Drainage Subarea Data and Computations
- C. Water Quality Computations and “Stormceptor” Sizing Report
- D. Omitted
- E. Storm water Studio™ Computer Model for On-Site Drainage system
- F. Hydrology Studio™ Computer Model Report-Pre-Development
- G. Hydrology Studio™ Computer Model Report-Post-Development
- H. Drainage Area Maps
  - Onsite Drainage Subarea Map
  - Drainage Subarea Map – Pre Drainage Area
  - Drainage Subarea Map – Post Drainage Area

## **1. PROJECT OVERVIEW**

The descriptions and computations included within this Drainage Calculation and Stormwater Management Report and Appendix are provided in support of the development of properties located at 35, 37, 39 Lafayette Street & 152, 156, 162 Oak Street Hartford, CT. The current permit applications are for a special permit from the City of Hartford Zoning Commission.

The overall project will consist of the development of property located at the southwest corner of the intersection of Lafayette Street and Grand Street. The development of this site will consist of a new 1 story building that will be used as a Substance Use Rehabilitation Clinic. The total building footprint area for the development will be 7,974 sq. ft. Associated with the development of these new building, is a 48 space surface lot. The primary access to this parking lot will be through a new driveway to be constructed off of Oak Street. There will be 2 egress driveways from this site, one to Grand Street and one to Oak Street

The new buildings will be services by public sanitary sewers and public water supply. All other utilities such as electric, telephone and cable television will be provided by the existing services adjacent to the project site and shall be located underground. More detailed design information regarding the proposed utilities can be obtained from the site plans.

The storm water management system for this site has been designed utilizing Best Management Practices (BMPs) and Low Impact Development (LID) methods to improve the storm water quality and to attenuate the peak flows to prevent increases in the pre-development runoff rates to the existing drainage system in Oak Street. The overall storm water management system will use of an (2) raingardens within the parking lot, an underground detention system, along with several other water quality measures before discharging storm water to the receiving drainage system. The goal of the storm water management design is to provide for the removal of total suspended solids while attenuating the post development peak runoff rates. For more detailed information regarding storm water quantity, refer to Section 3 and Section 4 of this report. Refer to Section 5 for storm water quality management provided in the proposed design. Design computations and other relevant information are provided in the Appendix of this report.

## 2. EXISTING SITE CONDITIONS

The project site is located at the southwest corner of the intersection of Lafayette Steet and Grand Street. The project site consists of 0.98 acres of MX-1 zoned land. The overall property is bordered Grand Street on the north, by Lafayette Street and property of 19-29 Lafayette Street on the east, property of Phoenix Tax Investors, LLC & 426 Park Mortgage, LLC and by Oak Street on the west.

The property presently is used a commercial parking lot. Access to the site is through (3) curb-cuts off , one off of Oak Street and 2 off of Grand Street. These driveway curb-cuts provide access to the gravel parking area on this site.

Topography on the site is at a moderate grade sloping in a westerly, with a high point along the easterly property line and along Lafayette Street at an elevation 79 to a low point at the intersection of Oak Street and Grand Street where the elevations is 73. . The majority of the stormwater runoff from this site drains overland to and existing catch basin at the intersection of Oak Stret and Grand Street and is defined a SA-A on the “Drainage Subarea Map – Pre Drainage Area” in Appendix “H” of the this report. There ai a small portion along the south side of this site that drains to an existing drainage system in Oak Street and is shown as SA-B on the map described above. Based on an inspection of the existing drainage system, it does not appear there are any BMPs and LID measures in place.

The soil types on the majority of the site consist of Urban land complex (307).

This project site is located within the watershed for South Branch Trout Brook watercourse sub-basin #4403-0, which is part of the Connecticut River (Drainage Basin #4000) as shown on a map entitled “Natural Drainage Basins, Major, Regional, Sub-regional and Local Hartford, Connecticut, map created by CT DEEP dated May 2011”

In addition, this property is not located within a 100 year floodplain boundaries as delineated on the current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). A portion of this map has been included in the Appendix A of this report.

### **3. STORMWATER MANAGEMENT DESIGN**

The proposed storm water management system has been designed utilizing BMPs design principles to safely convey storm water runoff from the site while providing storm water quality measures. Storm water management for the parking area and proposed building for this proposed project were achieved by collecting storm water from this portion of the development area of the site and conveying it to a proposed underground detention system along the front of this site. The underground detention system has also designed to attenuate the proposed peak flow rates in order to prevent increases in the existing peak flow rates from this project. In addition, the collection system will incorporate several storm water quality measures designed to provide storm water treatment before discharging from the proposed project site. More information regarding water quantity (hydrology) can be found in Section 4. Storm water quality management is discussed further in Section 5.

The computer program entitled "Storm water Studio, ver. 2.0" by Hydrology Studio was used for designing the proposed storm drainage. Storm drainage computations performed include pipe capacity calculations, hydraulic grade line calculations, and gutter flow (inlet capacity) computations. The overall watershed was divided into sub-basins to determine the drainage area and land coverage to each individual catch basin inlet. These values were used to determine the storm water runoff to each inlet using the Rational Method. The rainfall intensities utilized in the storm drainage computations were obtained from the web-based NOAA's National Weather Service Hydrometeorological Design Studies Center Precipitation Frequency Data Server (PFDS) NOAA Atlas 14, Vol 10, Ver. 2 for Lafayette Street, Hartford, CT.

The proposed storm drainage systems were designed according to sound engineering practices to provide adequate pipe capacity to convey the 25-year storm event. In addition, the storm drainage design analysis includes a complete hydraulic grade line computation, which ensures adequate capacity for the 25-year storm event. A gutter flow analysis was performed on the storm drainage system as well to ensure adequate spacing and inlet capacity for the 25-year storm event. In addition, the outlet pipe from the proposed outlet control structure of the underground detention system was sized with adequate capacity to convey the 100-year storm event. All storm drainage computations described in this section are provided in the Appendix of this report.

#### 4. HYDROLOGY ANALYSIS

The storm water management system has been designed in part to attenuate the proposed peak rates of runoff from the project site. In order to analyze the predevelopment and post development peak flow rates from this site, the drainage area to the point where the majority of the stormwater runoff from this site discharges into the existing drainage system in Oak Street was used for this report. This drainage system drains in a southerly direction through a 18" RCP pipe, then continues southerly direction through the drainage system until it connects to the existing system in Park Street. This subarea is referred to as SA-B which has a total area of 0.3703 acres. Subarea SA-A is the portion of the site that drains in a westerly direction to the existing catch basin at the intersection of Oak Street and Grand Street. This catch basin connects to the existing combined sanitary/storm drainage system in Oak Street. This drainage subarea has a total area of 1.1706 acres. All three of these subareas are combined in the existing drainage system in Trout Brook Drive and are shown on the "Drainage Subarea Map – Pre Drainage Area" in Appendix "H" of this report.

The principal method of predicting the surface water runoff rates utilized in this analysis is a computer program entitled "Hydrology Studio V. 2.0.039". The "Hydrology Studio" computer modeling program utilizes the same methods for computing runoff rates that were originally developed by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, formerly known as the Soil Conservation Service or SCS), also utilized in the TR-20 computer modeling program and others. The "Hydrology Studio" computer program forecasts the rate of surface water runoff and river flow rates based upon several factors. The input data includes information on land use, hydrologic soil type, and vegetation conditions, contributing watershed area, time of concentration, rainfall data, storage volumes, and the hydraulic capacity of structures. The computer model predicts the amount of runoff as a function of time, including the attenuation effect due to flow restriction at roadway culverts, ponds, large wetlands, and floodplains. Runoff rates during specific rainstorms may vary due to different assumptions concerning soil moisture, water levels in ponds, snowmelt, and rainfall patterns. The input data for rainfalls with statistical recurrence frequencies of 1, 2, 5, 10, 25, 50, and 100 years were obtained from the NOAA's National Weather Service Hydrometeorological Design Studies Center Precipitation Frequency Data Server (PFDS) NOAA Atlas 14, Vol 10, Ver. 2 for 35 Lafayette Street, Hartford, CT. Analysis of a Type III rainfall pattern with 24-hour duration was used.

The land use for the site under pre and post conditions was determined from field survey and the proposed site development plans for the on-site drainage areas. Land use types used in the analysis included roadway R.O.W., paved areas, gravel surfaces and lawn/landscape areas (with good land cover). Soil types in the watershed were determined from the available GIS (Geographic Information System) database of the NRCS soil survey for Hartford County, Connecticut. The study area was determined to contain hydrologic soil types C as classified by the NRCS and as shown on attached mapping in Appendix A of this report.

The pre-conditions were modeled with the Hydrographs computer program to determine the flow rates for the various storm events at the analysis point. A revised model was developed incorporating the post site conditions, and flows obtained with the revised model were then compared to the results of the existing conditions model. The underground detention systems were then incorporated into the proposed model, which illustrated the attenuation capabilities of these structure.

The NRCS Reservoir routing subroutine utilized within the Hydro Studio computer program was used to design the detention storage and outlet control requirements. All Hydrographs input computations and model results are included in the Appendix F (for pre-development conditions) and Appendix G (for post development conditions) of this report.

Storm water management for the project was achieved by routing the storm water runoff from the developed subareas of the site through the underground infiltration system. This system will consist of (5) 56' rows of 4' wide x 4' high concrete galleries incased in crushed stone. The storm water discharge rates from these systems will be attenuated by using a weir plate, with a 3" wide weir in the manhole at the outlet of the system. These outlet structures will also have a 4' wide emergency spillway formed above the top of the weir. The following is the Underground Detention Systems routing results and the peak flows is as follows:

Proposed Underground Detention System Routing Information

Storm Frequency	1	2	5	10	25	50	100
Peak Inflow (c.f.s.)	1.63	2.11	2.90	3.57	4.48	5.13	5.85
Peak Outflow (c.f.s.)	0.60	0.93	1.36	1.58	1.84	2.00	2.17
Max. Water Surface El.	72.83	73.18	73.68	74.11	74.71	75.18	75.71
Max. Storage Vol .(cu. ft..)	1,457	1,891	2,519	3,045	3,792	4,373	5,040

The analysis point for 1, as shown on the existing and proposed conditions watershed maps, was used to determine the peak flow rates. This analysis point was chosen based on the fact that they both receive some storm water runoff from a portion of the project site. Therefore, the pre and post hydrology analysis of these areas provided a comparison of the peak flow rates that ultimately provided guidance when designing the storm water management system. The sum of the pre and post development flows to this analysis point is as follow:

**Peak Flow at Design Point "A" (overland runoff to existing catch basin at Oak St. & Grand St.)**

	Peak Flow Rates (cfs)*						
Storm Frequency (years)	1	2	5	10	25	50	100
Pre-development Conditions	2.23	2.96	4.23	5.24	6.64	7.66	8.83
Post-Development Sum of flow	1.11	1.52	2.20	2.77	3.55	4.12	4.75



The summary of results above shows that no increases in peak rates of runoff are anticipated from this site post development for a 1, 2, 5, 10, 25, 50 & 100 year storm event. Rather, a significant reduction in runoff to the existing catch basin due to the drainage subarea be reduced. There a portion of this area that was directed through the proposed underground detention system and then combined with the runoff from subarea "B".

**Peak Flow Sum of Subareas "B" (to existing drainage system in Oak Street**

Peak Flow Rates (cfs)\*

Storm Frequency (years)	1	2	5	10	25	50	100
Pre-development Conditions	0.66	0.90	1.30	1.64	2.10	2.43	2.80
Post-Development Sum of flow	0.66	1.02	1.52	1.79	2.11	2.32	2.54

The summary of results above shows a slight increase in peak rates of runoff are anticipated from this site post development for a 1, 2, 5 & 10. For 25, 50 & 100 year storm event, rather there is a slight decrease. This slight increase is due to a portion of subarea "A" being redirected to this subarea.

For more detailed information of these routings, see Appendix F "Hydrology Studio"™ Computer Model Report-Post-Development" in this report. For more detailed information of these routings, see Appendix G "Hydrology Studio"™ Computer Model Report-Post-Development" in this report.

**5. WATER QUALITY MANAGEMENT**

Several water quality measures or BMPs are incorporated into the storm water management design to maintain water quality. All of the best management control measures described in this section will help maintain the water quality of the storm water runoff from the proposed development.

Storm water runoff from the proposed site will be collected and conveyed via a subsurface pipe and catch basin drainage system. The drainage system will include catch basins with four-foot sumps with hooded outlet, which trap coarse sediments. The hooded outlets utilized in the storm drainage design will increase the system's ability to remove suspended solids and trap floatable debris before discharging to the underground detention system.

In addition, prior to discharging the stormwater runoff from the parking areas and drive aisle will discharge through raingardens within the parking lot, prior to outlet into the underground detention system. These raingardens are designed to remove coarse solids and pollutants. The sizing calculation will provide for over 80% TSS (Total Suspended Solid) removal, as recommended in the CT DEEP Stormwater Quality Manual

The Storm water Quality Manual (Chapter 7) also recommends methods for sizing storm water treatment measures with the Water Quality Volume (WQV) and computations. The WQV addresses the initial storm water runoff also commonly referred to as the "first flush" runoff. The WQV provides adequate volume to store the initial one inch of runoff, which tends to contain the highest concentrations of potential pollutants. Supporting calculations for the volume provided as well as WQV computations have been included in the Appendix "C" of this report.

The storm water management system incorporates the use underground Detention System. The systems are in accordance with the Connecticut Department of Environmental Protection’s (CT DEP) Storm water Quality Manual (SWQM), Chapter 11,( Secondary (S) Treatment Practices - Innovative/Emerging Technologies) .

**6. BEST MANAGAMENT PRACTICESSTORMWATER SYSTEM MAINTENANCE**

The site will be maintained in a clean condition at all times by implementing good housekeeping measures. Trash and surface debris will be removed from parking areas and storm water structures. The site will be regularly cleaned of trash and debris. Storm water structures (i.e., catch basins, underground detention systems, etc.) and outfalls will be cleaned of sediment and debris at least once a year during the month in the spring (once snow melt is complete) and at other times as necessary to prevent the off-site discharge of pollutants from the structures or outfalls. Special attention will be directed to the Raingarden identified on the site engineering drawings.

<b>Storm water Management Structures</b>	<b>Checked for...</b>
Catch Basins	Accumulated sediment & debris
Underground Detention System	Accumulated sediments, debris, evidence of erosion, etc.
Rain Garden	See Post Construction Stormwater Pollution Plan Note #10 on sheet #C-11 for maintenance and inspection requirements.

A member of the maintenance crew will complete thorough, quarterly inspections and complete inspection checklists.

## **SWEEPING SCHEDULE**

All parking areas, sidewalks, loading areas and driveways will be swept as needed, with automatic air sweeping and vacuuming equipment.

### **Yard Maintenance**

#### 1. Mowing

- After irrigation, mowing is the most important maintenance operation. With good mowing practices, density, texture, color, root development, wear tolerance and other aspects of turf quality are enhanced, and a healthy turf minimizes the need for use of fertilizers and pesticides.
- When the turf is mowed too closely, it becomes less tolerant of environmental stresses, more disease prone, and more dependent upon a carefully implemented cultural program. The best approach therefore, is to use a high mowing height.
- Anytime that grass is in a weakened condition, the mowing height will be raised immediately.
- Growth rate and mowing height have the most influence on mowing frequency. As a rule of thumb, mowing should be done often enough that no more than 30 percent of the leaf is removed anyone mowing. This practice minimizes the effect of mowing on photosynthesis and helps maintain a high percentage of leaf surfaces, which is necessary for healthy root development.
- Varied mowing patterns on all surfaces encourage upright growth and reduce wheel or mower wear and compaction.
- Research has shown that returning grass clippings to the surface does not greatly increase thatch building up on turf that is otherwise properly managed. Clippings do have significant nutrient value and decompose rapidly thus returning some fertilizer and organic matter to the soil. They also help conserve moisture and insulate the soils

### **Erosion and Sediment Control Measures**

A detailed Sediment and Erosion (S&E) Control Plan has been developed to mitigate the short-term impacts of the development during construction. The S&E Control Plan includes a detailed proposed construction sequence in addition to descriptive specifications concerning land grading, top soiling, temporary vegetative cover, permanent vegetative cover, vegetative cover selection and mulching, and erosion checks. Details have been provided for all erosion control measures with corresponding labels on the S&E control site plan. In addition, the S&E controls provided are in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control manual. Specific measures are outlined on sheets #8,9 & 10 of the plans.

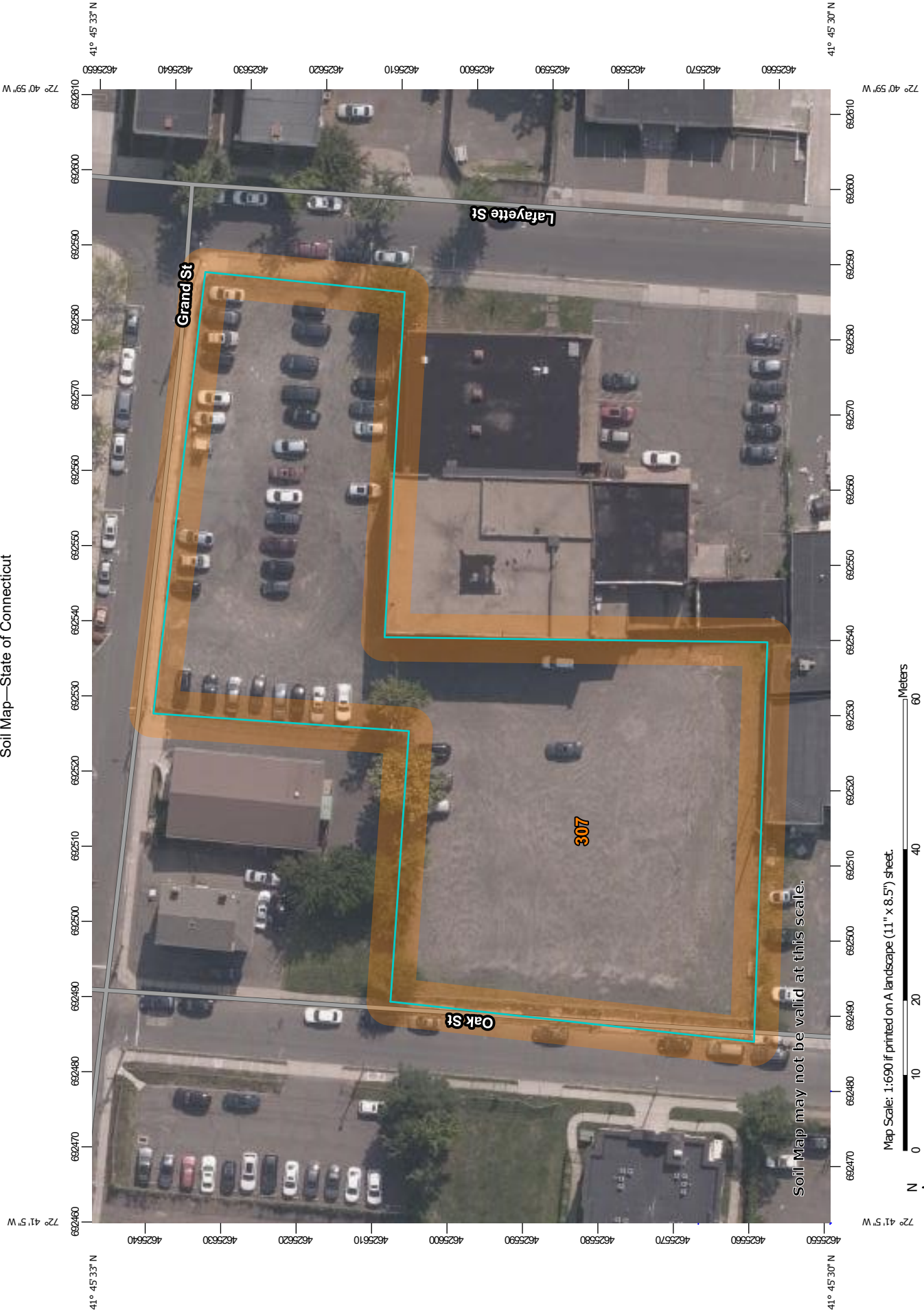
### **Conclusions**

This report demonstrates that all design criteria set forth by the State of Connecticut and City of Hartford have been met or exceeded, and all design and mitigation measures have been derived from standard practices and procedures as directed by the Connecticut DEEP 2004 Storm water Quality Manual and DOT design manuals. Based the summary of the post development peak flows to the Design Point outlined in section 4 "HYDROLOGY ANALYSIS", it has been demonstrated that there will be a slight reduction of to the existing drainage systems in Trout Brook Drive. As outlined in Section 5 "Storm water Quality Measures and Section 6 "Best Management Practices", this storm water management report demonstrates that the post development storm water quality will be improved prior to discharging into the Town or State drainage system. In conclusion, the proposed project will satisfy all design requirements as have been stipulated by the Town, State and Federal regulations that may apply.

# **Appendices**

**Appendix A**  
**FEMA FLOOD INSURANCE RATE MAP**  
**AND**  
**NRCS SOILS MAPPING**

Soil Map—State of Connecticut



Soil Map may not be valid at this scale.

Map Scale: 1:690 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

## MAP LEGEND

- Area of Interest (AOI)
- Area of Interest (AOI)
- 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
- Water Features**
  - Streams and Canals
- Transportation**
  - Rails
  - Interstate Highways
  - US Routes
  - Major Roads
  - Local Roads
- Background**
  - Aerial Photography
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

**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: State of Connecticut  
 Survey Area Data: Version 22, Sep 12, 2022

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

Date(s) aerial images were photographed: Jul 15, 2019—Aug 29, 2019

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
307	Urban land	1.0	100.0%
<b>Totals for Area of Interest</b>		<b>1.0</b>	<b>100.0%</b>

# National Flood Hazard Layer FIRMette



72°41'19"W 41°45'46"N

## Legend

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

### SPECIAL FLOOD HAZARD AREAS



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

### OTHER AREAS OF FLOOD HAZARD



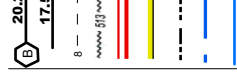
0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X  
Future Conditions 1% Annual Chance Flood Hazard Zone X  
Area with Reduced Flood Risk due to Levee. See Notes. Zone X  
Area with Flood Risk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

### OTHER AREAS



Area of Minimal Flood Hazard Zone X  
Effective LOMRs  
Area of Undetermined Flood Hazard Zone D

### GENERAL STRUCTURES



Channel, Culvert, or Storm Sewer  
Levee, Dike, or Floodwall  
Cross Sections with 1% Annual Chance Water Surface Elevation  
Coastal Transect  
Base Flood Elevation Line (BFE)  
Limit of Study  
Jurisdiction Boundary  
Coastal Transect Baseline  
Profile Baseline  
Hydrographic Feature

### MAP PANELS



Digital Data Available  
No Digital Data Available  
Unmapped



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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **1/18/2023 at 12:04 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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



**Appendix B**

**STORM DRAINAGE SUBAREA DATA and COMPUTATIONS**



PRE DEVELOPMENT DRAINAGE AREA DATA:

PRE SA-A

TOTAL AREA = 1.1706 AC.

GRAVEL = 0.6801 AC

ROADWAY R.O.W. = 0.1874 AC

URBAN AREA = 0.2391 AC

VALLEY/LANDSCAPE = 0.064

$$C = \frac{0.4761(0.6801 \times 0.70) + 0.1593(0.1874 \times 0.85) + 0.2032(0.2391 \times 0.85) + 0.0224(0.064 \times 0.35)}{1.1706}$$

$$C = 0.861 / 1.1706 = 0.74$$

T.O.C. = 100' - STREET Flow, GRAVEL @ 0.59%  
260' - SHALLOW CHANNEL, GUTTER @ 2.25%

PRE SA-B

TOTAL AREA = 0.3703 AC

GRAVEL = 0.3392 AC

ROADWAY R.O.W. = 0.0311 AC

$$C = \frac{0.2374(0.3392 \times 0.70) + 0.0264(0.0311 \times 0.85)}{0.3703}$$

$$C = 0.2638 / 0.3703 = 0.71$$

T.O.C. = 100' - STREET Flow, GRAVEL @ 2.0%  
70' - SHALLOW CHANNEL, GRAVEL @ 2.5%  
62' - SHALLOW CHANNEL @ GUTTER @ 0.18%



POST DEVELOPMENT DRAINAGE AREA DATA

PRO SA B.1

TOTAL AREA = 0.2663 AC.

PAVED = 0.2072 AC

PERVIOUS PAVEMENTS = 0.0085 AC

LANDSCAPED = 0.0506 AC

$$C = \frac{0.1835 \quad 0.0060 \quad 0.0177}{(0.2072 \times 0.9) + (0.0085 \times 0.7) + (0.0506 \times 0.35)}$$

0.2663  
 $C = 0.2102 / 0.2663 = 0.79$

T.O.C. = 100' - STREET FLOW, PAVED @ 3.39% =  
35' - SHALLOW CHANNEL, GRASS @ 0.59%

PRO SA B.2

TOTAL AREA = 0.2613 AC.

PAVED = 0.1529 AC

PERVIOUS PAVEMENTS = 0.0185 AC

LANDSCAPED = 0.0899 AC

$$C = \frac{0.1376 \quad 0.01295 \quad 0.0315}{(0.1529 \times 0.9) + (0.0185 \times 0.7) + (0.0899 \times 0.35)}$$

0.2613  
 $C = 0.1820 / 0.2613 = 0.70$

T.O.C. = 40' - STREET FLOW, ASG GRASS @ 1.0%  
60' - SHALLOW CHANNEL, PAVED @ 1.67%  
44' - SHALLOW CHANNEL, UNPAVED @ 0.5%



POST DEVELOPMENT DRAINAGE AREA DATA:

PRO SA B.3

TOTAL AREA = 0.0322 AC

PERVIOUS PAVED = 0.0166 AC

LANDSCAPED = 0.0156 AC

$$C = \frac{0.0116}{0.0166 \times 0.70} + \frac{0.0055}{0.0156 \times 0.35}$$

$$C = \frac{0.0322}{0.0322} = 0.53$$

T.O.C. = 18' - SHEET FLOW, AVG. GRASS @ 1.0% =

50' - SHALLOW CHANNEL, UNPAVED @ 1.0% =

PRO SA B.4

TOTAL AREA = 0.0302 AC

PERVIOUS PAVED = 0.0111 AC

LANDSCAPED = 0.0191 AC

$$C = \frac{0.0078}{0.0111 \times 0.70} + \frac{0.0067}{0.0191 \times 0.35}$$

$$C = 0.0145 / 0.0302 = 0.48$$

T.O.C. = 18' - SHEET FLOW, AVG. GRASS @ 1.0% =

39' - SHALLOW CHANNEL, UNPAVED @ 1.0% =



POST DEVELOPMENT DRAINAGE AREA DATA:

PRO SA B.5

TOTAL AREA = 0.0338 AC

PERVIOUS PAVEMENT = 0.0044 AC

LANDSCAPED = 0.0294 AC

$$C = \frac{0.0031(0.0044 \times 0.7) + 0.0103(0.0294 \times 0.35)}{0.0338}$$

$$C = 0.0134 / 0.0338 = 0.39$$

T.I.C. = 25' - SHEET PLOW, AVG GRASS @ 1.0%  
53' - SHALLOW CHANNEL, UNPAVED @ 1.0%

PRO. SA. B.6

TOTAL AREA = 0.1830 AC

(ALL ROOF)

$$C = 0.90$$

T.I.C. ≤ 5 MIN.



POST DEVELOPMENT DRAINAGE AREA DATA:

PRO SA - B.7 (BY PASSES)

TOTAL AREA = 0.0864 AC

ROADWAY ROW = 0.0311 AC

PAVED = 0.0349 AC

LANDSCAPED = 0.0204 AC

$$C = (0.0311 \times 0.85) + (0.0349 \times 0.9) + (0.0204 \times 0.35)$$

$$C = \frac{0.026435 + 0.03141 + 0.00714}{0.0864}$$

$$C = 0.0649 / 0.0864 = 0.75$$

T.O.C. = 72' SHEET ROW, PAVED @ 1.57% =  
35' - SHALLOW CHANNEL, @ 0.8%

PRO SA - A (REMAINING)

TOTAL AREA = 0.6493 AC

ROADWAY 0.1874 AC

URBAN AREA = 0.2391 AC

PAVED = 0.0391 AC

POROUS PAVES = 0.0116 AC

LAWN / LANDSCAPED = 0.1721

$$C = (0.1874 \times 0.85) + (0.2391 \times 0.85) + (0.0391 \times 0.9) + (0.0116 \times 0.7) + (0.1721 \times 0.35)$$

$$C = 0.4660 / 0.6493 = 0.72$$

T.O.C. = 37' - SHEET ROW, AVG GRASS @ 1.0%  
288' - SHALLOW CHANNEL, BUTTER @ 2.25%



**Appendix C**

**WATER QUALITY COMPUTATIONS**

Proposed Root Center Developemnt  
35-39 LaFayette Street Hartford, CT  
% Impervious Coverage and Storm Water Quality Volume

(Dated: Dec. 28, 2022)

	A	B	C	D	E	F	G	H	I
1	<b><u>SUBAREAS TO RAINGARDEN #1</u></b>								
2	SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	POROUS PAVEMENT AREA	% POROUS PAVEMENT AREA	LAWN AREA	% LANDSCAPE COV.	
3	PRO-SA-B.1	0.266	0.207	77.807	0.009	3.192	0.051	19.001	
4	<b>SUM OF SA-A (TO RAINGARDEN #1)</b>	0.266	0.207	77.807	0.009	3.192	0.051	19.001	
5									
6	<b><u>WATER QUALITY VOLUME (WQV)</u></b>								
7	WQV= 1" x R x A/12								
8									
9	WQV= water quality volume (ac-ft)								
10	R= volumetric runoff coefficient = 0.05 + 0.009 (I)								
11	I= percent impervious cover	77.807							
12	A= site area in acres	0.266							
13	WQV (REQUIRED)=	0.020	acre-feet						
14	PROVIDED (ELEV. 74.5 to 75.5)=	0.02	acre-feet						
15	<b><u>SUBAREAS TO RAINGARDEN #2</u></b>								
16	SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	POROUS PAVEMENT AREA	% POROUS PAVEMENT COV.	LAWN AREA	% LANDSCAPE COV.	
17	PRO-SA-B.2	0.261	0.153	58.515	0.019	7.080	0.090	34.405	
18									
19	<b>SUM OF SA-B (TO SWQS #2)</b>	0.261	0.153	58.531	0.019	7.077	0.090	34.392	
20									
21	<b><u>WATER QUALITY VOLUME (WQV)</u></b>								
22	WQV= 1" x R x A/12								
23									
24	WQV= water quality volume (ac-ft)								
25	R= volumetric runoff coefficient = 0.05 + 0.009 (I)								
26	I= percent impervious cover	58.531							
27	A= site area in acres	0.261							
28	WQV (REQUIRED)=	0.016	acre-feet						
29	PROVIDED (ELEV. 76.5 to 78.5)=	0.023	acre-feet						
30									

Proposed Root Center Development  
 35-39 LaFayette Street Hartford, CT  
 % Impervious Coverage and Storm Water Quality Volume

(Dated: Dec. 28, 2022)

	A	B	C	D	E	F	G	H	I
31									
32	<b><u>SUBAREAS TO UNDERGROUND DETENTION SYSTEM</u></b>								
33	SUBAREAS	TOTAL AREA	PAVED/ROOF AREA	% PAVED COV.	POROUS PAVEMENT AREA	% POROUS PAVEMENT COV.	LAWN AREA	% LANDSCAPE COV.	
34	PRO-SA-B.3	0.032	0.000	0.000	0.017	51.553	0.016	48.447	
35	PRO-SA-B.4	0.030	0.000	0.000	0.011	36.755	0.019	63.245	
36	PRO-SA-B.5	0.034	0.000	0.000	0.004	13.018	0.029	86.982	
37	PRO-SA-B.5	0.183	0.183	100.000	0.000	0.000	0.000	0.000	
38									
39	<b>SUM OF SA-B (TO SWQS #2)</b>	0.247	0.215	86.985	0.017	6.710	0.016	6.306	
40									
41	<b><u>WATER QUALITY VOLUME (WQV)</u></b>								
42	WQV= 1" x R x A/12								
43									
44	WQV= water quality volume (ac-ft)								
45	R= volumetric runoff coefficient = 0.05 + 0.009 (I)								
46	I= percent impervious cover	86.985							
47	A= site area in acres	0.247							
48	WQV (REQUIRED)=	0.020	acre-feet						

**Appendix E**

**Storm water Studio, ver. 2.0™**

**Computer Model Report for On-Site Drainage System**

# Storm Sewer Tabulation

Project Name: 3331

Stormwater Studio 2022 v 3.0.0.29

01-18-2023

Line ID	Length (ft)	Drng Area		Rational	C x A		Tc		Intensity (in/hr)	Total Q (cfs)	Capacity (cfs)	Velocity (ft/s)	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
Prop. Stim MH #1 to UG Det. Sys	40.00	0.000	0.279	0.00	0.00	0.21	0.0	7.98	7.27	1.52	3.86	1.99	12	1.00	73.50	73.40	74.41	74.40	78.60	78.00	1
Prop. YD #3 to Prop. Stim. MH	11.00	0.033	0.279	0.53	0.02	0.21	5.4	7.82	7.34	1.54	3.56	2.60	12	1.00	73.91	73.50	74.50	74.47	79.00	78.60	2
Bldg. RL to Pro. YD #3	20.00	0.183	0.183	0.90	0.16	0.16	5.0	5.00	8.99	1.48	1.31	4.24	8	1.00	74.44	74.24	75.16	74.91	79.00	79.00	3
Pro YD #4 to Pro YD #3	101.00	0.030	0.063	0.48	0.01	0.03	5.3	7.21	7.64	0.21	1.31	1.38	8	1.00	75.25	74.24	75.47	74.87	79.25	79.00	4
Pro. YD #5 to Pro YD #4	45.00	0.033	0.033	0.39	0.01	0.01	6.9	6.87	7.81	0.10	1.31	1.22	8	1.00	75.70	75.25	75.85	75.53	78.70	79.25	5
Pro CB #2 to UG Det. Sys.	28.00	0.000	0.000	0.00	0.00	0.00	0.0	0.28	8.99	2.99	3.86	4.07	12	1.00	72.26	71.98	73.08	72.98	77.00	78.00	6
Pro CB #1 to Pro CB #2	74.00	0.000	0.000	0.00	0.00	0.00	0.0	0.00	8.99	1.56	3.56	2.21	12	1.00	73.00	72.26	73.76	73.64	75.00	77.00	7
Pro OS #1 to Exist 8" Stim Latt	21.00	0.000	0.000	0.00	0.00	0.00	0.0	0.06	8.99	6.32	1.00	18.11	8	0.50	71.80	71.20	96.00	71.87	78.33	76.00	8
Pro UG Det Sys to Pro OS #1	120.00	0.000	0.000	0.00	0.00	0.00	0.0	0.00	8.99	4.47	2.73	5.69	12	0.50	71.57	71.47	101.07	100.80	78.00	78.33	9

Notes: IDF File = NOAA Atlas 14 Volume 10 Version 3 - Lafayette St Hartford.idf, Return Period = 25-yrs.

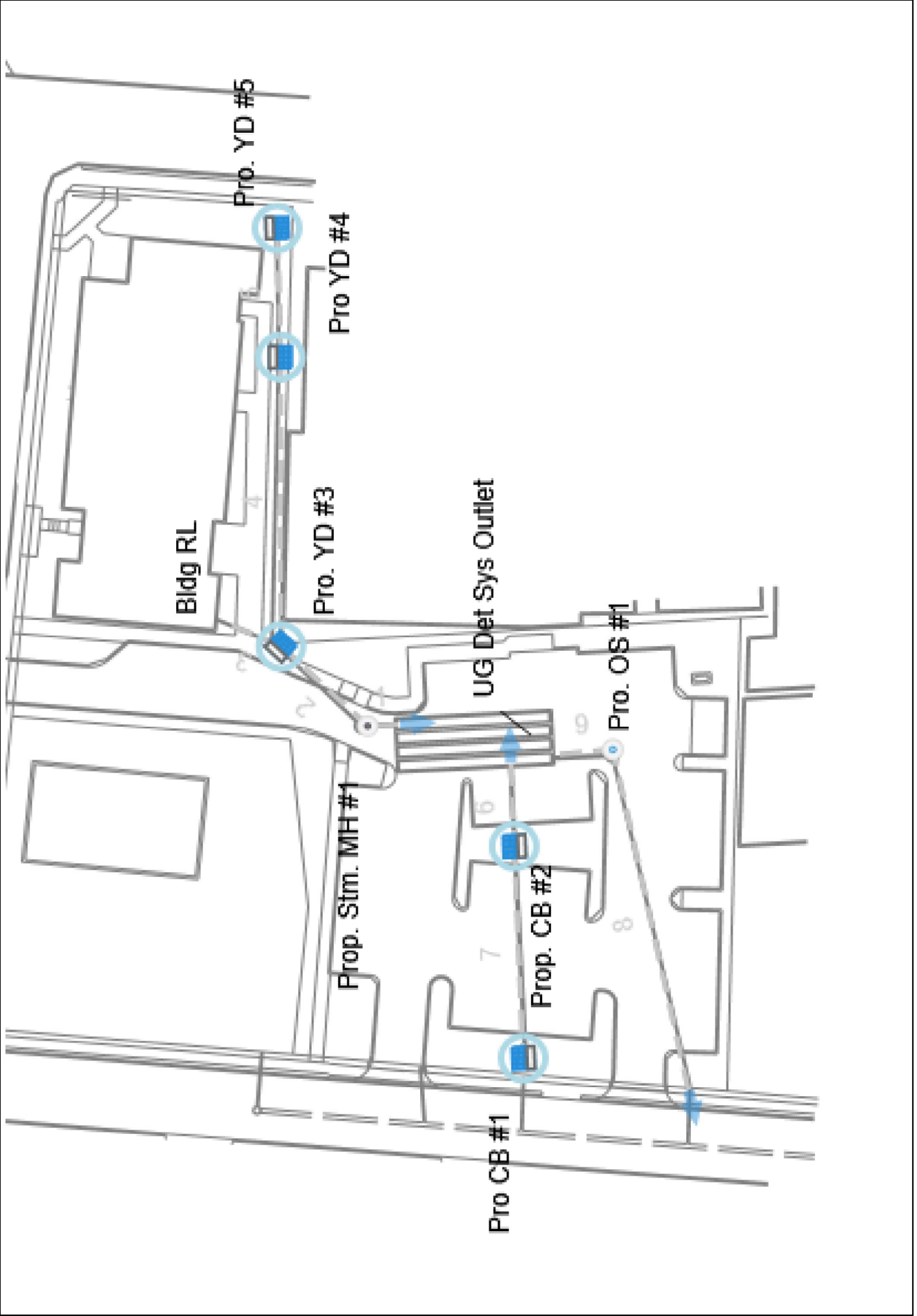
Project File: 3331.sws

# Plan View

Project Name: 3331

Stormwater Studio 2022 v 3.0.0.29

01-18-2023



# TR55 Worksheet

Project Name: 3331

Stormwater Studio 2022 v 3.0.0.29

01-18-2023

## Line No. 2

Pro. YD #3

Description	Segments			Tc (min)
	A	B	C	
<b>Sheet Flow</b>				
Description				
Manning's n	0.240	0.000	0.000	
Flow Length (ft)	18			
2-yr, 24-hr Precip. (in)	3.090	3.090	3.090	
Land Slope (%)	1			
<b>Travel Time (min)</b>	<b>4.86</b>	<b>0.00</b>	<b>0.00</b>	<b>4.86</b>
<b>Shallow Concentrated Flow</b>				
Flow Length (ft)	50			
Watercourse Slope (%)	1			
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	1.61			
<b>Travel Time (min)</b>	<b>0.52</b>	<b>0.00</b>	<b>0.00</b>	<b>0.52</b>
<b>Channel Flow</b>				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
<b>Travel Time (min)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Total Travel Time</b>				<b>5.38 min</b>

# TR55 Worksheet

Project Name: 3331

Stormwater Studio 2022 v 3.0.0.29

01-18-2023

## Line No. 4

Pro YD #4

Description	Segments			Tc (min)
	A	B	C	
<b>Sheet Flow</b>				
Description				
Manning's n	0.240	0.000	0.000	
Flow Length (ft)	18			
2-yr, 24-hr Precip. (in)	3.090	3.090	3.090	
Land Slope (%)	1			
<b>Travel Time (min)</b>	<b>4.86</b>	<b>0.00</b>	<b>0.00</b>	<b>4.86</b>
<b>Shallow Concentrated Flow</b>				
Flow Length (ft)	39			
Watercourse Slope (%)	1			
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	1.61			
<b>Travel Time (min)</b>	<b>0.40</b>	<b>0.00</b>	<b>0.00</b>	<b>0.40</b>
<b>Channel Flow</b>				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
<b>Travel Time (min)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Total Travel Time</b>				<b>5.26 min</b>



# TR55 Worksheet

Project Name: 3331

Stormwater Studio 2022 v 3.0.0.29

01-18-2023

## Line No. 5

Pro. YD #5

Description	Segments			Tc (min)
	A	B	C	
<b>Sheet Flow</b>				
Description				
Manning's n	0.240	0.000	0.000	
Flow Length (ft)	25			
2-yr, 24-hr Precip. (in)	3.090	3.090	3.090	
Land Slope (%)	1			
<b>Travel Time (min)</b>	<b>6.32</b>	<b>0.00</b>	<b>0.00</b>	<b>6.32</b>
<b>Shallow Concentrated Flow</b>				
Flow Length (ft)	53			
Watercourse Slope (%)	1			
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	1.61			
<b>Travel Time (min)</b>	<b>0.55</b>	<b>0.00</b>	<b>0.00</b>	<b>0.55</b>
<b>Channel Flow</b>				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
<b>Travel Time (min)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Total Travel Time</b>				<b>6.87 min</b>

# Composite C Worksheet

Project Name: 3331

Stormwater Studio 2022 v 3.0.0.29

01-18-2023

Line No	Description	Drainage Area (ac)	Runoff Coeff (C)	C x A	Composite (C)	Structure ID
2	Porous Pavers	0.017	0.70	0.012		Pro. YD #3
	Lawn/Landscape	0.016	0.35	0.006		
<b>Totals</b>		<b>0.033</b>		<b>0.018</b>	<b>0.53</b>	
3	Roof	0.183	0.90	0.165		Bldg RL
<b>Totals</b>		<b>0.183</b>		<b>0.165</b>	<b>0.90</b>	
4	Porous Pavers	0.011	0.70	0.008		Pro YD #4
	Lawn/Landscaped	0.019	0.35	0.007		
<b>Totals</b>		<b>0.030</b>		<b>0.014</b>	<b>0.48</b>	
5	Porous Pavers	0.004	0.70	0.003		Pro. YD #5
	Lawn/Landscapes	0.029	0.35	0.010		
<b>Totals</b>		<b>0.033</b>		<b>0.013</b>	<b>0.39</b>	

# Energy Grade Line Calculations

Project Name: 3331

Stormwater Studio 2022 v 3.0.0.29

01-18-2023

Line No	Line Size (in)	Q (cfs)	Downstream						Length (ft)	Upstream							Pipe		Junction		
			Invert Elev (ft)	Depth (ft)	Area (sqft)	HGL Elev (ft)	Vel (ft/s)	Vel Head (ft)		EGL Elev (ft)	Invert Elev (ft)	Depth (ft)	Area (sqft)	HGL Elev (ft)	Vel (ft/s)	Vel Head (ft)	EGL Elev (ft)	n Value	Energy Loss (ft)	HGLa Elev (ft)	EGLa Elev (ft)
1	12	1.52	73.40	1.00	0.79	74.40	1.94	0.06	74.46	10.00	0.91	0.75	74.41	2.03	0.06	74.47	0.012	0.014	74.44	74.51	0.04
2	12	1.54	73.50	0.97	0.78	74.47	1.98	0.06	74.53	41.00	0.59	0.48	74.50	3.22	0.16	74.66	0.013	0.125	74.71	74.87	0.21
3	8	1.48	74.24	0.67 <sup>3</sup>	0.35	74.91	4.24	0.28	75.19	20.00	0.67	0.35	75.16	4.24	0.28	75.44	0.012	0.256	75.18	75.46	0.02
4	8	0.21	74.24	0.63	0.34	74.87	0.61	0.01	74.87	101.00	0.22 <sup>2</sup>	0.10	75.47	2.14	0.07	75.54	0.012	0.665	75.47	75.54	0.00
5	8	0.10	75.25	0.28	0.14	75.53	0.73	0.01	75.54	45.00	0.15 <sup>2</sup>	0.06	75.85	1.72	0.05	75.90	0.012	0.358	75.85	75.90	0.00
6	12	2.99	71.98	1.00	0.79	72.98	3.81	0.23	73.21	28.00	0.82	0.69	73.08	4.33	0.29	73.37	0.012	0.168	73.38	73.67	0.30
7	12	1.56	72.26	1.00	0.79	73.64	1.99	0.06	73.70	74.00	0.76	0.64	73.76	2.44	0.09	73.85	0.013	0.154	73.80	73.89	0.04
8	8	6.32	71.20	0.67 <sup>1</sup>	0.35	71.87	18.11	5.10	76.96	121.00	0.67 <sup>2</sup>	0.35	96.00	18.11	5.10	101.10	0.011	24.138	96.00	101.10	0.00
9	12	4.47	71.47	1.00 <sup>3</sup>	0.79	100.80	5.69	0.50	101.30	20.00	1.00	0.79	101.07	5.69	0.50	101.57	0.012	0.269	101.21	101.71	0.14

Notes: Return Period = 25-yrs. <sup>1</sup> Critical depth. <sup>2</sup> Critical depth. <sup>3</sup> Normal depth.

Project File: 3331.sws

# CT DOT Report

Stormwater Studio 2022 v 3.0.0.29

Project Name: 3331

01-18-2023

Line No.	Drain Area (ac)	Total Area (ac)	Runoff Coeff (C)	Incr CxA	Total C x A	Inlet Time (min)	Pipe Travel (min)	Tc System (min)	i Inlet (in/hr)	Line Size (in)	Flow Rate (cfs)	Capac. Full (cfs)	Vel Ave (ft/s)	Invert Up (ft)	Invert Dn (ft)	Line Slope (ft/ft)	Line Length (ft)	Line ID
1	0.000	0.279	0.00	0.00	0.21	0.0	0.04	8.0	0.00	12	1.52	3.86	1.99	73.50	73.40	0.01	10.00	Prop. Stim MH #1 to UG Det. S
2	0.033	0.279	0.53	0.02	0.21	5.4	0.16	7.8	8.72	12	1.54	3.56	2.60	73.91	73.50	0.01	41.00	Prop. YD #3 to Prop Stim. MH
3	0.183	0.183	0.90	0.16	0.16	5.0	0.08	5.0	8.99	8	1.48	1.31	4.24	74.44	74.24	0.01	20.00	Bldg. RL to Pro. YD #3
4	0.030	0.063	0.48	0.01	0.03	5.3	0.61	7.2	8.80	8	0.21	1.31	1.38	75.25	74.24	0.01	101.00	Pro YD #4 to Pro YD #3
5	0.033	0.033	0.39	0.01	0.01	6.9	0.34	6.9	7.81	8	0.10	1.31	1.22	75.70	75.25	0.01	45.00	Pro. YD #5 to Pro YD #4
6	0.000	0.000	0.00	0.00	0.00	0.0	0.09	0.3	0.00	12	2.99	3.86	4.07	72.26	71.98	0.01	28.00	Pro CB #2 to UG Det. Sys.
7	0.000	0.000	0.00	0.00	0.00	0.0	0.28	0.0	0.00	12	1.56	3.56	2.21	73.00	72.26	0.01	74.00	Pro CB #1 to Pro CB #2
8	0.000	0.000	0.00	0.00	0.00	0.0	0.11	0.1	0.00	8	6.32	1.00	18.11	71.80	71.20	0.005	121.00	Pro OS #1 to Exist 8' Stim Lat
9	0.000	0.000	0.00	0.00	0.00	0.0	0.06	0.0	0.00	12	4.47	2.73	5.69	71.57	71.47	0.005	20.00	Pro UG Det Sys to Pro OS #1

Notes: IDF File = NOAA Atlas 14 Volume 10 Version 3 - Lafayette St Hartford.idf, Return Period = 25-yrs.

Project File: 3331.sws

**Appendix F**

**Hydrology Studio™**

**Computer Model Report – Pre-Development**

# Table of Contents

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

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# Basin Model

Hydrology Studio v 3.0.0.26

Project Name:

01-16-2023

Pre SA-A



Pre SA-B





# Hydrograph by Return Period

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	Pre SA-A	2.233	2.983		4.217	5.244	6.637	7.663	8.783
2	NRCS Runoff	Pre SA-B	0.662	0.904		1.304	1.639	2.095	2.430	2.796

# Hydrograph 1-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre SA-A	2.233	12.08	6,934	---		
2	NRCS Runoff	Pre SA-B	0.662	12.03	1,799	---		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

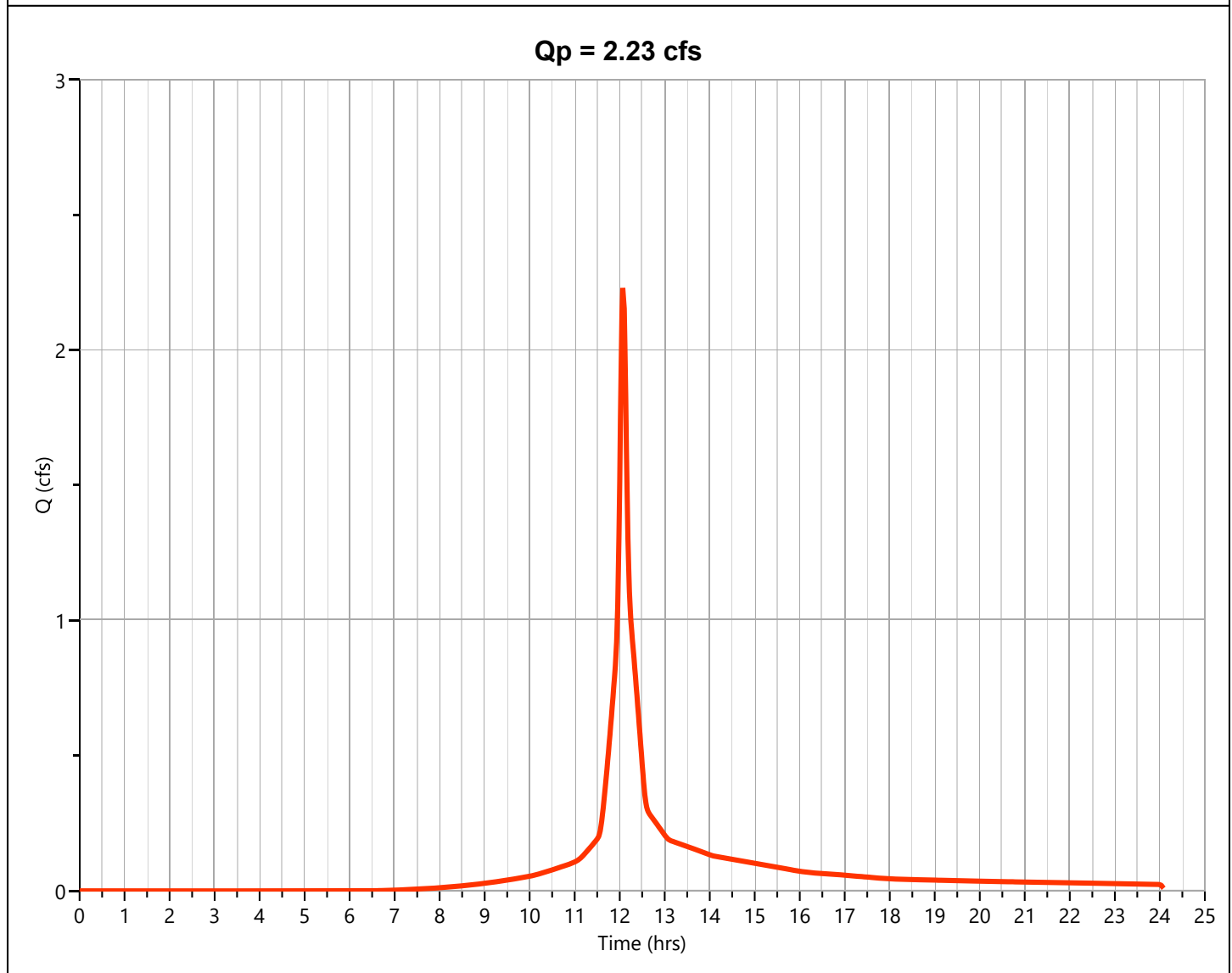
## Pre SA-A

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.233 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Runoff Volume	= 6,934 cuft
Drainage Area	= 1.17 ac	Curve Number	= 91*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 5.31 min
Total Rainfall	= 2.47 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.68	89	C-GRAVEL
0.187	98	C-ROADWAY ROW
0.239	94	C-URBAN AREA
0.064	79	C-LAWN/LANDSCAPED
1.17	91	Weighted CN Method Employed



PRE4

# Hydrograph Discharge Table

SA-A

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.58	0.238	12.18	1.304	12.78	0.256				
11.60	0.258	12.20	1.191	12.80	0.252				
11.62	0.280	12.22	1.106	12.82	0.248				
11.63	0.306	12.23	1.044	12.83	0.245				
11.65	0.333	12.25	0.997	12.85	0.241				
11.67	0.361	12.27	0.961	12.87	0.237				
11.68	0.390	12.28	0.927	12.88	0.233				
11.70	0.420	12.30	0.894	12.90	0.229				
11.72	0.451	12.32	0.860	12.92	0.225				
11.73	0.482	12.33	0.825	12.93	0.222				
11.75	0.513	12.35	0.791	...end	...end				
11.77	0.545	12.37	0.756						
11.78	0.578	12.38	0.721						
11.80	0.611	12.40	0.685						
11.82	0.645	12.42	0.649						
11.83	0.680	12.43	0.614						
11.85	0.715	12.45	0.578						
11.87	0.751	12.47	0.541						
11.88	0.787	12.48	0.505						
11.90	0.824	12.50	0.468						
11.92	0.867	12.52	0.432						
11.93	0.927	12.53	0.399						
11.95	1.014	12.55	0.369						
11.97	1.141	12.57	0.344						
11.98	1.310	12.58	0.325						
12.00	1.517	12.60	0.310						
12.02	1.745	12.62	0.299						
12.03	1.961	12.63	0.292						
12.05	2.134	12.65	0.286						
12.07	2.229	12.67	0.282						
<b>12.08</b>	<b>2.233</b>	12.68	0.279						
12.10	2.153	12.70	0.275						
12.12	2.009	12.72	0.271						
12.13	1.827	12.73	0.267						
12.15	1.632	12.75	0.264						
12.17	1.452	12.77	0.260						

# Tc by TR55 Worksheet

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

## SA-A NRCS Runoff

**Hyd. No. 1**

Description	Segments			Tc (min)
	A	B	C	
<b>Sheet Flow</b>				
Description	GRAVEL			
Manning's n	0.023	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	3.07	3.07	3.07	
Land Slope (%)	.5			
<b>Travel Time (min)</b>	<b>3.89</b>	<b>0.00</b>	<b>0.00</b>	<b>3.89</b>
<b>Shallow Concentrated Flow</b>				
Flow Length (ft)	260			
Watercourse Slope (%)	2.25	0.00	0.00	
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	3.05			
<b>Travel Time (min)</b>	<b>1.42</b>	<b>0.00</b>	<b>0.00</b>	<b>1.42</b>
<b>Channel Flow</b>				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
<b>Travel Time (min)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Total Travel Time</b>				<b>5.31 min</b>

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

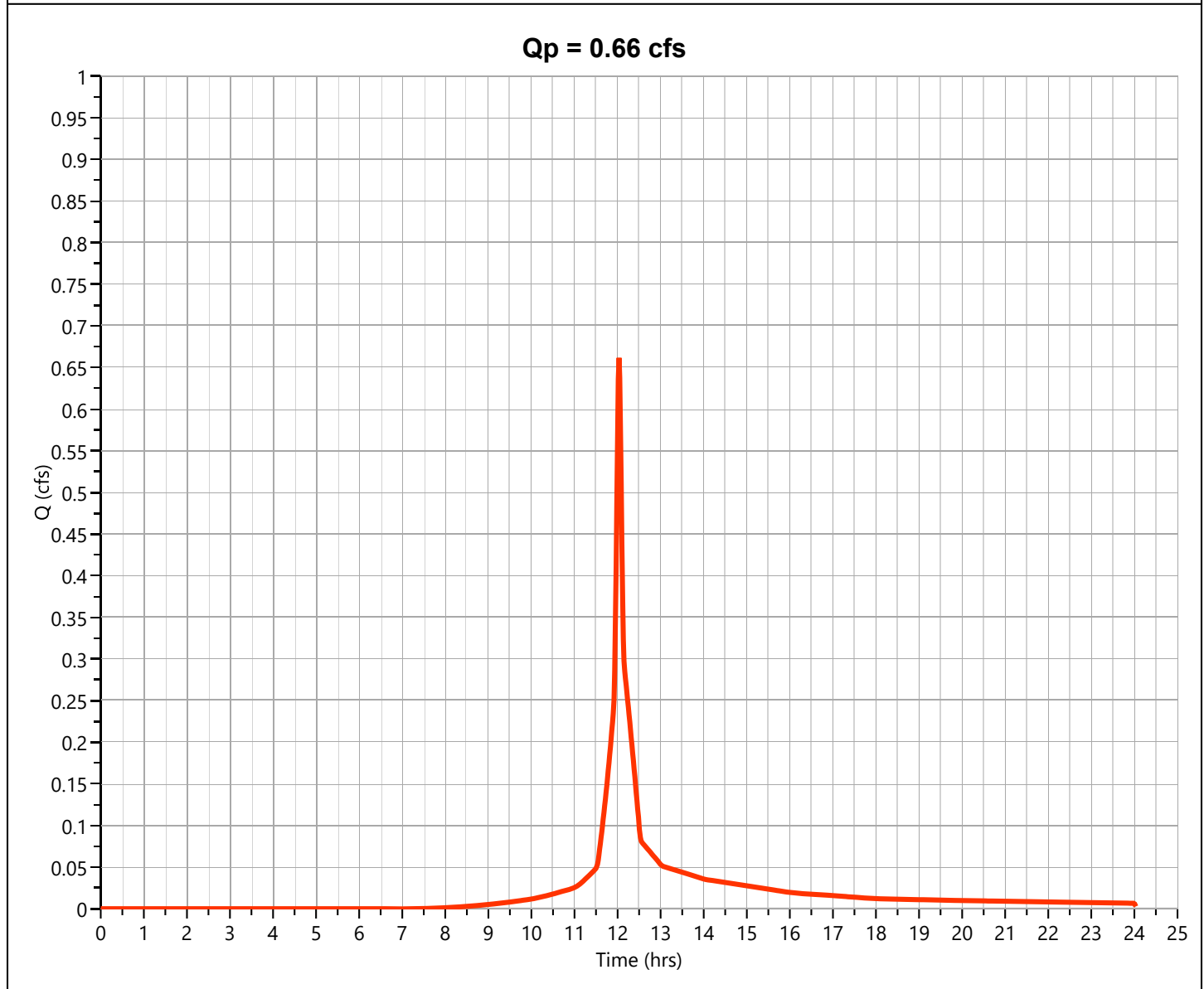
## Pre SA-B

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.662 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 1,799 cuft
Drainage Area	= 0.37 ac	Curve Number	= 89*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 3.16 min
Total Rainfall	= 2.47 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.339	89	C-GRAVEL
0.031	89	C-ROADWAY
<b>0.37</b>	<b>89</b>	Weighted CN Method Employed



PRE7

# Hydrograph Discharge Table

SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.58	0.071	12.18	0.276	12.78	0.066				
11.60	0.078	12.20	0.268	12.80	0.065				
11.62	0.085	12.22	0.259	...end	...end				
11.63	0.092	12.23	0.251						
11.65	0.100	12.25	0.242						
11.67	0.107	12.27	0.233						
11.68	0.115	12.28	0.224						
11.70	0.123	12.30	0.215						
11.72	0.131	12.32	0.206						
11.73	0.140	12.33	0.197						
11.75	0.148	12.35	0.187						
11.77	0.157	12.37	0.178						
11.78	0.166	12.38	0.168						
11.80	0.175	12.40	0.159						
11.82	0.185	12.42	0.149						
11.83	0.194	12.43	0.139						
11.85	0.204	12.45	0.129						
11.87	0.214	12.47	0.120						
11.88	0.224	12.48	0.110						
11.90	0.235	12.50	0.100						
11.92	0.251	12.52	0.091						
11.93	0.286	12.53	0.084						
11.95	0.342	12.55	0.081						
11.97	0.412	12.57	0.079						
11.98	0.488	12.58	0.079						
12.00	0.568	12.60	0.078						
12.02	0.636	12.62	0.077						
<b>12.03</b>	<b>0.662</b>	12.63	0.076						
12.05	0.637	12.65	0.075						
12.07	0.581	12.67	0.074						
12.08	0.512	12.68	0.073						
12.10	0.439	12.70	0.072						
12.12	0.372	12.72	0.071						
12.13	0.324	12.73	0.070						
12.15	0.297	12.75	0.069						
12.17	0.285	12.77	0.067						

# Tc by TR55 Worksheet

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

## SA-B NRCS Runoff

**Hyd. No. 2**

Description	Segments			Tc (min)
	A	B	C	
<b>Sheet Flow</b>				
Description	GREVEL			
Manning's n	0.023	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	3.07	3.07	3.07	
Land Slope (%)	2			
<b>Travel Time (min)</b>	<b>2.23</b>	<b>0.00</b>	<b>0.00</b>	<b>2.23</b>
<b>Shallow Concentrated Flow</b>				
Flow Length (ft)	70	62		
Watercourse Slope (%)	2.50	0.80	0.00	
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	3.21	1.82		
<b>Travel Time (min)</b>	<b>0.36</b>	<b>0.57</b>	<b>0.00</b>	<b>0.93</b>
<b>Channel Flow</b>				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
<b>Travel Time (min)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Total Travel Time</b>				<b>3.16 min</b>



# Hydrograph 2-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre SA-A	2.983	12.07	9,358	---		
2	NRCS Runoff	Pre SA-B	0.904	12.03	2,472	---		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

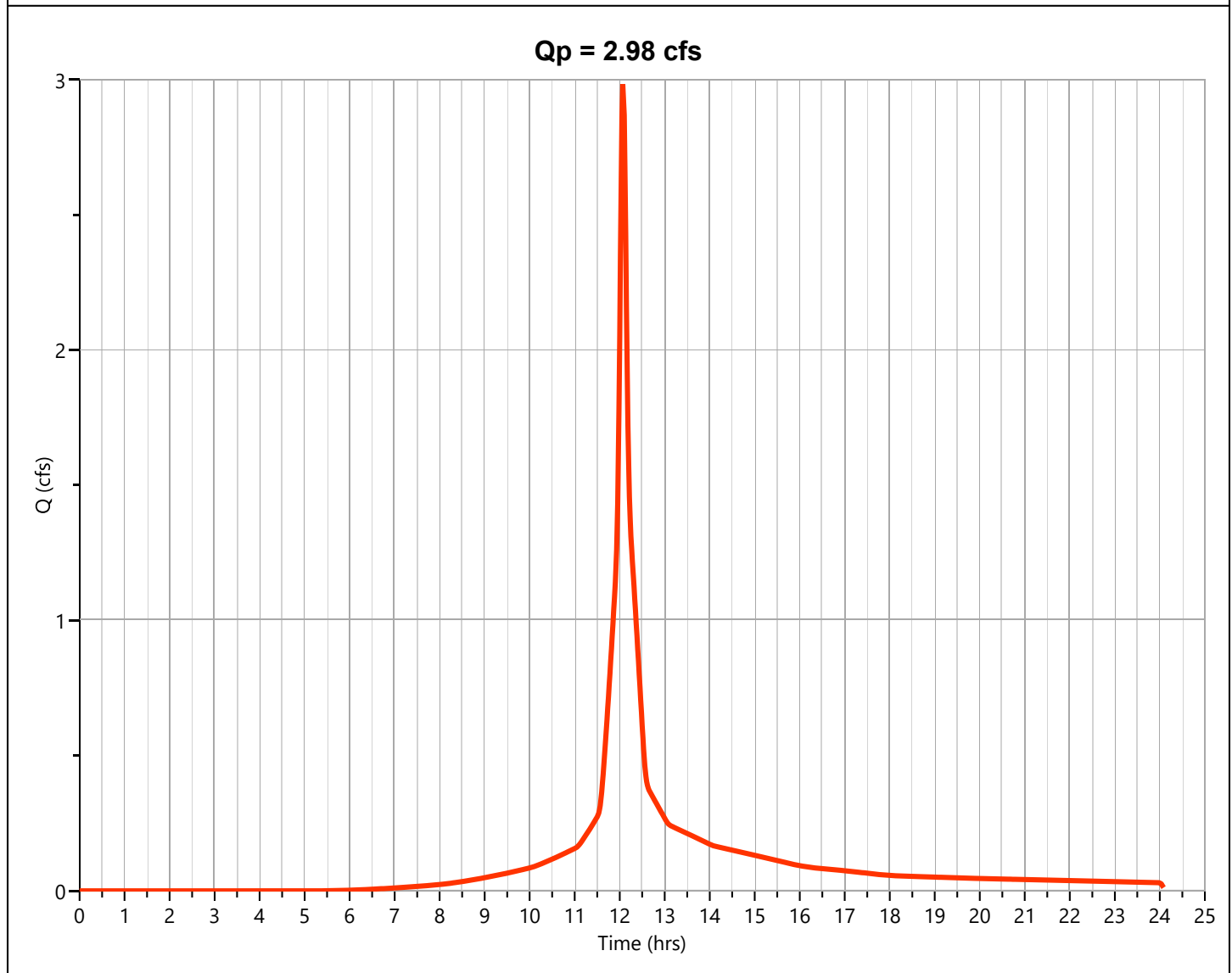
## Pre SA-A

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.983 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 9,358 cuft
Drainage Area	= 1.17 ac	Curve Number	= 91*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 5.31 min
Total Rainfall	= 3.07 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.68	89	C-GRAVEL
0.187	98	C-ROADWAY ROW
0.239	94	C-URBAN AREA
0.064	79	C-LAWN/LANDSCAPED
1.17	91	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-A

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.57	0.315	12.17	1.920	12.77	0.338				
11.58	0.338	12.18	1.722	12.78	0.333				
11.60	0.365	12.20	1.570	12.80	0.328				
11.62	0.397	12.22	1.456	12.82	0.323				
11.63	0.432	12.23	1.373	12.83	0.318				
11.65	0.470	12.25	1.311	12.85	0.313				
11.67	0.509	12.27	1.262	12.87	0.308				
11.68	0.550	12.28	1.217	12.88	0.303				
11.70	0.591	12.30	1.172	12.90	0.298				
11.72	0.632	12.32	1.127	...end	...end				
11.73	0.674	12.33	1.081						
11.75	0.717	12.35	1.035						
11.77	0.761	12.37	0.989						
11.78	0.805	12.38	0.942						
11.80	0.850	12.40	0.896						
11.82	0.895	12.42	0.849						
11.83	0.941	12.43	0.801						
11.85	0.988	12.45	0.754						
11.87	1.035	12.47	0.706						
11.88	1.083	12.48	0.659						
11.90	1.132	12.50	0.611						
11.92	1.189	12.52	0.564						
11.93	1.268	12.53	0.520						
11.95	1.384	12.55	0.480						
11.97	1.552	12.57	0.448						
11.98	1.777	12.58	0.423						
12.00	2.052	12.60	0.404						
12.02	2.353	12.62	0.390						
12.03	2.638	12.63	0.380						
12.05	2.863	12.65	0.373						
<b>12.07</b>	<b>2.983</b>	12.67	0.367						
12.08	2.981	12.68	0.362						
12.10	2.869	12.70	0.358						
12.12	2.672	12.72	0.353						
12.13	2.425	12.73	0.348						
12.15	2.162	12.75	0.343						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

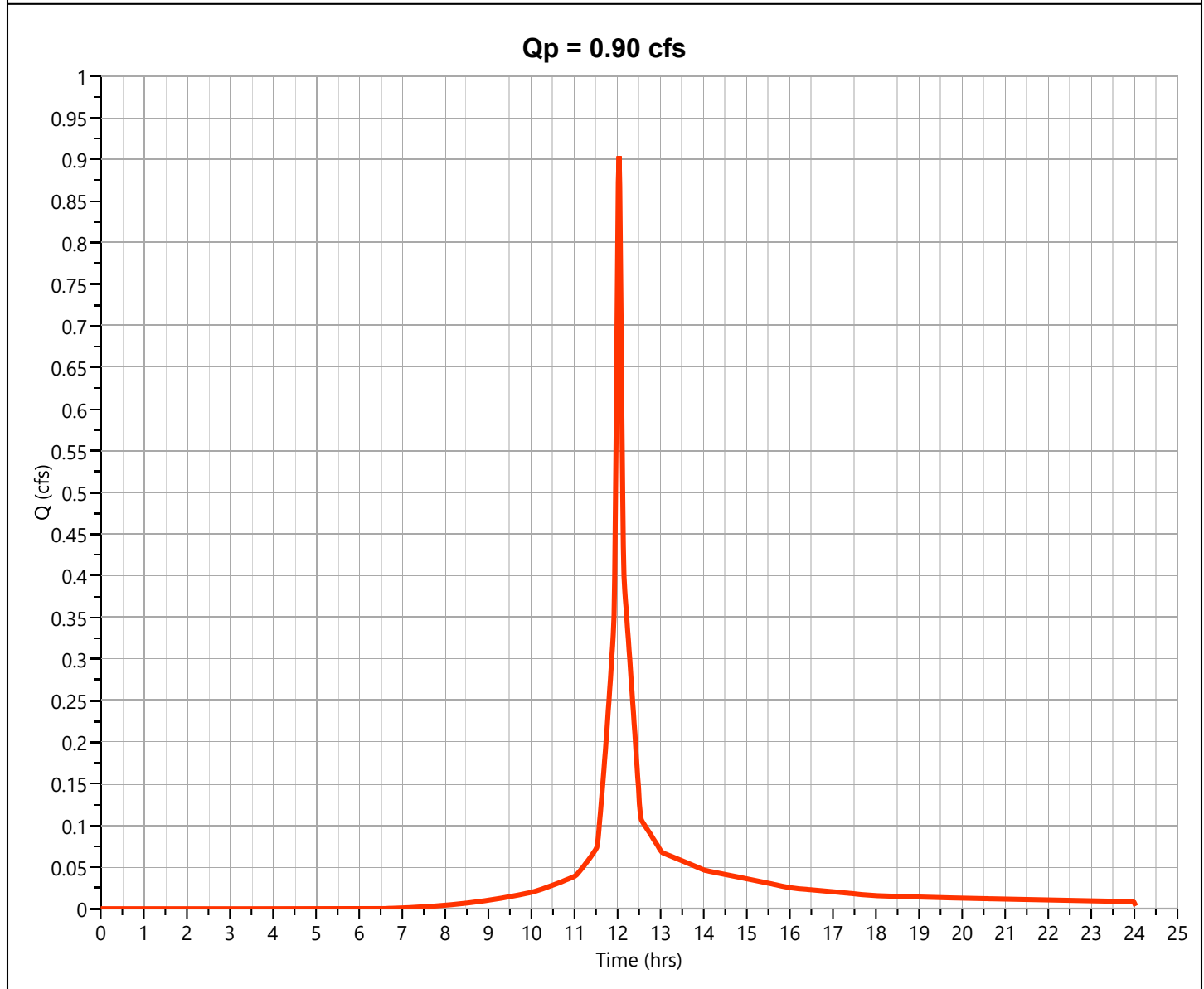
## Pre SA-B

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.904 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 2,472 cuft
Drainage Area	= 0.37 ac	Curve Number	= 89*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 3.16 min
Total Rainfall	= 3.07 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.339	89	C-GRAVEL
0.031	89	C-ROADWAY
<b>0.37</b>	<b>89</b>	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.57	0.095	12.17	0.382	12.77	0.089				
11.58	0.105	12.18	0.370	...end	...end				
11.60	0.115	12.20	0.359						
11.62	0.125	12.22	0.347						
11.63	0.135	12.23	0.335						
11.65	0.146	12.25	0.323						
11.67	0.156	12.27	0.311						
11.68	0.167	12.28	0.299						
11.70	0.179	12.30	0.286						
11.72	0.190	12.32	0.274						
11.73	0.201	12.33	0.261						
11.75	0.213	12.35	0.249						
11.77	0.225	12.37	0.236						
11.78	0.238	12.38	0.223						
11.80	0.250	12.40	0.210						
11.82	0.263	12.42	0.198						
11.83	0.276	12.43	0.185						
11.85	0.289	12.45	0.172						
11.87	0.302	12.47	0.159						
11.88	0.316	12.48	0.145						
11.90	0.330	12.50	0.132						
11.92	0.352	12.52	0.120						
11.93	0.400	12.53	0.112						
11.95	0.476	12.55	0.107						
11.97	0.571	12.57	0.105						
11.98	0.675	12.58	0.104						
12.00	0.783	12.60	0.103						
12.02	0.873	12.62	0.101						
<b>12.03</b>	<b>0.904</b>	12.63	0.100						
12.05	0.868	12.65	0.099						
12.07	0.789	12.67	0.097						
12.08	0.692	12.68	0.096						
12.10	0.593	12.70	0.094						
12.12	0.501	12.72	0.093						
12.13	0.435	12.73	0.092						
12.15	0.400	12.75	0.090						

# Hydrograph 5-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre SA-A	4.217	12.07	13,425	---		
2	NRCS Runoff	Pre SA-B	1.304	12.03	3,614	---		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

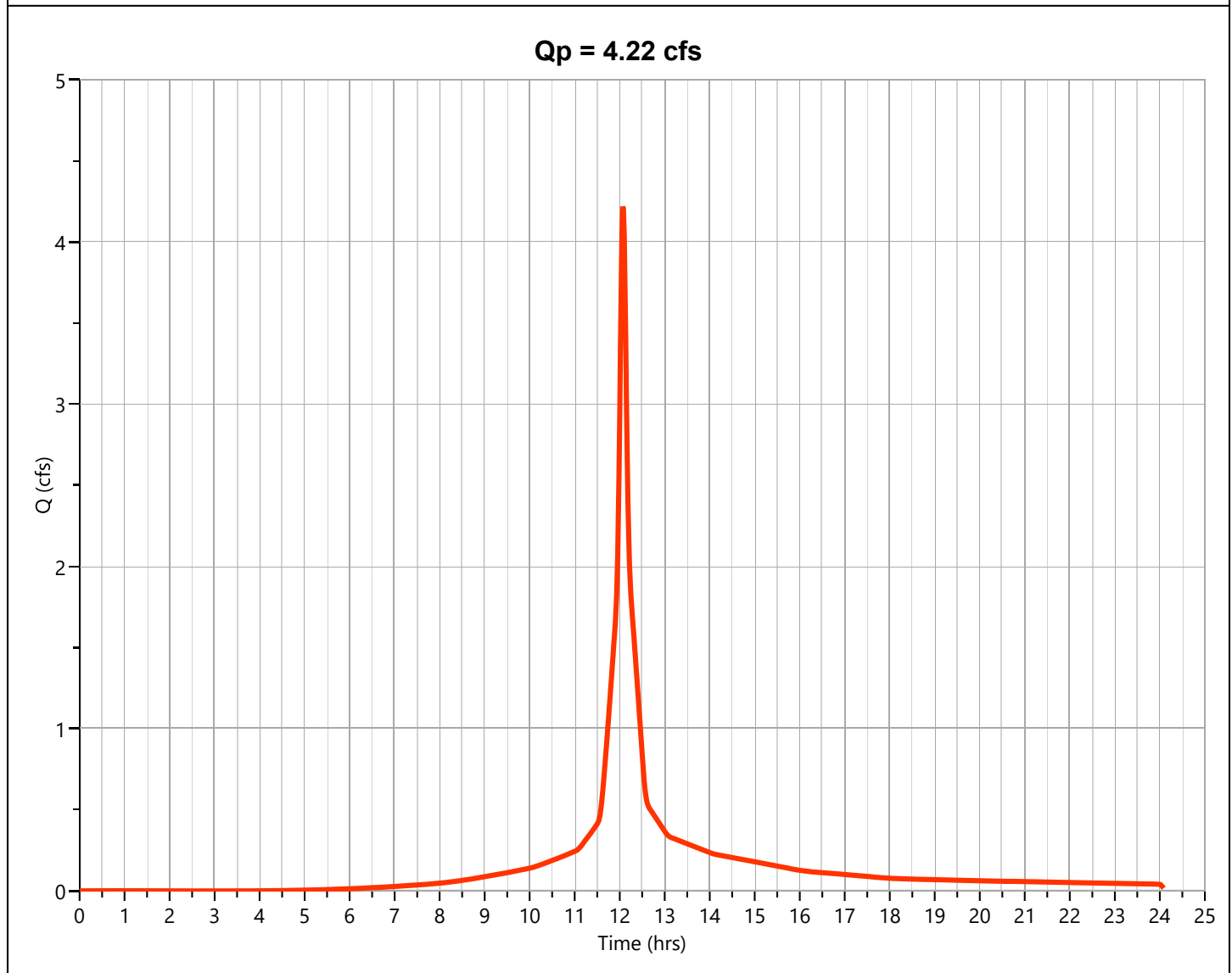
## Pre SA-A

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.217 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 13,425 cuft
Drainage Area	= 1.17 ac	Curve Number	= 91*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 5.31 min
Total Rainfall	= 4.05 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.68	89	C-GRAVEL
0.187	98	C-ROADWAY ROW
0.239	94	C-URBAN AREA
0.064	79	C-LAWN/LANDSCAPED
1.17	91	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-A

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.53	0.431	12.13	3.399	12.73	0.478				
11.55	0.448	12.15	3.026	12.75	0.471				
11.57	0.473	12.17	2.682	12.77	0.464				
11.58	0.506	12.18	2.402	12.78	0.457				
11.60	0.547	12.20	2.187	12.80	0.450				
11.62	0.593	12.22	2.026	12.82	0.443				
11.63	0.645	12.23	1.908	12.83	0.437				
11.65	0.700	12.25	1.821	12.85	0.430				
11.67	0.758	12.27	1.751	12.87	0.423				
11.68	0.817	12.28	1.688	12.88	0.416				
11.70	0.876	12.30	1.624	...end	...end				
11.72	0.937	12.32	1.561						
11.73	0.997	12.33	1.496						
11.75	1.059	12.35	1.432						
11.77	1.121	12.37	1.367						
11.78	1.184	12.38	1.302						
11.80	1.247	12.40	1.237						
11.82	1.311	12.42	1.172						
11.83	1.376	12.43	1.106						
11.85	1.441	12.45	1.040						
11.87	1.507	12.47	0.974						
11.88	1.574	12.48	0.908						
11.90	1.642	12.50	0.842						
11.92	1.720	12.52	0.777						
11.93	1.830	12.53	0.716						
11.95	1.993	12.55	0.662						
11.97	2.230	12.57	0.617						
11.98	2.546	12.58	0.582						
12.00	2.932	12.60	0.556						
12.02	3.352	12.62	0.537						
12.03	3.748	12.63	0.523						
12.05	4.057	12.65	0.513						
<b>12.07</b>	<b>4.217</b>	12.67	0.505						
12.08	4.204	12.68	0.499						
12.10	4.037	12.70	0.492						
12.12	3.753	12.72	0.485						



# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

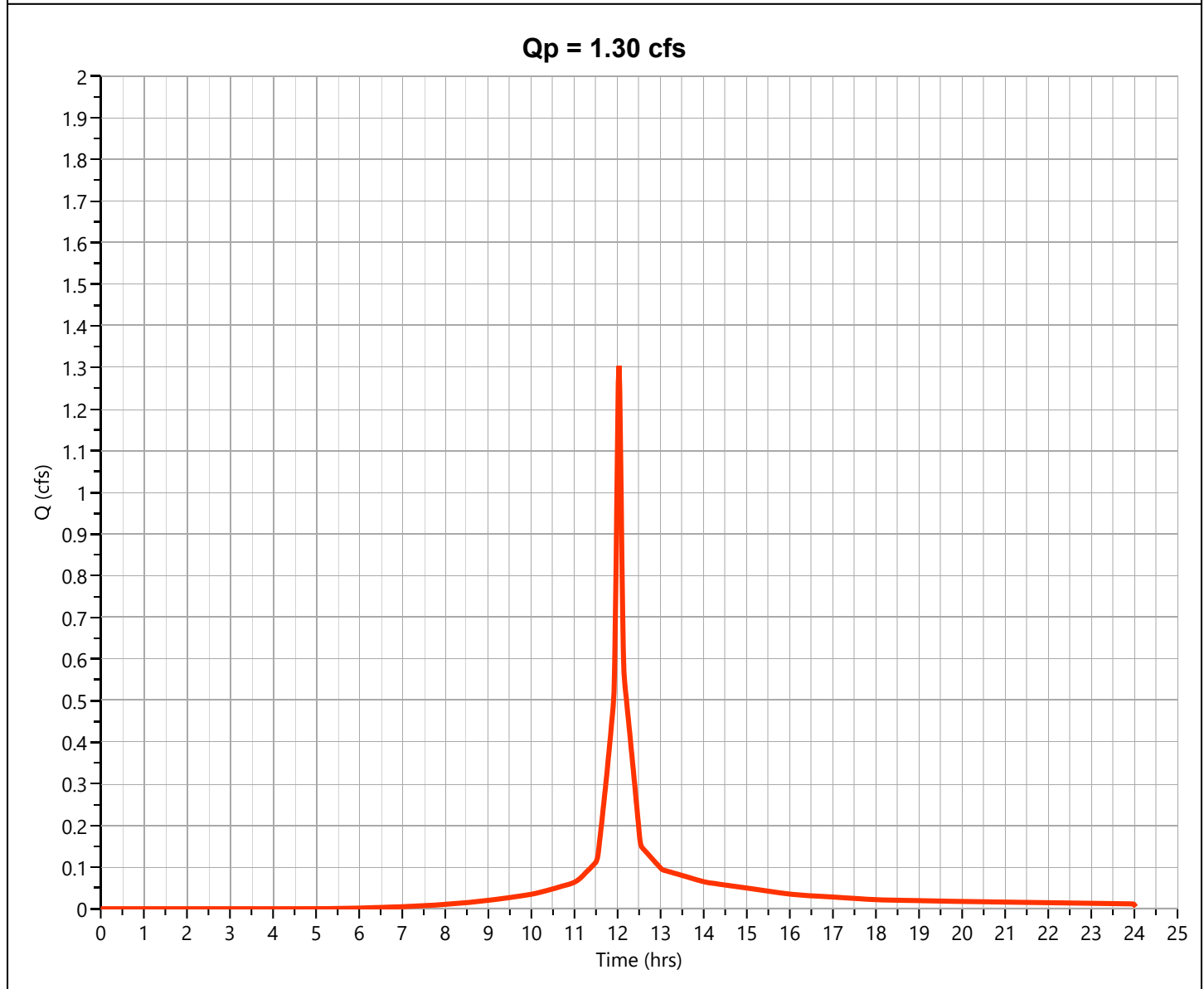
## Pre SA-B

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.304 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 3,614 cuft
Drainage Area	= 0.37 ac	Curve Number	= 89*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 3.16 min
Total Rainfall	= 4.05 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.339	89	C-GRAVEL
0.031	89	C-ROADWAY
<b>0.37</b>	<b>89</b>	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.55	0.133	12.15	0.567						
11.57	0.147	12.17	0.541						
11.58	0.162	12.18	0.524						
11.60	0.177	12.20	0.507						
11.62	0.193	12.22	0.490						
11.63	0.208	12.23	0.473						
11.65	0.224	12.25	0.456						
11.67	0.240	12.27	0.438						
11.68	0.256	12.28	0.421						
11.70	0.273	12.30	0.403						
11.72	0.290	12.32	0.385						
11.73	0.307	12.33	0.367						
11.75	0.324	12.35	0.349						
11.77	0.341	12.37	0.331						
11.78	0.359	12.38	0.313						
11.80	0.377	12.40	0.295						
11.82	0.395	12.42	0.277						
11.83	0.413	12.43	0.259						
11.85	0.432	12.45	0.240						
11.87	0.451	12.47	0.222						
11.88	0.470	12.48	0.203						
11.90	0.489	12.50	0.185						
11.92	0.521	12.52	0.168						
11.93	0.590	12.53	0.156						
11.95	0.700	12.55	0.150						
11.97	0.837	12.57	0.147						
11.98	0.986	12.58	0.145						
12.00	1.138	12.60	0.143						
12.02	1.264	12.62	0.141						
<b>12.03</b>	<b>1.304</b>	12.63	0.139						
12.05	1.248	12.65	0.138						
12.07	1.130	12.67	0.136						
12.08	0.989	12.68	0.134						
12.10	0.846	12.70	0.132						
12.12	0.713	12.72	0.130						
12.13	0.619	...end	...end						

# Hydrograph 10-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre SA-A	5.244	12.07	16,888	---		
2	NRCS Runoff	Pre SA-B	1.639	12.03	4,593	---		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

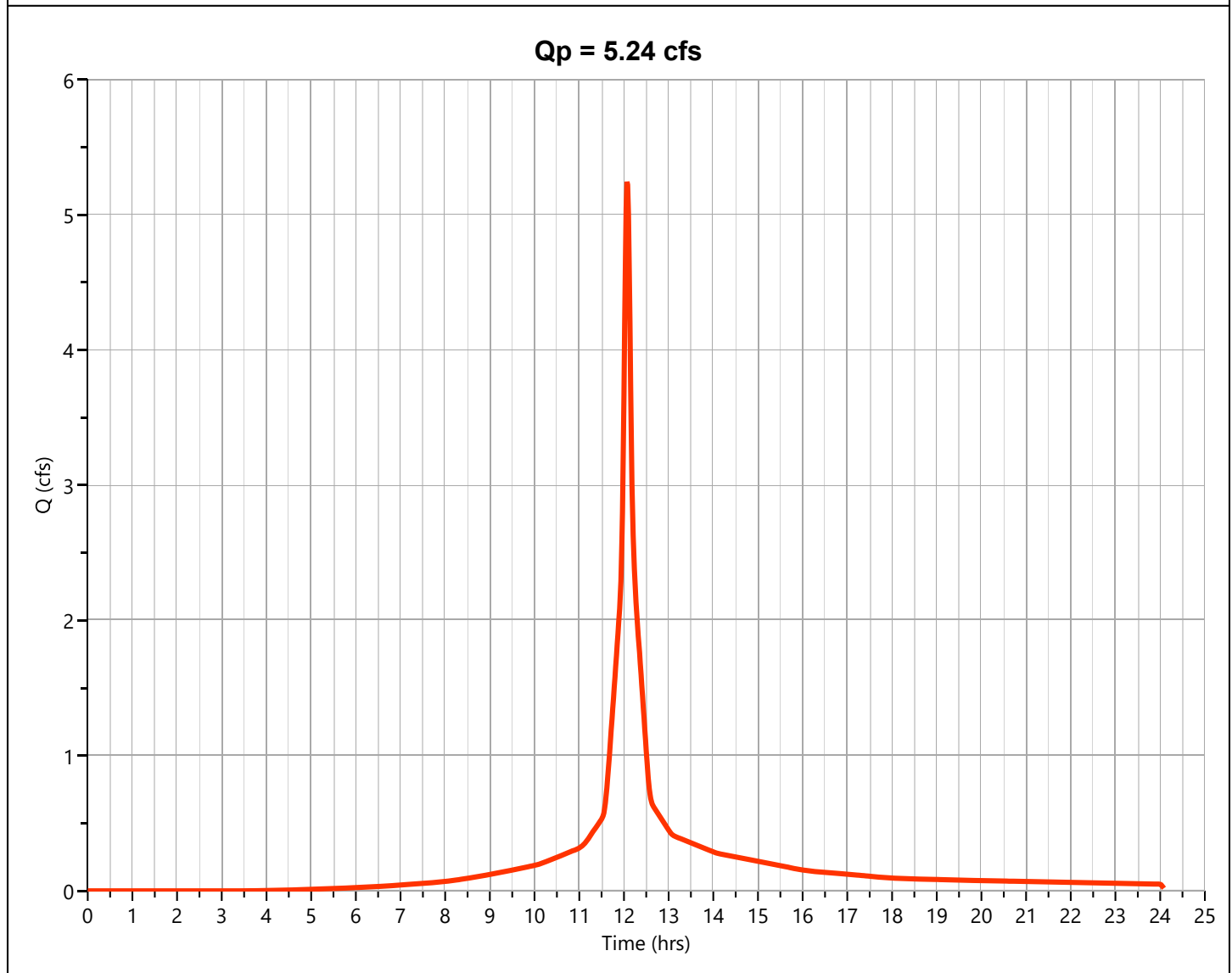
## Pre SA-A

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.244 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 16,888 cuft
Drainage Area	= 1.17 ac	Curve Number	= 91*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 5.31 min
Total Rainfall	= 4.87 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.68	89	C-GRAVEL
0.187	98	C-ROADWAY ROW
0.239	94	C-URBAN AREA
0.064	79	C-LAWN/LANDSCAPED
1.17	91	Weighted CN Method Employed



PRE21

# Hydrograph Discharge Table

SA-A

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.50	0.530	12.10	5.009	12.70	0.603				
11.52	0.540	12.12	4.652	12.72	0.594				
11.53	0.554	12.13	4.209	12.73	0.586				
11.55	0.575	12.15	3.743	12.75	0.577				
11.57	0.607	12.17	3.315	12.77	0.569				
11.58	0.649	12.18	2.966	12.78	0.560				
11.60	0.700	12.20	2.699	12.80	0.552				
11.62	0.760	12.22	2.500	12.82	0.544				
11.63	0.825	12.23	2.353	12.83	0.535				
11.65	0.895	12.25	2.244	12.85	0.526				
11.67	0.968	12.27	2.158	12.87	0.518				
11.68	1.043	12.28	2.079	...end	...end				
11.70	1.118	12.30	2.000						
11.72	1.193	12.32	1.920						
11.73	1.270	12.33	1.841						
11.75	1.347	12.35	1.761						
11.77	1.424	12.37	1.681						
11.78	1.503	12.38	1.601						
11.80	1.582	12.40	1.520						
11.82	1.661	12.42	1.440						
11.83	1.741	12.43	1.359						
11.85	1.822	12.45	1.278						
11.87	1.904	12.47	1.196						
11.88	1.986	12.48	1.115						
11.90	2.069	12.50	1.034						
11.92	2.165	12.52	0.954						
11.93	2.301	12.53	0.879						
11.95	2.503	12.55	0.812						
11.97	2.796	12.57	0.757						
11.98	3.188	12.58	0.714						
12.00	3.666	12.60	0.682						
12.02	4.186	12.62	0.658						
12.03	4.673	12.63	0.641						
12.05	5.051	12.65	0.629						
<b>12.07</b>	<b>5.244</b>	12.67	0.620						
12.08	5.222	12.68	0.611						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

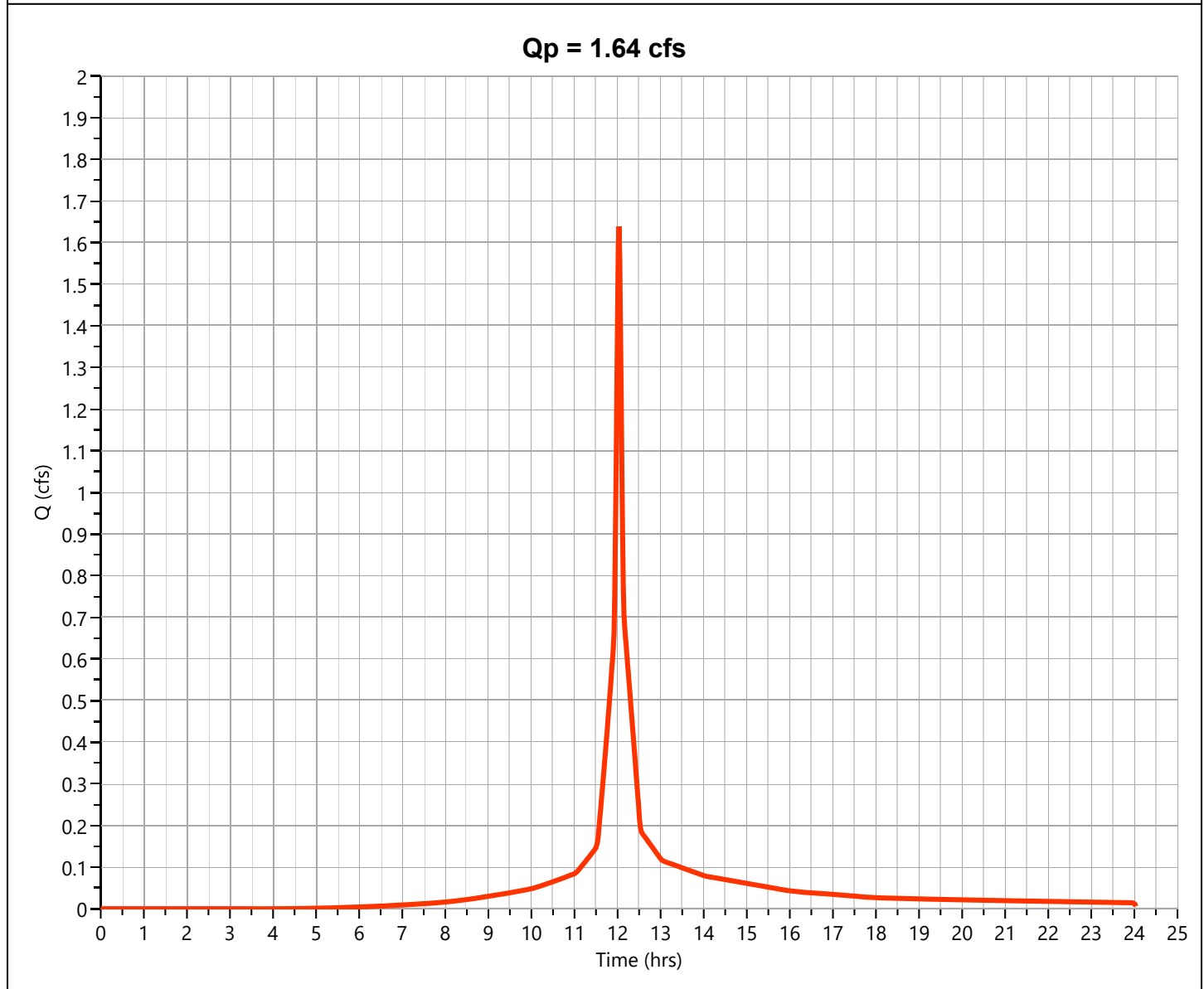
## Pre SA-B

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.639 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 4,593 cuft
Drainage Area	= 0.37 ac	Curve Number	= 89*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 3.16 min
Total Rainfall	= 4.87 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.339	89	C-GRAVEL
0.031	89	C-ROADWAY
<b>0.37</b>	<b>89</b>	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.55	0.174	12.15	0.706						
11.57	0.192	12.17	0.674						
11.58	0.212	12.18	0.652						
11.60	0.231	12.20	0.631						
11.62	0.251	12.22	0.609						
11.63	0.271	12.23	0.588						
11.65	0.291	12.25	0.566						
11.67	0.312	12.27	0.544						
11.68	0.333	12.28	0.522						
11.70	0.354	12.30	0.500						
11.72	0.375	12.32	0.478						
11.73	0.396	12.33	0.455						
11.75	0.418	12.35	0.433						
11.77	0.440	12.37	0.411						
11.78	0.462	12.38	0.388						
11.80	0.484	12.40	0.365						
11.82	0.507	12.42	0.343						
11.83	0.530	12.43	0.320						
11.85	0.553	12.45	0.297						
11.87	0.576	12.47	0.274						
11.88	0.600	12.48	0.252						
11.90	0.623	12.50	0.229						
11.92	0.663	12.52	0.208						
11.93	0.750	12.53	0.193						
11.95	0.889	12.55	0.185						
11.97	1.061	12.57	0.182						
11.98	1.247	12.58	0.179						
12.00	1.436	12.60	0.177						
12.02	1.592	12.62	0.175						
<b>12.03</b>	<b>1.639</b>	12.63	0.172						
12.05	1.565	12.65	0.170						
12.07	1.415	12.67	0.168						
12.08	1.237	12.68	0.165						
12.10	1.056	12.70	0.163						
12.12	0.890	...end	...end						
12.13	0.771								

# Hydrograph 25-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre SA-A	6.637	12.07	21,669	---		
2	NRCS Runoff	Pre SA-B	2.095	12.03	5,950	---		



# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

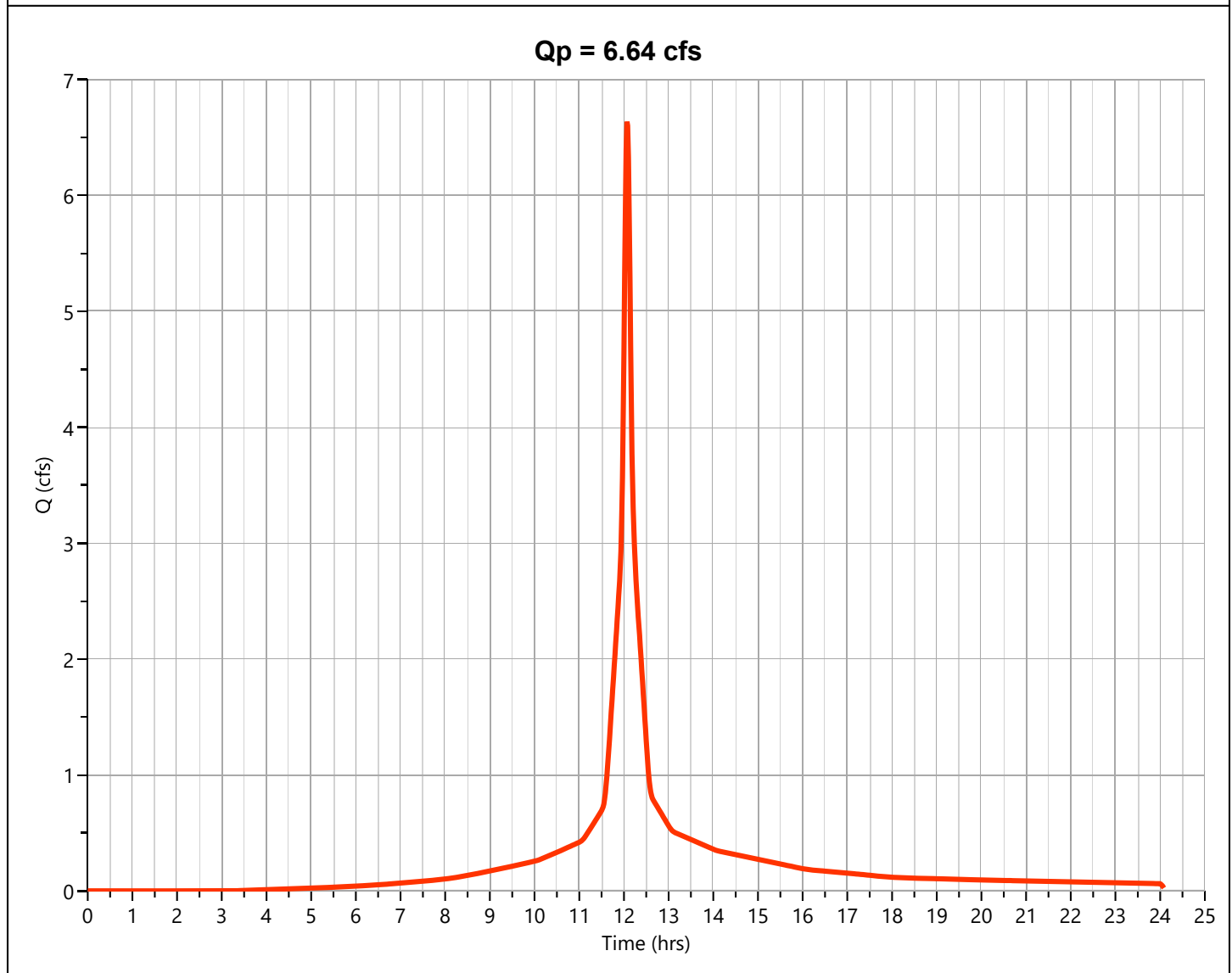
## Pre SA-A

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 6.637 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 21,669 cuft
Drainage Area	= 1.17 ac	Curve Number	= 91*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 5.31 min
Total Rainfall	= 5.99 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.68	89	C-GRAVEL
0.187	98	C-ROADWAY ROW
0.239	94	C-URBAN AREA
0.064	79	C-LAWN/LANDSCAPED
1.17	91	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-A

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.47	0.671	<b>12.07</b>	<b>6.637</b>	12.67	0.775				
11.48	0.681	12.08	6.603	12.68	0.764				
11.50	0.692	12.10	6.328	12.70	0.754				
11.52	0.704	12.12	5.870	12.72	0.743				
11.53	0.722	12.13	5.307	12.73	0.732				
11.55	0.749	12.15	4.716	12.75	0.722				
11.57	0.790	12.17	4.174	12.77	0.711				
11.58	0.844	12.18	3.732	12.78	0.701				
11.60	0.911	12.20	3.394	12.80	0.690				
11.62	0.987	12.22	3.141	12.82	0.679				
11.63	1.072	12.23	2.955	12.83	0.669				
11.65	1.162	12.25	2.817	12.85	0.658				
11.67	1.256	12.27	2.708	...end	...end				
11.68	1.351	12.28	2.608						
11.70	1.448	12.30	2.509						
11.72	1.544	12.32	2.408						
11.73	1.642	12.33	2.308						
11.75	1.740	12.35	2.207						
11.77	1.838	12.37	2.107						
11.78	1.938	12.38	2.006						
11.80	2.037	12.40	1.904						
11.82	2.138	12.42	1.803						
11.83	2.239	12.43	1.701						
11.85	2.341	12.45	1.600						
11.87	2.443	12.47	1.498						
11.88	2.546	12.48	1.396						
11.90	2.650	12.50	1.294						
11.92	2.771	12.52	1.193						
11.93	2.941	12.53	1.099						
11.95	3.195	12.55	1.016						
11.97	3.566	12.57	0.947						
11.98	4.061	12.58	0.893						
12.00	4.663	12.60	0.853						
12.02	5.317	12.62	0.823						
12.03	5.928	12.63	0.802						
12.05	6.400	12.65	0.787						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

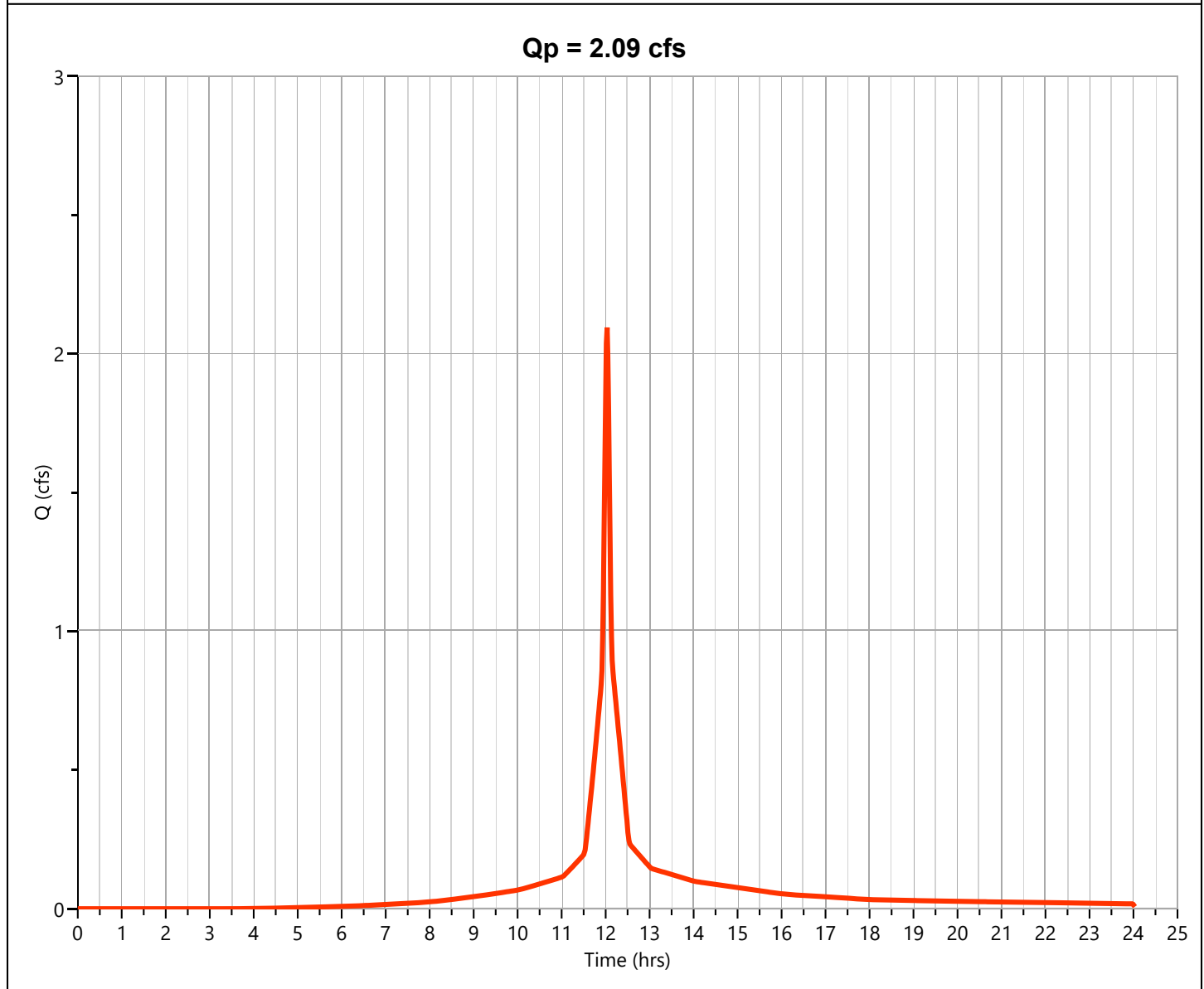
## Pre SA-B

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.095 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 5,950 cuft
Drainage Area	= 0.37 ac	Curve Number	= 89*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 3.16 min
Total Rainfall	= 5.99 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.339	89	C-GRAVEL
0.031	89	C-ROADWAY
<b>0.37</b>	<b>89</b>	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.53	0.211	12.13	0.978						
11.55	0.231	12.15	0.895						
11.57	0.254	12.17	0.854						
11.58	0.280	12.18	0.826						
11.60	0.306	12.20	0.799						
11.62	0.332	12.22	0.771						
11.63	0.358	12.23	0.743						
11.65	0.384	12.25	0.715						
11.67	0.411	12.27	0.687						
11.68	0.438	12.28	0.659						
11.70	0.465	12.30	0.631						
11.72	0.492	12.32	0.603						
11.73	0.519	12.33	0.575						
11.75	0.547	12.35	0.546						
11.77	0.575	12.37	0.518						
11.78	0.603	12.38	0.489						
11.80	0.632	12.40	0.461						
11.82	0.661	12.42	0.432						
11.83	0.689	12.43	0.403						
11.85	0.719	12.45	0.375						
11.87	0.748	12.47	0.346						
11.88	0.778	12.48	0.317						
11.90	0.807	12.50	0.288						
11.92	0.858	12.52	0.262						
11.93	0.969	12.53	0.243						
11.95	1.146	12.55	0.233						
11.97	1.366	12.57	0.229						
11.98	1.602	12.58	0.226						
12.00	1.842	12.60	0.223						
12.02	2.038	12.62	0.220						
<b>12.03</b>	<b>2.095</b>	12.63	0.217						
12.05	1.997	12.65	0.214						
12.07	1.803	12.67	0.211						
12.08	1.574	12.68	0.208						
12.10	1.342	...end	...end						
12.12	1.129								

# Hydrograph 50-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre SA-A	7.663	12.07	25,235	---		
2	NRCS Runoff	Pre SA-B	2.430	12.03	6,966	---		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

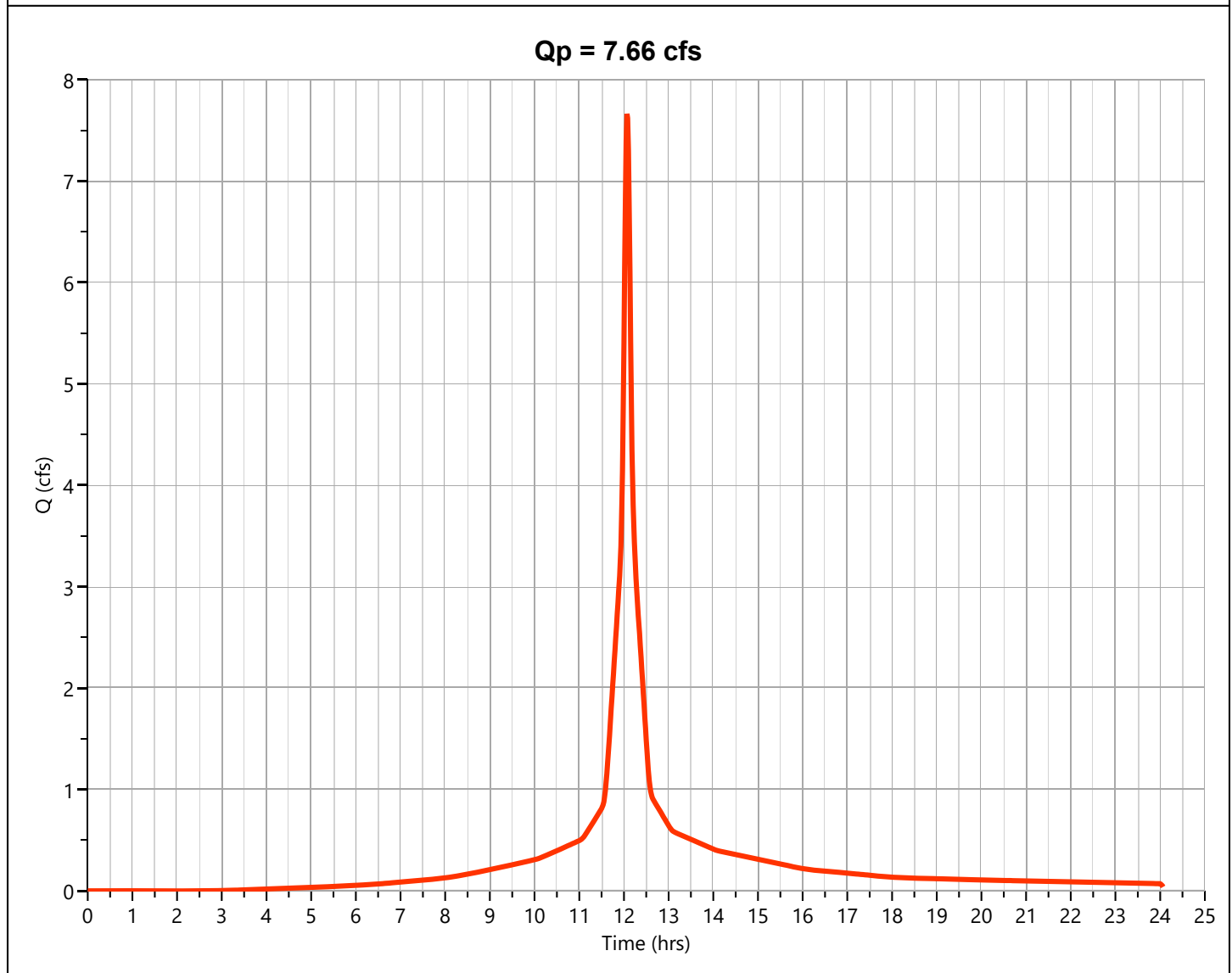
## Pre SA-A

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.663 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 25,235 cuft
Drainage Area	= 1.17 ac	Curve Number	= 91*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 5.31 min
Total Rainfall	= 6.82 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.68	89	C-GRAVEL
0.187	98	C-ROADWAY ROW
0.239	94	C-URBAN AREA
0.064	79	C-LAWN/LANDSCAPED
1.17	91	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-A

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.45	0.775	12.05	7.394	12.65	0.903				
11.47	0.787	<b>12.07</b>	<b>7.663</b>	12.67	0.889				
11.48	0.799	12.08	7.620	12.68	0.877				
11.50	0.811	12.10	7.298	12.70	0.865				
11.52	0.825	12.12	6.768	12.72	0.853				
11.53	0.846	12.13	6.116	12.73	0.840				
11.55	0.878	12.15	5.433	12.75	0.828				
11.57	0.925	12.17	4.806	12.77	0.816				
11.58	0.989	12.18	4.296	12.78	0.804				
11.60	1.067	12.20	3.905	12.80	0.791				
11.62	1.156	12.22	3.613	12.82	0.779				
11.63	1.254	12.23	3.399	12.83	0.767				
11.65	1.359	12.25	3.240	12.85	0.755				
11.67	1.468	12.27	3.114	...end	...end				
11.68	1.580	12.28	2.998						
11.70	1.691	12.30	2.883						
11.72	1.803	12.32	2.768						
11.73	1.916	12.33	2.652						
11.75	2.030	12.35	2.536						
11.77	2.144	12.37	2.420						
11.78	2.259	12.38	2.304						
11.80	2.374	12.40	2.187						
11.82	2.490	12.42	2.071						
11.83	2.606	12.43	1.954						
11.85	2.723	12.45	1.837						
11.87	2.841	12.47	1.720						
11.88	2.959	12.48	1.602						
11.90	3.078	12.50	1.485						
11.92	3.217	12.52	1.370						
11.93	3.413	12.53	1.262						
11.95	3.706	12.55	1.166						
11.97	4.133	12.57	1.087						
11.98	4.704	12.58	1.025						
12.00	5.398	12.60	0.979						
12.02	6.150	12.62	0.945						
12.03	6.852	12.63	0.920						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

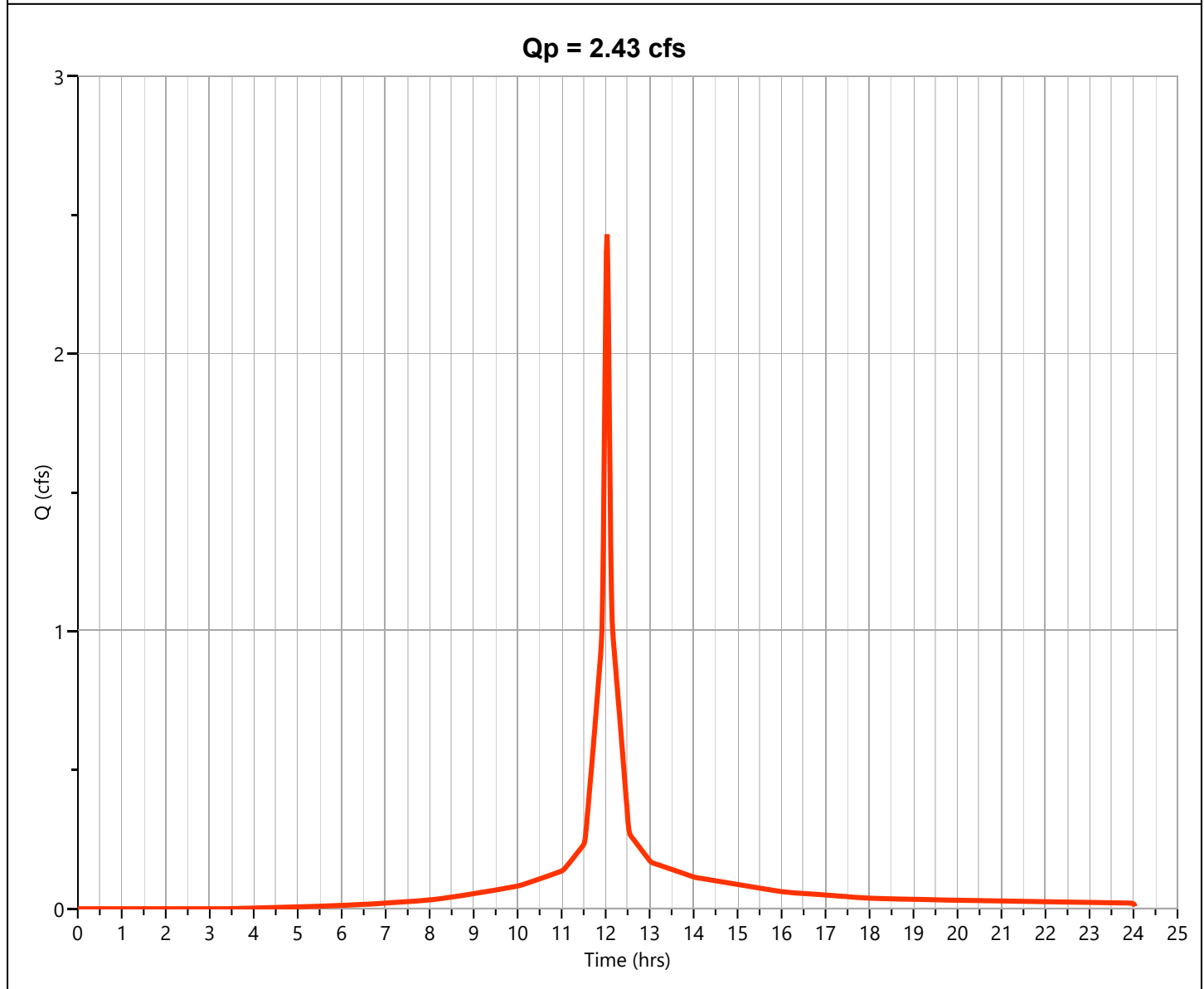
## Pre SA-B

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.430 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 6,966 cuft
Drainage Area	= 0.37 ac	Curve Number	= 89*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 3.16 min
Total Rainfall	= 6.82 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.339	89	C-GRAVEL
0.031	89	C-ROADWAY
<b>0.37</b>	<b>89</b>	Weighted CN Method Employed





# Hydrograph Discharge Table

SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.53	0.250	12.13	1.131						
11.55	0.273	12.15	1.035						
11.57	0.301	12.17	0.986						
11.58	0.331	12.18	0.954						
11.60	0.361	12.20	0.922						
11.62	0.391	12.22	0.890						
11.63	0.422	12.23	0.858						
11.65	0.453	12.25	0.826						
11.67	0.484	12.27	0.793						
11.68	0.515	12.28	0.761						
11.70	0.547	12.30	0.728						
11.72	0.579	12.32	0.695						
11.73	0.611	12.33	0.663						
11.75	0.643	12.35	0.630						
11.77	0.675	12.37	0.597						
11.78	0.708	12.38	0.564						
11.80	0.741	12.40	0.531						
11.82	0.774	12.42	0.498						
11.83	0.808	12.43	0.465						
11.85	0.841	12.45	0.432						
11.87	0.875	12.47	0.398						
11.88	0.909	12.48	0.365						
11.90	0.943	12.50	0.332						
11.92	1.002	12.52	0.301						
11.93	1.130	12.53	0.280						
11.95	1.336	12.55	0.269						
11.97	1.591	12.57	0.263						
11.98	1.865	12.58	0.260						
12.00	2.142	12.60	0.257						
12.02	2.366	12.62	0.253						
<b>12.03</b>	<b>2.430</b>	12.63	0.250						
12.05	2.314	12.65	0.246						
12.07	2.088	12.67	0.243						
12.08	1.822	...end	...end						
12.10	1.553								
12.12	1.306								

# Hydrograph 100-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre SA-A	8.783	12.07	29,161	---		
2	NRCS Runoff	Pre SA-B	2.796	12.03	8,086	---		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

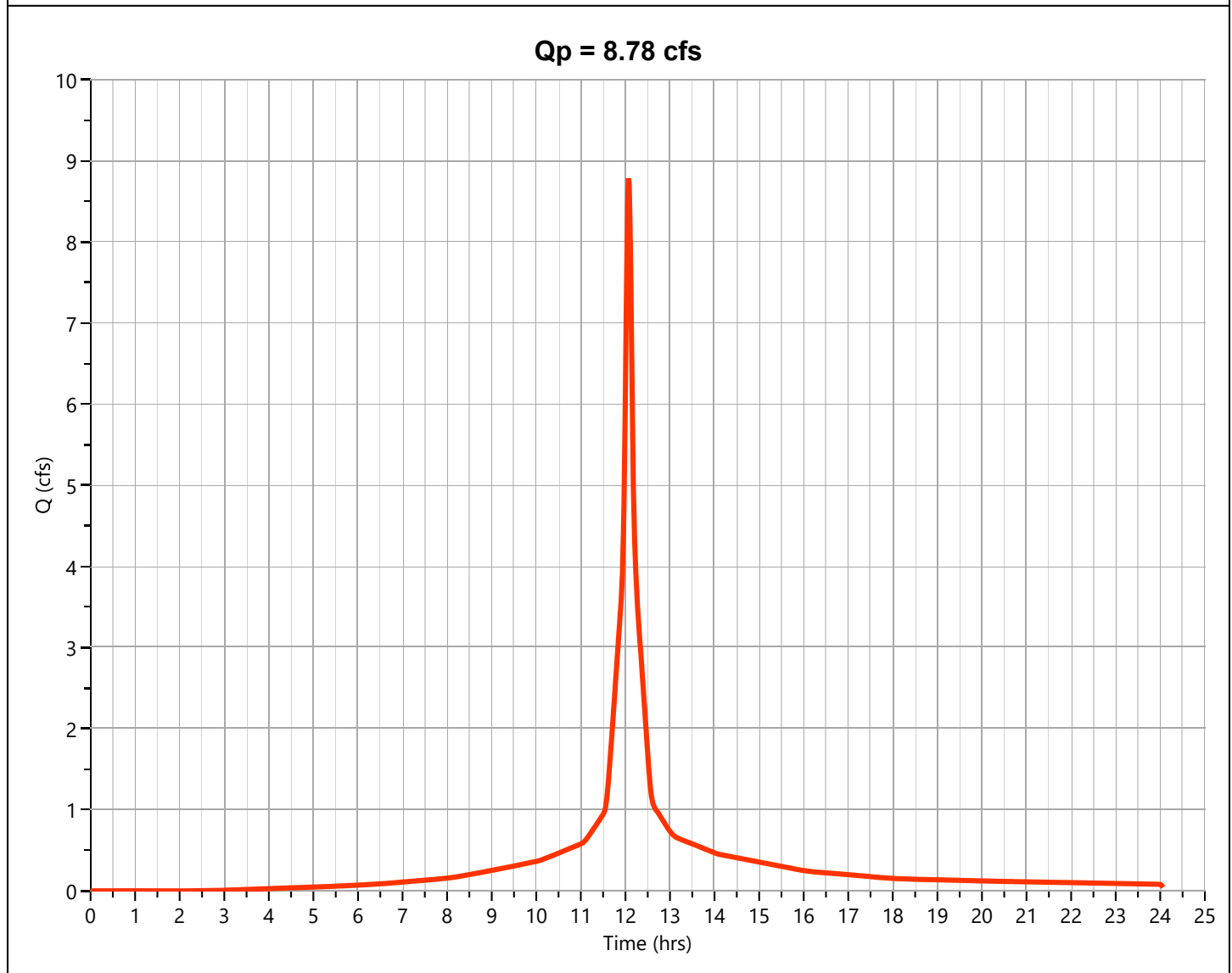
## Pre SA-A

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 8.783 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 29,161 cuft
Drainage Area	= 1.17 ac	Curve Number	= 91*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 5.31 min
Total Rainfall	= 7.73 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.68	89	C-GRAVEL
0.187	98	C-ROADWAY ROW
0.239	94	C-URBAN AREA
0.064	79	C-LAWN/LANDSCAPED
1.17	91	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-A

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.43	0.886	12.03	7.861	12.63	1.050				
11.45	0.900	12.05	8.478	12.65	1.030				
11.47	0.914	<b>12.07</b>	<b>8.783</b>	12.67	1.014				
11.48	0.928	12.08	8.729	12.68	1.000				
11.50	0.942	12.10	8.358	12.70	0.986				
11.52	0.958	12.12	7.747	12.72	0.972				
11.53	0.982	12.13	6.999	12.73	0.958				
11.55	1.019	12.15	6.214	12.75	0.944				
11.57	1.073	12.17	5.496	12.77	0.930				
11.58	1.147	12.18	4.911	12.78	0.916				
11.60	1.237	12.20	4.463	12.80	0.902				
11.62	1.340	12.22	4.129	12.82	0.888				
11.63	1.453	12.23	3.884	12.83	0.874				
11.65	1.574	12.25	3.701	...end	...end				
11.67	1.701	12.27	3.556						
11.68	1.829	12.28	3.424						
11.70	1.957	12.30	3.292						
11.72	2.086	12.32	3.160						
11.73	2.216	12.33	3.028						
11.75	2.346	12.35	2.895						
11.77	2.477	12.37	2.762						
11.78	2.609	12.38	2.629						
11.80	2.741	12.40	2.496						
11.82	2.874	12.42	2.363						
11.83	3.007	12.43	2.229						
11.85	3.141	12.45	2.096						
11.87	3.275	12.47	1.962						
11.88	3.410	12.48	1.828						
11.90	3.546	12.50	1.694						
11.92	3.704	12.52	1.563						
11.93	3.928	12.53	1.440						
11.95	4.263	12.55	1.330						
11.97	4.752	12.57	1.239						
11.98	5.405	12.58	1.169						
12.00	6.199	12.60	1.116						
12.02	7.059	12.62	1.078						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-16-2023

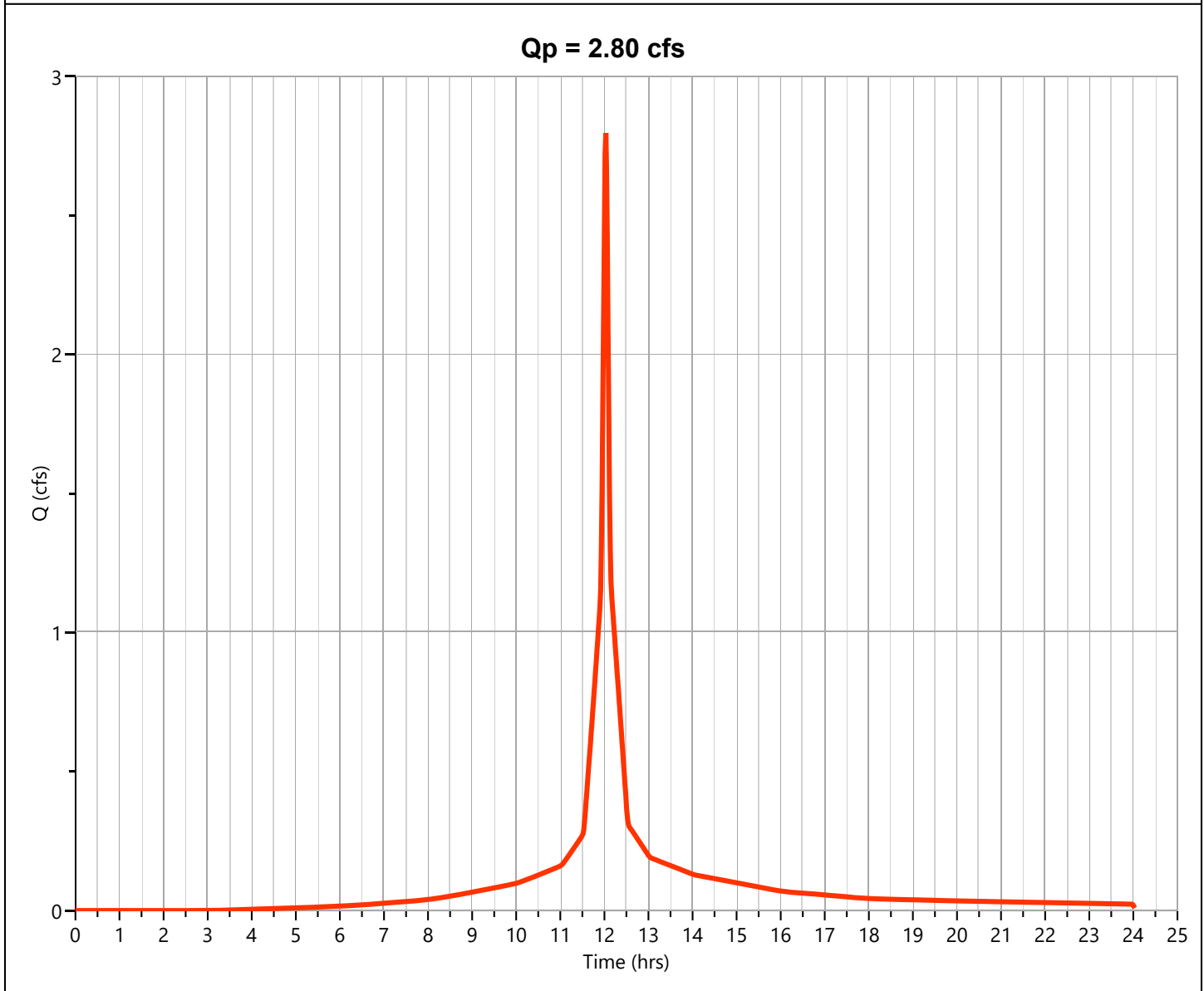
## Pre SA-B

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.796 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.03 hrs
Time Interval	= 1 min	Runoff Volume	= 8,086 cuft
Drainage Area	= 0.37 ac	Curve Number	= 89*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 3.16 min
Total Rainfall	= 7.73 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.339	89	C-GRAVEL
0.031	89	C-ROADWAY
<b>0.37</b>	<b>89</b>	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.53	0.292	12.13	1.297						
11.55	0.319	12.15	1.186						
11.57	0.351	12.17	1.131						
11.58	0.387	12.18	1.094						
11.60	0.422	12.20	1.057						
11.62	0.457	12.22	1.020						
11.63	0.493	12.23	0.983						
11.65	0.528	12.25	0.946						
11.67	0.564	12.27	0.908						
11.68	0.600	12.28	0.871						
11.70	0.637	12.30	0.834						
11.72	0.674	12.32	0.796						
11.73	0.710	12.33	0.758						
11.75	0.748	12.35	0.721						
11.77	0.785	12.37	0.683						
11.78	0.823	12.38	0.645						
11.80	0.860	12.40	0.608						
11.82	0.898	12.42	0.570						
11.83	0.937	12.43	0.532						
11.85	0.975	12.45	0.494						
11.87	1.014	12.47	0.456						
11.88	1.053	12.48	0.418						
11.90	1.092	12.50	0.380						
11.92	1.158	12.52	0.345						
11.93	1.306	12.53	0.320						
11.95	1.544	12.55	0.307						
11.97	1.837	12.57	0.301						
11.98	2.151	12.58	0.297						
12.00	2.468	12.60	0.293						
12.02	2.725	12.62	0.289						
<b>12.03</b>	<b>2.796</b>	12.63	0.285						
12.05	2.661	12.65	0.282						
12.07	2.399	12.67	0.278						
12.08	2.092	...end	...end						
12.10	1.782								
12.12	1.499								

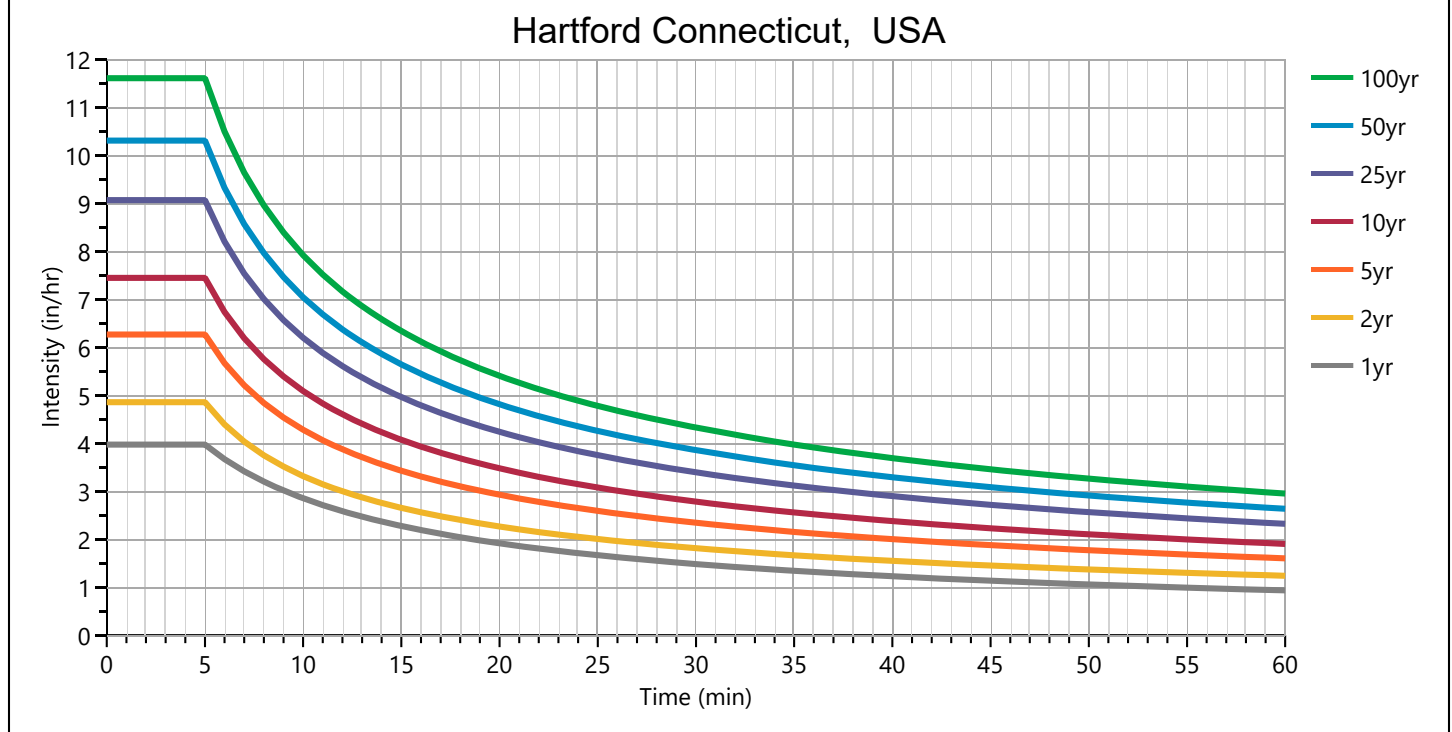
# IDF Report

Equation Coefficients	Intensity = B / (Tc + D)^E (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
<b>B</b>	19.1624	11.7557	0.0000	15.1512	18.0135	21.9086	24.9302	28.1697	
<b>D</b>	3.7000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
<b>E</b>	0.7280	0.5501	0.0000	0.5492	0.5494	0.5486	0.5492	0.5513	

Minimum Tc = 5 minutes

Tc (min)	Intensity Values (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
<b>Cf</b>	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
<b>5</b>	3.97	4.85	0	6.26	7.44	9.06	10.30	11.60	
<b>10</b>	2.85	3.31	0	4.28	5.08	6.19	7.04	7.92	
<b>15</b>	2.27	2.65	0	3.42	4.07	4.96	5.63	6.33	
<b>20</b>	1.91	2.26	0	2.92	3.47	4.23	4.81	5.40	
<b>25</b>	1.66	2.00	0	2.59	3.07	3.75	4.26	4.78	
<b>30</b>	1.48	1.81	0	2.34	2.78	3.39	3.85	4.32	
<b>35</b>	1.34	1.66	0	2.15	2.55	3.12	3.54	3.97	
<b>40</b>	1.22	1.55	0	2.00	2.37	2.90	3.29	3.69	
<b>45</b>	1.13	1.45	0	1.87	2.22	2.71	3.08	3.45	
<b>50</b>	1.05	1.37	0	1.77	2.10	2.56	2.91	3.26	
<b>55</b>	0.99	1.30	0	1.68	1.99	2.43	2.76	3.09	
<b>60</b>	0.93	1.24	0	1.60	1.90	2.32	2.63	2.95	

Cf = Correction Factor applied to Rational Method runoff coefficient.



# Precipitation Report

Precipitation filename: HartfordCT (13).pcp

Hydrology Studio v 3.0.0.26 (Rainfall totals in Inches)

01-16-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
<b>Active</b>		✓	✓		✓	✓	✓	✓	✓
<b>SCS Storms</b>	<b>&gt; SCS Dimensionless Storms</b>								
SCS 6hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
Type I, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
Type IA, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
Type II, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
Type II FL, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
Type III, 24-hr	✓	2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>Synthetic Storms</b>	<b>&gt; IDF-Based Synthetic Storms</b>								
1-hr		0.93	1.24	0	1.60	1.90	2.32	2.63	2.95
2-hr		1.15	1.69	0	2.19	2.60	3.17	3.60	4.02
3-hr		1.29	2.03	0	2.62	3.12	3.81	4.32	4.83
6-hr		1.57	2.77	0	3.59	4.26	5.20	5.90	6.59
12-hr		1.90	3.78	0	4.90	5.82	7.11	8.06	8.99
24-hr		2.30	5.16	0	6.70	7.95	9.73	11.02	12.27
<b>Huff Distribution</b>	<b>&gt; 1st Quartile (0 to 6 hrs)</b>								
1-hr		0.93	1.14	0	1.47	1.75	2.13	2.42	2.72
2-hr		1.22	1.48	0	1.90	2.25	2.73	3.09	3.48
3-hr		1.41	1.70	0	2.19	2.59	3.14	3.56	4.00
6-hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
<b>Huff Distribution</b>	<b>&gt; 2nd Quartile (&gt;6 to 12 hrs)</b>								
8-hr		0	0	0	0	0	0	0	0
12-hr		2.12	2.60	0	3.38	4.02	4.91	5.57	6.28
<b>Huff Distribution</b>	<b>&gt; 3rd Quartile (&gt;12 to 24 hrs)</b>								
18-hr		0	0	0	0	0	0	0	0
24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>Custom Storms</b>	<b>&gt; Custom Storm Distributions</b>								
My Custom Storm 1		0	0	0	0	0	0	0	0
My Custom Storm 2		0	0	0	0	0	0	0	0
My Custom Storm 3		0	0	0	0	0	0	0	0
My Custom Storm 4		0	0	0	0	0	0	0	0
My Custom Storm 5		0	0	0	0	0	0	0	0
My Custom Storm 6		0	0	0	0	0	0	0	0
My Custom Storm 7		0	0	0	0	0	0	0	0
My Custom Storm 8		0	0	0	0	0	0	0	0
My Custom Storm 9		0	0	0	0	0	0	0	0
My Custom Storm 10		0	0	0	0	0	0	0	0



# Precipitation Report Cont'd

Precipitation filename: HartfordCT (13).pcp

Rainfall totals in Inches

01-16-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
<b>Active</b>		✓	✓		✓	✓	✓	✓	✓
<b>Huff Indiana</b>	<b>&gt; Indianapolis</b>								
30-min		0.74	0.90	0	1.17	1.39	1.69	1.92	2.16
1-hr		0.93	1.14	0	1.47	1.75	2.13	2.42	2.72
2-hr		1.22	1.48	0	1.90	2.25	2.73	3.09	3.48
3-hr		1.41	1.70	0	2.19	2.59	3.14	3.56	4.00
6-hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
12-hr		2.12	2.60	0	3.38	4.02	4.91	5.57	6.28
24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>Huff Indiana</b>	<b>&gt; Evansville</b>								
30-min		0.74	0.90	0	1.17	1.39	1.69	1.92	2.16
1-hr		0.93	1.14	0	1.47	1.75	2.13	2.42	2.72
2-hr		1.22	1.48	0	1.90	2.25	2.73	3.09	3.48
3-hr		1.41	1.70	0	2.19	2.59	3.14	3.56	4.00
6-hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
12-hr		2.12	2.60	0	3.38	4.02	4.91	5.57	6.28
24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>Huff Indiana</b>	<b>&gt; Fort Wayne</b>								
30-min		0.74	0.90	0	1.17	1.39	1.69	1.92	2.16
1-hr		0.93	1.14	0	1.47	1.75	2.13	2.42	2.72
2-hr		1.22	1.48	0	1.90	2.25	2.73	3.09	3.48
3-hr		1.41	1.70	0	2.19	2.59	3.14	3.56	4.00
6-hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
12-hr		2.12	2.60	0	3.38	4.02	4.91	5.57	6.28
24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>Huff Indiana</b>	<b>&gt; South Bend</b>								
30-min		0.74	0.90	0	1.17	1.39	1.69	1.92	2.16
1-hr		0.93	1.14	0	1.47	1.75	2.13	2.42	2.72
2-hr		1.22	1.48	0	1.90	2.25	2.73	3.09	3.48
3-hr		1.41	1.70	0	2.19	2.59	3.14	3.56	4.00
6-hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
12-hr		2.12	2.60	0	3.38	4.02	4.91	5.57	6.28
24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73

# Precipitation Report Cont'd

Precipitation filename: HartfordCT (13).pcp

Rainfall totals in Inches

01-16-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
<b>Active</b>		✓	✓		✓	✓	✓	✓	✓
<b>NRCS Storms</b>	<b>&gt; NRCS Dimensionless Storms</b>								
NRCS MSE1, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCS MSE2, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCS MSE3, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCS MSE4, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCS MSE5, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCS MSE6, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NOAA-A, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NOAA-B, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NOAA-C, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NOAA-D, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCC-A, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCC-B, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCC-C, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCC-D, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-1, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-2, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-3, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-4, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-5, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-6, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>FDOT Storms</b>	<b>&gt; Florida DOT Storms</b>								
FDOT, 1-hr		0	0	0	0	0	0	0	0
FDOT, 2-hr		0	0	0	0	0	0	0	0
FDOT, 4-hr		0	0	0	0	0	0	0	0
FDOT, 8-hr		0	0	0	0	0	0	0	0
FDOT, 24-hr		0	0	0	0	0	0	0	0
FDOT, 72-hr		0	0	0	0	0	0	0	0
SFWMD, 72-hr		0	0	0	0	0	0	0	0
<b>Austin Storms</b>	<b>&gt; Austin Frequency Storms</b>								
Austin Zone 1, 24-hr		0	0	0	0	0	0	0	0
Austin Zone 2, 24-hr		0	0	0	0	0	0	0	0

**Appendix G**

**Hydrology Studio™**

**Computer Model Report – Post Development**

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Hydrology Studio v 3.0.0.26

01-18-2023

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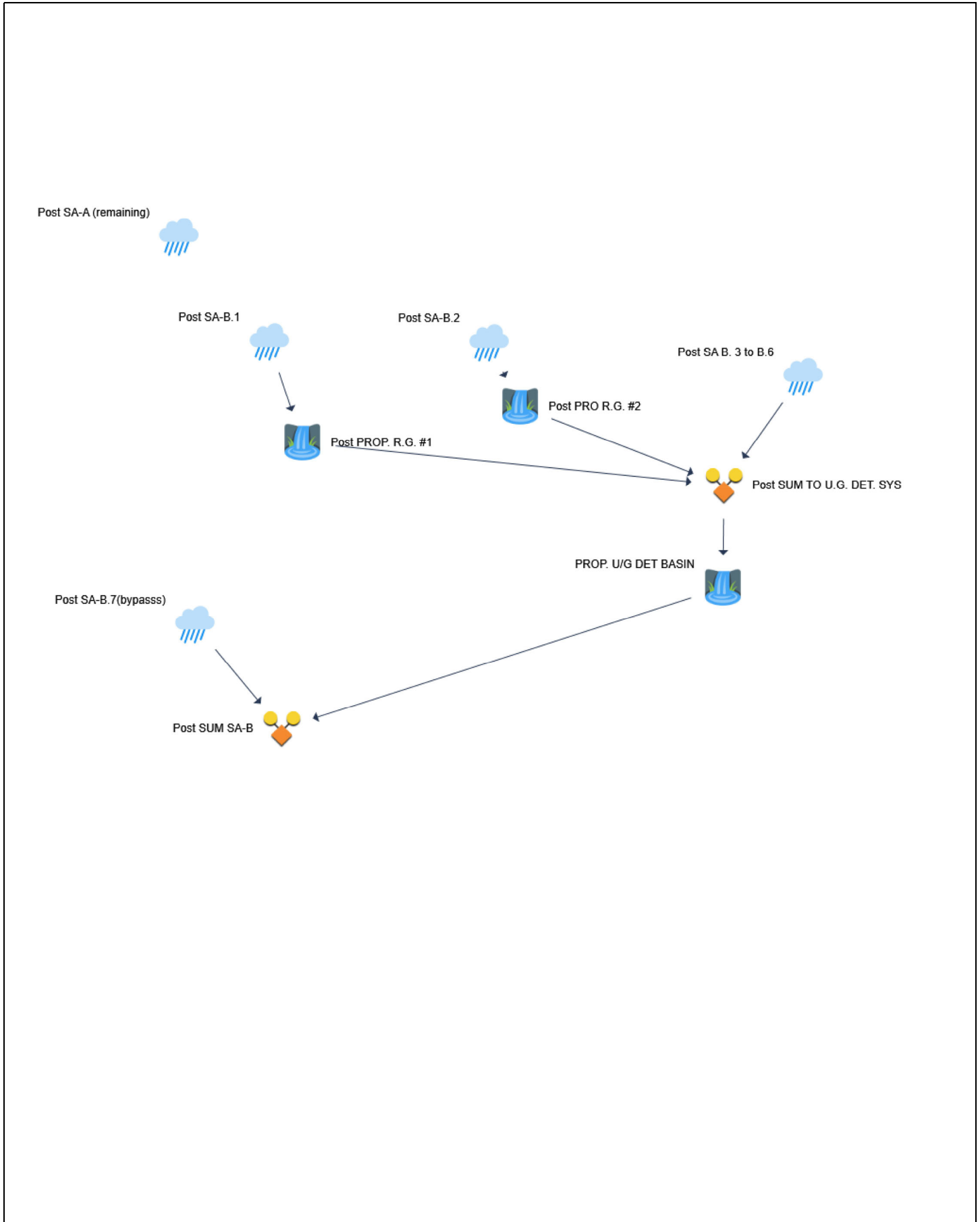
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# Basin Model

Hydrology Studio v 3.0.0.26

Project Name:

01-18-2023



POST1

# Hydrograph by Return Period

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	Post SA-B.1	0.580	0.752		1.030	1.260	1.573	1.804	2.056
2	NRCS Runoff	Post SA-B.2	0.481	0.643		0.908	1.129	1.430	1.651	1.892
3	NRCS Runoff	Post SA B. 3 to B.6	0.579	0.736		0.990	1.201	1.488	1.700	1.932
4	NRCS Runoff	Post SA-B.7(bypasss)	0.159	0.214		0.305	0.380	0.483	0.559	0.641
5	NRCS Runoff	Post SA-A (remaining)	1.106	1.516		2.196	2.769	3.548	4.123	4.750
6	Pond Route	Post PROP. R.G. #1	0.572	0.742		1.016	1.251	1.562	1.791	2.045
7	Pond Route	Post PRO R.G. #2	0.479	0.640		0.904	1.130	1.428	1.648	1.888
8	Junction	Post SUM TO U.G. DET. SYS	1.626	2.113		2.903	3.574	4.467	5.127	5.851
9	Pond Route	PROP. U/G DET BASIN	0.600	0.925		1.359	1.584	1.837	2.001	2.165
10	Junction	Post SUM SA-B	0.661	1.023		1.525	1.794	2.112	2.321	2.538



# Hydrograph 1-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Post SA-B.1	0.580	12.07	1,840	---		
2	NRCS Runoff	Post SA-B.2	0.481	12.08	1,493	---		
3	NRCS Runoff	Post SA B. 3 to B.6	0.579	12.07	1,886	---		
4	NRCS Runoff	Post SA-B.7(bypass)	0.159	12.08	493	---		
5	NRCS Runoff	Post SA-A (remaining)	1.106	12.08	3,410	---		
6	Pond Route	Post PROP. R.G. #1	0.572	12.08	1,375	1	75.36	512
7	Pond Route	Post PRO R.G. #2	0.479	12.08	1,168	2	77.34	343
8	Junction	Post SUM TO U.G. DET. SYS	1.626	12.08	4,429	3, 6, 7		
9	Pond Route	PROP. U/G DET BASIN	0.600	12.33	4,107	8	72.83	1,457
10	Junction	Post SUM SA-B	0.661	12.30	4,600	4, 9		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

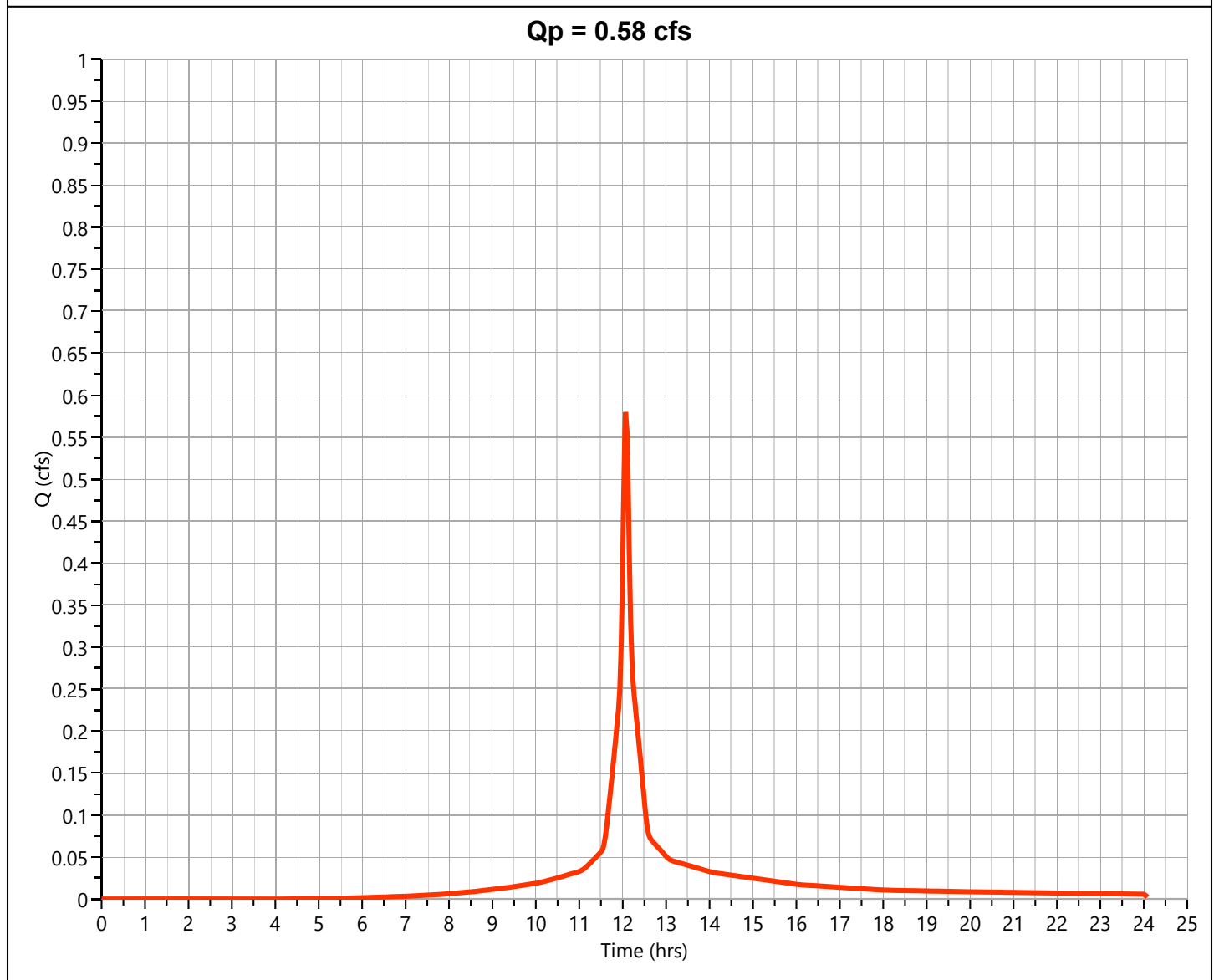
## Post SA-B.1

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.580 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 1,840 cuft
Drainage Area	= 0.267 ac	Curve Number	= 94*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.47 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.207	98	C-PAVED
0.009	85	C-POROUS PAVERS
0.051	79	C-LAWN/LANSCAPED
<b>0.267</b>	<b>94</b>	Weighted CN Method Employed



POST4

# Hydrograph Discharge Table

SA-B.1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.53	0.059	12.13	0.468	12.73	0.066				
11.55	0.061	12.15	0.417	12.75	0.065				
11.57	0.064	12.17	0.370	12.77	0.064				
11.58	0.069	12.18	0.331	12.78	0.063				
11.60	0.074	12.20	0.301	12.80	0.062				
11.62	0.081	12.22	0.279	12.82	0.061				
11.63	0.088	12.23	0.263	12.83	0.060				
11.65	0.095	12.25	0.251	12.85	0.059				
11.67	0.103	12.27	0.242	12.87	0.058				
11.68	0.111	12.28	0.233	12.88	0.057				
11.70	0.119	12.30	0.224	...end	...end				
11.72	0.128	12.32	0.215						
11.73	0.136	12.33	0.207						
11.75	0.144	12.35	0.198						
11.77	0.153	12.37	0.189						
11.78	0.162	12.38	0.180						
11.80	0.170	12.40	0.171						
11.82	0.179	12.42	0.162						
11.83	0.188	12.43	0.153						
11.85	0.197	12.45	0.144						
11.87	0.206	12.47	0.135						
11.88	0.215	12.48	0.125						
11.90	0.225	12.50	0.116						
11.92	0.235	12.52	0.107						
11.93	0.251	12.53	0.099						
11.95	0.273	12.55	0.091						
11.97	0.306	12.57	0.085						
11.98	0.349	12.58	0.080						
12.00	0.402	12.60	0.077						
12.02	0.460	12.62	0.074						
12.03	0.515	12.63	0.072						
12.05	0.558	12.65	0.071						
<b>12.07</b>	<b>0.580</b>	12.67	0.070						
12.08	0.578	12.68	0.069						
12.10	0.556	12.70	0.068						
12.12	0.517	12.72	0.067						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

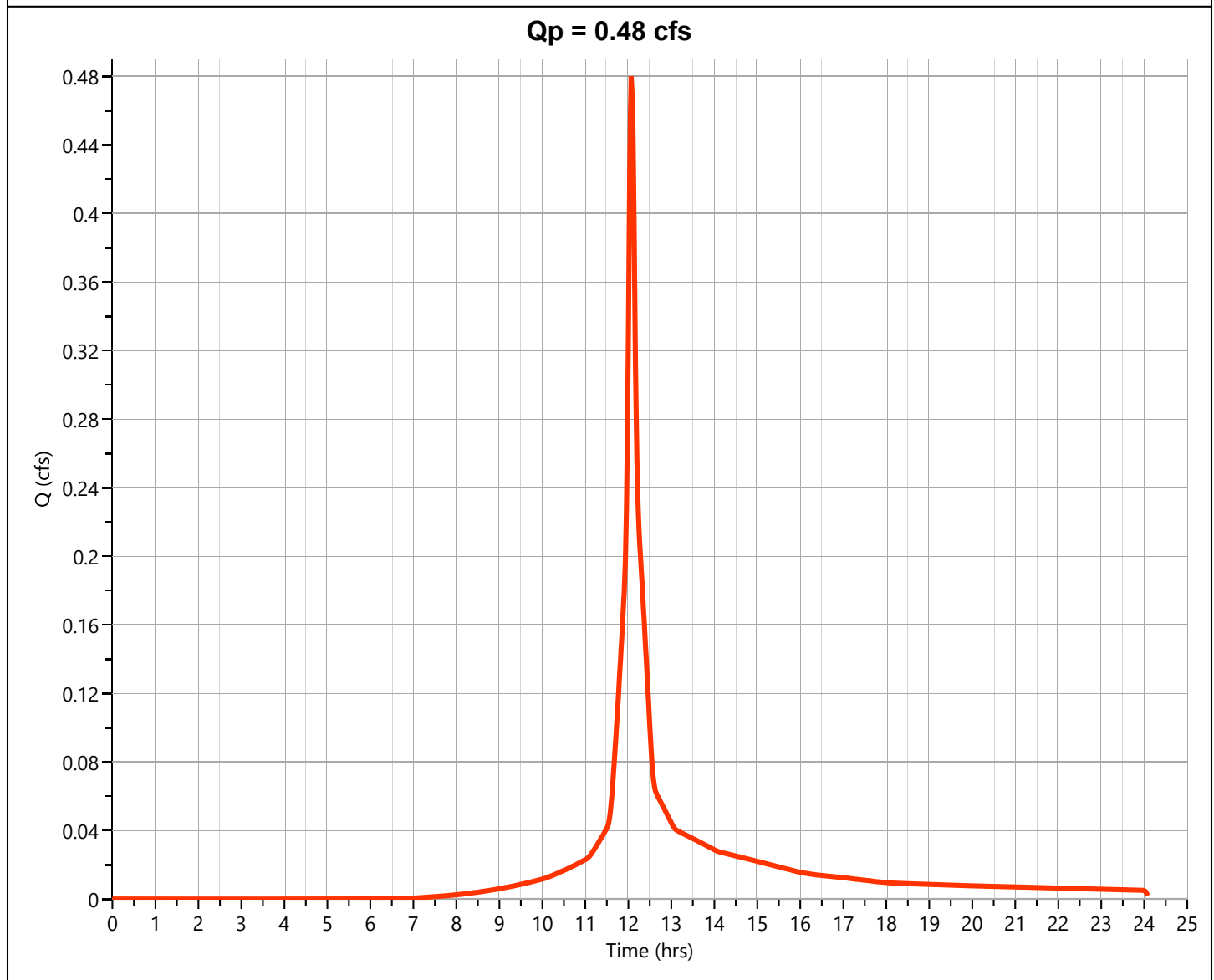
## Post SA-B.2

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.481 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Runoff Volume	= 1,493 cuft
Drainage Area	= 0.252 ac	Curve Number	= 91*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.47 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.153	98	C-PAVED
0.009	89	C-POROUS PAVERS
0.09	79	C-LAWN/LANDSCAPED
<b>0.252</b>	<b>91</b>	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-B.2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.58	0.051	12.18	0.281	12.78	0.055				
11.60	0.055	12.20	0.256	12.80	0.054				
11.62	0.060	12.22	0.238	12.82	0.053				
11.63	0.066	12.23	0.225	12.83	0.053				
11.65	0.072	12.25	0.215	12.85	0.052				
11.67	0.078	12.27	0.207	12.87	0.051				
11.68	0.084	12.28	0.200	12.88	0.050				
11.70	0.091	12.30	0.193	12.90	0.049				
11.72	0.097	12.32	0.185	12.92	0.049				
11.73	0.104	12.33	0.178	12.93	0.048				
11.75	0.111	12.35	0.170	...end	...end				
11.77	0.117	12.37	0.163						
11.78	0.124	12.38	0.155						
11.80	0.132	12.40	0.148						
11.82	0.139	12.42	0.140						
11.83	0.146	12.43	0.132						
11.85	0.154	12.45	0.124						
11.87	0.162	12.47	0.117						
11.88	0.170	12.48	0.109						
11.90	0.178	12.50	0.101						
11.92	0.187	12.52	0.093						
11.93	0.200	12.53	0.086						
11.95	0.218	12.55	0.079						
11.97	0.246	12.57	0.074						
11.98	0.282	12.58	0.070						
12.00	0.327	12.60	0.067						
12.02	0.376	12.62	0.064						
12.03	0.422	12.63	0.063						
12.05	0.460	12.65	0.062						
12.07	0.480	12.67	0.061						
<b>12.08</b>	<b>0.481</b>	12.68	0.060						
12.10	0.464	12.70	0.059						
12.12	0.433	12.72	0.058						
12.13	0.393	12.73	0.058						
12.15	0.352	12.75	0.057						
12.17	0.313	12.77	0.056						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

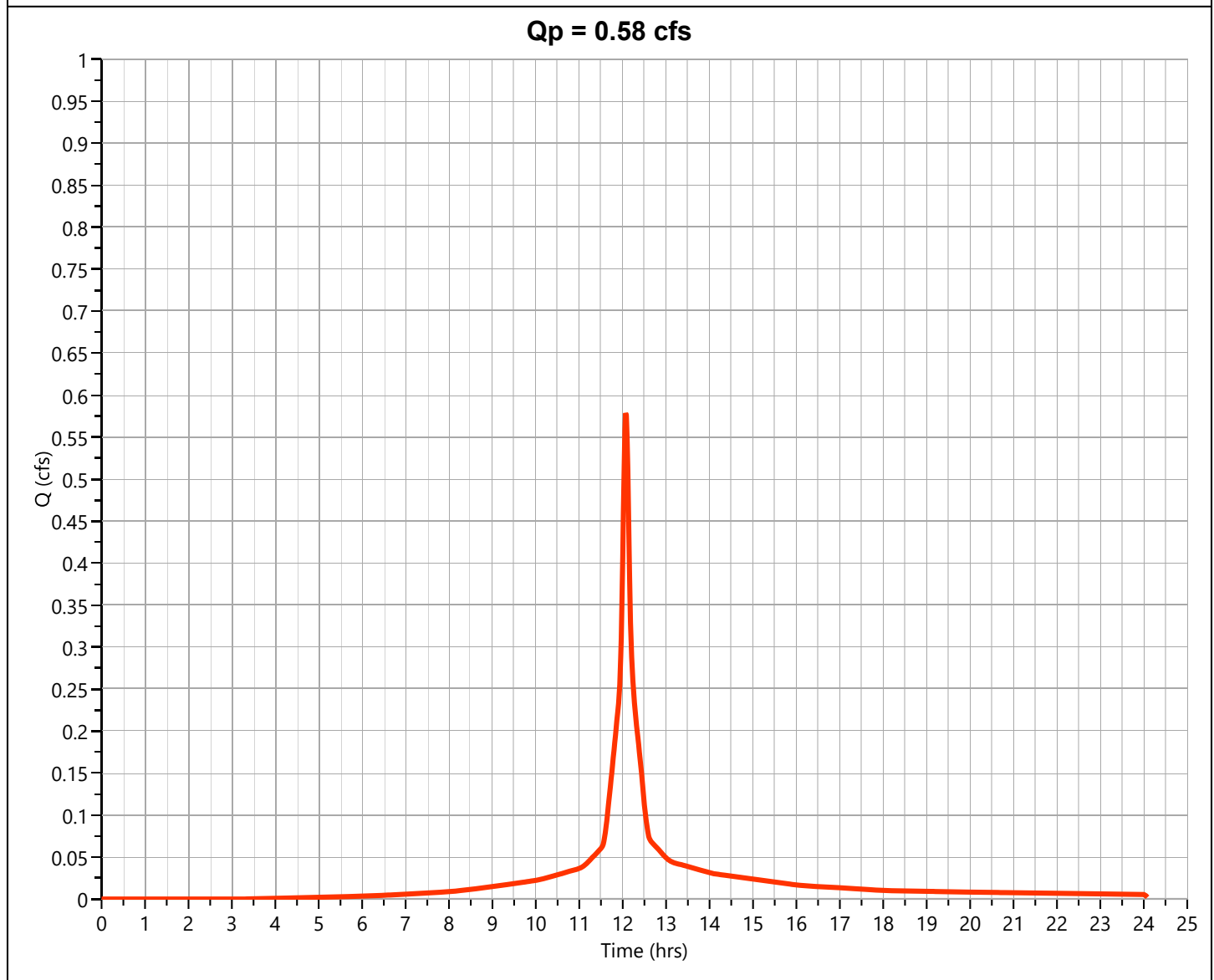
## Post SA B. 3 to B.6

## Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.579 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 1,886 cuft
Drainage Area	= 0.248 ac	Curve Number	= 96*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.47 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.215	98	C-PAVED
0.017	89	C-POROUS PAVERS
0.016	79	C-LAWN/LANDSCAPED
<b>0.248</b>	<b>96</b>	Weighted CN Method Employed



POST8

# Hydrograph Discharge Table

SA B. 3 to B.6

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.47	0.058	<b>12.07</b>	<b>0.579</b>	12.67	0.068				
11.48	0.059	12.08	0.576	12.68	0.067				
11.50	0.060	12.10	0.552	12.70	0.066				
11.52	0.061	12.12	0.512	12.72	0.065				
11.53	0.063	12.13	0.463	12.73	0.064				
11.55	0.065	12.15	0.411	12.75	0.063				
11.57	0.069	12.17	0.364	12.77	0.062				
11.58	0.073	12.18	0.326	12.78	0.061				
11.60	0.079	12.20	0.296	12.80	0.060				
11.62	0.086	12.22	0.274	12.82	0.059				
11.63	0.093	12.23	0.258	12.83	0.058				
11.65	0.101	12.25	0.246	12.85	0.057				
11.67	0.109	12.27	0.236	...end	...end				
11.68	0.118	12.28	0.228						
11.70	0.126	12.30	0.219						
11.72	0.134	12.32	0.210						
11.73	0.143	12.33	0.201						
11.75	0.151	12.35	0.193						
11.77	0.160	12.37	0.184						
11.78	0.169	12.38	0.175						
11.80	0.177	12.40	0.166						
11.82	0.186	12.42	0.157						
11.83	0.195	12.43	0.148						
11.85	0.204	12.45	0.140						
11.87	0.213	12.47	0.131						
11.88	0.222	12.48	0.122						
11.90	0.231	12.50	0.113						
11.92	0.241	12.52	0.104						
11.93	0.256	12.53	0.096						
11.95	0.278	12.55	0.089						
11.97	0.311	12.57	0.083						
11.98	0.354	12.58	0.078						
12.00	0.406	12.60	0.074						
12.02	0.463	12.62	0.072						
12.03	0.517	12.63	0.070						
12.05	0.558	12.65	0.069						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

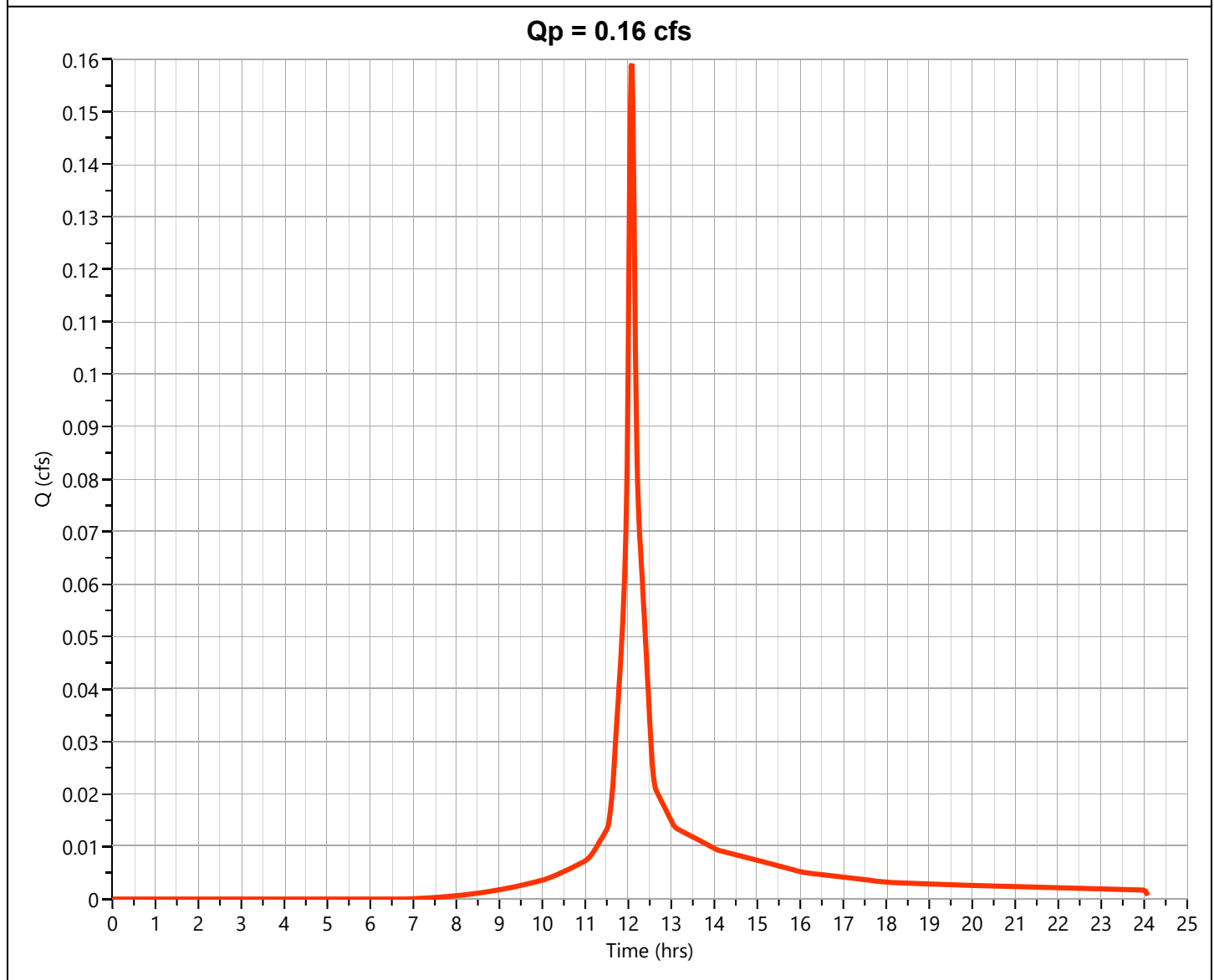
## Post SA-B.7(bypass)

## Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.159 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Runoff Volume	= 493 cuft
Drainage Area	= 0.086 ac	Curve Number	= 90.34*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.47 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.031	89	C-Roadway
0.035	98	C-Paved
0.02	79	C-Lawn/Landscaped
<b>0.086</b>	<b>90</b>	Weighted CN Method Employed



POST10



### Hydrograph Discharge Table

SA-B.7(bypass)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.58	0.017	12.18	0.093	12.78	0.018				
11.60	0.018	12.20	0.085	12.80	0.018				
11.62	0.019	12.22	0.079	12.82	0.018				
11.63	0.021	12.23	0.075	12.83	0.018				
11.65	0.023	12.25	0.072	12.85	0.017				
11.67	0.025	12.27	0.069	12.87	0.017				
11.68	0.027	12.28	0.067	12.88	0.017				
11.70	0.029	12.30	0.064	12.90	0.017				
11.72	0.031	12.32	0.062	12.92	0.016				
11.73	0.034	12.33	0.059	12.93	0.016				
11.75	0.036	12.35	0.057	12.95	0.016				
11.77	0.038	12.37	0.054	...end	...end				
11.78	0.040	12.38	0.052						
11.80	0.043	12.40	0.049						
11.82	0.045	12.42	0.047						
11.83	0.048	12.43	0.044						
11.85	0.050	12.45	0.042						
11.87	0.053	12.47	0.039						
11.88	0.055	12.48	0.036						
11.90	0.058	12.50	0.034						
11.92	0.061	12.52	0.031						
11.93	0.065	12.53	0.029						
11.95	0.072	12.55	0.027						
11.97	0.081	12.57	0.025						
11.98	0.093	12.58	0.023						
12.00	0.108	12.60	0.022						
12.02	0.124	12.62	0.022						
12.03	0.139	12.63	0.021						
12.05	0.152	12.65	0.021						
12.07	0.159	12.67	0.020						
<b>12.08</b>	<b>0.159</b>	12.68	0.020						
12.10	0.154	12.70	0.020						
12.12	0.143	12.72	0.020						
12.13	0.131	12.73	0.019						
12.15	0.117	12.75	0.019						
12.17	0.104	12.77	0.019						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

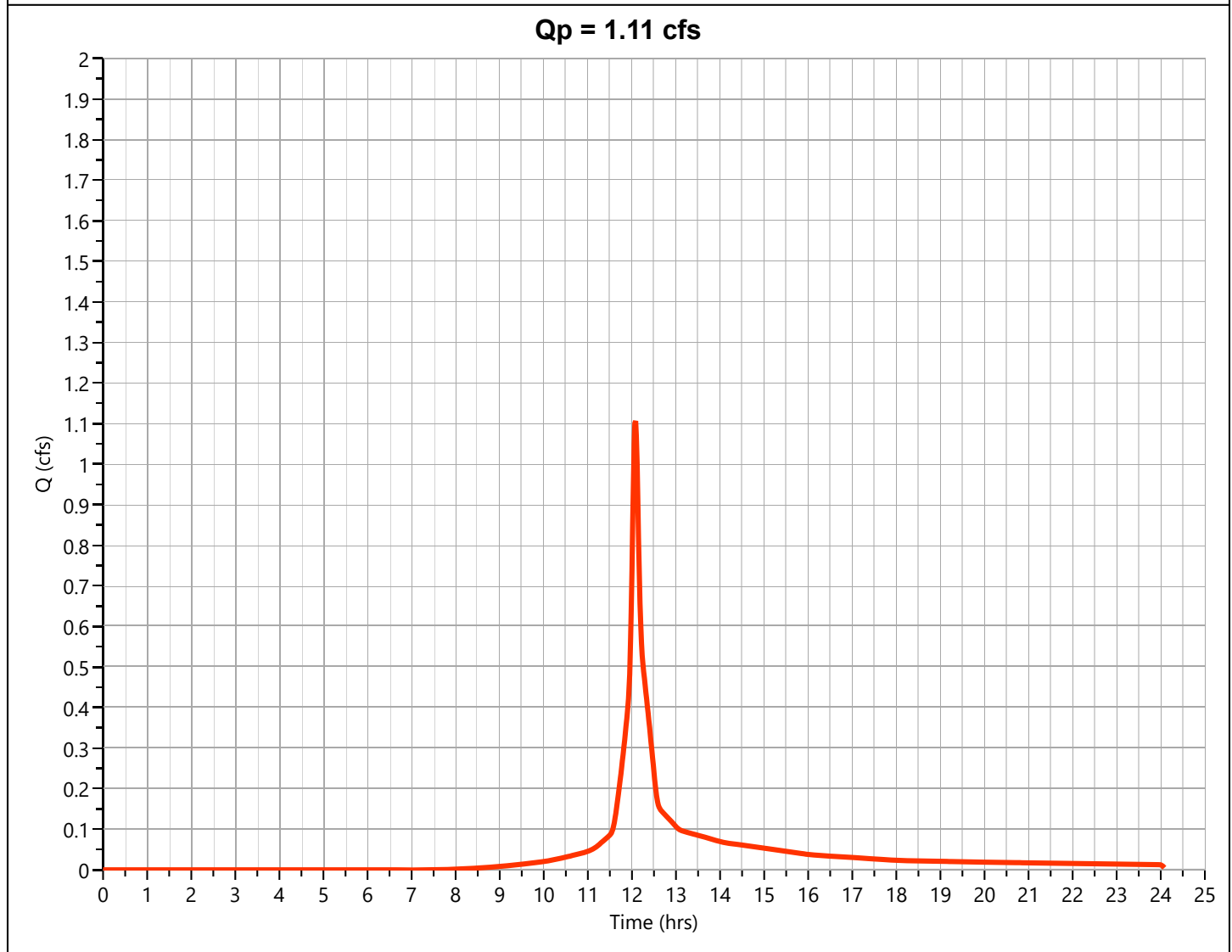
## Post SA-A (remaining)

## Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.106 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Runoff Volume	= 3,410 cuft
Drainage Area	= 0.649 ac	Curve Number	= 88.66*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.47 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.187	89	C-Roadway
0.239	94	C-Urban Area
0.039	98	C-Paved
0.012	89	C-Porous PAvers
0.172	79	C-Lawn/Landscaped
<b>0.649</b>	<b>89</b>	Weighted CN Method Employed



POST12

### Hydrograph Discharge Table

SA-A (remaining)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.60	0.116	12.20	0.601	12.80	0.130				
11.62	0.127	12.22	0.559	12.82	0.128				
11.63	0.139	12.23	0.529	12.83	0.126				
11.65	0.151	12.25	0.506	12.85	0.124				
11.67	0.165	12.27	0.488	12.87	0.122				
11.68	0.178	12.28	0.472	12.88	0.120				
11.70	0.193	12.30	0.455	12.90	0.118				
11.72	0.207	12.32	0.438	12.92	0.116				
11.73	0.222	12.33	0.421	12.93	0.114				
11.75	0.237	12.35	0.404	12.95	0.113				
11.77	0.253	12.37	0.386	12.97	0.111				
11.78	0.269	12.38	0.368	...end	...end				
11.80	0.285	12.40	0.350						
11.82	0.302	12.42	0.332						
11.83	0.319	12.43	0.314						
11.85	0.336	12.45	0.296						
11.87	0.354	12.47	0.278						
11.88	0.373	12.48	0.259						
11.90	0.391	12.50	0.240						
11.92	0.413	12.52	0.222						
11.93	0.443	12.53	0.205						
11.95	0.487	12.55	0.189						
11.97	0.549	12.57	0.177						
11.98	0.634	12.58	0.167						
12.00	0.737	12.60	0.159						
12.02	0.851	12.62	0.154						
12.03	0.961	12.63	0.150						
12.05	1.050	12.65	0.147						
12.07	1.101	12.67	0.145						
<b>12.08</b>	<b>1.106</b>	12.68	0.143						
12.10	1.070	12.70	0.142						
12.12	1.002	12.72	0.140						
12.13	0.913	12.73	0.138						
12.15	0.818	12.75	0.136						
12.17	0.730	12.77	0.134						
12.18	0.657	12.78	0.132						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PROP. R.G. #1

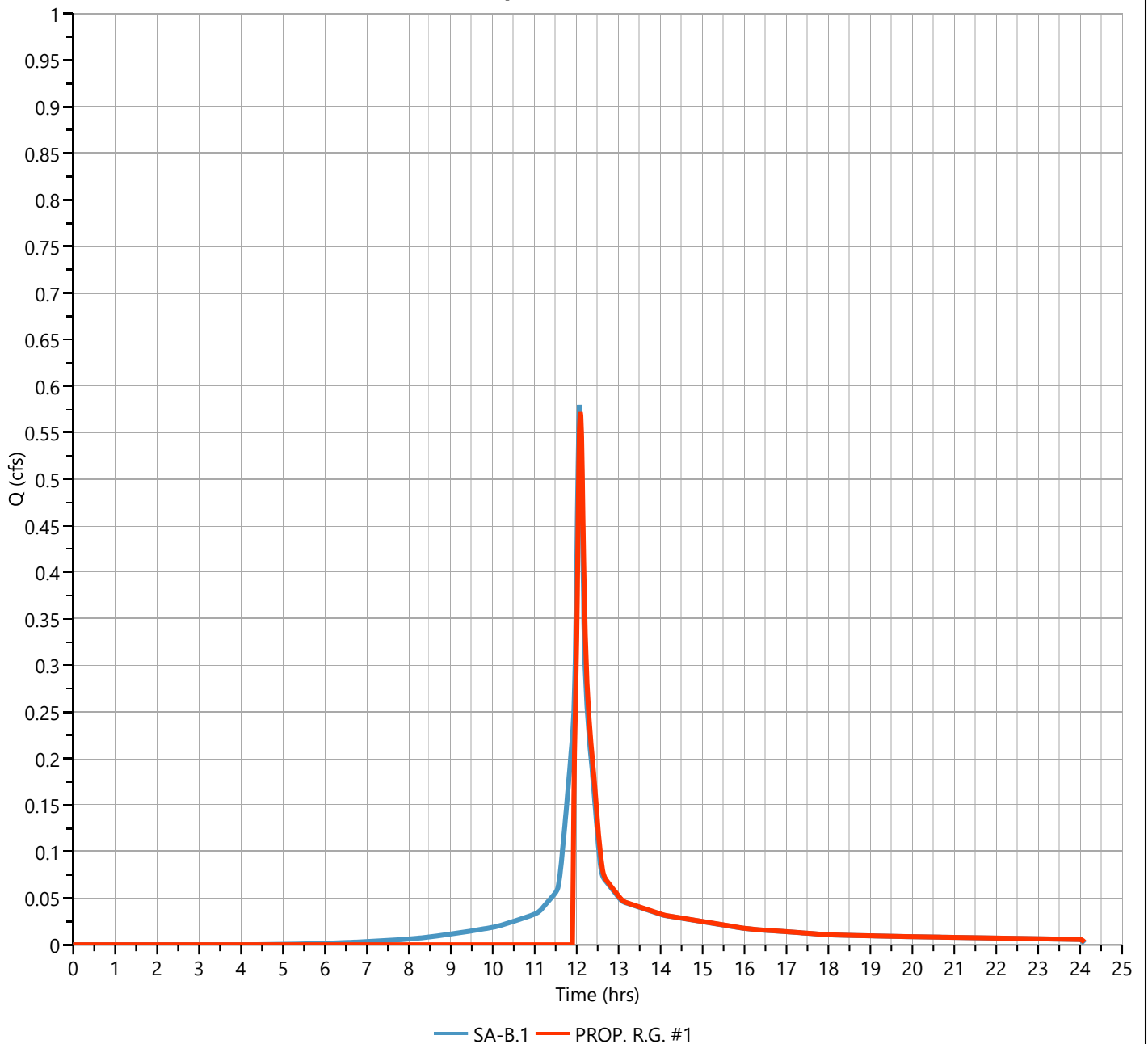
## Hyd. No. 6

Hydrograph Type	= Pond Route	Peak Flow	= 0.572 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,375 cuft
Inflow Hydrograph	= 1 - SA-B.1	Max. Elevation	= 75.36 ft
Pond Name	= PROP. RAINGARDEN #1	Max. Storage	= 512 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 54 min

**Qp = 0.57 cfs**



# Hydrograph Discharge Table

PROP. R.G. #1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.92	0.080	12.52	0.122						
11.93	0.157	12.53	0.113						
11.95	0.207	12.55	0.105						
11.97	0.246	12.57	0.097						
11.98	0.285	12.58	0.090						
12.00	0.328	12.60	0.085						
12.02	0.377	12.62	0.080						
12.03	0.456	12.63	0.077						
12.05	0.514	12.65	0.074						
12.07	0.554	12.67	0.072						
<b>12.08</b>	<b>0.572</b>	12.68	0.071						
12.10	0.568	12.70	0.070						
12.12	0.545	12.72	0.069						
12.13	0.507	12.73	0.068						
12.15	0.460	12.75	0.067						
12.17	0.412	12.77	0.066						
12.18	0.371	12.78	0.065						
12.20	0.345	12.80	0.064						
12.22	0.319	12.82	0.063						
12.23	0.297	12.83	0.062						
12.25	0.278	12.85	0.061						
12.27	0.263	12.87	0.060						
12.28	0.251	12.88	0.059						
12.30	0.240	12.90	0.058						
12.32	0.231	12.92	0.057						
12.33	0.221	...end	...end						
12.35	0.212								
12.37	0.203								
12.38	0.194								
12.40	0.185								
12.42	0.176								
12.43	0.167								
12.45	0.158								
12.47	0.149								
12.48	0.140								
12.50	0.131								

# Pond Report

Project Name:

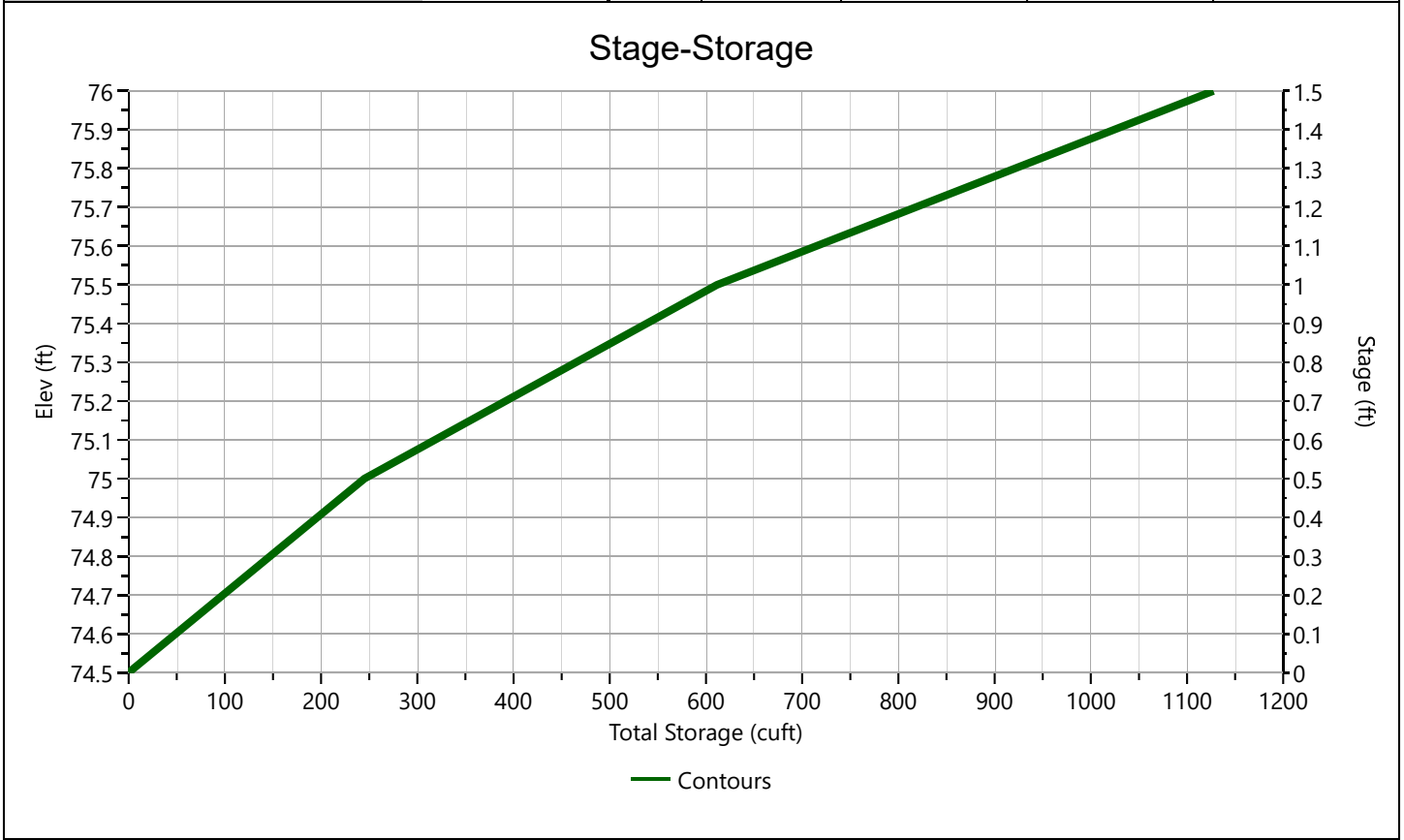
Hydrology Studio v 3.0.0.26

01-18-2023

## PROP. RAINGARDEN #1

## Stage-Storage

User Defined Contours		Stage / Storage Table				
Description	Input	Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
Bottom Elevation, ft	74.50	0.00	74.50	370	0.000	0.000
Voids (%)	100.00	0.50	75.00	610	245	245
Volume Calc	Ave End Area	1.00	75.50	856	367	612
		1.50	76.00	1,208	516	1,128



# Pond Report

Project Name:

Hydrology Studio v 3.0.0.26

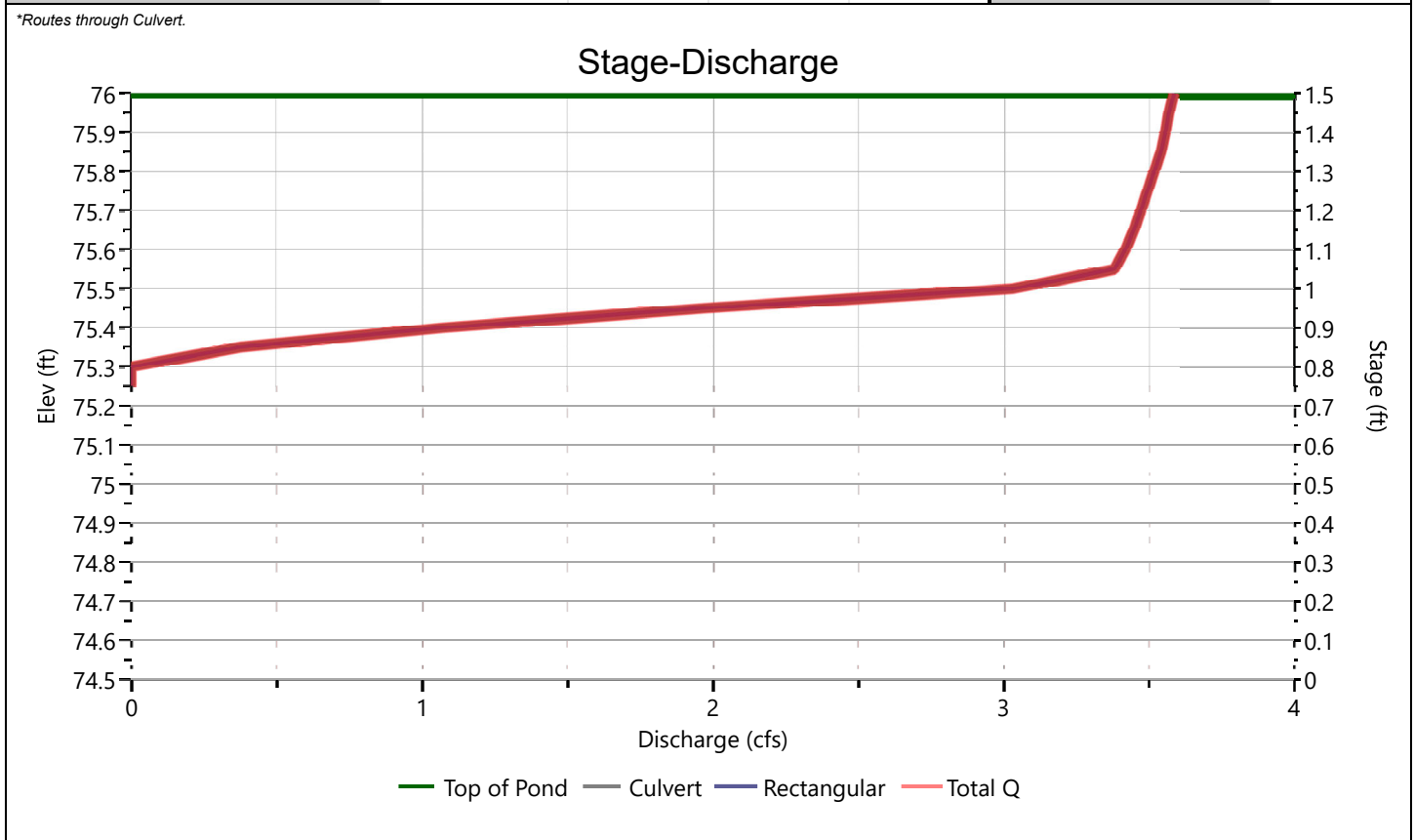
01-18-2023

## PROP. RAINGARDEN #1

## Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Perforated Riser
		1	2	3	
Rise, in	8				Hole Diameter, in
Span, in	8				No. holes
No. Barrels	1				Invert Elevation, ft
Invert Elevation, ft	71.07				Height, ft
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co
Length, ft	7				
Barrel Slope, %	1				
N-Value, n	0.012				
Weirs	Riser*	Weirs			Ancillary
		1*	2	3	
Shape / Type		Rectangular			Exfiltration, in/hr
Crest Elevation, ft		75.3			
Crest Length, ft		10.26			
Angle, deg					
Weir Coefficient, Cw		3.3			

\*Routes through Culvert.



# Pond Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## PROP. RAINGARDEN #1

## Stage-Storage-Discharge Summary

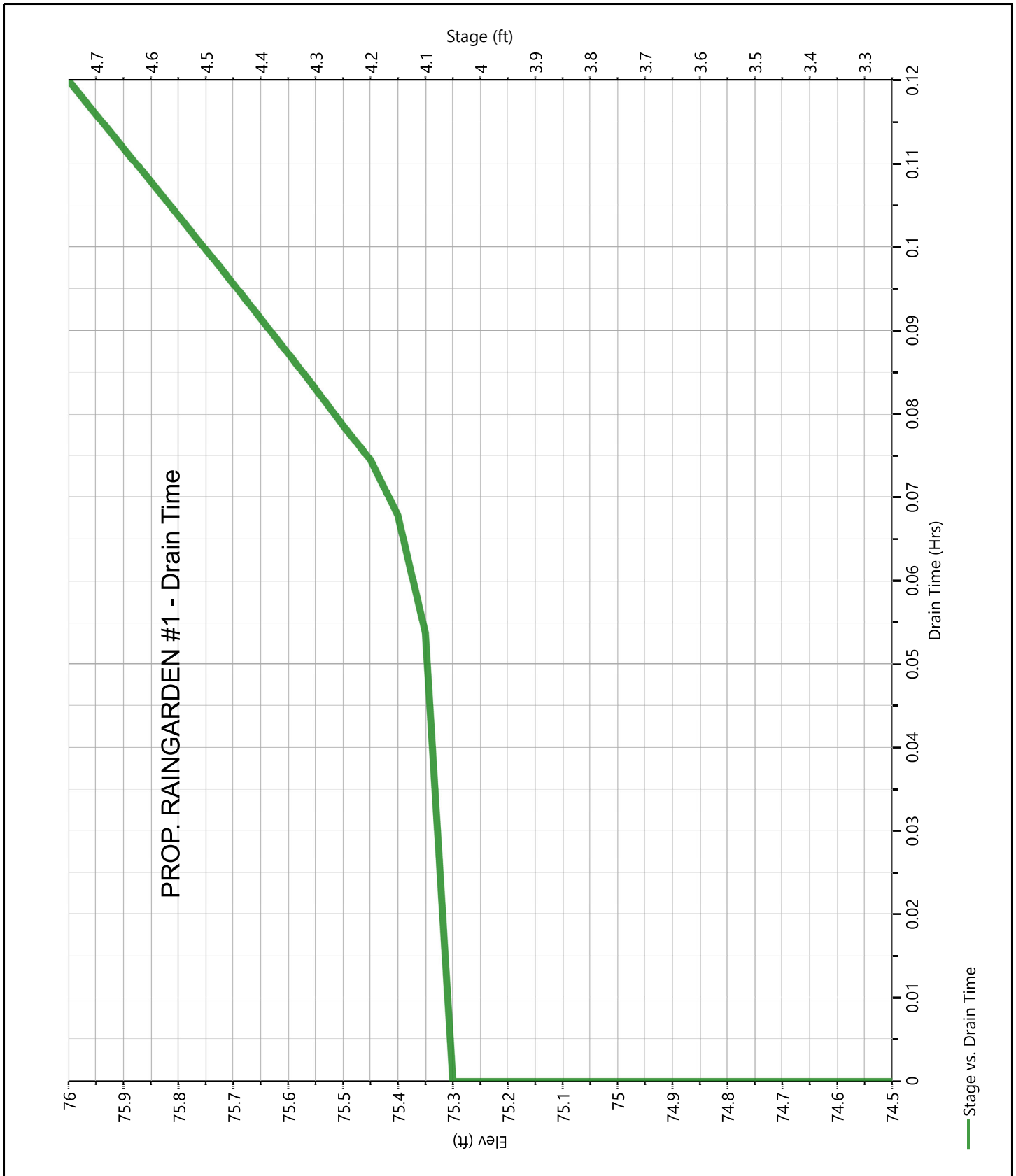
Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	74.50	0.000	0.000					0.000						0.000
0.50	75.00	245	0.000 ic					0.000						0.000
1.00	75.50	612	3.028 ic					3.028						3.028
1.50	76.00	1,128	3.584 ic					3.584 s						3.584

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir



## PROP. RAINGARDEN #1

## Pond Drawdown



PROP. RAINGARDEN #1 - Drain Time

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PRO R.G. #2

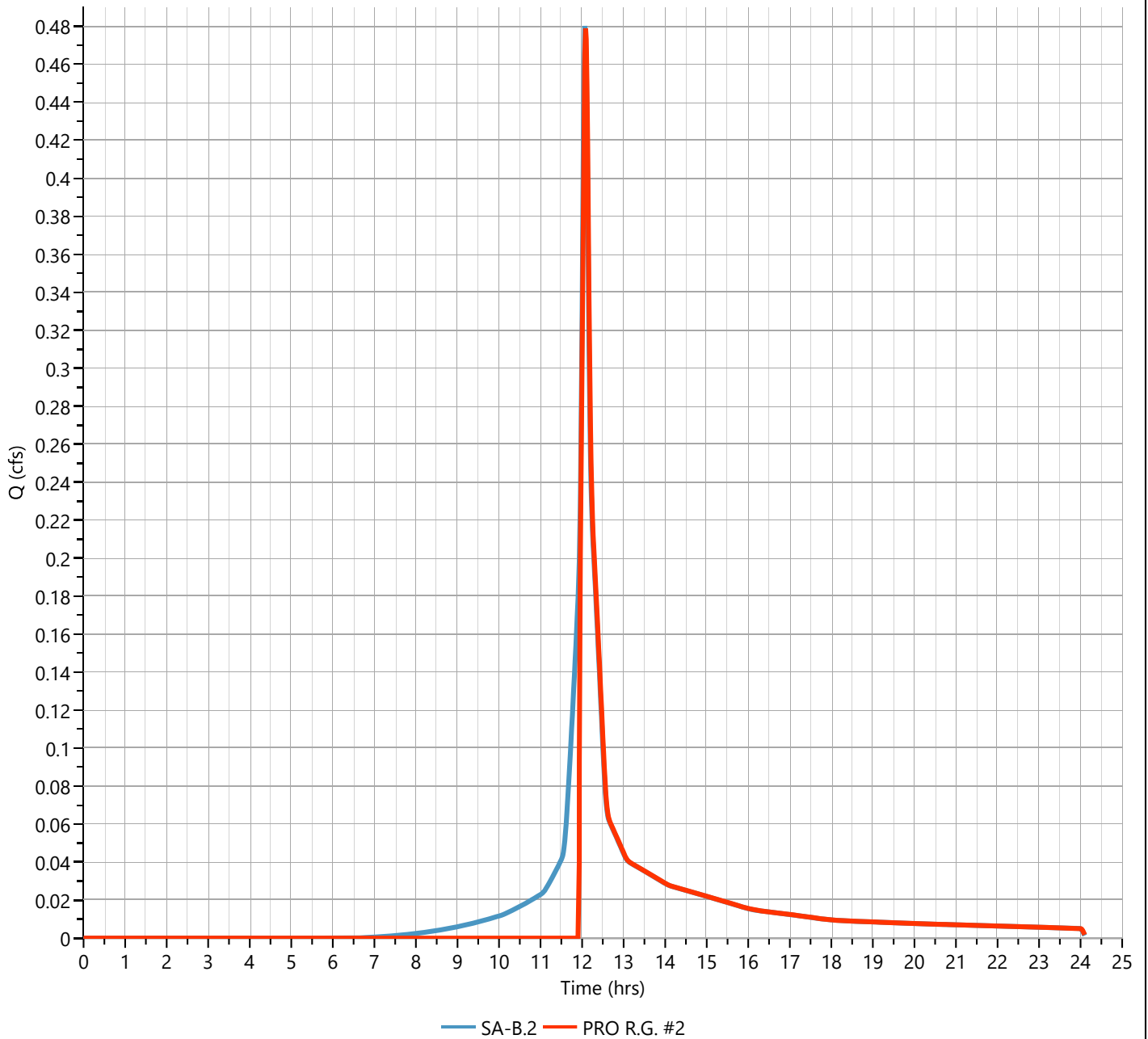
## Hyd. No. 7

Hydrograph Type	= Pond Route	Peak Flow	= 0.479 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,168 cuft
Inflow Hydrograph	= 2 - SA-B.2	Max. Elevation	= 77.34 ft
Pond Name	= PRO RAINGARDEN #2	Max. Storage	= 343 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 42 min

**Qp = 0.48 cfs**



POST20

# Hydrograph Discharge Table

PRO R.G. #2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.95	0.189	12.55	0.084						
11.97	0.227	12.57	0.078						
11.98	0.260	12.58	0.073						
12.00	0.299	12.60	0.069						
12.02	0.345	12.62	0.066						
12.03	0.393	12.63	0.064						
12.05	0.435	12.65	0.062						
12.07	0.466	12.67	0.061						
<b>12.08</b>	<b>0.479</b>	12.68	0.061						
12.10	0.473	12.70	0.060						
12.12	0.451	12.72	0.059						
12.13	0.418	12.73	0.058						
12.15	0.378	12.75	0.057						
12.17	0.337	12.77	0.056						
12.18	0.302	12.78	0.056						
12.20	0.273	12.80	0.055						
12.22	0.250	12.82	0.054						
12.23	0.234	12.83	0.053						
12.25	0.221	12.85	0.052						
12.27	0.212	12.87	0.052						
12.28	0.204	12.88	0.051						
12.30	0.197	12.90	0.050						
12.32	0.190	12.92	0.049						
12.33	0.182	12.93	0.048						
12.35	0.175	12.95	0.047						
12.37	0.168	...end	...end						
12.38	0.160								
12.40	0.152								
12.42	0.145								
12.43	0.137								
12.45	0.129								
12.47	0.122								
12.48	0.114								
12.50	0.106								
12.52	0.098								
12.53	0.091								

# Pond Report

Project Name:

Hydrology Studio v 3.0.0.26

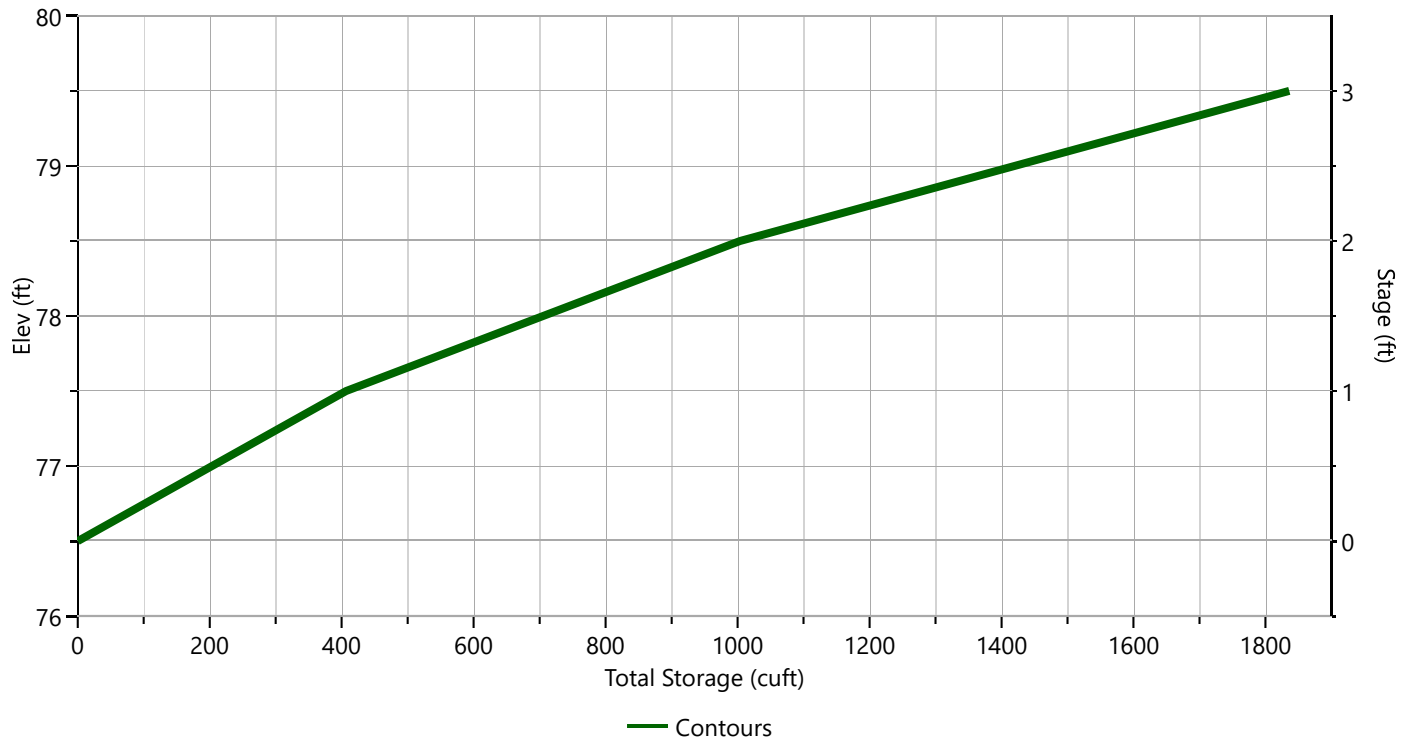
01-18-2023

## PRO RAINGARDEN #2

## Stage-Storage

User Defined Contours		Stage / Storage Table				
Description	Input	Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
Bottom Elevation, ft	76.50	0.00	76.50	320	0.000	0.000
Voids (%)	100.00	1.00	77.50	500	407	407
Volume Calc	Conic	2.00	78.50	700	597	1,004
		3.00	79.50	972	832	1,836

### Stage-Storage



POST22

# Pond Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

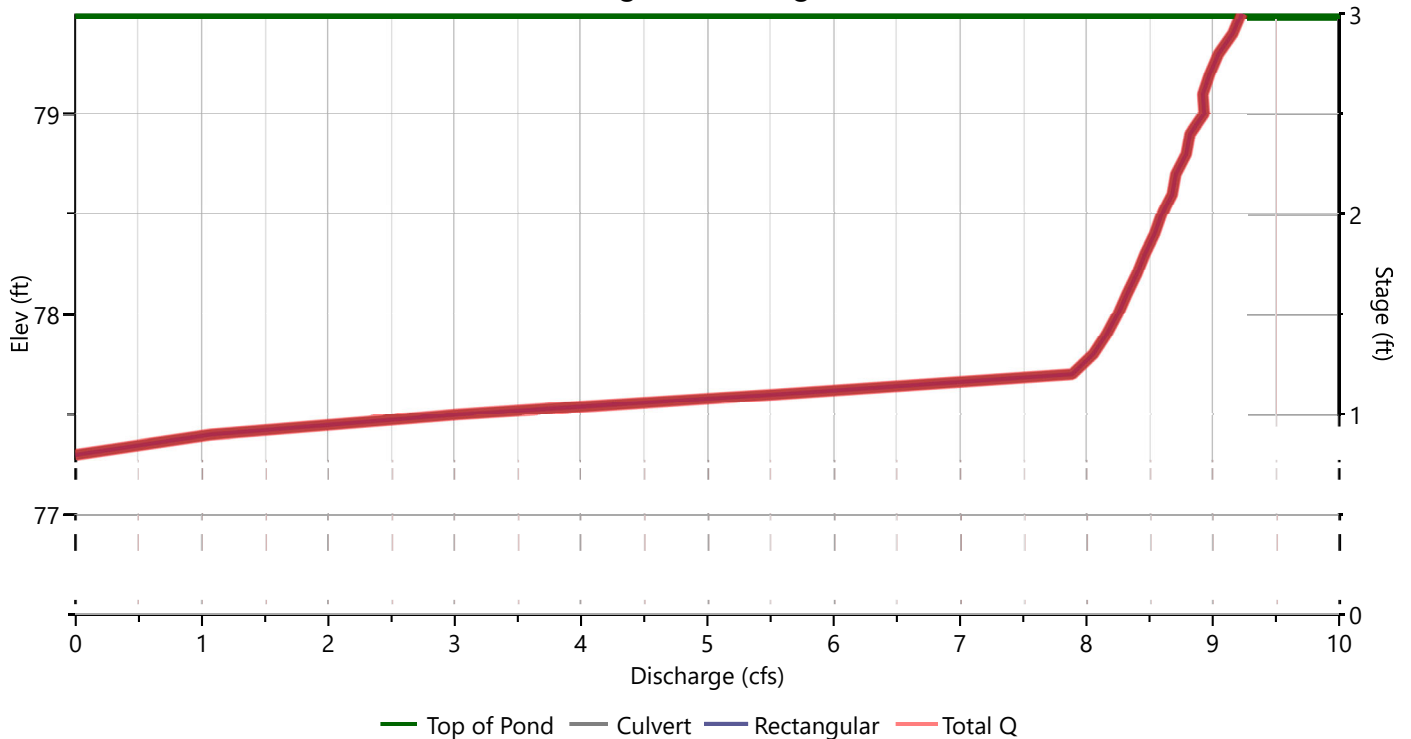
## PRO RAINGARDEN #2

## Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Perforated Riser
		1	2	3	
Rise, in	12				Hole Diameter, in
Span, in	12				No. holes
No. Barrels	1				Invert Elevation, ft
Invert Elevation, ft	71.70				Height, ft
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co
Length, ft	76				
Barrel Slope, %	1				
N-Value, n	0.012				
Weirs	Riser*	Weirs			Ancillary
		1*	2	3	
Shape / Type		Rectangular			Exfiltration, in/hr
Crest Elevation, ft		77.3			
Crest Length, ft		10.26			
Angle, deg					
Weir Coefficient, Cw		3.3			

\*Routes through Culvert.

### Stage-Discharge



# Pond Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## PRO RAINGARDEN #2

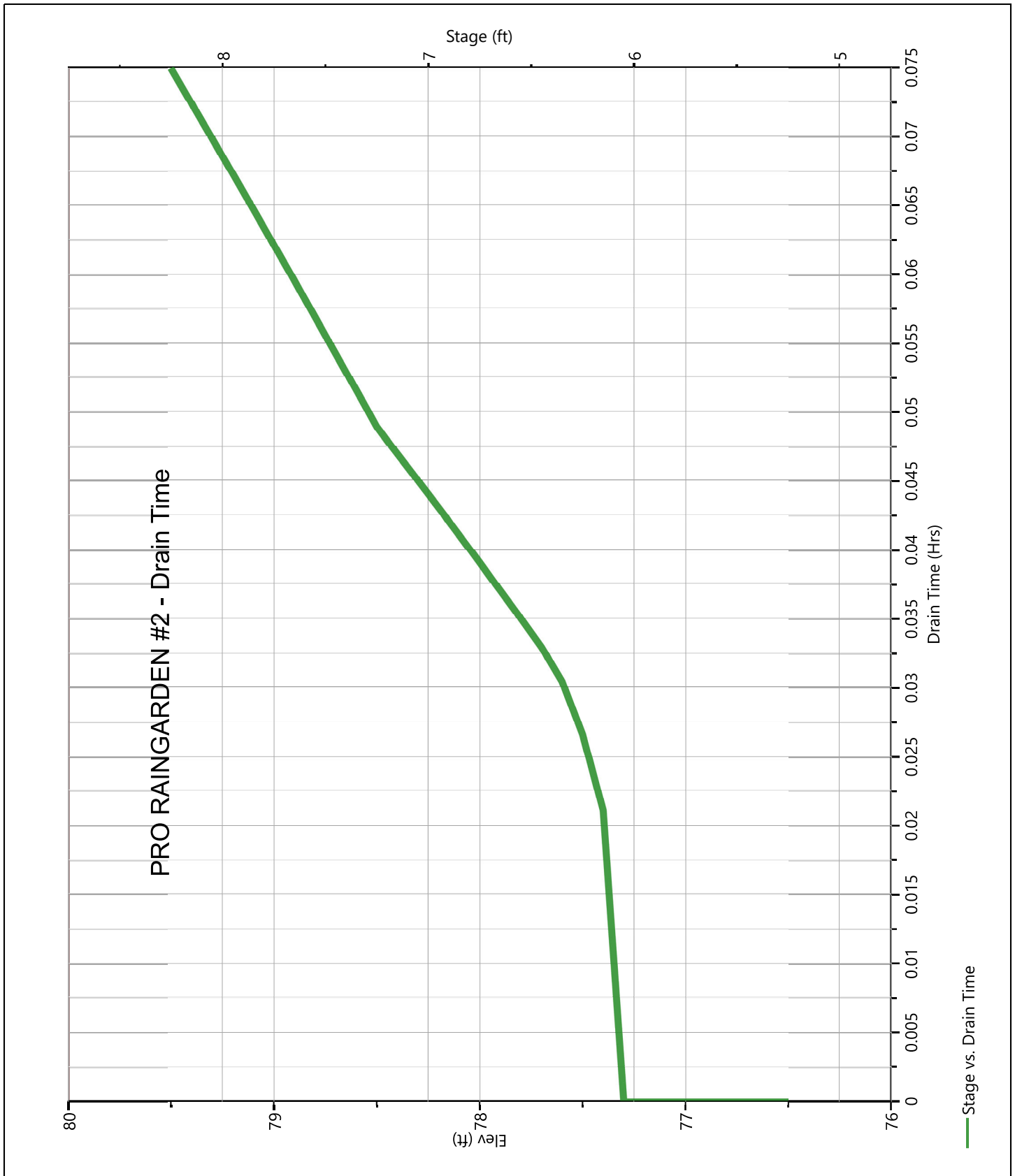
## Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	76.50	0.000	0.000					0.000						0.000
1.00	77.50	407	3.028 oc					3.028						3.028
2.00	78.50	1,004	8.596 oc					8.596 s						8.596
3.00	79.50	1,836	9.226 oc					9.226 s						9.226

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

## PRO RAINGARDEN #2

## Pond Drawdown



PRO RAINGARDEN #2 - Drain Time

# Hydrograph Report

Project Name:

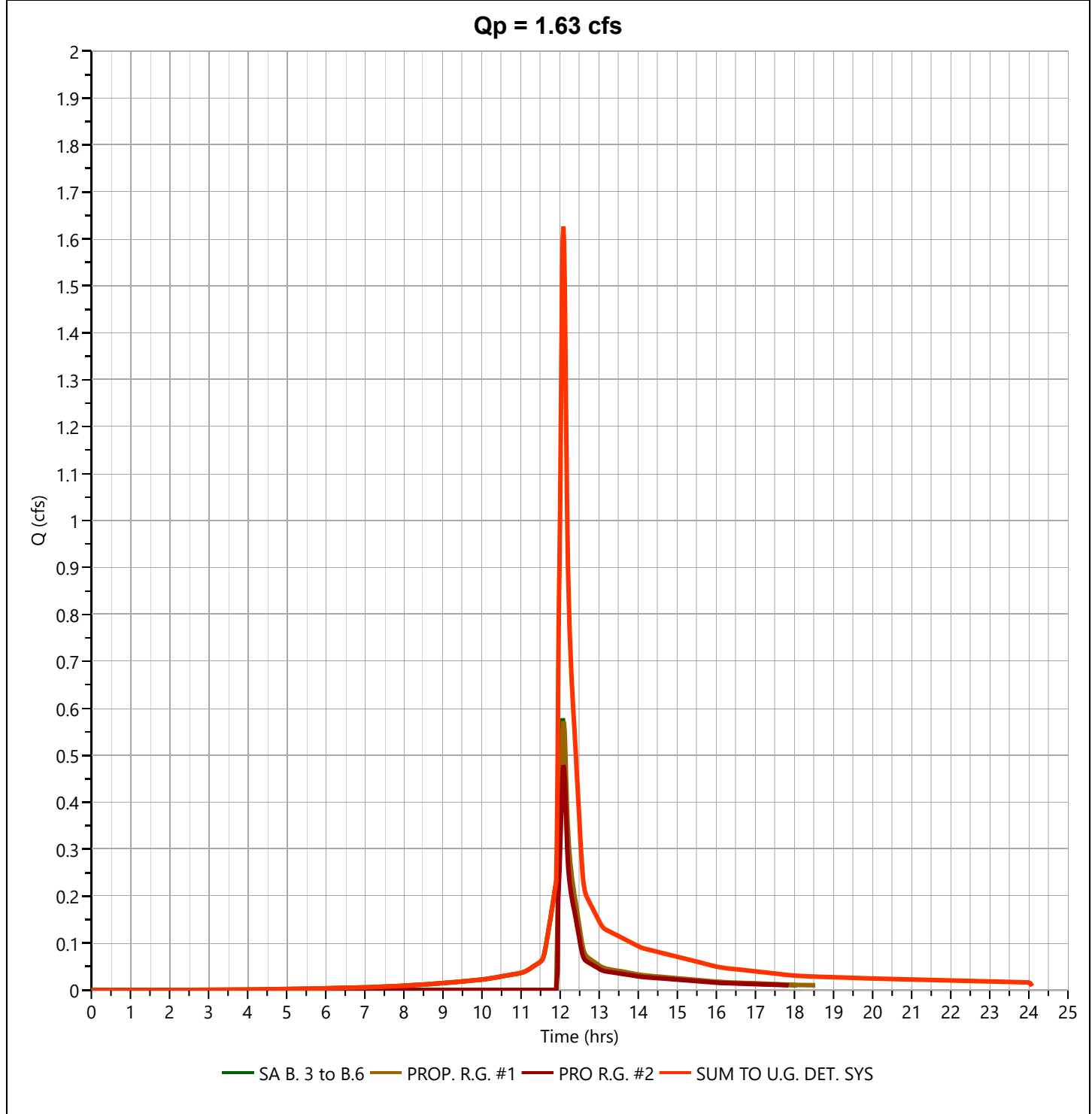
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM TO U.G. DET. SYS

## Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 1.626 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 4,429 cuft
Inflow Hydrographs	= 3, 6, 7	Total Contrib. Area	= 0.248 ac





# Hydrograph Discharge Table

SUM TO U.G. DET. SYS

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.78	0.169	12.38	0.529						
11.80	0.177	12.40	0.504						
11.82	0.186	12.42	0.478						
11.83	0.195	12.43	0.453						
11.85	0.204	12.45	0.427						
11.87	0.213	12.47	0.401						
11.88	0.222	12.48	0.376						
11.90	0.231	12.50	0.350						
11.92	0.322	12.52	0.324						
11.93	0.453	12.53	0.299						
11.95	0.674	12.55	0.277						
11.97	0.784	12.57	0.257						
11.98	0.898	12.58	0.241						
12.00	1.033	12.60	0.228						
12.02	1.185	12.62	0.218						
12.03	1.365	12.63	0.211						
12.05	1.507	12.65	0.206						
12.07	1.598	12.67	0.201						
<b>12.08</b>	<b>1.626</b>	12.68	0.198						
12.10	1.593	12.70	0.195						
12.12	1.508	12.72	0.192						
12.13	1.387	12.73	0.190						
12.15	1.249	12.75	0.187						
12.17	1.113	12.77	0.184						
12.18	0.998	12.78	0.182						
12.20	0.914	12.80	0.179						
12.22	0.844	12.82	0.176						
12.23	0.788	12.83	0.173						
12.25	0.745	12.85	0.171						
12.27	0.711	12.87	0.168						
12.28	0.683	12.88	0.165						
12.30	0.656	12.90	0.163						
12.32	0.631	...end	...end						
12.33	0.605								
12.35	0.580								
12.37	0.555								

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## PROP. U/G DET BASIN

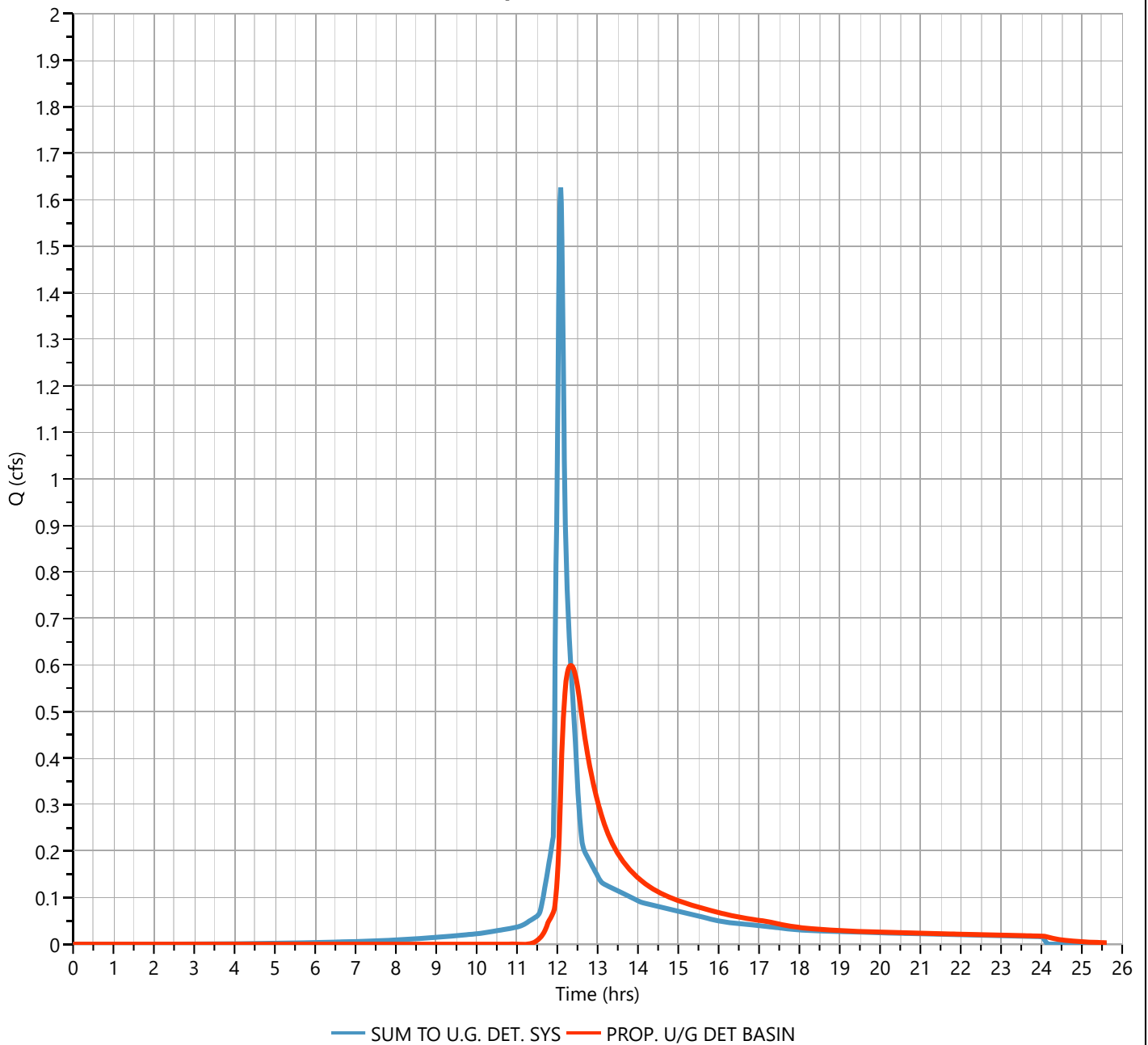
## Hyd. No. 9

Hydrograph Type	= Pond Route	Peak Flow	= 0.600 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.33 hrs
Time Interval	= 1 min	Hydrograph Volume	= 4,107 cuft
Inflow Hydrograph	= 8 - SUM TO U.G. DET. SYS	Max. Elevation	= 72.83 ft
Pond Name	= PROP U/G DET SYS	Max. Storage	= 1,457 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 56 min

**Qp = 0.60 cfs**



### Hydrograph Discharge Table

PROP. U/G DET BASIN

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.87	0.062	12.47	0.571	13.07	0.285	13.67	0.174	14.27	0.125
11.88	0.065	12.48	0.563	13.08	0.281	13.68	0.172	14.28	0.124
11.90	0.068	12.50	0.555	13.10	0.276	13.70	0.170	14.30	0.123
11.92	0.072	12.52	0.546	13.12	0.271	13.72	0.168	14.32	0.122
11.93	0.079	12.53	0.537	13.13	0.267	13.73	0.166	14.33	0.121
11.95	0.090	12.55	0.527	13.15	0.262	13.75	0.165	14.35	0.120
11.97	0.104	12.57	0.517	13.17	0.258	13.77	0.163	14.37	0.119
11.98	0.122	12.58	0.506	13.18	0.254	13.78	0.161	14.38	0.118
12.00	0.143	12.60	0.495	13.20	0.250	13.80	0.160	14.40	0.117
12.02	0.169	12.62	0.485	13.22	0.246	13.82	0.158	14.42	0.116
12.03	0.201	12.63	0.474	13.23	0.242	13.83	0.157	14.43	0.115
12.05	0.238	12.65	0.464	13.25	0.239	13.85	0.155	14.45	0.115
12.07	0.280	12.67	0.454	13.27	0.235	13.87	0.154	14.47	0.114
12.08	0.325	12.68	0.444	13.28	0.232	13.88	0.152	14.48	0.113
12.10	0.370	12.70	0.435	13.30	0.228	13.90	0.151	14.50	0.112
12.12	0.414	12.72	0.426	13.32	0.225	13.92	0.149	14.52	0.111
12.13	0.453	12.73	0.417	13.33	0.222	13.93	0.148	14.53	0.111
12.15	0.487	12.75	0.408	13.35	0.219	13.95	0.147	14.55	0.110
12.17	0.514	12.77	0.400	13.37	0.216	13.97	0.145	14.57	0.109
12.18	0.535	12.78	0.392	13.38	0.213	13.98	0.144	14.58	0.108
12.20	0.552	12.80	0.384	13.40	0.210	14.00	0.143	14.60	0.108
12.22	0.565	12.82	0.377	13.42	0.208	14.02	0.141	14.62	0.107
12.23	0.576	12.83	0.369	13.43	0.205	14.03	0.140	14.63	0.106
12.25	0.584	12.85	0.362	13.45	0.202	14.05	0.139	14.65	0.106
12.27	0.590	12.87	0.355	13.47	0.200	14.07	0.138	14.67	0.105
12.28	0.594	12.88	0.349	13.48	0.197	14.08	0.137	14.68	0.104
12.30	0.597	12.90	0.342	13.50	0.195	14.10	0.135	14.70	0.104
12.32	0.599	12.92	0.336	13.52	0.192	14.12	0.134	14.72	0.103
<b>12.33</b>	<b>0.600</b>	12.93	0.330	13.53	0.190	14.13	0.133	14.73	0.102
12.35	0.600	12.95	0.324	13.55	0.188	14.15	0.132	14.75	0.102
12.37	0.598	12.97	0.318	13.57	0.186	14.17	0.131	14.77	0.101
12.38	0.596	12.98	0.312	13.58	0.184	14.18	0.130	14.78	0.101
12.40	0.593	13.00	0.306	13.60	0.182	14.20	0.129	14.80	0.100
12.42	0.588	13.02	0.301	13.62	0.180	14.22	0.128	14.82	0.099
12.43	0.583	13.03	0.296	13.63	0.178	14.23	0.127	14.83	0.099
12.45	0.577	13.05	0.291	13.65	0.176	14.25	0.126	14.85	0.098

Hydrograph Discharge Table, cont'd

PROP. U/G DET BASIN

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
14.87	0.098	15.47	0.080	16.07	0.066				
14.88	0.097	15.48	0.080	16.08	0.066				
14.90	0.097	15.50	0.079	16.10	0.066				
14.92	0.096	15.52	0.079	16.12	0.065				
14.93	0.096	15.53	0.078	16.13	0.065				
14.95	0.095	15.55	0.078	16.15	0.065				
14.97	0.095	15.57	0.078	16.17	0.064				
14.98	0.094	15.58	0.077	16.18	0.064				
15.00	0.094	15.60	0.077	16.20	0.064				
15.02	0.093	15.62	0.077	16.22	0.063				
15.03	0.093	15.63	0.076	16.23	0.063				
15.05	0.092	15.65	0.076	16.25	0.063				
15.07	0.092	15.67	0.075	16.27	0.062				
15.08	0.091	15.68	0.075	16.28	0.062				
15.10	0.091	15.70	0.075	16.30	0.062				
15.12	0.090	15.72	0.074	16.32	0.061				
15.13	0.090	15.73	0.074	16.33	0.061				
15.15	0.089	15.75	0.073	16.35	0.061				
15.17	0.089	15.77	0.073	16.37	0.061				
15.18	0.088	15.78	0.073	16.38	0.060				
15.20	0.088	15.80	0.072	16.40	0.060				
15.22	0.087	15.82	0.072	...end	...end				
15.23	0.087	15.83	0.072						
15.25	0.086	15.85	0.071						
15.27	0.086	15.87	0.071						
15.28	0.085	15.88	0.070						
15.30	0.085	15.90	0.070						
15.32	0.084	15.92	0.070						
15.33	0.084	15.93	0.069						
15.35	0.083	15.95	0.069						
15.37	0.083	15.97	0.069						
15.38	0.082	15.98	0.068						
15.40	0.082	16.00	0.068						
15.42	0.082	16.02	0.068						
15.43	0.081	16.03	0.067						
15.45	0.081	16.05	0.067						

# Pond Report

Project Name:

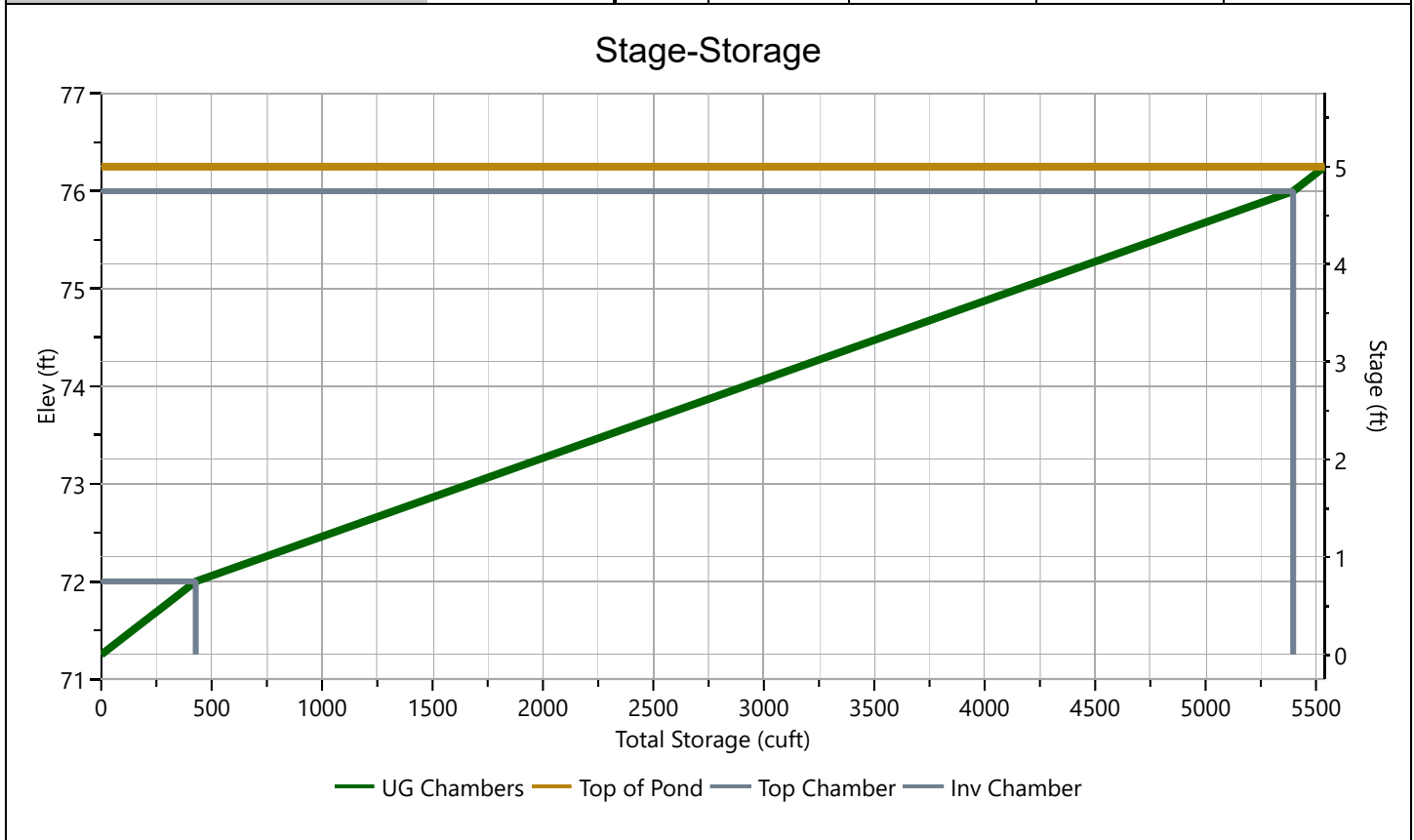
Hydrology Studio v 3.0.0.26

01-18-2023

## PROP U/G DET SYS

## Stage-Storage

Underground Chambers		Stage / Storage Table				
Description	Input	Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
Invert Elev Down, ft	72.00	0.00	71.25	1,425	0.000	0.000
Chamber Rise, ft	4.00	0.25	71.50	1,425	143	143
Chamber Shape	Box	0.50	71.75	1,425	143	285
Chamber Span, ft	4.00	0.75	72.00	1,425	143	428
Barrel Length, ft	56.00	1.00	72.25	1,425	311	738
No. Barrels	5	1.25	72.50	1,425	311	1,049
Barrel Slope, %	0.00	1.50	72.75	1,425	311	1,359
Headers, y/n	No	1.75	73.00	1,425	311	1,670
Stone Encasement, y/n	Yes	2.00	73.25	1,425	311	1,980
Encasement Bottom Elevation, ft	71.25	2.25	73.50	1,425	311	2,291
Encasement Width per Chamber, ft	5.00	2.50	73.75	1,425	311	2,602
Encasement Depth, ft	5.00	2.75	74.00	1,425	311	2,912
Encasement Voids, %	40.00	3.00	74.25	1,425	311	3,223
		3.25	74.50	1,425	311	3,533
		3.50	74.75	1,425	311	3,844
		3.75	75.00	1,425	311	4,154
		4.00	75.25	1,425	311	4,465
		4.25	75.50	1,425	311	4,775
		4.50	75.75	1,425	311	5,086
		4.75	76.00	1,425	311	5,397
		5.00	76.25	1,425	143	5,539



# Pond Report

Project Name:

Hydrology Studio v 3.0.0.26

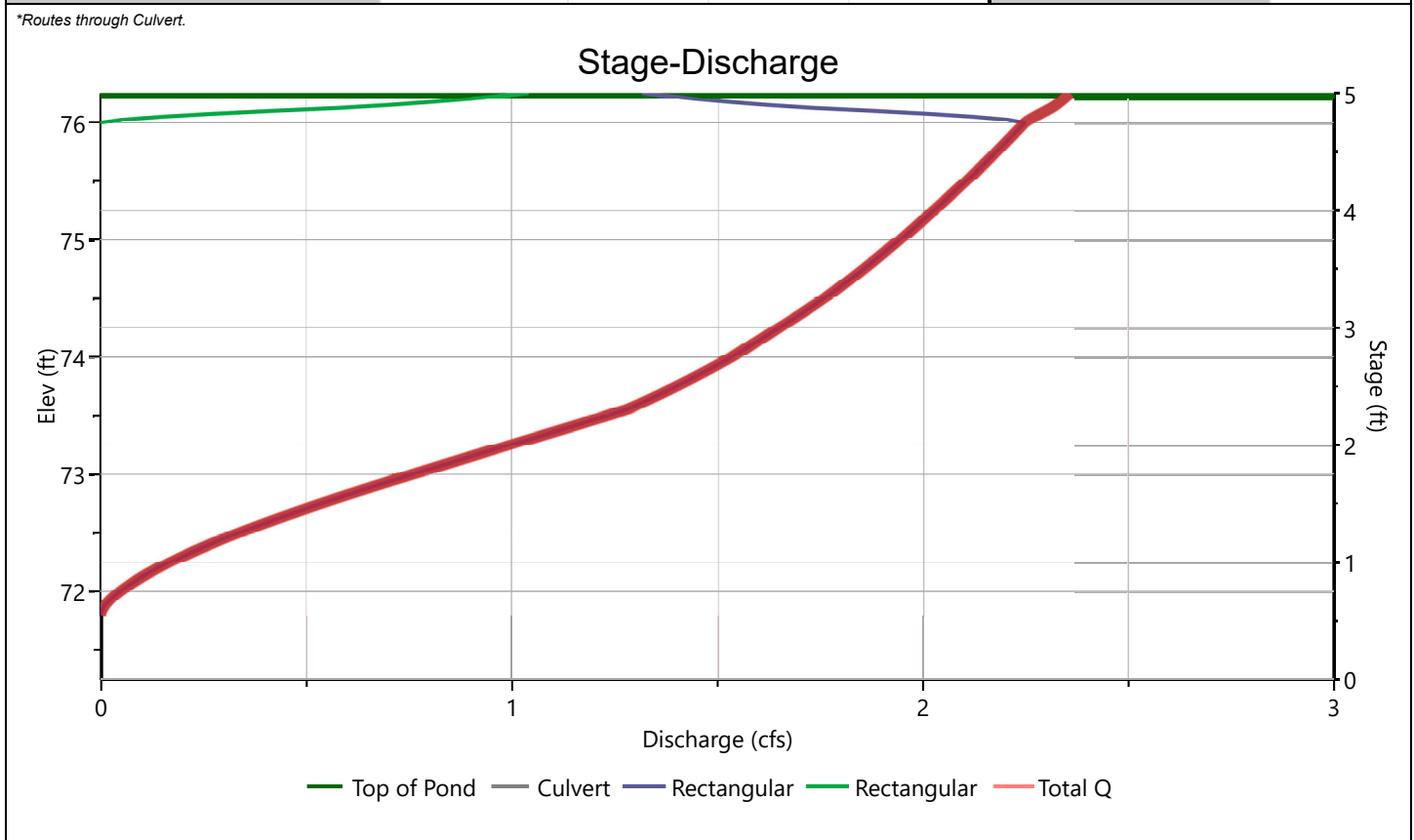
01-18-2023

## PROP U/G DET SYS

## Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Perforated Riser
		1	2	3	
Rise, in	8	6			Hole Diameter, in
Span, in	8	6			No. holes
No. Barrels	1	1			Invert Elevation, ft
Invert Elevation, ft	71.80	71.80			Height, ft
Orifice Coefficient, Co	0.60	0.60			Orifice Coefficient, Co
Length, ft	121				
Barrel Slope, %	1				
N-Value, n	0.012				
Weirs	Riser*	Weirs			Ancillary
		1*	2*	3	
Shape / Type		Rectangular	Rectangular		Exfiltration, in/hr
Crest Elevation, ft		71.8	76		
Crest Length, ft		.2	4		
Angle, deg					
Weir Coefficient, Cw		3.3	3.3		

\*Routes through Culvert.



POST32

# Pond Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## PROP U/G DET SYS

## Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	71.25	0.000	0.000	0.000				0.000	0.000					0.000
0.25	71.50	143	0.000	0.000				0.000	0.000					0.000
0.50	71.75	285	0.000	0.000				0.000	0.000					0.000
0.75	72.00	428	0.047 ic	0.000				0.047 s	0.000					0.047
1.00	72.25	738	0.168 ic	0.000				0.168 s	0.000					0.168
1.25	72.50	1,049	0.333 ic	0.000				0.333 s	0.000					0.333
1.50	72.75	1,359	0.532 ic	0.000				0.532 s	0.000					0.532
1.75	73.00	1,670	0.756 ic	0.000				0.756 s	0.000					0.756
2.00	73.25	1,980	0.992 ic	0.000				0.992 s	0.000					0.992
2.25	73.50	2,291	1.228 ic	0.000				1.228 s	0.000					1.228
2.50	73.75	2,602	1.398 oc	0.000				1.398 s	0.000					1.398
2.75	74.00	2,912	1.532 oc	0.000				1.532 s	0.000					1.532
3.00	74.25	3,223	1.650 oc	0.000				1.650 s	0.000					1.650
3.25	74.50	3,533	1.756 oc	0.000				1.756 s	0.000					1.756
3.50	74.75	3,844	1.853 oc	0.000				1.853 s	0.000					1.853
3.75	75.00	4,154	1.941 oc	0.000				1.941 s	0.000					1.941
4.00	75.25	4,465	2.024 oc	0.000				2.024 s	0.000					2.024
4.25	75.50	4,775	2.102 oc	0.000				2.102 s	0.000					2.102
4.50	75.75	5,086	2.176 oc	0.000				2.176 s	0.000					2.176
4.75	76.00	5,397	2.246 oc	0.000				2.246 s	0.000					2.246
5.00	76.25	5,539	2.357 oc	0.000				1.316 s	1.040 s					2.357

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

POST33

# Pond Report

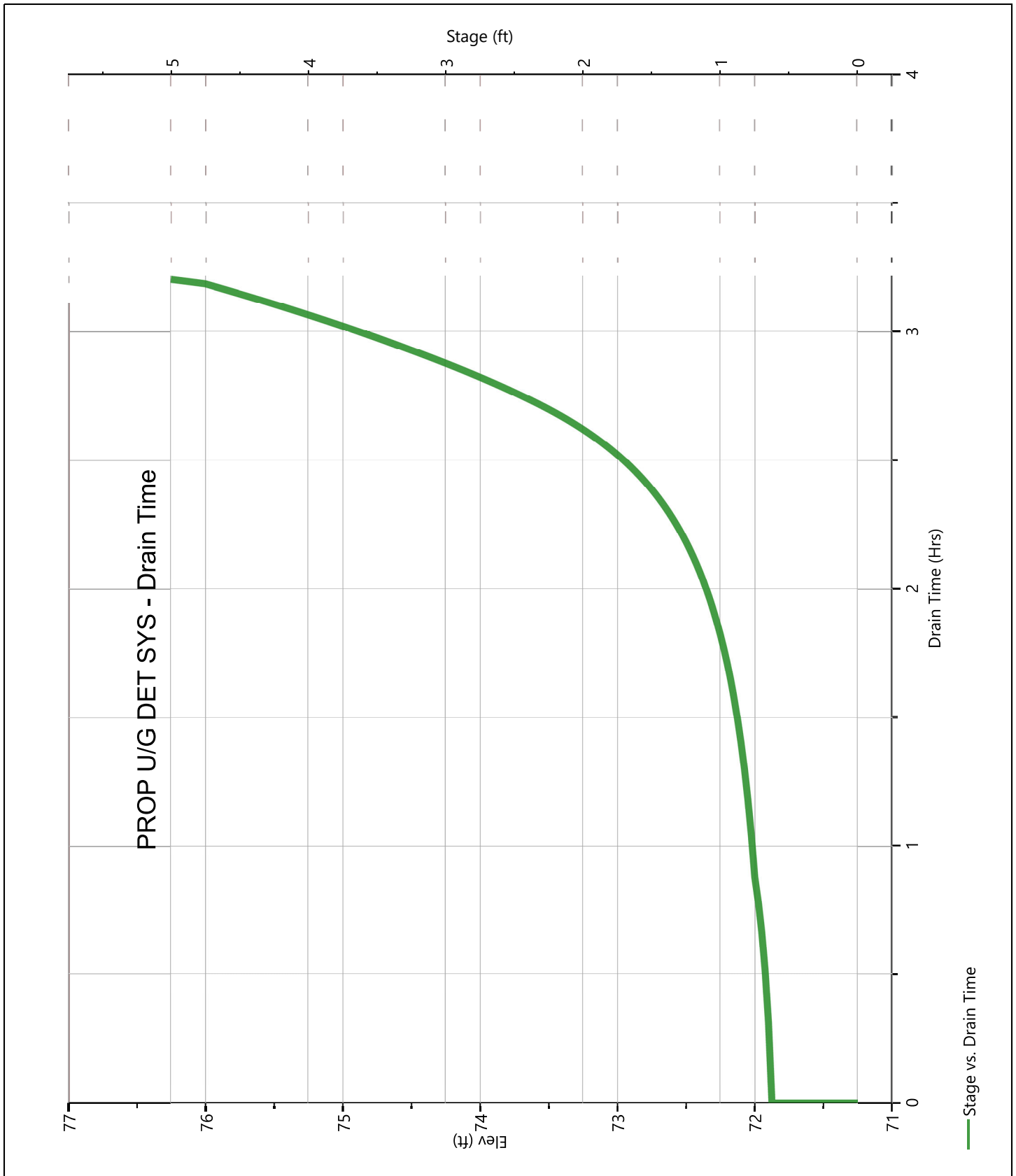
Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## PROP U/G DET SYS

## Pond Drawdown



POST34



# Hydrograph Report

Project Name:

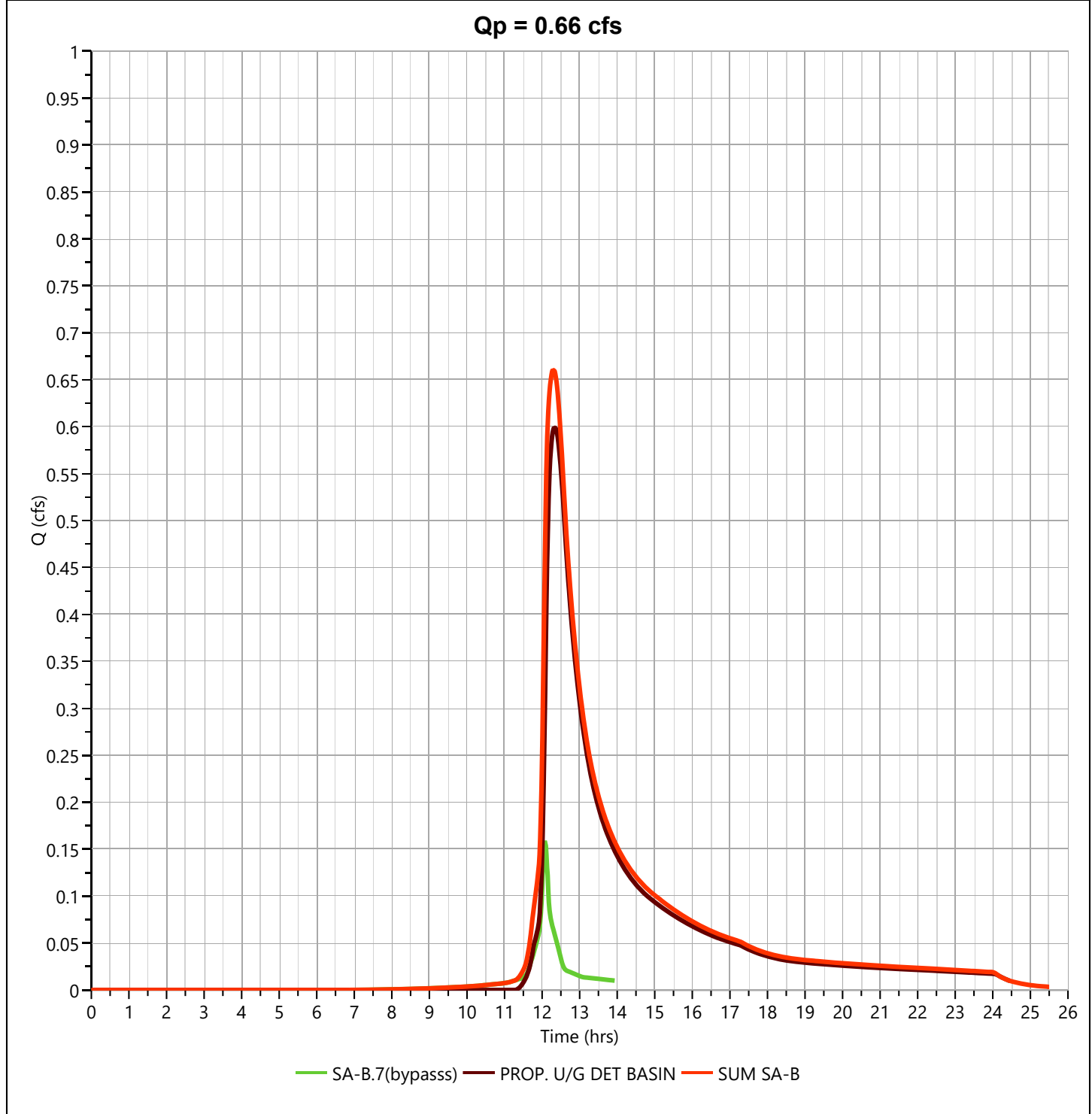
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM SA-B

## Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.661 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.30 hrs
Time Interval	= 1 min	Hydrograph Volume	= 4,600 cuft
Inflow Hydrographs	= 4, 9	Total Contrib. Area	= 0.086 ac



POST35

# Hydrograph Discharge Table

SUM SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.73	0.071	12.33	0.659	12.93	0.346	13.53	0.202	14.13	0.142
11.75	0.077	12.35	0.656	12.95	0.339	13.55	0.200	14.15	0.141
11.77	0.084	12.37	0.653	12.97	0.333	13.57	0.197	14.17	0.140
11.78	0.089	12.38	0.648	12.98	0.327	13.58	0.195	14.18	0.139
11.80	0.094	12.40	0.642	13.00	0.321	13.60	0.193	14.20	0.138
11.82	0.099	12.42	0.635	13.02	0.316	13.62	0.191	14.22	0.137
11.83	0.104	12.43	0.627	13.03	0.310	13.63	0.189	14.23	0.136
11.85	0.109	12.45	0.619	13.05	0.305	13.65	0.187	14.25	0.134
11.87	0.115	12.47	0.610	13.07	0.299	13.67	0.185	14.27	0.133
11.88	0.120	12.48	0.600	13.08	0.294	13.68	0.183	14.28	0.132
11.90	0.126	12.50	0.589	13.10	0.289	13.70	0.181	14.30	0.131
11.92	0.133	12.52	0.578	13.12	0.285	13.72	0.179	14.32	0.130
11.93	0.144	12.53	0.566	13.13	0.280	13.73	0.177	14.33	0.129
11.95	0.161	12.55	0.554	13.15	0.275	13.75	0.175	14.35	0.129
11.97	0.185	12.57	0.542	13.17	0.271	13.77	0.174	14.37	0.128
11.98	0.215	12.58	0.530	13.18	0.267	13.78	0.172	14.38	0.127
12.00	0.251	12.60	0.518	13.20	0.263	13.80	0.170	14.40	0.126
12.02	0.293	12.62	0.506	13.22	0.259	13.82	0.169	14.42	0.125
12.03	0.340	12.63	0.495	13.23	0.255	13.83	0.167	14.43	0.124
12.05	0.390	12.65	0.485	13.25	0.251	13.85	0.165	14.45	0.123
12.07	0.439	12.67	0.474	13.27	0.248	13.87	0.164	14.47	0.122
12.08	0.484	12.68	0.464	13.28	0.244	13.88	0.162	14.48	0.121
12.10	0.524	12.70	0.455	13.30	0.241	13.90	0.161	14.50	0.121
12.12	0.557	12.72	0.445	13.32	0.238	13.92	0.159	14.52	0.120
12.13	0.584	12.73	0.436	13.33	0.234	13.93	0.158	14.53	0.119
12.15	0.603	12.75	0.427	13.35	0.231	13.95	0.157	14.55	0.118
12.17	0.618	12.77	0.419	13.37	0.228	13.97	0.155	14.57	0.117
12.18	0.629	12.78	0.410	13.38	0.225	13.98	0.154	14.58	0.117
12.20	0.638	12.80	0.402	13.40	0.222	14.00	0.152	14.60	0.116
12.22	0.645	12.82	0.395	13.42	0.220	14.02	0.151	14.62	0.115
12.23	0.650	12.83	0.387	13.43	0.217	14.03	0.150	14.63	0.115
12.25	0.655	12.85	0.380	13.45	0.214	14.05	0.148	14.65	0.114
12.27	0.658	12.87	0.372	13.47	0.212	14.07	0.147	14.67	0.113
12.28	0.661	12.88	0.365	13.48	0.209	14.08	0.146	14.68	0.112
<b>12.30</b>	<b>0.661</b>	12.90	0.359	13.50	0.207	14.10	0.145	14.70	0.112
12.32	0.661	12.92	0.352	13.52	0.204	14.12	0.143	14.72	0.111

Hydrograph Discharge Table, cont'd

SUM SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
14.73	0.110	15.33	0.091	15.93	0.075				
14.75	0.110	15.35	0.090	15.95	0.074				
14.77	0.109	15.37	0.090	15.97	0.074				
14.78	0.108	15.38	0.089	15.98	0.074				
14.80	0.108	15.40	0.089	16.00	0.073				
14.82	0.107	15.42	0.088	16.02	0.073				
14.83	0.107	15.43	0.088	16.03	0.072				
14.85	0.106	15.45	0.087	16.05	0.072				
14.87	0.105	15.47	0.087	16.07	0.072				
14.88	0.105	15.48	0.086	16.08	0.071				
14.90	0.104	15.50	0.086	16.10	0.071				
14.92	0.104	15.52	0.085	16.12	0.070				
14.93	0.103	15.53	0.085	16.13	0.070				
14.95	0.103	15.55	0.084	16.15	0.070				
14.97	0.102	15.57	0.084	16.17	0.069				
14.98	0.102	15.58	0.083	16.18	0.069				
15.00	0.101	15.60	0.083	16.20	0.069				
15.02	0.100	15.62	0.083	16.22	0.068				
15.03	0.100	15.63	0.082	16.23	0.068				
15.05	0.099	15.65	0.082	16.25	0.068				
15.07	0.099	15.67	0.081	16.27	0.067				
15.08	0.098	15.68	0.081	16.28	0.067				
15.10	0.098	15.70	0.080	16.30	0.067				
15.12	0.097	15.72	0.080	16.32	0.066				
15.13	0.097	15.73	0.080	16.33	0.066				
15.15	0.096	15.75	0.079	...end	...end				
15.17	0.096	15.77	0.079						
15.18	0.095	15.78	0.078						
15.20	0.095	15.80	0.078						
15.22	0.094	15.82	0.078						
15.23	0.094	15.83	0.077						
15.25	0.093	15.85	0.077						
15.27	0.093	15.87	0.076						
15.28	0.092	15.88	0.076						
15.30	0.092	15.90	0.076						
15.32	0.091	15.92	0.075						

# Design Storm Report

Custom Storm filename: 3170.cds

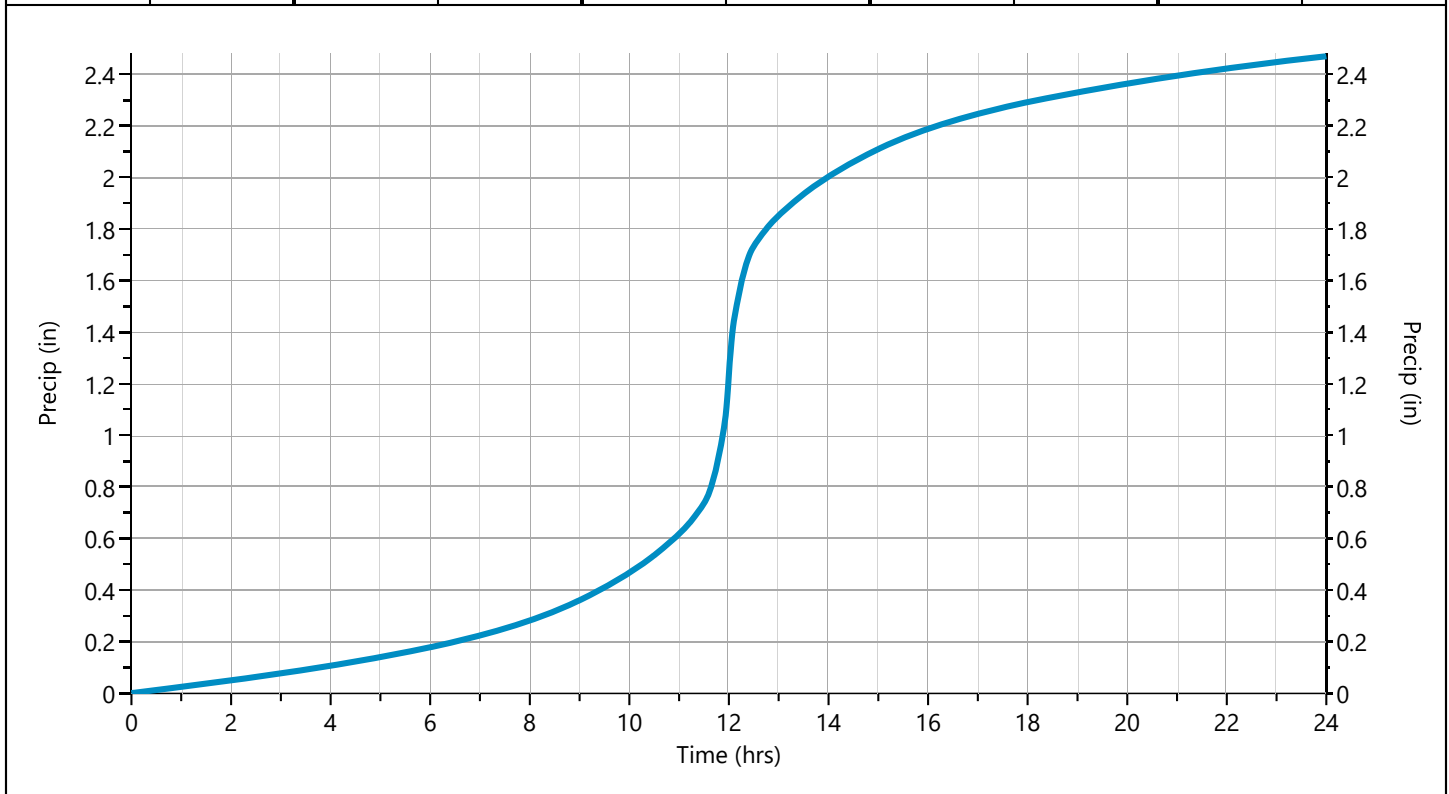
Hydrology Studio v 3.0.0.26

01-18-2023

## Storm Distribution: NRCS/SCS - Type III, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	✓ 1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
24 hrs	2.47	3.07	0.00	4.05	4.87	5.99	6.82	7.73	

Incremental Rainfall Distribution, 1-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	0.004867	11.68	0.011239	11.87	0.017880	12.05	0.037112	12.23	0.014861
11.52	0.005187	11.70	0.011842	11.88	0.018484	12.07	0.032048	12.25	0.014257
11.53	0.005804	11.72	0.012446	11.90	0.019088	12.08	0.026985	12.27	0.013654
11.55	0.006408	11.73	0.013050	11.92	0.021992	12.10	0.021921	12.28	0.013050
11.57	0.007012	11.75	0.013654	11.93	0.026985	12.12	0.019160	12.30	0.012446
11.58	0.007616	11.77	0.014257	11.95	0.032048	12.13	0.018484	12.32	0.011842
11.60	0.008220	11.78	0.014861	11.97	0.037112	12.15	0.017880	12.33	0.011239
11.62	0.008823	11.80	0.015465	11.98	0.042175	12.17	0.017276	12.35	0.010635
11.63	0.009427	11.82	0.016069	<b>12.00</b>	<b>0.047239</b>	12.18	0.016672	12.37	0.010031
11.65	0.010031	11.83	0.016672	12.02	0.047126	12.20	0.016069	12.38	0.009427
11.67	0.010635	11.85	0.017276	12.03	0.042175	12.22	0.015465	12.40	0.008824



# Hydrograph 2-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Post SA-B.1	0.752	12.07	2,417	---		
2	NRCS Runoff	Post SA-B.2	0.643	12.07	2,015	---		
3	NRCS Runoff	Post SA B. 3 to B.6	0.736	12.07	2,433	---		
4	NRCS Runoff	Post SA-B.7(bypass)	0.214	12.08	669	---		
5	NRCS Runoff	Post SA-A (remaining)	1.516	12.08	4,701	---		
6	Pond Route	Post PROP. R.G. #1	0.742	12.08	1,952	1	75.38	521
7	Pond Route	Post PRO R.G. #2	0.640	12.08	1,690	2	77.36	350
8	Junction	Post SUM TO U.G. DET. SYS	2.113	12.08	6,075	3, 6, 7		
9	Pond Route	PROP. U/G DET BASIN	0.925	12.27	5,753	8	73.18	1,891
10	Junction	Post SUM SA-B	1.023	12.22	6,422	4, 9		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

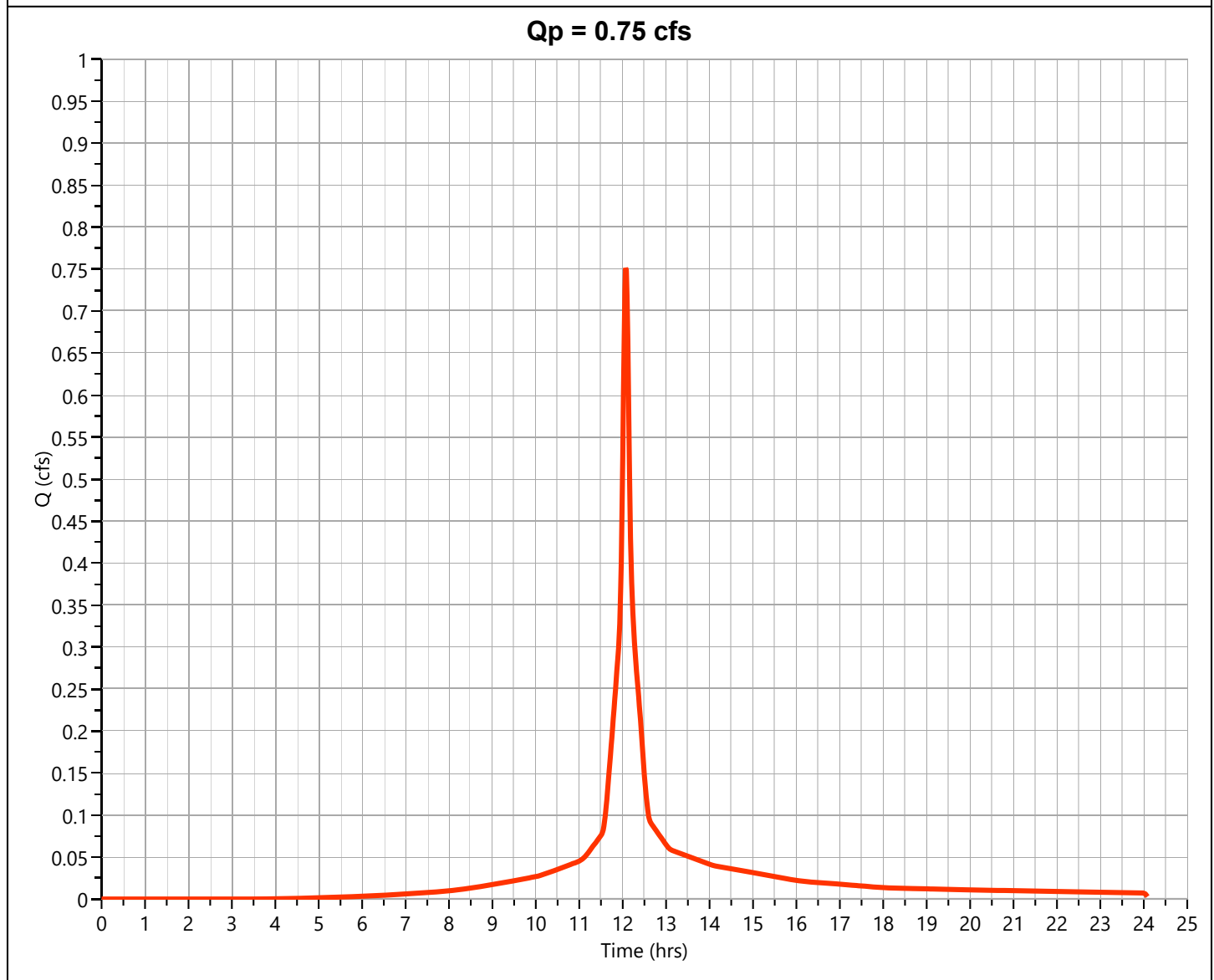
## Post SA-B.1

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.752 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 2,417 cuft
Drainage Area	= 0.267 ac	Curve Number	= 94*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.07 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.207	98	C-PAVED
0.009	85	C-POROUS PAVERS
0.051	79	C-LAWN/LANSCAPED
<b>0.267</b>	<b>94</b>	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-B.1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.50	0.076	12.10	0.718	12.70	0.087				
11.52	0.077	12.12	0.667	12.72	0.085				
11.53	0.079	12.13	0.604	12.73	0.084				
11.55	0.082	12.15	0.537	12.75	0.083				
11.57	0.087	12.17	0.475	12.77	0.082				
11.58	0.093	12.18	0.425	12.78	0.080				
11.60	0.100	12.20	0.387	12.80	0.079				
11.62	0.109	12.22	0.359	12.82	0.078				
11.63	0.118	12.23	0.338	12.83	0.077				
11.65	0.128	12.25	0.322	12.85	0.076				
11.67	0.138	12.27	0.310	12.87	0.074				
11.68	0.149	12.28	0.298	...end	...end				
11.70	0.160	12.30	0.287						
11.72	0.171	12.32	0.276						
11.73	0.181	12.33	0.264						
11.75	0.192	12.35	0.253						
11.77	0.204	12.37	0.241						
11.78	0.215	12.38	0.230						
11.80	0.226	12.40	0.218						
11.82	0.238	12.42	0.207						
11.83	0.249	12.43	0.195						
11.85	0.261	12.45	0.183						
11.87	0.272	12.47	0.172						
11.88	0.284	12.48	0.160						
11.90	0.296	12.50	0.148						
11.92	0.310	12.52	0.137						
11.93	0.329	12.53	0.126						
11.95	0.358	12.55	0.117						
11.97	0.400	12.57	0.109						
11.98	0.457	12.58	0.102						
12.00	0.525	12.60	0.098						
12.02	0.600	12.62	0.094						
12.03	0.669	12.63	0.092						
12.05	0.724	12.65	0.090						
<b>12.07</b>	<b>0.752</b>	12.67	0.089						
12.08	0.748	12.68	0.088						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

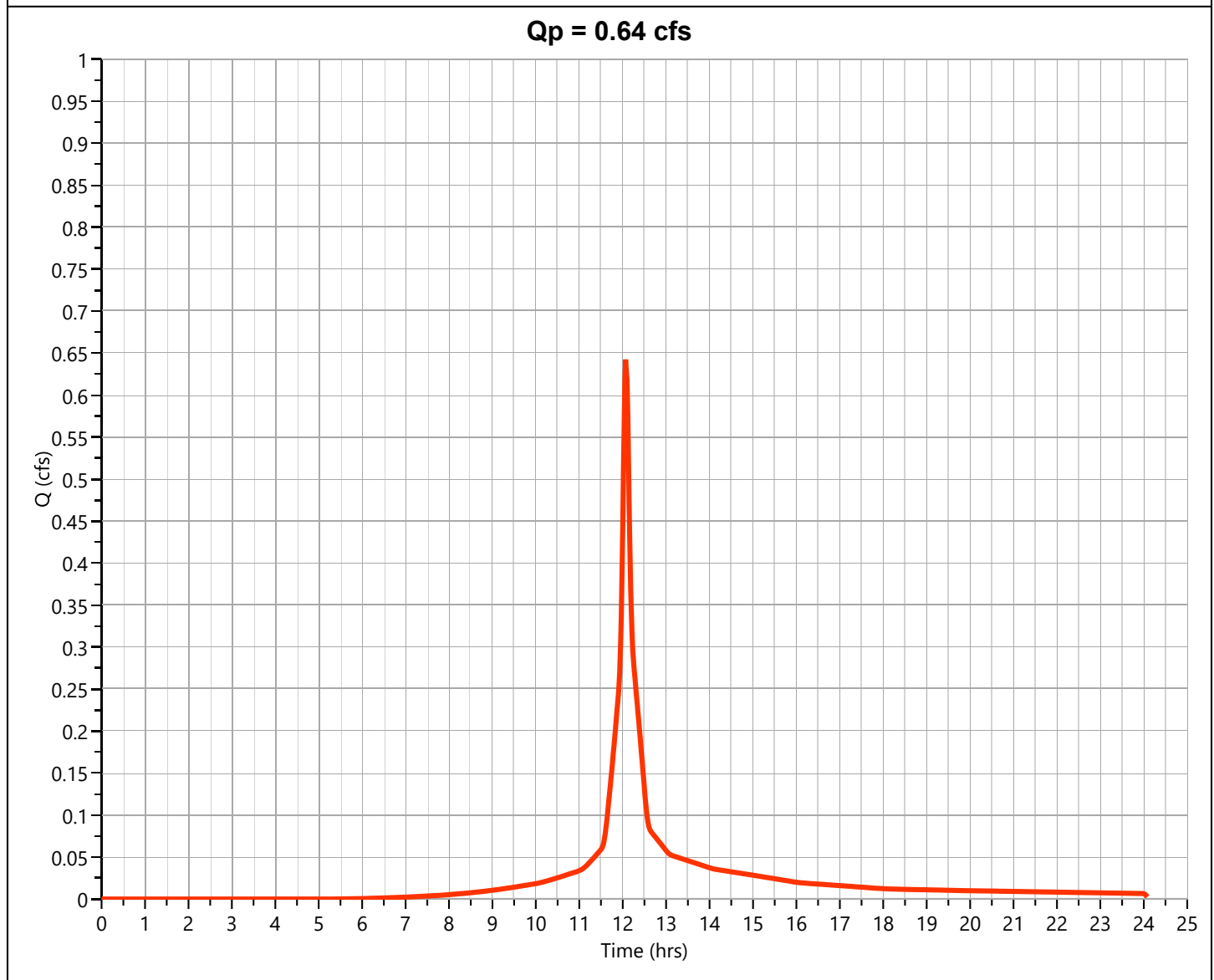
## Post SA-B.2

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.643 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 2,015 cuft
Drainage Area	= 0.252 ac	Curve Number	= 91*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.07 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.153	98	C-PAVED
0.009	89	C-POROUS PAVERS
0.09	79	C-LAWN/LANDSCAPED
<b>0.252</b>	<b>91</b>	Weighted CN Method Employed





# Hydrograph Discharge Table

SA-B.2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.57	0.068	12.17	0.414	12.77	0.073				
11.58	0.073	12.18	0.371	12.78	0.072				
11.60	0.079	12.20	0.338	12.80	0.071				
11.62	0.085	12.22	0.314	12.82	0.070				
11.63	0.093	12.23	0.296	12.83	0.068				
11.65	0.101	12.25	0.282	12.85	0.067				
11.67	0.110	12.27	0.272	12.87	0.066				
11.68	0.118	12.28	0.262	12.88	0.065				
11.70	0.127	12.30	0.252	12.90	0.064				
11.72	0.136	12.32	0.243	...end	...end				
11.73	0.145	12.33	0.233						
11.75	0.154	12.35	0.223						
11.77	0.164	12.37	0.213						
11.78	0.173	12.38	0.203						
11.80	0.183	12.40	0.193						
11.82	0.193	12.42	0.183						
11.83	0.203	12.43	0.173						
11.85	0.213	12.45	0.162						
11.87	0.223	12.47	0.152						
11.88	0.233	12.48	0.142						
11.90	0.244	12.50	0.132						
11.92	0.256	12.52	0.121						
11.93	0.273	12.53	0.112						
11.95	0.298	12.55	0.103						
11.97	0.334	12.57	0.096						
11.98	0.383	12.58	0.091						
12.00	0.442	12.60	0.087						
12.02	0.507	12.62	0.084						
12.03	0.568	12.63	0.082						
12.05	0.617	12.65	0.080						
<b>12.07</b>	<b>0.643</b>	12.67	0.079						
12.08	0.642	12.68	0.078						
12.10	0.618	12.70	0.077						
12.12	0.575	12.72	0.076						
12.13	0.522	12.73	0.075						
12.15	0.466	12.75	0.074						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

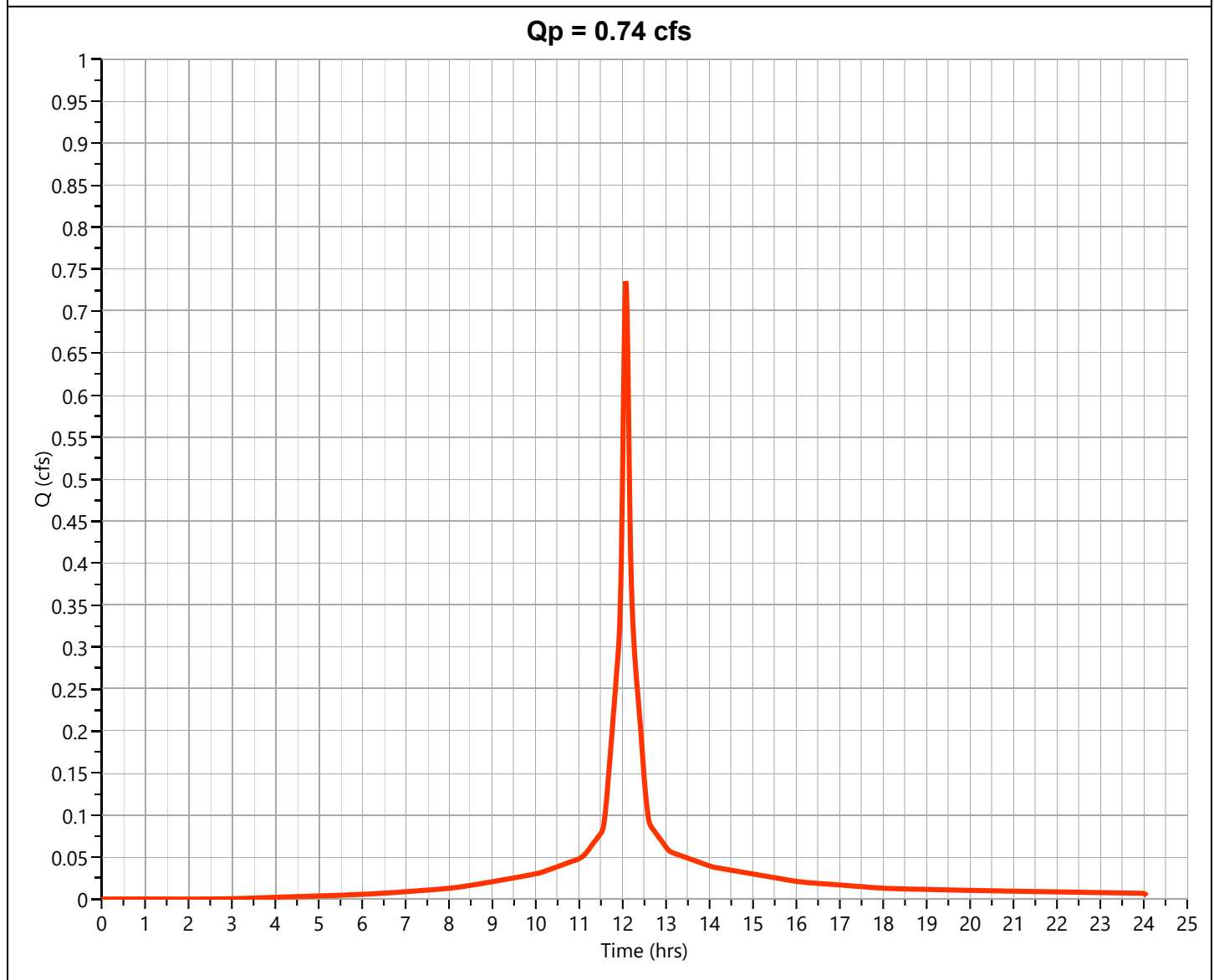
## Post SA B. 3 to B.6

## Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.736 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 2,433 cuft
Drainage Area	= 0.248 ac	Curve Number	= 96*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.07 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.215	98	C-PAVED
0.017	89	C-POROUS PAVERS
0.016	79	C-LAWN/LANDSCAPED
<b>0.248</b>	<b>96</b>	Weighted CN Method Employed



POST44

# Hydrograph Discharge Table

SA B. 3 to B.6

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.43	0.074	12.03	0.658	12.63	0.088				
11.45	0.075	12.05	0.710	12.65	0.086				
11.47	0.076	<b>12.07</b>	<b>0.736</b>	12.67	0.085				
11.48	0.077	12.08	0.731	12.68	0.084				
11.50	0.078	12.10	0.700	12.70	0.083				
11.52	0.080	12.12	0.649	12.72	0.082				
11.53	0.082	12.13	0.587	12.73	0.080				
11.55	0.085	12.15	0.521	12.75	0.079				
11.57	0.089	12.17	0.461	12.77	0.078				
11.58	0.096	12.18	0.412	12.78	0.077				
11.60	0.103	12.20	0.374	12.80	0.076				
11.62	0.112	12.22	0.346	12.82	0.075				
11.63	0.121	12.23	0.326	12.83	0.073				
11.65	0.131	12.25	0.310	...end	...end				
11.67	0.142	12.27	0.298						
11.68	0.152	12.28	0.287						
11.70	0.163	12.30	0.276						
11.72	0.174	12.32	0.265						
11.73	0.185	12.33	0.254						
11.75	0.196	12.35	0.243						
11.77	0.207	12.37	0.232						
11.78	0.218	12.38	0.221						
11.80	0.229	12.40	0.209						
11.82	0.240	12.42	0.198						
11.83	0.251	12.43	0.187						
11.85	0.262	12.45	0.176						
11.87	0.274	12.47	0.165						
11.88	0.285	12.48	0.153						
11.90	0.296	12.50	0.142						
11.92	0.310	12.52	0.131						
11.93	0.328	12.53	0.121						
11.95	0.356	12.55	0.112						
11.97	0.397	12.57	0.104						
11.98	0.452	12.58	0.098						
12.00	0.519	12.60	0.094						
12.02	0.591	12.62	0.090						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

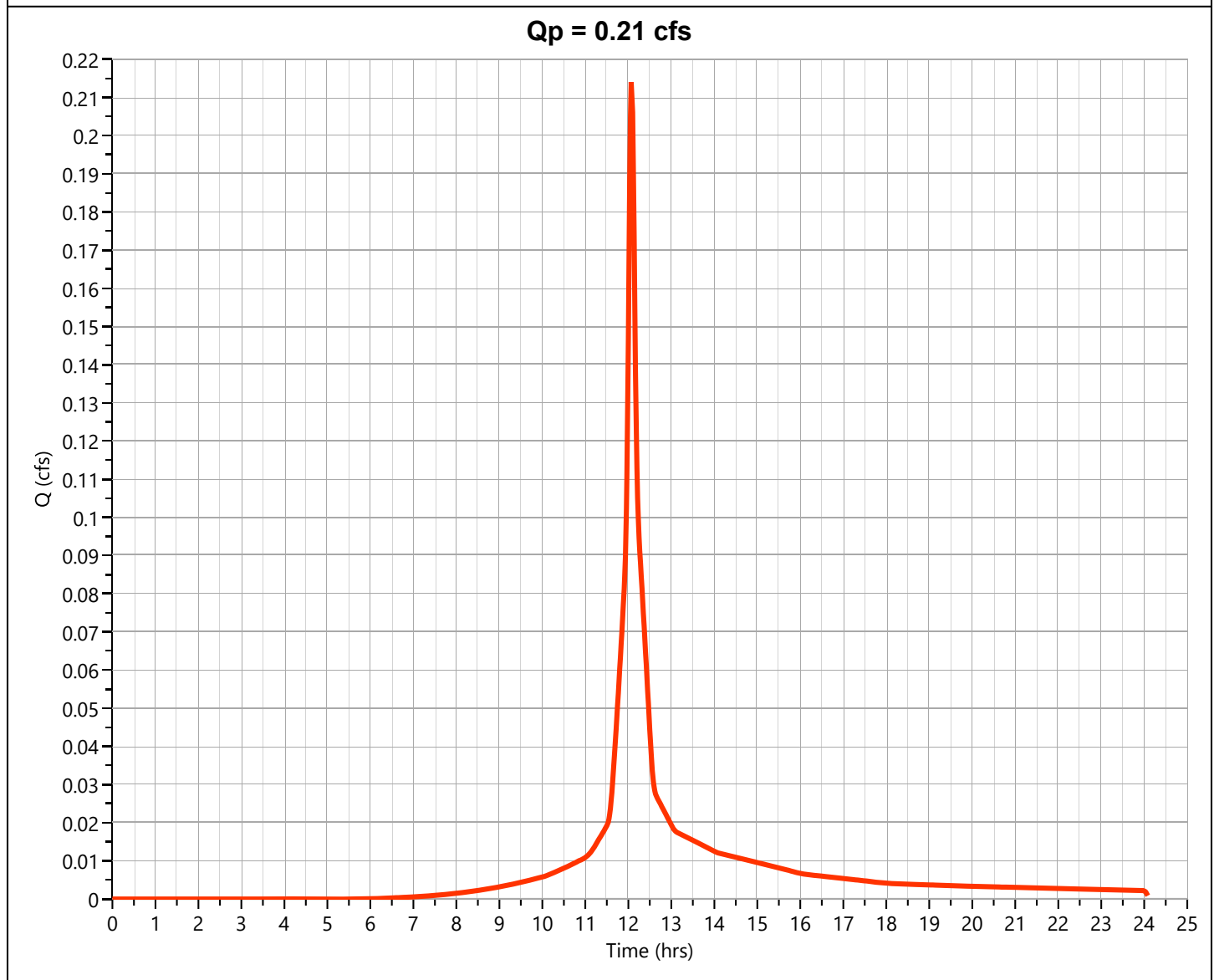
## Post SA-B.7(bypass)

## Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.214 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Runoff Volume	= 669 cuft
Drainage Area	= 0.086 ac	Curve Number	= 90.34*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.07 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.031	89	C-Roadway
0.035	98	C-Paved
0.02	79	C-Lawn/Landscaped
<b>0.086</b>	<b>90</b>	Weighted CN Method Employed



### Hydrograph Discharge Table

SA-B.7(bypass)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.57	0.022	12.17	0.138	12.77	0.024				
11.58	0.024	12.18	0.124	12.78	0.024				
11.60	0.026	12.20	0.113	12.80	0.024				
11.62	0.028	12.22	0.105	12.82	0.023				
11.63	0.030	12.23	0.099	12.83	0.023				
11.65	0.033	12.25	0.095	12.85	0.023				
11.67	0.036	12.27	0.091	12.87	0.022				
11.68	0.039	12.28	0.088	12.88	0.022				
11.70	0.042	12.30	0.085	12.90	0.022				
11.72	0.045	12.32	0.081	12.92	0.021				
11.73	0.048	12.33	0.078	...end	...end				
11.75	0.051	12.35	0.075						
11.77	0.054	12.37	0.071						
11.78	0.057	12.38	0.068						
11.80	0.060	12.40	0.065						
11.82	0.063	12.42	0.061						
11.83	0.067	12.43	0.058						
11.85	0.070	12.45	0.055						
11.87	0.074	12.47	0.051						
11.88	0.077	12.48	0.048						
11.90	0.081	12.50	0.044						
11.92	0.085	12.52	0.041						
11.93	0.090	12.53	0.038						
11.95	0.099	12.55	0.035						
11.97	0.111	12.57	0.032						
11.98	0.127	12.58	0.031						
12.00	0.147	12.60	0.029						
12.02	0.168	12.62	0.028						
12.03	0.189	12.63	0.028						
12.05	0.205	12.65	0.027						
12.07	0.214	12.67	0.027						
<b>12.08</b>	<b>0.214</b>	12.68	0.026						
12.10	0.206	12.70	0.026						
12.12	0.192	12.72	0.026						
12.13	0.174	12.73	0.025						
12.15	0.156	12.75	0.025						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

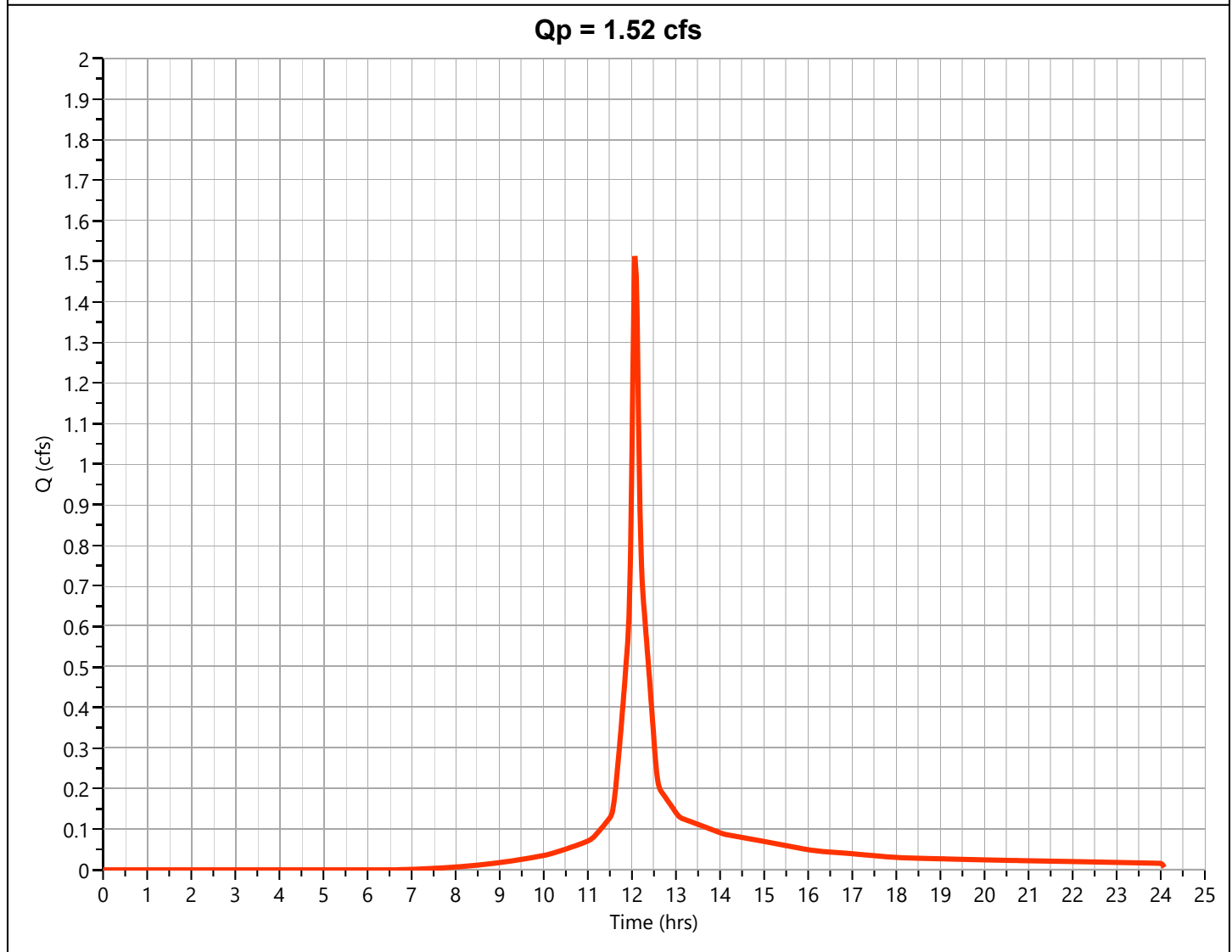
## Post SA-A (remaining)

## Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.516 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Runoff Volume	= 4,701 cuft
Drainage Area	= 0.649 ac	Curve Number	= 88.66*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.07 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.187	89	C-Roadway
0.239	94	C-Urban Area
0.039	98	C-Paved
0.012	89	C-Porous PAvers
0.172	79	C-Lawn/Landscaped
<b>0.649</b>	<b>89</b>	Weighted CN Method Employed



POST48

### Hydrograph Discharge Table

SA-A (remaining)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.58	0.159	12.18	0.888	12.78	0.175				
11.60	0.173	12.20	0.811	12.80	0.172				
11.62	0.188	12.22	0.753	12.82	0.170				
11.63	0.205	12.23	0.711	12.83	0.167				
11.65	0.223	12.25	0.679	12.85	0.164				
11.67	0.242	12.27	0.655	12.87	0.162				
11.68	0.262	12.28	0.632	12.88	0.159				
11.70	0.282	12.30	0.609	12.90	0.157				
11.72	0.303	12.32	0.586	12.92	0.154				
11.73	0.324	12.33	0.563	12.93	0.151				
11.75	0.345	12.35	0.539	...end	...end				
11.77	0.367	12.37	0.515						
11.78	0.389	12.38	0.491						
11.80	0.412	12.40	0.467						
11.82	0.435	12.42	0.443						
11.83	0.458	12.43	0.419						
11.85	0.482	12.45	0.394						
11.87	0.506	12.47	0.369						
11.88	0.531	12.48	0.344						
11.90	0.556	12.50	0.320						
11.92	0.586	12.52	0.295						
11.93	0.626	12.53	0.272						
11.95	0.686	12.55	0.252						
11.97	0.772	12.57	0.235						
11.98	0.886	12.58	0.221						
12.00	1.027	12.60	0.212						
12.02	1.182	12.62	0.204						
12.03	1.330	12.63	0.199						
12.05	1.448	12.65	0.196						
12.07	1.513	12.67	0.193						
<b>12.08</b>	<b>1.516</b>	12.68	0.190						
12.10	1.463	12.70	0.188						
12.12	1.365	12.72	0.185						
12.13	1.242	12.73	0.182						
12.15	1.110	12.75	0.180						
12.17	0.988	12.77	0.177						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PROP. R.G. #1

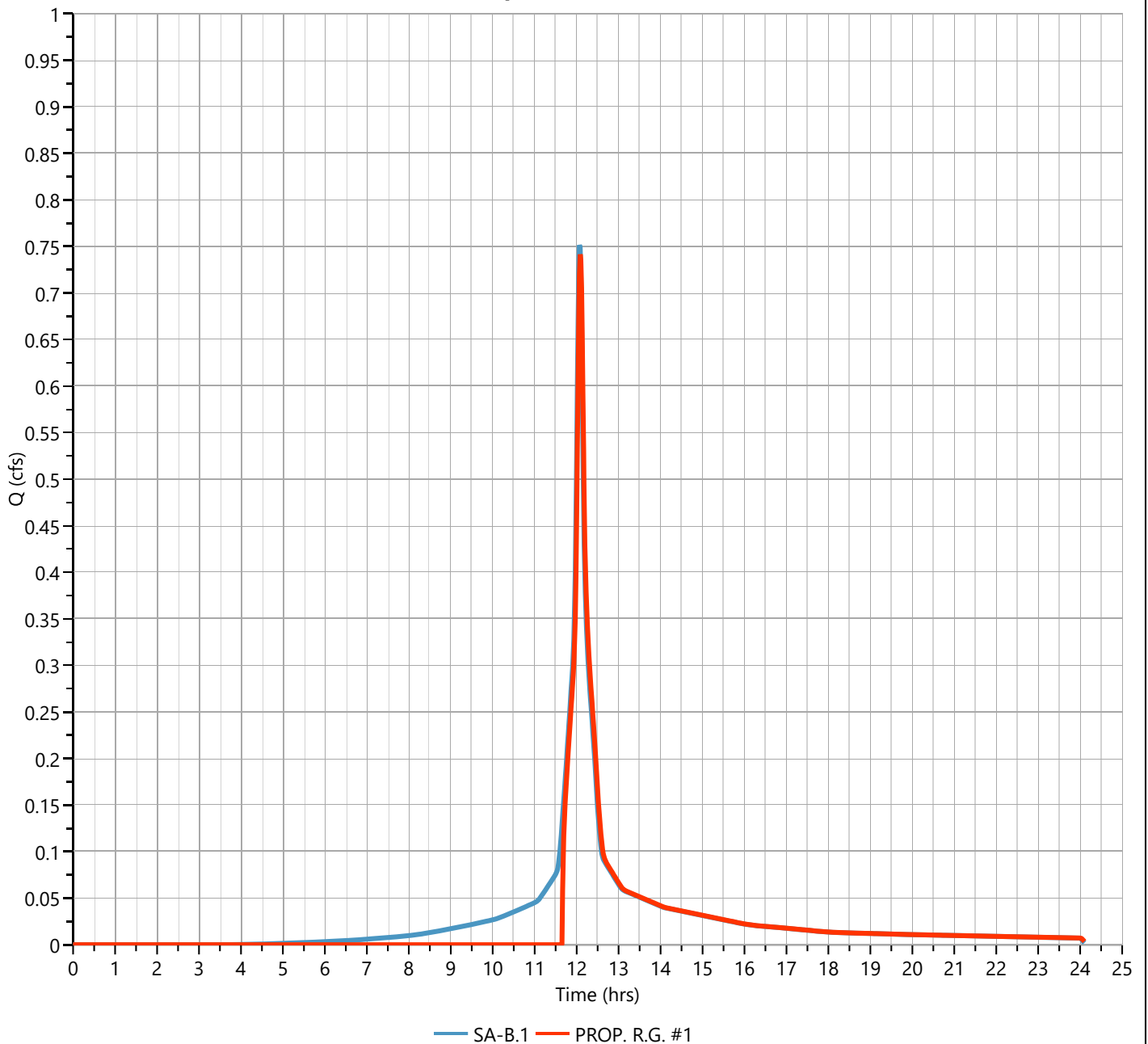
## Hyd. No. 6

Hydrograph Type	= Pond Route	Peak Flow	= 0.742 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,952 cuft
Inflow Hydrograph	= 1 - SA-B.1	Max. Elevation	= 75.38 ft
Pond Name	= PROP. RAINGARDEN #1	Max. Storage	= 521 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 46 min

**Qp = 0.74 cfs**





# Hydrograph Discharge Table

PROP. R.G. #1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.68	0.099	12.28	0.319	12.88	0.075				
11.70	0.125	12.30	0.307	12.90	0.074				
11.72	0.144	12.32	0.295	...end	...end				
11.73	0.159	12.33	0.283						
11.75	0.172	12.35	0.271						
11.77	0.184	12.37	0.260						
11.78	0.196	12.38	0.248						
11.80	0.208	12.40	0.237						
11.82	0.219	12.42	0.225						
11.83	0.231	12.43	0.214						
11.85	0.242	12.45	0.202						
11.87	0.254	12.47	0.190						
11.88	0.265	12.48	0.179						
11.90	0.277	12.50	0.167						
11.92	0.289	12.52	0.156						
11.93	0.304	12.53	0.144						
11.95	0.323	12.55	0.133						
11.97	0.349	12.57	0.124						
11.98	0.391	12.58	0.115						
12.00	0.463	12.60	0.108						
12.02	0.535	12.62	0.102						
12.03	0.607	12.63	0.098						
12.05	0.672	12.65	0.095						
12.07	0.719	12.67	0.092						
<b>12.08</b>	<b>0.742</b>	12.68	0.090						
12.10	0.736	12.70	0.089						
12.12	0.704	12.72	0.087						
12.13	0.654	12.73	0.086						
12.15	0.593	12.75	0.085						
12.17	0.530	12.77	0.084						
12.18	0.473	12.78	0.082						
12.20	0.425	12.80	0.081						
12.22	0.387	12.82	0.080						
12.23	0.366	12.83	0.079						
12.25	0.349	12.85	0.078						
12.27	0.333	12.87	0.076						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PRO R.G. #2

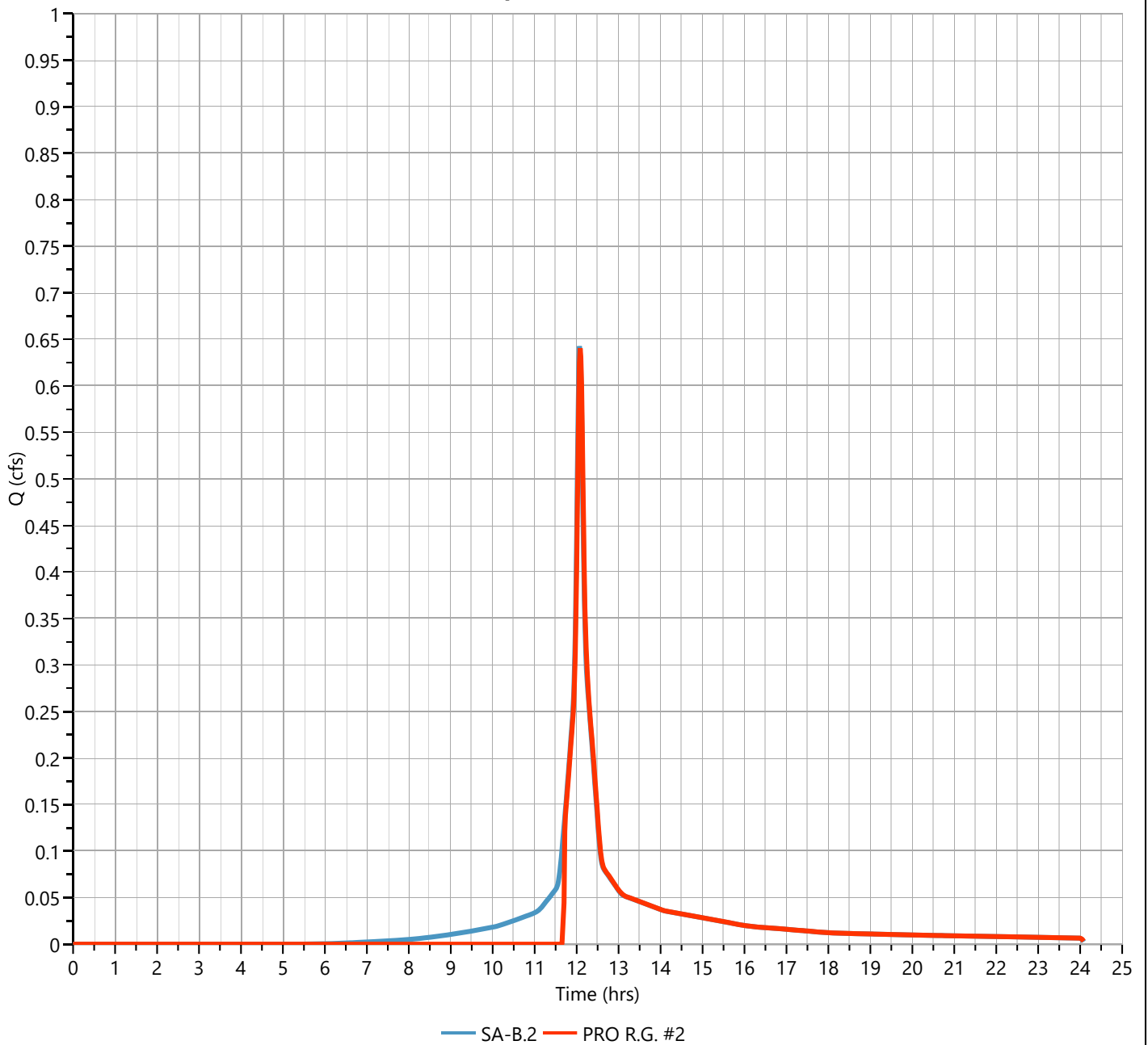
## Hyd. No. 7

Hydrograph Type	= Pond Route	Peak Flow	= 0.640 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 1,690 cuft
Inflow Hydrograph	= 2 - SA-B.2	Max. Elevation	= 77.36 ft
Pond Name	= PRO RAINGARDEN #2	Max. Storage	= 350 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 35 min

**Qp = 0.64 cfs**



# Hydrograph Discharge Table

PRO R.G. #2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.72	0.121	12.32	0.249	12.92	0.064				
11.73	0.138	12.33	0.239	...end	...end				
11.75	0.149	12.35	0.229						
11.77	0.158	12.37	0.219						
11.78	0.167	12.38	0.209						
11.80	0.177	12.40	0.199						
11.82	0.187	12.42	0.189						
11.83	0.196	12.43	0.179						
11.85	0.206	12.45	0.169						
11.87	0.217	12.47	0.159						
11.88	0.227	12.48	0.148						
11.90	0.237	12.50	0.138						
11.92	0.248	12.52	0.128						
11.93	0.263	12.53	0.118						
11.95	0.283	12.55	0.109						
11.97	0.312	12.57	0.101						
11.98	0.353	12.58	0.095						
12.00	0.405	12.60	0.090						
12.02	0.466	12.62	0.086						
12.03	0.529	12.63	0.083						
12.05	0.585	12.65	0.081						
12.07	0.624	12.67	0.080						
<b>12.08</b>	<b>0.640</b>	12.68	0.079						
12.10	0.631	12.70	0.078						
12.12	0.601	12.72	0.077						
12.13	0.555	12.73	0.076						
12.15	0.501	12.75	0.074						
12.17	0.447	12.77	0.073						
12.18	0.399	12.78	0.072						
12.20	0.360	12.80	0.071						
12.22	0.330	12.82	0.070						
12.23	0.308	12.83	0.069						
12.25	0.291	12.85	0.068						
12.27	0.279	12.87	0.067						
12.28	0.268	12.88	0.066						
12.30	0.259	12.90	0.065						

# Hydrograph Report

Project Name:

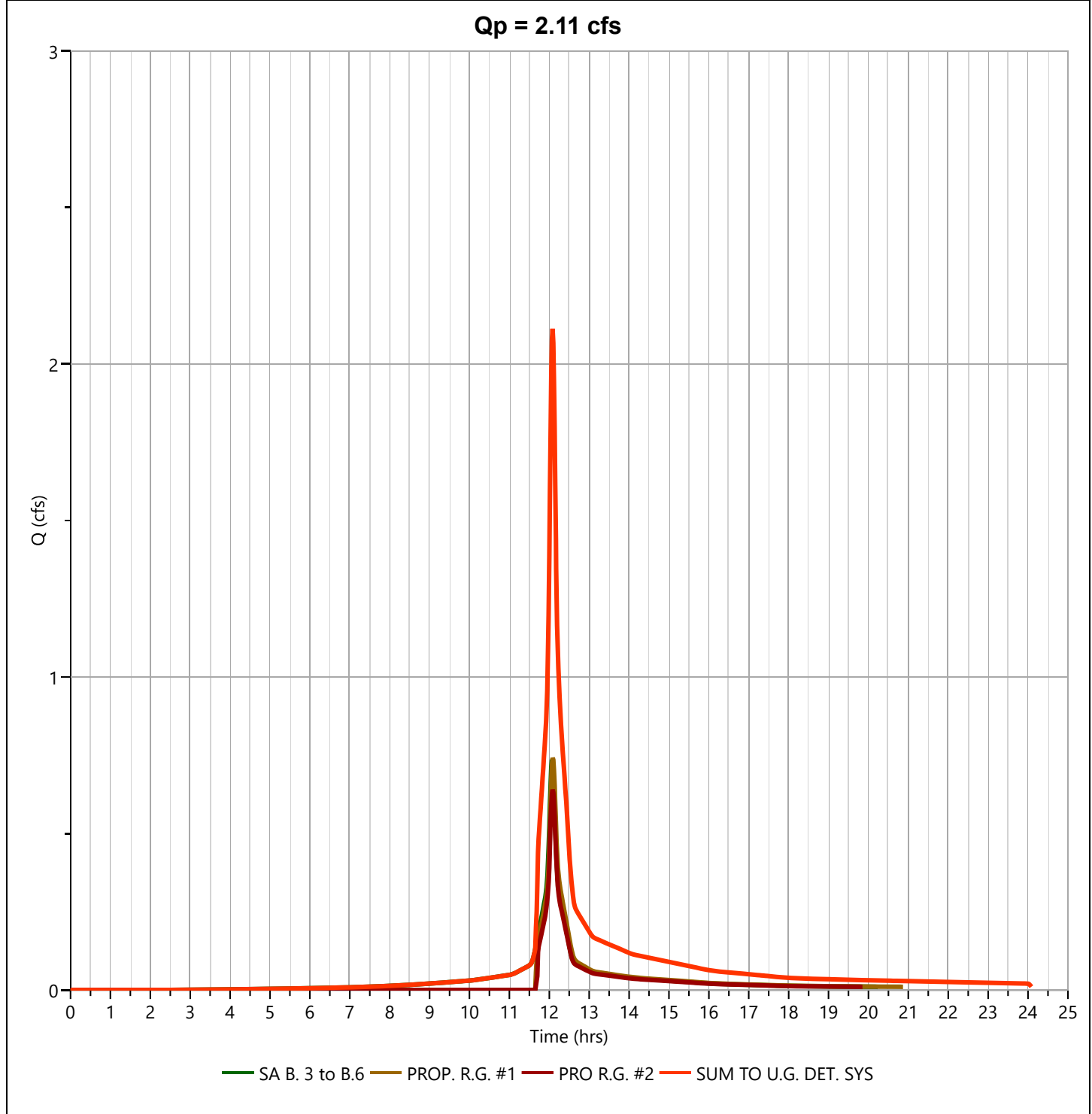
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM TO U.G. DET. SYS

## Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 2.113 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 6,075 cuft
Inflow Hydrographs	= 3, 6, 7	Total Contrib. Area	= 0.248 ac



# Hydrograph Discharge Table

SUM TO U.G. DET. SYS

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.68	0.251	12.28	0.875	12.88	0.211				
11.70	0.332	12.30	0.842	...end	...end				
11.72	0.439	12.32	0.809						
11.73	0.482	12.33	0.776						
11.75	0.517	12.35	0.743						
11.77	0.549	12.37	0.711						
11.78	0.581	12.38	0.678						
11.80	0.613	12.40	0.646						
11.82	0.646	12.42	0.613						
11.83	0.678	12.43	0.580						
11.85	0.711	12.45	0.547						
11.87	0.744	12.47	0.514						
11.88	0.777	12.48	0.481						
11.90	0.811	12.50	0.447						
11.92	0.847	12.52	0.415						
11.93	0.895	12.53	0.383						
11.95	0.962	12.55	0.354						
11.97	1.059	12.57	0.329						
11.98	1.196	12.58	0.308						
12.00	1.387	12.60	0.291						
12.02	1.592	12.62	0.279						
12.03	1.794	12.63	0.269						
12.05	1.967	12.65	0.263						
12.07	2.080	12.67	0.257						
<b>12.08</b>	<b>2.113</b>	12.68	0.253						
12.10	2.067	12.70	0.249						
12.12	1.954	12.72	0.246						
12.13	1.796	12.73	0.242						
12.15	1.616	12.75	0.239						
12.17	1.438	12.77	0.235						
12.18	1.283	12.78	0.232						
12.20	1.159	12.80	0.228						
12.22	1.063	12.82	0.225						
12.23	0.999	12.83	0.221						
12.25	0.950	12.85	0.218						
12.27	0.910	12.87	0.214						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## PROP. U/G DET BASIN

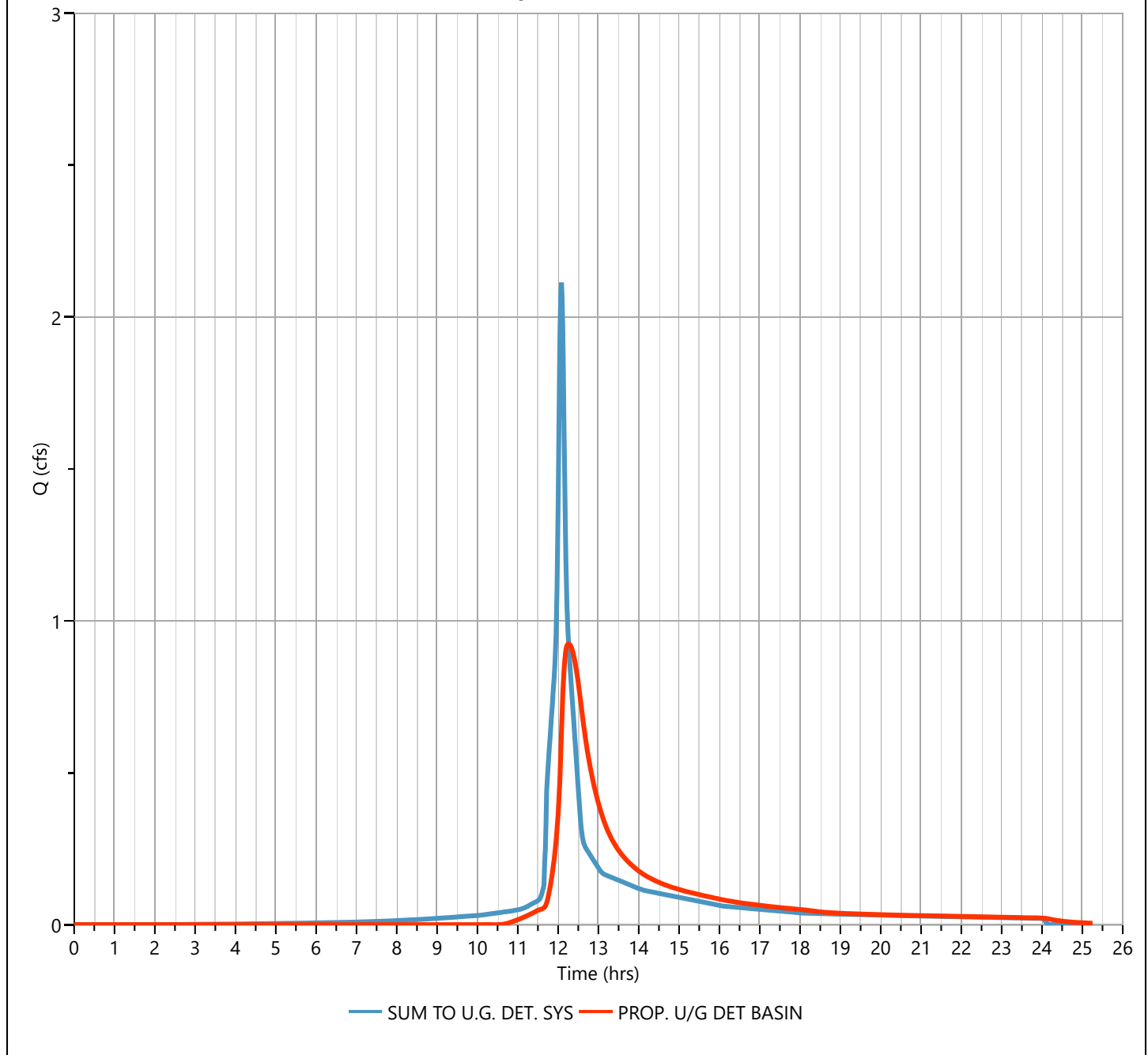
### Hyd. No. 9

Hydrograph Type	= Pond Route	Peak Flow	= 0.925 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.27 hrs
Time Interval	= 1 min	Hydrograph Volume	= 5,753 cuft
Inflow Hydrograph	= 8 - SUM TO U.G. DET. SYS	Max. Elevation	= 73.18 ft
Pond Name	= PROP U/G DET SYS	Max. Storage	= 1,891 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 52 min

**Qp = 0.93 cfs**



# Hydrograph Discharge Table

PROP. U/G DET BASIN

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.77	0.099	12.37	0.896	12.97	0.416	13.57	0.232	14.17	0.161
11.78	0.110	12.38	0.887	12.98	0.408	13.58	0.230	14.18	0.160
11.80	0.122	12.40	0.877	13.00	0.400	13.60	0.227	14.20	0.159
11.82	0.135	12.42	0.866	13.02	0.392	13.62	0.224	14.22	0.157
11.83	0.148	12.43	0.854	13.03	0.384	13.63	0.222	14.23	0.156
11.85	0.163	12.45	0.841	13.05	0.377	13.65	0.219	14.25	0.155
11.87	0.179	12.47	0.827	13.07	0.369	13.67	0.217	14.27	0.154
11.88	0.195	12.48	0.812	13.08	0.362	13.68	0.214	14.28	0.152
11.90	0.213	12.50	0.796	13.10	0.355	13.70	0.212	14.30	0.151
11.92	0.232	12.52	0.780	13.12	0.349	13.72	0.210	14.32	0.150
11.93	0.252	12.53	0.763	13.13	0.342	13.73	0.207	14.33	0.149
11.95	0.273	12.55	0.746	13.15	0.336	13.75	0.205	14.35	0.148
11.97	0.298	12.57	0.728	13.17	0.330	13.77	0.203	14.37	0.147
11.98	0.326	12.58	0.709	13.18	0.324	13.78	0.201	14.38	0.146
12.00	0.360	12.60	0.692	13.20	0.319	13.80	0.199	14.40	0.145
12.02	0.401	12.62	0.674	13.22	0.313	13.82	0.197	14.42	0.144
12.03	0.450	12.63	0.657	13.23	0.308	13.83	0.195	14.43	0.143
12.05	0.505	12.65	0.641	13.25	0.303	13.85	0.193	14.45	0.142
12.07	0.566	12.67	0.624	13.27	0.298	13.87	0.191	14.47	0.141
12.08	0.630	12.68	0.609	13.28	0.294	13.88	0.189	14.48	0.140
12.10	0.693	12.70	0.594	13.30	0.289	13.90	0.187	14.50	0.139
12.12	0.750	12.72	0.579	13.32	0.285	13.92	0.185	14.52	0.138
12.13	0.800	12.73	0.566	13.33	0.281	13.93	0.183	14.53	0.137
12.15	0.841	12.75	0.552	13.35	0.276	13.95	0.182	14.55	0.136
12.17	0.872	12.77	0.540	13.37	0.272	13.97	0.180	14.57	0.135
12.18	0.894	12.78	0.528	13.38	0.269	13.98	0.178	14.58	0.134
12.20	0.909	12.80	0.516	13.40	0.265	14.00	0.177	14.60	0.134
12.22	0.918	12.82	0.504	13.42	0.261	14.02	0.175	14.62	0.133
12.23	0.923	12.83	0.493	13.43	0.258	14.03	0.173	14.63	0.132
12.25	0.925	12.85	0.483	13.45	0.254	14.05	0.172	14.65	0.131
<b>12.27</b>	<b>0.925</b>	12.87	0.472	13.47	0.251	14.07	0.170	14.67	0.130
12.28	0.924	12.88	0.462	13.48	0.248	14.08	0.168	14.68	0.129
12.30	0.921	12.90	0.452	13.50	0.244	14.10	0.167	14.70	0.129
12.32	0.917	12.92	0.443	13.52	0.241	14.12	0.166	14.72	0.128
12.33	0.911	12.93	0.434	13.53	0.238	14.13	0.164	14.73	0.127
12.35	0.904	12.95	0.425	13.55	0.235	14.15	0.163	14.75	0.126

**Hydrograph Discharge Table, cont'd**

**PROP. U/G DET BASIN**

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
14.77	0.126	15.37	0.103						
14.78	0.125	15.38	0.102						
14.80	0.124	15.40	0.101						
14.82	0.123	15.42	0.101						
14.83	0.123	15.43	0.100						
14.85	0.122	15.45	0.100						
14.87	0.121	15.47	0.099						
14.88	0.120	15.48	0.099						
14.90	0.120	15.50	0.099						
14.92	0.119	15.52	0.098						
14.93	0.118	15.53	0.098						
14.95	0.118	15.55	0.097						
14.97	0.117	15.57	0.097						
14.98	0.116	15.58	0.096						
15.00	0.116	15.60	0.096						
15.02	0.115	15.62	0.095						
15.03	0.114	15.63	0.095						
15.05	0.114	15.65	0.094						
15.07	0.113	15.67	0.094						
15.08	0.112	15.68	0.093						
15.10	0.112	15.70	0.093						
15.12	0.111	15.72	0.092						
15.13	0.111	...end	...end						
15.15	0.110								
15.17	0.109								
15.18	0.109								
15.20	0.108								
15.22	0.108								
15.23	0.107								
15.25	0.107								
15.27	0.106								
15.28	0.105								
15.30	0.105								
15.32	0.104								
15.33	0.104								
15.35	0.103								



# Hydrograph Report

Project Name:

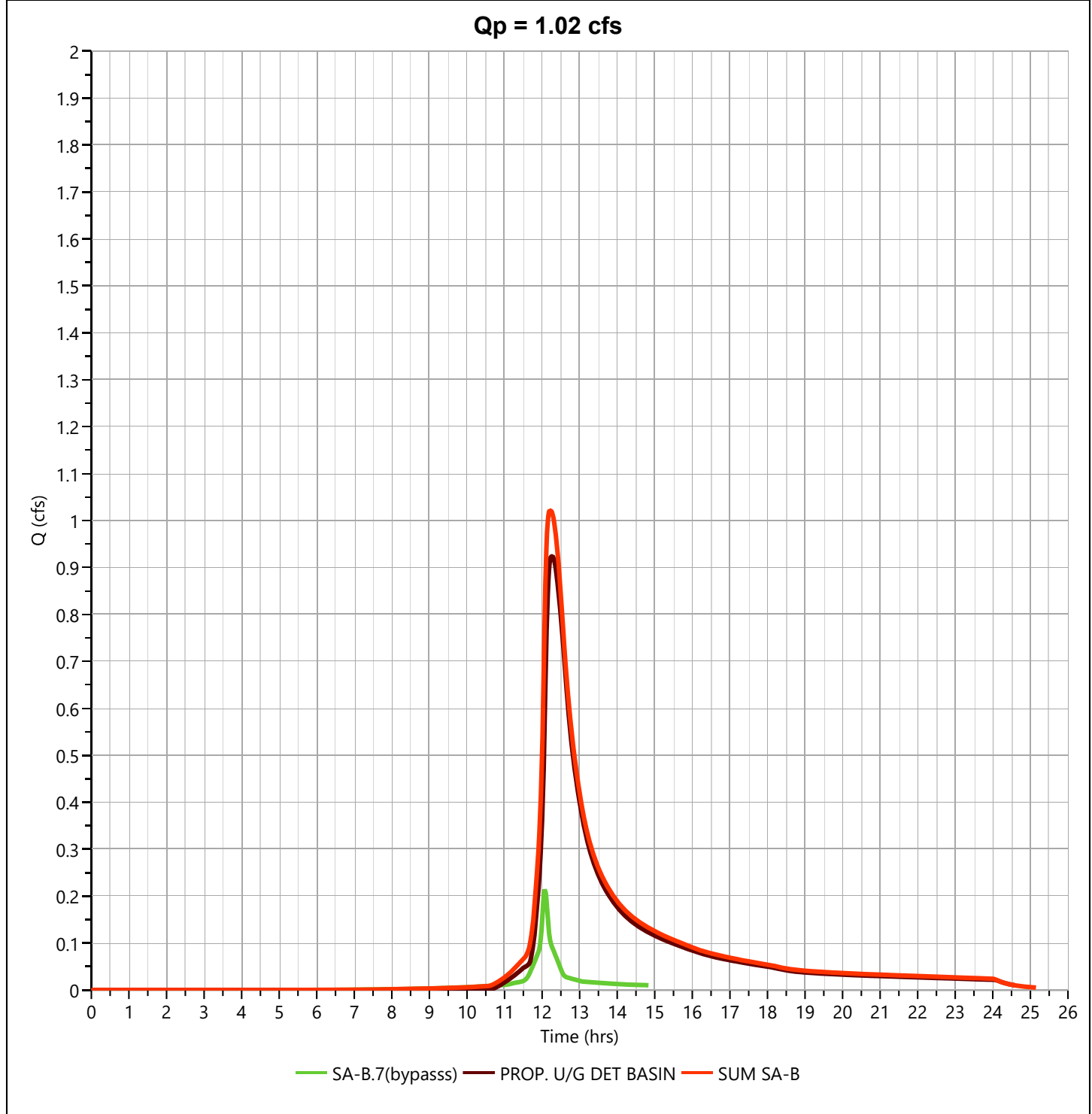
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM SA-B

## Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 1.023 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 6,422 cuft
Inflow Hydrographs	= 4, 9	Total Contrib. Area	= 0.086 ac



POST59

# Hydrograph Discharge Table

SUM SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.70	0.107	12.30	1.006	12.90	0.474	13.50	0.260	14.10	0.179
11.72	0.116	12.32	0.998	12.92	0.464	13.52	0.257	14.12	0.178
11.73	0.127	12.33	0.989	12.93	0.455	13.53	0.253	14.13	0.176
11.75	0.140	12.35	0.979	12.95	0.445	13.55	0.250	14.15	0.175
11.77	0.153	12.37	0.968	12.97	0.436	13.57	0.247	14.17	0.173
11.78	0.167	12.38	0.955	12.98	0.428	13.58	0.245	14.18	0.172
11.80	0.182	12.40	0.942	13.00	0.419	13.60	0.242	14.20	0.170
11.82	0.198	12.42	0.927	13.02	0.411	13.62	0.239	14.22	0.169
11.83	0.215	12.43	0.912	13.03	0.403	13.63	0.236	14.23	0.168
11.85	0.233	12.45	0.895	13.05	0.395	13.65	0.234	14.25	0.166
11.87	0.252	12.47	0.878	13.07	0.387	13.67	0.231	14.27	0.165
11.88	0.272	12.48	0.860	13.08	0.380	13.68	0.229	14.28	0.164
11.90	0.294	12.50	0.840	13.10	0.373	13.70	0.226	14.30	0.163
11.92	0.316	12.52	0.821	13.12	0.366	13.72	0.224	14.32	0.162
11.93	0.342	12.53	0.801	13.13	0.360	13.73	0.221	14.33	0.160
11.95	0.372	12.55	0.780	13.15	0.353	13.75	0.219	14.35	0.159
11.97	0.408	12.57	0.760	13.17	0.347	13.77	0.217	14.37	0.158
11.98	0.453	12.58	0.740	13.18	0.341	13.78	0.215	14.38	0.157
12.00	0.507	12.60	0.721	13.20	0.336	13.80	0.212	14.40	0.156
12.02	0.569	12.62	0.702	13.22	0.330	13.82	0.210	14.42	0.155
12.03	0.639	12.63	0.684	13.23	0.325	13.83	0.208	14.43	0.154
12.05	0.711	12.65	0.668	13.25	0.320	13.85	0.206	14.45	0.153
12.07	0.780	12.67	0.651	13.27	0.315	13.87	0.204	14.47	0.152
12.08	0.844	12.68	0.635	13.28	0.310	13.88	0.202	14.48	0.151
12.10	0.899	12.70	0.620	13.30	0.306	13.90	0.200	14.50	0.150
12.12	0.942	12.72	0.605	13.32	0.301	13.92	0.198	14.52	0.149
12.13	0.975	12.73	0.591	13.33	0.297	13.93	0.196	14.53	0.148
12.15	0.997	12.75	0.577	13.35	0.293	13.95	0.194	14.55	0.147
12.17	1.010	12.77	0.564	13.37	0.289	13.97	0.193	14.57	0.146
12.18	1.018	12.78	0.552	13.38	0.285	13.98	0.191	14.58	0.145
12.20	1.022	12.80	0.540	13.40	0.281	14.00	0.189	14.60	0.144
<b>12.22</b>	<b>1.023</b>	12.82	0.528	13.42	0.277	14.02	0.187	14.62	0.143
12.23	1.022	12.83	0.516	13.43	0.273	14.03	0.186	14.63	0.142
12.25	1.020	12.85	0.505	13.45	0.270	14.05	0.184	14.65	0.142
12.27	1.017	12.87	0.495	13.47	0.266	14.07	0.182	14.67	0.141
12.28	1.012	12.88	0.484	13.48	0.263	14.08	0.181	14.68	0.140

**Hydrograph Discharge Table, cont'd**

**SUM SA-B**

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
14.70	0.139	15.30	0.114						
14.72	0.138	15.32	0.113						
14.73	0.137	15.33	0.112						
14.75	0.137	15.35	0.112						
14.77	0.136	15.37	0.111						
14.78	0.135	15.38	0.110						
14.80	0.134	15.40	0.110						
14.82	0.133	15.42	0.109						
14.83	0.133	15.43	0.109						
14.85	0.132	15.45	0.108						
14.87	0.131	15.47	0.108						
14.88	0.130	15.48	0.107						
14.90	0.130	15.50	0.107						
14.92	0.129	15.52	0.106						
14.93	0.128	15.53	0.106						
14.95	0.127	15.55	0.105						
14.97	0.127	15.57	0.104						
14.98	0.126	15.58	0.104						
15.00	0.125	15.60	0.103						
15.02	0.124	15.62	0.103						
15.03	0.124	15.63	0.102						
15.05	0.123	15.65	0.102						
15.07	0.122	...end	...end						
15.08	0.122								
15.10	0.121								
15.12	0.120								
15.13	0.120								
15.15	0.119								
15.17	0.119								
15.18	0.118								
15.20	0.117								
15.22	0.117								
15.23	0.116								
15.25	0.115								
15.27	0.115								
15.28	0.114								

# Design Storm Report

Custom Storm filename: 3170.cds

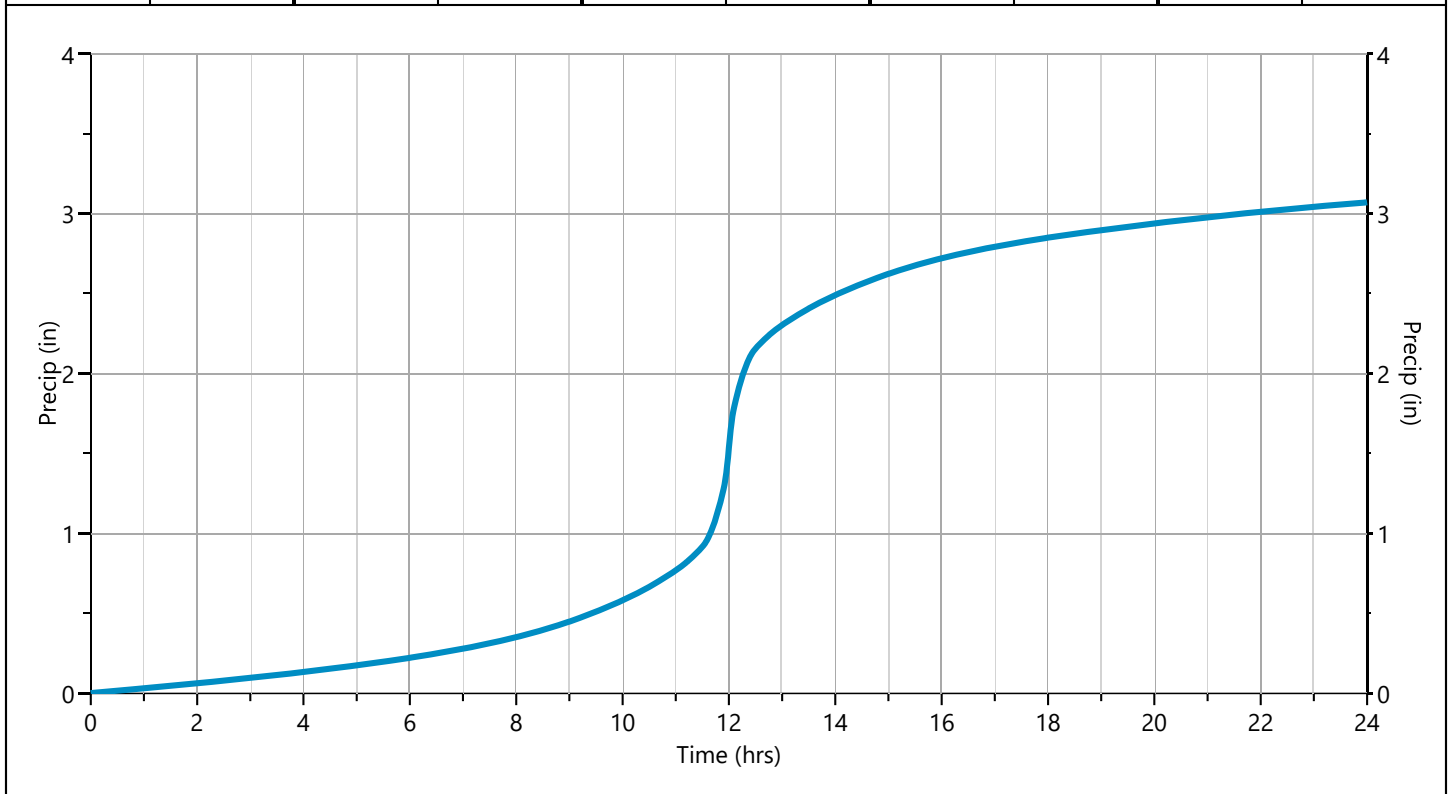
Hydrology Studio v 3.0.0.26

01-18-2023

## Storm Distribution: NRCS/SCS - Type III, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	✓ 2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
24 hrs	2.47	3.07	0.00	4.05	4.87	5.99	6.82	7.73	

Incremental Rainfall Distribution, 2-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	0.006050	11.68	0.013968	11.87	0.022223	12.05	0.046126	12.23	0.018471
11.52	0.006447	11.70	0.014719	11.88	0.022974	12.07	0.039833	12.25	0.017721
11.53	0.007214	11.72	0.015469	11.90	0.023724	12.08	0.033540	12.27	0.016970
11.55	0.007965	11.73	0.016220	11.92	0.027334	12.10	0.027246	12.28	0.016220
11.57	0.008715	11.75	0.016970	11.93	0.033540	12.12	0.023814	12.30	0.015470
11.58	0.009466	11.77	0.017721	11.95	0.039833	12.13	0.022974	12.32	0.014719
11.60	0.010216	11.78	0.018471	11.97	0.046127	12.15	0.022223	12.33	0.013969
11.62	0.010967	11.80	0.019222	11.98	0.052420	12.17	0.021473	12.35	0.013218
11.63	0.011717	11.82	0.019972	<b>12.00</b>	<b>0.058714</b>	12.18	0.020723	12.37	0.012468
11.65	0.012468	11.83	0.020723	12.02	0.058573	12.20	0.019972	12.38	0.011717
11.67	0.013218	11.85	0.021473	12.03	0.052420	12.22	0.019222	12.40	0.010967



POST62

# Hydrograph 5-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Post SA-B.1	1.030	12.07	3,372	---		
2	NRCS Runoff	Post SA-B.2	0.908	12.07	2,892	---		
3	NRCS Runoff	Post SA B. 3 to B.6	0.990	12.07	3,332	---		
4	NRCS Runoff	Post SA-B.7(bypass)	0.305	12.07	966	---		
5	NRCS Runoff	Post SA-A (remaining)	2.196	12.07	6,894	---		
6	Pond Route	Post PROP. R.G. #1	1.016	12.08	2,907	1	75.40	535
7	Pond Route	Post PRO R.G. #2	0.904	12.08	2,566	2	77.38	360
8	Junction	Post SUM TO U.G. DET. SYS	2.903	12.08	8,805	3, 6, 7		
9	Pond Route	PROP. U/G DET BASIN	1.359	12.23	8,483	8	73.68	2,519
10	Junction	Post SUM SA-B	1.525	12.15	9,449	4, 9		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

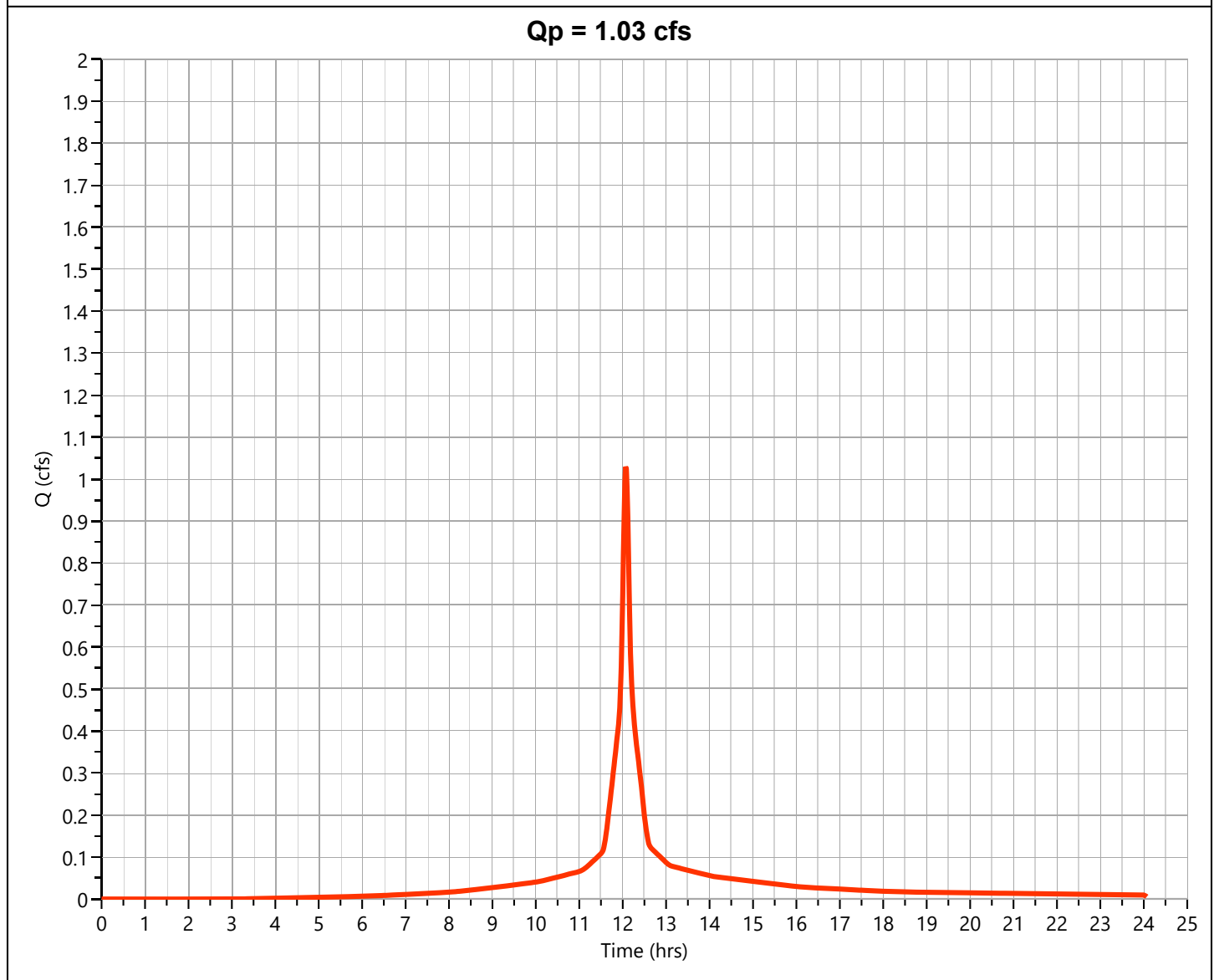
## Post SA-B.1

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.030 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 3,372 cuft
Drainage Area	= 0.267 ac	Curve Number	= 94*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.05 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.207	98	C-PAVED
0.009	85	C-POROUS PAVERS
0.051	79	C-LAWN/LANSCAPED
<b>0.267</b>	<b>94</b>	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-B.1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.45	0.103	12.05	0.993	12.65	0.122				
11.47	0.105	<b>12.07</b>	<b>1.030</b>	12.67	0.120				
11.48	0.106	12.08	1.024	12.68	0.118				
11.50	0.108	12.10	0.981	12.70	0.117				
11.52	0.110	12.12	0.910	12.72	0.115				
11.53	0.113	12.13	0.823	12.73	0.113				
11.55	0.117	12.15	0.731	12.75	0.112				
11.57	0.123	12.17	0.647	12.77	0.110				
11.58	0.132	12.18	0.578	12.78	0.108				
11.60	0.142	12.20	0.526	12.80	0.107				
11.62	0.154	12.22	0.487	12.82	0.105				
11.63	0.167	12.23	0.458	12.83	0.103				
11.65	0.181	12.25	0.436	12.85	0.102				
11.67	0.196	12.27	0.419	...end	...end				
11.68	0.211	12.28	0.404						
11.70	0.226	12.30	0.388						
11.72	0.241	12.32	0.373						
11.73	0.256	12.33	0.357						
11.75	0.271	12.35	0.342						
11.77	0.286	12.37	0.326						
11.78	0.302	12.38	0.310						
11.80	0.317	12.40	0.295						
11.82	0.333	12.42	0.279						
11.83	0.348	12.43	0.263						
11.85	0.364	12.45	0.248						
11.87	0.380	12.47	0.232						
11.88	0.396	12.48	0.216						
11.90	0.412	12.50	0.200						
11.92	0.431	12.52	0.185						
11.93	0.457	12.53	0.170						
11.95	0.497	12.55	0.157						
11.97	0.554	12.57	0.147						
11.98	0.631	12.58	0.138						
12.00	0.724	12.60	0.132						
12.02	0.825	12.62	0.127						
12.03	0.920	12.63	0.124						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

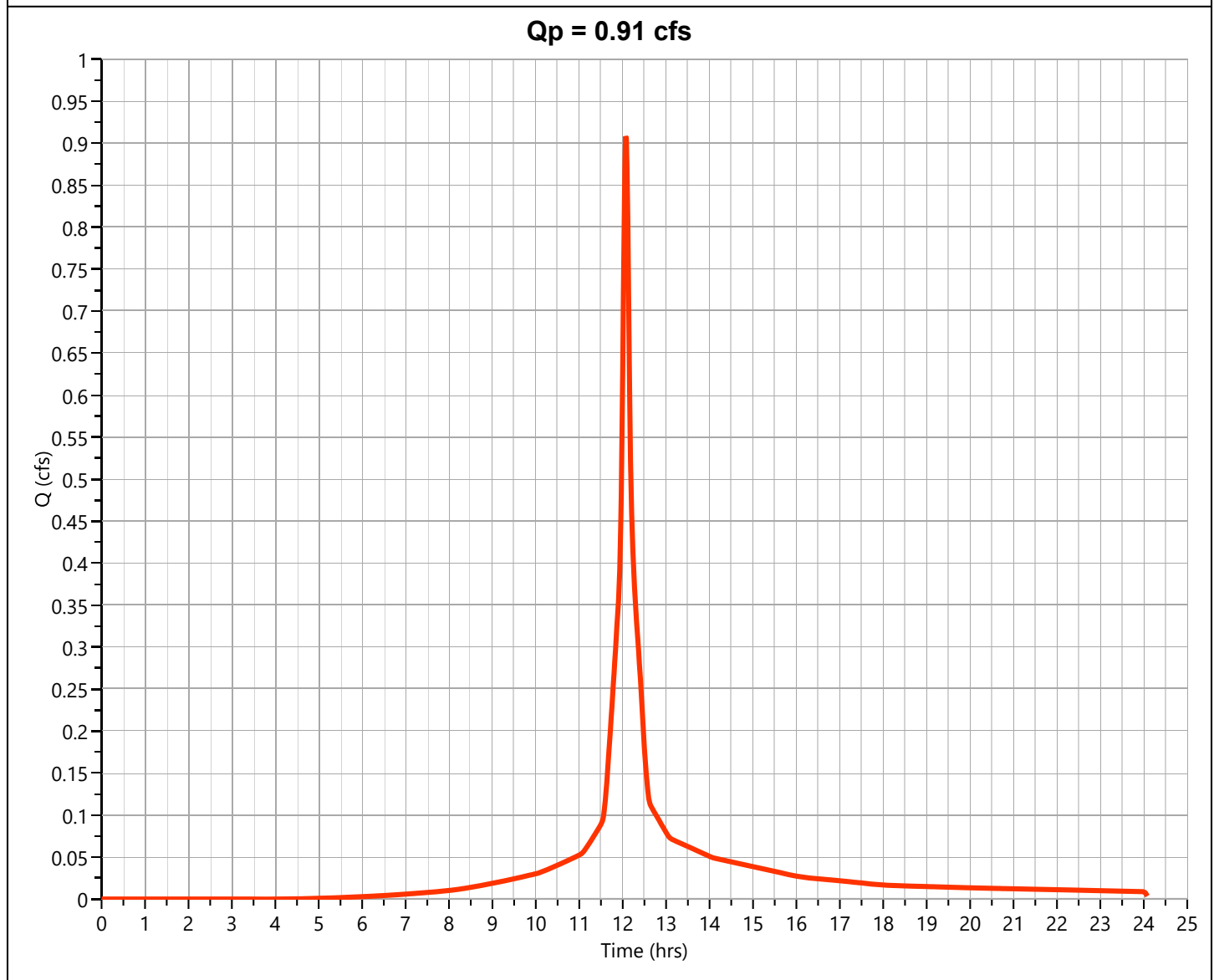
## Post SA-B.2

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.908 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 2,892 cuft
Drainage Area	= 0.252 ac	Curve Number	= 91*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.05 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.153	98	C-PAVED
0.009	89	C-POROUS PAVERS
0.09	79	C-LAWN/LANDSCAPED
<b>0.252</b>	<b>91</b>	Weighted CN Method Employed





# Hydrograph Discharge Table

SA-B.2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.53	0.093	12.13	0.732	12.73	0.103				
11.55	0.096	12.15	0.652	12.75	0.101				
11.57	0.102	12.17	0.578	12.77	0.100				
11.58	0.109	12.18	0.517	12.78	0.098				
11.60	0.118	12.20	0.471	12.80	0.097				
11.62	0.128	12.22	0.436	12.82	0.096				
11.63	0.139	12.23	0.411	12.83	0.094				
11.65	0.151	12.25	0.392	12.85	0.093				
11.67	0.163	12.27	0.377	12.87	0.091				
11.68	0.176	12.28	0.364	12.88	0.090				
11.70	0.189	12.30	0.350	...end	...end				
11.72	0.202	12.32	0.336						
11.73	0.215	12.33	0.322						
11.75	0.228	12.35	0.308						
11.77	0.241	12.37	0.294						
11.78	0.255	12.38	0.280						
11.80	0.269	12.40	0.266						
11.82	0.282	12.42	0.252						
11.83	0.296	12.43	0.238						
11.85	0.310	12.45	0.224						
11.87	0.325	12.47	0.210						
11.88	0.339	12.48	0.196						
11.90	0.354	12.50	0.181						
11.92	0.370	12.52	0.167						
11.93	0.394	12.53	0.154						
11.95	0.429	12.55	0.142						
11.97	0.480	12.57	0.133						
11.98	0.548	12.58	0.125						
12.00	0.632	12.60	0.120						
12.02	0.722	12.62	0.116						
12.03	0.807	12.63	0.113						
12.05	0.874	12.65	0.110						
<b>12.07</b>	<b>0.908</b>	12.67	0.109						
12.08	0.906	12.68	0.107						
12.10	0.870	12.70	0.106						
12.12	0.808	12.72	0.104						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

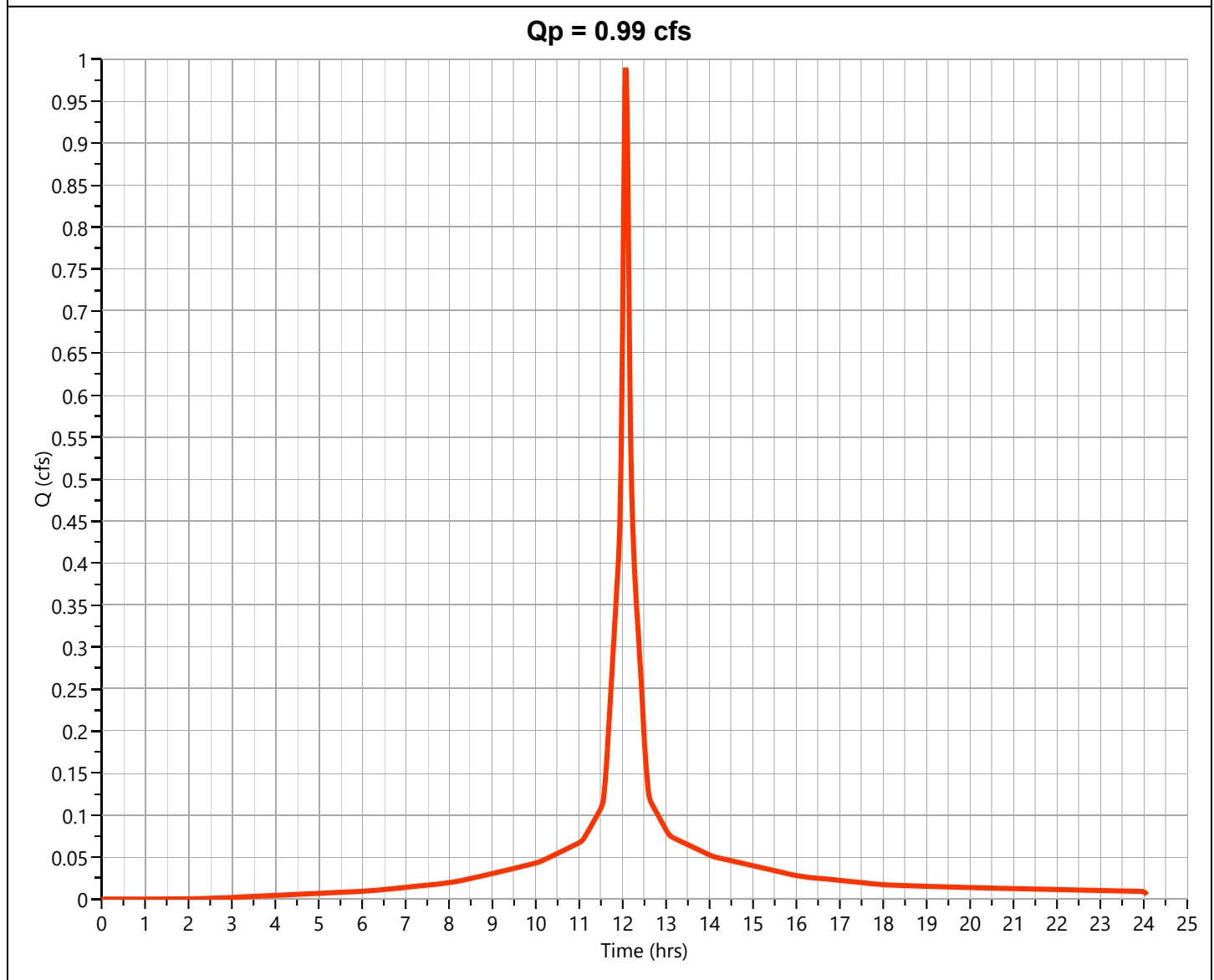
## Post SA B. 3 to B.6

## Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.990 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 3,332 cuft
Drainage Area	= 0.248 ac	Curve Number	= 96*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.05 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.215	98	C-PAVED
0.017	89	C-POROUS PAVERS
0.016	79	C-LAWN/LANDSCAPED
<b>0.248</b>	<b>96</b>	Weighted CN Method Employed



POST68

# Hydrograph Discharge Table

SA B. 3 to B.6

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.42	0.100	12.02	0.797	12.62	0.121				
11.43	0.102	12.03	0.887	12.63	0.118				
11.45	0.103	12.05	0.956	12.65	0.115				
11.47	0.105	<b>12.07</b>	<b>0.990</b>	12.67	0.114				
11.48	0.107	12.08	0.983	12.68	0.112				
11.50	0.108	12.10	0.941	12.70	0.110				
11.52	0.110	12.12	0.872	12.72	0.109				
11.53	0.113	12.13	0.787	12.73	0.107				
11.55	0.117	12.15	0.699	12.75	0.106				
11.57	0.123	12.17	0.618	12.77	0.104				
11.58	0.131	12.18	0.552	12.78	0.103				
11.60	0.142	12.20	0.501	12.80	0.101				
11.62	0.153	12.22	0.464	12.82	0.099				
11.63	0.166	12.23	0.436	12.83	0.098				
11.65	0.180	12.25	0.415	...end	...end				
11.67	0.194	12.27	0.399						
11.68	0.209	12.28	0.384						
11.70	0.224	12.30	0.369						
11.72	0.238	12.32	0.354						
11.73	0.253	12.33	0.339						
11.75	0.268	12.35	0.325						
11.77	0.282	12.37	0.310						
11.78	0.297	12.38	0.295						
11.80	0.312	12.40	0.280						
11.82	0.327	12.42	0.265						
11.83	0.342	12.43	0.250						
11.85	0.357	12.45	0.235						
11.87	0.372	12.47	0.220						
11.88	0.387	12.48	0.205						
11.90	0.402	12.50	0.190						
11.92	0.420	12.52	0.175						
11.93	0.445	12.53	0.161						
11.95	0.483	12.55	0.149						
11.97	0.538	12.57	0.139						
11.98	0.611	12.58	0.131						
12.00	0.701	12.60	0.125						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

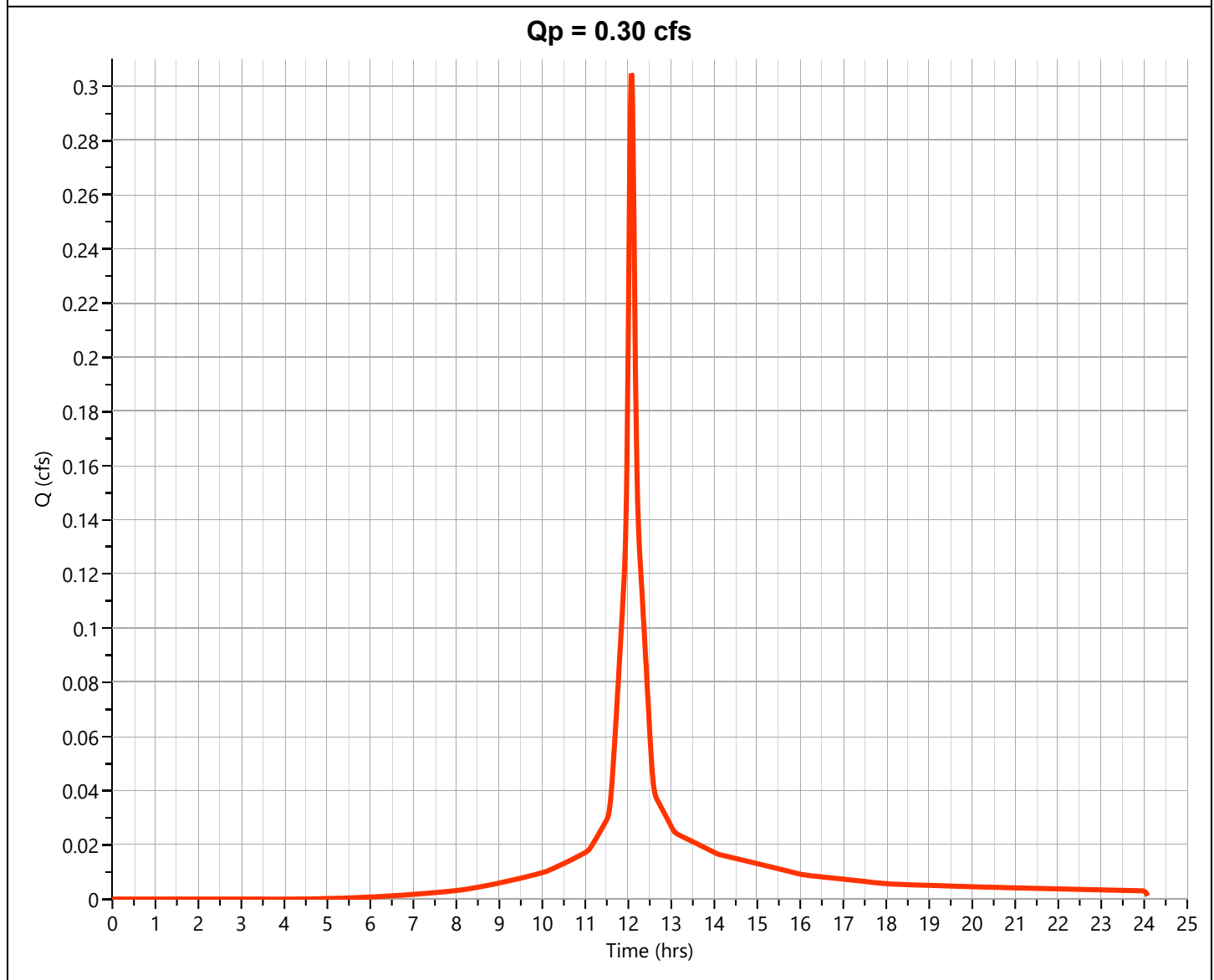
## Post SA-B.7(bypass)

## Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.305 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 966 cuft
Drainage Area	= 0.086 ac	Curve Number	= 90.34*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.05 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.031	89	C-Roadway
0.035	98	C-Paved
0.02	79	C-Lawn/Landscaped
<b>0.086</b>	<b>90</b>	Weighted CN Method Employed



POST70

### Hydrograph Discharge Table

SA-B.7(bypass)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.53	0.031	12.13	0.246	12.73	0.035				
11.55	0.032	12.15	0.219	12.75	0.034				
11.57	0.034	12.17	0.194	12.77	0.034				
11.58	0.036	12.18	0.174	12.78	0.033				
11.60	0.039	12.20	0.159	12.80	0.033				
11.62	0.042	12.22	0.147	12.82	0.032				
11.63	0.046	12.23	0.138	12.83	0.032				
11.65	0.050	12.25	0.132	12.85	0.031				
11.67	0.054	12.27	0.127	12.87	0.031				
11.68	0.058	12.28	0.123	12.88	0.030				
11.70	0.063	12.30	0.118	...end	...end				
11.72	0.067	12.32	0.113						
11.73	0.071	12.33	0.109						
11.75	0.076	12.35	0.104						
11.77	0.080	12.37	0.099						
11.78	0.085	12.38	0.095						
11.80	0.089	12.40	0.090						
11.82	0.094	12.42	0.085						
11.83	0.099	12.43	0.080						
11.85	0.103	12.45	0.076						
11.87	0.108	12.47	0.071						
11.88	0.113	12.48	0.066						
11.90	0.118	12.50	0.061						
11.92	0.124	12.52	0.057						
11.93	0.132	12.53	0.052						
11.95	0.143	12.55	0.048						
11.97	0.160	12.57	0.045						
11.98	0.183	12.58	0.042						
12.00	0.211	12.60	0.040						
12.02	0.242	12.62	0.039						
12.03	0.270	12.63	0.038						
12.05	0.293	12.65	0.037						
<b>12.07</b>	<b>0.305</b>	12.67	0.037						
12.08	0.304	12.68	0.036						
12.10	0.292	12.70	0.036						
12.12	0.272	12.72	0.035						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

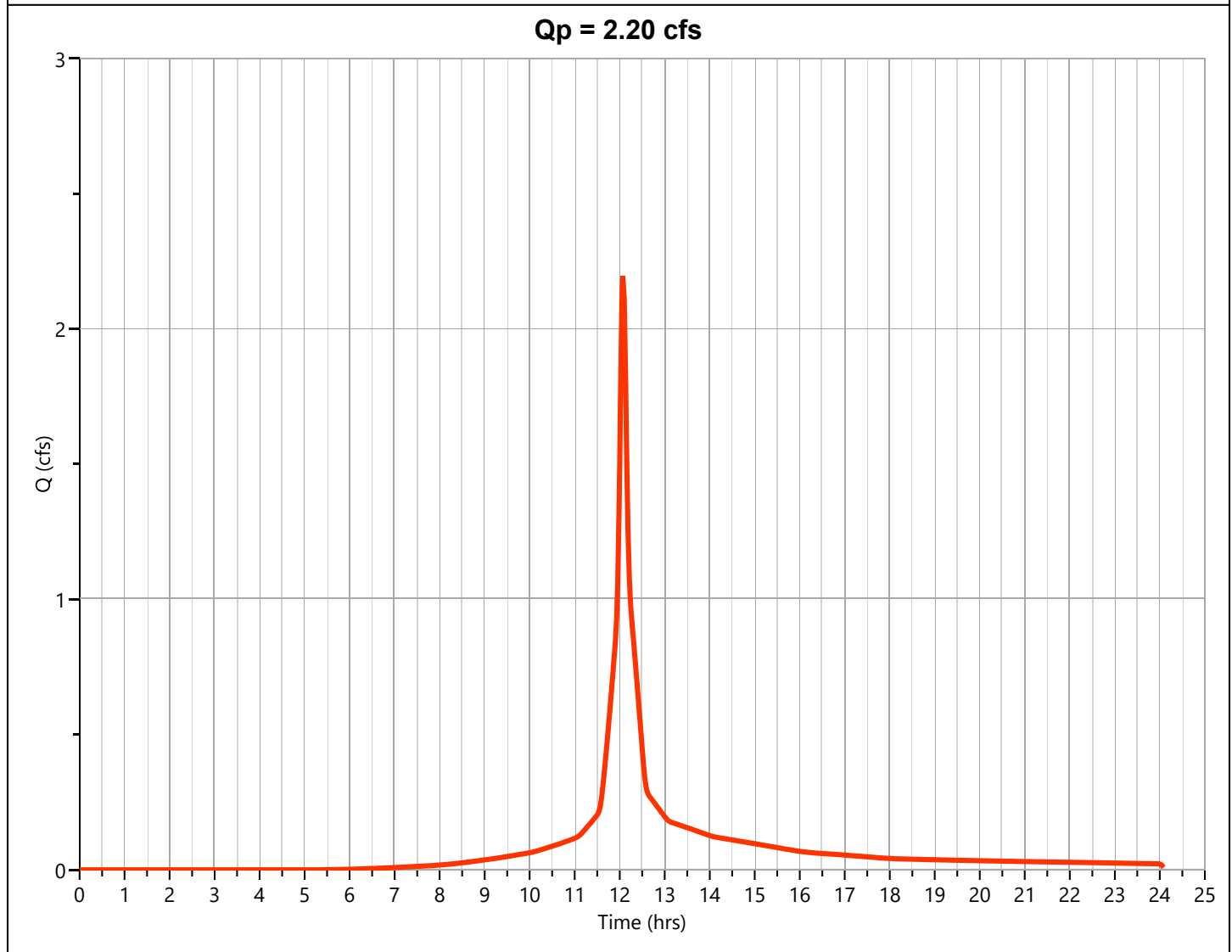
## Post SA-A (remaining)

## Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.196 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 6,894 cuft
Drainage Area	= 0.649 ac	Curve Number	= 88.66*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.05 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.187	89	C-Roadway
0.239	94	C-Urban Area
0.039	98	C-Paved
0.012	89	C-Porous PAvers
0.172	79	C-Lawn/Landscaped
<b>0.649</b>	<b>89</b>	Weighted CN Method Employed



POST72

### Hydrograph Discharge Table

SA-A (remaining)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.55	0.221	12.15	1.590	12.75	0.252				
11.57	0.233	12.17	1.412	12.77	0.248				
11.58	0.250	12.18	1.266	12.78	0.244				
11.60	0.270	12.20	1.154	12.80	0.241				
11.62	0.294	12.22	1.071	12.82	0.237				
11.63	0.319	12.23	1.009	12.83	0.233				
11.65	0.347	12.25	0.964	12.85	0.230				
11.67	0.376	12.27	0.928	12.87	0.226				
11.68	0.406	12.28	0.895	12.88	0.222				
11.70	0.436	12.30	0.861	12.90	0.219				
11.72	0.467	12.32	0.828	...end	...end				
11.73	0.498	12.33	0.794						
11.75	0.530	12.35	0.761						
11.77	0.562	12.37	0.727						
11.78	0.594	12.38	0.692						
11.80	0.627	12.40	0.658						
11.82	0.661	12.42	0.623						
11.83	0.695	12.43	0.589						
11.85	0.729	12.45	0.554						
11.87	0.764	12.47	0.519						
11.88	0.799	12.48	0.484						
11.90	0.835	12.50	0.449						
11.92	0.877	12.52	0.414						
11.93	0.935	12.53	0.382						
11.95	1.020	12.55	0.353						
11.97	1.144	12.57	0.329						
11.98	1.309	12.58	0.310						
12.00	1.512	12.60	0.297						
12.02	1.733	12.62	0.286						
12.03	1.943	12.63	0.279						
12.05	2.108	12.65	0.274						
<b>12.07</b>	<b>2.196</b>	12.67	0.270						
12.08	2.194	12.68	0.266						
12.10	2.111	12.70	0.263						
12.12	1.966	12.72	0.259						
12.13	1.783	12.73	0.255						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PROP. R.G. #1

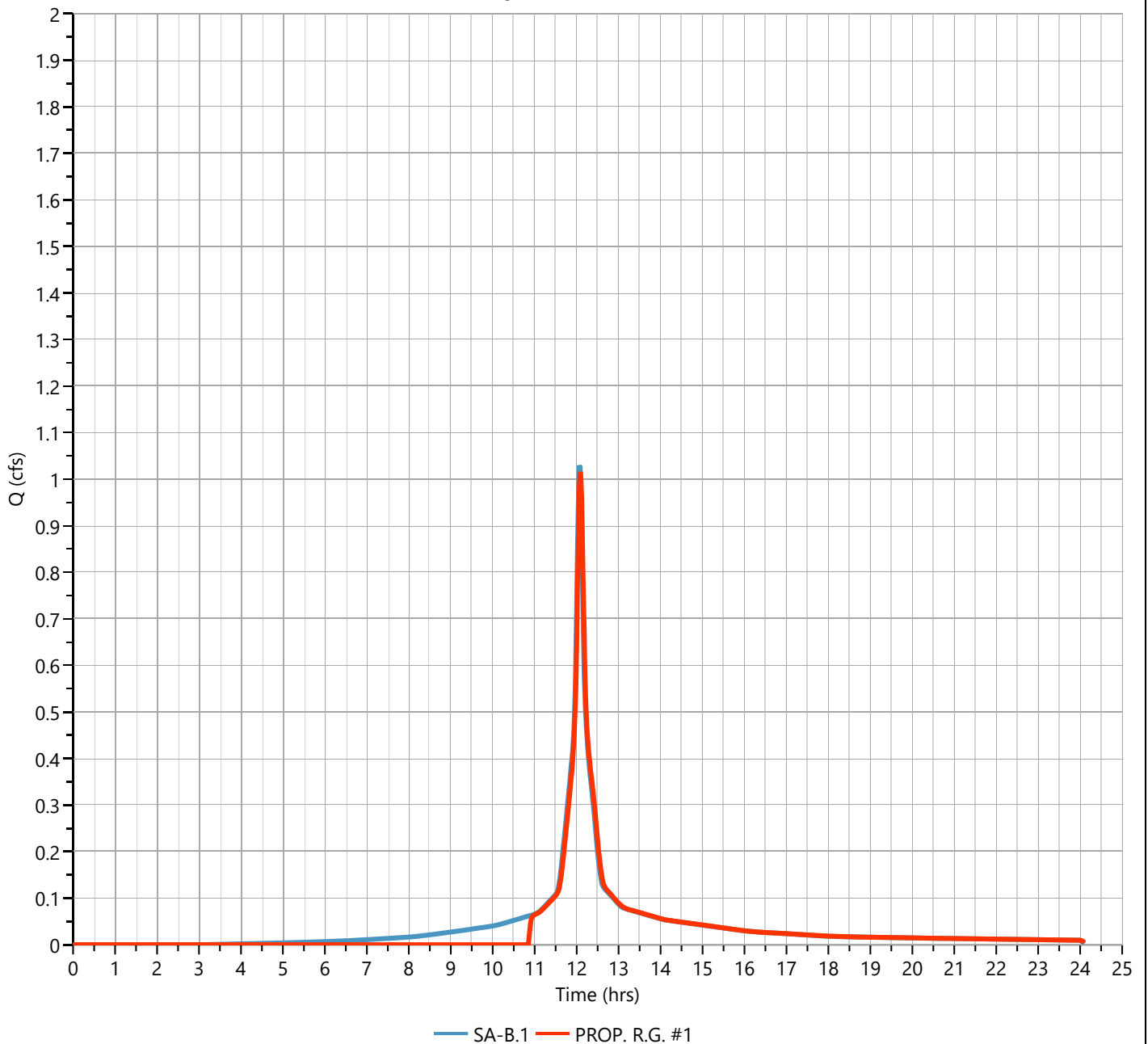
## Hyd. No. 6

Hydrograph Type	= Pond Route	Peak Flow	= 1.016 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,907 cuft
Inflow Hydrograph	= 1 - SA-B.1	Max. Elevation	= 75.40 ft
Pond Name	= PROP. RAINGARDEN #1	Max. Storage	= 535 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 40 min

**Qp = 1.02 cfs**





# Hydrograph Discharge Table

PROP. R.G. #1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.47	0.102	12.07	0.987	12.67	0.125				
11.48	0.104	<b>12.08</b>	<b>1.016</b>	12.68	0.122				
11.50	0.105	12.10	1.006	12.70	0.120				
11.52	0.107	12.12	0.962	12.72	0.118				
11.53	0.109	12.13	0.893	12.73	0.116				
11.55	0.112	12.15	0.809	12.75	0.114				
11.57	0.116	12.17	0.722	12.77	0.113				
11.58	0.121	12.18	0.643	12.78	0.111				
11.60	0.129	12.20	0.577	12.80	0.109				
11.62	0.138	12.22	0.526	12.82	0.108				
11.63	0.149	12.23	0.487	12.83	0.106				
11.65	0.161	12.25	0.458	12.85	0.104				
11.67	0.174	12.27	0.436	12.87	0.103				
11.68	0.188	12.28	0.418	12.88	0.101				
11.70	0.202	12.30	0.402	...end	...end				
11.72	0.217	12.32	0.387						
11.73	0.232	12.33	0.374						
11.75	0.247	12.35	0.362						
11.77	0.262	12.37	0.349						
11.78	0.277	12.38	0.334						
11.80	0.292	12.40	0.319						
11.82	0.308	12.42	0.304						
11.83	0.323	12.43	0.289						
11.85	0.339	12.45	0.273						
11.87	0.355	12.47	0.257						
11.88	0.370	12.48	0.241						
11.90	0.390	12.50	0.226						
11.92	0.413	12.52	0.210						
11.93	0.435	12.53	0.195						
11.95	0.465	12.55	0.180						
11.97	0.509	12.57	0.167						
11.98	0.569	12.58	0.155						
12.00	0.647	12.60	0.146						
12.02	0.739	12.62	0.138						
12.03	0.836	12.63	0.132						
12.05	0.923	12.65	0.128						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PRO R.G. #2

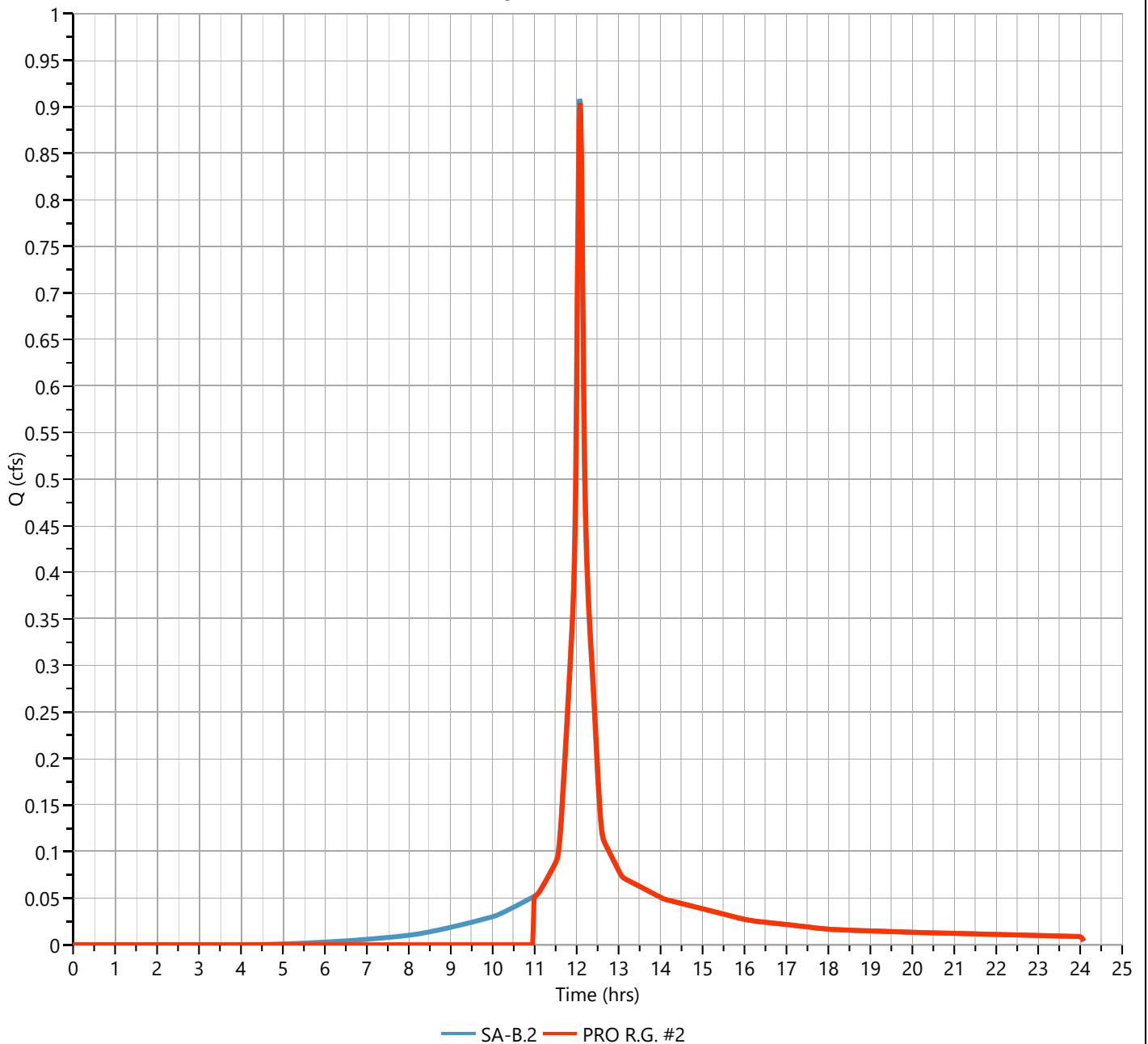
## Hyd. No. 7

Hydrograph Type	= Pond Route	Peak Flow	= 0.904 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,566 cuft
Inflow Hydrograph	= 2 - SA-B.2	Max. Elevation	= 77.38 ft
Pond Name	= PRO RAINGARDEN #2	Max. Storage	= 360 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 30 min

**Qp = 0.90 cfs**



# Hydrograph Discharge Table

PRO R.G. #2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.53	0.091	12.13	0.779	12.73	0.104				
11.55	0.094	12.15	0.702	12.75	0.102				
11.57	0.099	12.17	0.625	12.77	0.101				
11.58	0.105	12.18	0.557	12.78	0.099				
11.60	0.112	12.20	0.501	12.80	0.098				
11.62	0.122	12.22	0.459	12.82	0.096				
11.63	0.132	12.23	0.428	12.83	0.095				
11.65	0.143	12.25	0.405	12.85	0.093				
11.67	0.155	12.27	0.387	12.87	0.092				
11.68	0.168	12.28	0.372	12.88	0.090				
11.70	0.181	12.30	0.359	12.90	0.089				
11.72	0.194	12.32	0.345	...end	...end				
11.73	0.207	12.33	0.331						
11.75	0.220	12.35	0.317						
11.77	0.233	12.37	0.303						
11.78	0.246	12.38	0.289						
11.80	0.260	12.40	0.275						
11.82	0.274	12.42	0.261						
11.83	0.288	12.43	0.247						
11.85	0.302	12.45	0.233						
11.87	0.316	12.47	0.219						
11.88	0.330	12.48	0.205						
11.90	0.344	12.50	0.190						
11.92	0.360	12.52	0.176						
11.93	0.380	12.53	0.163						
11.95	0.408	12.55	0.150						
11.97	0.449	12.57	0.139						
11.98	0.507	12.58	0.130						
12.00	0.580	12.60	0.123						
12.02	0.665	12.62	0.118						
12.03	0.753	12.63	0.115						
12.05	0.830	12.65	0.112						
12.07	0.884	12.67	0.110						
<b>12.08</b>	<b>0.904</b>	12.68	0.108						
12.10	0.889	12.70	0.107						
12.12	0.845	12.72	0.105						

# Hydrograph Report

Project Name:

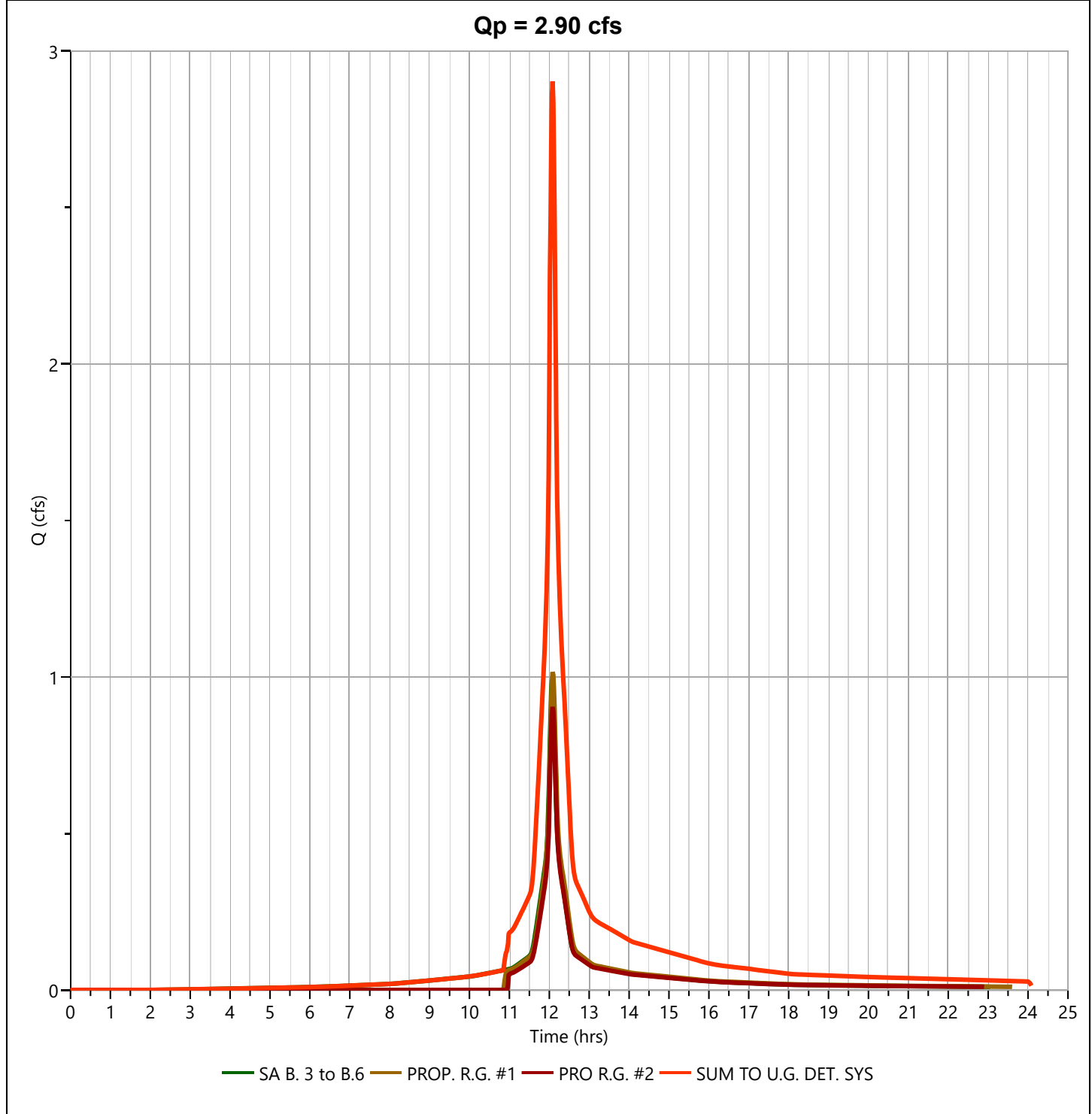
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM TO U.G. DET. SYS

## Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 2.903 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 8,805 cuft
Inflow Hydrographs	= 3, 6, 7	Total Contrib. Area	= 0.248 ac



POST78

# Hydrograph Discharge Table

SUM TO U.G. DET. SYS

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.47	0.292	12.07	2.861	12.67	0.348				
11.48	0.297	<b>12.08</b>	<b>2.903</b>	12.68	0.342				
11.50	0.301	12.10	2.837	12.70	0.337				
11.52	0.306	12.12	2.679	12.72	0.332				
11.53	0.313	12.13	2.459	12.73	0.327				
11.55	0.323	12.15	2.210	12.75	0.323				
11.57	0.337	12.17	1.965	12.77	0.318				
11.58	0.357	12.18	1.751	12.78	0.313				
11.60	0.383	12.20	1.580	12.80	0.308				
11.62	0.413	12.22	1.449	12.82	0.304				
11.63	0.447	12.23	1.351	12.83	0.299				
11.65	0.484	12.25	1.278	12.85	0.294				
11.67	0.524	12.27	1.222	12.87	0.290				
11.68	0.565	12.28	1.175	...end	...end				
11.70	0.606	12.30	1.130						
11.72	0.649	12.32	1.086						
11.73	0.691	12.33	1.044						
11.75	0.734	12.35	1.004						
11.77	0.777	12.37	0.962						
11.78	0.821	12.38	0.918						
11.80	0.864	12.40	0.874						
11.82	0.909	12.42	0.830						
11.83	0.953	12.43	0.785						
11.85	0.998	12.45	0.741						
11.87	1.042	12.47	0.696						
11.88	1.088	12.48	0.651						
11.90	1.137	12.50	0.606						
11.92	1.193	12.52	0.561						
11.93	1.260	12.53	0.518						
11.95	1.356	12.55	0.479						
11.97	1.496	12.57	0.445						
11.98	1.687	12.58	0.416						
12.00	1.928	12.60	0.394						
12.02	2.202	12.62	0.377						
12.03	2.476	12.63	0.364						
12.05	2.709	12.65	0.355						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## PROP. U/G DET BASIN

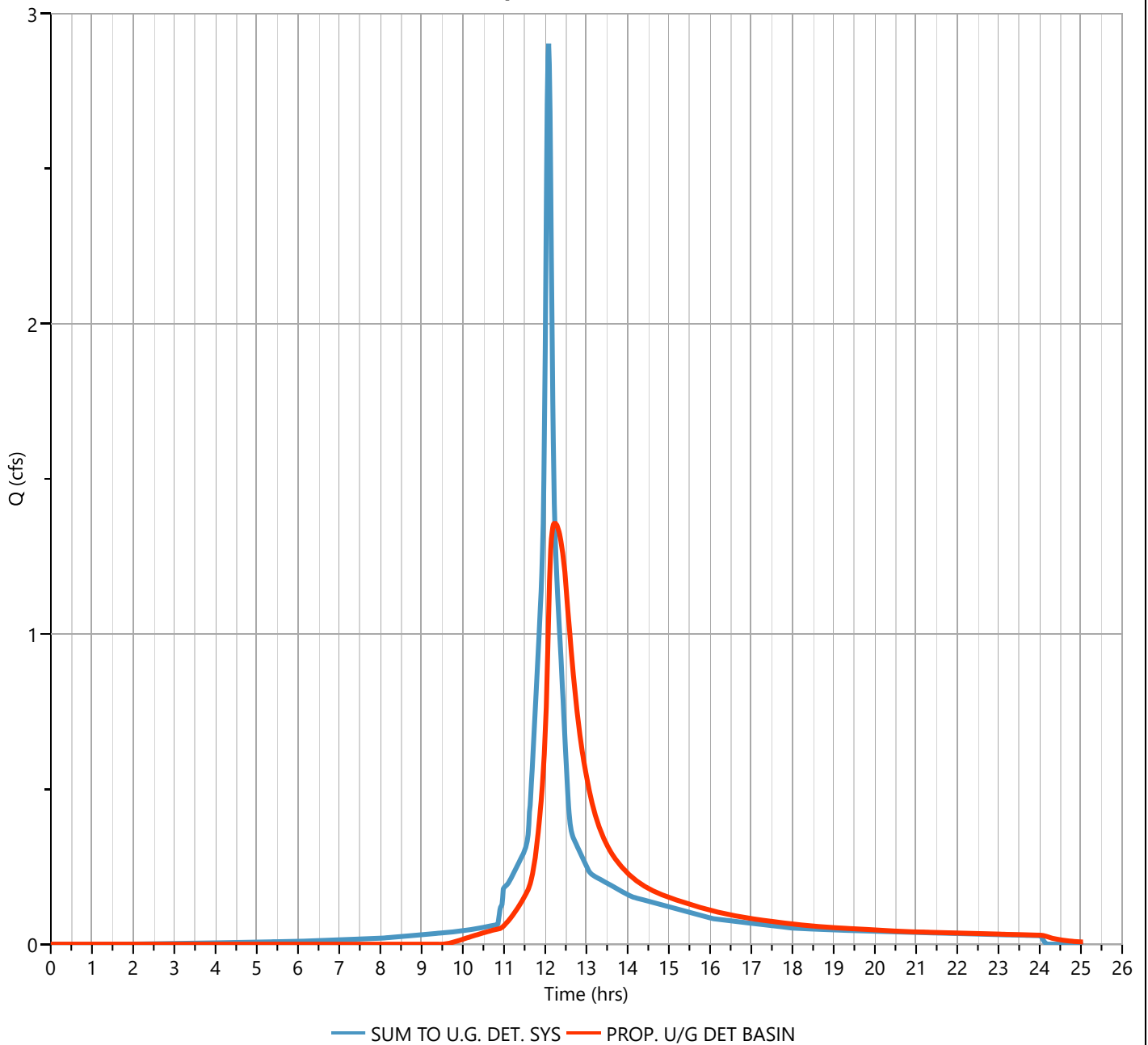
### Hyd. No. 9

Hydrograph Type	= Pond Route	Peak Flow	= 1.359 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.23 hrs
Time Interval	= 1 min	Hydrograph Volume	= 8,483 cuft
Inflow Hydrograph	= 8 - SUM TO U.G. DET. SYS	Max. Elevation	= 73.68 ft
Pond Name	= PROP U/G DET SYS	Max. Storage	= 2,519 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 49 min

**Qp = 1.36 cfs**



# Hydrograph Discharge Table

PROP. U/G DET BASIN

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.43	0.138	12.03	0.809	12.63	0.944	13.23	0.408	13.83	0.253
11.45	0.142	12.05	0.889	12.65	0.918	13.25	0.401	13.85	0.250
11.47	0.146	12.07	0.973	12.67	0.892	13.27	0.394	13.87	0.248
11.48	0.150	12.08	1.058	12.68	0.868	13.28	0.388	13.88	0.245
11.50	0.154	12.10	1.139	12.70	0.844	13.30	0.381	13.90	0.243
11.52	0.158	12.12	1.211	12.72	0.821	13.32	0.375	13.92	0.240
11.53	0.162	12.13	1.271	12.73	0.799	13.33	0.369	13.93	0.238
11.55	0.166	12.15	1.306	12.75	0.778	13.35	0.363	13.95	0.236
11.57	0.171	12.17	1.329	12.77	0.757	13.37	0.358	13.97	0.233
11.58	0.176	12.18	1.344	12.78	0.738	13.38	0.352	13.98	0.231
11.60	0.181	12.20	1.353	12.80	0.719	13.40	0.347	14.00	0.229
11.62	0.187	12.22	1.358	12.82	0.701	13.42	0.342	14.02	0.227
11.63	0.194	<b>12.23</b>	<b>1.359</b>	12.83	0.684	13.43	0.337	14.03	0.225
11.65	0.202	12.25	1.358	12.85	0.667	13.45	0.332	14.05	0.223
11.67	0.211	12.27	1.355	12.87	0.651	13.47	0.327	14.07	0.221
11.68	0.221	12.28	1.350	12.88	0.636	13.48	0.323	14.08	0.219
11.70	0.232	12.30	1.345	12.90	0.621	13.50	0.319	14.10	0.217
11.72	0.245	12.32	1.338	12.92	0.606	13.52	0.314	14.12	0.215
11.73	0.258	12.33	1.330	12.93	0.592	13.53	0.310	14.13	0.213
11.75	0.273	12.35	1.321	12.95	0.579	13.55	0.306	14.15	0.211
11.77	0.289	12.37	1.311	12.97	0.566	13.57	0.303	14.17	0.209
11.78	0.306	12.38	1.300	12.98	0.553	13.58	0.299	14.18	0.207
11.80	0.324	12.40	1.288	13.00	0.541	13.60	0.295	14.20	0.206
11.82	0.343	12.42	1.273	13.02	0.530	13.62	0.292	14.22	0.204
11.83	0.364	12.43	1.252	13.03	0.518	13.63	0.288	14.23	0.202
11.85	0.387	12.45	1.230	13.05	0.507	13.65	0.285	14.25	0.201
11.87	0.410	12.47	1.208	13.07	0.497	13.67	0.282	14.27	0.199
11.88	0.435	12.48	1.184	13.08	0.486	13.68	0.278	14.28	0.198
11.90	0.461	12.50	1.159	13.10	0.476	13.70	0.275	14.30	0.196
11.92	0.488	12.52	1.133	13.12	0.467	13.72	0.272	14.32	0.195
11.93	0.517	12.53	1.107	13.13	0.457	13.73	0.269	14.33	0.193
11.95	0.549	12.55	1.080	13.15	0.448	13.75	0.266	14.35	0.192
11.97	0.584	12.57	1.052	13.17	0.440	13.77	0.263	14.37	0.190
11.98	0.627	12.58	1.024	13.18	0.431	13.78	0.261	14.38	0.189
12.00	0.677	12.60	0.996	13.20	0.423	13.80	0.258	14.40	0.188
12.02	0.738	12.62	0.969	13.22	0.416	13.82	0.255	14.42	0.186

Printed values > 10% of Qpeak. nth-point print interval = 1

**Hydrograph Discharge Table, cont'd**

**PROP. U/G DET BASIN**

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
14.43	0.185	15.03	0.149						
14.45	0.184	15.05	0.148						
14.47	0.182	15.07	0.148						
14.48	0.181	15.08	0.147						
14.50	0.180	15.10	0.146						
14.52	0.179	15.12	0.145						
14.53	0.178	15.13	0.145						
14.55	0.176	15.15	0.144						
14.57	0.175	15.17	0.143						
14.58	0.174	15.18	0.142						
14.60	0.173	15.20	0.142						
14.62	0.172	15.22	0.141						
14.63	0.171	15.23	0.140						
14.65	0.170	15.25	0.139						
14.67	0.169	15.27	0.139						
14.68	0.168	15.28	0.138						
14.70	0.167	15.30	0.137						
14.72	0.166	15.32	0.137						
14.73	0.165	15.33	0.136						
14.75	0.164	15.35	0.135						
14.77	0.163	...end	...end						
14.78	0.162								
14.80	0.161								
14.82	0.160								
14.83	0.159								
14.85	0.158								
14.87	0.158								
14.88	0.157								
14.90	0.156								
14.92	0.155								
14.93	0.154								
14.95	0.153								
14.97	0.152								
14.98	0.152								
15.00	0.151								
15.02	0.150								



# Hydrograph Report

Project Name:

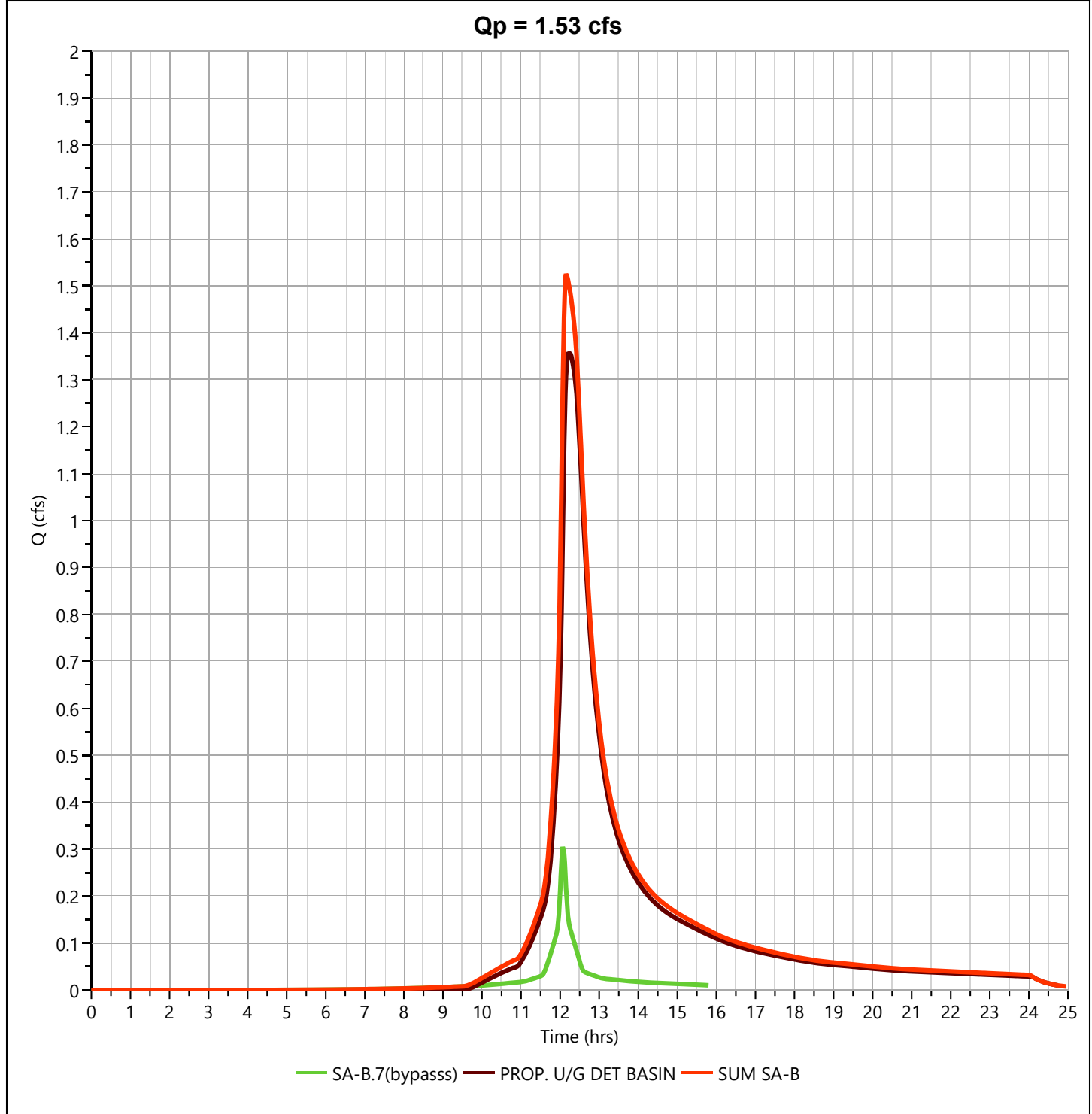
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM SA-B

## Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 1.525 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 9,449 cuft
Inflow Hydrographs	= 4, 9	Total Contrib. Area	= 0.086 ac



# Hydrograph Discharge Table

SUM SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.38	0.153	11.98	0.810	12.58	1.066	13.18	0.455	13.78	0.280
11.40	0.158	12.00	0.888	12.60	1.037	13.20	0.447	13.80	0.277
11.42	0.162	12.02	0.980	12.62	1.008	13.22	0.439	13.82	0.274
11.43	0.166	12.03	1.079	12.63	0.982	13.23	0.431	13.83	0.271
11.45	0.170	12.05	1.182	12.65	0.955	13.25	0.424	13.85	0.268
11.47	0.174	12.07	1.278	12.67	0.929	13.27	0.417	13.87	0.266
11.48	0.179	12.08	1.362	12.68	0.904	13.28	0.410	13.88	0.263
11.50	0.183	12.10	1.431	12.70	0.880	13.30	0.404	13.90	0.261
11.52	0.188	12.12	1.483	12.72	0.856	13.32	0.397	13.92	0.258
11.53	0.193	12.13	1.518	12.73	0.834	13.33	0.391	13.93	0.256
11.55	0.198	<b>12.15</b>	<b>1.525</b>	12.75	0.812	13.35	0.385	13.95	0.253
11.57	0.204	12.17	1.523	12.77	0.791	13.37	0.380	13.97	0.251
11.58	0.212	12.18	1.518	12.78	0.771	13.38	0.374	13.98	0.248
11.60	0.220	12.20	1.512	12.80	0.752	13.40	0.369	14.00	0.246
11.62	0.230	12.22	1.505	12.82	0.733	13.42	0.364	14.02	0.244
11.63	0.240	12.23	1.498	12.83	0.716	13.43	0.358	14.03	0.242
11.65	0.252	12.25	1.490	12.85	0.698	13.45	0.354	14.05	0.239
11.67	0.265	12.27	1.482	12.87	0.682	13.47	0.349	14.07	0.237
11.68	0.280	12.28	1.473	12.88	0.666	13.48	0.344	14.08	0.235
11.70	0.295	12.30	1.463	12.90	0.650	13.50	0.340	14.10	0.233
11.72	0.312	12.32	1.451	12.92	0.635	13.52	0.335	14.12	0.231
11.73	0.329	12.33	1.439	12.93	0.621	13.53	0.331	14.13	0.229
11.75	0.348	12.35	1.425	12.95	0.607	13.55	0.327	14.15	0.227
11.77	0.369	12.37	1.411	12.97	0.593	13.57	0.323	14.17	0.225
11.78	0.390	12.38	1.395	12.98	0.581	13.58	0.319	14.18	0.224
11.80	0.413	12.40	1.378	13.00	0.568	13.60	0.316	14.20	0.222
11.82	0.437	12.42	1.358	13.02	0.556	13.62	0.312	14.22	0.220
11.83	0.463	12.43	1.332	13.03	0.544	13.63	0.308	14.23	0.218
11.85	0.490	12.45	1.306	13.05	0.533	13.65	0.305	14.25	0.217
11.87	0.518	12.47	1.278	13.07	0.522	13.67	0.301	14.27	0.215
11.88	0.548	12.48	1.250	13.08	0.511	13.68	0.298	14.28	0.213
11.90	0.579	12.50	1.220	13.10	0.501	13.70	0.295	14.30	0.212
11.92	0.612	12.52	1.190	13.12	0.491	13.72	0.292	14.32	0.210
11.93	0.649	12.53	1.159	13.13	0.481	13.73	0.289	14.33	0.209
11.95	0.692	12.55	1.128	13.15	0.472	13.75	0.286	14.35	0.207
11.97	0.745	12.57	1.097	13.17	0.464	13.77	0.282	14.37	0.206

**Hydrograph Discharge Table, cont'd**

**SUM SA-B**

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
14.38	0.204	14.98	0.165						
14.40	0.203	15.00	0.164						
14.42	0.202	15.02	0.163						
14.43	0.200	15.03	0.162						
14.45	0.199	15.05	0.161						
14.47	0.198	15.07	0.160						
14.48	0.196	15.08	0.160						
14.50	0.195	15.10	0.159						
14.52	0.194	15.12	0.158						
14.53	0.192	15.13	0.157						
14.55	0.191	15.15	0.156						
14.57	0.190	15.17	0.156						
14.58	0.189	15.18	0.155						
14.60	0.188	15.20	0.154						
14.62	0.187	15.22	0.153						
14.63	0.185	15.23	0.152						
14.65	0.184	...end	...end						
14.67	0.183								
14.68	0.182								
14.70	0.181								
14.72	0.180								
14.73	0.179								
14.75	0.178								
14.77	0.177								
14.78	0.176								
14.80	0.175								
14.82	0.174								
14.83	0.173								
14.85	0.172								
14.87	0.171								
14.88	0.170								
14.90	0.169								
14.92	0.168								
14.93	0.167								
14.95	0.166								
14.97	0.166								

# Design Storm Report

Custom Storm filename: 3170.cds

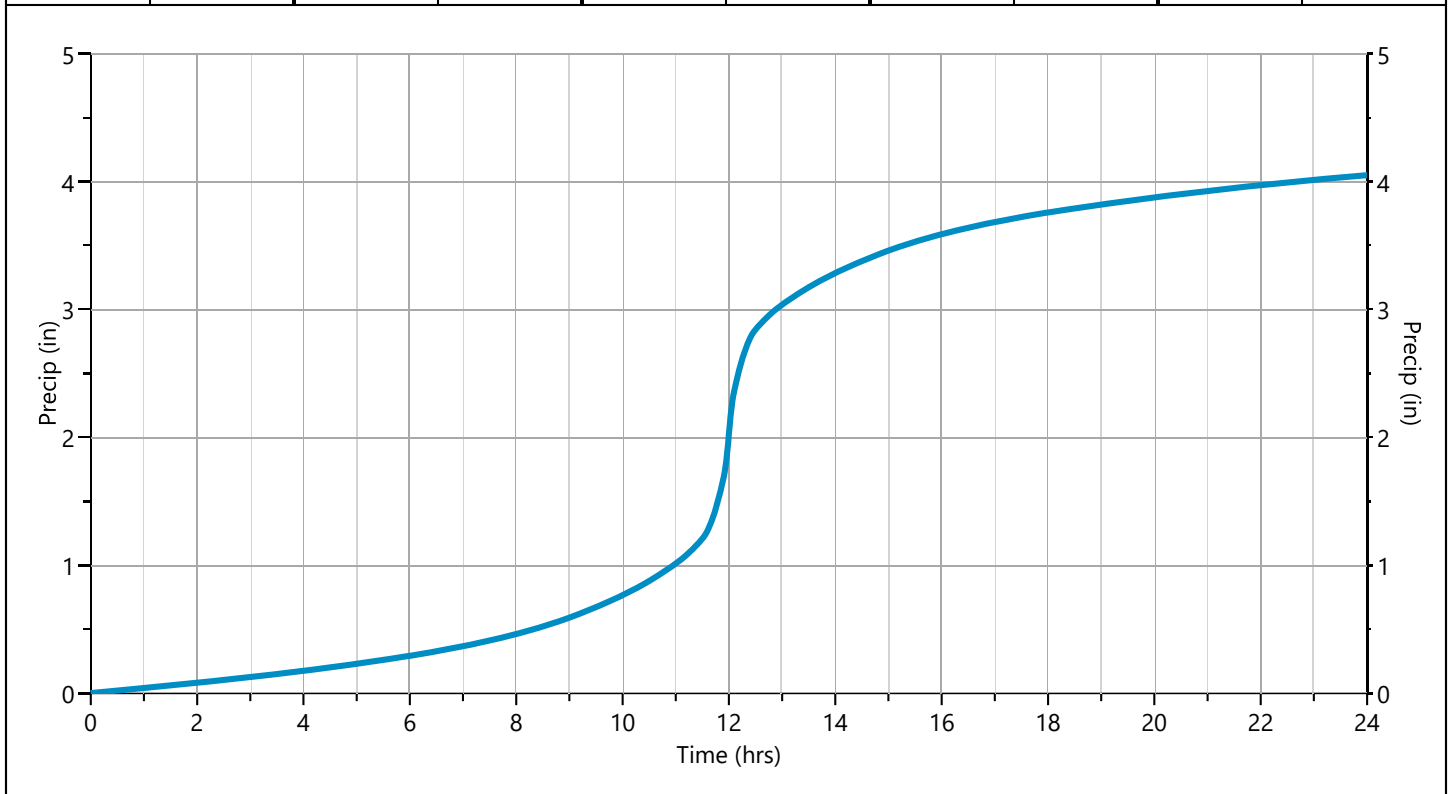
Hydrology Studio v 3.0.0.26

01-18-2023

## Storm Distribution: NRCS/SCS - Type III, 24-hr

Storm Duration	Total Rainfall Volume (in)							
	1-yr	2-yr	3-yr	✓ 5-yr	10-yr	25-yr	50-yr	100-yr
24 hrs	2.47	3.07	0.00	4.05	4.87	5.99	6.82	7.73

Incremental Rainfall Distribution, 5-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	0.007981	11.68	0.018427	11.87	0.029318	12.05	0.060851	12.23	0.024368
11.52	0.008505	11.70	0.019418	11.88	0.030307	12.07	0.052548	12.25	0.023377
11.53	0.009518	11.72	0.020407	11.90	0.031298	12.08	0.044246	12.27	0.022388
11.55	0.010507	11.73	0.021397	11.92	0.036059	12.10	0.035943	12.28	0.021398
11.57	0.011498	11.75	0.022388	11.93	0.044247	12.12	0.031416	12.30	0.020408
11.58	0.012487	11.77	0.023377	11.95	0.052549	12.13	0.030308	12.32	0.019418
11.60	0.013477	11.78	0.024367	11.97	0.060851	12.15	0.029318	12.33	0.018427
11.62	0.014467	11.80	0.025357	11.98	0.069154	12.17	0.028327	12.35	0.017438
11.63	0.015458	11.82	0.026348	<b>12.00</b>	<b>0.077457</b>	12.18	0.027338	12.37	0.016448
11.65	0.016447	11.83	0.027337	12.02	0.077271	12.20	0.026348	12.38	0.015457
11.67	0.017437	11.85	0.028327	12.03	0.069154	12.22	0.025357	12.40	0.014467



POST86

# Hydrograph 10-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Post SA-B.1	1.260	12.07	4,178	---		
2	NRCS Runoff	Post SA-B.2	1.129	12.07	3,638	---		
3	NRCS Runoff	Post SA B. 3 to B.6	1.201	12.07	4,088	---		
4	NRCS Runoff	Post SA-B.7(bypass)	0.380	12.07	1,219	---		
5	NRCS Runoff	Post SA-A (remaining)	2.769	12.07	8,777	---		
6	Pond Route	Post PROP. R.G. #1	1.251	12.08	3,713	1	75.41	546
7	Pond Route	Post PRO R.G. #2	1.130	12.08	3,312	2	77.40	367
8	Junction	Post SUM TO U.G. DET. SYS	3.574	12.08	11,113	3, 6, 7		
9	Pond Route	PROP. U/G DET BASIN	1.584	12.25	10,790	8	74.11	3,045
10	Junction	Post SUM SA-B	1.794	12.13	12,009	4, 9		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

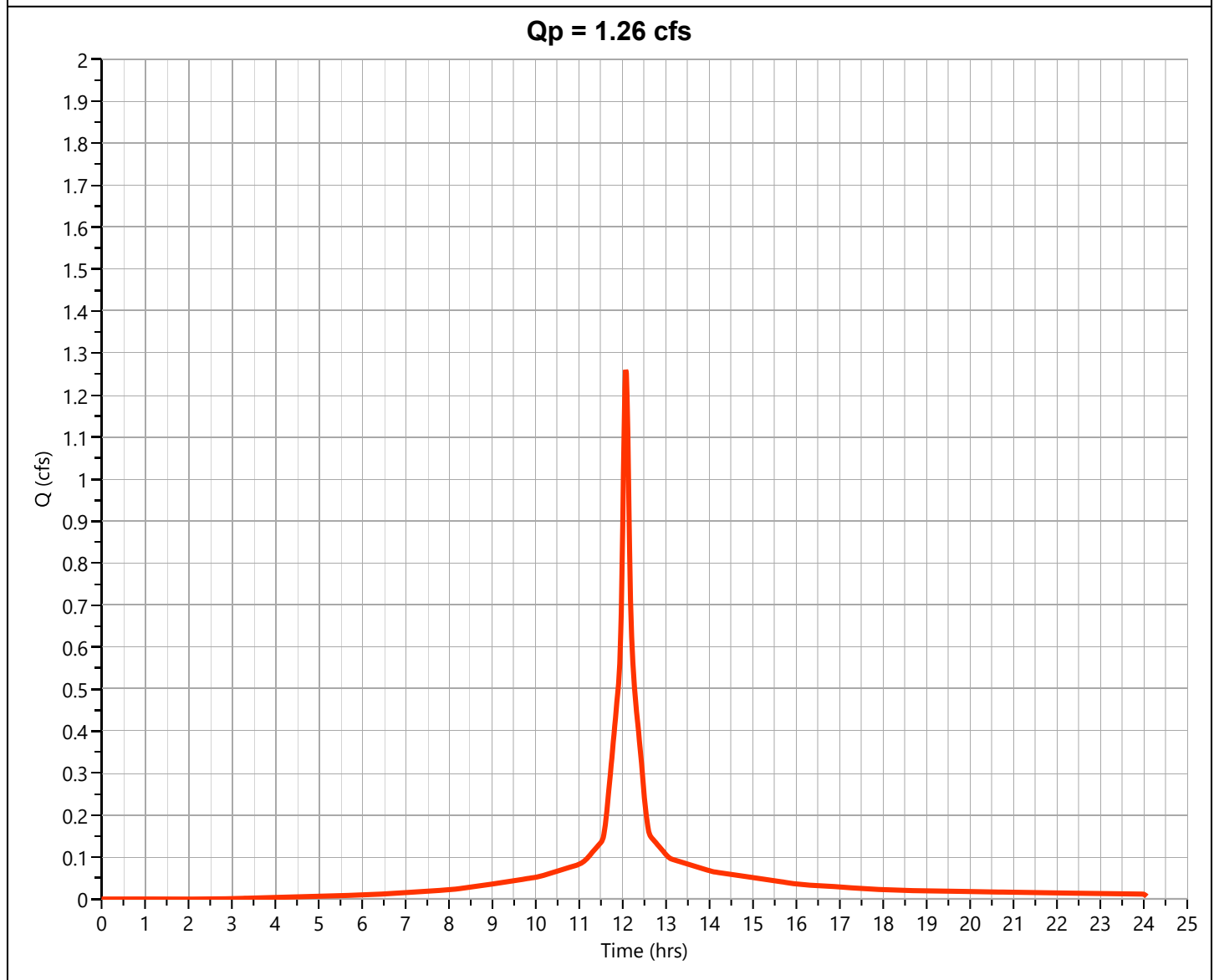
## Post SA-B.1

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.260 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 4,178 cuft
Drainage Area	= 0.267 ac	Curve Number	= 94*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.87 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.207	98	C-PAVED
0.009	85	C-POROUS PAVERS
0.051	79	C-LAWN/LANSCAPED
<b>0.267</b>	<b>94</b>	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-B.1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.43	0.127	12.03	1.128	12.63	0.151				
11.45	0.129	12.05	1.216	12.65	0.148				
11.47	0.131	<b>12.07</b>	<b>1.260</b>	12.67	0.146				
11.48	0.133	12.08	1.253	12.68	0.144				
11.50	0.135	12.10	1.199	12.70	0.142				
11.52	0.137	12.12	1.112	12.72	0.140				
11.53	0.141	12.13	1.005	12.73	0.138				
11.55	0.146	12.15	0.892	12.75	0.136				
11.57	0.154	12.17	0.789	12.77	0.134				
11.58	0.164	12.18	0.705	12.78	0.132				
11.60	0.177	12.20	0.641	12.80	0.130				
11.62	0.192	12.22	0.593	12.82	0.128				
11.63	0.208	12.23	0.558	12.83	0.126				
11.65	0.225	12.25	0.531	...end	...end				
11.67	0.244	12.27	0.511						
11.68	0.262	12.28	0.492						
11.70	0.280	12.30	0.473						
11.72	0.299	12.32	0.454						
11.73	0.317	12.33	0.435						
11.75	0.336	12.35	0.416						
11.77	0.355	12.37	0.397						
11.78	0.374	12.38	0.378						
11.80	0.393	12.40	0.358						
11.82	0.412	12.42	0.339						
11.83	0.431	12.43	0.320						
11.85	0.450	12.45	0.301						
11.87	0.469	12.47	0.282						
11.88	0.489	12.48	0.263						
11.90	0.508	12.50	0.243						
11.92	0.531	12.52	0.224						
11.93	0.563	12.53	0.207						
11.95	0.611	12.55	0.191						
11.97	0.681	12.57	0.178						
11.98	0.775	12.58	0.168						
12.00	0.889	12.60	0.160						
12.02	1.013	12.62	0.155						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

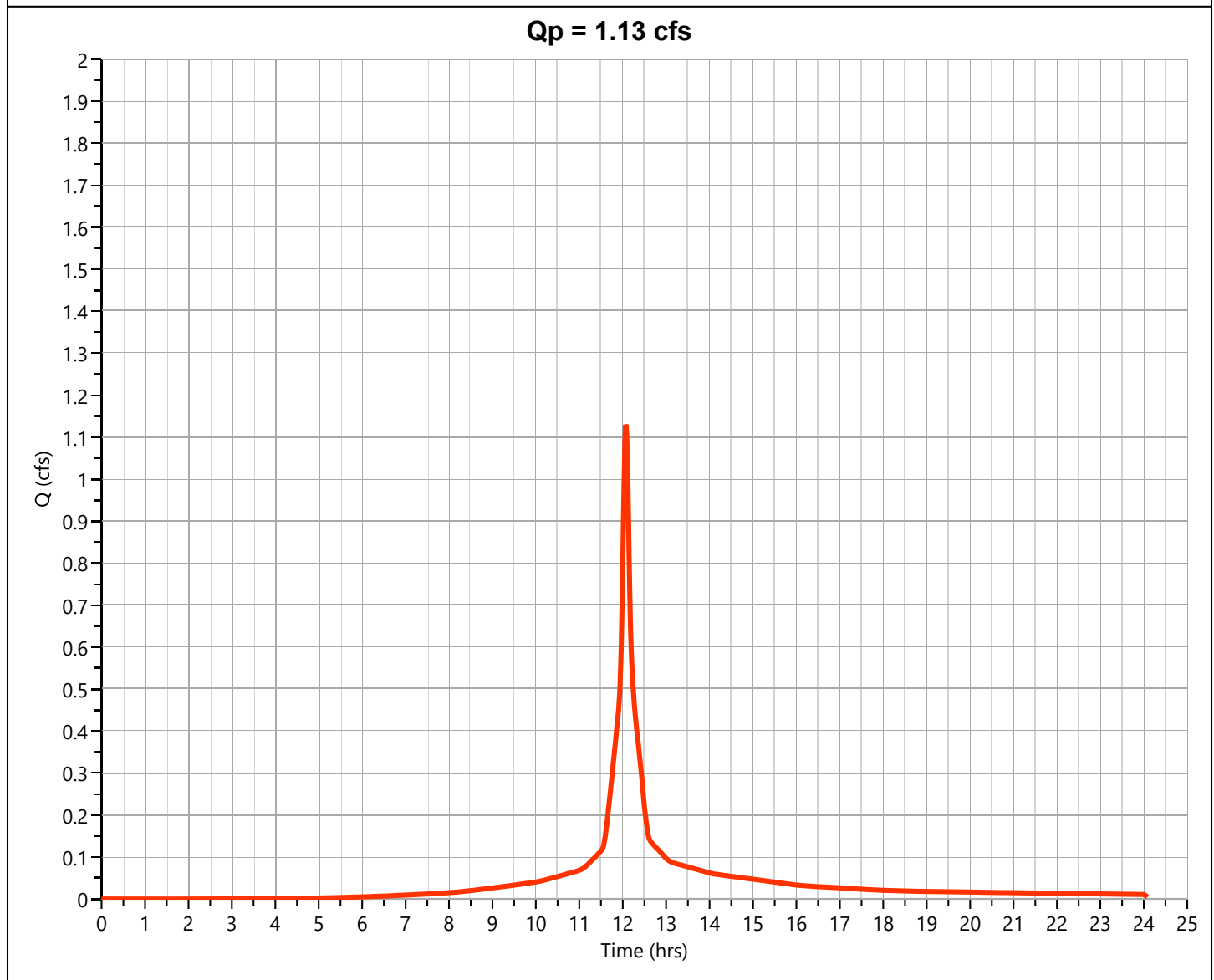
## Post SA-B.2

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.129 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 3,638 cuft
Drainage Area	= 0.252 ac	Curve Number	= 91*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.87 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.153	98	C-PAVED
0.009	89	C-POROUS PAVERS
0.09	79	C-LAWN/LANDSCAPED
<b>0.252</b>	<b>91</b>	Weighted CN Method Employed



POST90



# Hydrograph Discharge Table

SA-B.2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.50	0.114	12.10	1.079	12.70	0.130				
11.52	0.116	12.12	1.002	12.72	0.128				
11.53	0.119	12.13	0.907	12.73	0.126				
11.55	0.124	12.15	0.806	12.75	0.124				
11.57	0.131	12.17	0.714	12.77	0.123				
11.58	0.140	12.18	0.639	12.78	0.121				
11.60	0.151	12.20	0.581	12.80	0.119				
11.62	0.164	12.22	0.538	12.82	0.117				
11.63	0.178	12.23	0.507	12.83	0.115				
11.65	0.193	12.25	0.483	12.85	0.113				
11.67	0.209	12.27	0.465	12.87	0.112				
11.68	0.225	12.28	0.448	...end	...end				
11.70	0.241	12.30	0.431						
11.72	0.257	12.32	0.414						
11.73	0.273	12.33	0.397						
11.75	0.290	12.35	0.379						
11.77	0.307	12.37	0.362						
11.78	0.324	12.38	0.345						
11.80	0.341	12.40	0.327						
11.82	0.358	12.42	0.310						
11.83	0.375	12.43	0.293						
11.85	0.392	12.45	0.275						
11.87	0.410	12.47	0.258						
11.88	0.428	12.48	0.240						
11.90	0.446	12.50	0.223						
11.92	0.466	12.52	0.205						
11.93	0.496	12.53	0.189						
11.95	0.539	12.55	0.175						
11.97	0.602	12.57	0.163						
11.98	0.687	12.58	0.154						
12.00	0.790	12.60	0.147						
12.02	0.902	12.62	0.142						
12.03	1.006	12.63	0.138						
12.05	1.088	12.65	0.135						
<b>12.07</b>	<b>1.129</b>	12.67	0.133						
12.08	1.125	12.68	0.132						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

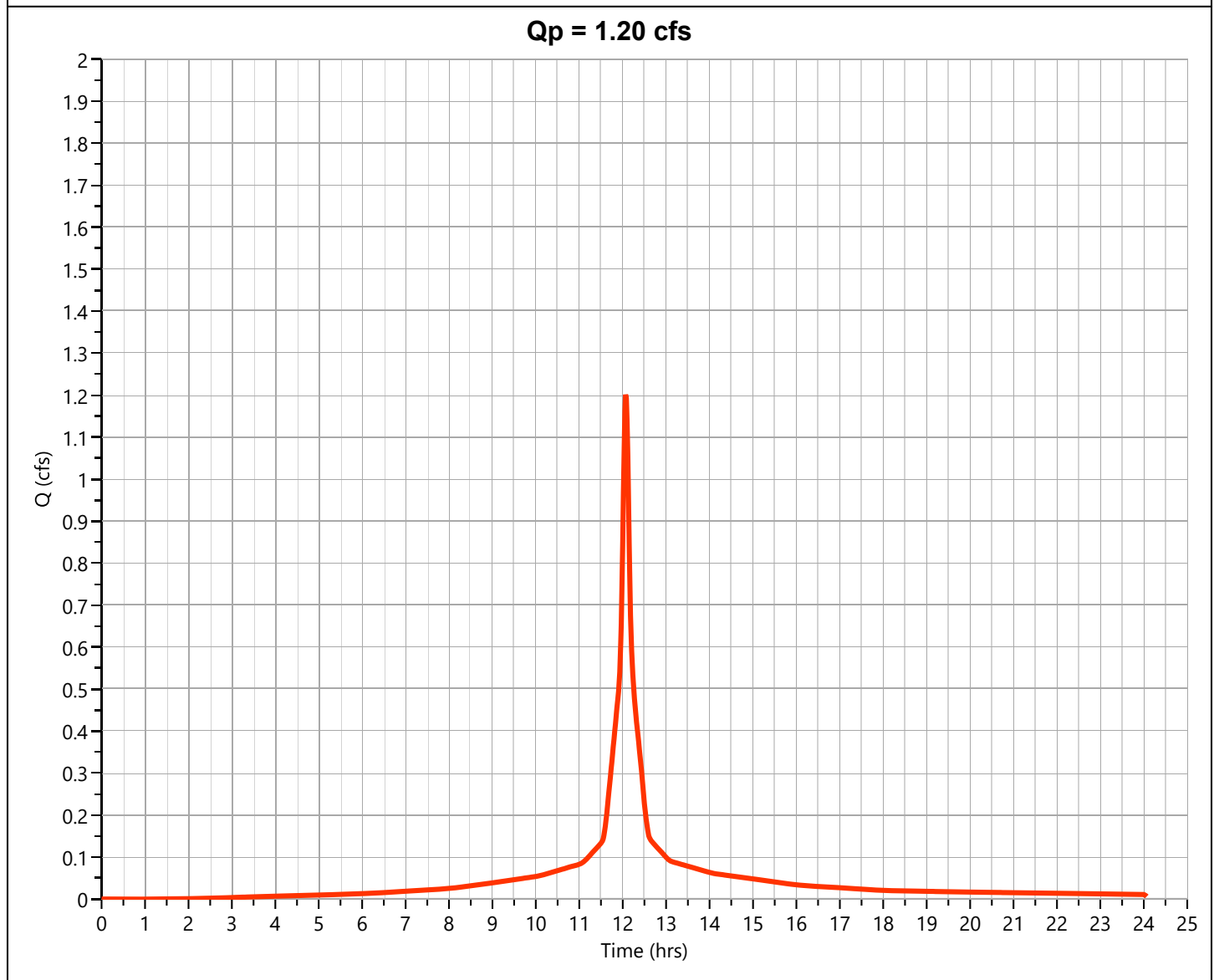
## Post SA B. 3 to B.6

## Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.201 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 4,088 cuft
Drainage Area	= 0.248 ac	Curve Number	= 96*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.87 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.215	98	C-PAVED
0.017	89	C-POROUS PAVERS
0.016	79	C-LAWN/LANDSCAPED
<b>0.248</b>	<b>96</b>	Weighted CN Method Employed



POST92

# Hydrograph Discharge Table

SA B. 3 to B.6

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.40	0.121	12.00	0.852	12.60	0.151				
11.42	0.123	12.02	0.969	12.62	0.146				
11.43	0.125	12.03	1.077	12.63	0.142				
11.45	0.127	12.05	1.161	12.65	0.139				
11.47	0.129	<b>12.07</b>	<b>1.201</b>	12.67	0.137				
11.48	0.131	12.08	1.193	12.68	0.135				
11.50	0.133	12.10	1.141	12.70	0.133				
11.52	0.135	12.12	1.057	12.72	0.132				
11.53	0.138	12.13	0.954	12.73	0.130				
11.55	0.143	12.15	0.846	12.75	0.128				
11.57	0.151	12.17	0.748	12.77	0.126				
11.58	0.161	12.18	0.668	12.78	0.124				
11.60	0.174	12.20	0.607	12.80	0.122				
11.62	0.188	12.22	0.561	12.82	0.120				
11.63	0.204	12.23	0.527	12.83	0.118				
11.65	0.221	12.25	0.502	...end	...end				
11.67	0.238	12.27	0.483						
11.68	0.256	12.28	0.465						
11.70	0.274	12.30	0.447						
11.72	0.292	12.32	0.429						
11.73	0.309	12.33	0.411						
11.75	0.327	12.35	0.392						
11.77	0.345	12.37	0.374						
11.78	0.363	12.38	0.356						
11.80	0.381	12.40	0.338						
11.82	0.399	12.42	0.320						
11.83	0.418	12.43	0.302						
11.85	0.436	12.45	0.284						
11.87	0.454	12.47	0.266						
11.88	0.472	12.48	0.248						
11.90	0.490	12.50	0.229						
11.92	0.512	12.52	0.212						
11.93	0.542	12.53	0.195						
11.95	0.588	12.55	0.180						
11.97	0.655	12.57	0.168						
11.98	0.744	12.58	0.158						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

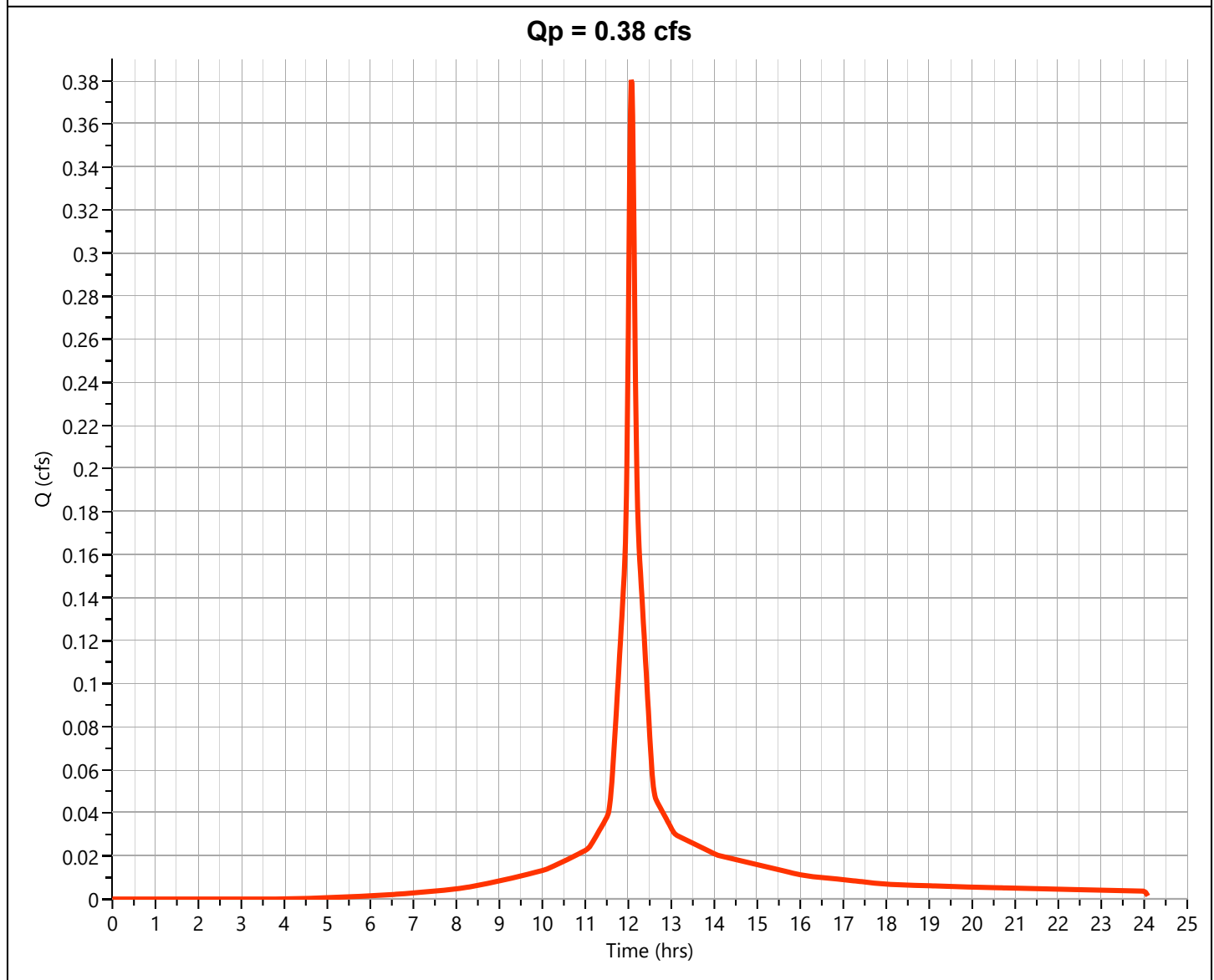
## Post SA-B.7(bypass)

## Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.380 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 1,219 cuft
Drainage Area	= 0.086 ac	Curve Number	= 90.34*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.87 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.031	89	C-Roadway
0.035	98	C-Paved
0.02	79	C-Lawn/Landscaped
<b>0.086</b>	<b>90</b>	Weighted CN Method Employed



POST94

### Hydrograph Discharge Table

SA-B.7(bypass)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.52	0.039	12.12	0.338	12.72	0.043				
11.53	0.040	12.13	0.306	12.73	0.043				
11.55	0.041	12.15	0.272	12.75	0.042				
11.57	0.043	12.17	0.241	12.77	0.042				
11.58	0.046	12.18	0.216	12.78	0.041				
11.60	0.050	12.20	0.196	12.80	0.040				
11.62	0.054	12.22	0.182	12.82	0.040				
11.63	0.059	12.23	0.171	12.83	0.039				
11.65	0.064	12.25	0.163	12.85	0.038				
11.67	0.069	12.27	0.157	12.87	0.038				
11.68	0.075	12.28	0.151	...end	...end				
11.70	0.080	12.30	0.146						
11.72	0.086	12.32	0.140						
11.73	0.091	12.33	0.134						
11.75	0.097	12.35	0.128						
11.77	0.102	12.37	0.122						
11.78	0.108	12.38	0.117						
11.80	0.114	12.40	0.111						
11.82	0.120	12.42	0.105						
11.83	0.125	12.43	0.099						
11.85	0.131	12.45	0.093						
11.87	0.137	12.47	0.087						
11.88	0.143	12.48	0.081						
11.90	0.149	12.50	0.075						
11.92	0.156	12.52	0.070						
11.93	0.166	12.53	0.064						
11.95	0.181	12.55	0.059						
11.97	0.202	12.57	0.055						
11.98	0.231	12.58	0.052						
12.00	0.265	12.60	0.050						
12.02	0.303	12.62	0.048						
12.03	0.339	12.63	0.047						
12.05	0.366	12.65	0.046						
<b>12.07</b>	<b>0.380</b>	12.67	0.045						
12.08	0.379	12.68	0.045						
12.10	0.364	12.70	0.044						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

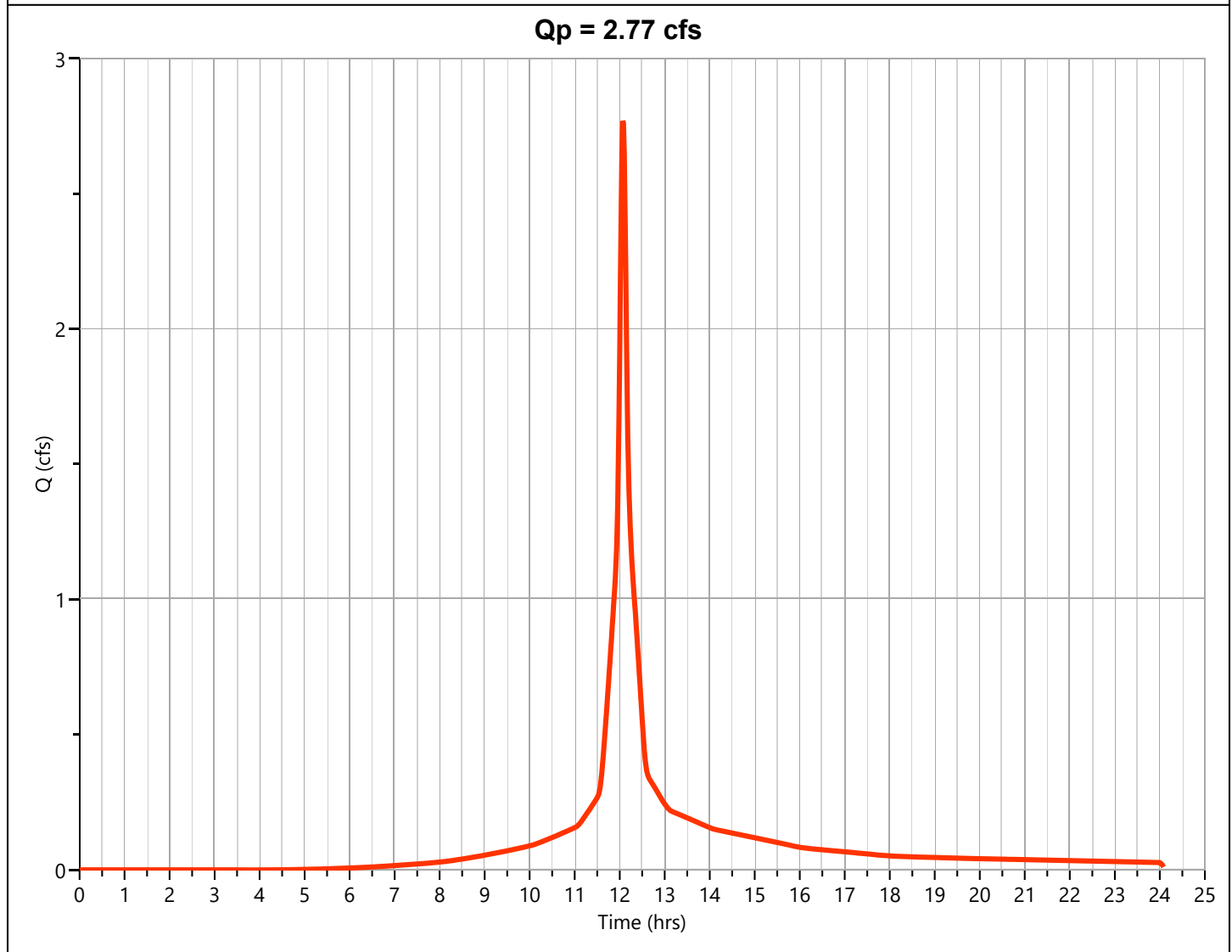
## Post SA-A (remaining)

## Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.769 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 8,777 cuft
Drainage Area	= 0.649 ac	Curve Number	= 88.66*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.87 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.187	89	C-Roadway
0.239	94	C-Urban Area
0.039	98	C-Paved
0.012	89	C-Porous PAvers
0.172	79	C-Lawn/Landscaped
<b>0.649</b>	<b>89</b>	Weighted CN Method Employed



POST96

### Hydrograph Discharge Table

SA-A (remaining)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.53	0.279	12.13	2.236	12.73	0.316				
11.55	0.290	12.15	1.991	12.75	0.311				
11.57	0.306	12.17	1.766	12.77	0.307				
11.58	0.328	12.18	1.582	12.78	0.302				
11.60	0.354	12.20	1.441	12.80	0.298				
11.62	0.384	12.22	1.335	12.82	0.293				
11.63	0.418	12.23	1.258	12.83	0.289				
11.65	0.454	12.25	1.200	12.85	0.284				
11.67	0.492	12.27	1.155	12.87	0.279				
11.68	0.530	12.28	1.113	12.88	0.275				
11.70	0.569	12.30	1.072	...end	...end				
11.72	0.608	12.32	1.030						
11.73	0.648	12.33	0.987						
11.75	0.688	12.35	0.945						
11.77	0.729	12.37	0.902						
11.78	0.770	12.38	0.859						
11.80	0.812	12.40	0.817						
11.82	0.854	12.42	0.773						
11.83	0.896	12.43	0.730						
11.85	0.939	12.45	0.687						
11.87	0.983	12.47	0.643						
11.88	1.027	12.48	0.600						
11.90	1.071	12.50	0.556						
11.92	1.123	12.52	0.513						
11.93	1.196	12.53	0.473						
11.95	1.303	12.55	0.437						
11.97	1.458	12.57	0.407						
11.98	1.666	12.58	0.384						
12.00	1.920	12.60	0.367						
12.02	2.197	12.62	0.355						
12.03	2.458	12.63	0.345						
12.05	2.662	12.65	0.339						
<b>12.07</b>	<b>2.769</b>	12.67	0.334						
12.08	2.762	12.68	0.329						
12.10	2.653	12.70	0.325						
12.12	2.468	12.72	0.320						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PROP. R.G. #1

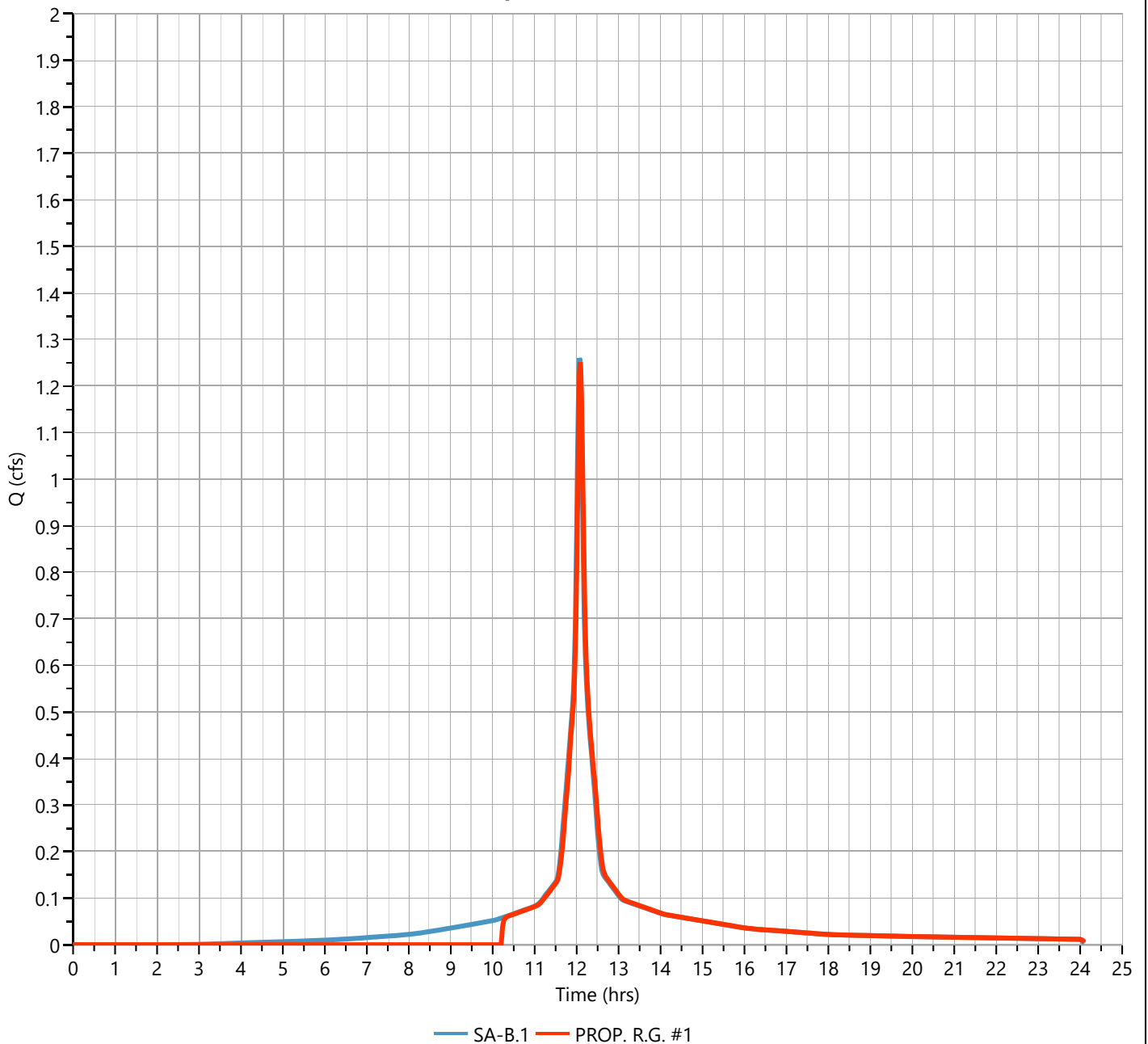
## Hyd. No. 6

Hydrograph Type	= Pond Route	Peak Flow	= 1.251 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,713 cuft
Inflow Hydrograph	= 1 - SA-B.1	Max. Elevation	= 75.41 ft
Pond Name	= PROP. RAINGARDEN #1	Max. Storage	= 546 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 36 min

**Qp = 1.25 cfs**





# Hydrograph Discharge Table

PROP. R.G. #1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.45	0.126	12.05	1.142	12.65	0.155				
11.47	0.128	12.07	1.224	12.67	0.151				
11.48	0.130	<b>12.08</b>	<b>1.251</b>	12.68	0.148				
11.50	0.132	12.10	1.230	12.70	0.146				
11.52	0.134	12.12	1.167	12.72	0.143				
11.53	0.136	12.13	1.075	12.73	0.141				
11.55	0.140	12.15	0.983	12.75	0.139				
11.57	0.144	12.17	0.880	12.77	0.137				
11.58	0.151	12.18	0.784	12.78	0.135				
11.60	0.160	12.20	0.704	12.80	0.133				
11.62	0.172	12.22	0.641	12.82	0.131				
11.63	0.185	12.23	0.593	12.83	0.129				
11.65	0.200	12.25	0.558	12.85	0.127				
11.67	0.216	12.27	0.531	12.87	0.125				
11.68	0.234	12.28	0.509	...end	...end				
11.70	0.251	12.30	0.490						
11.72	0.269	12.32	0.471						
11.73	0.288	12.33	0.452						
11.75	0.306	12.35	0.433						
11.77	0.325	12.37	0.413						
11.78	0.344	12.38	0.394						
11.80	0.362	12.40	0.376						
11.82	0.383	12.42	0.363						
11.83	0.411	12.43	0.347						
11.85	0.432	12.45	0.330						
11.87	0.452	12.47	0.312						
11.88	0.472	12.48	0.293						
11.90	0.491	12.50	0.274						
11.92	0.512	12.52	0.255						
11.93	0.537	12.53	0.236						
11.95	0.573	12.55	0.219						
11.97	0.626	12.57	0.202						
11.98	0.700	12.58	0.188						
12.00	0.796	12.60	0.177						
12.02	0.908	12.62	0.168						
12.03	1.025	12.63	0.161						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PRO R.G. #2

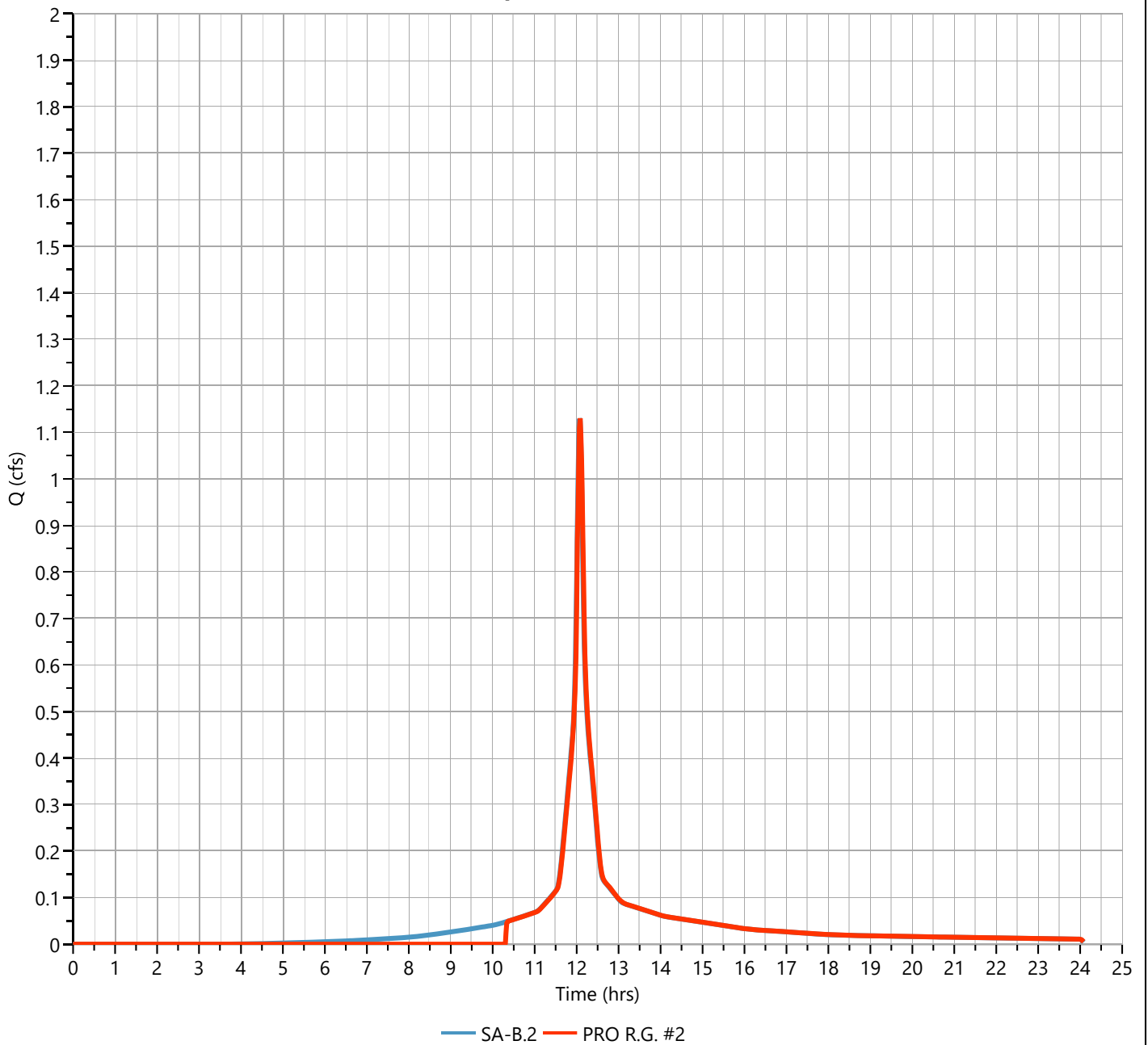
## Hyd. No. 7

Hydrograph Type	= Pond Route	Peak Flow	= 1.130 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,312 cuft
Inflow Hydrograph	= 2 - SA-B.2	Max. Elevation	= 77.40 ft
Pond Name	= PRO RAINGARDEN #2	Max. Storage	= 367 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 27 min

**Qp = 1.13 cfs**



POST100

# Hydrograph Discharge Table

PRO R.G. #2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.50	0.113	12.10	1.097	12.70	0.131				
11.52	0.115	12.12	1.040	12.72	0.129				
11.53	0.117	12.13	0.964	12.73	0.127				
11.55	0.121	12.15	0.869	12.75	0.126				
11.57	0.127	12.17	0.773	12.77	0.124				
11.58	0.134	12.18	0.688	12.78	0.122				
11.60	0.144	12.20	0.619	12.80	0.120				
11.62	0.156	12.22	0.567	12.82	0.118				
11.63	0.169	12.23	0.528	12.83	0.116				
11.65	0.183	12.25	0.499	12.85	0.115				
11.67	0.199	12.27	0.477	12.87	0.113				
11.68	0.214	12.28	0.459	...end	...end				
11.70	0.231	12.30	0.442						
11.72	0.247	12.32	0.424						
11.73	0.263	12.33	0.407						
11.75	0.280	12.35	0.390						
11.77	0.296	12.37	0.373						
11.78	0.313	12.38	0.356						
11.80	0.330	12.40	0.338						
11.82	0.347	12.42	0.321						
11.83	0.364	12.43	0.304						
11.85	0.381	12.45	0.286						
11.87	0.399	12.47	0.269						
11.88	0.417	12.48	0.251						
11.90	0.434	12.50	0.234						
11.92	0.453	12.52	0.216						
11.93	0.478	12.53	0.200						
11.95	0.513	12.55	0.184						
11.97	0.564	12.57	0.171						
11.98	0.635	12.58	0.160						
12.00	0.726	12.60	0.151						
12.02	0.832	12.62	0.145						
12.03	0.940	12.63	0.141						
12.05	1.035	12.65	0.137						
12.07	1.110	12.67	0.135						
<b>12.08</b>	<b>1.130</b>	12.68	0.133						

# Hydrograph Report

Project Name:

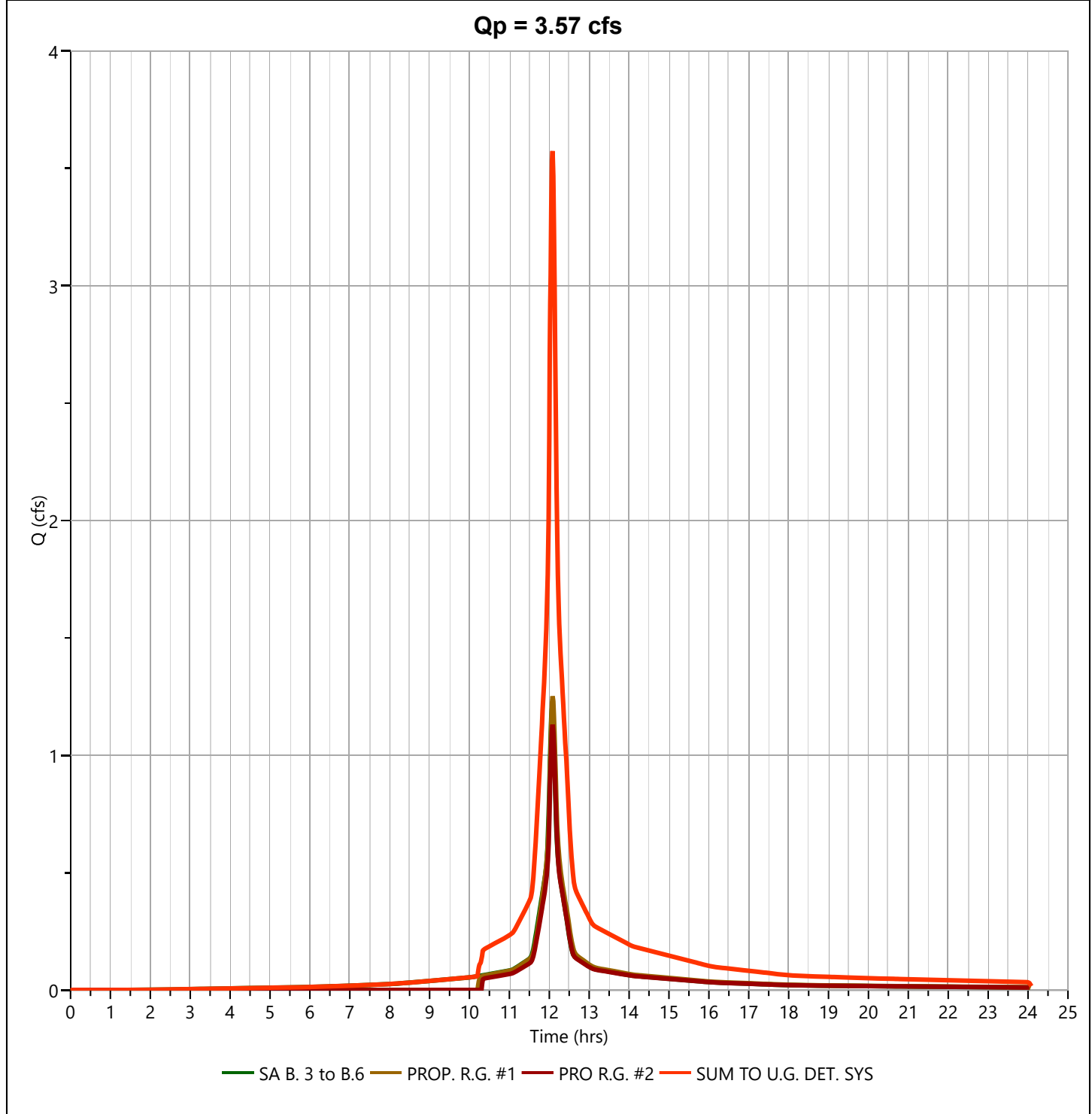
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM TO U.G. DET. SYS

## Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 3.574 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 11,113 cuft
Inflow Hydrographs	= 3, 6, 7	Total Contrib. Area	= 0.248 ac



POST102

# Hydrograph Discharge Table

SUM TO U.G. DET. SYS

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.45	0.360	12.05	3.337	12.65	0.432				
11.47	0.366	12.07	3.535	12.67	0.423				
11.48	0.372	<b>12.08</b>	<b>3.574</b>	12.68	0.416				
11.50	0.377	12.10	3.468	12.70	0.410				
11.52	0.384	12.12	3.264	12.72	0.404				
11.53	0.392	12.13	2.993	12.73	0.398				
11.55	0.404	12.15	2.698	12.75	0.392				
11.57	0.422	12.17	2.401	12.77	0.386				
11.58	0.447	12.18	2.140	12.78	0.381				
11.60	0.478	12.20	1.930	12.80	0.375				
11.62	0.516	12.22	1.769	12.82	0.369				
11.63	0.558	12.23	1.649	12.83	0.363				
11.65	0.604	12.25	1.559	12.85	0.358				
11.67	0.653	12.27	1.491	12.87	0.352				
11.68	0.704	12.28	1.433	...end	...end				
11.70	0.756	12.30	1.378						
11.72	0.808	12.32	1.324						
11.73	0.860	12.33	1.269						
11.75	0.913	12.35	1.215						
11.77	0.966	12.37	1.161						
11.78	1.020	12.38	1.106						
11.80	1.074	12.40	1.053						
11.82	1.129	12.42	1.005						
11.83	1.192	12.43	0.953						
11.85	1.249	12.45	0.900						
11.87	1.305	12.47	0.846						
11.88	1.360	12.48	0.792						
11.90	1.416	12.50	0.737						
11.92	1.477	12.52	0.683						
11.93	1.557	12.53	0.631						
11.95	1.674	12.55	0.583						
11.97	1.845	12.57	0.541						
11.98	2.079	12.58	0.507						
12.00	2.373	12.60	0.479						
12.02	2.708	12.62	0.459						
12.03	3.042	12.63	0.443						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## PROP. U/G DET BASIN

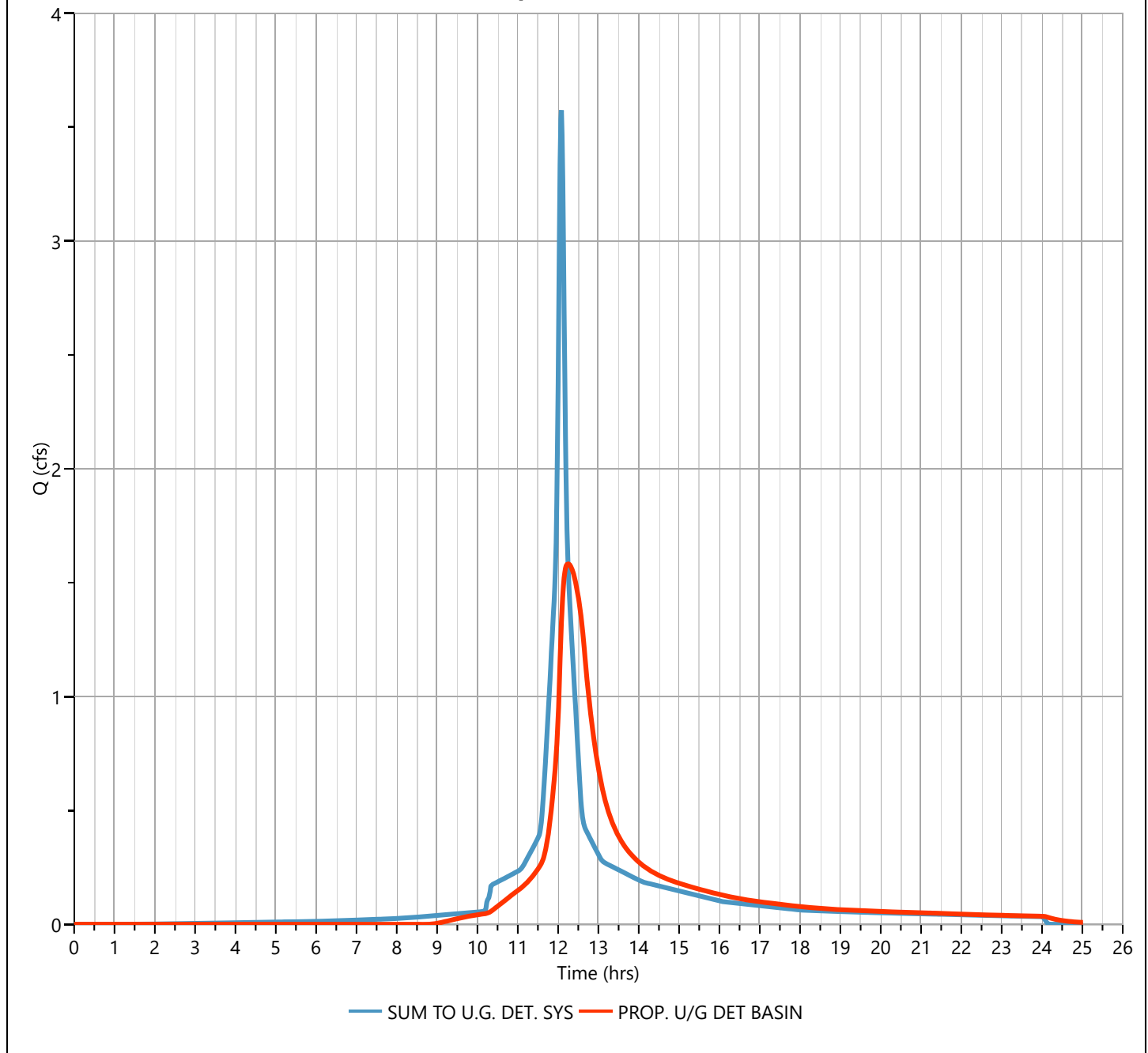
## Hyd. No. 9

Hydrograph Type	= Pond Route	Peak Flow	= 1.584 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.25 hrs
Time Interval	= 1 min	Hydrograph Volume	= 10,790 cuft
Inflow Hydrograph	= 8 - SUM TO U.G. DET. SYS	Max. Elevation	= 74.11 ft
Pond Name	= PROP U/G DET SYS	Max. Storage	= 3,045 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 48 min

**Qp = 1.58 cfs**



POST104

### Hydrograph Discharge Table

PROP. U/G DET BASIN

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.08	0.159	11.68	0.322	12.28	1.580	12.88	0.818	13.48	0.391
11.10	0.162	11.70	0.336	12.30	1.576	12.90	0.797	13.50	0.386
11.12	0.164	11.72	0.352	12.32	1.571	12.92	0.776	13.52	0.380
11.13	0.167	11.73	0.369	12.33	1.564	12.93	0.756	13.53	0.375
11.15	0.169	11.75	0.388	12.35	1.557	12.95	0.738	13.55	0.370
11.17	0.172	11.77	0.408	12.37	1.548	12.97	0.719	13.57	0.365
11.18	0.175	11.78	0.430	12.38	1.538	12.98	0.701	13.58	0.360
11.20	0.177	11.80	0.454	12.40	1.527	13.00	0.685	13.60	0.356
11.22	0.180	11.82	0.479	12.42	1.515	13.02	0.668	13.62	0.351
11.23	0.183	11.83	0.505	12.43	1.502	13.03	0.652	13.63	0.347
11.25	0.186	11.85	0.534	12.45	1.488	13.05	0.637	13.65	0.343
11.27	0.190	11.87	0.564	12.47	1.472	13.07	0.622	13.67	0.338
11.28	0.193	11.88	0.595	12.48	1.456	13.08	0.608	13.68	0.334
11.30	0.196	11.90	0.629	12.50	1.438	13.10	0.594	13.70	0.330
11.32	0.200	11.92	0.663	12.52	1.419	13.12	0.581	13.72	0.327
11.33	0.203	11.93	0.700	12.53	1.398	13.13	0.568	13.73	0.323
11.35	0.207	11.95	0.741	12.55	1.376	13.15	0.556	13.75	0.319
11.37	0.210	11.97	0.786	12.57	1.353	13.17	0.545	13.77	0.316
11.38	0.214	11.98	0.839	12.58	1.329	13.18	0.533	13.78	0.312
11.40	0.218	12.00	0.901	12.60	1.305	13.20	0.523	13.80	0.309
11.42	0.222	12.02	0.973	12.62	1.279	13.22	0.513	13.82	0.305
11.43	0.226	12.03	1.058	12.63	1.243	13.23	0.503	13.83	0.302
11.45	0.230	12.05	1.153	12.65	1.207	13.25	0.493	13.85	0.299
11.47	0.234	12.07	1.255	12.67	1.173	13.27	0.484	13.87	0.296
11.48	0.238	12.08	1.331	12.68	1.139	13.28	0.475	13.88	0.293
11.50	0.242	12.10	1.393	12.70	1.107	13.30	0.467	13.90	0.290
11.52	0.247	12.12	1.446	12.72	1.075	13.32	0.459	13.92	0.287
11.53	0.251	12.13	1.489	12.73	1.045	13.33	0.451	13.93	0.284
11.55	0.256	12.15	1.522	12.75	1.016	13.35	0.443	13.95	0.281
11.57	0.261	12.17	1.546	12.77	0.988	13.37	0.436	13.97	0.279
11.58	0.266	12.18	1.563	12.78	0.962	13.38	0.429	13.98	0.276
11.60	0.273	12.20	1.574	12.80	0.937	13.40	0.422	14.00	0.273
11.62	0.280	12.22	1.580	12.82	0.911	13.42	0.416	14.02	0.271
11.63	0.288	12.23	1.583	12.83	0.887	13.43	0.409	14.03	0.268
11.65	0.298	<b>12.25</b>	<b>1.584</b>	12.85	0.863	13.45	0.403	14.05	0.266
11.67	0.309	12.27	1.583	12.87	0.840	13.47	0.397	14.07	0.263

**Hydrograph Discharge Table, cont'd**

**PROP. U/G DET BASIN**

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
14.08	0.261	14.68	0.200	15.28	0.164				
14.10	0.258	14.70	0.199	15.30	0.164				
14.12	0.256	14.72	0.198	15.32	0.163				
14.13	0.254	14.73	0.197	15.33	0.162				
14.15	0.252	14.75	0.196	15.35	0.161				
14.17	0.249	14.77	0.194	15.37	0.160				
14.18	0.247	14.78	0.193	15.38	0.159				
14.20	0.245	14.80	0.192	15.40	0.159				
14.22	0.243	14.82	0.191	15.42	0.158				
14.23	0.241	14.83	0.190	...end	...end				
14.25	0.239	14.85	0.189						
14.27	0.237	14.87	0.188						
14.28	0.236	14.88	0.187						
14.30	0.234	14.90	0.186						
14.32	0.232	14.92	0.185						
14.33	0.230	14.93	0.184						
14.35	0.228	14.95	0.183						
14.37	0.227	14.97	0.182						
14.38	0.225	14.98	0.181						
14.40	0.224	15.00	0.180						
14.42	0.222	15.02	0.179						
14.43	0.220	15.03	0.178						
14.45	0.219	15.05	0.177						
14.47	0.217	15.07	0.176						
14.48	0.216	15.08	0.175						
14.50	0.215	15.10	0.174						
14.52	0.213	15.12	0.173						
14.53	0.212	15.13	0.172						
14.55	0.210	15.15	0.171						
14.57	0.209	15.17	0.170						
14.58	0.208	15.18	0.170						
14.60	0.206	15.20	0.169						
14.62	0.205	15.22	0.168						
14.63	0.204	15.23	0.167						
14.65	0.203	15.25	0.166						
14.67	0.201	15.27	0.165						



# Hydrograph Report

Project Name:

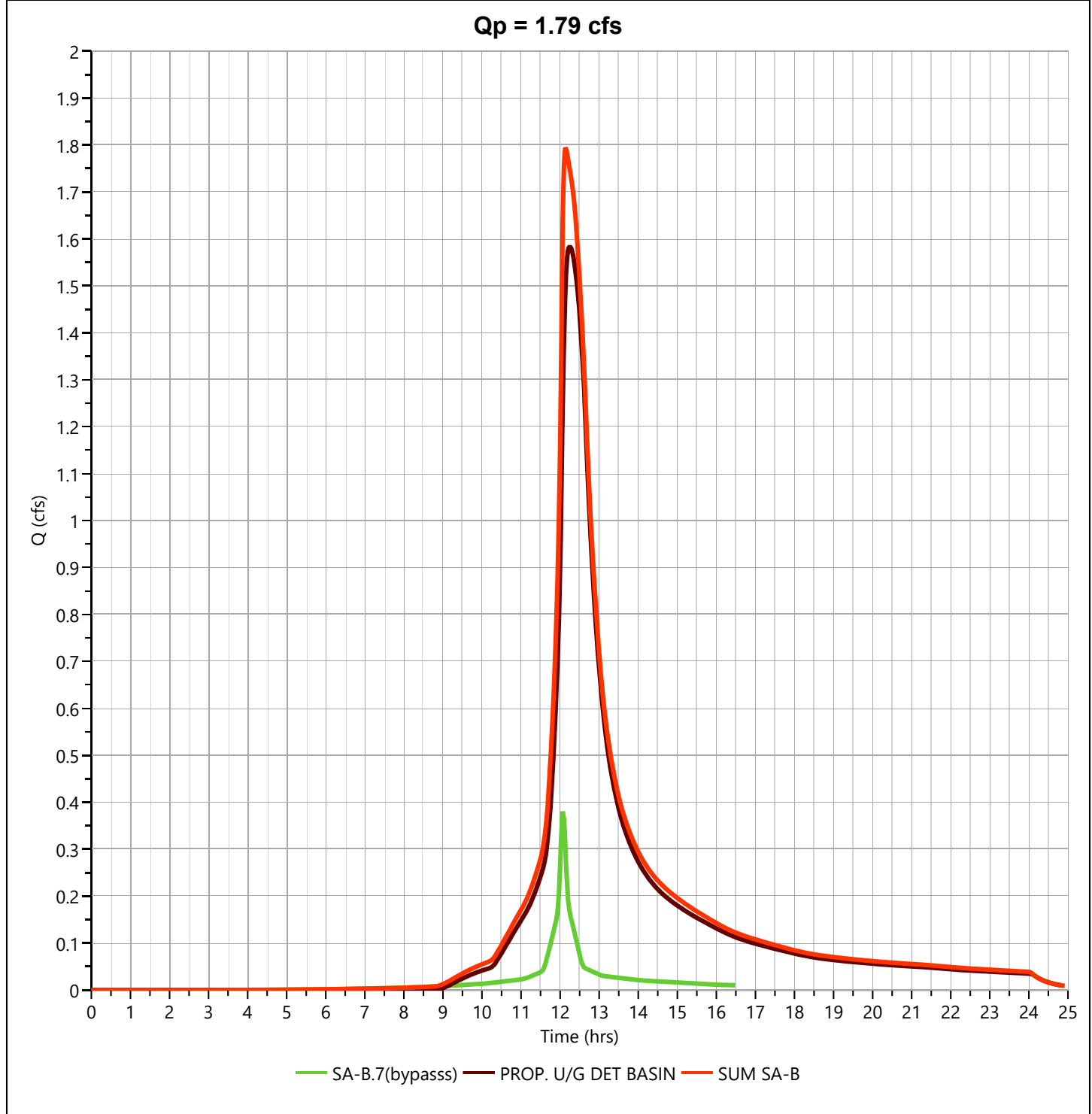
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM SA-B

## Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 1.794 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 12,009 cuft
Inflow Hydrographs	= 4, 9	Total Contrib. Area	= 0.086 ac



# Hydrograph Discharge Table

SUM SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.07	0.181	11.67	0.379	12.27	1.740	12.87	0.878	13.47	0.423
11.08	0.183	11.68	0.397	12.28	1.731	12.88	0.855	13.48	0.417
11.10	0.186	11.70	0.416	12.30	1.721	12.90	0.833	13.50	0.412
11.12	0.189	11.72	0.437	12.32	1.711	12.92	0.812	13.52	0.406
11.13	0.192	11.73	0.460	12.33	1.698	12.93	0.792	13.53	0.401
11.15	0.195	11.75	0.485	12.35	1.685	12.95	0.772	13.55	0.395
11.17	0.198	11.77	0.511	12.37	1.671	12.97	0.753	13.57	0.390
11.18	0.201	11.78	0.538	12.38	1.655	12.98	0.735	13.58	0.385
11.20	0.205	11.80	0.568	12.40	1.638	13.00	0.717	13.60	0.381
11.22	0.208	11.82	0.598	12.42	1.620	13.02	0.700	13.62	0.376
11.23	0.212	11.83	0.631	12.43	1.601	13.03	0.684	13.63	0.371
11.25	0.216	11.85	0.665	12.45	1.581	13.05	0.668	13.65	0.367
11.27	0.219	11.87	0.701	12.47	1.560	13.07	0.653	13.67	0.363
11.28	0.223	11.88	0.739	12.48	1.537	13.08	0.638	13.68	0.358
11.30	0.227	11.90	0.778	12.50	1.513	13.10	0.624	13.70	0.354
11.32	0.231	11.92	0.820	12.52	1.488	13.12	0.610	13.72	0.350
11.33	0.235	11.93	0.867	12.53	1.462	13.13	0.597	13.73	0.346
11.35	0.239	11.95	0.922	12.55	1.435	13.15	0.585	13.75	0.343
11.37	0.243	11.97	0.988	12.57	1.409	13.17	0.574	13.77	0.339
11.38	0.248	11.98	1.069	12.58	1.382	13.18	0.562	13.78	0.335
11.40	0.252	12.00	1.167	12.60	1.355	13.20	0.552	13.80	0.332
11.42	0.257	12.02	1.276	12.62	1.327	13.22	0.541	13.82	0.328
11.43	0.261	12.03	1.397	12.63	1.290	13.23	0.531	13.83	0.325
11.45	0.266	12.05	1.520	12.65	1.253	13.25	0.522	13.85	0.322
11.47	0.271	12.07	1.635	12.67	1.218	13.27	0.512	13.87	0.318
11.48	0.275	12.08	1.710	12.68	1.184	13.28	0.503	13.88	0.315
11.50	0.280	12.10	1.757	12.70	1.151	13.30	0.495	13.90	0.312
11.52	0.285	12.12	1.783	12.72	1.119	13.32	0.487	13.92	0.309
11.53	0.291	<b>12.13</b>	<b>1.794</b>	12.73	1.088	13.33	0.478	13.93	0.306
11.55	0.297	12.15	1.794	12.75	1.058	13.35	0.471	13.95	0.303
11.57	0.304	12.17	1.787	12.77	1.030	13.37	0.463	13.97	0.300
11.58	0.313	12.18	1.779	12.78	1.003	13.38	0.456	13.98	0.297
11.60	0.323	12.20	1.771	12.80	0.977	13.40	0.449	14.00	0.294
11.62	0.334	12.22	1.762	12.82	0.951	13.42	0.442	14.02	0.292
11.63	0.347	12.23	1.755	12.83	0.926	13.43	0.436	14.03	0.289
11.65	0.362	12.25	1.747	12.85	0.902	13.45	0.430	14.05	0.286

**Hydrograph Discharge Table, cont'd**

**SUM SA-B**

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
14.07	0.284	14.67	0.219	15.27	0.180				
14.08	0.281	14.68	0.218	15.28	0.179				
14.10	0.279	14.70	0.216	...end	...end				
14.12	0.276	14.72	0.215						
14.13	0.274	14.73	0.214						
14.15	0.272	14.75	0.213						
14.17	0.269	14.77	0.211						
14.18	0.267	14.78	0.210						
14.20	0.265	14.80	0.209						
14.22	0.263	14.82	0.208						
14.23	0.261	14.83	0.207						
14.25	0.259	14.85	0.206						
14.27	0.257	14.87	0.204						
14.28	0.255	14.88	0.203						
14.30	0.253	14.90	0.202						
14.32	0.251	14.92	0.201						
14.33	0.249	14.93	0.200						
14.35	0.247	14.95	0.199						
14.37	0.246	14.97	0.198						
14.38	0.244	14.98	0.197						
14.40	0.242	15.00	0.196						
14.42	0.241	15.02	0.195						
14.43	0.239	15.03	0.194						
14.45	0.237	15.05	0.193						
14.47	0.236	15.07	0.192						
14.48	0.234	15.08	0.191						
14.50	0.233	15.10	0.190						
14.52	0.231	15.12	0.189						
14.53	0.230	15.13	0.188						
14.55	0.228	15.15	0.187						
14.57	0.227	15.17	0.186						
14.58	0.226	15.18	0.185						
14.60	0.224	15.20	0.184						
14.62	0.223	15.22	0.183						
14.63	0.222	15.23	0.182						
14.65	0.220	15.25	0.181						

# Design Storm Report

Custom Storm filename: 3170.cds

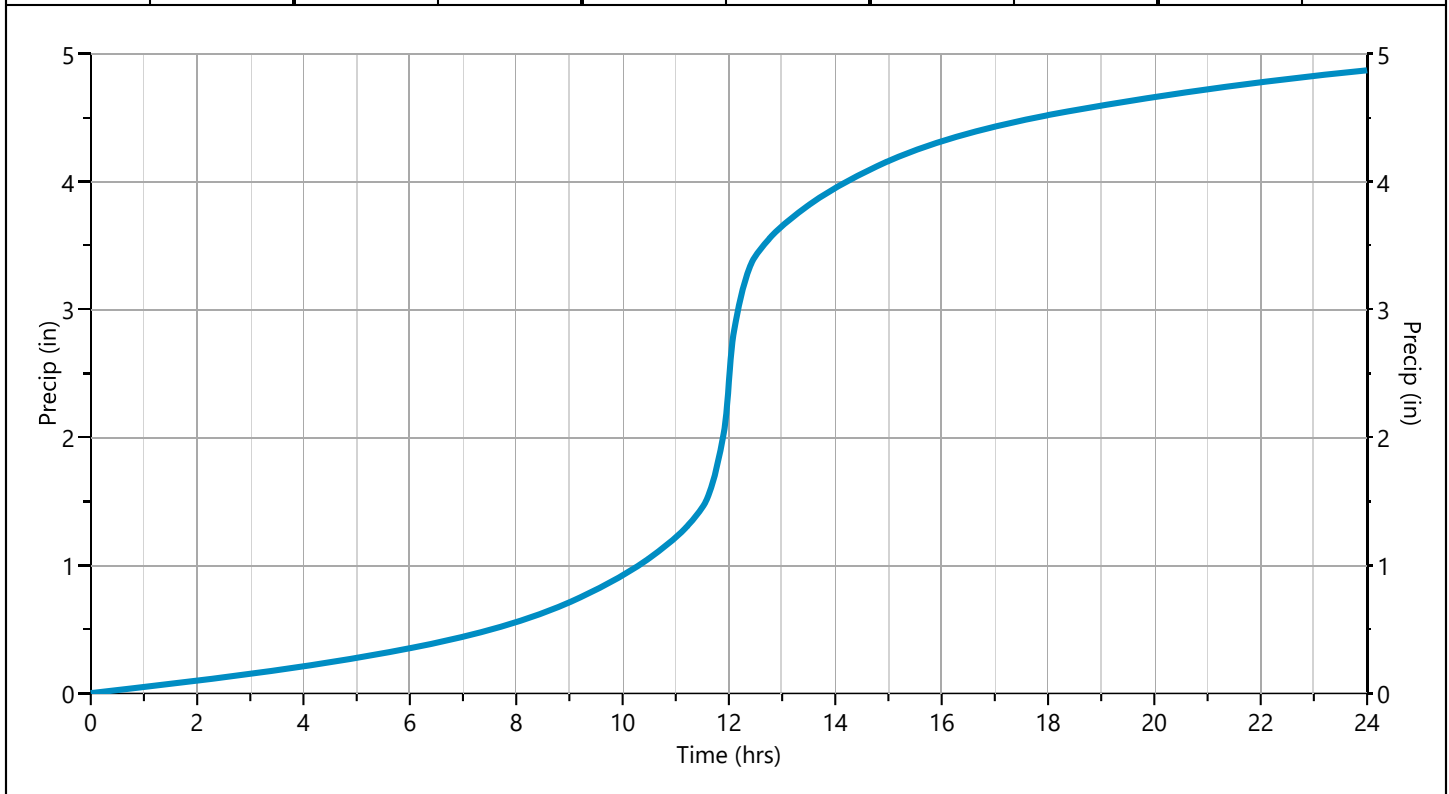
Hydrology Studio v 3.0.0.26

01-18-2023

## Storm Distribution: NRCS/SCS - Type III, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	✓ 10-yr	25-yr	50-yr	100-yr	
24 hrs	2.47	3.07	0.00	4.05	4.87	5.99	6.82	7.73	

Incremental Rainfall Distribution, 10-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	0.009597	11.68	0.022158	11.87	0.035253	12.05	0.073171	12.23	0.029301
11.52	0.010226	11.70	0.023349	11.88	0.036444	12.07	0.063188	12.25	0.028111
11.53	0.011444	11.72	0.024539	11.90	0.037634	12.08	0.053204	12.27	0.026920
11.55	0.012635	11.73	0.025730	11.92	0.043360	12.10	0.043221	12.28	0.025730
11.57	0.013825	11.75	0.026920	11.93	0.053205	12.12	0.037777	12.30	0.024539
11.58	0.015016	11.77	0.028111	11.95	0.063189	12.13	0.036444	12.32	0.023349
11.60	0.016206	11.78	0.029301	11.97	0.073172	12.15	0.035253	12.33	0.022159
11.62	0.017397	11.80	0.030492	11.98	0.083155	12.17	0.034063	12.35	0.020968
11.63	0.018587	11.82	0.031682	<b>12.00</b>	<b>0.093139</b>	12.18	0.032872	12.37	0.019778
11.65	0.019778	11.83	0.032872	12.02	0.092915	12.20	0.031682	12.38	0.018587
11.67	0.020968	11.85	0.034063	12.03	0.083155	12.22	0.030492	12.40	0.017397



POST110

# Hydrograph 25-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Post SA-B.1	1.573	12.07	5,284	---		
2	NRCS Runoff	Post SA-B.2	1.430	12.07	4,667	---		
3	NRCS Runoff	Post SA B. 3 to B.6	1.488	12.07	5,122	---		
4	NRCS Runoff	Post SA-B.7(bypass)	0.483	12.07	1,569	---		
5	NRCS Runoff	Post SA-A (remaining)	3.548	12.07	11,390	---		
6	Pond Route	Post PROP. R.G. #1	1.562	12.08	4,819	1	75.43	558
7	Pond Route	Post PRO R.G. #2	1.428	12.08	4,342	2	77.42	373
8	Junction	Post SUM TO U.G. DET. SYS	4.467	12.08	14,283	3, 6, 7		
9	Pond Route	PROP. U/G DET BASIN	1.837	12.27	13,961	8	74.71	3,792
10	Junction	Post SUM SA-B	2.112	12.13	15,530	4, 9		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

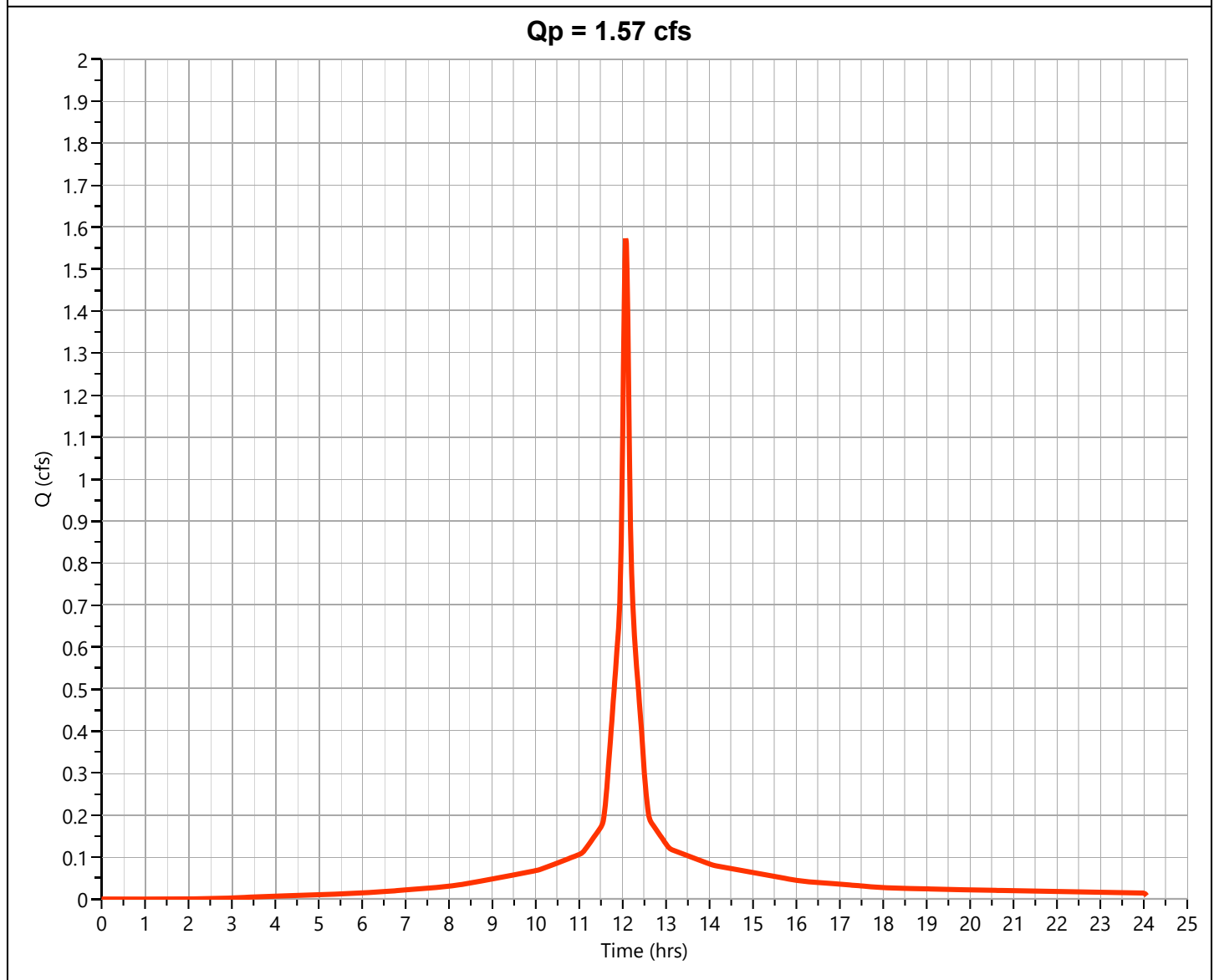
## Post SA-B.1

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.573 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 5,284 cuft
Drainage Area	= 0.267 ac	Curve Number	= 94*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.99 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.207	98	C-PAVED
0.009	85	C-POROUS PAVERS
0.051	79	C-LAWN/LANSCAPED
<b>0.267</b>	<b>94</b>	Weighted CN Method Employed



POST112

# Hydrograph Discharge Table

SA-B.1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.42	0.159	12.02	1.267	12.62	0.192				
11.43	0.161	12.03	1.410	12.63	0.187				
11.45	0.164	12.05	1.519	12.65	0.183				
11.47	0.166	<b>12.07</b>	<b>1.573</b>	12.67	0.181				
11.48	0.169	12.08	1.563	12.68	0.178				
11.50	0.171	12.10	1.495	12.70	0.176				
11.52	0.174	12.12	1.386	12.72	0.173				
11.53	0.179	12.13	1.251	12.73	0.171				
11.55	0.185	12.15	1.111	12.75	0.168				
11.57	0.195	12.17	0.982	12.77	0.166				
11.58	0.208	12.18	0.877	12.78	0.163				
11.60	0.225	12.20	0.797	12.80	0.161				
11.62	0.243	12.22	0.737	12.82	0.158				
11.63	0.264	12.23	0.693	12.83	0.156				
11.65	0.286	12.25	0.660	...end	...end				
11.67	0.308	12.27	0.634						
11.68	0.332	12.28	0.611						
11.70	0.355	12.30	0.587						
11.72	0.378	12.32	0.564						
11.73	0.401	12.33	0.540						
11.75	0.425	12.35	0.516						
11.77	0.448	12.37	0.492						
11.78	0.472	12.38	0.469						
11.80	0.495	12.40	0.445						
11.82	0.519	12.42	0.421						
11.83	0.543	12.43	0.397						
11.85	0.567	12.45	0.373						
11.87	0.591	12.47	0.350						
11.88	0.615	12.48	0.326						
11.90	0.639	12.50	0.302						
11.92	0.667	12.52	0.278						
11.93	0.707	12.53	0.256						
11.95	0.767	12.55	0.237						
11.97	0.854	12.57	0.221						
11.98	0.971	12.58	0.208						
12.00	1.113	12.60	0.199						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

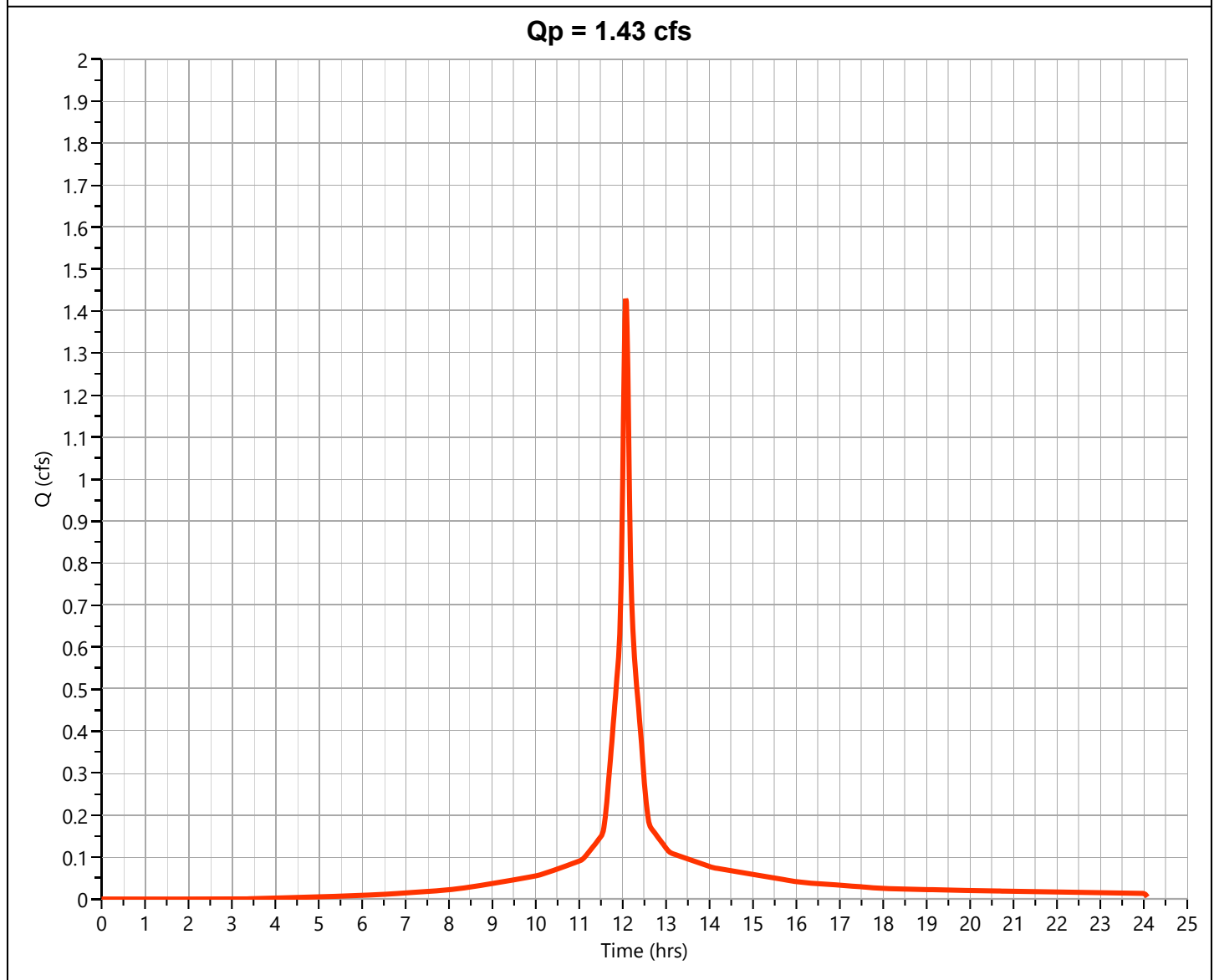
## Post SA-B.2

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.430 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 4,667 cuft
Drainage Area	= 0.252 ac	Curve Number	= 91*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.99 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.153	98	C-PAVED
0.009	89	C-POROUS PAVERS
0.09	79	C-LAWN/LANDSCAPED
<b>0.252</b>	<b>91</b>	Weighted CN Method Employed





# Hydrograph Discharge Table

SA-B.2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.47	0.144	<b>12.07</b>	<b>1.430</b>	12.67	0.167				
11.48	0.147	12.08	1.422	12.68	0.165				
11.50	0.149	12.10	1.363	12.70	0.162				
11.52	0.152	12.12	1.264	12.72	0.160				
11.53	0.155	12.13	1.143	12.73	0.158				
11.55	0.161	12.15	1.016	12.75	0.155				
11.57	0.170	12.17	0.899	12.77	0.153				
11.58	0.182	12.18	0.804	12.78	0.151				
11.60	0.196	12.20	0.731	12.80	0.149				
11.62	0.213	12.22	0.677	12.82	0.146				
11.63	0.231	12.23	0.637	12.83	0.144				
11.65	0.250	12.25	0.607	12.85	0.142				
11.67	0.271	12.27	0.583	...end	...end				
11.68	0.291	12.28	0.562						
11.70	0.312	12.30	0.540						
11.72	0.333	12.32	0.519						
11.73	0.354	12.33	0.497						
11.75	0.375	12.35	0.475						
11.77	0.396	12.37	0.454						
11.78	0.417	12.38	0.432						
11.80	0.439	12.40	0.410						
11.82	0.460	12.42	0.388						
11.83	0.482	12.43	0.366						
11.85	0.504	12.45	0.345						
11.87	0.526	12.47	0.323						
11.88	0.548	12.48	0.301						
11.90	0.571	12.50	0.279						
11.92	0.597	12.52	0.257						
11.93	0.634	12.53	0.237						
11.95	0.688	12.55	0.219						
11.97	0.768	12.57	0.204						
11.98	0.875	12.58	0.192						
12.00	1.004	12.60	0.184						
12.02	1.145	12.62	0.177						
12.03	1.277	12.63	0.173						
12.05	1.379	12.65	0.169						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

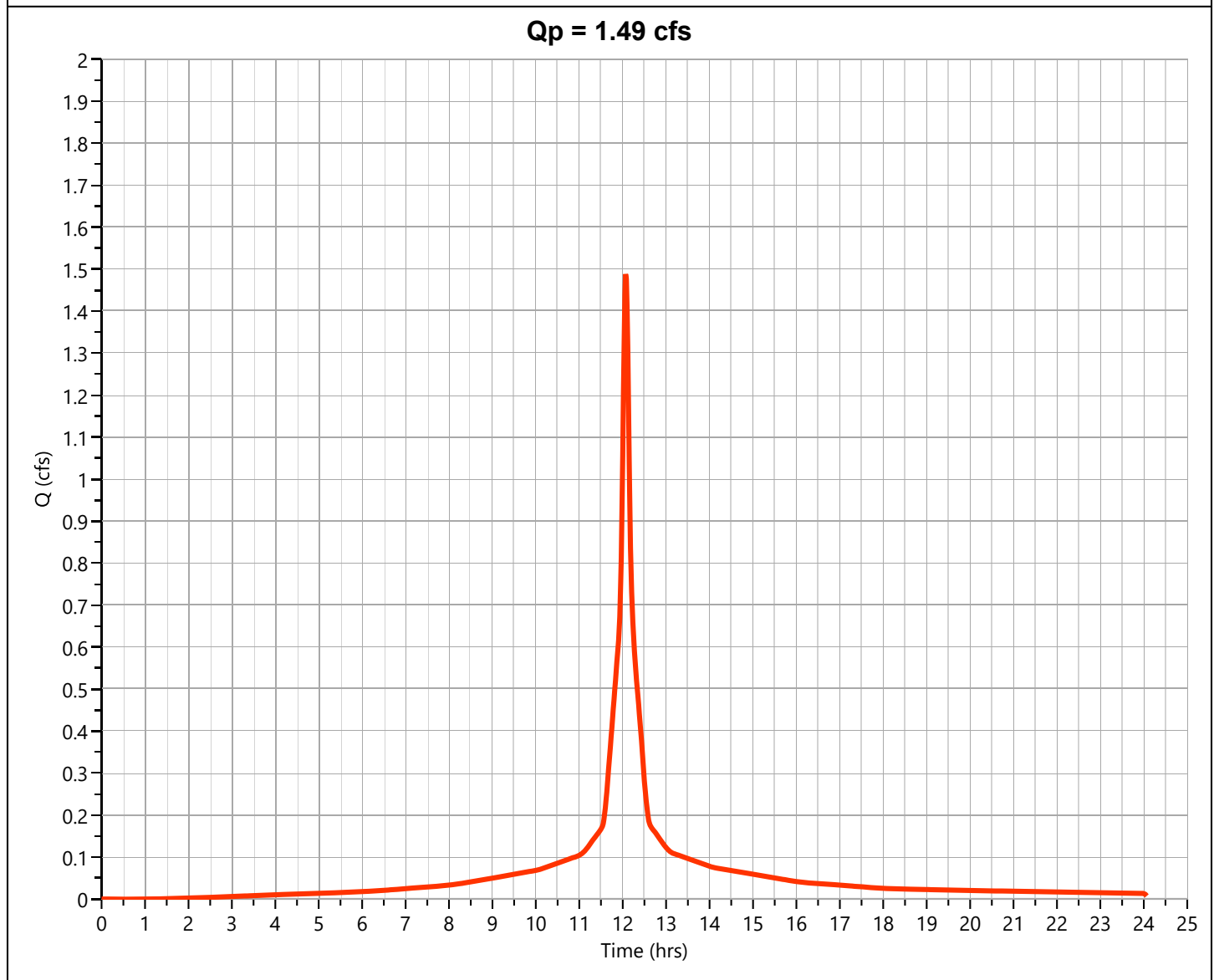
## Post SA B. 3 to B.6

## Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.488 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 5,122 cuft
Drainage Area	= 0.248 ac	Curve Number	= 96*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.99 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.215	98	C-PAVED
0.017	89	C-POROUS PAVERS
0.016	79	C-LAWN/LANDSCAPED
<b>0.248</b>	<b>96</b>	Weighted CN Method Employed



POST116

# Hydrograph Discharge Table

SA B. 3 to B.6

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.38	0.150	11.98	0.923	12.58	0.195				
11.40	0.152	12.00	1.057	12.60	0.187				
11.42	0.154	12.02	1.202	12.62	0.180				
11.43	0.157	12.03	1.336	12.63	0.175				
11.45	0.159	12.05	1.439	12.65	0.172				
11.47	0.161	<b>12.07</b>	<b>1.488</b>	12.67	0.169				
11.48	0.164	12.08	1.477	12.68	0.167				
11.50	0.166	12.10	1.413	12.70	0.165				
11.52	0.169	12.12	1.308	12.72	0.162				
11.53	0.173	12.13	1.181	12.73	0.160				
11.55	0.179	12.15	1.047	12.75	0.158				
11.57	0.189	12.17	0.925	12.77	0.155				
11.58	0.202	12.18	0.826	12.78	0.153				
11.60	0.217	12.20	0.750	12.80	0.151				
11.62	0.235	12.22	0.694	12.82	0.148				
11.63	0.255	12.23	0.652	...end	...end				
11.65	0.276	12.25	0.621						
11.67	0.298	12.27	0.597						
11.68	0.320	12.28	0.574						
11.70	0.342	12.30	0.552						
11.72	0.364	12.32	0.530						
11.73	0.386	12.33	0.507						
11.75	0.408	12.35	0.485						
11.77	0.431	12.37	0.463						
11.78	0.453	12.38	0.440						
11.80	0.475	12.40	0.418						
11.82	0.498	12.42	0.395						
11.83	0.520	12.43	0.373						
11.85	0.542	12.45	0.351						
11.87	0.565	12.47	0.328						
11.88	0.587	12.48	0.306						
11.90	0.610	12.50	0.283						
11.92	0.636	12.52	0.261						
11.93	0.674	12.53	0.241						
11.95	0.730	12.55	0.222						
11.97	0.813	12.57	0.207						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

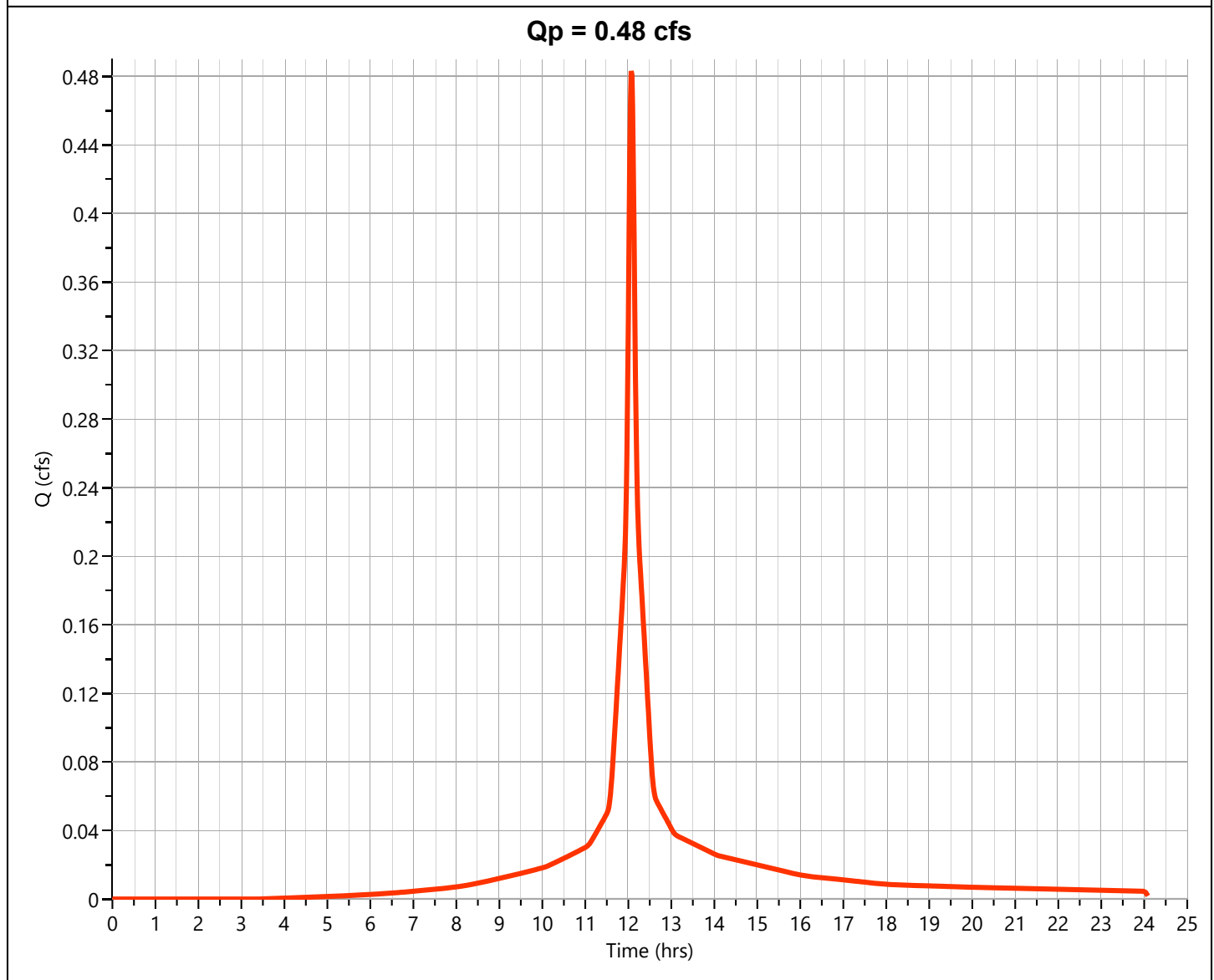
## Post SA-B.7(bypass)

## Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.483 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 1,569 cuft
Drainage Area	= 0.086 ac	Curve Number	= 90.34*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.99 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.031	89	C-Roadway
0.035	98	C-Paved
0.02	79	C-Lawn/Landscaped
<b>0.086</b>	<b>90</b>	Weighted CN Method Employed



POST118

### Hydrograph Discharge Table

SA-B.7(bypass)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.48	0.049	12.08	0.481	12.68	0.056				
11.50	0.050	12.10	0.461	12.70	0.055				
11.52	0.051	12.12	0.428	12.72	0.054				
11.53	0.052	12.13	0.387	12.73	0.054				
11.55	0.054	12.15	0.344	12.75	0.053				
11.57	0.057	12.17	0.304	12.77	0.052				
11.58	0.061	12.18	0.272	12.78	0.051				
11.60	0.066	12.20	0.248	12.80	0.050				
11.62	0.071	12.22	0.229	12.82	0.050				
11.63	0.077	12.23	0.216	12.83	0.049				
11.65	0.084	12.25	0.206	12.85	0.048				
11.67	0.091	12.27	0.198	...end	...end				
11.68	0.098	12.28	0.190						
11.70	0.105	12.30	0.183						
11.72	0.112	12.32	0.176						
11.73	0.119	12.33	0.169						
11.75	0.126	12.35	0.161						
11.77	0.133	12.37	0.154						
11.78	0.140	12.38	0.146						
11.80	0.147	12.40	0.139						
11.82	0.155	12.42	0.132						
11.83	0.162	12.43	0.124						
11.85	0.170	12.45	0.117						
11.87	0.177	12.47	0.109						
11.88	0.185	12.48	0.102						
11.90	0.192	12.50	0.095						
11.92	0.201	12.52	0.087						
11.93	0.213	12.53	0.080						
11.95	0.232	12.55	0.074						
11.97	0.259	12.57	0.069						
11.98	0.295	12.58	0.065						
12.00	0.339	12.60	0.062						
12.02	0.387	12.62	0.060						
12.03	0.431	12.63	0.059						
12.05	0.466	12.65	0.057						
<b>12.07</b>	<b>0.483</b>	12.67	0.057						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

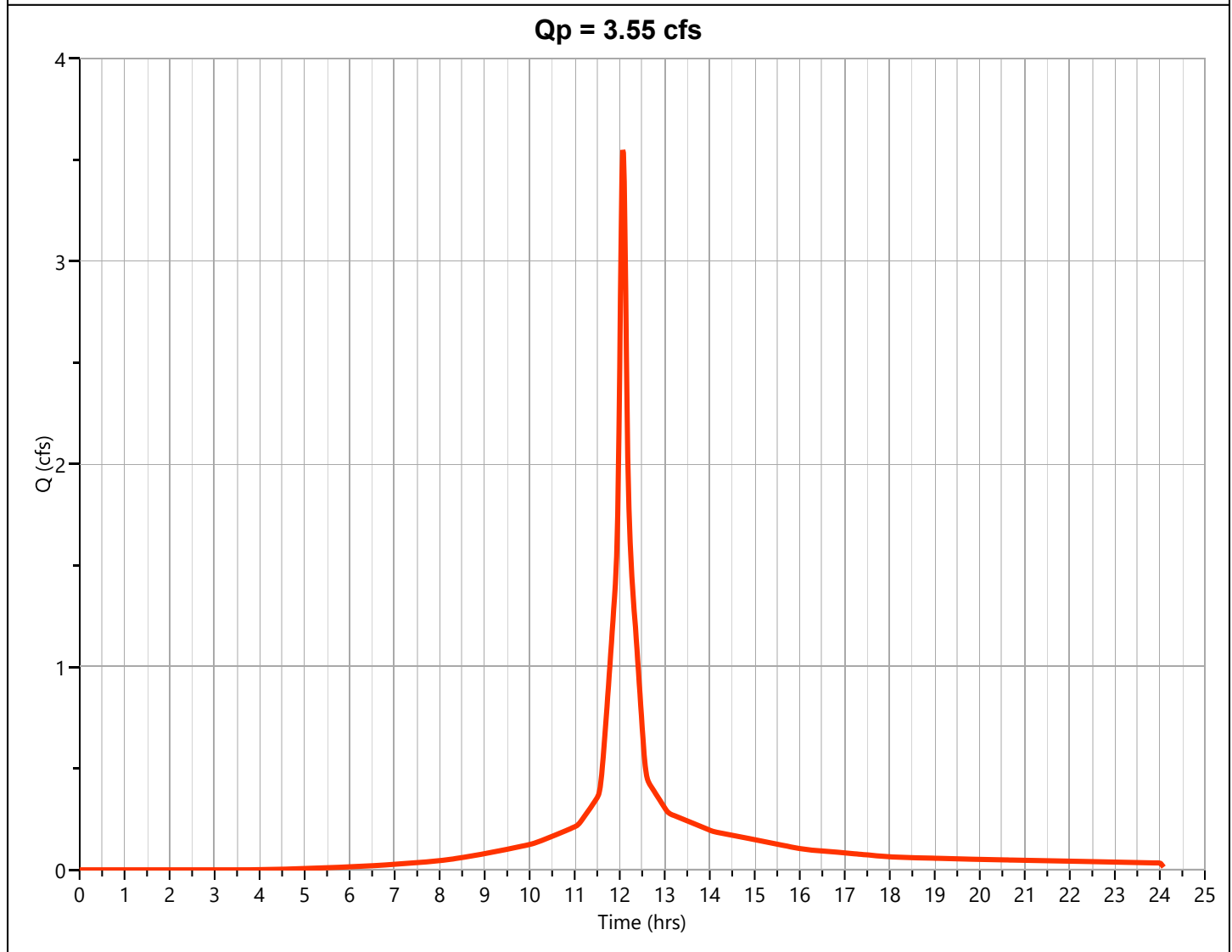
## Post SA-A (remaining)

## Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.548 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 11,390 cuft
Drainage Area	= 0.649 ac	Curve Number	= 88.66*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.99 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.187	89	C-Roadway
0.239	94	C-Urban Area
0.039	98	C-Paved
0.012	89	C-Porous PAvers
0.172	79	C-Lawn/Landscaped
<b>0.649</b>	<b>89</b>	Weighted CN Method Employed



POST120

### Hydrograph Discharge Table

SA-A (remaining)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.50	0.356	12.10	3.391	12.70	0.409				
11.52	0.362	12.12	3.150	12.72	0.404				
11.53	0.372	12.13	2.851	12.73	0.398				
11.55	0.386	12.15	2.536	12.75	0.392				
11.57	0.407	12.17	2.247	12.77	0.386				
11.58	0.436	12.18	2.011	12.78	0.381				
11.60	0.470	12.20	1.830	12.80	0.375				
11.62	0.510	12.22	1.695	12.82	0.369				
11.63	0.554	12.23	1.595	12.83	0.363				
11.65	0.602	12.25	1.522	12.85	0.358				
11.67	0.651	12.27	1.463	12.87	0.352				
11.68	0.701	12.28	1.410	...end	...end				
11.70	0.751	12.30	1.357						
11.72	0.803	12.32	1.303						
11.73	0.854	12.33	1.249						
11.75	0.906	12.35	1.195						
11.77	0.958	12.37	1.141						
11.78	1.011	12.38	1.086						
11.80	1.065	12.40	1.032						
11.82	1.119	12.42	0.977						
11.83	1.173	12.43	0.922						
11.85	1.228	12.45	0.867						
11.87	1.283	12.47	0.812						
11.88	1.339	12.48	0.757						
11.90	1.395	12.50	0.702						
11.92	1.461	12.52	0.647						
11.93	1.553	12.53	0.596						
11.95	1.689	12.55	0.551						
11.97	1.888	12.57	0.514						
11.98	2.154	12.58	0.485						
12.00	2.477	12.60	0.463						
12.02	2.829	12.62	0.447						
12.03	3.160	12.63	0.435						
12.05	3.417	12.65	0.427						
<b>12.07</b>	<b>3.548</b>	12.67	0.421						
12.08	3.535	12.68	0.415						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PROP. R.G. #1

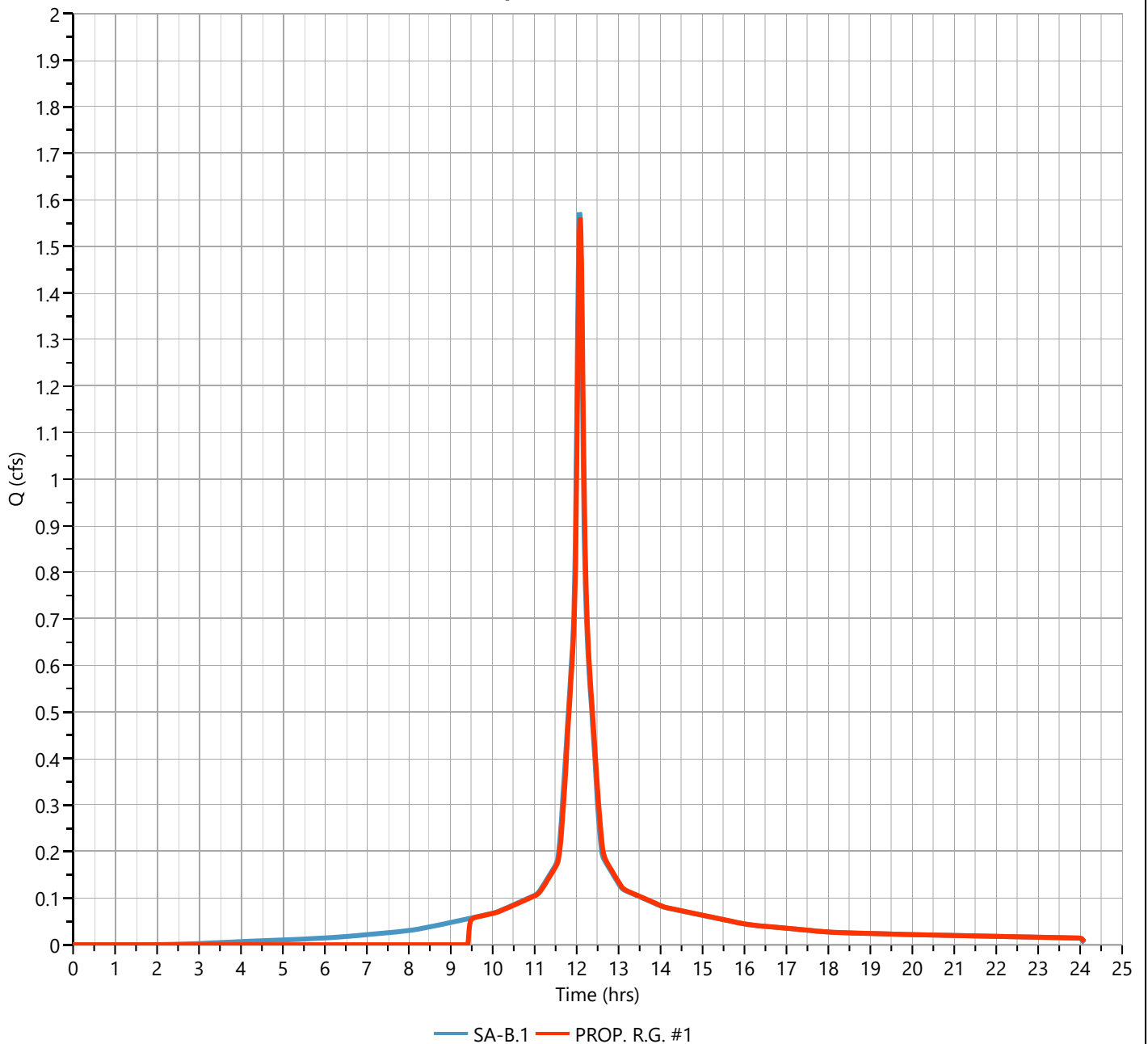
## Hyd. No. 6

Hydrograph Type	= Pond Route	Peak Flow	= 1.562 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 4,819 cuft
Inflow Hydrograph	= 1 - SA-B.1	Max. Elevation	= 75.43 ft
Pond Name	= PROP. RAINGARDEN #1	Max. Storage	= 558 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 33 min

**Qp = 1.56 cfs**





# Hydrograph Discharge Table

PROP. R.G. #1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.43	0.157	12.03	1.309	12.63	0.199				
11.45	0.160	12.05	1.441	12.65	0.193				
11.47	0.162	12.07	1.530	12.67	0.188				
11.48	0.165	<b>12.08</b>	<b>1.562</b>	12.68	0.184				
11.50	0.167	12.10	1.534	12.70	0.180				
11.52	0.170	12.12	1.455	12.72	0.178				
11.53	0.173	12.13	1.339	12.73	0.175				
11.55	0.177	12.15	1.205	12.75	0.172				
11.57	0.183	12.17	1.071	12.77	0.170				
11.58	0.192	12.18	0.969	12.78	0.167				
11.60	0.204	12.20	0.873	12.80	0.165				
11.62	0.218	12.22	0.796	12.82	0.162				
11.63	0.235	12.23	0.738	12.83	0.160				
11.65	0.254	12.25	0.694	12.85	0.157				
11.67	0.274	12.27	0.660	12.87	0.155				
11.68	0.296	12.28	0.633	...end	...end				
11.70	0.318	12.30	0.608						
11.72	0.341	12.32	0.584						
11.73	0.364	12.33	0.561						
11.75	0.392	12.35	0.537						
11.77	0.424	12.37	0.513						
11.78	0.450	12.38	0.490						
11.80	0.474	12.40	0.466						
11.82	0.498	12.42	0.442						
11.83	0.522	12.43	0.418						
11.85	0.546	12.45	0.394						
11.87	0.570	12.47	0.373						
11.88	0.594	12.48	0.356						
11.90	0.618	12.50	0.336						
11.92	0.643	12.52	0.314						
11.93	0.675	12.53	0.292						
11.95	0.720	12.55	0.271						
11.97	0.785	12.57	0.251						
11.98	0.877	12.58	0.234						
12.00	0.996	12.60	0.219						
12.02	1.147	12.62	0.208						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PRO R.G. #2

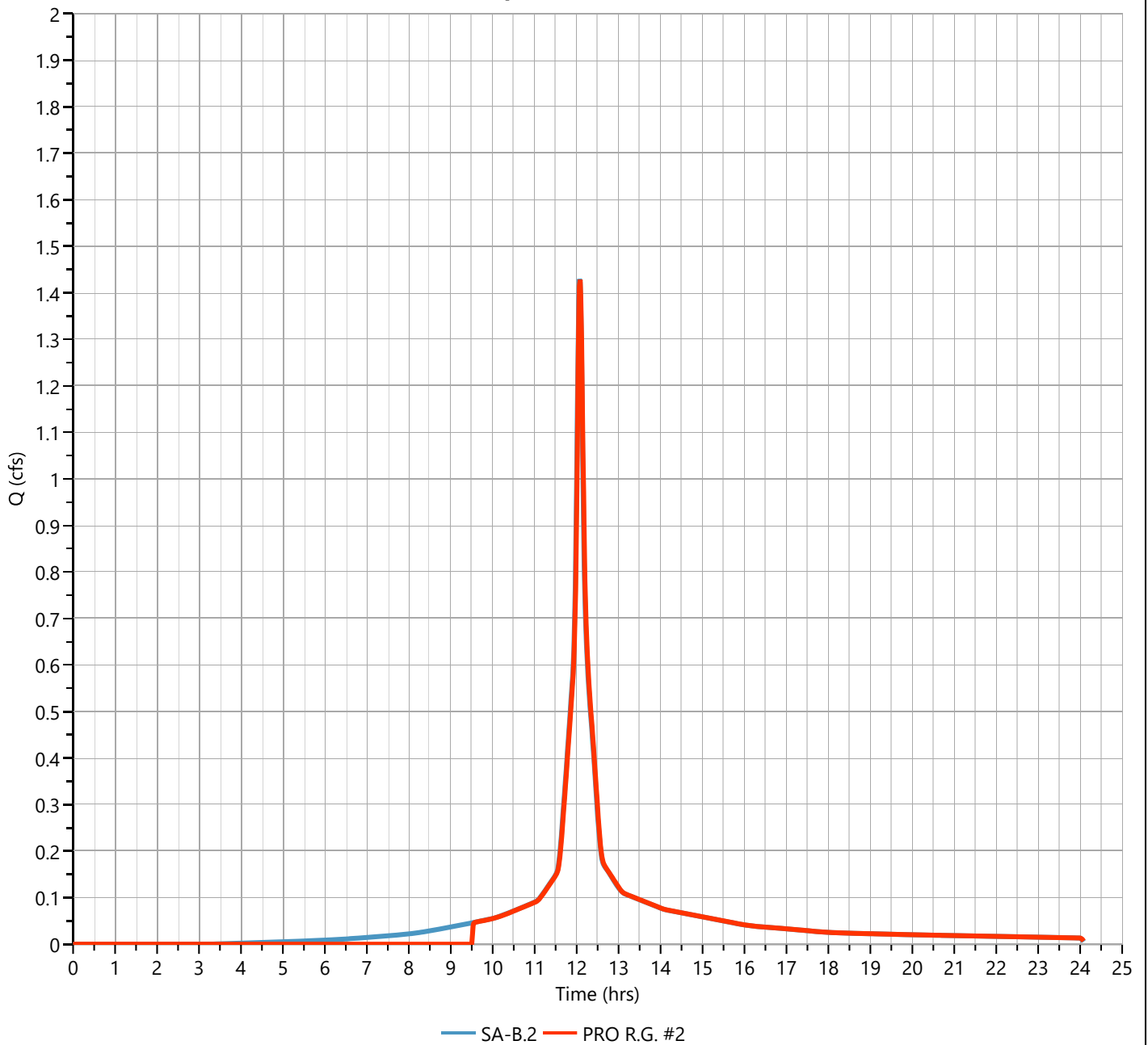
## Hyd. No. 7

Hydrograph Type	= Pond Route	Peak Flow	= 1.428 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 4,342 cuft
Inflow Hydrograph	= 2 - SA-B.2	Max. Elevation	= 77.42 ft
Pond Name	= PRO RAINGARDEN #2	Max. Storage	= 373 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 24 min

**Qp = 1.43 cfs**



# Hydrograph Discharge Table

PRO R.G. #2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.47	0.143	12.07	1.415	12.67	0.169				
11.48	0.145	<b>12.08</b>	<b>1.428</b>	12.68	0.166				
11.50	0.148	12.10	1.386	12.70	0.164				
11.52	0.150	12.12	1.300	12.72	0.161				
11.53	0.153	12.13	1.186	12.73	0.159				
11.55	0.158	12.15	1.063	12.75	0.157				
11.57	0.165	12.17	0.970	12.77	0.155				
11.58	0.175	12.18	0.865	12.78	0.152				
11.60	0.187	12.20	0.779	12.80	0.150				
11.62	0.202	12.22	0.713	12.82	0.148				
11.63	0.219	12.23	0.663	12.83	0.145				
11.65	0.238	12.25	0.627	12.85	0.143				
11.67	0.258	12.27	0.599	12.87	0.141				
11.68	0.278	12.28	0.576	...end	...end				
11.70	0.299	12.30	0.554						
11.72	0.319	12.32	0.532						
11.73	0.340	12.33	0.511						
11.75	0.361	12.35	0.489						
11.77	0.382	12.37	0.467						
11.78	0.404	12.38	0.446						
11.80	0.425	12.40	0.424						
11.82	0.447	12.42	0.402						
11.83	0.468	12.43	0.380						
11.85	0.490	12.45	0.358						
11.87	0.512	12.47	0.336						
11.88	0.534	12.48	0.315						
11.90	0.557	12.50	0.293						
11.92	0.581	12.52	0.271						
11.93	0.611	12.53	0.250						
11.95	0.655	12.55	0.230						
11.97	0.720	12.57	0.214						
11.98	0.809	12.58	0.200						
12.00	0.924	12.60	0.189						
12.02	1.057	12.62	0.182						
12.03	1.234	12.63	0.176						
12.05	1.345	12.65	0.172						

# Hydrograph Report

Project Name:

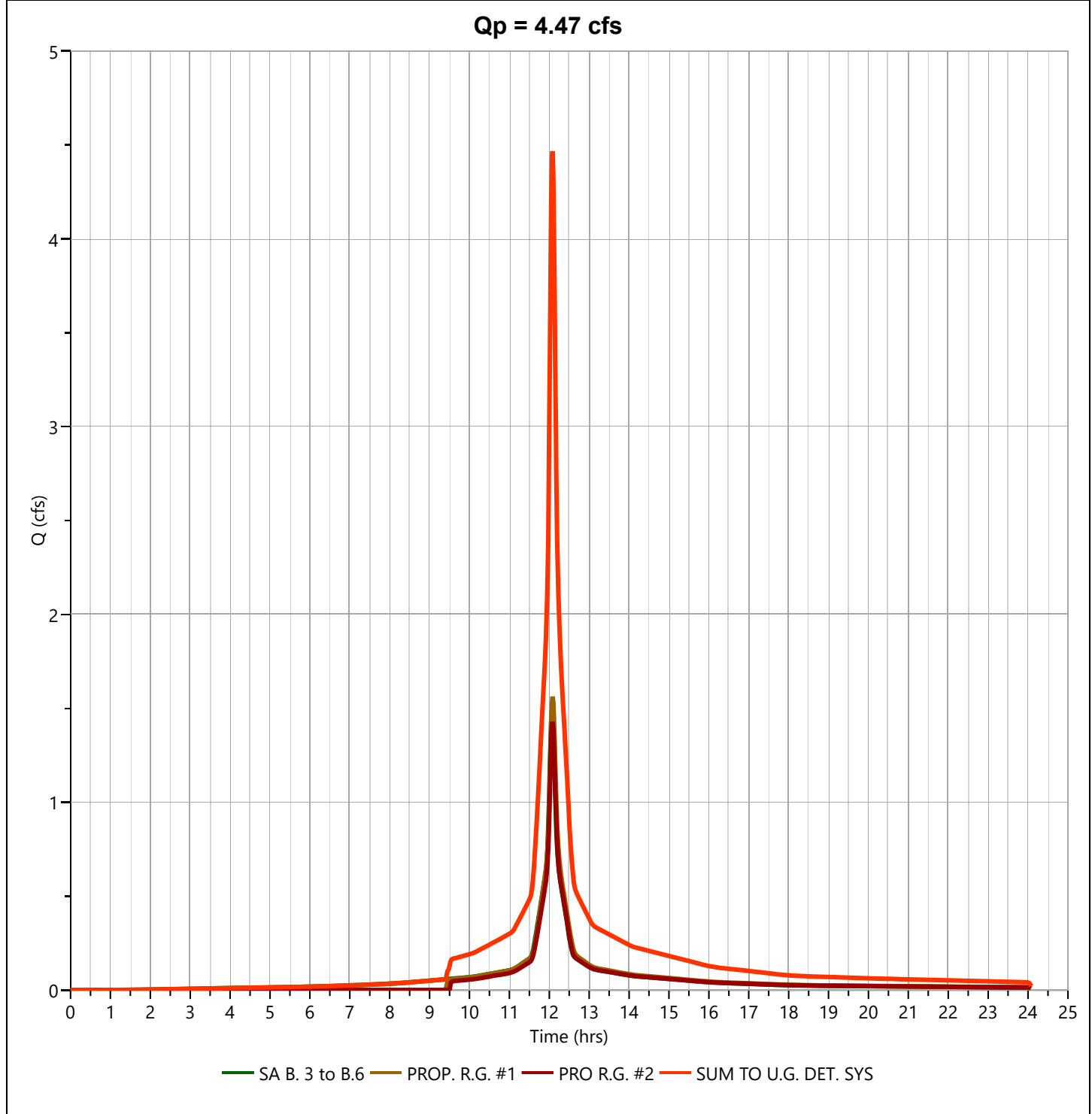
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM TO U.G. DET. SYS

## Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 4.467 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 14,283 cuft
Inflow Hydrographs	= 3, 6, 7	Total Contrib. Area	= 0.248 ac



# Hydrograph Discharge Table

SUM TO U.G. DET. SYS

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.43	0.453	12.03	3.879	12.63	0.550				
11.45	0.460	12.05	4.224	12.65	0.536				
11.47	0.467	12.07	4.433	12.67	0.525				
11.48	0.474	<b>12.08</b>	<b>4.467</b>	12.68	0.517				
11.50	0.481	12.10	4.333	12.70	0.509				
11.52	0.489	12.12	4.064	12.72	0.501				
11.53	0.499	12.13	3.706	12.73	0.494				
11.55	0.514	12.15	3.315	12.75	0.487				
11.57	0.537	12.17	2.966	12.77	0.480				
11.58	0.568	12.18	2.660	12.78	0.473				
11.60	0.608	12.20	2.403	12.80	0.465				
11.62	0.655	12.22	2.203	12.82	0.458				
11.63	0.709	12.23	2.053	12.83	0.451				
11.65	0.767	12.25	1.941	12.85	0.444				
11.67	0.829	12.27	1.856	...end	...end				
11.68	0.894	12.28	1.783						
11.70	0.959	12.30	1.714						
11.72	1.024	12.32	1.647						
11.73	1.090	12.33	1.579						
11.75	1.161	12.35	1.511						
11.77	1.237	12.37	1.443						
11.78	1.307	12.38	1.376						
11.80	1.375	12.40	1.308						
11.82	1.442	12.42	1.240						
11.83	1.510	12.43	1.172						
11.85	1.578	12.45	1.103						
11.87	1.647	12.47	1.038						
11.88	1.715	12.48	0.977						
11.90	1.784	12.50	0.912						
11.92	1.860	12.52	0.846						
11.93	1.960	12.53	0.783						
11.95	2.105	12.55	0.723						
11.97	2.318	12.57	0.672						
11.98	2.610	12.58	0.629						
12.00	2.978	12.60	0.595						
12.02	3.406	12.62	0.570						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## PROP. U/G DET BASIN

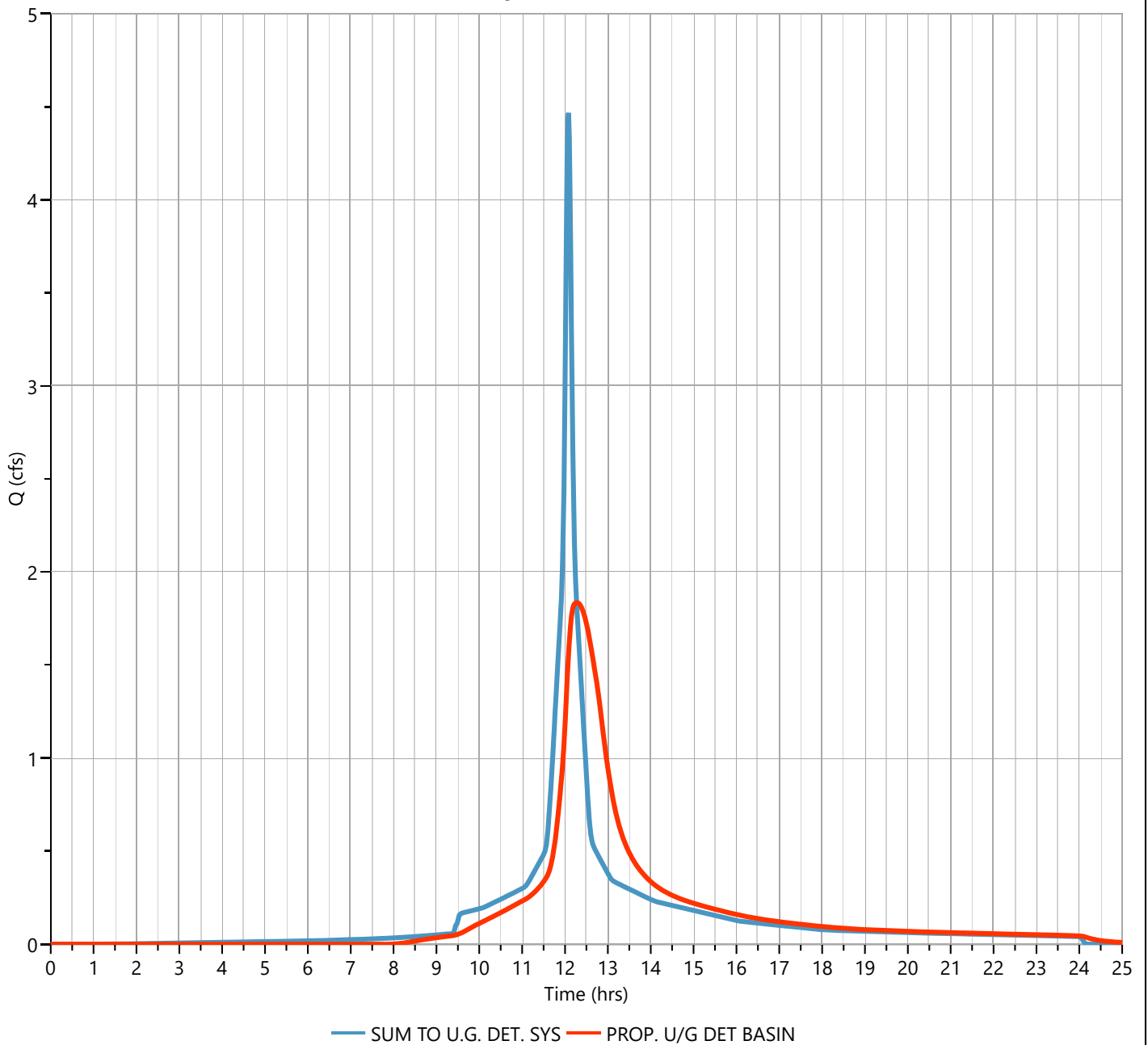
## Hyd. No. 9

Hydrograph Type	= Pond Route	Peak Flow	= 1.837 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.27 hrs
Time Interval	= 1 min	Hydrograph Volume	= 13,961 cuft
Inflow Hydrograph	= 8 - SUM TO U.G. DET. SYS	Max. Elevation	= 74.71 ft
Pond Name	= PROP U/G DET SYS	Max. Storage	= 3,792 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 47 min

**Qp = 1.84 cfs**



# Hydrograph Discharge Table

PROP. U/G DET BASIN

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
10.63	0.186	11.23	0.267	11.83	0.682	12.43	1.780	13.03	0.895
10.65	0.188	11.25	0.270	11.85	0.719	12.45	1.768	13.05	0.871
10.67	0.190	11.27	0.274	11.87	0.759	12.47	1.754	13.07	0.848
10.68	0.192	11.28	0.278	11.88	0.800	12.48	1.740	13.08	0.825
10.70	0.194	11.30	0.281	11.90	0.843	12.50	1.724	13.10	0.804
10.72	0.196	11.32	0.285	11.92	0.887	12.52	1.707	13.12	0.783
10.73	0.198	11.33	0.289	11.93	0.933	12.53	1.689	13.13	0.764
10.75	0.200	11.35	0.293	11.95	0.980	12.55	1.670	13.15	0.745
10.77	0.202	11.37	0.298	11.97	1.035	12.57	1.649	13.17	0.727
10.78	0.204	11.38	0.302	11.98	1.099	12.58	1.627	13.18	0.709
10.80	0.206	11.40	0.306	12.00	1.175	12.60	1.605	13.20	0.693
10.82	0.208	11.42	0.311	12.02	1.265	12.62	1.582	13.22	0.677
10.83	0.210	11.43	0.316	12.03	1.340	12.63	1.558	13.23	0.662
10.85	0.213	11.45	0.321	12.05	1.415	12.65	1.534	13.25	0.648
10.87	0.215	11.47	0.325	12.07	1.490	12.67	1.510	13.27	0.634
10.88	0.217	11.48	0.330	12.08	1.562	12.68	1.486	13.28	0.621
10.90	0.219	11.50	0.336	12.10	1.626	12.70	1.461	13.30	0.608
10.92	0.221	11.52	0.341	12.12	1.680	12.72	1.436	13.32	0.595
10.93	0.223	11.53	0.346	12.13	1.725	12.73	1.411	13.33	0.584
10.95	0.225	11.55	0.352	12.15	1.760	12.75	1.386	13.35	0.573
10.97	0.227	11.57	0.358	12.17	1.786	12.77	1.361	13.37	0.562
10.98	0.229	11.58	0.365	12.18	1.805	12.78	1.336	13.38	0.552
11.00	0.231	11.60	0.373	12.20	1.819	12.80	1.311	13.40	0.542
11.02	0.234	11.62	0.383	12.22	1.827	12.82	1.285	13.42	0.533
11.03	0.236	11.63	0.394	12.23	1.833	12.83	1.251	13.43	0.524
11.05	0.238	11.65	0.406	12.25	1.836	12.85	1.215	13.45	0.515
11.07	0.240	11.67	0.421	<b>12.27</b>	<b>1.837</b>	12.87	1.181	13.47	0.506
11.08	0.242	11.68	0.438	12.28	1.837	12.88	1.148	13.48	0.498
11.10	0.244	11.70	0.456	12.30	1.835	12.90	1.115	13.50	0.490
11.12	0.247	11.72	0.477	12.32	1.832	12.92	1.084	13.52	0.483
11.13	0.249	11.73	0.500	12.33	1.828	12.93	1.054	13.53	0.475
11.15	0.252	11.75	0.525	12.35	1.823	12.95	1.025	13.55	0.468
11.17	0.255	11.77	0.551	12.37	1.817	12.97	0.997	13.57	0.461
11.18	0.258	11.78	0.581	12.38	1.809	12.98	0.970	13.58	0.455
11.20	0.261	11.80	0.613	12.40	1.801	13.00	0.945	13.60	0.448
11.22	0.264	11.82	0.646	12.42	1.791	13.02	0.920	13.62	0.442

Hydrograph Discharge Table, cont'd

PROP. U/G DET BASIN

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
13.63	0.436	14.23	0.295	14.83	0.232	15.43	0.192		
13.65	0.430	14.25	0.293	14.85	0.231	15.45	0.191		
13.67	0.424	14.27	0.290	14.87	0.229	15.47	0.190		
13.68	0.419	14.28	0.288	14.88	0.228	15.48	0.189		
13.70	0.413	14.30	0.286	14.90	0.227	15.50	0.188		
13.72	0.408	14.32	0.284	14.92	0.226	15.52	0.187		
13.73	0.403	14.33	0.281	14.93	0.224	15.53	0.186		
13.75	0.398	14.35	0.279	14.95	0.223	15.55	0.185		
13.77	0.393	14.37	0.277	14.97	0.222	15.57	0.184		
13.78	0.388	14.38	0.275	14.98	0.221	15.58	0.183		
13.80	0.384	14.40	0.273	15.00	0.220	...end	...end		
13.82	0.379	14.42	0.271	15.02	0.218				
13.83	0.375	14.43	0.269	15.03	0.217				
13.85	0.371	14.45	0.267	15.05	0.216				
13.87	0.367	14.47	0.266	15.07	0.215				
13.88	0.362	14.48	0.264	15.08	0.214				
13.90	0.359	14.50	0.262	15.10	0.213				
13.92	0.355	14.52	0.260	15.12	0.211				
13.93	0.351	14.53	0.259	15.13	0.210				
13.95	0.347	14.55	0.257	15.15	0.209				
13.97	0.344	14.57	0.255	15.17	0.208				
13.98	0.340	14.58	0.254	15.18	0.207				
14.00	0.336	14.60	0.252	15.20	0.206				
14.02	0.333	14.62	0.250	15.22	0.205				
14.03	0.330	14.63	0.249	15.23	0.204				
14.05	0.326	14.65	0.247	15.25	0.203				
14.07	0.323	14.67	0.246	15.27	0.202				
14.08	0.320	14.68	0.244	15.28	0.201				
14.10	0.317	14.70	0.243	15.30	0.200				
14.12	0.314	14.72	0.242	15.32	0.199				
14.13	0.311	14.73	0.240	15.33	0.198				
14.15	0.308	14.75	0.239	15.35	0.197				
14.17	0.306	14.77	0.237	15.37	0.196				
14.18	0.303	14.78	0.236	15.38	0.195				
14.20	0.300	14.80	0.235	15.40	0.194				
14.22	0.298	14.82	0.233	15.42	0.193				



# Hydrograph Report

Project Name:

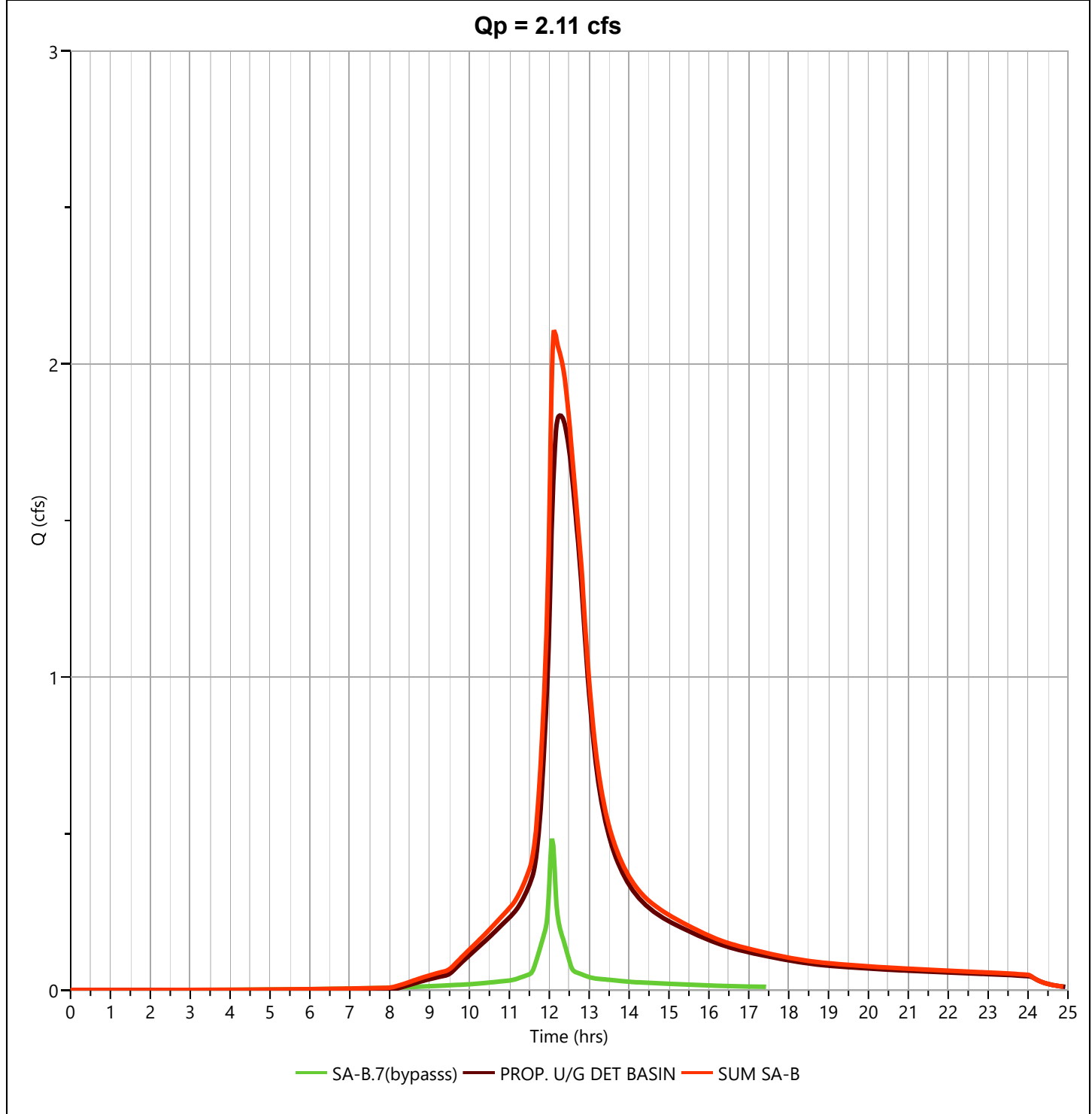
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM SA-B

## Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 2.112 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 15,530 cuft
Inflow Hydrographs	= 4, 9	Total Contrib. Area	= 0.086 ac



POST131

# Hydrograph Discharge Table

SUM SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
10.65	0.213	11.25	0.309	11.85	0.889	12.45	1.885	13.05	0.910
10.67	0.215	11.27	0.313	11.87	0.936	12.47	1.864	13.07	0.886
10.68	0.218	11.28	0.318	11.88	0.985	12.48	1.842	13.08	0.863
10.70	0.220	11.30	0.322	11.90	1.035	12.50	1.819	13.10	0.841
10.72	0.222	11.32	0.327	11.92	1.088	12.52	1.794	13.12	0.820
10.73	0.225	11.33	0.331	11.93	1.146	12.53	1.769	13.13	0.800
10.75	0.227	11.35	0.336	11.95	1.212	12.55	1.744	13.15	0.781
10.77	0.229	11.37	0.341	11.97	1.294	12.57	1.718	13.17	0.763
10.78	0.231	11.38	0.346	11.98	1.394	12.58	1.693	13.18	0.745
10.80	0.234	11.40	0.352	12.00	1.514	12.60	1.667	13.20	0.729
10.82	0.236	11.42	0.357	12.02	1.651	12.62	1.642	13.22	0.713
10.83	0.238	11.43	0.362	12.03	1.771	12.63	1.617	13.23	0.697
10.85	0.241	11.45	0.368	12.05	1.881	12.65	1.592	13.25	0.683
10.87	0.243	11.47	0.374	12.07	1.974	12.67	1.567	13.27	0.669
10.88	0.245	11.48	0.380	12.08	2.042	12.68	1.542	13.28	0.656
10.90	0.248	11.50	0.385	12.10	2.086	12.70	1.516	13.30	0.643
10.92	0.250	11.52	0.392	12.12	2.108	12.72	1.491	13.32	0.630
10.93	0.252	11.53	0.398	<b>12.13</b>	<b>2.112</b>	12.73	1.465	13.33	0.618
10.95	0.255	11.55	0.406	12.15	2.104	12.75	1.439	13.35	0.607
10.97	0.257	11.57	0.415	12.17	2.091	12.77	1.413	13.37	0.596
10.98	0.259	11.58	0.426	12.18	2.078	12.78	1.387	13.38	0.586
11.00	0.261	11.60	0.439	12.20	2.066	12.80	1.361	13.40	0.576
11.02	0.264	11.62	0.454	12.22	2.057	12.82	1.334	13.42	0.566
11.03	0.266	11.63	0.471	12.23	2.049	12.83	1.300	13.43	0.557
11.05	0.269	11.65	0.490	12.25	2.041	12.85	1.264	13.45	0.548
11.07	0.271	11.67	0.512	12.27	2.035	12.87	1.228	13.47	0.539
11.08	0.274	11.68	0.535	12.28	2.027	12.88	1.194	13.48	0.531
11.10	0.277	11.70	0.561	12.30	2.018	12.90	1.161	13.50	0.523
11.12	0.280	11.72	0.589	12.32	2.008	12.92	1.129	13.52	0.515
11.13	0.283	11.73	0.618	12.33	1.997	12.93	1.098	13.53	0.507
11.15	0.286	11.75	0.650	12.35	1.984	12.95	1.068	13.55	0.500
11.17	0.290	11.77	0.684	12.37	1.971	12.97	1.040	13.57	0.493
11.18	0.293	11.78	0.721	12.38	1.956	12.98	1.012	13.58	0.486
11.20	0.297	11.80	0.760	12.40	1.940	13.00	0.986	13.60	0.479
11.22	0.301	11.82	0.801	12.42	1.923	13.02	0.960	13.62	0.473
11.23	0.305	11.83	0.844	12.43	1.904	13.03	0.935	13.63	0.467

Hydrograph Discharge Table, cont'd

SUM SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
13.65	0.460	14.25	0.317	14.85	0.251				
13.67	0.455	14.27	0.315	14.87	0.250				
13.68	0.449	14.28	0.312	14.88	0.249				
13.70	0.443	14.30	0.310	14.90	0.247				
13.72	0.438	14.32	0.307	14.92	0.246				
13.73	0.432	14.33	0.305	14.93	0.245				
13.75	0.427	14.35	0.303	14.95	0.243				
13.77	0.422	14.37	0.301	14.97	0.242				
13.78	0.417	14.38	0.299	14.98	0.241				
13.80	0.412	14.40	0.297	15.00	0.239				
13.82	0.408	14.42	0.295	15.02	0.238				
13.83	0.403	14.43	0.293	15.03	0.237				
13.85	0.399	14.45	0.291	15.05	0.236				
13.87	0.394	14.47	0.289	15.07	0.234				
13.88	0.390	14.48	0.287	15.08	0.233				
13.90	0.386	14.50	0.285	15.10	0.232				
13.92	0.382	14.52	0.283	15.12	0.231				
13.93	0.378	14.53	0.281	15.13	0.229				
13.95	0.374	14.55	0.279	15.15	0.228				
13.97	0.370	14.57	0.278	15.17	0.227				
13.98	0.366	14.58	0.276	15.18	0.226				
14.00	0.363	14.60	0.274	15.20	0.225				
14.02	0.359	14.62	0.273	15.22	0.224				
14.03	0.356	14.63	0.271	15.23	0.222				
14.05	0.352	14.65	0.269	15.25	0.221				
14.07	0.349	14.67	0.268	15.27	0.220				
14.08	0.345	14.68	0.266	15.28	0.219				
14.10	0.342	14.70	0.265	15.30	0.218				
14.12	0.339	14.72	0.263	15.32	0.217				
14.13	0.336	14.73	0.262	15.33	0.216				
14.15	0.333	14.75	0.260	15.35	0.214				
14.17	0.330	14.77	0.259	15.37	0.213				
14.18	0.328	14.78	0.257	15.38	0.212				
14.20	0.325	14.80	0.256	15.40	0.211				
14.22	0.322	14.82	0.254	...end	...end				
14.23	0.320	14.83	0.253						

# Design Storm Report

Custom Storm filename: 3170.cds

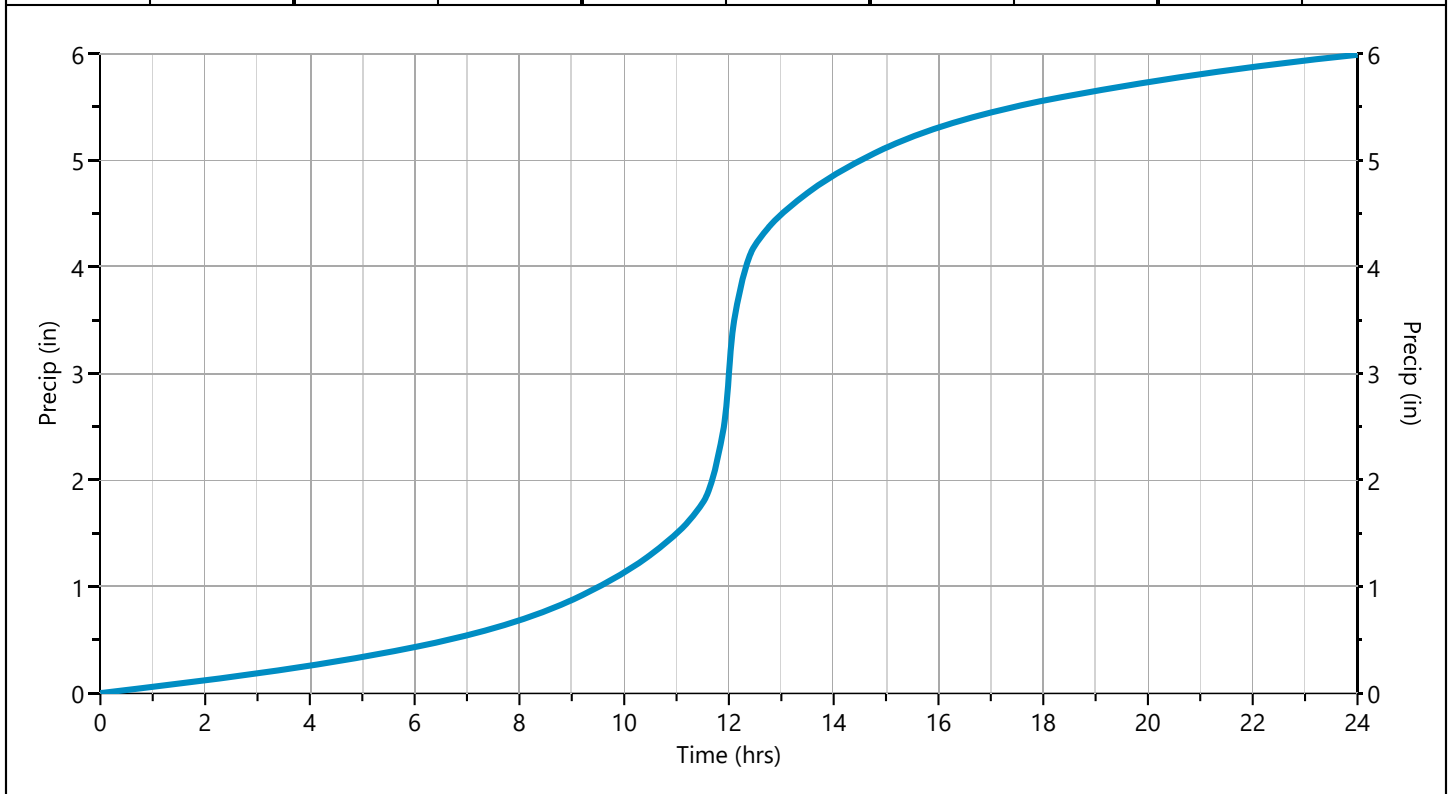
Hydrology Studio v 3.0.0.26

01-18-2023

## Storm Distribution: NRCS/SCS - Type III, 24-hr

Storm Duration	Total Rainfall Volume (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	✓ 25-yr	50-yr	100-yr
24 hrs	2.47	3.07	0.00	4.05	4.87	5.99	6.82	7.73

Incremental Rainfall Distribution, 25-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	0.011804	11.68	0.027254	11.87	0.043361	12.05	0.089999	12.23	0.036040
11.52	0.012578	11.70	0.028719	11.88	0.044825	12.07	0.077720	12.25	0.034576
11.53	0.014076	11.72	0.030183	11.90	0.046289	12.08	0.065440	12.27	0.033112
11.55	0.015541	11.73	0.031647	11.92	0.053332	12.10	0.053161	12.28	0.031647
11.57	0.017005	11.75	0.033111	11.93	0.065441	12.12	0.046465	12.30	0.030183
11.58	0.018469	11.77	0.034575	11.95	0.077721	12.13	0.044825	12.32	0.028719
11.60	0.019933	11.78	0.036040	11.97	0.090000	12.15	0.043361	12.33	0.027254
11.62	0.021398	11.80	0.037504	11.98	0.102279	12.17	0.041897	12.35	0.025790
11.63	0.022862	11.82	0.038968	<b>12.00</b>	<b>0.114559</b>	12.18	0.040433	12.37	0.024326
11.65	0.024326	11.83	0.040432	12.02	0.114284	12.20	0.038968	12.38	0.022862
11.67	0.025790	11.85	0.041897	12.03	0.102279	12.22	0.037504	12.40	0.021398



# Hydrograph 50-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Post SA-B.1	1.804	12.07	6,107	---		
2	NRCS Runoff	Post SA-B.2	1.651	12.07	5,435	---		
3	NRCS Runoff	Post SA B. 3 to B.6	1.700	12.07	5,890	---		
4	NRCS Runoff	Post SA-B.7(bypass)	0.559	12.07	1,830	---		
5	NRCS Runoff	Post SA-A (remaining)	4.123	12.07	13,347	---		
6	Pond Route	Post PROP. R.G. #1	1.791	12.08	5,642	1	75.44	568
7	Pond Route	Post PRO R.G. #2	1.648	12.08	5,110	2	77.43	378
8	Junction	Post SUM TO U.G. DET. SYS	5.127	12.08	16,641	3, 6, 7		
9	Pond Route	PROP. U/G DET BASIN	2.001	12.30	16,319	8	75.18	4,373
10	Junction	Post SUM SA-B	2.321	12.12	18,149	4, 9		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

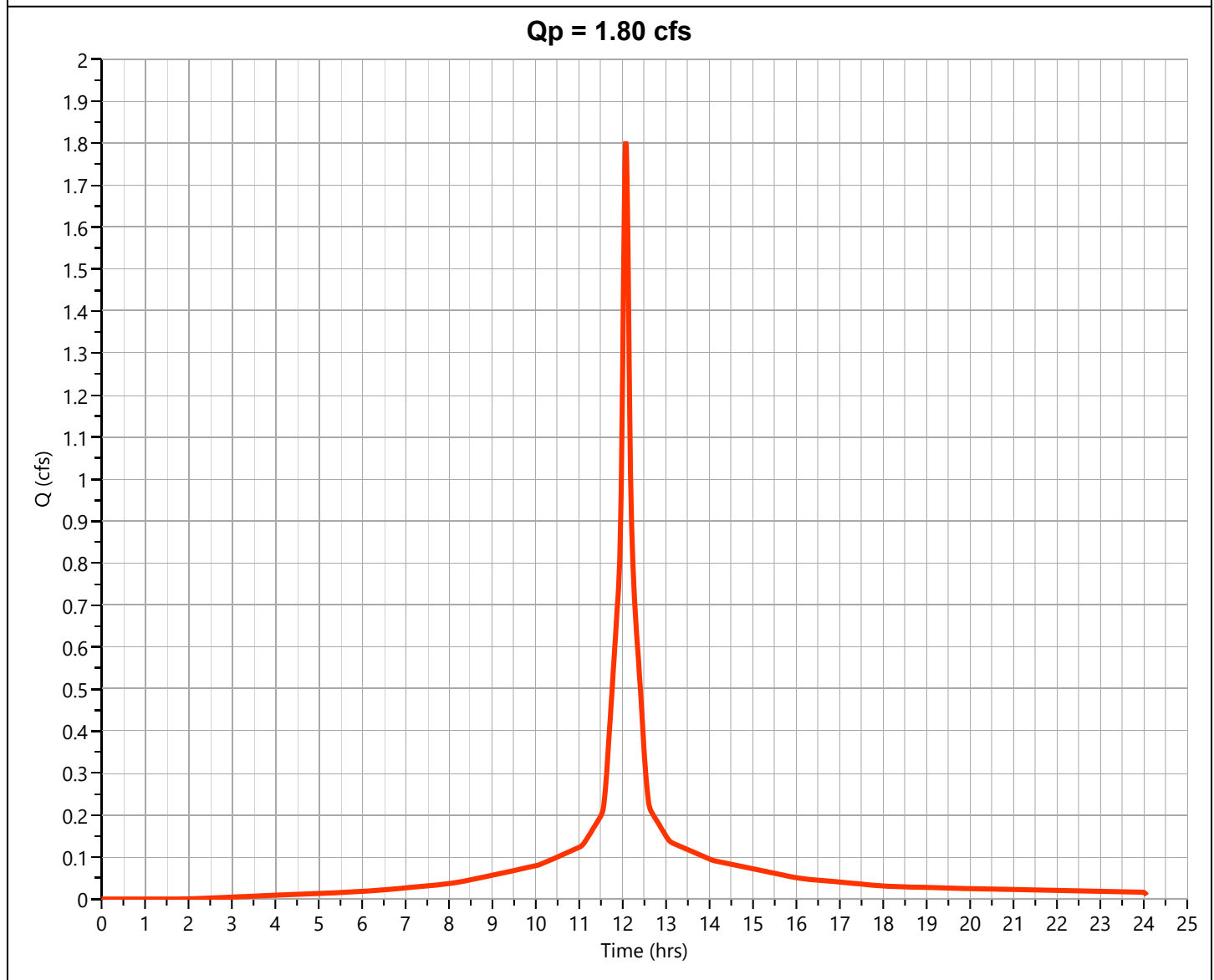
## Post SA-B.1

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.804 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 6,107 cuft
Drainage Area	= 0.267 ac	Curve Number	= 94*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.82 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.207	98	C-PAVED
0.009	85	C-POROUS PAVERS
0.051	79	C-LAWN/LANSCAPED
<b>0.267</b>	<b>94</b>	Weighted CN Method Employed



# Hydrograph Discharge Table

SA-B.1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.40	0.181	12.00	1.278	12.60	0.227				
11.42	0.184	12.02	1.454	12.62	0.219				
11.43	0.187	12.03	1.617	12.63	0.214				
11.45	0.190	12.05	1.743	12.65	0.210				
11.47	0.193	<b>12.07</b>	<b>1.804</b>	12.67	0.206				
11.48	0.195	12.08	1.791	12.68	0.204				
11.50	0.198	12.10	1.714	12.70	0.201				
11.52	0.202	12.12	1.588	12.72	0.198				
11.53	0.207	12.13	1.433	12.73	0.195				
11.55	0.214	12.15	1.272	12.75	0.192				
11.57	0.226	12.17	1.124	12.77	0.189				
11.58	0.241	12.18	1.004	12.78	0.186				
11.60	0.260	12.20	0.912	12.80	0.184				
11.62	0.281	12.22	0.843	12.82	0.181				
11.63	0.305	12.23	0.793	12.83	0.178				
11.65	0.330	12.25	0.756	...end	...end				
11.67	0.356	12.27	0.726						
11.68	0.383	12.28	0.699						
11.70	0.409	12.30	0.672						
11.72	0.436	12.32	0.645						
11.73	0.463	12.33	0.617						
11.75	0.490	12.35	0.590						
11.77	0.517	12.37	0.563						
11.78	0.544	12.38	0.536						
11.80	0.571	12.40	0.509						
11.82	0.598	12.42	0.481						
11.83	0.625	12.43	0.454						
11.85	0.653	12.45	0.427						
11.87	0.680	12.47	0.400						
11.88	0.707	12.48	0.372						
11.90	0.735	12.50	0.345						
11.92	0.767	12.52	0.318						
11.93	0.813	12.53	0.293						
11.95	0.881	12.55	0.271						
11.97	0.982	12.57	0.252						
11.98	1.115	12.58	0.238						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

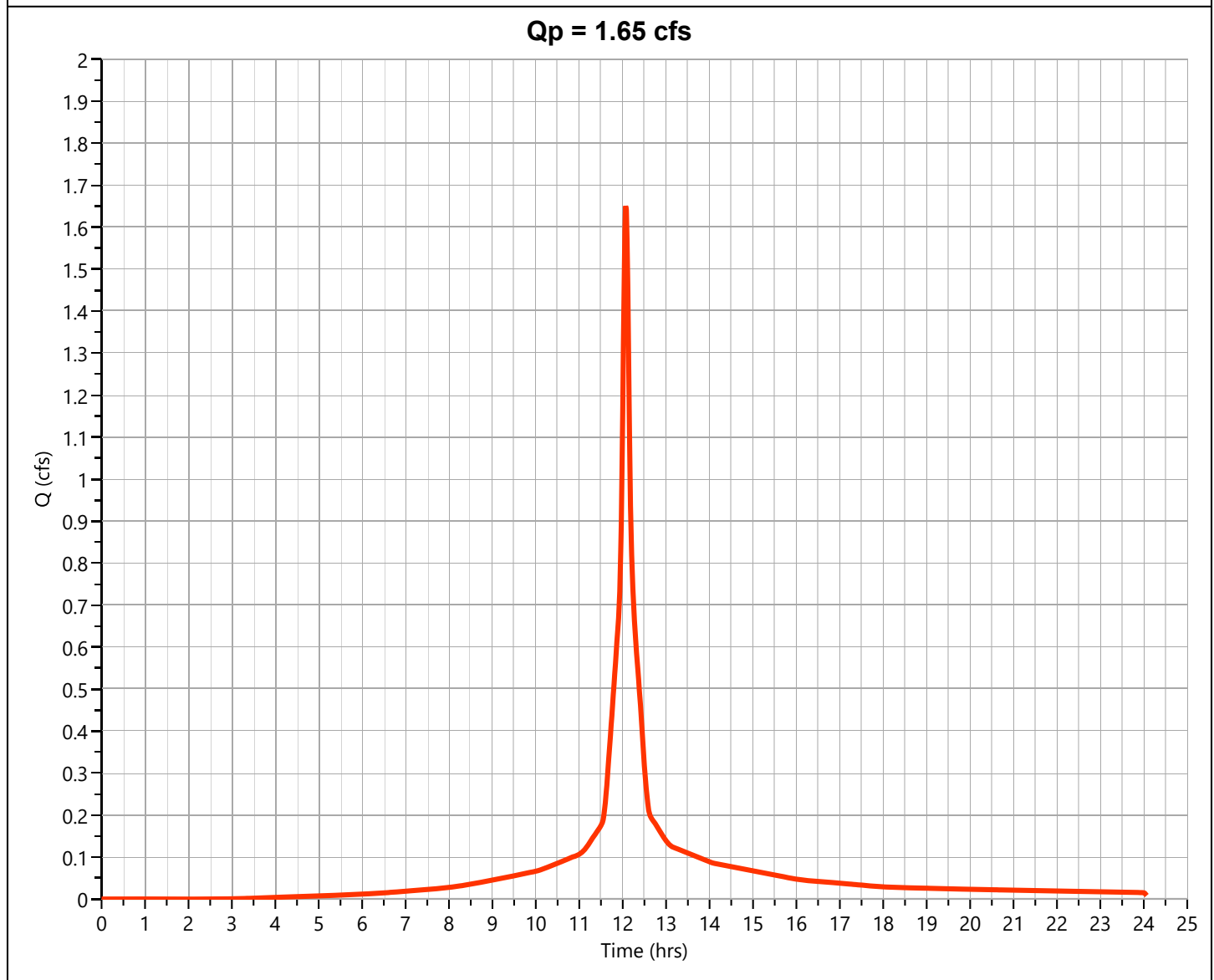
## Post SA-B.2

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.651 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 5,435 cuft
Drainage Area	= 0.252 ac	Curve Number	= 91*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.82 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.153	98	C-PAVED
0.009	89	C-POROUS PAVERS
0.09	79	C-LAWN/LANDSCAPED
<b>0.252</b>	<b>91</b>	Weighted CN Method Employed





# Hydrograph Discharge Table

SA-B.2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.45	0.167	12.05	1.593	12.65	0.194				
11.47	0.169	<b>12.07</b>	<b>1.651</b>	12.67	0.192				
11.48	0.172	12.08	1.641	12.68	0.189				
11.50	0.175	12.10	1.572	12.70	0.186				
11.52	0.178	12.12	1.458	12.72	0.184				
11.53	0.182	12.13	1.317	12.73	0.181				
11.55	0.189	12.15	1.170	12.75	0.178				
11.57	0.199	12.17	1.035	12.77	0.176				
11.58	0.213	12.18	0.925	12.78	0.173				
11.60	0.230	12.20	0.841	12.80	0.170				
11.62	0.249	12.22	0.778	12.82	0.168				
11.63	0.270	12.23	0.732	12.83	0.165				
11.65	0.293	12.25	0.698	12.85	0.163				
11.67	0.316	12.27	0.671	...end	...end				
11.68	0.340	12.28	0.646						
11.70	0.364	12.30	0.621						
11.72	0.388	12.32	0.596						
11.73	0.413	12.33	0.571						
11.75	0.437	12.35	0.546						
11.77	0.462	12.37	0.521						
11.78	0.486	12.38	0.496						
11.80	0.511	12.40	0.471						
11.82	0.536	12.42	0.446						
11.83	0.561	12.43	0.421						
11.85	0.587	12.45	0.396						
11.87	0.612	12.47	0.370						
11.88	0.637	12.48	0.345						
11.90	0.663	12.50	0.320						
11.92	0.693	12.52	0.295						
11.93	0.735	12.53	0.272						
11.95	0.798	12.55	0.251						
11.97	0.890	12.57	0.234						
11.98	1.013	12.58	0.221						
12.00	1.163	12.60	0.211						
12.02	1.325	12.62	0.203						
12.03	1.476	12.63	0.198						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

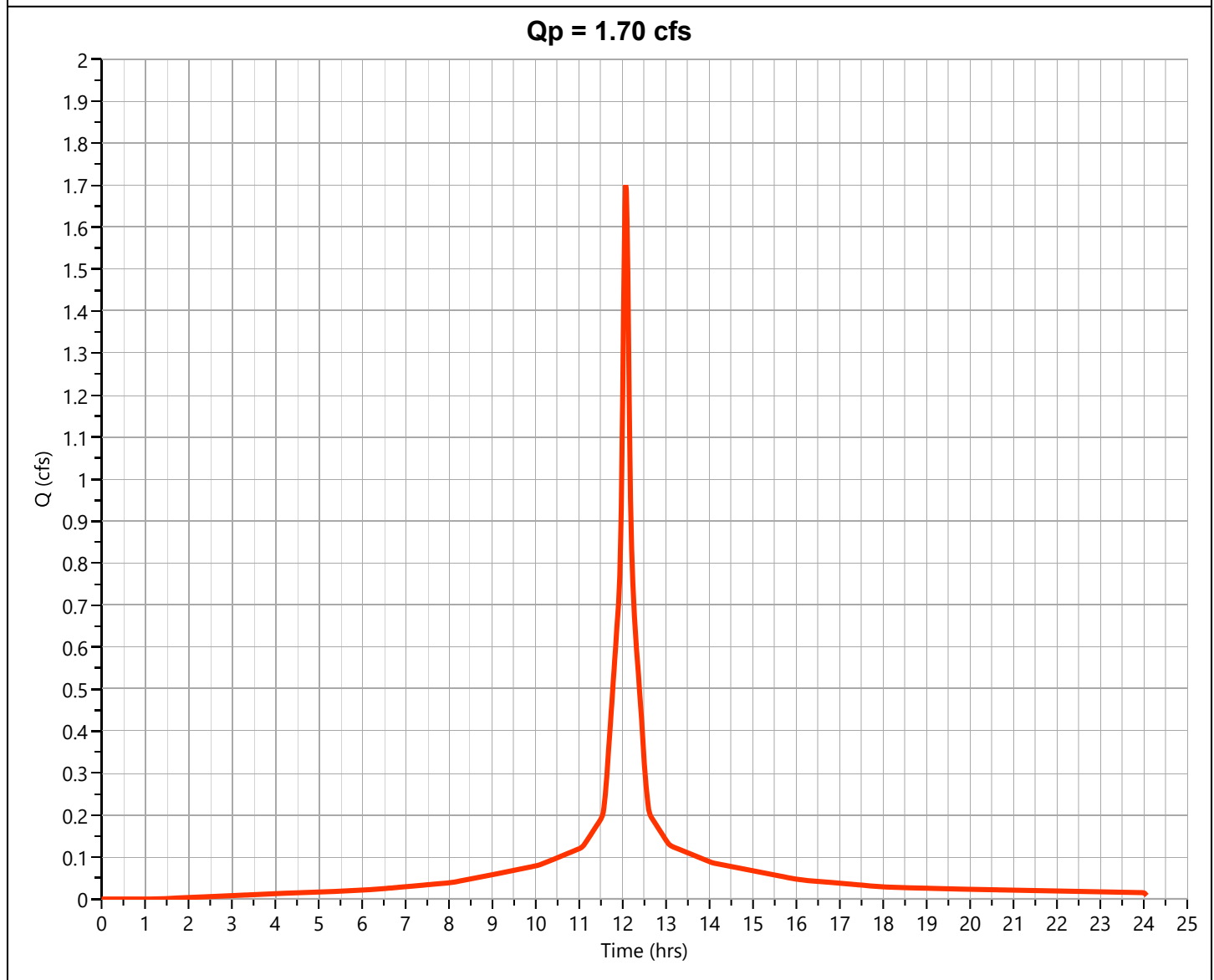
## Post SA B. 3 to B.6

## Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.700 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 5,890 cuft
Drainage Area	= 0.248 ac	Curve Number	= 96*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.82 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.215	98	C-PAVED
0.017	89	C-POROUS PAVERS
0.016	79	C-LAWN/LANDSCAPED
<b>0.248</b>	<b>96</b>	Weighted CN Method Employed



POST140

# Hydrograph Discharge Table

SA B. 3 to B.6

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.38	0.172	11.98	1.056	12.58	0.223				
11.40	0.175	12.00	1.208	12.60	0.213				
11.42	0.177	12.02	1.373	12.62	0.205				
11.43	0.180	12.03	1.527	12.63	0.200				
11.45	0.183	12.05	1.644	12.65	0.196				
11.47	0.185	<b>12.07</b>	<b>1.700</b>	12.67	0.193				
11.48	0.188	12.08	1.688	12.68	0.191				
11.50	0.191	12.10	1.614	12.70	0.188				
11.52	0.194	12.12	1.494	12.72	0.185				
11.53	0.199	12.13	1.348	12.73	0.183				
11.55	0.206	12.15	1.196	12.75	0.180				
11.57	0.217	12.17	1.056	12.77	0.177				
11.58	0.231	12.18	0.943	12.78	0.174				
11.60	0.249	12.20	0.856	12.80	0.172				
11.62	0.270	12.22	0.792	12.82	0.169				
11.63	0.292	12.23	0.744	...end	...end				
11.65	0.316	12.25	0.709						
11.67	0.341	12.27	0.681						
11.68	0.366	12.28	0.655						
11.70	0.392	12.30	0.630						
11.72	0.417	12.32	0.604						
11.73	0.442	12.33	0.579						
11.75	0.468	12.35	0.553						
11.77	0.493	12.37	0.528						
11.78	0.519	12.38	0.502						
11.80	0.544	12.40	0.477						
11.82	0.570	12.42	0.451						
11.83	0.595	12.43	0.425						
11.85	0.621	12.45	0.400						
11.87	0.647	12.47	0.374						
11.88	0.672	12.48	0.349						
11.90	0.698	12.50	0.323						
11.92	0.728	12.52	0.298						
11.93	0.771	12.53	0.274						
11.95	0.835	12.55	0.254						
11.97	0.930	12.57	0.236						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

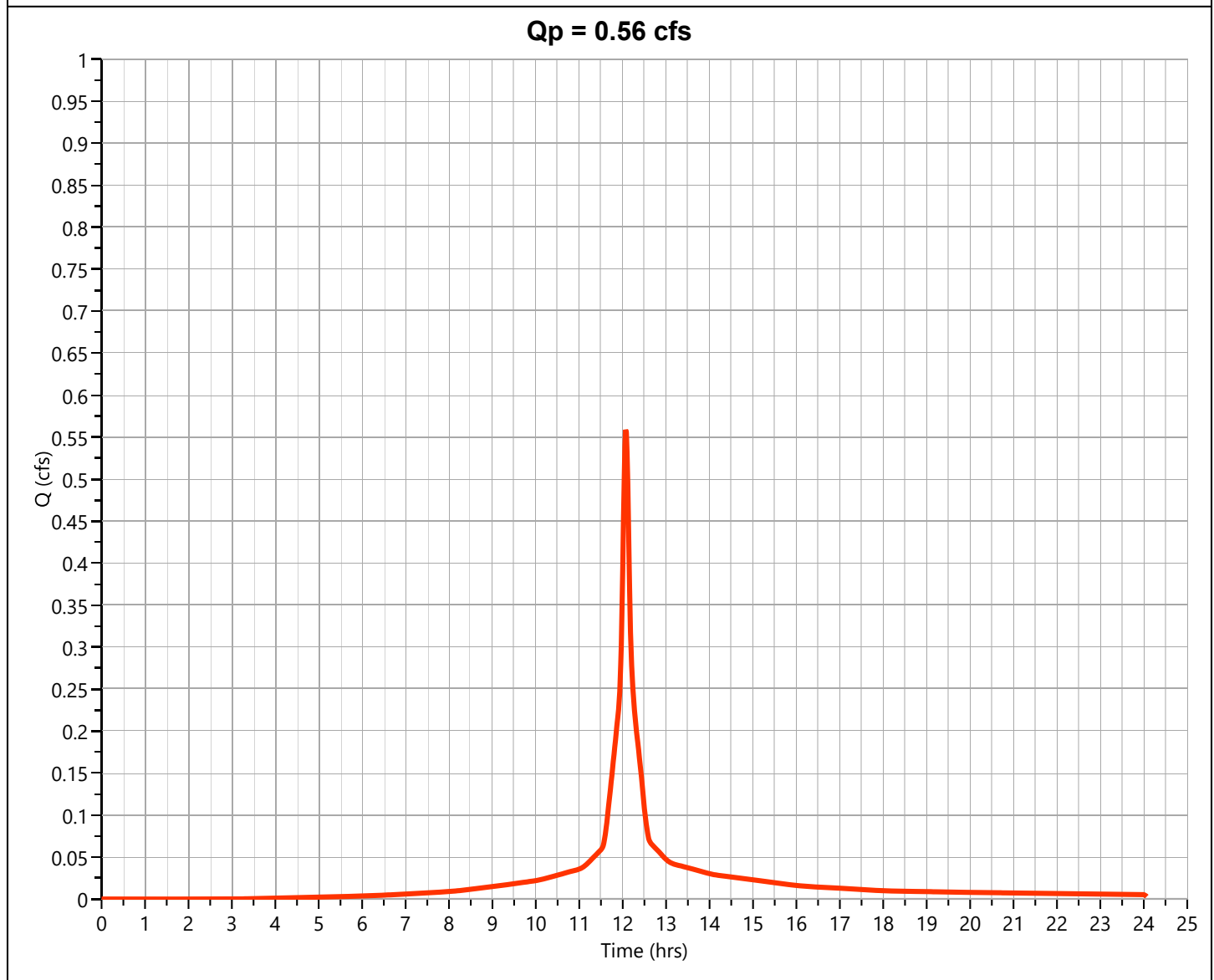
## Post SA-B.7(bypass)

## Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.559 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 1,830 cuft
Drainage Area	= 0.086 ac	Curve Number	= 90.34*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.82 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.031	89	C-Roadway
0.035	98	C-Paved
0.02	79	C-Lawn/Landscaped
<b>0.086</b>	<b>90</b>	Weighted CN Method Employed



POST142

### Hydrograph Discharge Table

SA-B.7(bypass)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.45	0.056	12.05	0.539	12.65	0.066				
11.47	0.057	<b>12.07</b>	<b>0.559</b>	12.67	0.065				
11.48	0.058	12.08	0.556	12.68	0.064				
11.50	0.059	12.10	0.532	12.70	0.063				
11.52	0.060	12.12	0.494	12.72	0.062				
11.53	0.061	12.13	0.446	12.73	0.061				
11.55	0.063	12.15	0.397	12.75	0.061				
11.57	0.067	12.17	0.351	12.77	0.060				
11.58	0.072	12.18	0.314	12.78	0.059				
11.60	0.077	12.20	0.285	12.80	0.058				
11.62	0.084	12.22	0.264	12.82	0.057				
11.63	0.091	12.23	0.248	12.83	0.056				
11.65	0.098	12.25	0.237	12.85	0.055				
11.67	0.106	12.27	0.228	...end	...end				
11.68	0.114	12.28	0.219						
11.70	0.122	12.30	0.211						
11.72	0.131	12.32	0.202						
11.73	0.139	12.33	0.194						
11.75	0.147	12.35	0.185						
11.77	0.155	12.37	0.177						
11.78	0.164	12.38	0.168						
11.80	0.172	12.40	0.160						
11.82	0.181	12.42	0.151						
11.83	0.189	12.43	0.143						
11.85	0.198	12.45	0.134						
11.87	0.206	12.47	0.126						
11.88	0.215	12.48	0.117						
11.90	0.224	12.50	0.109						
11.92	0.234	12.52	0.100						
11.93	0.248	12.53	0.092						
11.95	0.270	12.55	0.085						
11.97	0.301	12.57	0.079						
11.98	0.342	12.58	0.075						
12.00	0.393	12.60	0.072						
12.02	0.448	12.62	0.069						
12.03	0.499	12.63	0.067						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

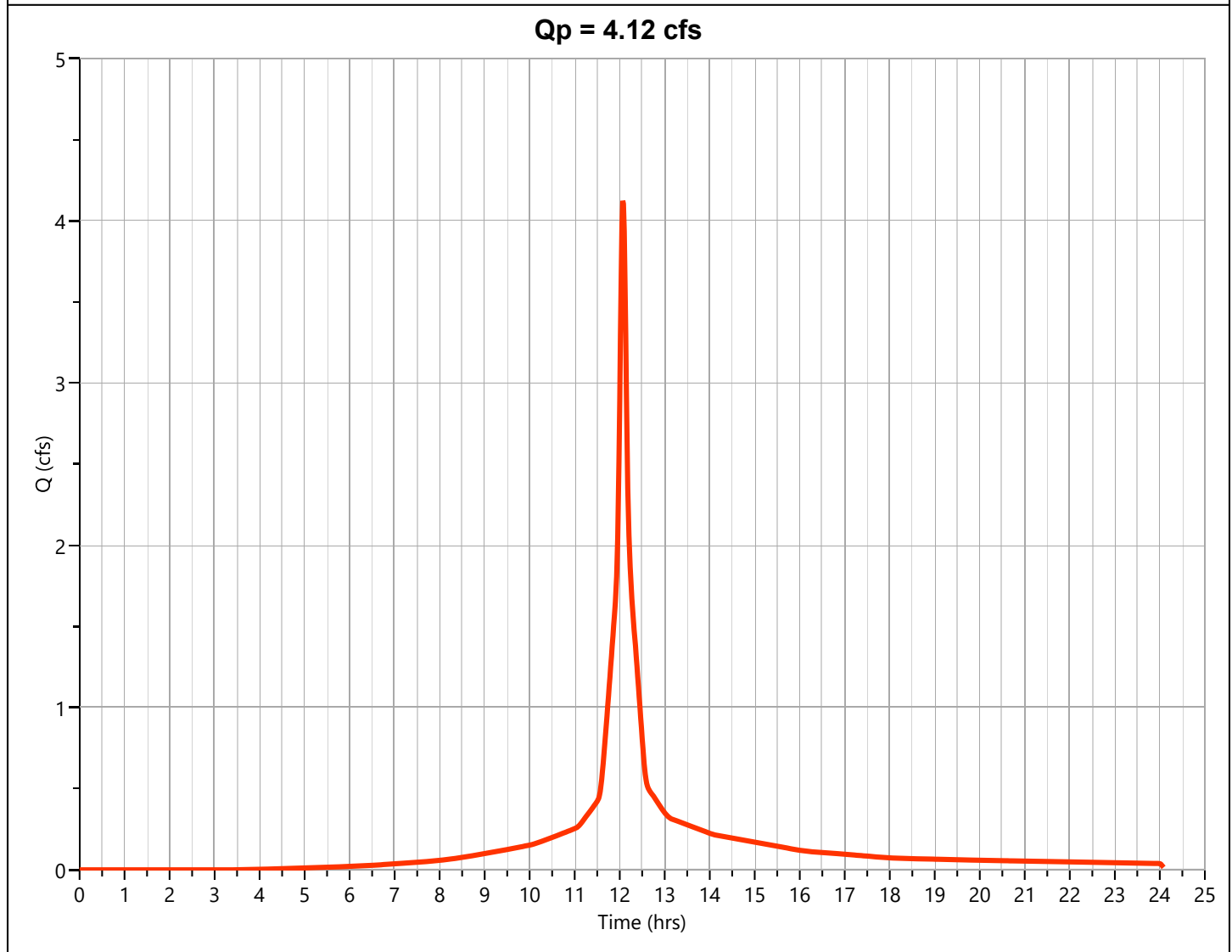
## Post SA-A (remaining)

## Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.123 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 13,347 cuft
Drainage Area	= 0.649 ac	Curve Number	= 88.66*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.82 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.187	89	C-Roadway
0.239	94	C-Urban Area
0.039	98	C-Paved
0.012	89	C-Porous PAvers
0.172	79	C-Lawn/Landscaped
<b>0.649</b>	<b>89</b>	Weighted CN Method Employed



POST144

### Hydrograph Discharge Table

SA-A (remaining)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.48	0.415	12.08	4.104	12.68	0.478				
11.50	0.422	12.10	3.935	12.70	0.472				
11.52	0.430	12.12	3.653	12.72	0.465				
11.53	0.441	12.13	3.304	12.73	0.458				
11.55	0.458	12.15	2.937	12.75	0.452				
11.57	0.482	12.17	2.601	12.77	0.445				
11.58	0.516	12.18	2.326	12.78	0.438				
11.60	0.557	12.20	2.116	12.80	0.432				
11.62	0.604	12.22	1.959	12.82	0.425				
11.63	0.656	12.23	1.844	12.83	0.418				
11.65	0.711	12.25	1.758	12.85	0.412				
11.67	0.769	12.27	1.690	...end	...end				
11.68	0.828	12.28	1.628						
11.70	0.887	12.30	1.566						
11.72	0.947	12.32	1.504						
11.73	1.007	12.33	1.442						
11.75	1.068	12.35	1.379						
11.77	1.129	12.37	1.316						
11.78	1.190	12.38	1.253						
11.80	1.253	12.40	1.190						
11.82	1.315	12.42	1.127						
11.83	1.378	12.43	1.063						
11.85	1.441	12.45	1.000						
11.87	1.505	12.47	0.936						
11.88	1.570	12.48	0.873						
11.90	1.634	12.50	0.809						
11.92	1.710	12.52	0.746						
11.93	1.817	12.53	0.688						
11.95	1.975	12.55	0.635						
11.97	2.205	12.57	0.592						
11.98	2.513	12.58	0.559						
12.00	2.888	12.60	0.533						
12.02	3.296	12.62	0.515						
12.03	3.677	12.63	0.502						
12.05	3.973	12.65	0.492						
<b>12.07</b>	<b>4.123</b>	12.67	0.485						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PROP. R.G. #1

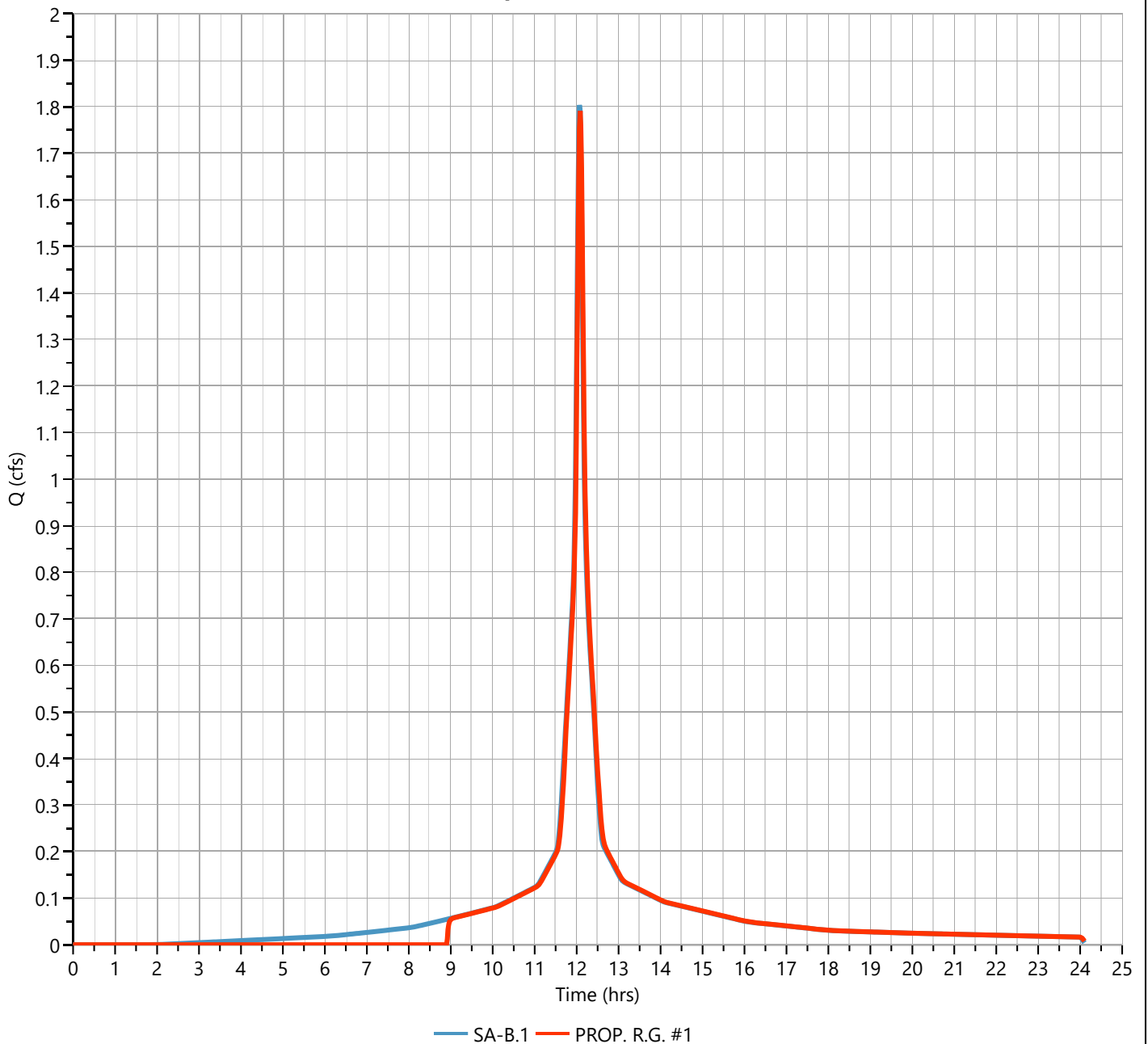
## Hyd. No. 6

Hydrograph Type	= Pond Route	Peak Flow	= 1.791 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 5,642 cuft
Inflow Hydrograph	= 1 - SA-B.1	Max. Elevation	= 75.44 ft
Pond Name	= PROP. RAINGARDEN #1	Max. Storage	= 568 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 31 min

**Qp = 1.79 cfs**





# Hydrograph Discharge Table

PROP. R.G. #1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.42	0.179	12.02	1.334	12.62	0.238				
11.43	0.182	12.03	1.505	12.63	0.228				
11.45	0.185	12.05	1.653	12.65	0.220				
11.47	0.188	12.07	1.755	12.67	0.214				
11.48	0.191	<b>12.08</b>	<b>1.791</b>	12.68	0.210				
11.50	0.194	12.10	1.758	12.70	0.206				
11.52	0.197	12.12	1.667	12.72	0.203				
11.53	0.200	12.13	1.534	12.73	0.200				
11.55	0.205	12.15	1.380	12.75	0.197				
11.57	0.212	12.17	1.226	12.77	0.194				
11.58	0.222	12.18	1.089	12.78	0.191				
11.60	0.235	12.20	0.992	12.80	0.188				
11.62	0.252	12.22	0.909	12.82	0.185				
11.63	0.271	12.23	0.843	12.83	0.182				
11.65	0.293	12.25	0.793	12.85	0.180				
11.67	0.317	12.27	0.755	12.87	0.177				
11.68	0.342	12.28	0.724	...end	...end				
11.70	0.367	12.30	0.696						
11.72	0.401	12.32	0.669						
11.73	0.436	12.33	0.641						
11.75	0.465	12.35	0.614						
11.77	0.493	12.37	0.587						
11.78	0.520	12.38	0.560						
11.80	0.547	12.40	0.533						
11.82	0.574	12.42	0.505						
11.83	0.601	12.43	0.478						
11.85	0.629	12.45	0.451						
11.87	0.656	12.47	0.424						
11.88	0.683	12.48	0.396						
11.90	0.711	12.50	0.372						
11.92	0.740	12.52	0.353						
11.93	0.776	12.53	0.331						
11.95	0.828	12.55	0.308						
11.97	0.903	12.57	0.286						
11.98	1.008	12.58	0.267						
12.00	1.157	12.60	0.251						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PRO R.G. #2

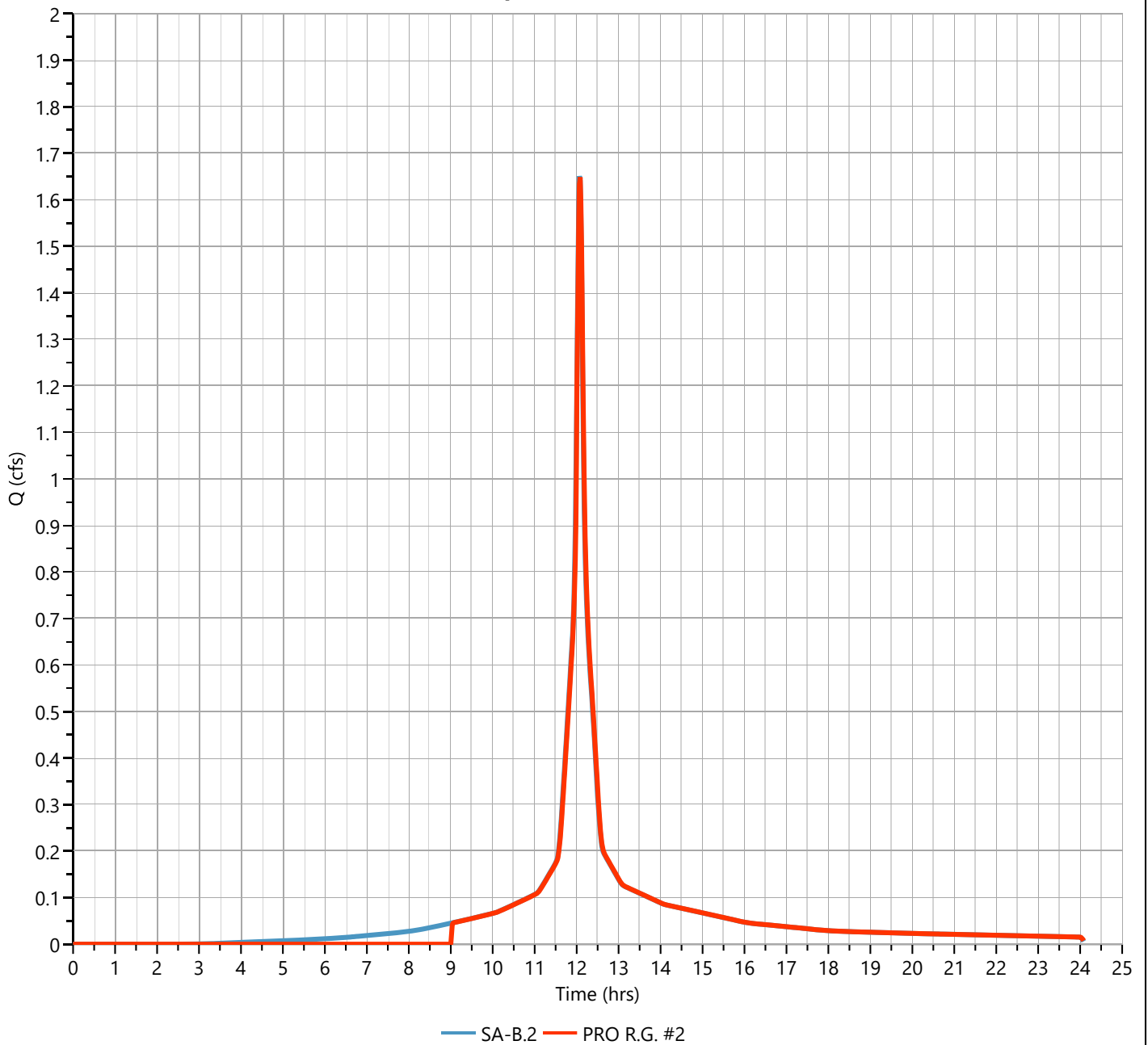
## Hyd. No. 7

Hydrograph Type	= Pond Route	Peak Flow	= 1.648 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 5,110 cuft
Inflow Hydrograph	= 2 - SA-B.2	Max. Elevation	= 77.43 ft
Pond Name	= PRO RAINGARDEN #2	Max. Storage	= 378 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 22 min

**Qp = 1.65 cfs**



# Hydrograph Discharge Table

PRO R.G. #2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.45	0.165	12.05	1.554	12.65	0.197				
11.47	0.168	12.07	1.634	12.67	0.193				
11.48	0.170	<b>12.08</b>	<b>1.648</b>	12.68	0.191				
11.50	0.173	12.10	1.599	12.70	0.188				
11.52	0.176	12.12	1.500	12.72	0.185				
11.53	0.180	12.13	1.367	12.73	0.183				
11.55	0.185	12.15	1.221	12.75	0.180				
11.57	0.193	12.17	1.081	12.77	0.177				
11.58	0.205	12.18	0.989	12.78	0.175				
11.60	0.219	12.20	0.896	12.80	0.172				
11.62	0.237	12.22	0.820	12.82	0.169				
11.63	0.257	12.23	0.763	12.83	0.167				
11.65	0.279	12.25	0.721	12.85	0.164				
11.67	0.301	12.27	0.689	...end	...end				
11.68	0.325	12.28	0.662						
11.70	0.349	12.30	0.637						
11.72	0.373	12.32	0.612						
11.73	0.397	12.33	0.587						
11.75	0.422	12.35	0.562						
11.77	0.446	12.37	0.537						
11.78	0.471	12.38	0.512						
11.80	0.496	12.40	0.487						
11.82	0.520	12.42	0.462						
11.83	0.545	12.43	0.437						
11.85	0.571	12.45	0.412						
11.87	0.596	12.47	0.386						
11.88	0.621	12.48	0.361						
11.90	0.647	12.50	0.336						
11.92	0.674	12.52	0.311						
11.93	0.709	12.53	0.287						
11.95	0.760	12.55	0.264						
11.97	0.834	12.57	0.245						
11.98	0.938	12.58	0.229						
12.00	1.070	12.60	0.217						
12.02	1.275	12.62	0.208						
12.03	1.423	12.63	0.202						

# Hydrograph Report

Project Name:

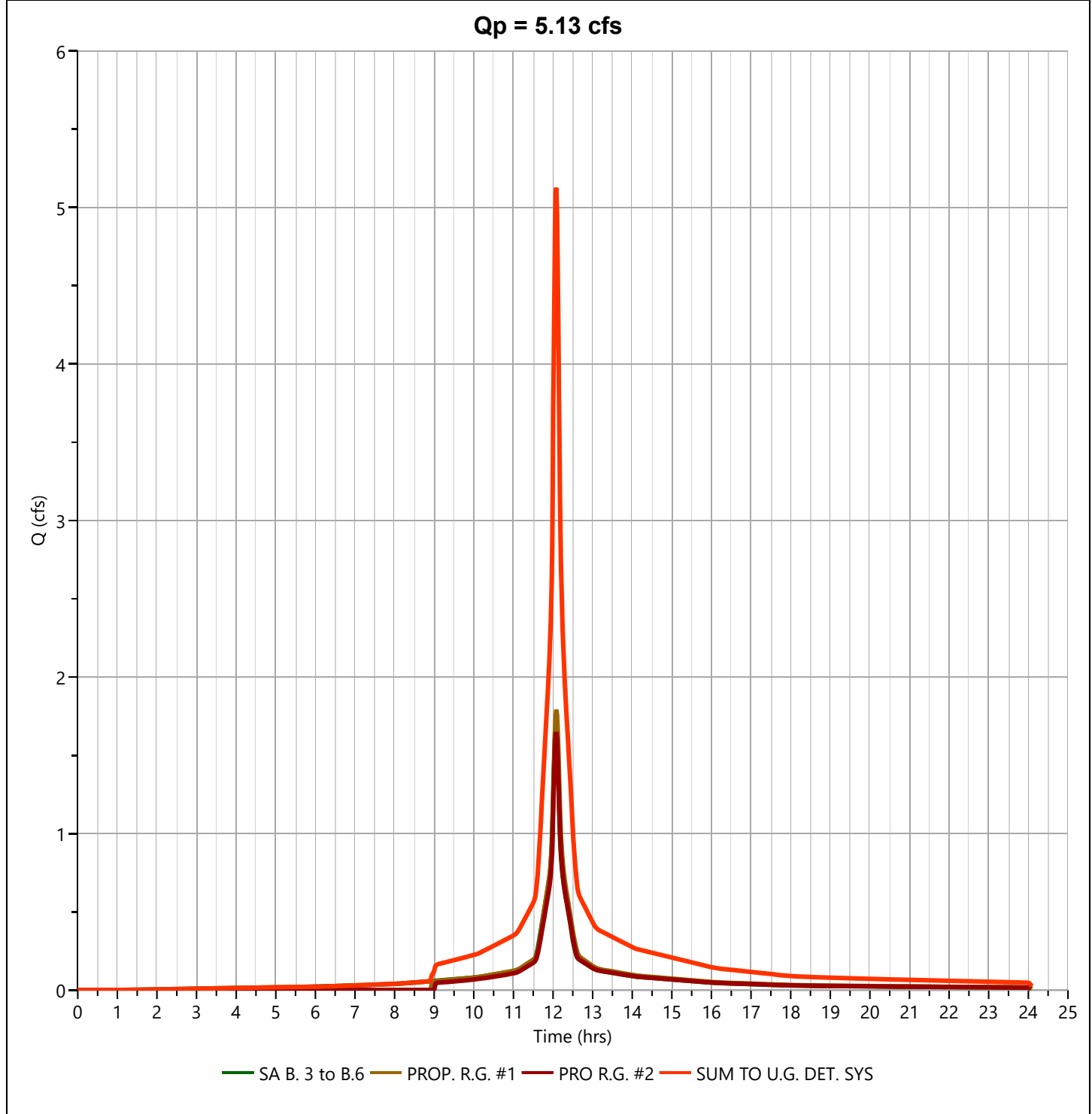
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM TO U.G. DET. SYS

## Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 5.127 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 16,641 cuft
Inflow Hydrographs	= 3, 6, 7	Total Contrib. Area	= 0.248 ac



POST150

# Hydrograph Discharge Table

SUM TO U.G. DET. SYS

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.42	0.517	12.02	3.982	12.62	0.651				
11.43	0.525	12.03	4.454	12.63	0.629				
11.45	0.533	12.05	4.851	12.65	0.613				
11.47	0.541	12.07	5.089	12.67	0.601				
11.48	0.549	<b>12.08</b>	<b>5.127</b>	12.68	0.591				
11.50	0.557	12.10	4.971	12.70	0.582				
11.52	0.566	12.12	4.661	12.72	0.573				
11.53	0.578	12.13	4.250	12.73	0.565				
11.55	0.596	12.15	3.797	12.75	0.557				
11.57	0.622	12.17	3.363	12.77	0.549				
11.58	0.658	12.18	3.021	12.78	0.540				
11.60	0.704	12.20	2.744	12.80	0.532				
11.62	0.759	12.22	2.521	12.82	0.524				
11.63	0.820	12.23	2.350	12.83	0.516				
11.65	0.888	12.25	2.223	12.85	0.508				
11.67	0.959	12.27	2.125	...end	...end				
11.68	1.033	12.28	2.041						
11.70	1.108	12.30	1.963						
11.72	1.192	12.32	1.885						
11.73	1.276	12.33	1.807						
11.75	1.355	12.35	1.730						
11.77	1.432	12.37	1.652						
11.78	1.510	12.38	1.574						
11.80	1.587	12.40	1.496						
11.82	1.664	12.42	1.418						
11.83	1.742	12.43	1.340						
11.85	1.820	12.45	1.262						
11.87	1.899	12.47	1.184						
11.88	1.977	12.48	1.106						
11.90	2.056	12.50	1.031						
11.92	2.142	12.52	0.962						
11.93	2.257	12.53	0.892						
11.95	2.423	12.55	0.826						
11.97	2.667	12.57	0.767						
11.98	3.002	12.58	0.719						
12.00	3.436	12.60	0.681						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## PROP. U/G DET BASIN

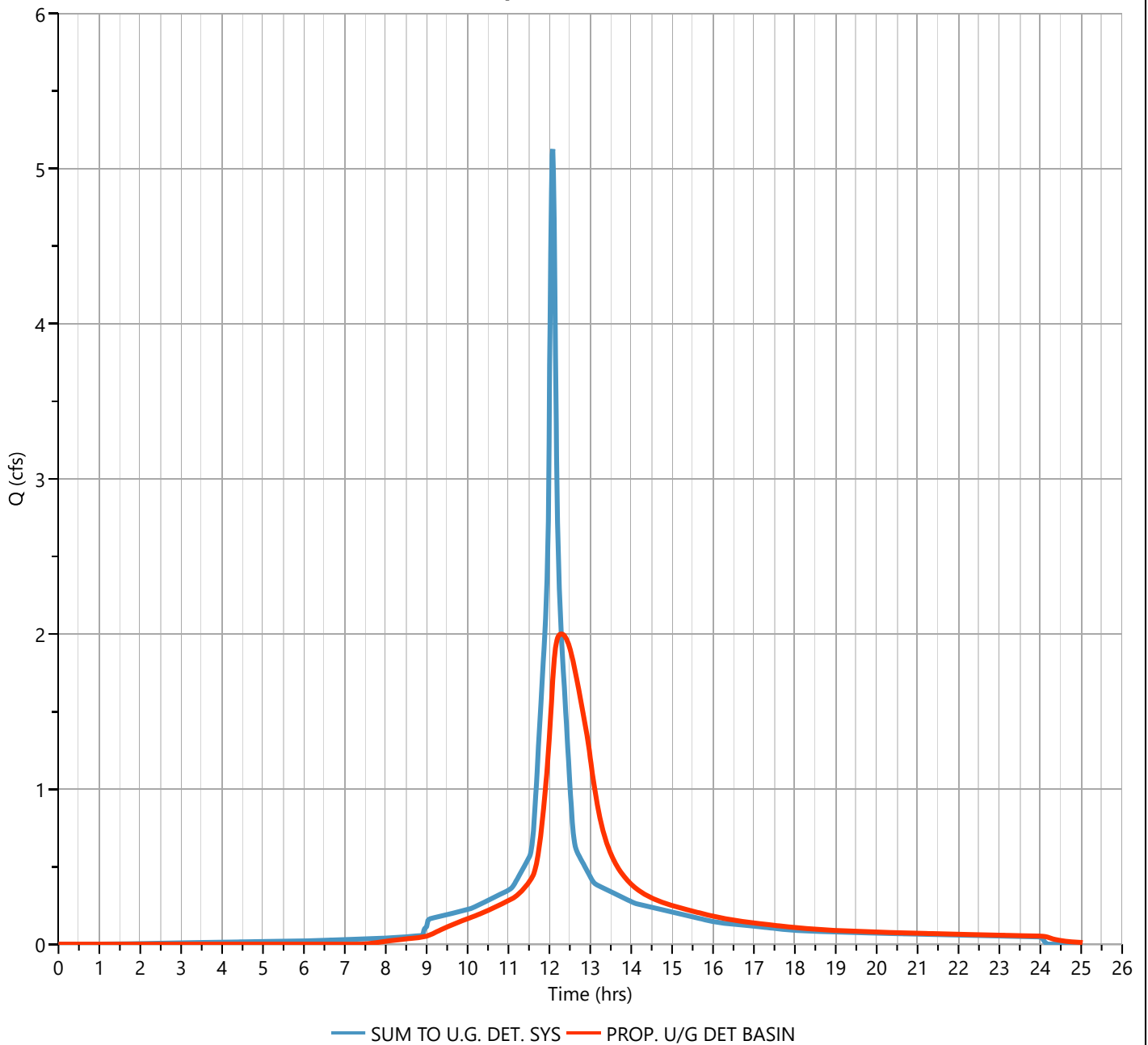
## Hyd. No. 9

Hydrograph Type	= Pond Route	Peak Flow	= 2.001 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.30 hrs
Time Interval	= 1 min	Hydrograph Volume	= 16,319 cuft
Inflow Hydrograph	= 8 - SUM TO U.G. DET. SYS	Max. Elevation	= 75.18 ft
Pond Name	= PROP U/G DET SYS	Max. Storage	= 4,373 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 47 min

**Qp = 2.00 cfs**



**Hydrograph Discharge Table**

**PROP. U/G DET BASIN**

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
10.35	0.200	10.95	0.274	11.55	0.418	12.15	1.911	12.75	1.595
10.37	0.202	10.97	0.277	11.57	0.425	12.17	1.939	12.77	1.572
10.38	0.204	10.98	0.279	11.58	0.433	12.18	1.959	12.78	1.548
10.40	0.206	11.00	0.281	11.60	0.443	12.20	1.974	12.80	1.523
10.42	0.208	11.02	0.283	11.62	0.454	12.22	1.985	12.82	1.499
10.43	0.210	11.03	0.285	11.63	0.467	12.23	1.992	12.83	1.475
10.45	0.212	11.05	0.288	11.65	0.482	12.25	1.996	12.85	1.450
10.47	0.214	11.07	0.290	11.67	0.499	12.27	1.999	12.87	1.425
10.48	0.216	11.08	0.292	11.68	0.519	12.28	2.001	12.88	1.400
10.50	0.218	11.10	0.295	11.70	0.541	<b>12.30</b>	<b>2.001</b>	12.90	1.375
10.52	0.219	11.12	0.297	11.72	0.565	12.32	1.999	12.92	1.350
10.53	0.221	11.13	0.300	11.73	0.593	12.33	1.997	12.93	1.325
10.55	0.223	11.15	0.303	11.75	0.623	12.35	1.993	12.95	1.299
10.57	0.226	11.17	0.306	11.77	0.656	12.37	1.988	12.97	1.271
10.58	0.228	11.18	0.309	11.78	0.691	12.38	1.983	12.98	1.234
10.60	0.230	11.20	0.313	11.80	0.729	12.40	1.975	13.00	1.199
10.62	0.232	11.22	0.316	11.82	0.768	12.42	1.967	13.02	1.165
10.63	0.234	11.23	0.320	11.83	0.810	12.43	1.958	13.03	1.132
10.65	0.236	11.25	0.324	11.85	0.854	12.45	1.947	13.05	1.100
10.67	0.238	11.27	0.328	11.87	0.899	12.47	1.935	13.07	1.069
10.68	0.240	11.28	0.332	11.88	0.946	12.48	1.922	13.08	1.039
10.70	0.242	11.30	0.336	11.90	0.992	12.50	1.908	13.10	1.010
10.72	0.244	11.32	0.341	11.92	1.041	12.52	1.892	13.12	0.982
10.73	0.246	11.33	0.346	11.93	1.093	12.53	1.875	13.13	0.957
10.75	0.248	11.35	0.350	11.95	1.149	12.55	1.858	13.15	0.932
10.77	0.250	11.37	0.355	11.97	1.211	12.57	1.839	13.17	0.907
10.78	0.253	11.38	0.360	11.98	1.281	12.58	1.819	13.18	0.883
10.80	0.255	11.40	0.366	12.00	1.339	12.60	1.798	13.20	0.861
10.82	0.257	11.42	0.371	12.02	1.405	12.62	1.777	13.22	0.839
10.83	0.259	11.43	0.376	12.03	1.479	12.63	1.755	13.23	0.818
10.85	0.261	11.45	0.382	12.05	1.556	12.65	1.733	13.25	0.798
10.87	0.263	11.47	0.388	12.07	1.633	12.67	1.711	13.27	0.779
10.88	0.266	11.48	0.393	12.08	1.705	12.68	1.688	13.28	0.760
10.90	0.268	11.50	0.399	12.10	1.771	12.70	1.665	13.30	0.743
10.92	0.270	11.52	0.405	12.12	1.828	12.72	1.642	13.32	0.726
10.93	0.272	11.53	0.412	12.13	1.874	12.73	1.619	13.33	0.710

**Hydrograph Discharge Table, cont'd**

**PROP. U/G DET BASIN**

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
13.35	0.695	13.95	0.400	14.55	0.292	15.15	0.237		
13.37	0.680	13.97	0.396	14.57	0.290	15.17	0.236		
13.38	0.666	13.98	0.391	14.58	0.288	15.18	0.235		
13.40	0.653	14.00	0.387	14.60	0.286	15.20	0.234		
13.42	0.640	14.02	0.383	14.62	0.284	15.22	0.232		
13.43	0.628	14.03	0.379	14.63	0.283	15.23	0.231		
13.45	0.616	14.05	0.375	14.65	0.281	15.25	0.230		
13.47	0.604	14.07	0.371	14.67	0.279	15.27	0.229		
13.48	0.593	14.08	0.367	14.68	0.277	15.28	0.228		
13.50	0.582	14.10	0.363	14.70	0.276	15.30	0.226		
13.52	0.572	14.12	0.360	14.72	0.274	15.32	0.225		
13.53	0.563	14.13	0.356	14.73	0.272	15.33	0.224		
13.55	0.553	14.15	0.353	14.75	0.271	15.35	0.223		
13.57	0.544	14.17	0.349	14.77	0.269	15.37	0.222		
13.58	0.536	14.18	0.346	14.78	0.268	15.38	0.221		
13.60	0.527	14.20	0.343	14.80	0.266	15.40	0.219		
13.62	0.519	14.22	0.340	14.82	0.265	15.42	0.218		
13.63	0.512	14.23	0.337	14.83	0.263	15.43	0.217		
13.65	0.504	14.25	0.334	14.85	0.262	15.45	0.216		
13.67	0.497	14.27	0.331	14.87	0.260	15.47	0.215		
13.68	0.490	14.28	0.328	14.88	0.259	15.48	0.214		
13.70	0.483	14.30	0.326	14.90	0.257	15.50	0.213		
13.72	0.476	14.32	0.323	14.92	0.256	15.52	0.212		
13.73	0.470	14.33	0.320	14.93	0.254	15.53	0.210		
13.75	0.463	14.35	0.318	14.95	0.253	15.55	0.209		
13.77	0.457	14.37	0.315	14.97	0.252	15.57	0.208		
13.78	0.451	14.38	0.313	14.98	0.250	15.58	0.207		
13.80	0.446	14.40	0.311	15.00	0.249	15.60	0.206		
13.82	0.440	14.42	0.308	15.02	0.248	15.62	0.205		
13.83	0.435	14.43	0.306	15.03	0.246	15.63	0.204		
13.85	0.429	14.45	0.304	15.05	0.245	15.65	0.203		
13.87	0.424	14.47	0.302	15.07	0.244	15.67	0.202		
13.88	0.419	14.48	0.300	15.08	0.242	15.68	0.201		
13.90	0.414	14.50	0.298	15.10	0.241	15.70	0.200		
13.92	0.409	14.52	0.296	15.12	0.240	...end	...end		
13.93	0.405	14.53	0.294	15.13	0.239				



# Hydrograph Report

Project Name:

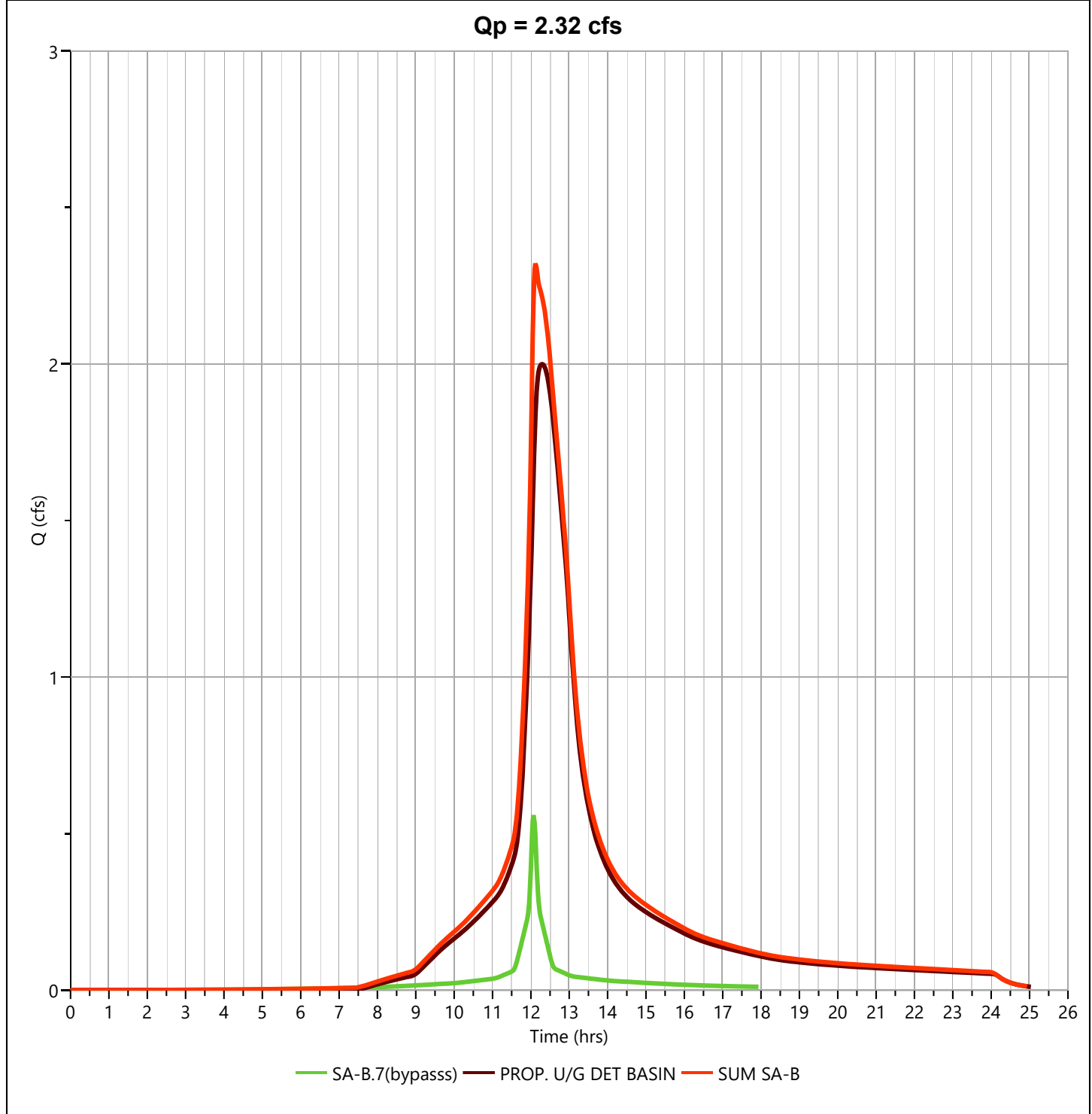
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM SA-B

## Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 2.321 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 18,149 cuft
Inflow Hydrographs	= 4, 9	Total Contrib. Area	= 0.086 ac



POST155

# Hydrograph Discharge Table

SUM SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
10.40	0.233	11.00	0.317	11.60	0.520	12.20	2.259	12.80	1.581
10.42	0.235	11.02	0.319	11.62	0.537	12.22	2.249	12.82	1.556
10.43	0.237	11.03	0.322	11.63	0.558	12.23	2.240	12.83	1.531
10.45	0.239	11.05	0.324	11.65	0.580	12.25	2.233	12.85	1.505
10.47	0.241	11.07	0.327	11.67	0.605	12.27	2.227	12.87	1.480
10.48	0.244	11.08	0.330	11.68	0.633	12.28	2.220	12.88	1.454
10.50	0.246	11.10	0.333	11.70	0.663	12.30	2.211	12.90	1.428
10.52	0.248	11.12	0.336	11.72	0.696	12.32	2.202	12.92	1.402
10.53	0.250	11.13	0.340	11.73	0.732	12.33	2.191	12.93	1.375
10.55	0.253	11.15	0.344	11.75	0.771	12.35	2.179	12.95	1.349
10.57	0.255	11.17	0.347	11.77	0.811	12.37	2.165	12.97	1.320
10.58	0.257	11.18	0.351	11.78	0.855	12.38	2.151	12.98	1.282
10.60	0.259	11.20	0.356	11.80	0.901	12.40	2.135	13.00	1.246
10.62	0.262	11.22	0.360	11.82	0.949	12.42	2.119	13.02	1.211
10.63	0.264	11.23	0.365	11.83	0.999	12.43	2.100	13.03	1.177
10.65	0.266	11.25	0.369	11.85	1.051	12.45	2.081	13.05	1.144
10.67	0.269	11.27	0.374	11.87	1.105	12.47	2.061	13.07	1.113
10.68	0.271	11.28	0.379	11.88	1.160	12.48	2.039	13.08	1.082
10.70	0.273	11.30	0.385	11.90	1.215	12.50	2.016	13.10	1.053
10.72	0.276	11.32	0.390	11.92	1.275	12.52	1.992	13.12	1.025
10.73	0.278	11.33	0.395	11.93	1.341	12.53	1.968	13.13	0.999
10.75	0.280	11.35	0.401	11.95	1.418	12.55	1.943	13.15	0.974
10.77	0.283	11.37	0.407	11.97	1.512	12.57	1.918	13.17	0.949
10.78	0.285	11.38	0.413	11.98	1.623	12.58	1.894	13.18	0.925
10.80	0.287	11.40	0.419	12.00	1.732	12.60	1.870	13.20	0.902
10.82	0.290	11.42	0.425	12.02	1.853	12.62	1.846	13.22	0.880
10.83	0.292	11.43	0.431	12.03	1.978	12.63	1.823	13.23	0.859
10.85	0.295	11.45	0.438	12.05	2.095	12.65	1.799	13.25	0.838
10.87	0.297	11.47	0.444	12.07	2.191	12.67	1.776	13.27	0.819
10.88	0.299	11.48	0.451	12.08	2.261	12.68	1.752	13.28	0.800
10.90	0.302	11.50	0.458	12.10	2.304	12.70	1.728	13.30	0.783
10.92	0.304	11.52	0.465	<b>12.12</b>	<b>2.321</b>	12.72	1.704	13.32	0.766
10.93	0.307	11.53	0.473	12.13	2.321	12.73	1.680	13.33	0.749
10.95	0.309	11.55	0.482	12.15	2.308	12.75	1.656	13.35	0.734
10.97	0.312	11.57	0.492	12.17	2.290	12.77	1.631	13.37	0.719
10.98	0.314	11.58	0.505	12.18	2.273	12.78	1.606	13.38	0.704

Hydrograph Discharge Table, cont'd

SUM SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
13.40	0.691	14.00	0.417	14.60	0.312	15.20	0.255		
13.42	0.678	14.02	0.413	14.62	0.310	15.22	0.254		
13.43	0.666	14.03	0.408	14.63	0.308	15.23	0.252		
13.45	0.653	14.05	0.404	14.65	0.306	15.25	0.251		
13.47	0.642	14.07	0.400	14.67	0.304	15.27	0.250		
13.48	0.630	14.08	0.396	14.68	0.302	15.28	0.248		
13.50	0.619	14.10	0.392	14.70	0.301	15.30	0.247		
13.52	0.609	14.12	0.388	14.72	0.299	15.32	0.246		
13.53	0.599	14.13	0.385	14.73	0.297	15.33	0.245		
13.55	0.590	14.15	0.381	14.75	0.295	15.35	0.243		
13.57	0.581	14.17	0.378	14.77	0.294	15.37	0.242		
13.58	0.572	14.18	0.374	14.78	0.292	15.38	0.241		
13.60	0.563	14.20	0.371	14.80	0.290	15.40	0.240		
13.62	0.555	14.22	0.368	14.82	0.289	15.42	0.238		
13.63	0.547	14.23	0.365	14.83	0.287	15.43	0.237		
13.65	0.539	14.25	0.362	14.85	0.285	15.45	0.236		
13.67	0.532	14.27	0.359	14.87	0.284	15.47	0.234		
13.68	0.524	14.28	0.356	14.88	0.282	15.48	0.233		
13.70	0.517	14.30	0.353	14.90	0.281	15.50	0.232		
13.72	0.510	14.32	0.350	14.92	0.279	...end	...end		
13.73	0.503	14.33	0.348	14.93	0.278				
13.75	0.497	14.35	0.345	14.95	0.276				
13.77	0.491	14.37	0.343	14.97	0.275				
13.78	0.484	14.38	0.340	14.98	0.273				
13.80	0.479	14.40	0.338	15.00	0.272				
13.82	0.473	14.42	0.335	15.02	0.270				
13.83	0.467	14.43	0.333	15.03	0.269				
13.85	0.461	14.45	0.331	15.05	0.267				
13.87	0.456	14.47	0.328	15.07	0.266				
13.88	0.451	14.48	0.326	15.08	0.265				
13.90	0.446	14.50	0.324	15.10	0.263				
13.92	0.441	14.52	0.322	15.12	0.262				
13.93	0.436	14.53	0.320	15.13	0.260				
13.95	0.431	14.55	0.318	15.15	0.259				
13.97	0.426	14.57	0.316	15.17	0.258				
13.98	0.422	14.58	0.314	15.18	0.256				

# Design Storm Report

Custom Storm filename: 3170.cds

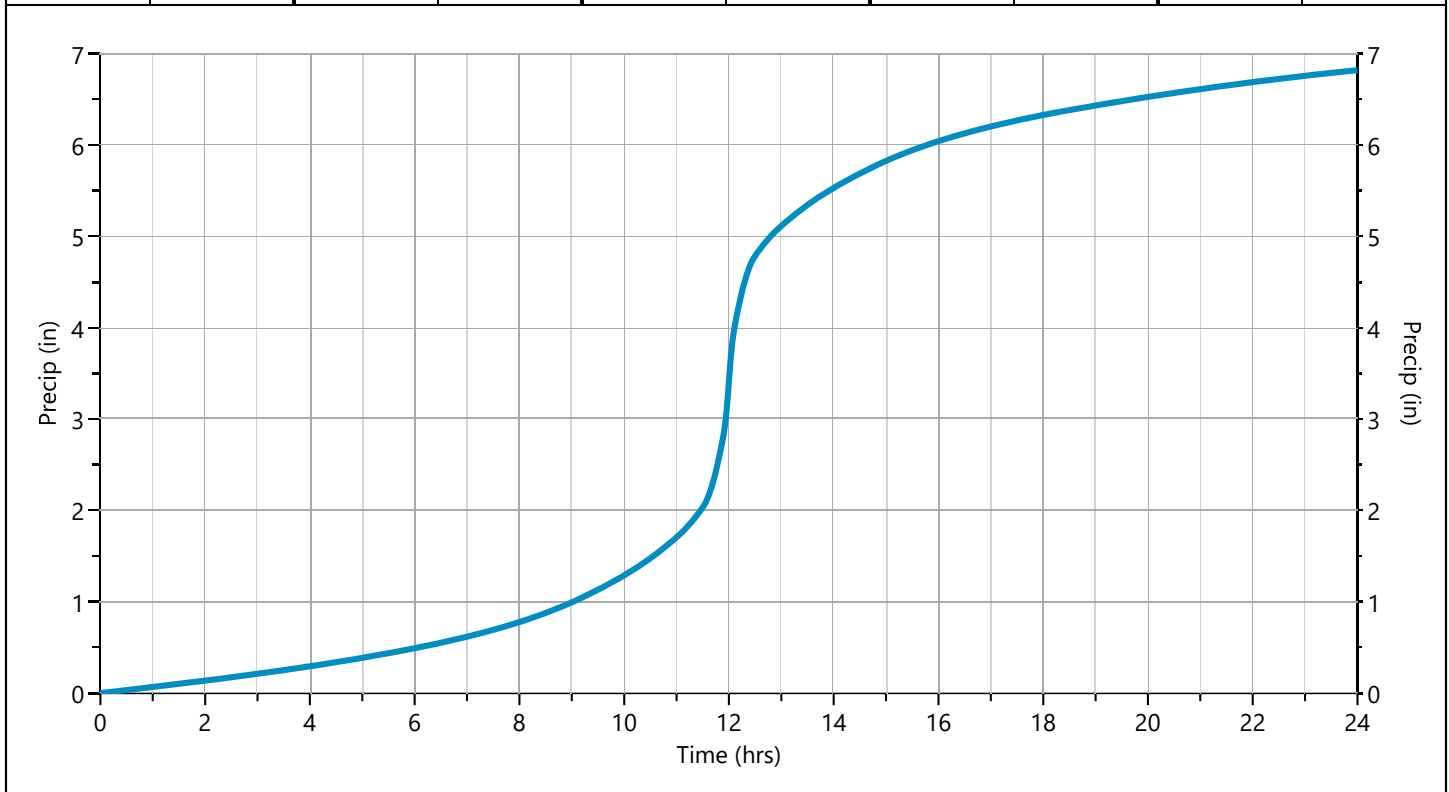
Hydrology Studio v 3.0.0.26

01-18-2023

## Storm Distribution: NRCS/SCS - Type III, 24-hr

Storm Duration	Total Rainfall Volume (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	✓ 50-yr	100-yr
24 hrs	2.47	3.07	0.00	4.05	4.87	5.99	6.82	7.73

Incremental Rainfall Distribution, 50-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	0.013439	11.68	0.031031	11.87	0.049369	12.05	0.102470	12.23	0.041034
11.52	0.014321	11.70	0.032698	11.88	0.051036	12.07	0.088489	12.25	0.039367
11.53	0.016027	11.72	0.034365	11.90	0.052703	12.08	0.074508	12.27	0.037700
11.55	0.017694	11.73	0.036032	11.92	0.060722	12.10	0.060527	12.28	0.036032
11.57	0.019361	11.75	0.037699	11.93	0.074509	12.12	0.052904	12.30	0.034365
11.58	0.021028	11.77	0.039366	11.95	0.088490	12.13	0.051036	12.32	0.032698
11.60	0.022696	11.78	0.041034	11.97	0.102471	12.15	0.049369	12.33	0.031031
11.62	0.024363	11.80	0.042701	11.98	0.116452	12.17	0.047702	12.35	0.029364
11.63	0.026030	11.82	0.044368	<b>12.00</b>	<b>0.130433</b>	12.18	0.046035	12.37	0.027697
11.65	0.027697	11.83	0.046035	12.02	0.130120	12.20	0.044368	12.38	0.026030
11.67	0.029364	11.85	0.047702	12.03	0.116451	12.22	0.042701	12.40	0.024363



# Hydrograph 100-yr Summary

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Post SA-B.1	2.056	12.07	7,010	---		
2	NRCS Runoff	Post SA-B.2	1.892	12.07	6,281	---		
3	NRCS Runoff	Post SA B. 3 to B.6	1.932	12.07	6,732	---		
4	NRCS Runoff	Post SA-B.7(bypass)	0.641	12.07	2,118	---		
5	NRCS Runoff	Post SA-A (remaining)	4.750	12.07	15,505	---		
6	Pond Route	Post PROP. R.G. #1	2.045	12.08	6,545	1	75.45	578
7	Pond Route	Post PRO R.G. #2	1.888	12.08	5,955	2	77.44	383
8	Junction	Post SUM TO U.G. DET. SYS	5.851	12.08	19,233	3, 6, 7		
9	Pond Route	PROP. U/G DET BASIN	2.165	12.32	18,910	8	75.71	5,040
10	Junction	Post SUM SA-B	2.538	12.12	21,029	4, 9		

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

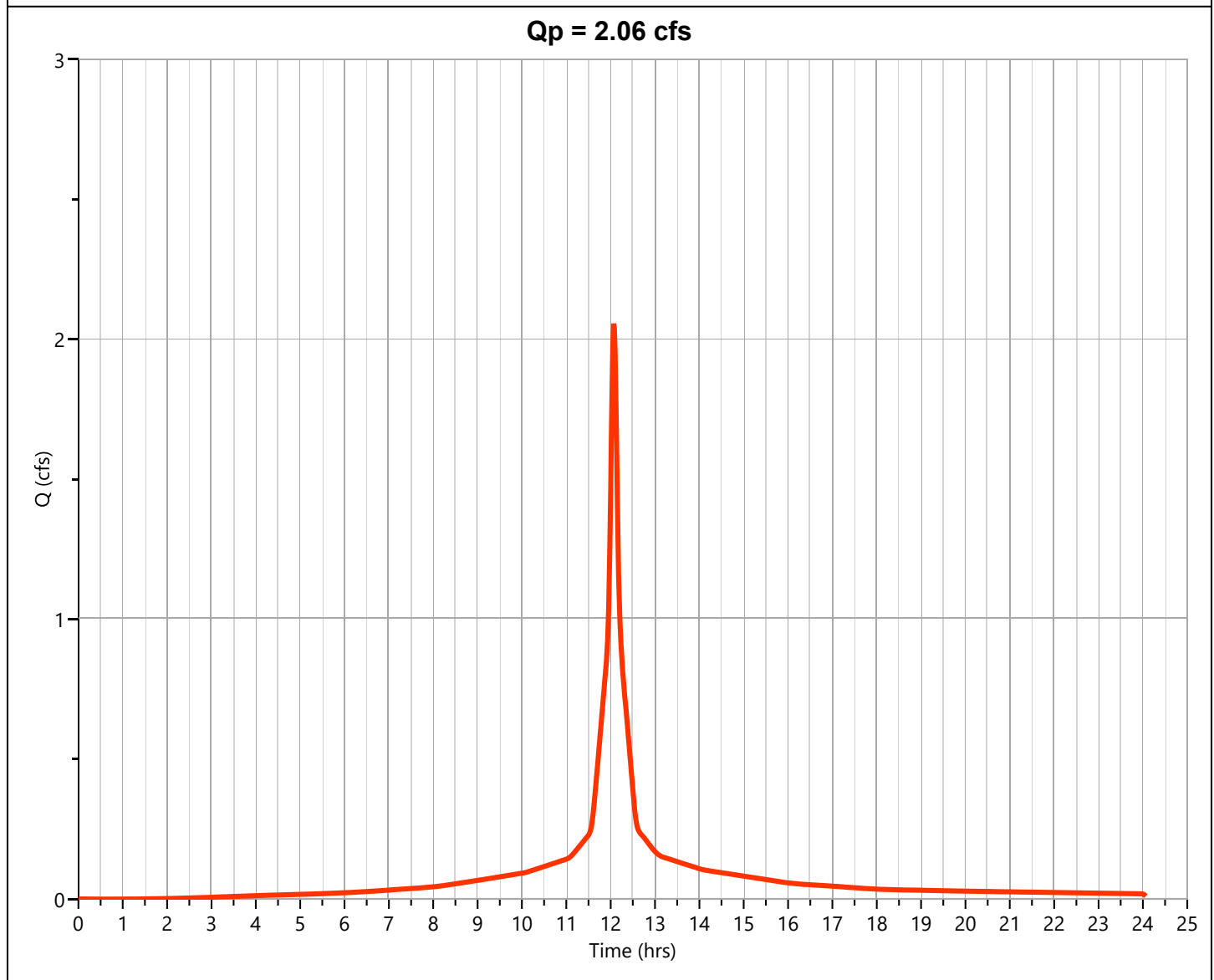
## Post SA-B.1

## Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.056 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 7,010 cuft
Drainage Area	= 0.267 ac	Curve Number	= 94*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 7.73 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.207	98	C-PAVED
0.009	85	C-POROUS PAVERS
0.051	79	C-LAWN/LANSCAPED
<b>0.267</b>	<b>94</b>	Weighted CN Method Employed



POST160

# Hydrograph Discharge Table

SA-B.1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.40	0.208	12.00	1.458	12.60	0.258				
11.42	0.211	12.02	1.658	12.62	0.249				
11.43	0.215	12.03	1.844	12.63	0.243				
11.45	0.218	12.05	1.986	12.65	0.238				
11.47	0.221	<b>12.07</b>	<b>2.056</b>	12.67	0.235				
11.48	0.224	12.08	2.041	12.68	0.231				
11.50	0.228	12.10	1.952	12.70	0.228				
11.52	0.231	12.12	1.808	12.72	0.225				
11.53	0.237	12.13	1.632	12.73	0.222				
11.55	0.246	12.15	1.448	12.75	0.218				
11.57	0.259	12.17	1.280	12.77	0.215				
11.58	0.276	12.18	1.143	12.78	0.212				
11.60	0.298	12.20	1.038	12.80	0.209				
11.62	0.322	12.22	0.960	12.82	0.205				
11.63	0.349	12.23	0.902	...end	...end				
11.65	0.378	12.25	0.860						
11.67	0.408	12.27	0.826						
11.68	0.439	12.28	0.795						
11.70	0.469	12.30	0.764						
11.72	0.500	12.32	0.733						
11.73	0.530	12.33	0.702						
11.75	0.561	12.35	0.671						
11.77	0.592	12.37	0.640						
11.78	0.622	12.38	0.609						
11.80	0.653	12.40	0.578						
11.82	0.684	12.42	0.547						
11.83	0.715	12.43	0.516						
11.85	0.746	12.45	0.485						
11.87	0.777	12.47	0.454						
11.88	0.809	12.48	0.423						
11.90	0.840	12.50	0.392						
11.92	0.877	12.52	0.362						
11.93	0.929	12.53	0.333						
11.95	1.007	12.55	0.308						
11.97	1.121	12.57	0.287						
11.98	1.273	12.58	0.271						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

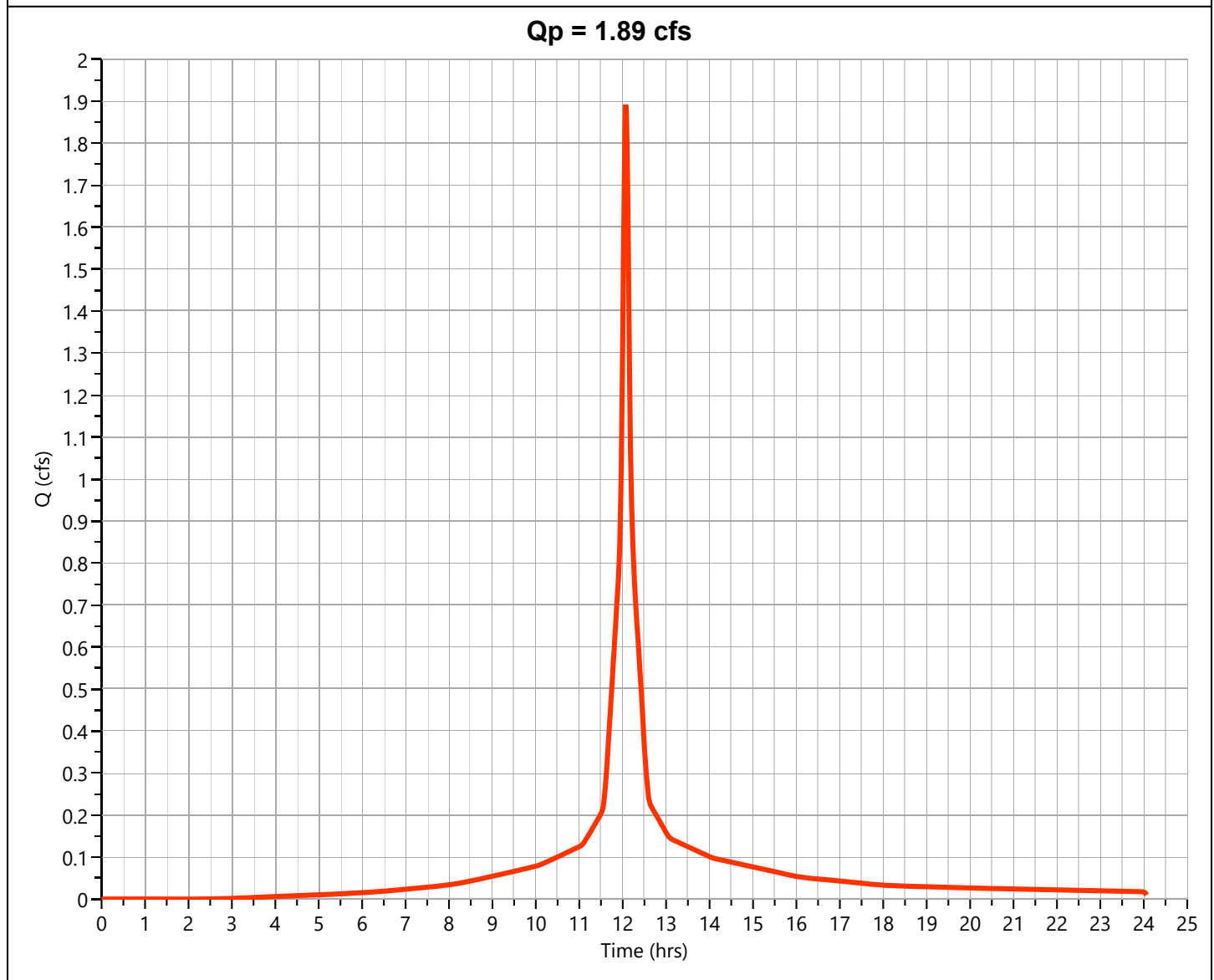
## Post SA-B.2

## Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.892 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 6,281 cuft
Drainage Area	= 0.252 ac	Curve Number	= 91*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 7.73 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.153	98	C-PAVED
0.009	89	C-POROUS PAVERS
0.09	79	C-LAWN/LANDSCAPED
<b>0.252</b>	<b>91</b>	Weighted CN Method Employed





# Hydrograph Discharge Table

SA-B.2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.43	0.191	12.03	1.693	12.63	0.226				
11.45	0.194	12.05	1.826	12.65	0.222				
11.47	0.197	<b>12.07</b>	<b>1.892</b>	12.67	0.218				
11.48	0.200	12.08	1.880	12.68	0.215				
11.50	0.203	12.10	1.800	12.70	0.212				
11.52	0.206	12.12	1.669	12.72	0.209				
11.53	0.212	12.13	1.507	12.73	0.206				
11.55	0.219	12.15	1.338	12.75	0.203				
11.57	0.231	12.17	1.184	12.77	0.200				
11.58	0.247	12.18	1.058	12.78	0.197				
11.60	0.266	12.20	0.961	12.80	0.194				
11.62	0.289	12.22	0.889	12.82	0.191				
11.63	0.313	12.23	0.836	12.83	0.188				
11.65	0.339	12.25	0.797	...end	...end				
11.67	0.366	12.27	0.766						
11.68	0.394	12.28	0.738						
11.70	0.422	12.30	0.709						
11.72	0.449	12.32	0.681						
11.73	0.477	12.33	0.652						
11.75	0.505	12.35	0.624						
11.77	0.534	12.37	0.595						
11.78	0.562	12.38	0.566						
11.80	0.590	12.40	0.538						
11.82	0.619	12.42	0.509						
11.83	0.648	12.43	0.480						
11.85	0.676	12.45	0.451						
11.87	0.705	12.47	0.423						
11.88	0.734	12.48	0.394						
11.90	0.764	12.50	0.365						
11.92	0.798	12.52	0.337						
11.93	0.846	12.53	0.310						
11.95	0.918	12.55	0.286						
11.97	1.023	12.57	0.267						
11.98	1.164	12.58	0.252						
12.00	1.335	12.60	0.240						
12.02	1.520	12.62	0.232						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

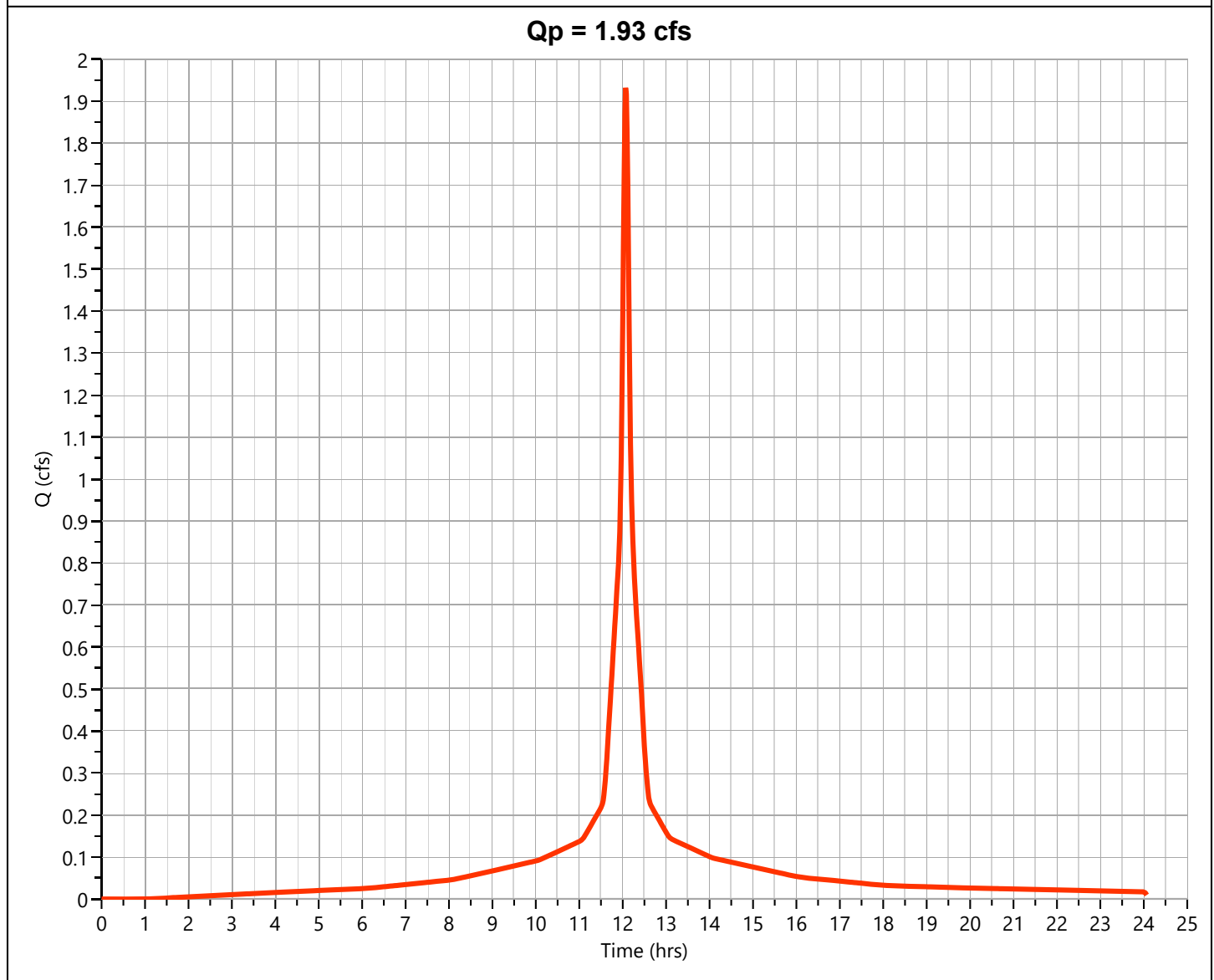
## Post SA B. 3 to B.6

## Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.932 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 6,732 cuft
Drainage Area	= 0.248 ac	Curve Number	= 96*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 7.73 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.215	98	C-PAVED
0.017	89	C-POROUS PAVERS
0.016	79	C-LAWN/LANDSCAPED
<b>0.248</b>	<b>96</b>	Weighted CN Method Employed



POST164

# Hydrograph Discharge Table

SA B. 3 to B.6

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.37	0.193	11.97	1.057	12.57	0.268				
11.38	0.196	11.98	1.200	12.58	0.253				
11.40	0.199	12.00	1.374	12.60	0.241				
11.42	0.202	12.02	1.561	12.62	0.233				
11.43	0.205	12.03	1.735	12.63	0.227				
11.45	0.208	12.05	1.868	12.65	0.223				
11.47	0.212	<b>12.07</b>	<b>1.932</b>	12.67	0.219				
11.48	0.215	12.08	1.918	12.68	0.216				
11.50	0.218	12.10	1.833	12.70	0.213				
11.52	0.221	12.12	1.697	12.72	0.210				
11.53	0.227	12.13	1.531	12.73	0.207				
11.55	0.235	12.15	1.358	12.75	0.204				
11.57	0.247	12.17	1.200	12.77	0.201				
11.58	0.264	12.18	1.071	12.78	0.198				
11.60	0.284	12.20	0.973	12.80	0.195				
11.62	0.307	12.22	0.899	12.82	0.192				
11.63	0.333	12.23	0.845	...end	...end				
11.65	0.361	12.25	0.805						
11.67	0.389	12.27	0.773						
11.68	0.418	12.28	0.744						
11.70	0.447	12.30	0.715						
11.72	0.475	12.32	0.686						
11.73	0.504	12.33	0.657						
11.75	0.533	12.35	0.628						
11.77	0.562	12.37	0.599						
11.78	0.591	12.38	0.570						
11.80	0.620	12.40	0.541						
11.82	0.649	12.42	0.512						
11.83	0.678	12.43	0.483						
11.85	0.707	12.45	0.454						
11.87	0.736	12.47	0.425						
11.88	0.765	12.48	0.396						
11.90	0.794	12.50	0.367						
11.92	0.829	12.52	0.338						
11.93	0.877	12.53	0.312						
11.95	0.950	12.55	0.288						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

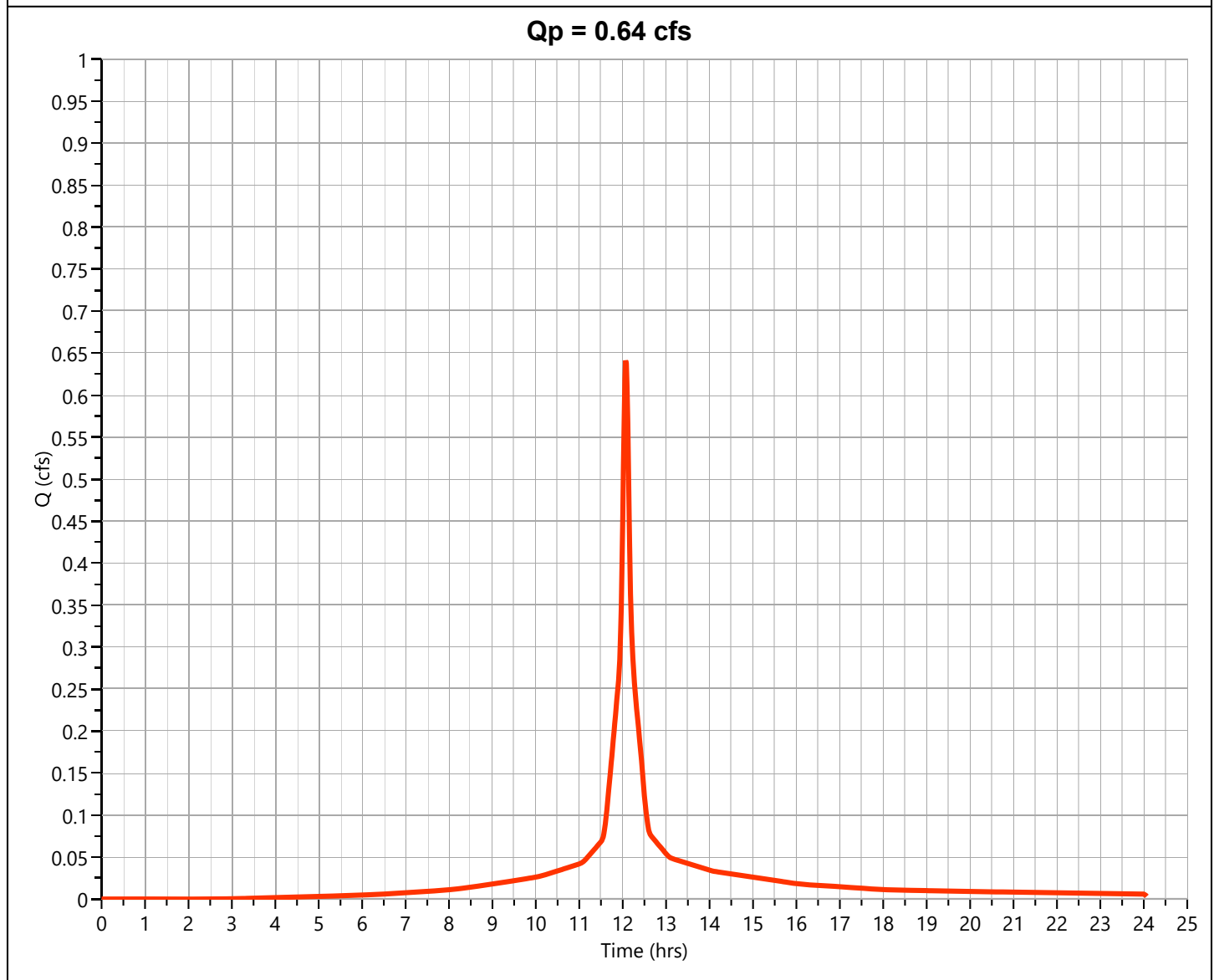
## Post SA-B.7(bypass)

## Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.641 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 2,118 cuft
Drainage Area	= 0.086 ac	Curve Number	= 90.34*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 7.73 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.031	89	C-Roadway
0.035	98	C-Paved
0.02	79	C-Lawn/Landscaped
<b>0.086</b>	<b>90</b>	Weighted CN Method Employed



### Hydrograph Discharge Table

SA-B.7(bypass)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.43	0.064	12.03	0.574	12.63	0.077				
11.45	0.065	12.05	0.619	12.65	0.075				
11.47	0.066	<b>12.07</b>	<b>0.641</b>	12.67	0.074				
11.48	0.067	12.08	0.638	12.68	0.073				
11.50	0.068	12.10	0.611	12.70	0.072				
11.52	0.069	12.12	0.566	12.72	0.071				
11.53	0.071	12.13	0.512	12.73	0.070				
11.55	0.074	12.15	0.454	12.75	0.069				
11.57	0.078	12.17	0.402	12.77	0.068				
11.58	0.083	12.18	0.359	12.78	0.067				
11.60	0.090	12.20	0.326	12.80	0.066				
11.62	0.097	12.22	0.302	12.82	0.065				
11.63	0.105	12.23	0.284	12.83	0.064				
11.65	0.114	12.25	0.271	...end	...end				
11.67	0.123	12.27	0.260						
11.68	0.133	12.28	0.251						
11.70	0.142	12.30	0.241						
11.72	0.151	12.32	0.231						
11.73	0.161	12.33	0.222						
11.75	0.170	12.35	0.212						
11.77	0.180	12.37	0.202						
11.78	0.190	12.38	0.192						
11.80	0.199	12.40	0.183						
11.82	0.209	12.42	0.173						
11.83	0.219	12.43	0.163						
11.85	0.228	12.45	0.153						
11.87	0.238	12.47	0.144						
11.88	0.248	12.48	0.134						
11.90	0.258	12.50	0.124						
11.92	0.270	12.52	0.114						
11.93	0.286	12.53	0.105						
11.95	0.311	12.55	0.097						
11.97	0.346	12.57	0.091						
11.98	0.394	12.58	0.086						
12.00	0.452	12.60	0.082						
12.02	0.515	12.62	0.079						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

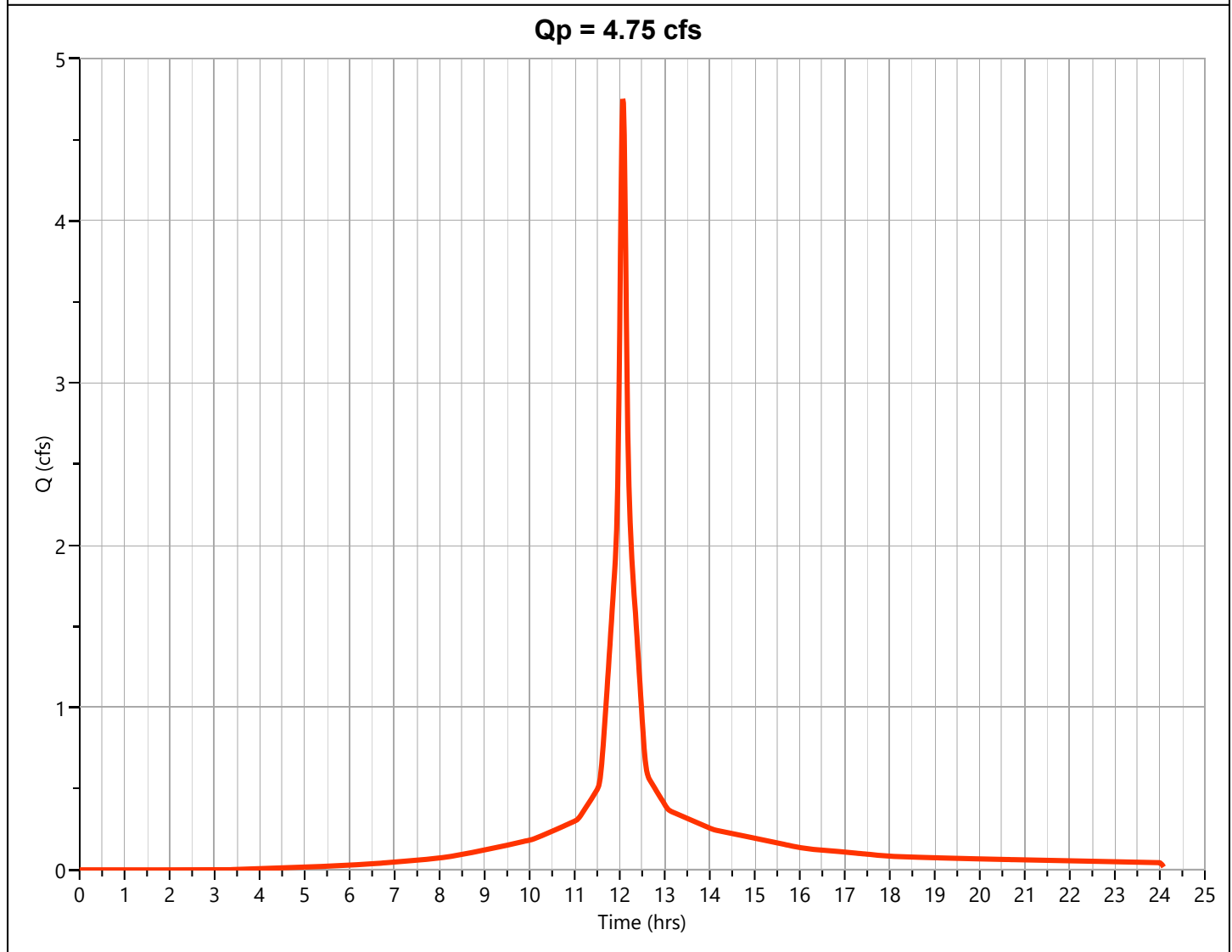
## Post SA-A (remaining)

## Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.750 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 1 min	Runoff Volume	= 15,505 cuft
Drainage Area	= 0.649 ac	Curve Number	= 88.66*
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 7.73 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

### \* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.187	89	C-Roadway
0.239	94	C-Urban Area
0.039	98	C-Paved
0.012	89	C-Porous PAvers
0.172	79	C-Lawn/Landscaped
<b>0.649</b>	<b>89</b>	Weighted CN Method Employed



POST168

### Hydrograph Discharge Table

SA-A (remaining)

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.47	0.480	<b>12.07</b>	<b>4.750</b>	12.67	0.555				
11.48	0.487	12.08	4.725	12.68	0.547				
11.50	0.495	12.10	4.528	12.70	0.539				
11.52	0.504	12.12	4.201	12.72	0.532				
11.53	0.517	12.13	3.798	12.73	0.524				
11.55	0.536	12.15	3.375	12.75	0.517				
11.57	0.565	12.17	2.987	12.77	0.509				
11.58	0.604	12.18	2.671	12.78	0.501				
11.60	0.652	12.20	2.429	12.80	0.494				
11.62	0.706	12.22	2.248	12.82	0.486				
11.63	0.767	12.23	2.115	12.83	0.478				
11.65	0.831	12.25	2.016	12.85	0.471				
11.67	0.899	12.27	1.938	...end	...end				
11.68	0.967	12.28	1.867						
11.70	1.036	12.30	1.795						
11.72	1.105	12.32	1.724						
11.73	1.175	12.33	1.652						
11.75	1.245	12.35	1.580						
11.77	1.315	12.37	1.508						
11.78	1.386	12.38	1.435						
11.80	1.458	12.40	1.363						
11.82	1.530	12.42	1.290						
11.83	1.602	12.43	1.218						
11.85	1.675	12.45	1.145						
11.87	1.748	12.47	1.072						
11.88	1.822	12.48	0.999						
11.90	1.896	12.50	0.926						
11.92	1.983	12.52	0.854						
11.93	2.105	12.53	0.787						
11.95	2.287	12.55	0.727						
11.97	2.552	12.57	0.678						
11.98	2.906	12.58	0.639						
12.00	3.337	12.60	0.610						
12.02	3.805	12.62	0.589						
12.03	4.242	12.63	0.574						
12.05	4.580	12.65	0.563						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PROP. R.G. #1

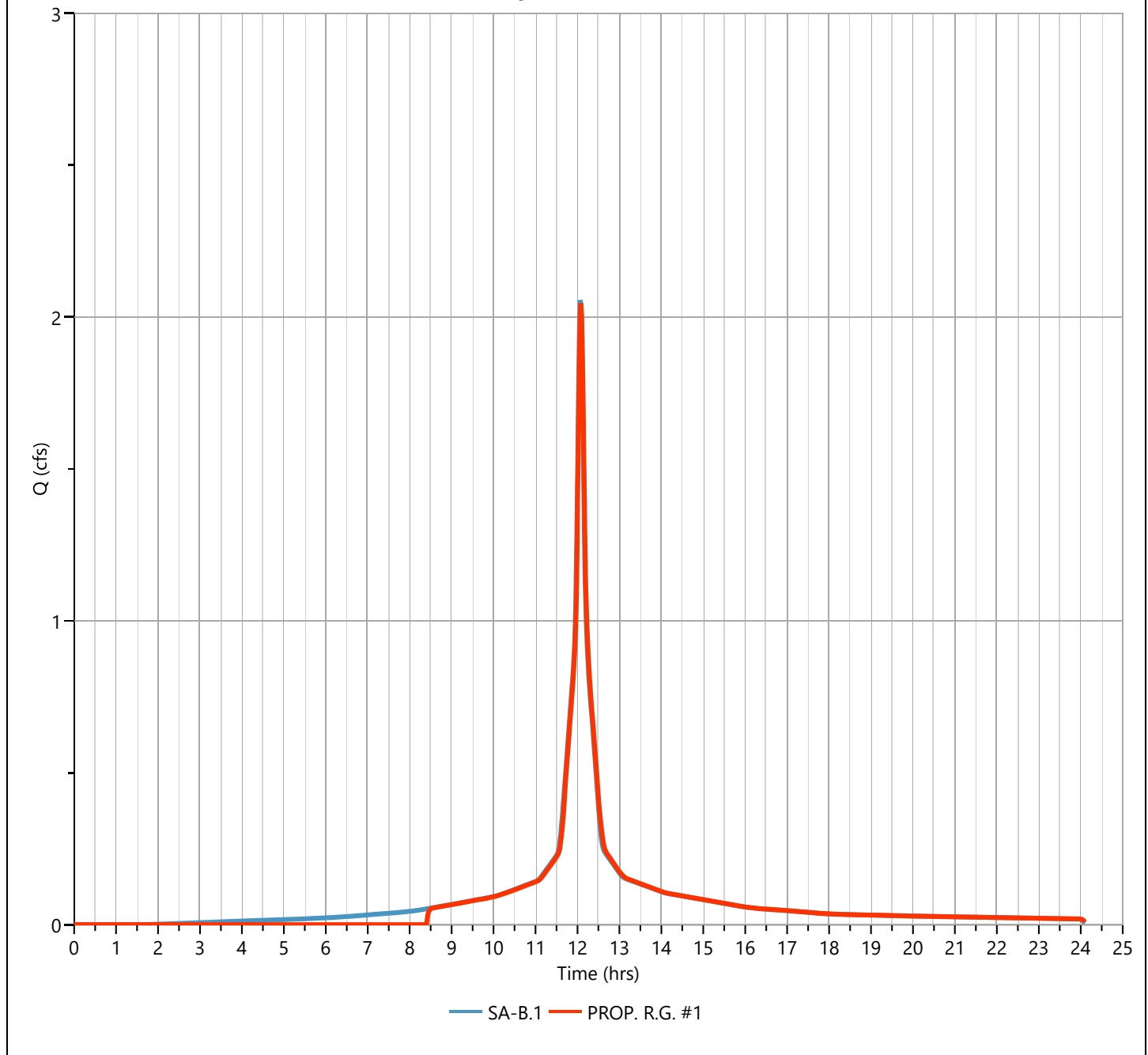
## Hyd. No. 6

Hydrograph Type	= Pond Route	Peak Flow	= 2.045 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 6,545 cuft
Inflow Hydrograph	= 1 - SA-B.1	Max. Elevation	= 75.45 ft
Pond Name	= PROP. RAINGARDEN #1	Max. Storage	= 578 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 29 min

**Qp = 2.05 cfs**



POST170



# Hydrograph Discharge Table

PROP. R.G. #1

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.42	0.206	12.02	1.524	12.62	0.270				
11.43	0.209	12.03	1.716	12.63	0.259				
11.45	0.213	12.05	1.885	12.65	0.250				
11.47	0.216	12.07	2.003	12.67	0.244				
11.48	0.219	<b>12.08</b>	<b>2.045</b>	12.68	0.239				
11.50	0.222	12.10	2.000	12.70	0.234				
11.52	0.226	12.12	1.896	12.72	0.231				
11.53	0.230	12.13	1.747	12.73	0.227				
11.55	0.235	12.15	1.572	12.75	0.224				
11.57	0.243	12.17	1.396	12.77	0.220				
11.58	0.255	12.18	1.240	12.78	0.217				
11.60	0.270	12.20	1.113	12.80	0.214				
11.62	0.289	12.22	1.024	12.82	0.211				
11.63	0.311	12.23	0.957	12.83	0.207				
11.65	0.336	12.25	0.902	12.85	0.204				
11.67	0.363	12.27	0.859	...end	...end				
11.68	0.399	12.28	0.824						
11.70	0.439	12.30	0.792						
11.72	0.472	12.32	0.760						
11.73	0.503	12.33	0.730						
11.75	0.534	12.35	0.699						
11.77	0.565	12.37	0.668						
11.78	0.595	12.38	0.637						
11.80	0.626	12.40	0.606						
11.82	0.657	12.42	0.575						
11.83	0.688	12.43	0.544						
11.85	0.719	12.45	0.513						
11.87	0.750	12.47	0.482						
11.88	0.781	12.48	0.451						
11.90	0.812	12.50	0.420						
11.92	0.846	12.52	0.389						
11.93	0.887	12.53	0.366						
11.95	0.945	12.55	0.344						
11.97	1.031	12.57	0.322						
11.98	1.164	12.58	0.302						
12.00	1.335	12.60	0.284						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## Post PRO R.G. #2

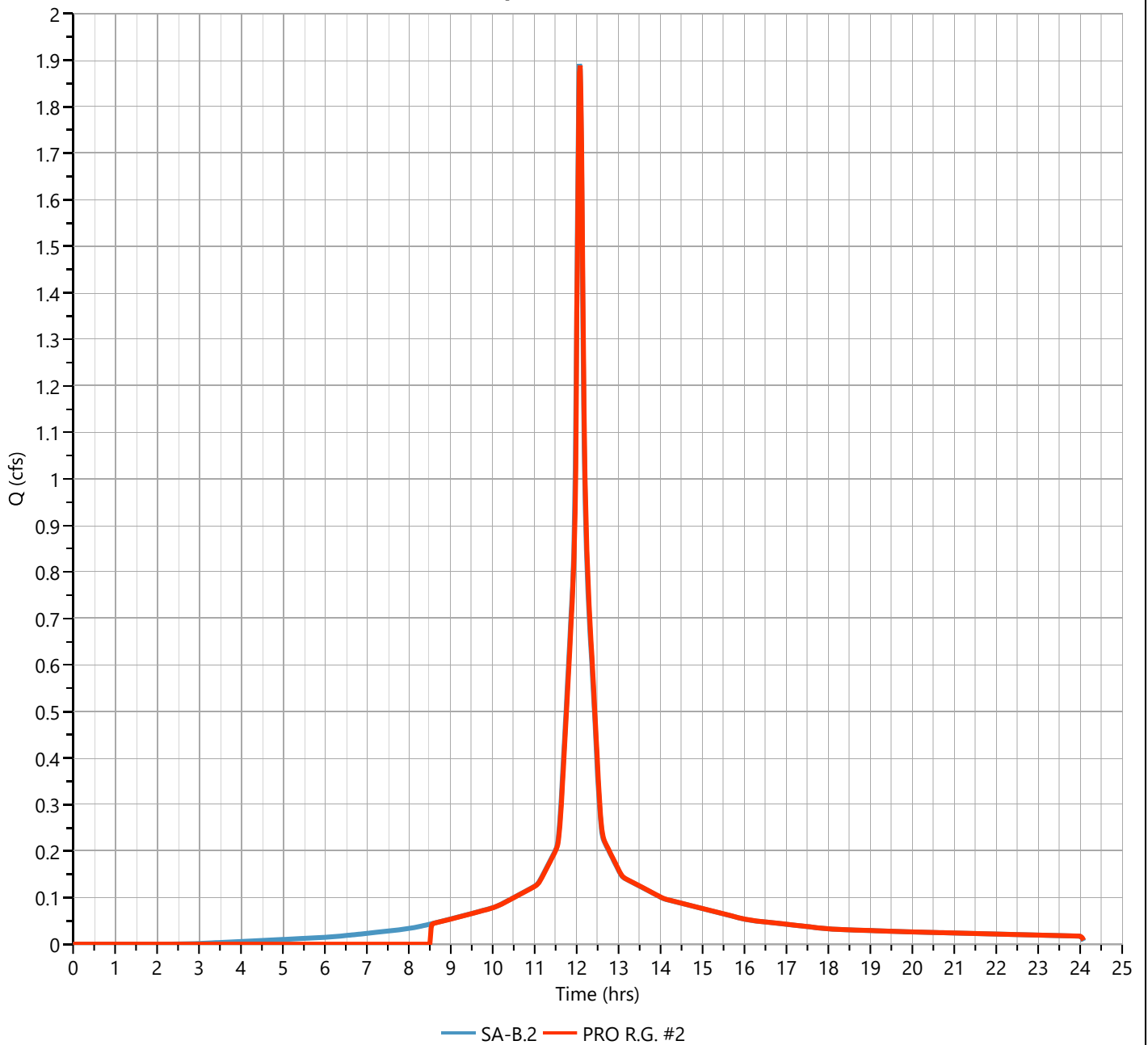
## Hyd. No. 7

Hydrograph Type	= Pond Route	Peak Flow	= 1.888 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 5,955 cuft
Inflow Hydrograph	= 2 - SA-B.2	Max. Elevation	= 77.44 ft
Pond Name	= PRO RAINGARDEN #2	Max. Storage	= 383 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 21 min

**Qp = 1.89 cfs**



# Hydrograph Discharge Table

PRO R.G. #2

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.43	0.189	12.03	1.634	12.63	0.230				
11.45	0.192	12.05	1.782	12.65	0.225				
11.47	0.195	12.07	1.873	12.67	0.221				
11.48	0.198	<b>12.08</b>	<b>1.888</b>	12.68	0.217				
11.50	0.201	12.10	1.831	12.70	0.214				
11.52	0.204	12.12	1.717	12.72	0.211				
11.53	0.208	12.13	1.565	12.73	0.208				
11.55	0.215	12.15	1.397	12.75	0.205				
11.57	0.224	12.17	1.236	12.77	0.202				
11.58	0.237	12.18	1.100	12.78	0.199				
11.60	0.254	12.20	1.013	12.80	0.196				
11.62	0.275	12.22	0.936	12.82	0.193				
11.63	0.298	12.23	0.871	12.83	0.190				
11.65	0.323	12.25	0.823	12.85	0.187				
11.67	0.349	12.27	0.786	...end	...end				
11.68	0.376	12.28	0.756						
11.70	0.404	12.30	0.727						
11.72	0.432	12.32	0.699						
11.73	0.460	12.33	0.670						
11.75	0.488	12.35	0.642						
11.77	0.516	12.37	0.613						
11.78	0.544	12.38	0.584						
11.80	0.572	12.40	0.556						
11.82	0.601	12.42	0.527						
11.83	0.630	12.43	0.498						
11.85	0.658	12.45	0.470						
11.87	0.687	12.47	0.441						
11.88	0.716	12.48	0.412						
11.90	0.745	12.50	0.383						
11.92	0.777	12.52	0.355						
11.93	0.817	12.53	0.327						
11.95	0.874	12.55	0.302						
11.97	0.959	12.57	0.280						
11.98	1.081	12.58	0.262						
12.00	1.280	12.60	0.248						
12.02	1.455	12.62	0.238						

# Hydrograph Report

Project Name:

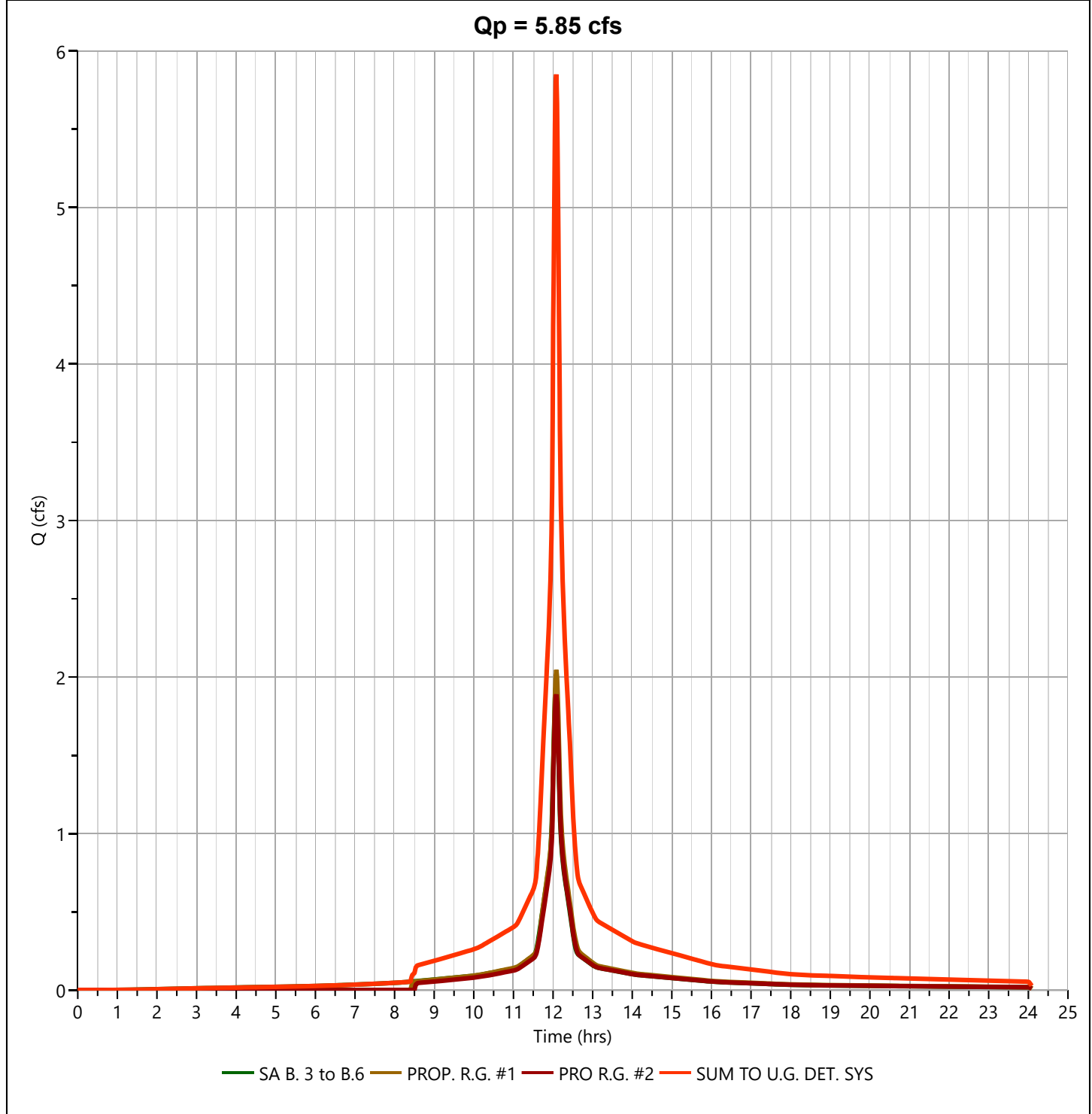
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM TO U.G. DET. SYS

## Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 5.851 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.08 hrs
Time Interval	= 1 min	Hydrograph Volume	= 19,233 cuft
Inflow Hydrographs	= 3, 6, 7	Total Contrib. Area	= 0.248 ac



POST174

# Hydrograph Discharge Table

SUM TO U.G. DET. SYS

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.40	0.585	12.00	3.989	12.60	0.773				
11.42	0.595	12.02	4.540	12.62	0.740				
11.43	0.604	12.03	5.086	12.63	0.716				
11.45	0.613	12.05	5.535	12.65	0.697				
11.47	0.622	12.07	5.809	12.67	0.683				
11.48	0.632	<b>12.08</b>	<b>5.851</b>	12.68	0.672				
11.50	0.641	12.10	5.665	12.70	0.662				
11.52	0.651	12.12	5.310	12.72	0.652				
11.53	0.665	12.13	4.843	12.73	0.643				
11.55	0.685	12.15	4.327	12.75	0.633				
11.57	0.714	12.17	3.832	12.77	0.624				
11.58	0.756	12.18	3.410	12.78	0.615				
11.60	0.809	12.20	3.098	12.80	0.605				
11.62	0.871	12.22	2.859	12.82	0.596				
11.63	0.942	12.23	2.673	12.83	0.587				
11.65	1.019	12.25	2.530	12.85	0.577				
11.67	1.101	12.27	2.419	...end	...end				
11.68	1.193	12.28	2.324						
11.70	1.289	12.30	2.234						
11.72	1.379	12.32	2.145						
11.73	1.467	12.33	2.057						
11.75	1.554	12.35	1.968						
11.77	1.642	12.37	1.880						
11.78	1.730	12.38	1.791						
11.80	1.818	12.40	1.703						
11.82	1.907	12.42	1.614						
11.83	1.995	12.43	1.525						
11.85	2.084	12.45	1.436						
11.87	2.173	12.47	1.347						
11.88	2.263	12.48	1.259						
11.90	2.352	12.50	1.170						
11.92	2.451	12.52	1.082						
11.93	2.581	12.53	1.004						
11.95	2.770	12.55	0.934						
11.97	3.048	12.57	0.870						
11.98	3.445	12.58	0.816						

# Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.26

01-18-2023

## PROP. U/G DET BASIN

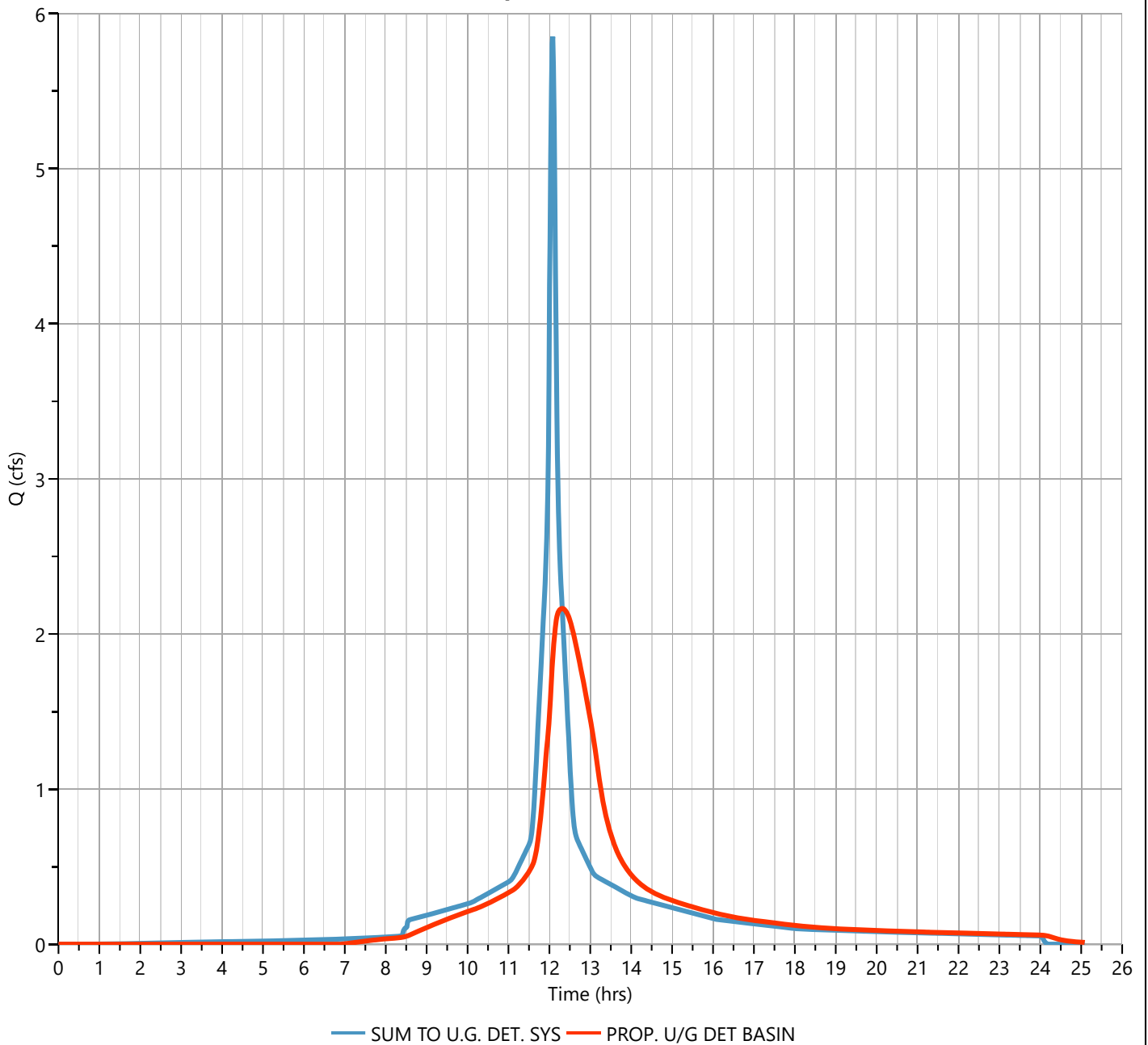
## Hyd. No. 9

Hydrograph Type	= Pond Route	Peak Flow	= 2.165 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Hydrograph Volume	= 18,910 cuft
Inflow Hydrograph	= 8 - SUM TO U.G. DET. SYS	Max. Elevation	= 75.71 ft
Pond Name	= PROP U/G DET SYS	Max. Storage	= 5,040 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 47 min

**Qp = 2.17 cfs**



### Hydrograph Discharge Table

PROP. U/G DET BASIN

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
10.08	0.217	10.68	0.287	11.28	0.390	11.88	1.098	12.48	2.102
10.10	0.219	10.70	0.289	11.30	0.395	11.90	1.152	12.50	2.089
10.12	0.220	10.72	0.291	11.32	0.400	11.92	1.207	12.52	2.075
10.13	0.222	10.73	0.293	11.33	0.405	11.93	1.265	12.53	2.060
10.15	0.223	10.75	0.296	11.35	0.411	11.95	1.312	12.55	2.043
10.17	0.225	10.77	0.298	11.37	0.417	11.97	1.358	12.57	2.026
10.18	0.227	10.78	0.300	11.38	0.422	11.98	1.410	12.58	2.007
10.20	0.228	10.80	0.303	11.40	0.428	12.00	1.471	12.60	1.988
10.22	0.230	10.82	0.305	11.42	0.435	12.02	1.539	12.62	1.969
10.23	0.232	10.83	0.307	11.43	0.441	12.03	1.614	12.63	1.949
10.25	0.234	10.85	0.310	11.45	0.447	12.05	1.693	12.65	1.928
10.27	0.235	10.87	0.312	11.47	0.454	12.07	1.771	12.67	1.907
10.28	0.237	10.88	0.314	11.48	0.460	12.08	1.846	12.68	1.887
10.30	0.239	10.90	0.317	11.50	0.467	12.10	1.914	12.70	1.865
10.32	0.241	10.92	0.319	11.52	0.474	12.12	1.972	12.72	1.844
10.33	0.243	10.93	0.322	11.53	0.481	12.13	2.021	12.73	1.822
10.35	0.245	10.95	0.324	11.55	0.489	12.15	2.060	12.75	1.801
10.37	0.246	10.97	0.327	11.57	0.497	12.17	2.090	12.77	1.779
10.38	0.248	10.98	0.329	11.58	0.506	12.18	2.112	12.78	1.757
10.40	0.250	11.00	0.332	11.60	0.517	12.20	2.129	12.80	1.734
10.42	0.252	11.02	0.334	11.62	0.530	12.22	2.141	12.82	1.712
10.43	0.254	11.03	0.337	11.63	0.545	12.23	2.149	12.83	1.689
10.45	0.256	11.05	0.339	11.65	0.563	12.25	2.156	12.85	1.666
10.47	0.258	11.07	0.342	11.67	0.583	12.27	2.160	12.87	1.643
10.48	0.261	11.08	0.344	11.68	0.607	12.28	2.163	12.88	1.619
10.50	0.263	11.10	0.347	11.70	0.634	12.30	2.165	12.90	1.595
10.52	0.265	11.12	0.350	11.72	0.663	<b>12.32</b>	<b>2.165</b>	12.92	1.572
10.53	0.267	11.13	0.353	11.73	0.696	12.33	2.164	12.93	1.547
10.55	0.269	11.15	0.357	11.75	0.732	12.35	2.162	12.95	1.523
10.57	0.271	11.17	0.360	11.77	0.770	12.37	2.159	12.97	1.498
10.58	0.273	11.18	0.364	11.78	0.811	12.38	2.154	12.98	1.474
10.60	0.275	11.20	0.368	11.80	0.855	12.40	2.149	13.00	1.449
10.62	0.278	11.22	0.372	11.82	0.900	12.42	2.142	13.02	1.423
10.63	0.280	11.23	0.376	11.83	0.947	12.43	2.134	13.03	1.398
10.65	0.282	11.25	0.380	11.85	0.994	12.45	2.124	13.05	1.373
10.67	0.284	11.27	0.385	11.87	1.045	12.47	2.114	13.07	1.347

**Hydrograph Discharge Table, cont'd**

**PROP. U/G DET BASIN**

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
13.08	1.321	13.68	0.580	14.28	0.375	14.88	0.292	15.48	0.241
13.10	1.295	13.70	0.571	14.30	0.372	14.90	0.291	15.50	0.240
13.12	1.265	13.72	0.562	14.32	0.369	14.92	0.289	15.52	0.239
13.13	1.229	13.73	0.553	14.33	0.365	14.93	0.288	15.53	0.238
13.15	1.193	13.75	0.545	14.35	0.362	14.95	0.286	15.55	0.236
13.17	1.160	13.77	0.537	14.37	0.359	14.97	0.284	15.57	0.235
13.18	1.127	13.78	0.530	14.38	0.357	14.98	0.283	15.58	0.234
13.20	1.096	13.80	0.522	14.40	0.354	15.00	0.281	15.60	0.233
13.22	1.066	13.82	0.515	14.42	0.351	15.02	0.280	15.62	0.231
13.23	1.037	13.83	0.508	14.43	0.348	15.03	0.278	15.63	0.230
13.25	1.010	13.85	0.501	14.45	0.346	15.05	0.277	15.65	0.229
13.27	0.983	13.87	0.494	14.47	0.343	15.07	0.275	15.67	0.228
13.28	0.959	13.88	0.488	14.48	0.341	15.08	0.274	15.68	0.226
13.30	0.935	13.90	0.482	14.50	0.338	15.10	0.272	15.70	0.225
13.32	0.912	13.92	0.476	14.52	0.336	15.12	0.271	15.72	0.224
13.33	0.889	13.93	0.470	14.53	0.333	15.13	0.269	15.73	0.223
13.35	0.868	13.95	0.464	14.55	0.331	15.15	0.268	15.75	0.222
13.37	0.847	13.97	0.458	14.57	0.329	15.17	0.267	15.77	0.220
13.38	0.827	13.98	0.453	14.58	0.327	15.18	0.265	15.78	0.219
13.40	0.808	14.00	0.447	14.60	0.324	15.20	0.264	15.80	0.218
13.42	0.789	14.02	0.442	14.62	0.322	15.22	0.262	15.82	0.217
13.43	0.772	14.03	0.437	14.63	0.320	15.23	0.261	15.83	0.216
13.45	0.755	14.05	0.432	14.65	0.318	15.25	0.260	...end	...end
13.47	0.739	14.07	0.427	14.67	0.316	15.27	0.258		
13.48	0.723	14.08	0.423	14.68	0.314	15.28	0.257		
13.50	0.708	14.10	0.418	14.70	0.312	15.30	0.256		
13.52	0.694	14.12	0.413	14.72	0.310	15.32	0.254		
13.53	0.681	14.13	0.409	14.73	0.308	15.33	0.253		
13.55	0.667	14.15	0.405	14.75	0.306	15.35	0.252		
13.57	0.655	14.17	0.401	14.77	0.305	15.37	0.250		
13.58	0.644	14.18	0.397	14.78	0.303	15.38	0.249		
13.60	0.632	14.20	0.393	14.80	0.301	15.40	0.248		
13.62	0.621	14.22	0.389	14.82	0.299	15.42	0.246		
13.63	0.610	14.23	0.385	14.83	0.298	15.43	0.245		
13.65	0.599	14.25	0.382	14.85	0.296	15.45	0.244		
13.67	0.589	14.27	0.378	14.87	0.294	15.47	0.243		



# Hydrograph Report

Project Name:

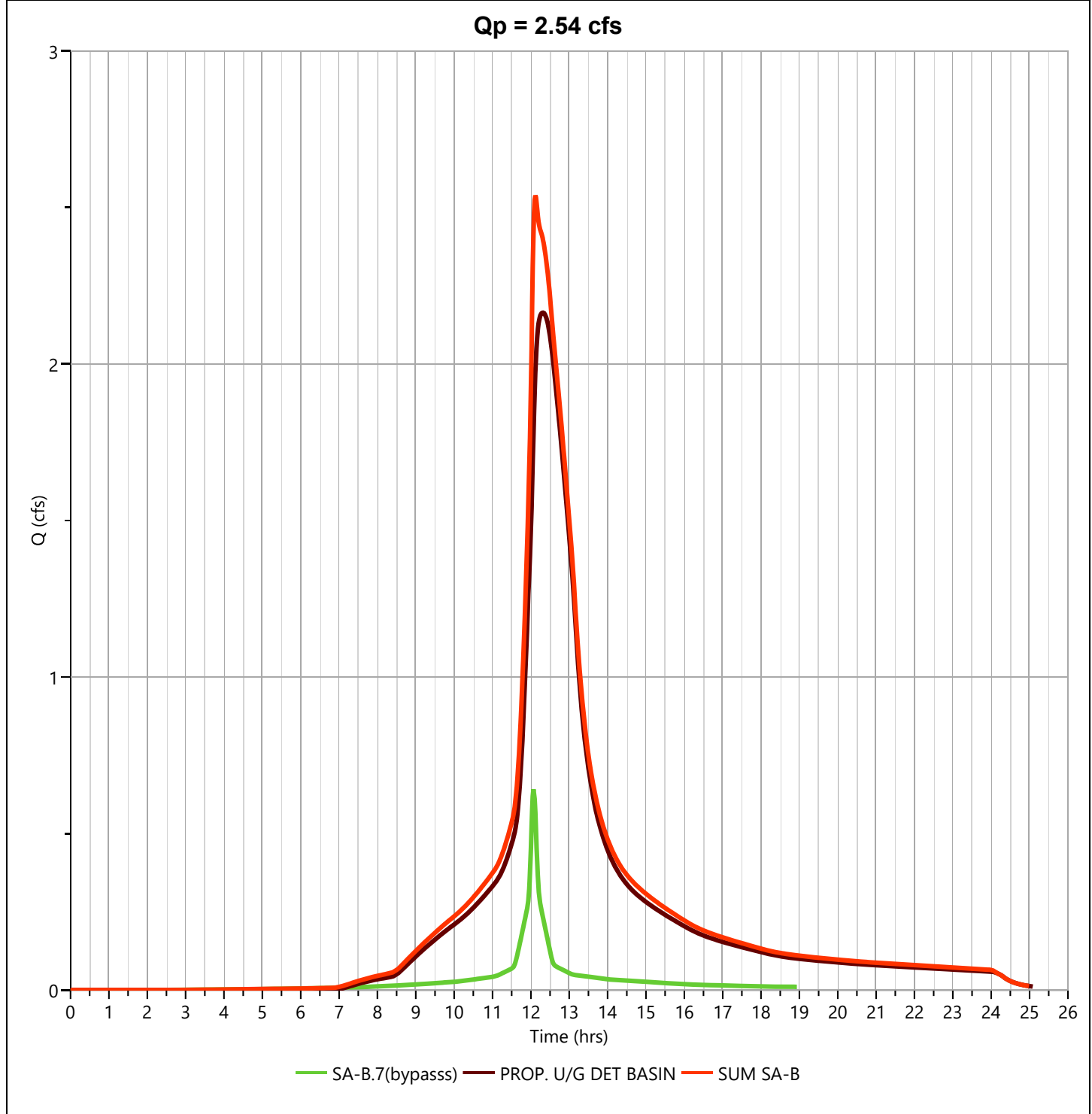
Hydrology Studio v 3.0.0.26

01-18-2023

## Post SUM SA-B

## Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 2.538 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 21,029 cuft
Inflow Hydrographs	= 4, 9	Total Contrib. Area	= 0.086 ac



POST179

# Hydrograph Discharge Table

SUM SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
10.18	0.255	10.78	0.338	11.38	0.484	11.98	1.804	12.58	2.093
10.20	0.257	10.80	0.341	11.40	0.491	12.00	1.923	12.60	2.070
10.22	0.259	10.82	0.344	11.42	0.498	12.02	2.054	12.62	2.048
10.23	0.261	10.83	0.346	11.43	0.505	12.03	2.188	12.63	2.025
10.25	0.263	10.85	0.349	11.45	0.512	12.05	2.312	12.65	2.004
10.27	0.265	10.87	0.352	11.47	0.520	12.07	2.413	12.67	1.982
10.28	0.267	10.88	0.354	11.48	0.528	12.08	2.484	12.68	1.960
10.30	0.269	10.90	0.357	11.50	0.535	12.10	2.524	12.70	1.938
10.32	0.271	10.92	0.360	11.52	0.544	<b>12.12</b>	<b>2.538</b>	12.72	1.915
10.33	0.273	10.93	0.362	11.53	0.552	12.13	2.533	12.73	1.893
10.35	0.276	10.95	0.365	11.55	0.563	12.15	2.514	12.75	1.870
10.37	0.278	10.97	0.368	11.57	0.575	12.17	2.492	12.77	1.847
10.38	0.280	10.98	0.371	11.58	0.590	12.18	2.471	12.78	1.824
10.40	0.282	11.00	0.373	11.60	0.607	12.20	2.455	12.80	1.800
10.42	0.284	11.02	0.376	11.62	0.627	12.22	2.443	12.82	1.777
10.43	0.287	11.03	0.379	11.63	0.651	12.23	2.434	12.83	1.753
10.45	0.289	11.05	0.382	11.65	0.677	12.25	2.427	12.85	1.729
10.47	0.291	11.07	0.385	11.67	0.706	12.27	2.421	12.87	1.705
10.48	0.294	11.08	0.388	11.68	0.739	12.28	2.414	12.88	1.680
10.50	0.296	11.10	0.392	11.70	0.776	12.30	2.406	12.90	1.655
10.52	0.298	11.12	0.396	11.72	0.814	12.32	2.397	12.92	1.630
10.53	0.301	11.13	0.400	11.73	0.857	12.33	2.386	12.93	1.605
10.55	0.303	11.15	0.404	11.75	0.903	12.35	2.374	12.95	1.580
10.57	0.306	11.17	0.408	11.77	0.950	12.37	2.361	12.97	1.554
10.58	0.308	11.18	0.413	11.78	1.001	12.38	2.347	12.98	1.528
10.60	0.310	11.20	0.418	11.80	1.054	12.40	2.331	13.00	1.502
10.62	0.313	11.22	0.423	11.82	1.109	12.42	2.315	13.02	1.476
10.63	0.315	11.23	0.428	11.83	1.166	12.43	2.297	13.03	1.450
10.65	0.318	11.25	0.434	11.85	1.223	12.45	2.278	13.05	1.423
10.67	0.320	11.27	0.439	11.87	1.283	12.47	2.257	13.07	1.397
10.68	0.323	11.28	0.445	11.88	1.346	12.48	2.236	13.08	1.371
10.70	0.325	11.30	0.451	11.90	1.410	12.50	2.213	13.10	1.344
10.72	0.328	11.32	0.457	11.92	1.477	12.52	2.189	13.12	1.314
10.73	0.331	11.33	0.464	11.93	1.551	12.53	2.165	13.13	1.277
10.75	0.333	11.35	0.470	11.95	1.623	12.55	2.140	13.15	1.241
10.77	0.336	11.37	0.477	11.97	1.705	12.57	2.116	13.17	1.207

Hydrograph Discharge Table, cont'd

SUM SA-B

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
13.18	1.175	13.78	0.567	14.38	0.387	14.98	0.309	15.58	0.255
13.20	1.143	13.80	0.560	14.40	0.384	15.00	0.307	15.60	0.254
13.22	1.113	13.82	0.552	14.42	0.381	15.02	0.306	...end	...end
13.23	1.084	13.83	0.545	14.43	0.379	15.03	0.304		
13.25	1.056	13.85	0.538	14.45	0.376	15.05	0.302		
13.27	1.030	13.87	0.531	14.47	0.373	15.07	0.301		
13.28	1.005	13.88	0.524	14.48	0.371	15.08	0.299		
13.30	0.981	13.90	0.518	14.50	0.368	15.10	0.298		
13.32	0.957	13.92	0.511	14.52	0.365	15.12	0.296		
13.33	0.934	13.93	0.505	14.53	0.363	15.13	0.294		
13.35	0.912	13.95	0.499	14.55	0.360	15.15	0.293		
13.37	0.891	13.97	0.493	14.57	0.358	15.17	0.291		
13.38	0.871	13.98	0.487	14.58	0.356	15.18	0.290		
13.40	0.852	14.00	0.482	14.60	0.353	15.20	0.288		
13.42	0.833	14.02	0.476	14.62	0.351	15.22	0.287		
13.43	0.815	14.03	0.471	14.63	0.349	15.23	0.285		
13.45	0.798	14.05	0.466	14.65	0.347	15.25	0.284		
13.47	0.782	14.07	0.461	14.67	0.345	15.27	0.282		
13.48	0.766	14.08	0.456	14.68	0.342	15.28	0.281		
13.50	0.751	14.10	0.451	14.70	0.340	15.30	0.279		
13.52	0.736	14.12	0.446	14.72	0.338	15.32	0.278		
13.53	0.723	14.13	0.442	14.73	0.336	15.33	0.276		
13.55	0.709	14.15	0.437	14.75	0.334	15.35	0.275		
13.57	0.696	14.17	0.433	14.77	0.332	15.37	0.273		
13.58	0.685	14.18	0.429	14.78	0.330	15.38	0.272		
13.60	0.673	14.20	0.425	14.80	0.329	15.40	0.271		
13.62	0.661	14.22	0.421	14.82	0.327	15.42	0.269		
13.63	0.650	14.23	0.417	14.83	0.325	15.43	0.268		
13.65	0.639	14.25	0.414	14.85	0.323	15.45	0.266		
13.67	0.629	14.27	0.410	14.87	0.321	15.47	0.265		
13.68	0.619	14.28	0.407	14.88	0.319	15.48	0.264		
13.70	0.610	14.30	0.403	14.90	0.318	15.50	0.262		
13.72	0.601	14.32	0.400	14.92	0.316	15.52	0.261		
13.73	0.592	14.33	0.397	14.93	0.314	15.53	0.259		
13.75	0.584	14.35	0.393	14.95	0.312	15.55	0.258		
13.77	0.575	14.37	0.390	14.97	0.311	15.57	0.257		

# Design Storm Report

Custom Storm filename: 3170.cds

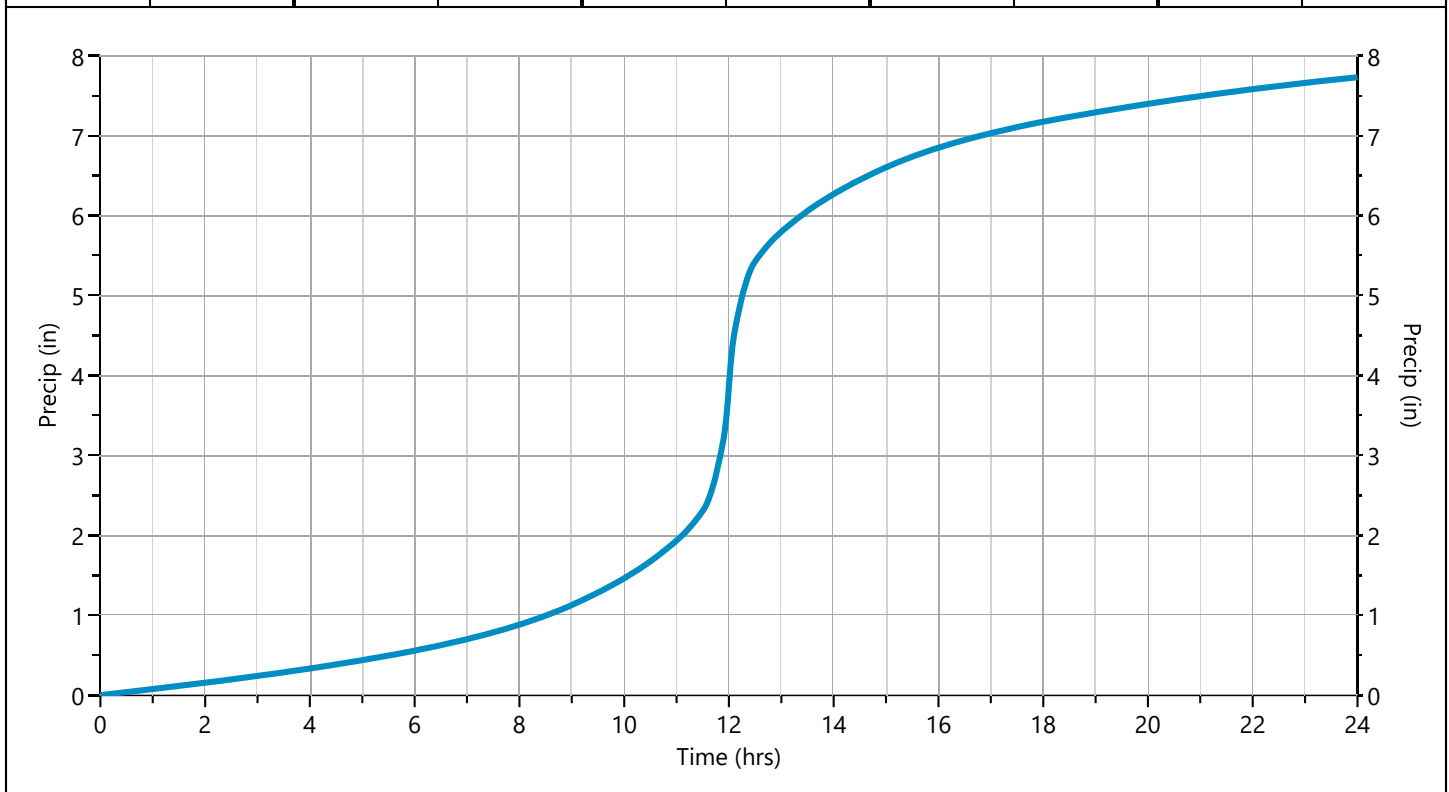
Hydrology Studio v 3.0.0.26

01-18-2023

## Storm Distribution: NRCS/SCS - Type III, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	✓ 100-yr	
24 hrs	2.47	3.07	0.00	4.05	4.87	5.99	6.82	7.73	

Incremental Rainfall Distribution, 100-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	0.015232	11.68	0.035172	11.87	0.055957	12.05	0.116143	12.23	0.046509
11.52	0.016232	11.70	0.037061	11.88	0.057846	12.07	0.100296	12.25	0.044620
11.53	0.018166	11.72	0.038950	11.90	0.059736	12.08	0.084450	12.27	0.042730
11.55	0.020055	11.73	0.040840	11.92	0.068824	12.10	0.068603	12.28	0.040840
11.57	0.021945	11.75	0.042730	11.93	0.084451	12.12	0.059963	12.30	0.038950
11.58	0.023834	11.77	0.044619	11.95	0.100297	12.13	0.057846	12.32	0.037061
11.60	0.025724	11.78	0.046509	11.97	0.116144	12.15	0.055957	12.33	0.035172
11.62	0.027613	11.80	0.048398	11.98	0.131990	12.17	0.054067	12.35	0.033282
11.63	0.029503	11.82	0.050288	<b>12.00</b>	<b>0.147837</b>	12.18	0.052177	12.37	0.031392
11.65	0.031392	11.83	0.052177	12.02	0.147482	12.20	0.050288	12.38	0.029503
11.67	0.033282	11.85	0.054067	12.03	0.131990	12.22	0.048398	12.40	0.027614



# IDF Report

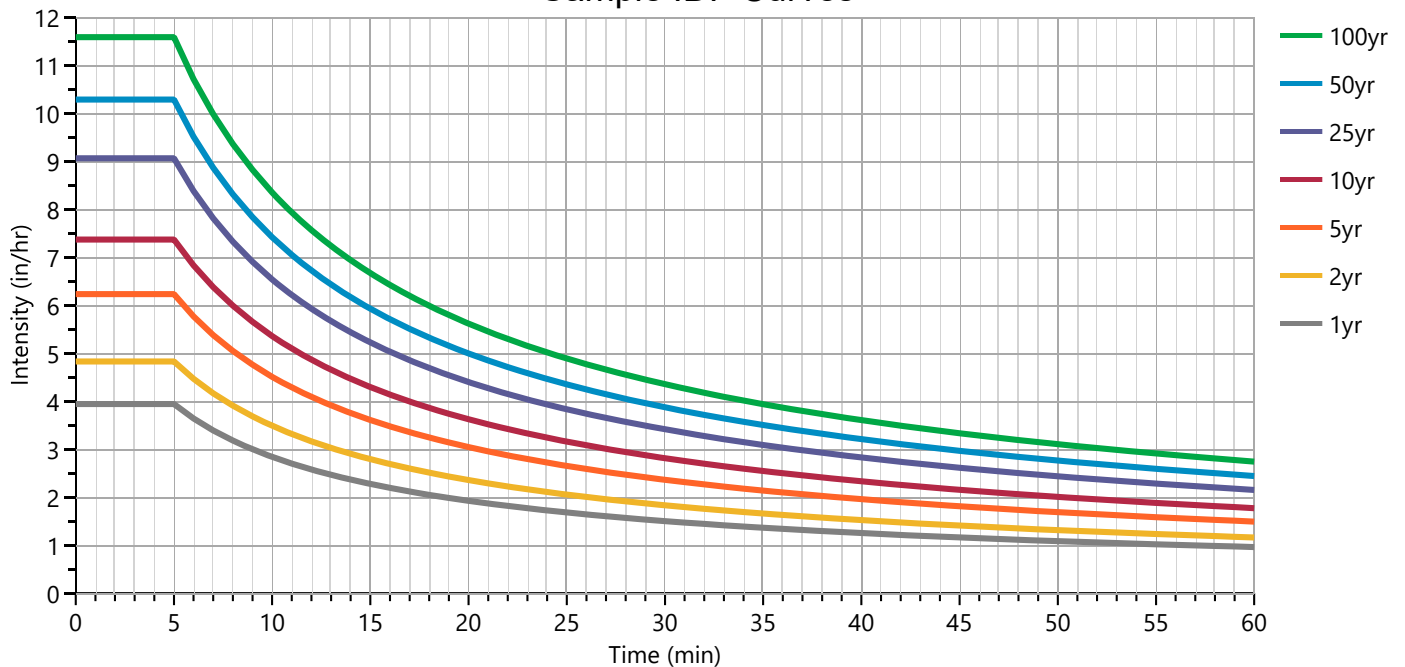
Equation Coefficients	Intensity = B / (Tc + D)^E (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
<b>B</b>	17.1348	22.7145	0.0000	30.4118	37.5453	43.9341	49.8640	56.3481	
<b>D</b>	3.3000	3.7000	0.0000	3.9000	4.2000	3.8000	3.8000	3.8000	
<b>E</b>	0.6948	0.7160	0.0000	0.7255	0.7339	0.7260	0.7261	0.7276	

Minimum Tc = 5 minutes

Tc (min)	Intensity Values (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
<b>Cf</b>	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
<b>5</b>	3.94	4.83	0	6.23	7.37	9.06	10.28	11.58	
<b>10</b>	2.84	3.49	0	4.51	5.36	6.53	7.42	8.35	
<b>15</b>	2.27	2.79	0	3.61	4.29	5.22	5.92	6.67	
<b>20</b>	1.92	2.35	0	3.04	3.62	4.40	4.99	5.61	
<b>25</b>	1.68	2.05	0	2.65	3.16	3.83	4.35	4.89	
<b>30</b>	1.50	1.83	0	2.36	2.81	3.41	3.87	4.35	
<b>35</b>	1.36	1.66	0	2.14	2.54	3.08	3.50	3.93	
<b>40</b>	1.25	1.52	0	1.96	2.33	2.83	3.21	3.60	
<b>45</b>	1.16	1.41	0	1.81	2.15	2.61	2.96	3.33	
<b>50</b>	1.08	1.31	0	1.69	2.00	2.43	2.76	3.10	
<b>55</b>	1.02	1.23	0	1.58	1.88	2.28	2.59	2.91	
<b>60</b>	0.96	1.16	0	1.49	1.77	2.15	2.44	2.74	

Cf = Correction Factor applied to Rational Method runoff coefficient.

## Sample IDF Curves



# Precipitation Report

Precipitation filename: HartfordCT (13).pcp

Hydrology Studio v 3.0.0.26 (Rainfall totals in Inches)

01-18-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
<b>Active</b>		✓	✓		✓	✓	✓	✓	✓
<b>SCS Storms</b>	<b>&gt; SCS Dimensionless Storms</b>								
SCS 6hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
Type I, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
Type IA, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
Type II, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
Type II FL, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
Type III, 24-hr	✓	2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>Synthetic Storms</b>	<b>&gt; IDF-Based Synthetic Storms</b>								
1-hr		0.96	1.16	0	1.49	1.77	2.15	2.44	2.74
2-hr		1.21	1.44	0	1.84	2.18	2.66	3.02	3.38
3-hr		1.38	1.63	0	2.08	2.45	2.99	3.40	3.81
6-hr		1.71	2.00	0	2.53	2.97	3.64	4.14	4.63
12-hr		2.12	2.44	0	3.07	3.59	4.42	5.02	5.62
24-hr		2.62	2.98	0	3.72	4.32	5.36	6.08	6.80
<b>Huff Distribution</b>	<b>&gt; 1st Quartile (0 to 6 hrs)</b>								
1-hr		0.93	1.14	0	1.47	1.75	2.13	2.42	2.72
2-hr		1.22	1.48	0	1.90	2.25	2.73	3.09	3.48
3-hr		1.41	1.70	0	2.19	2.59	3.14	3.56	4.00
6-hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
<b>Huff Distribution</b>	<b>&gt; 2nd Quartile (&gt;6 to 12 hrs)</b>								
8-hr		0	0	0	0	0	0	0	0
12-hr		2.12	2.60	0	3.38	4.02	4.91	5.57	6.28
<b>Huff Distribution</b>	<b>&gt; 3rd Quartile (&gt;12 to 24 hrs)</b>								
18-hr		0	0	0	0	0	0	0	0
24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>Custom Storms</b>	<b>&gt; Custom Storm Distributions</b>								
My Custom Storm 1		0	0	0	0	0	0	0	0
My Custom Storm 2		0	0	0	0	0	0	0	0
My Custom Storm 3		0	0	0	0	0	0	0	0
My Custom Storm 4		0	0	0	0	0	0	0	0
My Custom Storm 5		0	0	0	0	0	0	0	0
My Custom Storm 6		0	0	0	0	0	0	0	0
My Custom Storm 7		0	0	0	0	0	0	0	0
My Custom Storm 8		0	0	0	0	0	0	0	0
My Custom Storm 9		0	0	0	0	0	0	0	0
My Custom Storm 10		0	0	0	0	0	0	0	0

# Precipitation Report Cont'd

Precipitation filename: HartfordCT (13).pcp

Rainfall totals in Inches

01-18-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
<b>Active</b>		✓	✓		✓	✓	✓	✓	✓
<b>Huff Indiana</b>	<b>&gt; Indianapolis</b>								
30-min		0.74	0.90	0	1.17	1.39	1.69	1.92	2.16
1-hr		0.93	1.14	0	1.47	1.75	2.13	2.42	2.72
2-hr		1.22	1.48	0	1.90	2.25	2.73	3.09	3.48
3-hr		1.41	1.70	0	2.19	2.59	3.14	3.56	4.00
6-hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
12-hr		2.12	2.60	0	3.38	4.02	4.91	5.57	6.28
24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>Huff Indiana</b>	<b>&gt; Evansville</b>								
30-min		0.74	0.90	0	1.17	1.39	1.69	1.92	2.16
1-hr		0.93	1.14	0	1.47	1.75	2.13	2.42	2.72
2-hr		1.22	1.48	0	1.90	2.25	2.73	3.09	3.48
3-hr		1.41	1.70	0	2.19	2.59	3.14	3.56	4.00
6-hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
12-hr		2.12	2.60	0	3.38	4.02	4.91	5.57	6.28
24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>Huff Indiana</b>	<b>&gt; Fort Wayne</b>								
30-min		0.74	0.90	0	1.17	1.39	1.69	1.92	2.16
1-hr		0.93	1.14	0	1.47	1.75	2.13	2.42	2.72
2-hr		1.22	1.48	0	1.90	2.25	2.73	3.09	3.48
3-hr		1.41	1.70	0	2.19	2.59	3.14	3.56	4.00
6-hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
12-hr		2.12	2.60	0	3.38	4.02	4.91	5.57	6.28
24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>Huff Indiana</b>	<b>&gt; South Bend</b>								
30-min		0.74	0.90	0	1.17	1.39	1.69	1.92	2.16
1-hr		0.93	1.14	0	1.47	1.75	2.13	2.42	2.72
2-hr		1.22	1.48	0	1.90	2.25	2.73	3.09	3.48
3-hr		1.41	1.70	0	2.19	2.59	3.14	3.56	4.00
6-hr		1.75	2.13	0	2.75	3.25	3.96	4.47	5.04
12-hr		2.12	2.60	0	3.38	4.02	4.91	5.57	6.28
24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73

# Precipitation Report Cont'd

Precipitation filename: HartfordCT (13).pcp

Rainfall totals in Inches

01-18-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
<b>Active</b>		✓	✓		✓	✓	✓	✓	✓
<b>NRCS Storms</b>	<b>&gt; NRCS Dimensionless Storms</b>								
NRCS MSE1, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCS MSE2, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCS MSE3, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCS MSE4, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCS MSE5, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCS MSE6, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NOAA-A, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NOAA-B, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NOAA-C, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NOAA-D, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCC-A, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCC-B, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCC-C, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
NRCC-D, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-1, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-2, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-3, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-4, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-5, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
CA-6, 24-hr		2.47	3.07	0	4.05	4.87	5.99	6.82	7.73
<b>FDOT Storms</b>	<b>&gt; Florida DOT Storms</b>								
FDOT, 1-hr		0	0	0	0	0	0	0	0
FDOT, 2-hr		0	0	0	0	0	0	0	0
FDOT, 4-hr		0	0	0	0	0	0	0	0
FDOT, 8-hr		0	0	0	0	0	0	0	0
FDOT, 24-hr		0	0	0	0	0	0	0	0
FDOT, 72-hr		0	0	0	0	0	0	0	0
SFWMD, 72-hr		0	0	0	0	0	0	0	0
<b>Austin Storms</b>	<b>&gt; Austin Frequency Storms</b>								
Austin Zone 1, 24-hr		0	0	0	0	0	0	0	0
Austin Zone 2, 24-hr		0	0	0	0	0	0	0	0



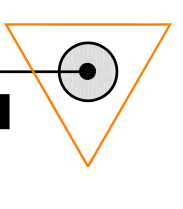
**Appendix H**

**Drainage Subarea Map – Pre Drainage Area**

**&**

**Drainage Subarea Map – Post Drainage Area**

HALLISEY, PEARSON & CASSIDY  
 CIVIL ENGINEERS & LAND SURVEYORS  
 630 MAIN STREET, UNIT #1A  
 CROMWELL, CONNECTICUT 06416  
 PHONE: (860)-529-6812, FAX: (860)-721-7709



DRAINAGE SUBAREA MAP - PRE DRAINAGE AREA  
 PREPARED FOR:  
 ROOT CENTER FOR ADVANCED RECOVERY  
 PROPERTY LOCATED AT:  
 35, 37, 39 LAFAYETTE STREET  
 & 152, 156, 162 OAK STREET  
 HARTFORD, CONNECTICUT

SCALE: 1"=20'	CHECKED BY: JPC
DATE: JAN. 18, 2023	DRAWN BY: JMP
JOB NO.: 3331	ACAD FILE: 3331-PR-RA
SHEET: 1	OF: 1
REVISIONS:	

### DRAINAGE LEGEND

- TIME OF CONCENTRATION
- LIMITS OF DRAINAGE AREA
- SA-A** DRAINAGE SUBAREA ID





8

# Traffic Impact Study

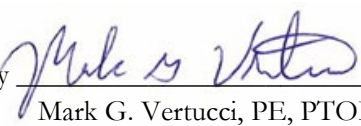
## 35 Lafayette Street Hartford, Connecticut

December 2022

City of Hartford Planning and Zoning Commission  
Land Use Applications



146 Hartford Road  
Manchester, CT 06040

Approved by  License No. 23761  
Mark G. Vertucci, PE, PTOE

*Prepared for:*  
Root Center for Advanced Recovery  
335 Broad Street  
Manchester, Connecticut 06040

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Traffic Impact Study  
 35 Lafayette Street  
 Hartford, Connecticut

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## Traffic Impact Study 35 Lafayette Street Hartford, Connecticut

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Turning Movement Count (TMC) Data

#### *Appendix E*

Crash Data Records

## Summary Sheet

As an aid to reviewers, this Summary Sheet has been included to outline the various study parameters utilized in this report. Although a full explanation of the study methodologies is included in the text of the report, this summary can serve as a useful reference for reviewers.

**Applicant:**

Root Center for Advanced Recovery

**Site Acreage:**

0.98

**Development Size/Type:**

Approximately 7,974 SF Substance Use Rehabilitation Clinic

**Parking:**

43 Parking Spaces (Including 3 Accessible Parking Spaces)

2 Van Drop Off Spaces

**Applications:**

City of Hartford Planning and Zoning Commission: Land Use Applications

**Build Year:**

2024

**Background Traffic Growth Factor:**

1.0%

**Traffic Counts:**

Fuss & O'Neill – September 2022 (Turning Movement Counts)

**Peak Hours Analyzed:**

Weekday Morning Peak Hour – 7:45 a.m. – 8:45 a.m.

**Expected Trip Generation:**

Weekday Morning Peak Hour – 77 Total Trips (44 Entering, 33 Exiting)

Weekday Afternoon Peak Hour – 0 Total Trips

**Capacity Analysis:**

Technique – 2000 Highway Capacity Manual

Execution – Synchro and SimTraffic Professional Software, Version 11.0



# 1 Introduction

Root Center for Advanced Recovery proposes to construct an approximately 7,974 gross square foot substance use rehabilitation clinic on 35 Lafayette Street and the surrounding parcels in Hartford, Connecticut. The development site is located on the south side of Grand Street, between Oak Street and Lafayette Street, as shown on the site location map, *Figure No. 1 of Appendix B*. Site access for the clinic will be provided via one enter only driveway on Oak Street and two exit only driveways, one on Oak Street and the other on Grand Street. The proposed site will be supported by a total of 43 parking spaces and two van drop off spaces will be located near the entrance to the building. The development is expected to be open in 2024.

Fuss & O'Neill has been retained to study the impact of the proposed development on traffic conditions throughout the adjacent roadway network. This report has been prepared to document the findings of the study and is being submitted to the City of Hartford in support of the project's land use applications.

## 2 Existing Condition

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### 2.1 Site of Development

The existing site consists of four separate parcels identified as 35-39 Lafayette Street, 152 Oak Street, 156 Oak Street, 162 Oak Street by the City of Hartford and is located in the MX-1 (Multi-Use Mix Districts) zone. The four separate parcels will be combined for a total of 0.98 acres. The existing site is currently occupied by leased surface parking lots. The existing surface lots will be removed and rebuilt to accommodate the proposed substance use rehabilitation clinic. Additionally, the existing Root Center Clinic at 345 Main Street in Hartford will be relocated to this proposed site. The site is bounded by general and office land uses to the east, west, and south and by the Hartford Superior Court to the north/northeast.

### 2.2 Adjacent Roadway Network

---

The study area roadway network consists of the following roadways:

- Capitol Avenue
- Interstate 84
- Trinity Street
- Washington Street
- Lafayette Street
- Grand Street
- Park Street
- Oak Street

Capitol Avenue runs primarily east/west under City jurisdiction and extends approximately 2.15 miles east from its intersection with Prospect Avenue to its terminus at Main Street. The roadway provides access to residential, general business, office, and industrial land uses. In the vicinity of the site, Capitol

Avenue is classified by the Connecticut Department of Transportation (CTDOT) as an urban minor arterial that provides four lanes of travel, two in each direction, with additional exclusive turning lanes at key intersections. The posted speed limit is 30 miles per hour. Sidewalks are provided on both sides of Capitol Avenue.

Interstate 84 is an east/west interstate through Connecticut that provides access to New York to the west and Massachusetts to the northeast. In the vicinity of the site, Interstate 84 provides six lanes of travel, three in each direction, with additionally auxiliary lanes for eastbound and westbound on and off ramps. The posted speed limit is 50 miles per hour and the roadway is classified by the CTDOT as an urban interstate.

Trinity Street runs primarily north/south from its intersection with Capitol Avenue, Washington Street, and Lafayette Street and continues north for approximately 1,400 feet to its terminus at its intersection with Jewell Street. The roadway provides access to the Bushnell Performing Arts Center, government offices, and Bushnell Park. In the vicinity of the site, Trinity Street is classified by the CTDOT as an urban minor arterial. Between Capitol Avenue and Elm Street, Trinity Street provides four lanes of travel, two in each direction. North of Elm Street, Trinity Street provides two lanes of travel, one in each direction. The posted speed limit is 30 miles per hour. Sidewalks are provided on both sides of Trinity Street.

Washington Street runs primarily north/south and extends approximately one mile from its intersection with New Britain Avenue, Barnard Street, and Webster Street to its terminus at its intersection with Capitol Avenue. The roadway provides access to primarily commercial and medical land uses. In the vicinity of the site, Washington Street is classified by the CTDOT as an urban minor arterial that provides four travel lanes, two in each direction, with off-peak hour restricted on-street parking available in place of the right travel lane in both directions. The posted speed limit is 30 miles per hour. Sidewalks are provided on both sides of Washington Street.

Lafayette Street runs primarily north/south and extends approximately 1,800 feet from its intersection with Capitol Avenue, Trinity Street and Washington Street to its terminus at its intersection with Park Street. The roadway provides access to primarily office space, general business, the Judicial Branch of Connecticut, and the Hartford Superior Court. In the vicinity of the site, Lafayette Street is classified by the CTDOT as an urban local road that provides one lane of travel in the southbound direction between Capitol Avenue and Grand Street. Lafayette Street then transitions into providing two lanes of travel, one in each direction, to the south of Grand Street. The posted speed limit is 25 miles per hour. Sidewalks are provided on both sides of Lafayette Street.

Grand Street runs east/west and extends approximately 1,600 feet from its intersection with Babcock Street to its terminus at its intersection with Lafayette Street. The roadway provides access to primarily residential and office space. Grand Street is classified by the CTDOT as an urban local road that primarily provides one lane of travel in the westbound direction. Grand Street provides two lanes of travel, one in each direction, between its intersections with Hungerford Street and Oak Street. The posted speed is 25 miles per hour. Sidewalks are provided on both sides of Grand Street.

Park Street runs primarily east/west from its intersection with Main Street and extends for approximately 3.6 miles into the Town of West Hartford to its terminus as its intersection with South Main Street and Sedgwick Road. The roadway provides access to primarily residential and general business land uses. In the vicinity of the site, Park Street is classified by the CTDOT as an urban minor arterial that provides two lanes of travel, one in each direction. The posted speed limit is 30 miles per hour. Sidewalks are provided on both sides of Park Street.

Oak Street runs north/south from its intersection with Capitol Avenue and extends for approximately 1,900 feet to its terminus at its intersection with Park Street. The roadway provides access to primarily office space. Oak Street is classified by the CTDOT as an urban local road that provides one lane of northbound travel with on-street parking between its intersections with Russ Street and Park Street. North of Russ Street, Oak Street provides two lanes of travel, one in each direction. The posted speed limit is 25 miles per hour. Sidewalks are provided on both sides of Oak Street.

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## 2.3 Study Area Intersections

The following study area intersections were reviewed:

- Capitol Avenue at I-84 Eastbound On/Off Ramps
- Capitol Avenue at Trinity Street/Washington Street
- Park Street at Lafayette Street
- Park Street at Oak Street

Capitol Avenue at I-84 Eastbound On/Off Ramps is a four-way signalized intersection. The intersection is part of a coordinated signal system along Capitol Avenue. The intersection provides a northbound approach on Oak Street, a southbound approach on the I-84 Eastbound Off Ramp, and eastbound and westbound approaches on Capitol Avenue. Oak Street provides a combined through/left turn lane and a combined through/right turn lane in the northbound approach. I-84 Eastbound Off Ramp provides a dedicated left turn lane, a combined through/left turn lane, and a dedicated right turn lane in the southbound approach. Capitol Avenue provides a dedicated left turn lane, a through lane, and a combined through/right turn lane in the eastbound approach. In the westbound approach, Capitol Avenue provides a dedicated left turn lane, a through lane, and a dedicated right turn lane. Crosswalks are provided across every approach. Pedestrian crossing is permitted during an exclusive pedestrian signal phase. Sidewalks and pedestrian ramps are provided on all four corners of the intersection. Bicycle facilities are not provided at this intersection.

Capitol Avenue at Trinity Street/Washington Street is a four-way signalized intersection. The intersection is part of a coordinated signal system along Capitol Avenue. The intersection provides a northbound approach on Washington Street, a southbound approach on Trinity Street, and eastbound and westbound approaches on Capitol Avenue. Washington Street provides two dedicated left turn lanes, a combined through/right turn lane, and a dedicated right turn lane in the northbound approach. Trinity Street approaches the intersection from the north at an angle forming a westbound approach and provides a dedicated left turn lane to Washington Street and a through lane to Capitol Avenue. Capitol Avenue provides a dedicated left turn lane, a through lane, and a channelized right turn lane in the eastbound approach. Capitol Avenue provides a combined through/left turn lane and a combined through/right

turn lane in the westbound approach. Crosswalks are provided across the northbound, southbound, and westbound approaches. Pedestrian crossing is permitted during a concurrent pedestrian signal phase. Sidewalks and pedestrian ramps are provided on all corners of the intersection with the exception of the northwestern and southwestern corners of the intersection as pedestrian crossing is not permitted across the eastbound approach. Bicycle facilities are not provided at this intersection.

Park Street at Lafayette Street is a four-way unsignalized intersection. The intersection provides a northbound approach from the Walgreens Drive, a southbound approach on Lafayette Street, and eastbound and westbound approaches on Park Street. In the vicinity of the study intersection, Park Street is free flowing and carries two lanes of travel, one in each direction. The full access Walgreens Driveway provides a combined left/through/right turn lane on the stop-controlled northbound approach. Lafayette Street provides a combined left/through/right turn lane on the stop-controlled southbound approach. One crosswalk is provided across the northern leg, allowing pedestrians to cross Lafayette Street. Sidewalks are provided on both sides of the road on each leg of the intersection with the exception of the southern leg, which is the full access Walgreens Driveway. Bicycle facilities are not provided at this unsignalized intersection.

Park Street at Oak Street is an unsignalized t-intersection. The intersection provides a one-way northbound lane on Oak Street, leaving the intersection, and eastbound and westbound approaches on Park Street. In the vicinity of the study intersection, Park Street is free flowing and carries two lanes of travel, one in each direction. One crosswalk is provided across the north leg, allowing pedestrians to cross Oak Street. Sidewalks are provided on both sides of the road on each leg of the intersection. Bicycle facilities are not provided at this unsignalized intersection.

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## 2.4 Traffic Volumes, Speeds and Counts

The greatest potential for traffic impact on the roadway network by the proposed clinic will occur during the weekday morning peak hour, the period when commuter and substance use rehabilitation clinic related trips are at their highest levels. In order to determine the traffic impact of the proposed development on adjacent street traffic, representatives of Fuss & O'Neill, Inc. conducted weekday morning peak hour manual turning movement counts on September 21, 2022, at the four intersections in the study area. The traffic count data collected indicates that the weekday morning peak hour of traffic is 7:45 a.m. to 8:45 a.m. The morning peak hour was subsequently analyzed for impacts. It is worth noting that the proposed clinic primarily serves patients virtually after 1:30 p.m. and is closed after 4:00 p.m. Therefore, the site is not anticipated to generate any trips during the afternoon peak hour and that peak hour was not analyzed for impacts. The existing traffic volumes for the morning peak hour is shown in *Figure No. 2 of Appendix B*. Copies of the TMC traffic data have been included in *Appendix D* of this report.

## 3 Background Traffic Conditions

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### 3.1 Growth Rate

Upon consultation with the CTDOT the 2022 existing traffic volumes were projected to the 2024 design year using a 1.0 percent per year peak hour growth factor to account for normal traffic growth in the

study area. These projected grown 2024 traffic volumes were utilized as the background traffic volumes which are defined as design year traffic without the proposed development. The projected background traffic volumes are shown in *Figure No. 3 of Appendix B*.

---

## 3.2 Other Developments

Fuss & O'Neill contacted the CTDOT Bureau of Policy and Planning and the City of Hartford Department of Development Services to identify any other pending or approved developments having site related traffic in the study area. Four developments were identified.

The Bushnell South Parking Garage development at 120 Capitol Avenue was identified by the CTDOT Bureau of Policy and Planning. The proposed parking garage has been built out and the site related traffic volumes for the development will have minimal traffic impact to the study area and are covered by the background growth rate.

The Hartford Connecticut Children's Medical Center expansion at 282 Washington Street, the recently approved conversion of office space to apartments at 55 Elm Street, and the Parkville Market expansion at 1390 Park Street was identified by the City of Hartford. All three developments are anticipated to have minimal traffic impact to the study area and any additional traffic volume generated in the study area is covered by the background growth rate.

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## 3.3 Planned Roadway Improvement Projects

Fuss & O'Neill contacted the Connecticut Department of Transportation and the City of Hartford Engineering and Public Works offices to identify any roadway improvements scheduled within the study area. No such improvements were identified.

# 4 Proposed Conditions

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## 4.1 Development

Root Center for Advanced Recovery proposes to construct an approximately 7,974 gross square foot substance use rehabilitation clinic, on 35 Lafayette Street and the surrounding parcels in Hartford, Connecticut. The development site is located on the southside of Grand Street, between Oak Street and Lafayette Street, as shown on the site location map, *Figure No. 1 of Appendix B*. The proposed site will be supported by a total of 43 parking spaces and two van drop off spaces will be located near the entrance to the building. The development is expected to be open in 2024.

---

## 4.2 Site Access and Circulation

Access to the proposed site will be provided via one enter only driveway on Oak Street and two exit only driveways, one on Oak Street and the other on Grand Street. The exit only driveways will be stop-

controlled, and all driveways will provide one unrestricted lane of travel.

---

### 4.3 Trip Generation

The expected site generated traffic data for the 35 Lafayette Street site was calculated using manual turning movement counts conducted at the existing Root Center for Advanced Recovery Clinic at 345 Main Street in Hartford, Connecticut, on October 12, 2022. The counts indicated that the clinic generates a total of 77 trips (44 entering and 33 exiting) during the morning peak hour of traffic. In its existing condition, the clinic operates in-person from 5:30 a.m. to 1:30 p.m. and the afternoon/evening services are primarily virtual. Additionally, only a minimal number of staff are expected to remain in the building between 1:30 p.m. and 4:00 p.m. Furthermore, many clinic patients will utilize public transportation to access the proposed site as they do at the existing 345 Main Street site today.

It is anticipated that the clinic proposed on 35 Lafayette Street will generate similar traffic volumes and operate during the same hours as the existing clinic at 345 Main Street. Therefore, the proposed substance use rehabilitation clinic on 35 Lafayette Street is not expected to generate any trips during the afternoon peak hour. A summary of the peak hour trip generation information for the proposed development is provided in *Table 1 of Appendix A*.

---

### 4.4 Trip Distribution

The distribution of traffic entering and exiting the proposed site was applied to the road network based on the existing regional traffic distributions and the layout of the adjacent roadway network. During the peak hours, the following arrival distributions of traffic are anticipated:

- 40% from the north off the I-84 Eastbound Off Ramp
- 20% from the east on Park Street
- 40% from the west on Park Street

A regional arrival/departure distribution for the new site generated traffic traveling to and from the project site is shown in *Figure No. 4 of Appendix B*.

---

### 4.5 Combined Volumes

The site generated traffic was distributed to the roadway system based on the arrival/departure distributions with the results shown in *Figure No. 5 of Appendix B*. These volumes were then added to the background volumes to yield the year 2024 peak hour Combined traffic volumes shown in *Figure No. 6 of Appendix B*.

## 5 Analyses

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### 5.1 Crash Analysis

Crash data was gathered from CTDOT via the University of Connecticut Crash Data Repository for the following intersections:

- Capitol Avenue at I-84 Eastbound On/Off Ramps
- Capitol Avenue at Trinity Street/Washington Street
- Park Street at Lafayette Street
- Park Street at Oak Street

The records were gathered for the most recent three years of available data, 2019 through 2021. A summary of the crash data per intersection is provided in *Table 2 of Appendix A*. Copies of the crash data records have been provided in *Appendix E*.

The intersection of Capitol Avenue at I-84 Eastbound On/Off Ramps experienced 21 crashes during the three-year study period, averaging seven crashes per year. The majority of these crashes (9) were angle crashes. Additionally, the intersection experienced five front to rear collisions, three fixed object crashes, two same direction sideswipes, one front to front collision, and one unidentified crash. Of the total crashes reported, eight resulted in minor injuries while the remainder were property damage only collisions.

The intersection of Capitol Avenue at Trinity Street/Washington Street experienced 26 crashes during the three-year study period, averaging approximately nine crashes per year. The majority of these crashes (12) were front to rear collisions. Additionally, the intersection experienced seven same direction sideswipes, two angle crashes, two unidentified crashes, one front to front collision, one fixed object crash, and one rear to side collision. Of the total crashes reported, five resulted in injuries while the remainder were property damage only collisions.

The intersection of Park Street at Lafayette Street experienced 14 crashes during the three-year study period, averaging approximately five crashes per year. The intersection experienced five front to rear collisions, five same direction sideswipes, and four angle crashes. Of the total crashes reported, five resulted in minor injuries while the remainder were property damage only collisions.

The intersection of Park Street at Oak Street experienced 16 crashes during the three-year study period, averaging approximately five crashes per year. The majority of these crashes (5) were front to rear collisions. Additionally, the intersection experienced three unidentified crashes, three opposite direction sideswipes, two same direction sideswipes, one angle crash, one fixed object crash, and one rear to rear collision. Of the total crashes reported, four resulted in minor injuries while the remainder were property damage only collisions.

The crash patterns identified in the study area are not uncommon for urban intersections. The proposed substance use rehabilitation clinic will generate a minimal increase in traffic at the study intersections and

is not expected to exacerbate existing crash patterns or negatively impact overall traffic safety within the study area.

---

## 5.2 Intersection Sight Distance Analysis

Intersection sight distances were calculated at the proposed site driveway locations in accordance with criteria set forth in the 2003 CTDOT *Highway Design Manual*. The sight distance is measured from a point 15 feet back from the edge of travel-way at a height of 3.5 feet, the standard height of a driver's eye.

Both Oak Street and Grand Street have a posted speed limit of 25 miles per hour. Therefore, a design speed of 30 miles per hour, 5 miles per hour above the posted speed limit, was utilized for the analysis.

For the design speed of 30 miles per hour, 335 feet of intersection sight distance is required for a passenger car turning right or left onto a two-lane facility.

Oak Street is a one-way roadway going north. Therefore, only the intersection sight distance for passenger cars looking left (south) was measured. At the proposed exit only driveway on Oak Street, over 320 feet of intersection distance is provided looking left (south), past Oak Street's terminus at its intersection with Park Street, from eight feet back from the edge of travel-way (an existing fence restricted further site access at 15 feet back). It should be noted that sufficient space is available for passenger cars to pull forward and have a clear line of sight exiting the proposed exit only driveway on Oak Street.

Grand Street is a one-way roadway going west. Therefore, only the intersection sight distance for passenger cars looking right (east) was measured. At the proposed exit only driveway on Grand Street, over 190 feet of intersection sight distance is provided looking right (east) past Grand Street's terminus at its intersection with Lafayette Street. Since the exit-only site driveway on Grand Street is in close proximity to the Grand Street/Lafayette Street intersection, the speed of vehicles turning onto Grand Street is anticipated to be lower than the 30-mph design speed. Therefore, sufficient sight distance exists to allow for safe egress of passenger cars attempting to turn left from the proposed site driveway onto Grand Street.

---

## 5.3 Intersection Capacity Analysis

Capacity analyses for both signalized and unsignalized intersections were conducted using Synchro Professional Software, version 11.0.

In discussing intersection capacity analyses results, two terms are used to describe the operating condition of the road or intersection. These two terms are volume to capacity ratio ( $v/c$ ) and level of service (LOS).

The  $v/c$  ratio is a ratio of the volume of traffic using an intersection to the total capacity of the intersection (the maximum number of vehicles that can utilize the intersection during an hour). The  $v/c$



ratio can be used to describe the percentage of capacity utilized by a single intersection movement, a combination of movements, an entire intersection approach, or the intersection as a whole.

LOS is a measure of the delay experienced by stopped vehicles at an intersection. LOS is rated on a scale from A to F, with A describing a condition of very low delay (less than 10 seconds per vehicle), and F describing a condition where delays will exceed 50 seconds per vehicle for unsignalized intersections and 80 seconds per vehicle for signalized intersections. Delay is described as a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Therefore, intersections with longer delay times are less acceptable to most drivers.

LOS is generally used to describe the operation (based on delay time) of both signalized and unsignalized intersections, while v/c ratio is applied to signalized intersections only. These definitions for v/c ratio and LOS, as well as the methodology for conducting signalized and unsignalized intersection capacity analyses, are taken from the “2000 Highway Capacity Manual” published by the Transportation Research Board.

In discussing two-way stop controlled unsignalized intersection capacity analyses, LOS is used to provide a description of the delay and operational characteristics of the turns from the minor street (stop sign controlled) to the major street, and turns from the major street to the minor street. Through vehicles are not delayed by the minor street and do not experience delay, therefore they are not rated with a level of service.

Using the above referenced methodologies, the weekday morning peak hour capacity analysis was conducted at the following signalized intersections:

- Capitol Avenue at I-84 Eastbound On/Off Ramps
- Capitol Avenue at Trinity Street/Washington Street

The weekday morning peak hour capacity analysis was also conducted at the following unsignalized intersections:

- Park Street at Lafayette Street
- Park Street at Oak Street

*Tables No. 3 and 4 of Appendix A* present a summary of the levels of service at the unsignalized and signalized intersections, for both Background and Combined Conditions traffic volumes. Copies of the analysis worksheets can be found in *Appendix C* for the weekday morning peak hour.

The determination of the traffic impact from the proposed development is made through a comparison of the Background Conditions LOS (without the proposed development) versus the Combined Conditions LOS (with the proposed development).

The capacity analysis at Capitol Avenue at I-84 Eastbound On/Off Ramps revealed that the signalized intersection operates acceptably at LOS C in the background and combined conditions during the weekday morning peak hour.

The capacity analysis at Capitol Avenue at Trinity Street/Washington Street revealed that the signalized intersection operates acceptably at LOS C in the background and combined conditions during the weekday morning peak hour.

It should be noted that the two signalized study area intersections were modeled as accurately as possible based on the information provided on the outdated signal plans provided by the City of Hartford. Therefore, assumptions were made when modeling the signalized intersections in Synchro Professional Software, while also maintaining the integrity of the signal plans. Assumptions included the potential signal timings as well as phasing to reflect the existing conditions of the signalized intersections observed in the field.

The capacity analysis at the unsignalized intersection of Park Street at Lafayette Street revealed that all approaches will operate efficiently at LOS A or B during the morning peak hour under background and combined conditions.

The capacity analysis at the unsignalized intersection of Park Street at Oak Street revealed that the eastbound left turn movement will operate efficiently at LOS A during the morning peak hour under background and combined conditions.

A capacity analysis was not conducted for the two unsignalized intersections of Grand Street at Oak Street and Grand Street at Lafayette Street as the proposed clinic will have a minimal impact to these two low volume intersections.

---

## 5.4 Queue Analysis

Background and Combined Condition 95<sup>th</sup> percentile (design) queue lengths were reviewed at each intersection in the study area. The 95<sup>th</sup> percentile (design) vehicle queue lengths represent the maximum queue lengths that can be expected at each of the critical approach lanes of the study area intersections. The queue lengths are provided in the Synchro capacity analysis worksheets, which are located in *Appendix C. Table 5 of Appendix A* provide a summary of the queue lengths for the critical lanes at each intersection during the morning peak hour.

The analysis revealed minimal peak hour queue length increases of one vehicle or less at each study intersection approach lane as a result of the proposed development traffic with the exception of the southbound through lane at the intersection of Capitol Avenue at I-84 Eastbound On/Off Ramps, which will experience a queue increase of up to two vehicles. Ample storage length exists on the I-84 Eastbound Off Ramp to accommodate this anticipated queue increase.

At the majority of the intersection approaches, sufficient lane storage lengths exist to accommodate both background and combined condition queues. The analysis did reveal some individual intersection approach queues within the study area that currently exceed their available lane storages in the existing peak hours however, the project queue increases at these locations as a result of the proposed clinic traffic are negligible.

## 6 Conclusions & Recommendations

The purpose of preparing a Traffic Impact Study is to identify the impact of the proposed substance use rehabilitation clinic's site generated traffic. The study efforts have indicated that the proposed development is expected to generate a total of 77 new trips (44 entering, 33 exiting) during the weekday morning peak hour, and no new trips during the weekday afternoon peak hour.

The capacity analysis revealed that none of the study area intersections will experience a decrease in intersection LOS as a result of the proposed clinic.

Upon review of the queue analysis, the proposed clinic will have minimal increases in queue lengths (one vehicle length or less) on all study area intersection approach lanes during the morning peak hour with the exception of the southbound through lane at the intersection of Capitol Avenue at I-84 Eastbound On/Off Ramps, which will experience a queue increase of up to two vehicles. Ample storage length exists on the I-84 Eastbound Off Ramp to accommodate this anticipated queue increase.

Review of the most recent three years of available crash data provided by the University of Connecticut Crash Data Repository indicated crash patterns that are not uncommon for urban intersections. The proposed clinic traffic is not expected to exacerbate existing crash patterns or negatively impact overall traffic safety within the study area.

Access to the proposed site will be provided via one enter only driveway on Oak Street and two exit only driveways, one on Oak Street and the other on Grand Street. The exit only driveways will be stop-controlled, and all driveways will provide one unrestricted lane of travel.

Sight lines and intersection safety were reviewed at the proposed site exit only driveway locations on Oak Street and Grand Street. Field measurements revealed that sufficient intersection sight distance exists for vehicles looking right or left to allow for safe egress from the proposed exit only driveways onto Oak Street or Grand Street. It should be noted that the field measurement was taken from 8 feet back from the edge of travel-way at the proposed driveway on Oak Street due to the existing fence. However, sufficient space is available for passenger cars to pull forward and have a clear line of sight exiting the exit only driveway on Oak Street.

Based on the results of the foregoing analysis, it is the professional opinion of Fuss & O'Neill, Inc. that the proposed development will not have a significant impact to traffic operations within the study area.

# Appendix A

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## Tables

**Table 1**

**Peak Hour Site Generated Traffic Volumes  
35 Lafayette Street  
Hartford, Connecticut**

<b>Substance Use Rehabilitation Clinic</b>	<b>Total Trips</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Weekday Morning Peak Hour</b>	77	44	33

Note: Trip generation based on manual turning movement counts conducted at the existing Root Center for Advanced Recovery Clinic at 345 Main Street in Hartford, Connecticut.  
The proposed clinic will be closed and will not be generating any trips during the afternoon peak hour.

**Table 2**

**Intersection Crash Data Summary  
35 Lafayette Street  
Hartford, Connecticut**

<b>Intersections</b>	<b>Crashes Per Year</b>			
	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Average/Year</b>
Capitol Avenue at I-84 Eastbound On/Off Ramps	10*	8	3	7
Capitol Avenue at Trinity Street/Washington Street	15	8	3	9
Park Street at Lafayette Street	4	9	1	5
Park Street at Oak Street	7	6	3	5

\*Values indicated are number of crashes within 200 feet of each intersection during time period shown.  
Data provided by the Connecticut Department of Transportation via the UConn Crash Data Repository.

**Table 3**

**Unsignalized Intersection Level Of Service Summary  
35 Lafayette Street  
Hartford, Connecticut**

<b>Two-Way Stop Controlled Intersections (Critical Movements)</b>	<b>2024 Weekday Morning Peak Hour</b>	
	<b>Background</b>	<b>Combined</b>
<b>Park Street at Lafayette Street</b>		
Eastbound Left Turn	LOS A*	LOS A
<b>Park Street at Oak Street</b>		
EB Left Turn	LOS A	LOS A
WB Left Turn	LOS A	LOS A
NB Approach	LOS B	LOS B
SB Approach	LOS B	LOS B

\*Values indicated are critical movement Level of Service (LOS)

**Table 4**

**Signalized Intersection Level of Service Summary  
35 Lafayette Street  
Hartford, Connecticut**

<b>Signalized Intersections</b>	<b>2024 Weekday Morning Peak Hour</b>	
	<b>Background</b>	<b>Combined</b>
Capitol Avenue at I-84 Eastbound On/Off Ramps	0.72/LOS C*	0.74/LOS C
EB Approach	LOS C	LOS C
WB Approach	LOS C	LOS C
NB Approach	LOS D	LOS D
SB Approach	LOS D	LOS D
Capitol Avenue at Trinity Street/Washington Street	0.54/LOS C	0.54/LOS C
EB Approach	LOS B	LOS B
WB Approach	LOS B	LOS B
NB Approach	LOS D	LOS D
SB Approach	LOS C	LOS C

\*Values indicated are intersection v/c Ratio/LOS



**Table 5**

**Weekday Morning Peak Hour Queue Length Summary  
35 Lafayette Street  
Hartford, Connecticut**

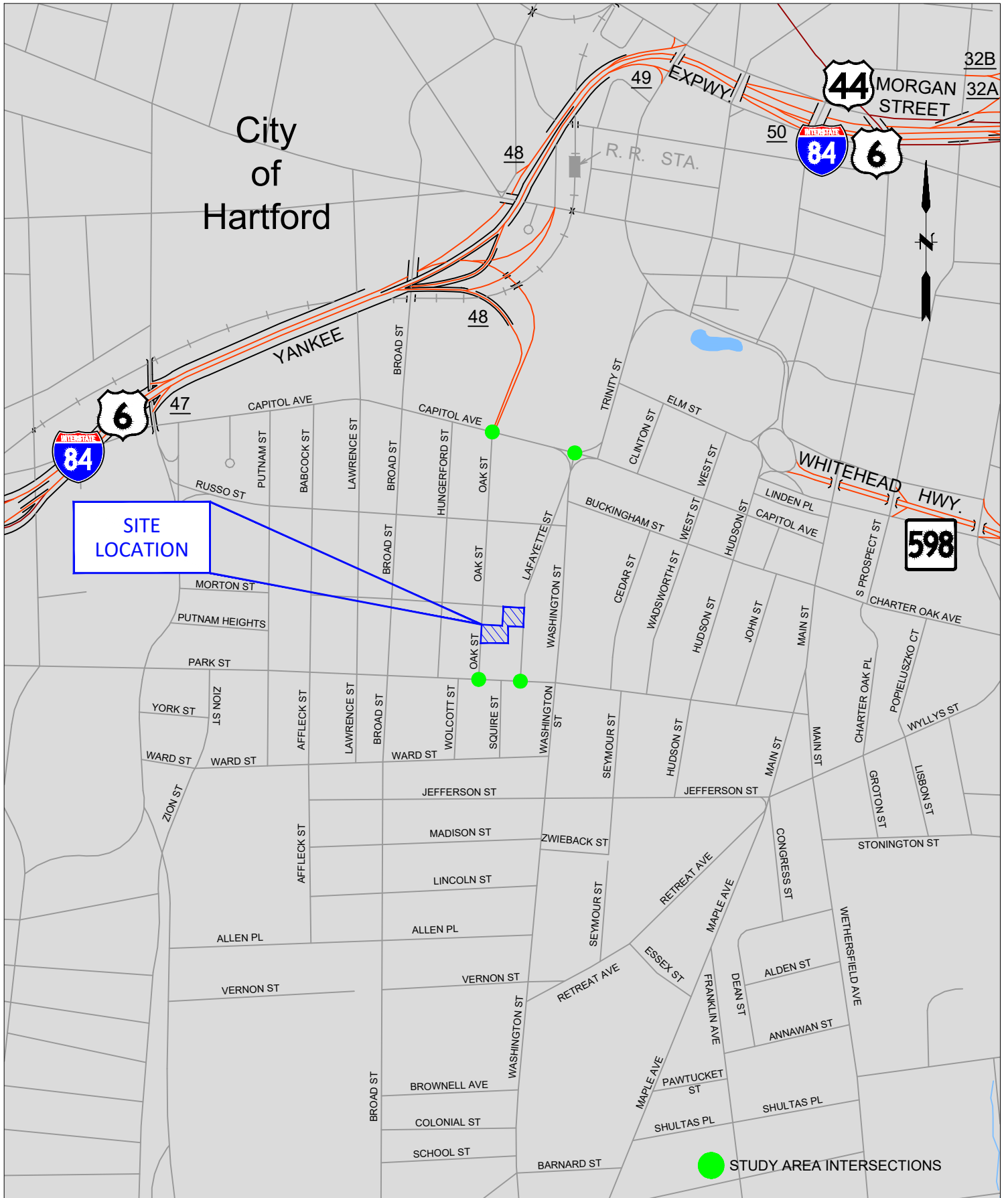
<b>Intersection</b>	<b>Approach Lane</b>	<b>2024 Background Queue</b>	<b>2024 Combined Queue</b>	<b>Available Storage</b>
Capitol Avenue at I-84 Eastbound On/Off Ramps	EB Left Turn	35 Feet	35 Feet	105 Feet
	EB Through/Right Turn	150 Feet	150 Feet	235 Feet
	WB Left Turn	40 Feet	40 Feet	240 Feet
	WB Through	335 Feet	335 Feet	240 Feet
	WB Right Turn	15 Feet	15 Feet	240 Feet
	NB Approach	55 Feet	65 Feet	355 Feet
	SB Left Turn	275 Feet	295 Feet	360 Feet
	SB Through	270 Feet	305 Feet	360 Feet
	SB Right Turn	35 Feet	35 Feet	280 Feet
Capitol Avenue at Trinity Street/Washington Street	EB Left Turn	30 Feet	30 Feet	190 Feet
	EB Through	230 Feet	230 Feet	190 Feet
	EB Right Turn	55 Feet	55 Feet	190 Feet
	WB Approach	125 Feet	125 Feet	285 Feet
	NB Left Turn	145 Feet	145 Feet	300 Feet
	NB Through/Right Turn	55 Feet	55 Feet	300 Feet
	NB Right Turn	40 Feet	40 Feet	100 Feet
	SB Left Turn	160 Feet	160 Feet	530 Feet
	SB Through	45 Feet	45 Feet	530 Feet
Park Street at Lafayette Street	EB Left Turn	0 Feet	0 Feet	105 Feet
	WB Left Turn	0 Feet	0 Feet	200 Feet
	NB Approach	5 Feet	5 Feet	>30 Feet
	SB Approach	10 Feet	10 Feet	410 Feet
Park Street at Oak Street	EB Left Turn	5 Feet	10 Feet	55 Feet

NOTE: Values indicated represent 95<sup>th</sup> percentile (design) vehicle queue lengths. Values are rounded to the nearest 5 feet.

## Appendix B

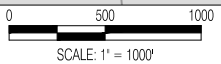
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### Figures



**SITE  
LOCATION**

**STUDY AREA INTERSECTIONS**



**FUSS & O'NEILL**

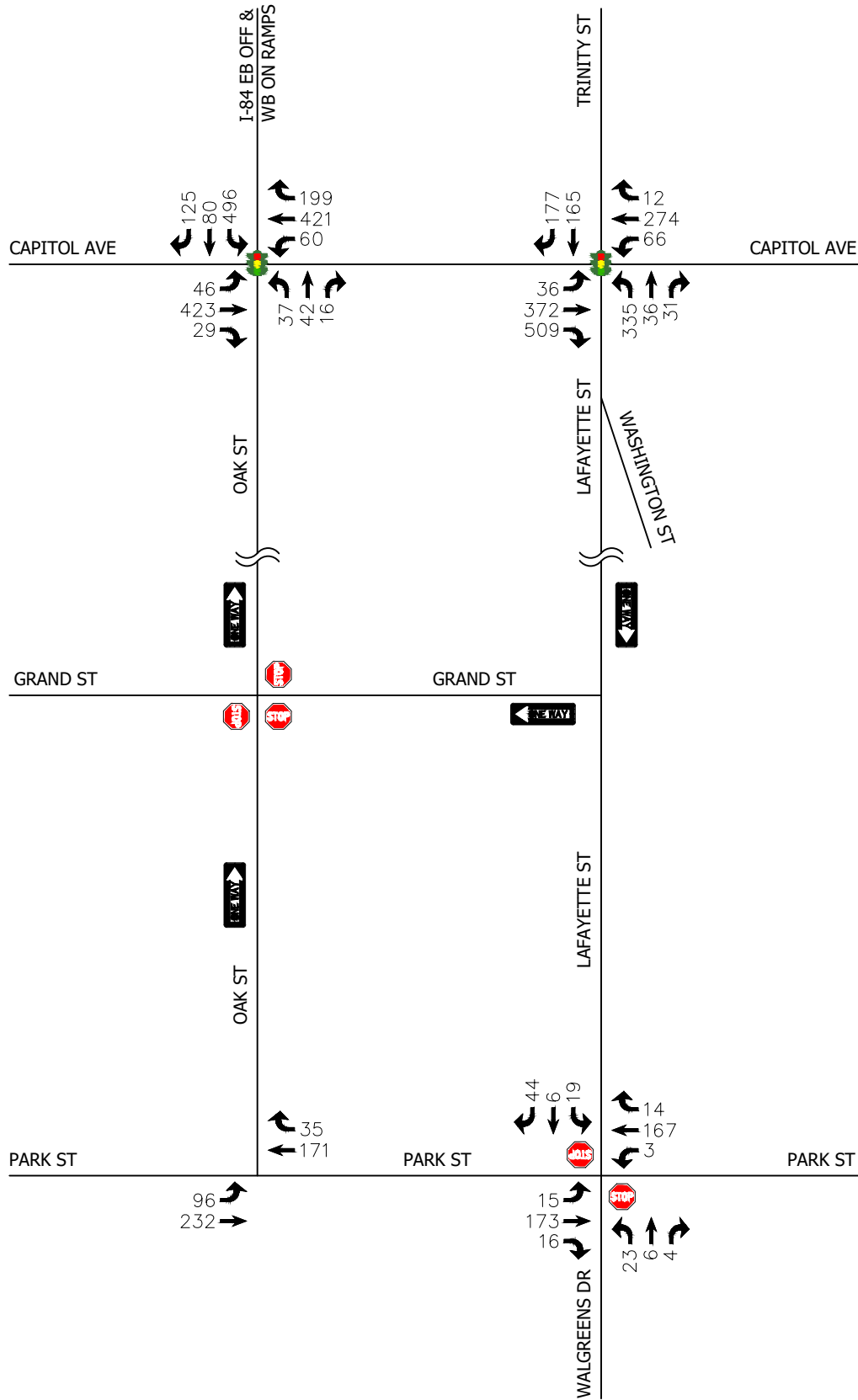
146 HARTFORD ROAD  
MANCHESTER, CONNECTICUT 06040  
860.646.2469  
www.fando.com

# FIGURE 1: SITE LOCATION MAP

PROJ. NO: 20220574.T10

35 LAFAYETTE STREET

DECEMBER 2022



XX = WEEKDAY MORNING PEAK HOUR



**FUSS & O'NEILL**

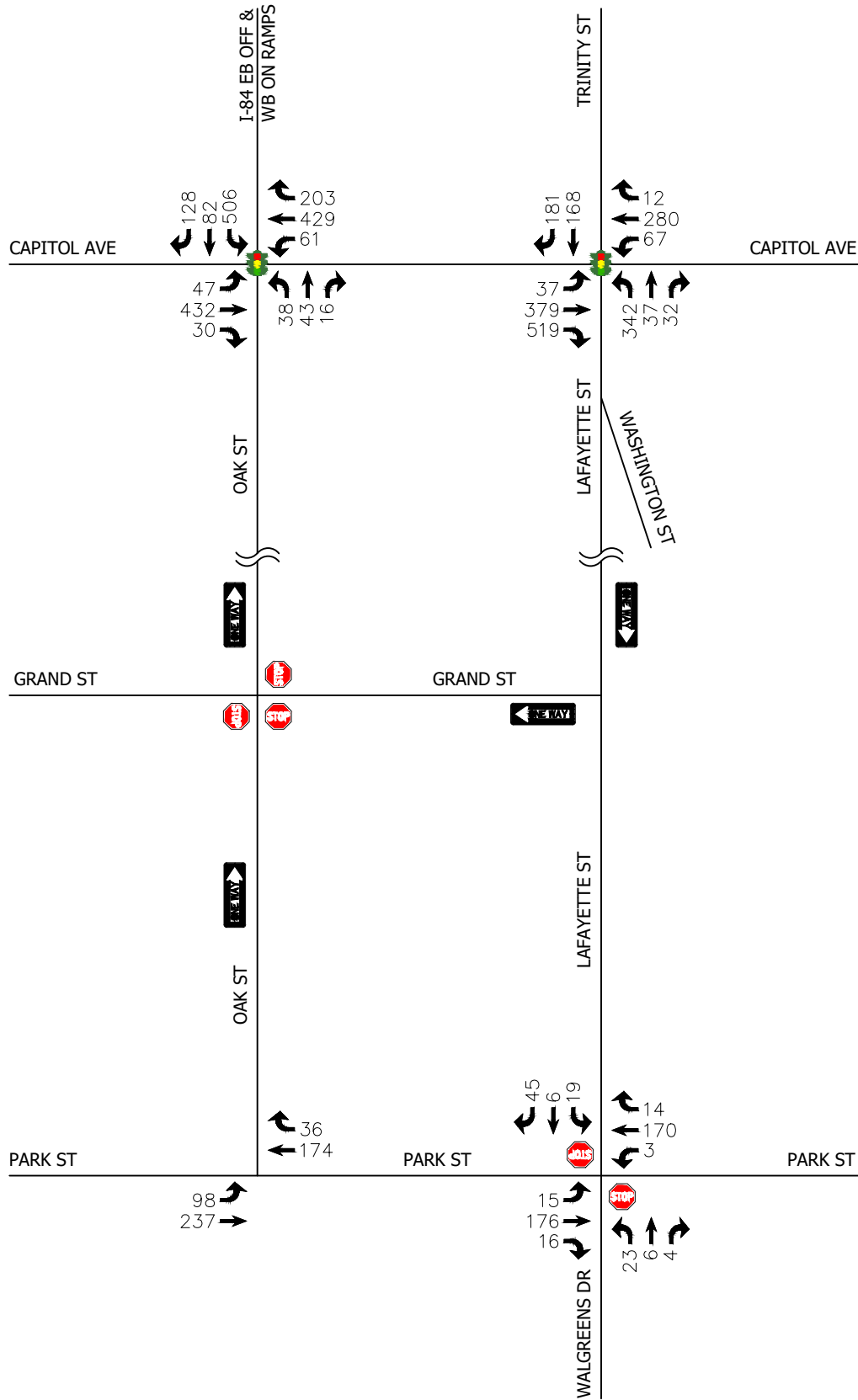
146 HARTFORD ROAD  
MANCHESTER, CONNECTICUT 06040  
860.646.2469  
www.fando.com

## FIGURE 2: 2022 EXISTING TRAFFIC VOLUMES

PROJ. NO: 20220574.T10

35 LAFAYETTE STREET

DECEMBER 2022



XX = WEEKDAY MORNING PEAK HOUR



**FUSS & O'NEILL**

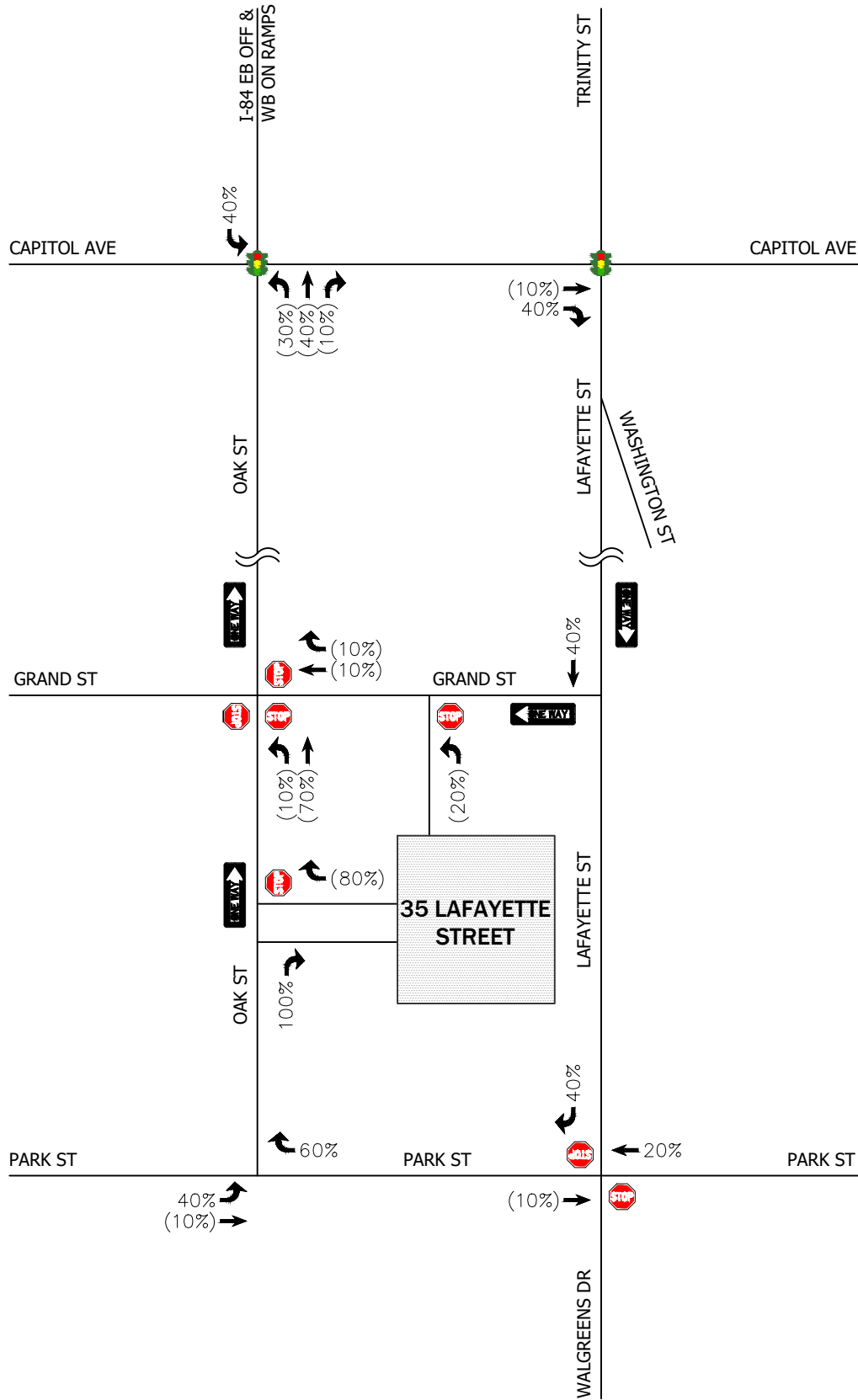
146 HARTFORD ROAD  
 MANCHESTER, CONNECTICUT 06040  
 860.646.2469  
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## FIGURE 3: 2024 BACKGROUND TRAFFIC VOLUMES

PROJ. NO: 20220574.T10

35 LAFAYETTE STREET

DECEMBER 2022



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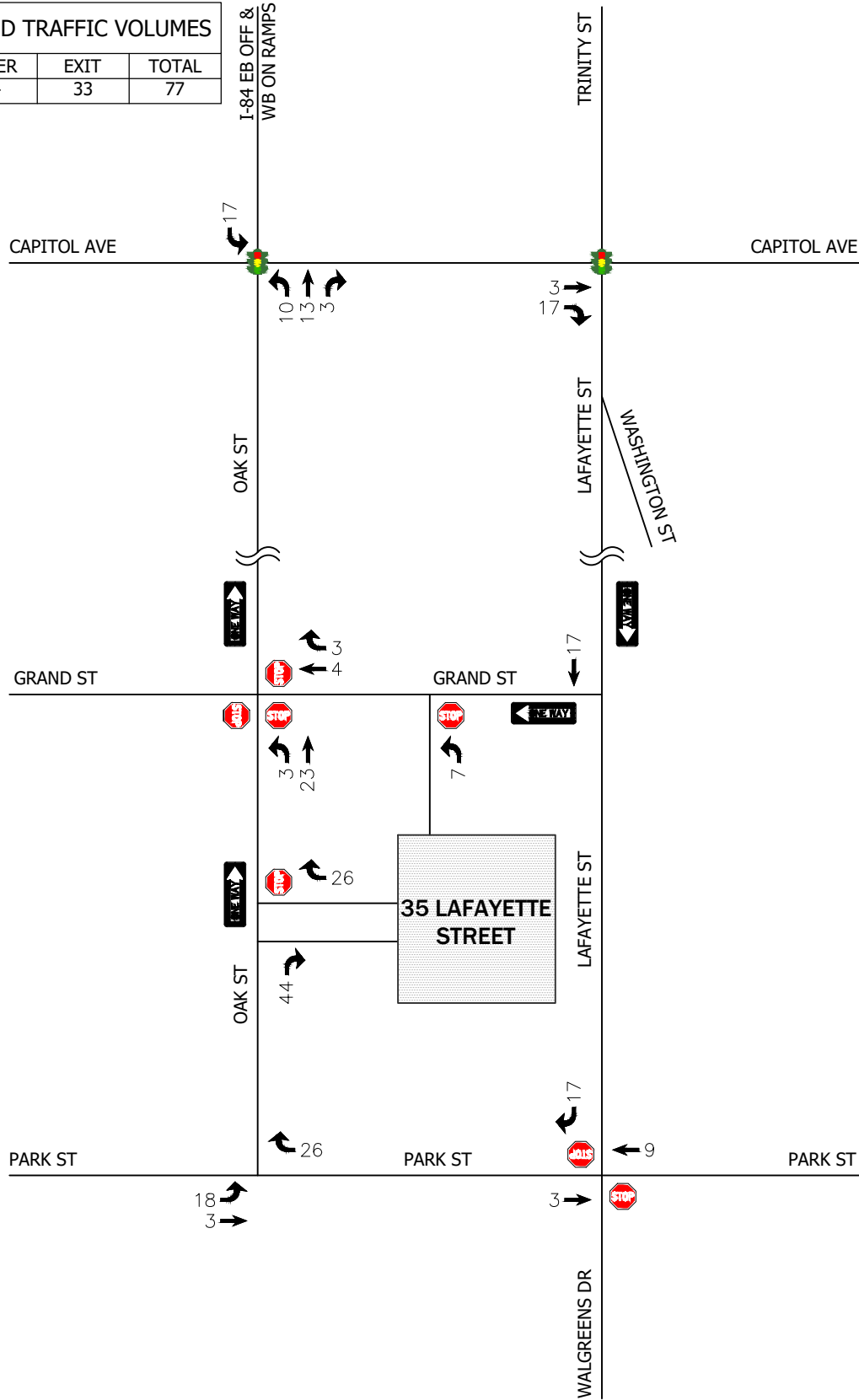
## FIGURE 4: SITE GENERATED TRAFFIC DISTRIBUTION

PROJ. NO: 20220574.T10

35 LAFAYETTE STREET

DECEMBER 2022

SITE GENERATED TRAFFIC VOLUMES			
	ENTER	EXIT	TOTAL
MORNING	44	33	77



XX = WEEKDAY MORNING PEAK HOUR



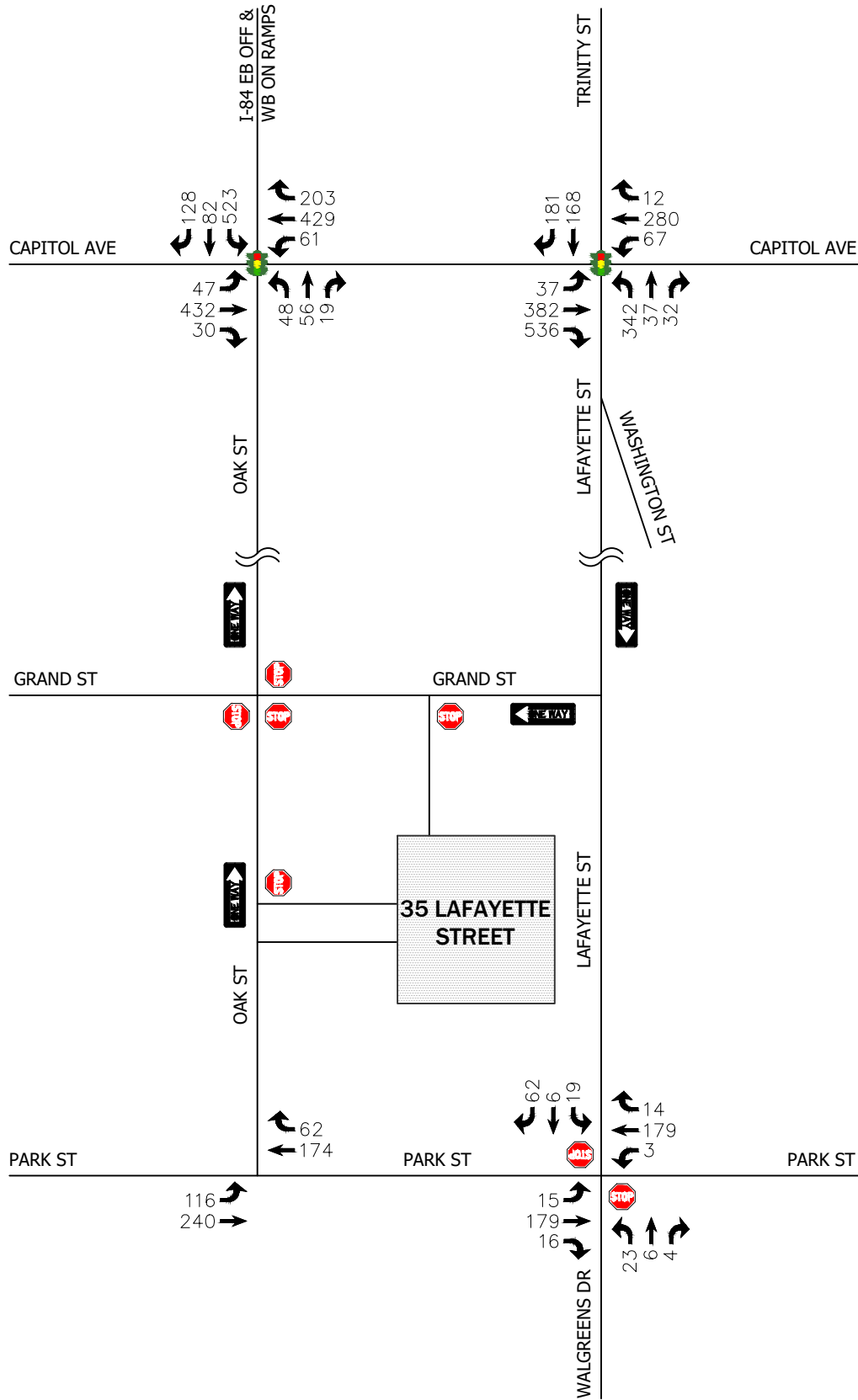
**FUSS & O'NEILL**  
 146 HARTFORD ROAD  
 MANCHESTER, CONNECTICUT 06040  
 860.646.2469  
 www.fando.com

## FIGURE 5: SITE GENERATED TRAFFIC VOLUMES

PROJ. NO: 20220574.T10

35 LAFAYETTE STREET

DECEMBER 2022



XX = WEEKDAY MORNING PEAK HOUR



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**FIGURE 6: 2024 COMBINED TRAFFIC VOLUMES**

PROJ. NO: 20220574.T10

35 LAFAYETTE STREET

DECEMBER 2022



## Appendix C

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Intersection Capacity Analysis Worksheets  
2024 Background Traffic Volumes  
Weekday Morning Peak Hour

Lanes, Volumes, Timings  
 1: Oak Street/I-84 EB On/Off Ramps & Capitol Avenue

2024 Background Conditions  
 Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	432	30	61	429	203	38	43	16	506	82	128
Future Volume (vph)	47	432	30	61	429	203	38	43	16	506	82	128
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	0		0	0		0
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (ft)	70			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Frt		0.990				0.850		0.975				0.850
Flt Protected	0.950			0.950				0.981		0.950	0.965	
Satd. Flow (prot)	1719	3384	0	1787	1776	1599	0	3398	0	1681	1717	1599
Flt Permitted	0.227			0.363				0.981		0.950	0.965	
Satd. Flow (perm)	411	3384	0	683	1776	1599	0	3398	0	1681	1717	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		9				251						158
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		294			305			289			452	
Travel Time (s)		6.7			6.9			6.6			10.3	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	5%	6%	0%	1%	7%	1%	2%	0%	5%	2%	0%	1%
Adj. Flow (vph)	58	533	37	75	530	251	47	53	20	625	101	158
Shared Lane Traffic (%)										42%		
Lane Group Flow (vph)	58	570	0	75	530	251	0	120	0	362	364	158
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	pt+ov	custom	NA		Split	NA	Prot
Protected Phases	5	2		1	6	4 6	8	8		4	4	4

Lanes, Volumes, Timings  
 1: Oak Street/I-84 EB On/Off Ramps & Capitol Avenue

2024 Background Conditions  
 Weekday Morning Peak Hour

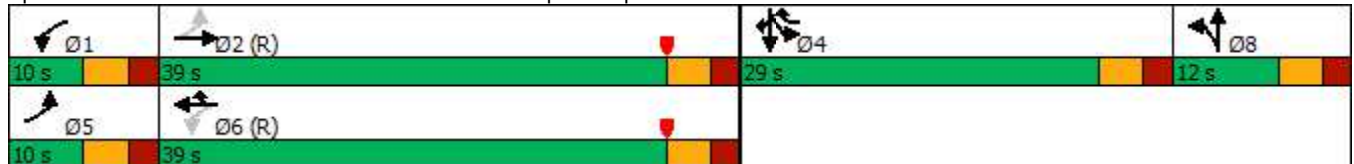


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8					
Detector Phase	5	2		1	6	4 6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	10.0	20.0		10.0	20.0		12.0	12.0		12.0	12.0	12.0
Total Split (s)	10.0	39.0		10.0	39.0		12.0	12.0		29.0	29.0	29.0
Total Split (%)	11.1%	43.3%		11.1%	43.3%		13.3%	13.3%		32.2%	32.2%	32.2%
Maximum Green (s)	5.0	34.0		5.0	34.0		7.0	7.0		24.0	24.0	24.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	Max
Act Effct Green (s)	40.0	36.0		40.0	36.0	65.0		7.0		24.0	24.0	24.0
Actuated g/C Ratio	0.44	0.40		0.44	0.40	0.72		0.08		0.27	0.27	0.27
v/c Ratio	0.23	0.42		0.21	0.75	0.21		0.45		0.81	0.80	0.29
Control Delay	14.6	21.0		13.9	32.1	1.0		45.6		46.7	45.5	6.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Delay	14.6	21.0		13.9	32.1	1.0		45.6		46.7	45.5	6.0
LOS	B	C		B	C	A		D		D	D	A
Approach Delay		20.4			21.4			45.6			38.9	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 28.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 62.1%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 1: Oak Street/I-84 EB On/Off Ramps & Capitol Avenue



Queues  
1: Oak Street/I-84 EB On/Off Ramps & Capitol Avenue

2024 Background Conditions  
Weekday Morning Peak Hour

























Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	58	570	75	530	251	120	362	364	158
v/c Ratio	0.23	0.42	0.21	0.75	0.21	0.45	0.81	0.80	0.29
Control Delay	14.6	21.0	13.9	32.1	1.0	45.6	46.7	45.5	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	21.0	13.9	32.1	1.0	45.6	46.7	45.5	6.0
Queue Length 50th (ft)	17	123	22	263	0	35	202	203	0
Queue Length 95th (ft)	33	148	40	334	13	56	#277	271	33
Internal Link Dist (ft)		214		225		209		372	
Turn Bay Length (ft)	100								
Base Capacity (vph)	255	1359	365	710	1224	264	448	457	542
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.42	0.21	0.75	0.21	0.45	0.81	0.80	0.29

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 1: Oak Street/I-84 EB On/Off Ramps & Capitol Avenue

2024 Background Conditions  
 Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	432	30	61	429	203	38	43	16	506	82	128
Future Volume (vph)	47	432	30	61	429	203	38	43	16	506	82	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0		5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		0.95		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98		0.95	0.97	1.00
Satd. Flow (prot)	1719	3385		1787	1776	1599		3397		1681	1717	1599
Flt Permitted	0.23	1.00		0.36	1.00	1.00		0.98		0.95	0.97	1.00
Satd. Flow (perm)	412	3385		682	1776	1599		3397		1681	1717	1599
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	58	533	37	75	530	251	47	53	20	625	101	158
RTOR Reduction (vph)	0	6	0	0	0	73	0	0	0	0	0	116
Lane Group Flow (vph)	58	565	0	75	530	178	0	120	0	362	364	42
Heavy Vehicles (%)	5%	6%	0%	1%	7%	1%	2%	0%	5%	2%	0%	1%
Turn Type	pm+pt	NA		pm+pt	NA	pt+ov	custom	NA		Split	NA	Prot
Protected Phases	5	2		1	6	4	6	8		4	4	4
Permitted Phases	2			6			8					
Actuated Green, G (s)	39.0	35.0		39.0	35.0	64.0		7.0		24.0	24.0	24.0
Effective Green, g (s)	39.0	35.0		39.0	35.0	64.0		7.0		24.0	24.0	24.0
Actuated g/C Ratio	0.43	0.39		0.43	0.39	0.71		0.08		0.27	0.27	0.27
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	236	1316		344	690	1137		264		448	457	426
v/s Ratio Prot	c0.01	0.17		0.01	c0.30	0.11		c0.04		c0.22	0.21	0.03
v/s Ratio Perm	0.10			0.08								
v/c Ratio	0.25	0.43		0.22	0.77	0.16		0.45		0.81	0.80	0.10
Uniform Delay, d1	16.9	20.2		15.3	24.0	4.2		39.7		30.8	30.7	24.9
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	1.0		0.3	8.0	0.3		5.6		14.5	13.4	0.5
Delay (s)	17.4	21.2		15.6	32.0	4.5		45.2		45.3	44.2	25.3
Level of Service	B	C		B	C	A		D		D	D	C
Approach Delay (s)		20.8			22.5			45.2			41.3	
Approach LOS		C			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			29.8	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			90.0	Sum of lost time (s)				20.0				
Intersection Capacity Utilization			62.1%	ICU Level of Service				B				
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
2: Washington Street/Trinity Street & Capitol Avenue

2024 Background Conditions  
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	379	519	67	280	12	342	37	32	0	168	181
Future Volume (vph)	37	379	519	67	280	12	342	37	32	0	168	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.97	0.95	0.95	1.00	1.00	1.00
Fr <sub>t</sub>			0.850		0.995			0.990	0.850			0.850
Fl <sub>t</sub> Protected	0.950				0.991		0.950					
Satd. Flow (prot)	1597	1900	1615	0	3555	0	3502	1708	1534	0	1900	1568
Fl <sub>t</sub> Permitted	0.523				0.764		0.950					
Satd. Flow (perm)	879	1900	1615	0	2741	0	3502	1708	1534	0	1900	1568
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			558		4							195
Link Speed (mph)		30			30			30				30
Link Distance (ft)		289			479			263				371
Travel Time (s)		6.6			10.9			6.0				8.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	13%	0%	0%	0%	0%	4%	0%	5%	0%	0%	0%	3%
Adj. Flow (vph)	40	408	558	72	301	13	368	40	34	0	181	195
Shared Lane Traffic (%)									10%			
Lane Group Flow (vph)	40	408	558	0	386	0	368	43	31	0	181	195
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1		2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right		Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20		100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0		0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20		6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA	Prot		NA	custom
Protected Phases		1 2			1		4	4	4		3	2 3
Permitted Phases	1 2		1 2	1								
Detector Phase	1 2	1 2	1 2	1	1		4	4	4		3	2 3
Switch Phase												

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Fr1	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	
Switch Phase	

Lanes, Volumes, Timings  
 2: Washington Street/Trinity Street & Capitol Avenue

2024 Background Conditions  
 Weekday Morning Peak Hour

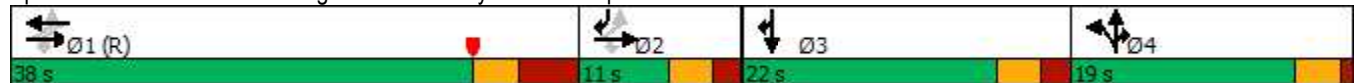


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)				5.0	5.0		5.0	5.0	5.0		5.0	
Minimum Split (s)				12.0	12.0		9.0	9.0	9.0		10.0	
Total Split (s)				38.0	38.0		19.0	19.0	19.0		22.0	
Total Split (%)				42.2%	42.2%		21.1%	21.1%	21.1%		24.4%	
Maximum Green (s)				31.0	31.0		15.0	15.0	15.0		17.0	
Yellow Time (s)				3.0	3.0		3.0	3.0	3.0		3.0	
All-Red Time (s)				4.0	4.0		1.0	1.0	1.0		2.0	
Lost Time Adjust (s)					0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)					7.0		4.0	4.0	4.0		5.0	
Lead/Lag				Lead	Lead		Lag	Lag	Lag		Lead	
Lead-Lag Optimize?				Yes	Yes		Yes	Yes	Yes		Yes	
Vehicle Extension (s)				3.0	3.0		3.0	3.0	3.0		3.0	
Recall Mode				C-Max	C-Max		None	None	None		None	
Act Effct Green (s)	46.7	46.7	46.7		35.7		13.9	13.9	13.9		13.4	24.4
Actuated g/C Ratio	0.52	0.52	0.52		0.40		0.15	0.15	0.15		0.15	0.27
v/c Ratio	0.09	0.41	0.50		0.35		0.68	0.16	0.13		0.64	0.34
Control Delay	13.5	16.0	3.1		21.2		42.6	33.8	33.4		46.1	5.4
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	13.5	16.0	3.1		21.2		42.6	33.8	33.4		46.1	5.4
LOS	B	B	A		C		D	C	C		D	A
Approach Delay		8.8			21.2			41.1			25.0	
Approach LOS		A			C			D			C	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 1:EBWB, Start of Yellow
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	20.2
Intersection LOS:	C
Intersection Capacity Utilization:	67.8%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 2: Washington Street/Trinity Street & Capitol Avenue





Lane Group	Ø2
Minimum Initial (s)	5.0
Minimum Split (s)	10.0
Total Split (s)	11.0
Total Split (%)	12%
Maximum Green (s)	6.0
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Queues  
2: Washington Street/Trinity Street & Capitol Avenue

2024 Background Conditions  
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Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	40	408	558	386	368	43	31	181	195
v/c Ratio	0.09	0.41	0.50	0.35	0.68	0.16	0.13	0.64	0.34
Control Delay	13.5	16.0	3.1	21.2	42.6	33.8	33.4	46.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	16.0	3.1	21.2	42.6	33.8	33.4	46.1	5.4
Queue Length 50th (ft)	11	139	0	80	102	22	15	98	0
Queue Length 95th (ft)	31	230	54	126	147	53	42	158	46
Internal Link Dist (ft)		209		399		183		291	
Turn Bay Length (ft)									
Base Capacity (vph)	456	985	1106	1088	592	289	259	358	622
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.41	0.50	0.35	0.62	0.15	0.12	0.51	0.31
Intersection Summary									

HCM Signalized Intersection Capacity Analysis  
2: Washington Street/Trinity Street & Capitol Avenue

2024 Background Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	379	519	67	280	12	342	37	32	0	168	181
Future Volume (vph)	37	379	519	67	280	12	342	37	32	0	168	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0		7.0		4.0	4.0	4.0		5.0	5.0
Lane Util. Factor	1.00	1.00	1.00		0.95		0.97	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.85		0.99		1.00	0.99	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1597	1900	1615		3554		3502	1707	1534		1900	1568
Flt Permitted	0.52	1.00	1.00		0.76		0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	880	1900	1615		2739		3502	1707	1534		1900	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	40	408	558	72	301	13	368	40	34	0	181	195
RTOR Reduction (vph)	0	0	256	0	2	0	0	0	0	0	0	142
Lane Group Flow (vph)	40	408	302	0	384	0	368	43	31	0	181	53
Heavy Vehicles (%)	13%	0%	0%	0%	0%	4%	0%	5%	0%	0%	0%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA	Prot		NA	custom
Protected Phases		1 2			1		4	4	4		3	2 3
Permitted Phases	1 2		1 2	1								
Actuated Green, G (s)	48.7	48.7	48.7		35.7		13.9	13.9	13.9		13.4	24.4
Effective Green, g (s)	48.7	48.7	48.7		35.7		13.9	13.9	13.9		13.4	24.4
Actuated g/C Ratio	0.54	0.54	0.54		0.40		0.15	0.15	0.15		0.15	0.27
Clearance Time (s)					7.0		4.0	4.0	4.0		5.0	
Vehicle Extension (s)					3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	476	1028	873		1086		540	263	236		282	425
v/s Ratio Prot		c0.21					c0.11	0.03	0.02		c0.10	0.03
v/s Ratio Perm	0.05		0.19		0.14							
v/c Ratio	0.08	0.40	0.35		0.35		0.68	0.16	0.13		0.64	0.12
Uniform Delay, d1	9.9	12.1	11.7		19.0		36.0	33.0	32.8		36.0	24.7
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.3	0.2		0.9		3.5	0.3	0.3		4.9	0.1
Delay (s)	10.0	12.3	11.9		20.0		39.5	33.3	33.1		41.0	24.9
Level of Service	B	B	B		B		D	C	C		D	C
Approach Delay (s)		12.0			20.0			38.4			32.6	
Approach LOS		B			B			D			C	

Intersection Summary

HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
 3: Walgreens Drive/Lafayette Street & Park Street

2024 Background Conditions  
 Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	15	176	16	3	170	14	23	6	4	19	6	45
Future Volume (vph)	15	176	16	3	170	14	23	6	4	19	6	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.990			0.990			0.985			0.913	
Fl <sub>t</sub> Protected		0.996			0.999			0.966			0.987	
Satd. Flow (prot)	0	1731	0	0	1782	0	0	1808	0	0	1667	0
Fl <sub>t</sub> Permitted		0.996			0.999			0.966			0.987	
Satd. Flow (perm)	0	1731	0	0	1782	0	0	1808	0	0	1667	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		350			280			199			399	
Travel Time (s)		8.0			6.4			4.5			9.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	9%	3%	0%	6%	0%	0%	0%	0%	3%	0%	3%
Adj. Flow (vph)	17	198	18	3	191	16	26	7	4	21	7	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	233	0	0	210	0	0	37	0	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 3: Walgreens Drive/Lafayette Street & Park Street

2024 Background Conditions  
 Weekday Morning Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	15	176	16	3	170	14	23	6	4	19	6	45
Future Volume (Veh/h)	15	176	16	3	170	14	23	6	4	19	6	45
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	17	198	18	3	191	16	26	7	4	21	7	51
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	207			216			500	454	207	454	455	199
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	207			216			500	454	207	454	455	199
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			94	99	100	96	99	94
cM capacity (veh/h)	1346			1366			445	497	839	501	497	839
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	233	210	37	79								
Volume Left	17	3	26	21								
Volume Right	18	16	4	51								
cSH	1346	1366	479	677								
Volume to Capacity	0.01	0.00	0.08	0.12								
Queue Length 95th (ft)	1	0	6	10								
Control Delay (s)	0.7	0.1	13.2	11.0								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.7	0.1	13.2	11.0								
Approach LOS			B	B								
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			29.6%	ICU Level of Service		A						
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Park Street & Oak Street

2024 Background Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔			
Traffic Volume (vph)	98	237	174	36	0	0
Future Volume (vph)	98	237	174	36	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>			0.977			
Fl <sub>t</sub> Protected		0.986				
Satd. Flow (prot)	0	1768	1757	0	0	0
Fl <sub>t</sub> Permitted		0.986				
Satd. Flow (perm)	0	1768	1757	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		315	350		481	
Travel Time (s)		7.2	8.0		10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	8%	6%	4%	0%	0%
Adj. Flow (vph)	107	258	189	39	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	365	228	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
4: Park Street & Oak Street

2024 Background Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔			
Traffic Volume (veh/h)	98	237	174	36	0	0
Future Volume (Veh/h)	98	237	174	36	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	107	258	189	39	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	228				680	208
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	228				680	208
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				100	100
cM capacity (veh/h)	1346				386	837
Direction, Lane #						
	EB 1	WB 1				
Volume Total	365	228				
Volume Left	107	0				
Volume Right	0	39				
cSH	1346	1700				
Volume to Capacity	0.08	0.13				
Queue Length 95th (ft)	6	0				
Control Delay (s)	2.8	0.0				
Lane LOS	A					
Approach Delay (s)	2.8	0.0				
Approach LOS						
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			35.9%		ICU Level of Service	A
Analysis Period (min)			15			

## **Appendix C**























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Intersection Capacity Analysis Worksheets  
2024 Combined Traffic Volumes  
Weekday Morning Peak Hour



Lanes, Volumes, Timings  
 1: Oak Street/I-84 EB On/Off Ramps & Capitol Avenue

2024 Combined Conditions  
 Weekday Morning Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	432	30	61	429	203	48	56	19	523	82	128
Future Volume (vph)	47	432	30	61	429	203	48	56	19	523	82	128
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	0		0	0		0
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (ft)	70			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Frt		0.990				0.850		0.977				0.850
Flt Protected	0.950			0.950				0.981		0.950	0.965	
Satd. Flow (prot)	1719	3384	0	1787	1776	1599	0	3407	0	1681	1717	1599
Flt Permitted	0.227			0.363				0.981		0.950	0.965	
Satd. Flow (perm)	411	3384	0	683	1776	1599	0	3407	0	1681	1717	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		9				251						158
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		294			305			289			452	
Travel Time (s)		6.7			6.9			6.6			10.3	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	5%	6%	0%	1%	7%	1%	2%	0%	5%	2%	0%	1%
Adj. Flow (vph)	58	533	37	75	530	251	59	69	23	646	101	158
Shared Lane Traffic (%)										43%		
Lane Group Flow (vph)	58	570	0	75	530	251	0	151	0	368	379	158
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	pt+ov	custom	NA		Split	NA	Prot
Protected Phases	5	2		1	6	4 6	8	8		4	4	4

Lanes, Volumes, Timings  
 1: Oak Street/I-84 EB On/Off Ramps & Capitol Avenue

2024 Combined Conditions  
 Weekday Morning Peak Hour

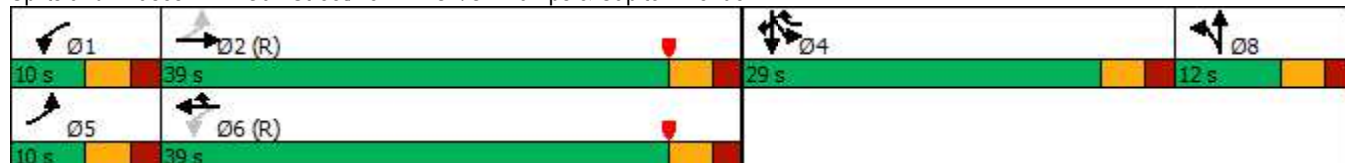


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			8					
Detector Phase	5	2		1	6	4 6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	10.0	20.0		10.0	20.0		12.0	12.0		12.0	12.0	12.0
Total Split (s)	10.0	39.0		10.0	39.0		12.0	12.0		29.0	29.0	29.0
Total Split (%)	11.1%	43.3%		11.1%	43.3%		13.3%	13.3%		32.2%	32.2%	32.2%
Maximum Green (s)	5.0	34.0		5.0	34.0		7.0	7.0		24.0	24.0	24.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		Max	Max		Max	Max	Max
Act Effct Green (s)	40.0	36.0		40.0	36.0	65.0		7.0		24.0	24.0	24.0
Actuated g/C Ratio	0.44	0.40		0.44	0.40	0.72		0.08		0.27	0.27	0.27
v/c Ratio	0.23	0.42		0.21	0.75	0.21		0.57		0.82	0.83	0.29
Control Delay	14.6	21.0		13.9	32.1	1.0		49.1		47.9	48.3	6.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Delay	14.6	21.0		13.9	32.1	1.0		49.1		47.9	48.3	6.0
LOS	B	C		B	C	A		D		D	D	A
Approach Delay		20.4			21.4			49.1			40.8	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 29.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 62.6%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 1: Oak Street/I-84 EB On/Off Ramps & Capitol Avenue



Queues  
1: Oak Street/I-84 EB On/Off Ramps & Capitol Avenue

2024 Combined Conditions  
Weekday Morning Peak Hour

























Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	58	570	75	530	251	151	368	379	158
v/c Ratio	0.23	0.42	0.21	0.75	0.21	0.57	0.82	0.83	0.29
Control Delay	14.6	21.0	13.9	32.1	1.0	49.1	47.9	48.3	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	21.0	13.9	32.1	1.0	49.1	47.9	48.3	6.0
Queue Length 50th (ft)	17	123	22	263	0	44	206	213	0
Queue Length 95th (ft)	33	148	40	334	13	67	#296	#304	33
Internal Link Dist (ft)		214		225		209		372	
Turn Bay Length (ft)	100								
Base Capacity (vph)	255	1359	365	710	1224	264	448	457	542
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.42	0.21	0.75	0.21	0.57	0.82	0.83	0.29

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 1: Oak Street/I-84 EB On/Off Ramps & Capitol Avenue

2024 Combined Conditions  
 Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	432	30	61	429	203	48	56	19	523	82	128
Future Volume (vph)	47	432	30	61	429	203	48	56	19	523	82	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0		5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		0.95		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98		0.95	0.96	1.00
Satd. Flow (prot)	1719	3385		1787	1776	1599		3407		1681	1716	1599
Flt Permitted	0.23	1.00		0.36	1.00	1.00		0.98		0.95	0.96	1.00
Satd. Flow (perm)	412	3385		682	1776	1599		3407		1681	1716	1599
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	58	533	37	75	530	251	59	69	23	646	101	158
RTOR Reduction (vph)	0	6	0	0	0	73	0	0	0	0	0	116
Lane Group Flow (vph)	58	565	0	75	530	178	0	151	0	368	379	42
Heavy Vehicles (%)	5%	6%	0%	1%	7%	1%	2%	0%	5%	2%	0%	1%
Turn Type	pm+pt	NA		pm+pt	NA	pt+ov	custom	NA		Split	NA	Prot
Protected Phases	5	2		1	6	4	6	8		4	4	4
Permitted Phases	2			6			8					
Actuated Green, G (s)	39.0	35.0		39.0	35.0	64.0		7.0		24.0	24.0	24.0
Effective Green, g (s)	39.0	35.0		39.0	35.0	64.0		7.0		24.0	24.0	24.0
Actuated g/C Ratio	0.43	0.39		0.43	0.39	0.71		0.08		0.27	0.27	0.27
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	236	1316		344	690	1137		264		448	457	426
v/s Ratio Prot	c0.01	0.17		0.01	c0.30	0.11		c0.04		0.22	c0.22	0.03
v/s Ratio Perm	0.10			0.08								
v/c Ratio	0.25	0.43		0.22	0.77	0.16		0.57		0.82	0.83	0.10
Uniform Delay, d1	16.9	20.2		15.3	24.0	4.2		40.1		31.0	31.1	24.9
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	1.0		0.3	8.0	0.3		8.7		15.5	15.9	0.5
Delay (s)	17.4	21.2		15.6	32.0	4.5		48.8		46.5	46.9	25.3
Level of Service	B	C		B	C	A		D		D	D	C
Approach Delay (s)		20.8			22.5			48.8			43.0	
Approach LOS		C			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			30.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		20.0			
Intersection Capacity Utilization			62.6%				ICU Level of Service		B			
Analysis Period (min)			15									
c	Critical Lane Group											

Lanes, Volumes, Timings  
2: Washington Street/Trinity Street & Capitol Avenue

2024 Combined Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	382	536	67	280	12	342	37	32	0	168	181
Future Volume (vph)	37	382	536	67	280	12	342	37	32	0	168	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.97	0.95	0.95	1.00	1.00	1.00
Fr <sub>t</sub>			0.850		0.995			0.990	0.850			0.850
Fl <sub>t</sub> Protected	0.950				0.991		0.950					
Satd. Flow (prot)	1597	1900	1615	0	3555	0	3502	1708	1534	0	1900	1568
Fl <sub>t</sub> Permitted	0.523				0.762		0.950					
Satd. Flow (perm)	879	1900	1615	0	2733	0	3502	1708	1534	0	1900	1568
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			576		4							195
Link Speed (mph)		30			30			30				30
Link Distance (ft)		289			479			263				371
Travel Time (s)		6.6			10.9			6.0				8.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	13%	0%	0%	0%	0%	4%	0%	5%	0%	0%	0%	3%
Adj. Flow (vph)	40	411	576	72	301	13	368	40	34	0	181	195
Shared Lane Traffic (%)									10%			
Lane Group Flow (vph)	40	411	576	0	386	0	368	43	31	0	181	195
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1		2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right		Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20		100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0		0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20		6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA	Prot		NA	custom
Protected Phases		1 2			1		4	4	4		3	2 3
Permitted Phases	1 2		1 2	1								
Detector Phase	1 2	1 2	1 2	1	1		4	4	4		3	2 3
Switch Phase												

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frts	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	
Switch Phase	

Lanes, Volumes, Timings  
2: Washington Street/Trinity Street & Capitol Avenue

2024 Combined Conditions  
Weekday Morning Peak Hour

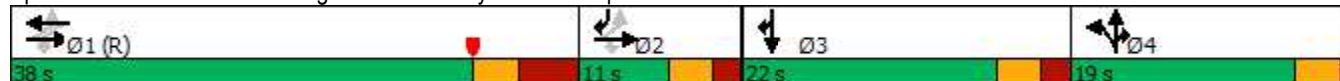


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)				5.0	5.0		5.0	5.0	5.0		5.0	
Minimum Split (s)				12.0	12.0		9.0	9.0	9.0		10.0	
Total Split (s)				38.0	38.0		19.0	19.0	19.0		22.0	
Total Split (%)				42.2%	42.2%		21.1%	21.1%	21.1%		24.4%	
Maximum Green (s)				31.0	31.0		15.0	15.0	15.0		17.0	
Yellow Time (s)				3.0	3.0		3.0	3.0	3.0		3.0	
All-Red Time (s)				4.0	4.0		1.0	1.0	1.0		2.0	
Lost Time Adjust (s)					0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)					7.0		4.0	4.0	4.0		5.0	
Lead/Lag				Lead	Lead		Lag	Lag	Lag		Lead	
Lead-Lag Optimize?				Yes	Yes		Yes	Yes	Yes		Yes	
Vehicle Extension (s)				3.0	3.0		3.0	3.0	3.0		3.0	
Recall Mode				C-Max	C-Max		None	None	None		None	
Act Effct Green (s)	46.7	46.7	46.7		35.7		13.9	13.9	13.9		13.4	24.4
Actuated g/C Ratio	0.52	0.52	0.52		0.40		0.15	0.15	0.15		0.15	0.27
v/c Ratio	0.09	0.42	0.52		0.36		0.68	0.16	0.13		0.64	0.34
Control Delay	13.5	16.0	3.2		21.2		42.6	33.8	33.4		46.1	5.4
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	13.5	16.0	3.2		21.2		42.6	33.8	33.4		46.1	5.4
LOS	B	B	A		C		D	C	C		D	A
Approach Delay		8.7			21.2			41.1			25.0	
Approach LOS		A			C			D			C	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 1:EBWB, Start of Yellow
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	20.1
Intersection LOS:	C
Intersection Capacity Utilization:	67.9%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 2: Washington Street/Trinity Street & Capitol Avenue



Lane Group	Ø2
Minimum Initial (s)	5.0
Minimum Split (s)	10.0
Total Split (s)	11.0
Total Split (%)	12%
Maximum Green (s)	6.0
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	



Queues  
2: Washington Street/Trinity Street & Capitol Avenue

2024 Combined Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	40	411	576	386	368	43	31	181	195
v/c Ratio	0.09	0.42	0.52	0.36	0.68	0.16	0.13	0.64	0.34
Control Delay	13.5	16.0	3.2	21.2	42.6	33.8	33.4	46.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	16.0	3.2	21.2	42.6	33.8	33.4	46.1	5.4
Queue Length 50th (ft)	11	140	0	80	102	22	15	98	0
Queue Length 95th (ft)	31	232	54	126	147	53	42	158	46
Internal Link Dist (ft)		209		399		183		291	
Turn Bay Length (ft)									
Base Capacity (vph)	456	985	1114	1085	592	289	259	358	622
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.42	0.52	0.36	0.62	0.15	0.12	0.51	0.31
Intersection Summary									

HCM Signalized Intersection Capacity Analysis  
 2: Washington Street/Trinity Street & Capitol Avenue

2024 Combined Conditions  
 Weekday Morning Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	382	536	67	280	12	342	37	32	0	168	181
Future Volume (vph)	37	382	536	67	280	12	342	37	32	0	168	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0		7.0		4.0	4.0	4.0		5.0	5.0
Lane Util. Factor	1.00	1.00	1.00		0.95		0.97	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.85		0.99		1.00	0.99	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.99		0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1597	1900	1615		3554		3502	1707	1534		1900	1568
Flt Permitted	0.52	1.00	1.00		0.76		0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	880	1900	1615		2732		3502	1707	1534		1900	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	40	411	576	72	301	13	368	40	34	0	181	195
RTOR Reduction (vph)	0	0	264	0	2	0	0	0	0	0	0	142
Lane Group Flow (vph)	40	411	312	0	384	0	368	43	31	0	181	53
Heavy Vehicles (%)	13%	0%	0%	0%	0%	4%	0%	5%	0%	0%	0%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA	Prot		NA	custom
Protected Phases		1 2			1		4	4	4		3	2 3
Permitted Phases	1 2		1 2	1								
Actuated Green, G (s)	48.7	48.7	48.7		35.7		13.9	13.9	13.9		13.4	24.4
Effective Green, g (s)	48.7	48.7	48.7		35.7		13.9	13.9	13.9		13.4	24.4
Actuated g/C Ratio	0.54	0.54	0.54		0.40		0.15	0.15	0.15		0.15	0.27
Clearance Time (s)					7.0		4.0	4.0	4.0		5.0	
Vehicle Extension (s)					3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	476	1028	873		1083		540	263	236		282	425
v/s Ratio Prot		c0.22					c0.11	0.03	0.02		c0.10	0.03
v/s Ratio Perm	0.05		0.19		0.14							
v/c Ratio	0.08	0.40	0.36		0.35		0.68	0.16	0.13		0.64	0.12
Uniform Delay, d1	9.9	12.1	11.7		19.1		36.0	33.0	32.8		36.0	24.7
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.3	0.3		0.9		3.5	0.3	0.3		4.9	0.1
Delay (s)	10.0	12.3	12.0		20.0		39.5	33.3	33.1		41.0	24.9
Level of Service	B	B	B		B		D	C	C		D	C
Approach Delay (s)		12.1			20.0			38.4			32.6	
Approach LOS		B			B			D			C	

Intersection Summary

HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
3: Walgreens Drive/Lafayette Street & Park Street

2024 Combined Conditions  
Weekday Morning Peak Hour



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	15	179	16	3	179	14	23	6	4	19	6	62
Future Volume (vph)	15	179	16	3	179	14	23	6	4	19	6	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.990			0.990			0.985			0.904	
Fl <sub>t</sub> Protected		0.996			0.999			0.966			0.989	
Satd. Flow (prot)	0	1731	0	0	1781	0	0	1808	0	0	1653	0
Fl <sub>t</sub> Permitted		0.996			0.999			0.966			0.989	
Satd. Flow (perm)	0	1731	0	0	1781	0	0	1808	0	0	1653	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		350			280			199			399	
Travel Time (s)		8.0			6.4			4.5			9.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	9%	3%	0%	6%	0%	0%	0%	0%	3%	0%	3%
Adj. Flow (vph)	17	201	18	3	201	16	26	7	4	21	7	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	236	0	0	220	0	0	37	0	0	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 3: Walgreens Drive/Lafayette Street & Park Street

2024 Combined Conditions  
 Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	179	16	3	179	14	23	6	4	19	6	62
Future Volume (Veh/h)	15	179	16	3	179	14	23	6	4	19	6	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	17	201	18	3	201	16	26	7	4	21	7	70
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	217			219			532	467	210	466	468	209
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	217			219			532	467	210	466	468	209
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			94	99	100	96	99	92
cM capacity (veh/h)	1335			1362			413	489	835	491	488	829
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	236	220	37	98								
Volume Left	17	3	26	21								
Volume Right	18	16	4	70								
cSH	1335	1362	451	692								
Volume to Capacity	0.01	0.00	0.08	0.14								
Queue Length 95th (ft)	1	0	7	12								
Control Delay (s)	0.7	0.1	13.7	11.1								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.7	0.1	13.7	11.1								
Approach LOS			B	B								
Intersection Summary												
Average Delay			3.0									
Intersection Capacity Utilization			30.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Park Street & Oak Street

2024 Combined Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕			
Traffic Volume (vph)	116	240	174	62	0	0
Future Volume (vph)	116	240	174	62	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>			0.965			
Fl <sub>t</sub> Protected		0.984				
Satd. Flow (prot)	0	1768	1738	0	0	0
Fl <sub>t</sub> Permitted		0.984				
Satd. Flow (perm)	0	1768	1738	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		315	350		481	
Travel Time (s)		7.2	8.0		10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	8%	6%	4%	0%	0%
Adj. Flow (vph)	126	261	189	67	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	387	256	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 4: Park Street & Oak Street

2024 Combined Conditions  
 Weekday Morning Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↶			
Traffic Volume (veh/h)	116	240	174	62	0	0
Future Volume (Veh/h)	116	240	174	62	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	126	261	189	67	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	256				736	222
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	256				736	222
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				100	100
cM capacity (veh/h)	1315				352	822
Direction, Lane #						
	EB 1	WB 1				
Volume Total	387	256				
Volume Left	126	0				
Volume Right	0	67				
cSH	1315	1700				
Volume to Capacity	0.10	0.15				
Queue Length 95th (ft)	8	0				
Control Delay (s)	3.2	0.0				
Lane LOS	A					
Approach Delay (s)	3.2	0.0				
Approach LOS						
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			38.6%		ICU Level of Service	A
Analysis Period (min)			15			

## **Appendix D**

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### Turning Movement Count (TMC) Data

**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Capitol Ave at Oak St/I-84 EB Ramps  
Hartford, Connecticut

File Name : 23462  
Site Code : 23462  
Start Date : 9/21/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	I-84 EB Ramps From North					Capitol Avenue From East					Oak Street From South					Capitol Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	17	3	97	1	118	26	45	3	0	74	0	6	2	1	9	2	62	7	0	71	272
07:15 AM	28	10	112	0	150	37	83	11	0	131	2	4	4	1	11	3	97	12	0	112	404
07:30 AM	27	10	141	0	178	55	99	8	1	163	1	7	9	1	18	5	83	14	1	103	462
07:45 AM	40	20	131	0	191	61	109	9	1	180	4	16	7	0	27	8	108	16	1	133	531
Total	112	43	481	1	637	179	336	31	2	548	7	33	22	3	65	18	350	49	2	419	1669
08:00 AM	32	16	123	0	171	53	119	19	0	191	2	9	10	0	21	7	110	15	0	132	515
08:15 AM	33	33	155	1	222	49	125	23	1	198	9	11	13	3	36	9	135	13	0	157	613
08:30 AM	20	11	87	0	118	36	68	9	0	113	1	6	7	1	15	5	70	2	0	77	323
08:45 AM	26	19	120	0	165	36	89	12	0	137	1	9	8	0	18	10	95	9	0	114	434
Total	111	79	485	1	676	174	401	63	1	639	13	35	38	4	90	31	410	39	0	480	1885
Grand Total	223	122	966	2	1313	353	737	94	3	1187	20	68	60	7	155	49	760	88	2	899	3554
Apprch %	17	9.3	73.6	0.2		29.7	62.1	7.9	0.3		12.9	43.9	38.7	4.5		5.5	84.5	9.8	0.2		
Total %	6.3	3.4	27.2	0.1	36.9	9.9	20.7	2.6	0.1	33.4	0.6	1.9	1.7	0.2	4.4	1.4	21.4	2.5	0.1	25.3	
Lights	220	122	950	2	1294	351	683	93	3	1130	19	68	59	5	151	49	713	84	2	848	3423
% Lights	98.7	100	98.3	100	98.6	99.4	92.7	98.9	100	95.2	95	100	98.3	71.4	97.4	100	93.8	95.5	100	94.3	96.3
Trucks	1	0	5	0	6	1	5	1	0	7	1	0	1	2	4	0	1	3	0	4	21
% Trucks	0.4	0	0.5	0	0.5	0.3	0.7	1.1	0	0.6	5	0	1.7	28.6	2.6	0	0.1	3.4	0	0.4	0.6
Buses	2	0	11	0	13	1	49	0	0	50	0	0	0	0	0	0	46	1	0	47	110
% Buses	0.9	0	1.1	0	1	0.3	6.6	0	0	4.2	0	0	0	0	0	0	6.1	1.1	0	5.2	3.1



# Connecticut Counts LLC

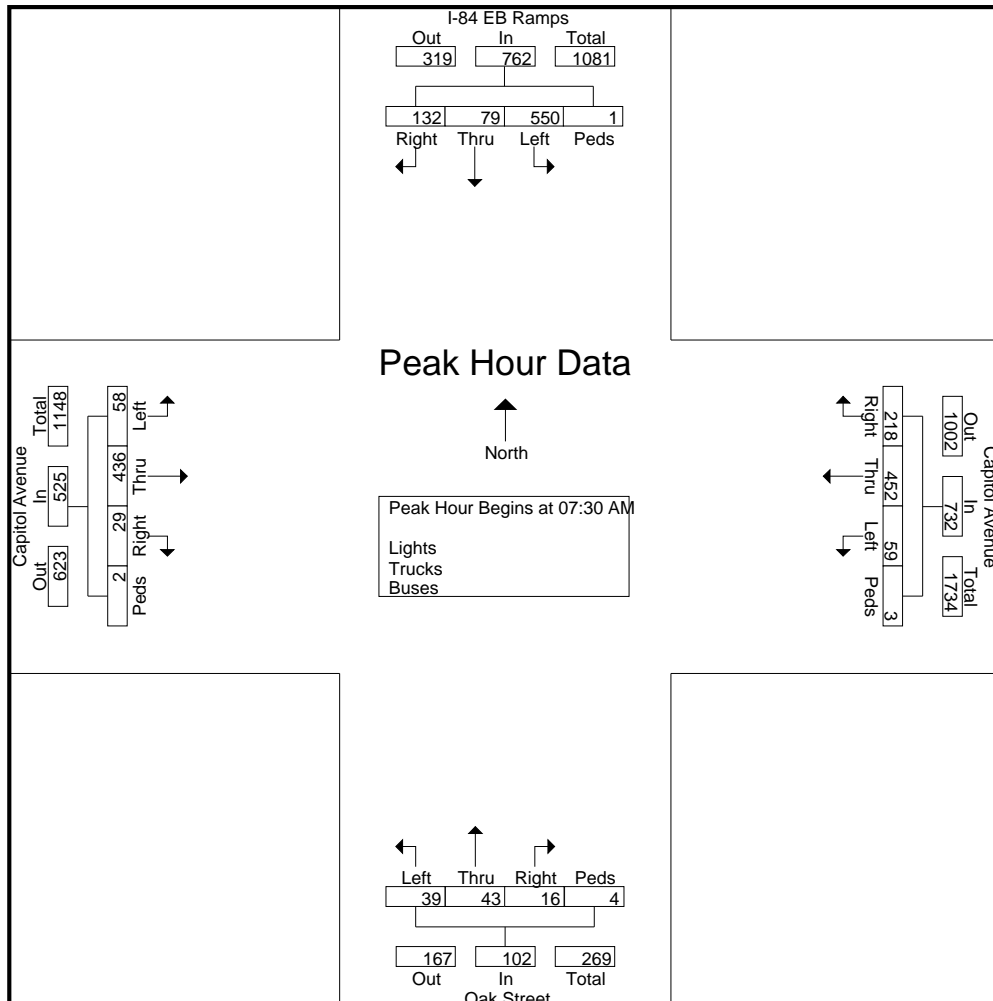
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23462  
Site Code : 23462  
Start Date : 9/21/2022  
Page No : 2

Start Time	I-84 EB Ramps From North					Capitol Avenue From East					Oak Street From South					Capitol Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 07:30 AM

07:30 AM	27	10	141	0	178	55	99	8	1	163	1	7	9	1	18	5	83	14	1	103	462
07:45 AM	40	20	131	0	191	61	109	9	1	180	4	16	7	0	27	8	108	16	1	133	531
08:00 AM	32	16	123	0	171	53	119	19	0	191	2	9	10	0	21	7	110	15	0	132	515
08:15 AM	33	33	155	1	222	49	125	23	1	198	9	11	13	3	36	9	135	13	0	157	613
Total Volume	132	79	550	1	762	218	452	59	3	732	16	43	39	4	102	29	436	58	2	525	2121
% App. Total	17.3	10.4	72.2	0.1		29.8	61.7	8.1	0.4		15.7	42.2	38.2	3.9		5.5	83	11	0.4		
PHF	.825	.598	.887	.250	.858	.893	.904	.641	.750	.924	.444	.672	.750	.333	.708	.806	.807	.906	.500	.836	.865



# Connecticut Counts LLC

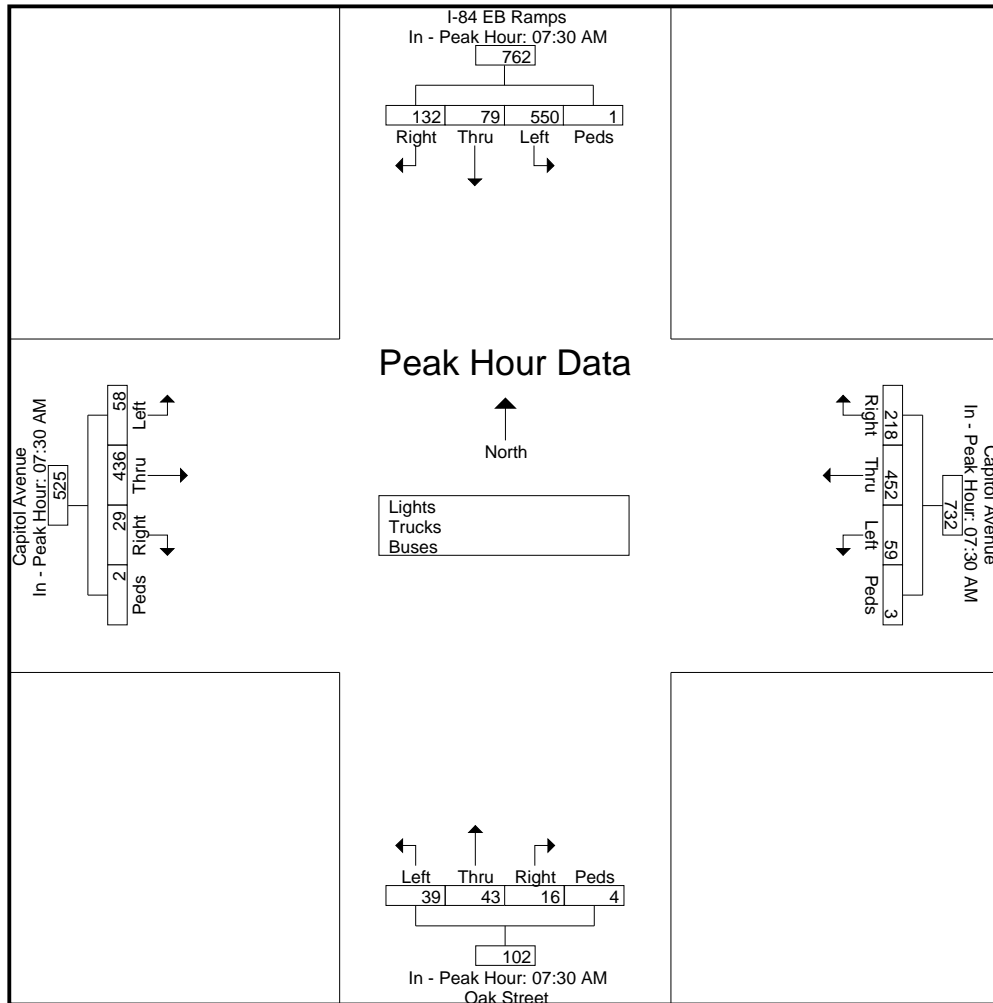
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23462  
 Site Code : 23462  
 Start Date : 9/21/2022  
 Page No : 3

Start Time	I-84 EB Ramps From North					Capitol Avenue From East					Oak Street From South					Capitol Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	27	10	141	0	178	55	99	8	1	163	1	7	9	1	18	5	83	14	1	103
+15 mins.	40	20	131	0	191	61	109	9	1	180	4	16	7	0	27	8	108	16	1	133
+30 mins.	32	16	123	0	171	53	119	19	0	191	2	9	10	0	21	7	110	15	0	132
+45 mins.	33	33	155	1	222	49	125	23	1	198	9	11	13	3	36	9	135	13	0	157
Total Volume	132	79	550	1	762	218	452	59	3	732	16	43	39	4	102	29	436	58	2	525
% App. Total	17.3	10.4	72.2	0.1		29.8	61.7	8.1	0.4		15.7	42.2	38.2	3.9		5.5	83	11	0.4	
PHF	.825	.598	.887	.250	.858	.893	.904	.641	.750	.924	.444	.672	.750	.333	.708	.806	.807	.906	.500	.836





# Connecticut Counts LLC

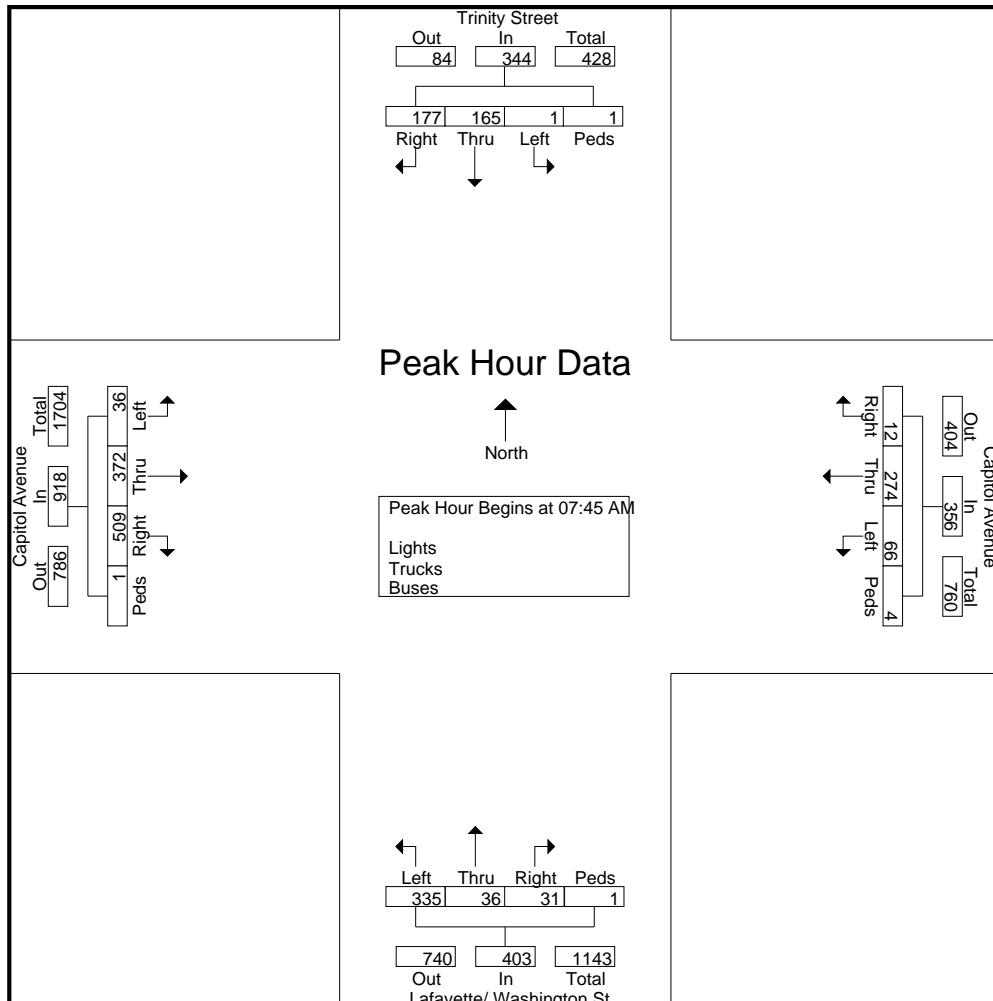
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23460  
 Site Code : 23460  
 Start Date : 9/21/2022  
 Page No : 2

Start Time	Trinity Street From North					Capitol Avenue From East					Lafayette/ Washington St From South					Capitol Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:45 AM

07:45 AM	48	44	0	0	92	2	72	14	0	88	8	6	89	0	103	127	97	11	0	235	518
08:00 AM	52	37	1	0	90	4	75	14	1	94	12	12	76	0	100	120	86	10	0	216	500
08:15 AM	40	41	0	1	82	5	80	29	0	114	6	9	74	0	89	133	114	10	0	257	542
08:30 AM	37	43	0	0	80	1	47	9	3	60	5	9	96	1	111	129	75	5	1	210	461
Total Volume	177	165	1	1	344	12	274	66	4	356	31	36	335	1	403	509	372	36	1	918	2021
% App. Total	51.5	48	0.3	0.3		3.4	77	18.5	1.1		7.7	8.9	83.1	0.2		55.4	40.5	3.9	0.1		
PHF	.851	.938	.250	.250	.935	.600	.856	.569	.333	.781	.646	.750	.872	.250	.908	.957	.816	.818	.250	.893	.932



# Connecticut Counts LLC

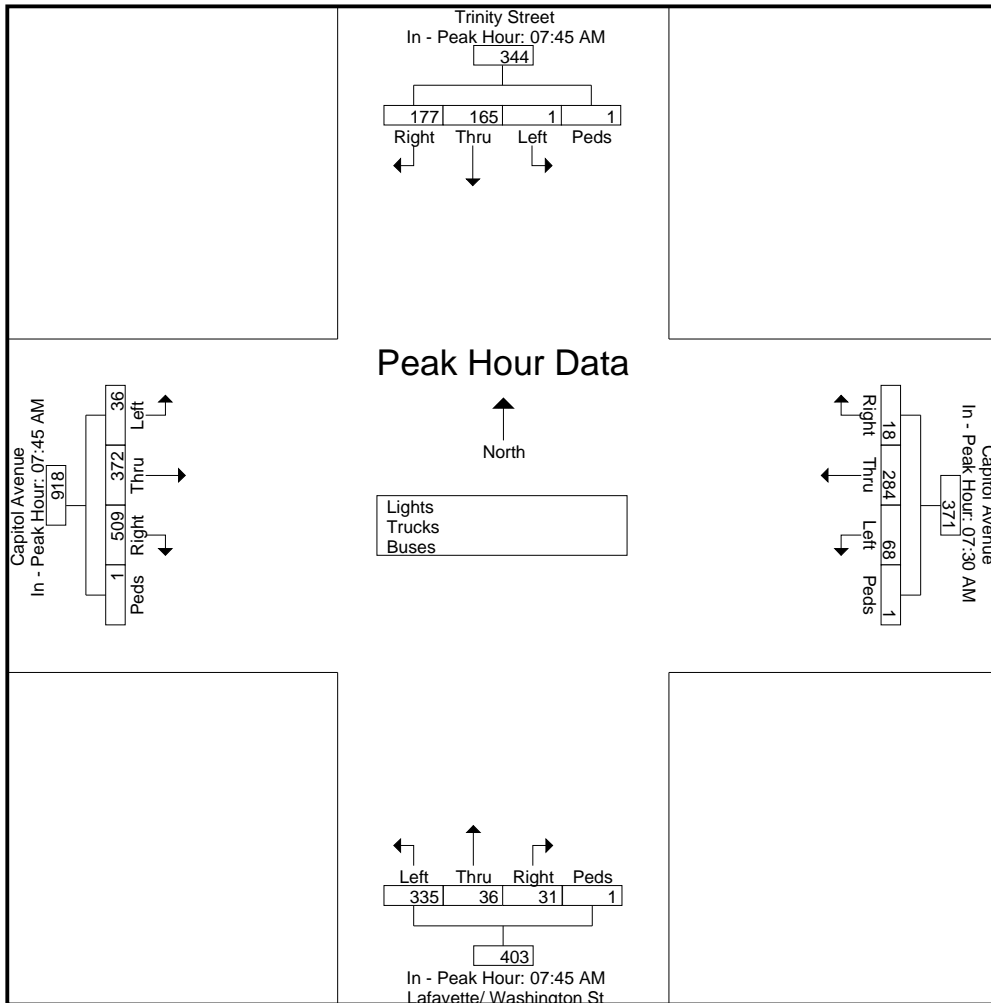
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23460  
 Site Code : 23460  
 Start Date : 9/21/2022  
 Page No : 3

Start Time	Trinity Street From North					Capitol Avenue From East					Lafayette/ Washington St From South					Capitol Avenue From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:45 AM					07:30 AM					07:45 AM					07:45 AM				
+0 mins.	48	44	0	0	92	7	57	11	0	75	8	6	89	0	103	127	97	11	0	235
+15 mins.	52	37	1	0	90	2	72	14	0	88	12	12	76	0	100	120	86	10	0	216
+30 mins.	40	41	0	1	82	4	75	14	1	94	6	9	74	0	89	133	114	10	0	257
+45 mins.	37	43	0	0	80	5	80	29	0	114	5	9	96	1	111	129	75	5	1	210
Total Volume	177	165	1	1	344	18	284	68	1	371	31	36	335	1	403	509	372	36	1	918
% App. Total	51.5	48	0.3	0.3		4.9	76.5	18.3	0.3		7.7	8.9	83.1	0.2		55.4	40.5	3.9	0.1	
PHF	.851	.938	.250	.250	.935	.643	.888	.586	.250	.814	.646	.750	.872	.250	.908	.957	.816	.818	.250	.893



# Connecticut Counts LLC

Kensington, Connecticut 06037  
(860) 828-1693

Park Street at Lafayette Street  
Hartford, Connecticut

File Name : 23456  
Site Code : 23456  
Start Date : 9/21/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Lafayette Street From North					Park Street From East					Walgreens Drive From South					Park Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	4	0	1	3	8	2	22	0	1	25	1	1	4	0	6	4	26	0	0	30	69
07:15 AM	4	1	2	3	10	3	19	1	1	24	1	2	3	5	11	7	31	2	3	43	88
07:30 AM	4	1	2	2	9	2	28	1	0	31	3	0	4	9	16	2	37	1	0	40	96
07:45 AM	14	0	3	4	21	5	46	0	2	53	2	1	4	3	10	3	31	3	0	37	121
Total	26	2	8	12	48	12	115	2	4	133	7	4	15	17	43	16	125	6	3	150	374
08:00 AM	12	3	7	5	27	1	33	1	0	35	1	2	6	3	12	4	45	3	0	52	126
08:15 AM	10	1	4	1	16	2	46	2	1	51	0	1	5	2	8	3	45	4	0	52	127
08:30 AM	8	2	5	4	19	6	42	0	1	49	1	2	8	4	15	6	52	5	0	63	146
08:45 AM	10	3	7	11	31	10	49	0	2	61	3	3	9	4	19	0	43	4	0	47	158
Total	40	9	23	21	93	19	170	3	4	196	5	8	28	13	54	13	185	16	0	214	557
Grand Total	66	11	31	33	141	31	285	5	8	329	12	12	43	30	97	29	310	22	3	364	931
Apprch %	46.8	7.8	22	23.4		9.4	86.6	1.5	2.4		12.4	12.4	44.3	30.9		8	85.2	6	0.8		
Total %	7.1	1.2	3.3	3.5	15.1	3.3	30.6	0.5	0.9	35.3	1.3	1.3	4.6	3.2	10.4	3.1	33.3	2.4	0.3	39.1	
Lights	64	11	30	32	137	31	268	5	8	312	12	12	43	29	96	28	283	21	3	335	880
% Lights	97	100	96.8	97	97.2	100	94	100	100	94.8	100	100	100	96.7	99	96.6	91.3	95.5	100	92	94.5
Trucks	2	0	1	1	4	0	2	0	0	2	0	0	0	1	1	0	1	1	0	2	9
% Trucks	3	0	3.2	3	2.8	0	0.7	0	0	0.6	0	0	0	3.3	1	0	0.3	4.5	0	0.5	1
Buses	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	1	26	0	0	27	42
% Buses	0	0	0	0	0	0	5.3	0	0	4.6	0	0	0	0	0	3.4	8.4	0	0	7.4	4.5

# Connecticut Counts LLC

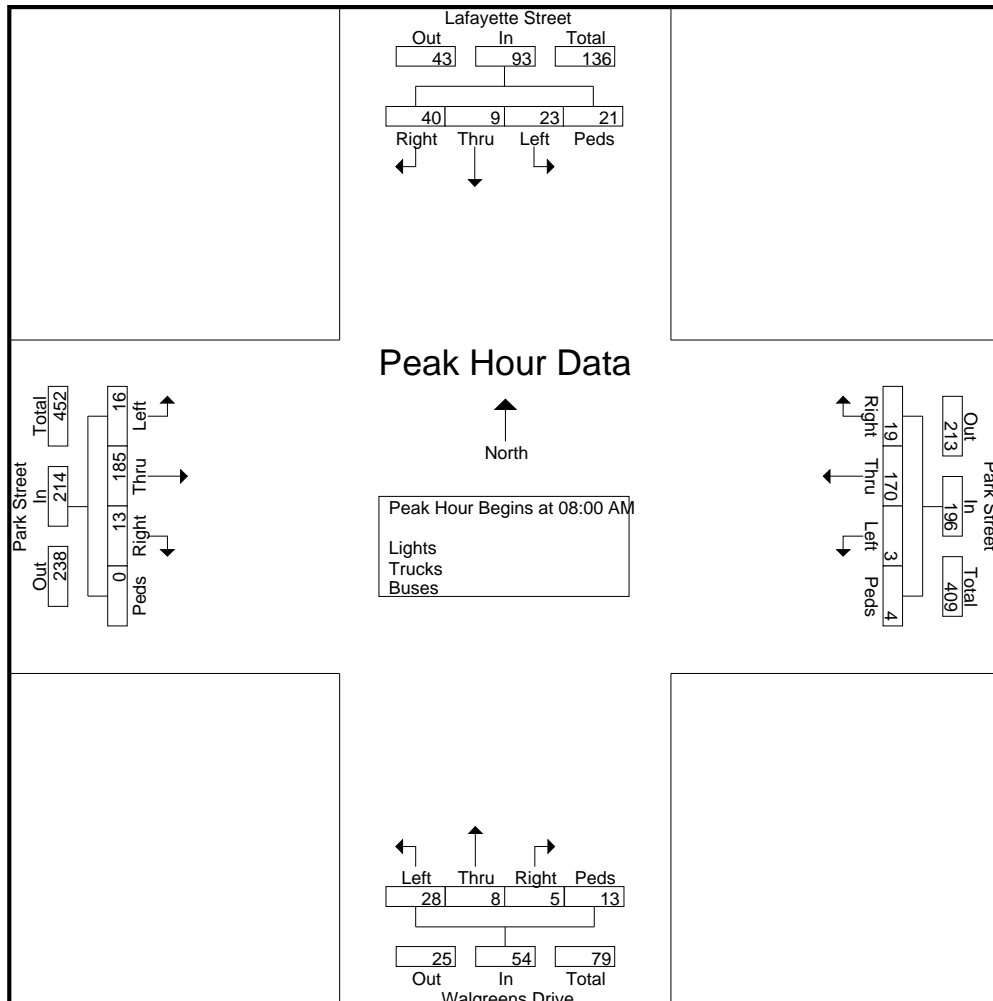
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23456  
Site Code : 23456  
Start Date : 9/21/2022  
Page No : 2

Start Time	Lafayette Street From North					Park Street From East					Walgreens Drive From South					Park Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 08:00 AM

08:00 AM	12	3	7	5	27	1	33	1	0	35	1	2	6	3	12	4	45	3	0	52	126
08:15 AM	10	1	4	1	16	2	46	2	1	51	0	1	5	2	8	3	45	4	0	52	127
08:30 AM	8	2	5	4	19	6	42	0	1	49	1	2	8	4	15	6	52	5	0	63	146
08:45 AM	10	3	7	11	31	10	49	0	2	61	3	3	9	4	19	0	43	4	0	47	158
Total Volume	40	9	23	21	93	19	170	3	4	196	5	8	28	13	54	13	185	16	0	214	557
% App. Total	43	9.7	24.7	22.6		9.7	86.7	1.5	2		9.3	14.8	51.9	24.1		6.1	86.4	7.5	0		
PHF	.833	.750	.821	.477	.750	.475	.867	.375	.500	.803	.417	.667	.778	.813	.711	.542	.889	.800	.000	.849	.881



# Connecticut Counts LLC

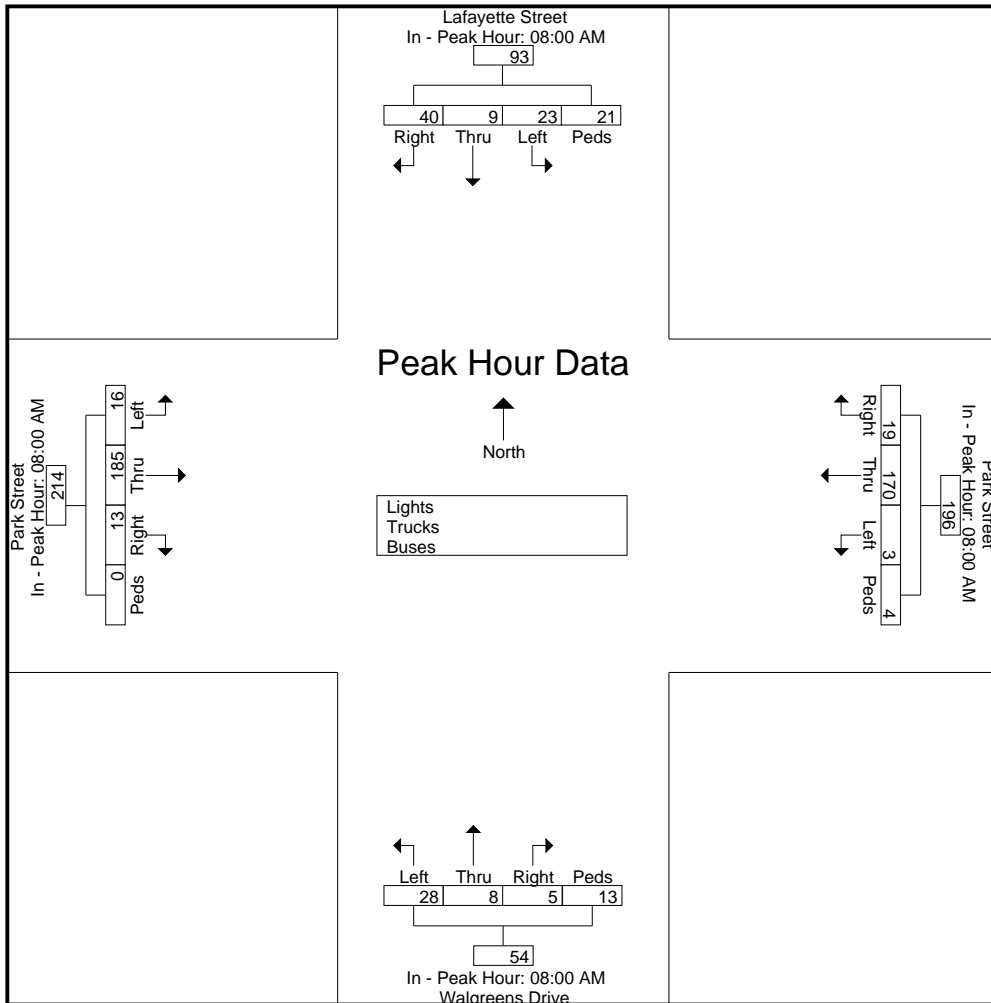
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23456  
 Site Code : 23456  
 Start Date : 9/21/2022  
 Page No : 3

Start Time	Lafayette Street From North					Park Street From East					Walgreens Drive From South					Park Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	08:00 AM					08:00 AM					08:00 AM					08:00 AM				
+0 mins.	12	3	7	5	27	1	33	1	0	35	1	2	6	3	12	4	45	3	0	52
+15 mins.	10	1	4	1	16	2	46	2	1	51	0	1	5	2	8	3	45	4	0	52
+30 mins.	8	2	5	4	19	6	42	0	1	49	1	2	8	4	15	6	52	5	0	63
+45 mins.	10	3	7	11	31	10	49	0	2	61	3	3	9	4	19	0	43	4	0	47
Total Volume	40	9	23	21	93	19	170	3	4	196	5	8	28	13	54	13	185	16	0	214
% App. Total	43	9.7	24.7	22.6		9.7	86.7	1.5	2		9.3	14.8	51.9	24.1		6.1	86.4	7.5	0	
PHF	.833	.750	.821	.477	.750	.475	.867	.375	.500	.803	.417	.667	.778	.813	.711	.542	.889	.800	.000	.849





**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Park Street at Oak Street  
Hartford, Connecticut

File Name : 23458  
Site Code : 23458  
Start Date : 9/21/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

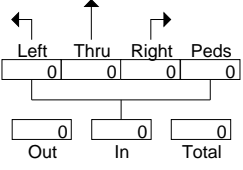
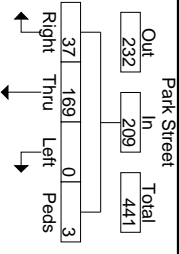
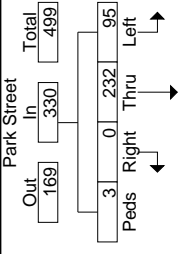
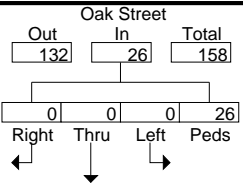
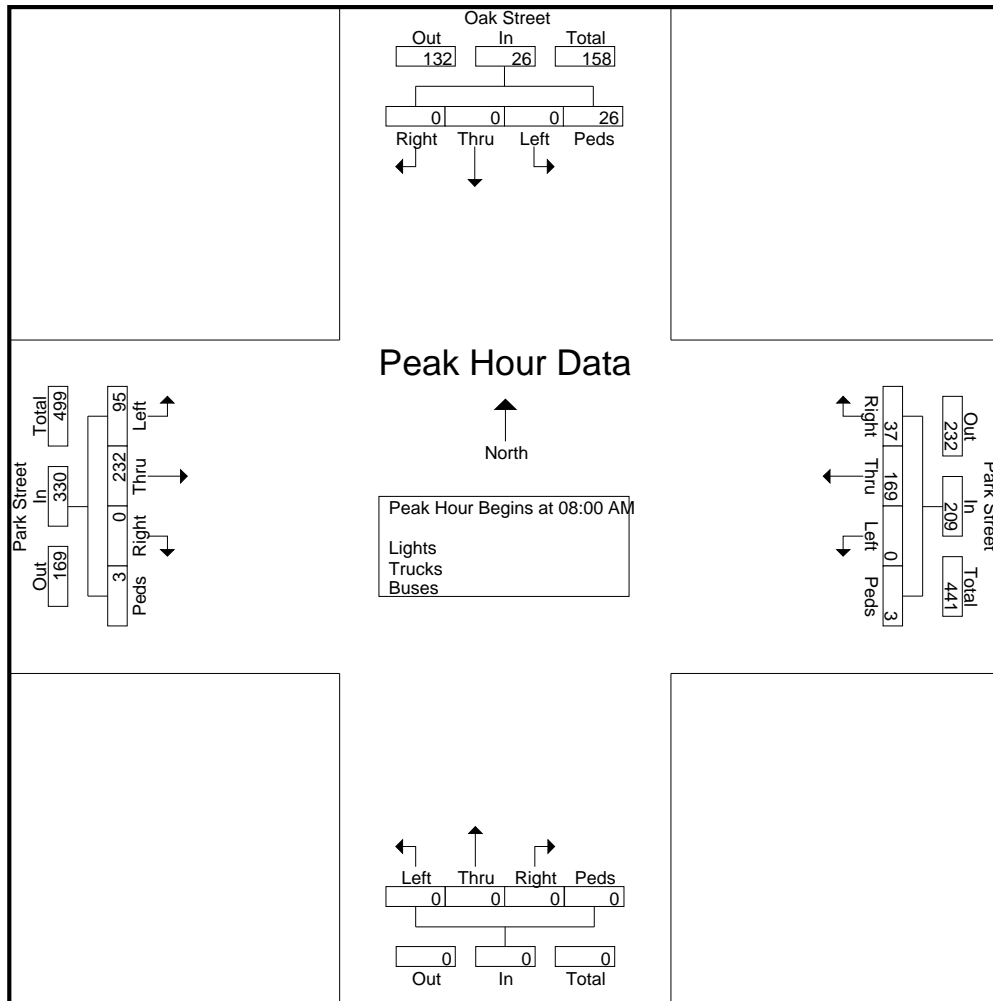
Start Time	Oak Street From North					Park Street From East					Park Street From South					Park Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	5	5	3	22	0	0	25	0	0	0	0	0	0	23	12	1	36	66
07:15 AM	0	0	0	4	4	1	27	0	0	28	0	0	0	0	0	0	49	7	2	58	90
07:30 AM	0	0	0	5	5	3	23	0	0	26	0	0	0	0	0	0	39	20	1	60	91
07:45 AM	0	0	0	1	1	5	41	0	0	46	0	0	0	0	0	0	49	20	0	69	116
Total	0	0	0	15	15	12	113	0	0	125	0	0	0	0	0	0	160	59	4	223	363
08:00 AM	0	0	0	2	2	8	37	0	1	46	0	0	0	0	0	0	60	31	0	91	139
08:15 AM	0	0	0	5	5	13	41	0	0	54	0	0	0	0	0	0	62	22	1	85	144
08:30 AM	0	0	0	10	10	9	52	0	2	63	0	0	0	0	0	0	61	23	2	86	159
08:45 AM	0	0	0	9	9	7	39	0	0	46	0	0	0	0	0	0	49	19	0	68	123
Total	0	0	0	26	26	37	169	0	3	209	0	0	0	0	0	0	232	95	3	330	565
Grand Total	0	0	0	41	41	49	282	0	3	334	0	0	0	0	0	0	392	154	7	553	928
Apprch %	0	0	0	100		14.7	84.4	0	0.9		0	0	0	0		0	70.9	27.8	1.3		
Total %	0	0	0	4.4	4.4	5.3	30.4	0	0.3	36	0	0	0	0	0	0	42.2	16.6	0.8	59.6	
Lights	0	0	0	39	39	47	266	0	3	316	0	0	0	0	0	0	362	153	6	521	876
% Lights	0	0	0	95.1	95.1	95.9	94.3	0	100	94.6	0	0	0	0	0	0	92.3	99.4	85.7	94.2	94.4
Trucks	0	0	0	2	2	1	3	0	0	4	0	0	0	0	0	0	2	1	1	4	10
% Trucks	0	0	0	4.9	4.9	2	1.1	0	0	1.2	0	0	0	0	0	0	0.5	0.6	14.3	0.7	1.1
Buses	0	0	0	0	0	1	13	0	0	14	0	0	0	0	0	0	28	0	0	28	42
% Buses	0	0	0	0	0	2	4.6	0	0	4.2	0	0	0	0	0	0	7.1	0	0	5.1	4.5

# Connecticut Counts LLC

Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23458  
Site Code : 23458  
Start Date : 9/21/2022  
Page No : 2

Start Time	Oak Street From North					Park Street From East					From South					Park Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	2	2	8	37	0	1	46	0	0	0	0	0	0	60	31	0	91	139
08:15 AM	0	0	0	5	5	13	41	0	0	54	0	0	0	0	0	0	62	22	1	85	144
08:30 AM	0	0	0	10	10	9	52	0	2	63	0	0	0	0	0	0	61	23	2	86	159
08:45 AM	0	0	0	9	9	7	39	0	0	46	0	0	0	0	0	0	49	19	0	68	123
Total Volume	0	0	0	26	26	37	169	0	3	209	0	0	0	0	0	0	232	95	3	330	565
% App. Total	0	0	0	100		17.7	80.9	0	1.4		0	0	0	0		0	70.3	28.8	0.9		
PHF	.000	.000	.000	.650	.650	.712	.813	.000	.375	.829	.000	.000	.000	.000	.000	.000	.935	.766	.375	.907	.888



# Connecticut Counts LLC

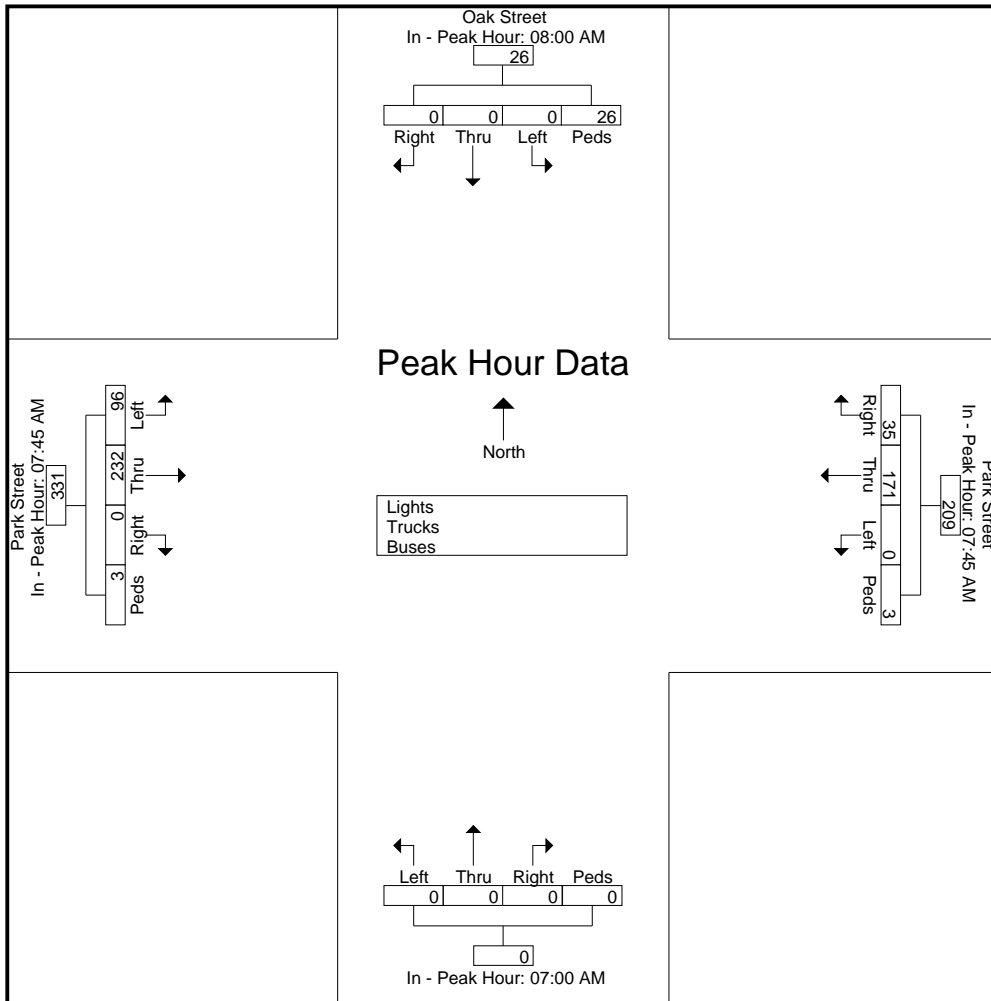
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23458  
 Site Code : 23458  
 Start Date : 9/21/2022  
 Page No : 3

Start Time	Oak Street From North					Park Street From East					From South					Park Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	08:00 AM					07:45 AM					07:00 AM					07:45 AM				
+0 mins.	0	0	0	2	2	5	41	0	0	46	0	0	0	0	0	0	49	20	0	69
+15 mins.	0	0	0	5	5	8	37	0	1	46	0	0	0	0	0	0	60	31	0	91
+30 mins.	0	0	0	10	10	13	41	0	0	54	0	0	0	0	0	0	62	22	1	85
+45 mins.	0	0	0	9	9	9	52	0	2	63	0	0	0	0	0	0	61	23	2	86
Total Volume	0	0	0	26	26	35	171	0	3	209	0	0	0	0	0	0	232	96	3	331
% App. Total	0	0	0	100		16.7	81.8	0	1.4		0	0	0	0		0	70.1	29	0.9	
PHF	.000	.000	.000	.650	.650	.673	.822	.000	.375	.829	.000	.000	.000	.000	.000	.000	.935	.774	.375	.909



## **Appendix E**

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### Crash Data Records

### Uconn Crash Data

35 Lafayette Street  
Hartford, Connecticut  
January 1, 2019 - December 31, 2021

Date Of Crash	Time of Crash	Severity	No. Of		Town	Mileage	Roadway	Intersecting Roadway Name	Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances	Contributing Circumstances Roadway
			Veh.	Motorists										
<b>01) Capitol Avenue at I-84 Eastbound On/Off Ramps</b>														
4/26/2019	17:54:00	PDO	1	0	Hartford	1.64	CAPITOL AV		Fixed Object	Rain	Daylight	Wet	None	None
6/21/2019	13:06:00	Possible Injury	2	0	Hartford	0.39	84-E-190	CAPITOL AV	Angle	Rain	Daylight	Wet	None	None
9/1/2019	15:18:00	Suspected Minor Injury	2	0	Hartford	0	84-W-191	CAPITOL AV	Angle	Clear	Daylight	Dry	None	None
9/16/2019	11:00:00	PDO	2	0	Hartford	0	84-W-191	CAPITOL AV	Angle	Clear	Daylight	Dry	None	None
9/28/2019	3:03:00	PDO	2	0	Hartford	0.39	84-E-190	CAPITOL AV	Front to front	Clear	Dark-Lighted	Dry	None	None
9/10/2019	11:14:00	PDO	2	0	Hartford	1.66	CAPITOL AV	Oak St	Angle	Clear	Daylight	Dry	None	None
11/25/2019	9:49:00	PDO	2	0	Hartford	0	84-W-191	CAPITOL AV	Angle	Clear	Daylight	Dry	None	None
12/17/2019	9:23:00	PDO	2	0	Hartford	0	84-W-191	CAPITOL AV	Front to rear	Cloudy	Daylight	Slush	Weather Conditions	None
12/11/2019	12:38:00	Possible Injury	2	0	Hartford	0.38	84-E-190		Front to rear	Clear	Daylight	Wet	None	None
12/31/2019	11:41:00	Suspected Minor Injury	2	0	Hartford	0	84-W-191	CAPITOL AV	Angle	Clear	Daylight	Wet	None	None
2/9/2020	20:38:00	Possible Injury	2	0	Hartford	0.38	84-E-190		Front to rear	Clear	Dark-Lighted	Dry	None	None
3/6/2020	8:46:00	PDO	2	0	Hartford	0.39	84-E-190	CAPITOL AV	Sideswipe, same direction	Clear	Daylight	Dry	None	None
5/16/2020	14:34:00	PDO	2	0	Hartford	0.01	84-W-191		Sideswipe, same direction	Clear	Daylight	Dry	None	None
6/20/2020	10:33:00	PDO	2	0	Hartford	1.66	CAPITOL AV	OAK ST	Front to rear	Clear	Daylight	Dry	None	None
8/22/2020	13:52:00	PDO	1	0	Hartford	0.04	84-W-191		Fixed Object	Clear	Daylight	Dry	None	None
9/23/2020	8:57:00	Possible Injury	2	0	Hartford	1.66	CAPITOL AV	Oak Street	Angle	Clear	Daylight	Dry	None	None
10/26/2020	12:42:00	PDO	2	0	Hartford	0.39	84-E-190	CAPITOL AV	Other	Cloudy	Daylight	Dry	None	None
12/19/2020	15:48:00	Possible Injury	2	0	Hartford	0.39	84-E-190	CAPITOL AV	Angle	Clear	Daylight	Dry	None	None
2/1/2021	11:44:00	PDO	1	0	Hartford	1.68	CAPITOL AV		Fixed Object	Snow	Daylight	Snow	Weather Conditions	Road Surface Condition (wet, icy, snow, slush, etc.)
2/10/2021	16:03:00	PDO	2	0	Hartford	0.39	84-E-190	CAPITOL AV	Angle	Clear	Daylight	Dry	None	None
5/2/2021	0:06:00	Suspected Minor Injury	3	0	Hartford	0.3	OAK ST		Front to rear	Clear	Dark-Lighted	Dry	None	None
<b>02) Capitol Avenue at Trinity Street/Washington Street</b>														
2/19/2019	16:42:00	PDO	2	0	Hartford	1.75	CAPITOL AV		Front to rear	Clear	Daylight	Dry	None	None
3/19/2019	13:23:00	PDO	2	0	Hartford	1.79	CAPITOL AV	WASHINGTON ST	Front to rear	Clear	Daylight	Dry	None	None
1/23/2019	9:39:00	PDO	2	0	Hartford	1.79	CAPITOL AV	WASHINGTON ST	Other	Cloudy	Daylight	Ice / Frost	None	None
2/14/2019	18:09:00	PDO	2	0	Hartford	1.79	CAPITOL AV	WASHINGTON ST	Front to rear	Clear	Dark-Lighted	Dry	None	None
3/7/2019	11:45:00	PDO	2	0	Hartford	0.27	TRINITY ST	CAPITOL AV	Sideswipe, same direction	Clear	Daylight	Dry	None	None
4/3/2019	18:15:00	Suspected Serious Injury	1	0	Hartford	0.27	TRINITY ST	CAPITOL AV	Fixed Object	Clear	Daylight	Dry	None	None
3/17/2019	8:56:00	Possible Injury	2	0	Hartford	1.79	CAPITOL AV	TRINITY ST	Angle	Clear	Daylight	Dry	None	None
3/19/2019	13:23:00	PDO	2	0	Hartford	1.79	CAPITOL AV	WASHINGTON ST	Front to rear	Clear	Daylight	Dry	None	None
4/24/2019	19:24:00	PDO	2	0	Hartford	1.74	CAPITOL AV		Front to rear	Clear	Daylight	Dry	Glare	None
5/8/2019	13:30:00	Possible Injury	2	0	Hartford	1.76	CAPITOL AV		Front to rear	Clear	Daylight	Dry	None	None
5/10/2019	16:38:00	PDO	2	0	Hartford	1.73	CAPITOL AV		Sideswipe, same direction	Clear	Daylight	Dry	None	None
6/24/2019	16:06:00	Suspected Minor Injury	2	0	Hartford	0.27	TRINITY ST	CAPITOL AV	Sideswipe, same direction	Clear	Daylight	Dry	None	None
7/19/2019	11:14:00	PDO	2	0	Hartford	1.79	CAPITOL AV	WASHINGTON ST	Sideswipe, same direction	Clear	Daylight	Dry	None	None
8/31/2019	8:12:00	PDO	2	0	Hartford	1.81	CAPITOL AV	TRINITY ST	Front to rear	Clear	Daylight	Dry	None	None
1/10/2020	18:23:00	PDO	2	0	Hartford	1.85	CAPITOL AV		Rear to side	Clear	Dark-Lighted	Dry	None	None
1/17/2020	19:33:00	PDO	2	0	Hartford	1.79	CAPITOL AV	WASHINGTON ST	Front to rear	Clear	Dark-Lighted	Dry	None	Other
2/4/2020	17:00:00	PDO	2	0	Hartford	1.06	WASHINGTON ST	CAPITAL AVE	Angle	Clear	Daylight	Dry	None	None
2/3/2020	8:37:00	PDO	2	0	Hartford	1.79	CAPITOL AV	Lafayette Street	Other	Clear	Daylight	Dry	None	None
3/10/2020	9:06:00	PDO	2	0	Hartford	0.27	TRINITY ST	CAPITOL AV	Sideswipe, same direction	Clear	Daylight	Dry	None	None
1/14/2020	8:36:00	PDO	2	0	Hartford	0.26	TRINITY ST		Front to rear	Clear	Daylight	Dry	None	None
3/13/2020	21:10:00	PDO	2	0	Hartford	1.79	CAPITOL AV	WASHINGTON ST	Front to rear	Clear	Dark-Lighted	Dry	None	None
9/17/2020	21:18:00	PDO	2	0	Hartford	1.05	WASHINGTON ST		Sideswipe, same direction	Clear	Dark-Lighted	Dry	None	None
10/9/2019	10:08:00	PDO	2	0	Hartford	1.79	CAPITOL AV	WASHINGTON ST	Sideswipe, same direction	Rain	Daylight	Wet	None	Work Zone (construction / maintenance / utility)
1/19/2021	15:32:00	PDO	2	0	Hartford	0.27	TRINITY ST	CAPITOL AV	Front to front	Clear	Daylight	Dry	None	None
1/28/2021	12:57:00	Possible Injury	2	0	Hartford	1.79	CAPITOL AV	WASHINGTON ST	Front to rear	Clear	Daylight	Dry	None	None
12/20/2021	14:53:00	PDO	2	0	Hartford	1.8	CAPITOL AV		Front to rear	Clear	Daylight	Dry	None	None
<b>03) Park Street at Lafayette Street</b>														
1/19/2019	16:00:00	Possible Injury	2	0	Hartford	1.65	PARK ST	LAFAYETTE ST	Angle	Clear	Daylight	Dry	None	None
4/3/2019	20:20:00	PDO	2	0	Hartford	1.65	PARK ST	LAFAYETTE ST	Angle	Clear	Dark-Lighted	Dry	None	None
8/14/2019	13:36:00	PDO	2	0	Hartford	1.67	PARK ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
3/5/2019	16:23:00	PDO	2	0	Hartford	1.63	PARK ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
2/24/2020	16:41:00	PDO	2	0	Hartford	1.65	PARK ST	LAFAYETTE ST	Sideswipe, same direction	Clear	Daylight	Dry	None	None
5/13/2020	17:13:00	Possible Injury	2	0	Hartford	1.66	PARK ST		Front to rear	Clear	Daylight	Dry	None	Backup Due to Regular Congestion
6/1/2020	10:09:00	PDO	2	0	Hartford	1.64	PARK ST		Angle	Clear	Daylight	Dry	None	None
5/17/2020	17:45:00	Suspected Minor Injury	3	0	Hartford	1.62	PARK ST	SQUIRE ST	Front to rear	Clear	Daylight	Dry	None	None
9/11/2020	18:00:00	PDO	3	0	Hartford	1.64	PARK ST		Front to rear	Clear	Daylight	Dry	None	None
9/21/2020	19:56:00	Possible Injury	2	0	Hartford	1.66	PARK ST		Front to rear	Clear	Dark-Not Lighted	Dry	None	None

Date Of Crash	Time of Crash	Severity	No. Of Veh.	No. Of Non-Motorists	Town	Mileage	Roadway	Intersecting Roadway Name	Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances	Contributing Circumstances Roadway
10/22/2020	18:00:00	PDO	2	0	Hartford	1.67	PARK ST		Sideswipe, same direction	Clear	Dark-Lighted	Wet	None	None
11/13/2020	13:25:00	Possible Injury	2	0	Hartford	1.64	PARK ST		Angle	Rain	Daylight	Wet	None	None
11/6/2020	11:04:00	PDO	2	0	Hartford	1.65	PARK ST	LAFAYETTE ST	Sideswipe, same direction	Clear	Daylight	Dry	None	None
1/12/2021	9:57:00	PDO	2	0	Hartford	1.65	PARK ST	LAFAYETTE ST	Front to rear	Clear	Daylight	Dry	None	None
<b>04) Park Street at Oak Street</b>														
3/21/2019	12:15:00	PDO	2	0	Hartford	1.58	PARK ST	OAK ST	Sideswipe, opposite direction	Clear	Daylight	Dry	None	Backup Due to Regular Congestion
6/1/2019	9:04:00	PDO	2	0	Hartford	1.58	PARK ST	OAK ST	Front to rear	Clear	Daylight	Dry	None	None
7/11/2019	4:52:00	PDO	1	0	Hartford	1.58	PARK ST	OAK ST	Fixed Object	Clear	Dark-Lighted	Dry	None	None
7/17/2019	16:48:00	PDO	2	0	Hartford	1.58	PARK ST		Other	Rain	Daylight	Wet	None	None
8/29/2019	11:45:00	PDO	2	0	Hartford	0.03	OAK ST		Rear to rear	Clear	Daylight	Dry	None	None
4/19/2019	14:13:00	PDO	2	0	Hartford	1.6	PARK ST		Sideswipe, opposite direction	Clear	Daylight	Dry	None	None
10/12/2019	12:46:00	Possible Injury	2	0	Hartford	1.6	PARK ST		Front to rear	Clear	Daylight	Dry	None	Backup Due to Regular Congestion
1/9/2020	13:20:00	PDO	2	0	Hartford	1.58	PARK ST	OAK ST	Angle	Clear	Daylight	Dry	None	None
1/30/2020	18:10:00	Suspected Minor Injury	2	0	Hartford	1.57	PARK ST		Front to rear	Clear	Dark-Lighted	Dry	None	None
2/14/2020	16:00:00	PDO	2	0	Hartford	1.57	PARK ST		Sideswipe, same direction	Clear	Daylight	Dry	None	None
3/4/2020	18:15:00	Possible Injury	4	0	Hartford	1.58	PARK ST	OAK ST	Sideswipe, same direction	Clear	Dark-Lighted	Dry	None	None
11/9/2020	17:27:00	PDO	2	0	Hartford	1.58	PARK ST	OAK ST	Sideswipe, opposite direction	Clear	Dark-Not Lighted	Dry	None	Unknown
12/20/2020	12:36:00	PDO	2	0	Hartford	1.59	PARK ST		Other	Snow	Daylight	Wet	None	None
1/12/2021	17:04:00	PDO	2	0	Hartford	1.59	PARK ST		Other	Clear	Daylight	Dry	None	None
3/8/2021	15:44:00	PDO	2	0	Hartford	0.04	OAK ST		Front to rear	Clear	Daylight	Dry	None	None
5/2/2021	1:41:00	Possible Injury	2	0	Hartford	1.58	PARK ST	OAK ST	Front to rear	Clear	Dark-Lighted	Dry	None	None

PDO - Property Damage Only

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## **Root Center for Advanced Recovery Security & Operations Plan 35 Lafayette St, Hartford, CT**

Root Center for Advanced Recovery will be able to mitigate the risk of loitering while monitoring patient / visitor behavior by implementing recent security enhancements at its new Clinic in Hartford. Through Root Center's new security vendor, Integrated Security Group ("ISG"), and their cutting edge "Avigilon" hardware and software, Root Center will have oversight of its Clinic at all times.

The proposed Clinic will be outfitted with Avigilon security camera technology, which has advanced programming options and can be modified as needs grow and change. This technology has proven highly effective in similar applications, and has been used by many organizations requiring next level security, including municipalities, the United States Air Force, and other Root Center for Advanced Recovery facilities. The logistics for this initiative involve establishing a U.S. Drug Enforcement Administration-compliant, highly advanced security system for the interior of the proposed Clinic. Root Center will also install an intelligent, exterior video system that can detect loitering or afterhours activity and alert site staff and / or ISG's Central Station of the same.

The exterior video detection and verification system will consist of multiple cameras with *Next Generation Video Analytics*. Through this cutting-edge technology, Root Center will be able to set a perimeter such that persons loitering will be recognized by the cameras, and an alarm will be generated. Additional *Next Generation Video Analytics* included with this advanced camera system provide Facial Recognition Support, Unusual Activity Detection, "Avigilon Appearance Search Support" (enabled by deep learning AI), and IR Illuminators, providing uniform illumination even in complete darkness. These cameras will allow for an excellent view of full site activity with the analytical power to recognize any person or vehicle crisply and clearly.

If the alarm is generated during occupied hours, an outdoor speaker will be activated from within the Clinic to allow trained Root Center staff to direct the person(s) to vacate the premises, as they would be violating Root Center policy. Once a verbal request has been made to vacate the premises, the system has the capability to generate a second alarm after a set amount of time has expired (30 seconds, for example). If the person(s) loitering have not left the site at that time, trained Root Center staff will then physically step outside to request that the person(s) vacate the premises, or face disciplinary action within the Clinic program and / or notification of local police. If an alarm is generated after-hours, ISG's Central Station operators will verify the alarm, and dispatch local police to the site, if necessary.



**10**

## Unofficial Property Record Card - Hartford, CT

### General Property Data

Parcel ID <b>225-440-113</b> Prior Parcel ID Property Owner <b>COURTHOUSE LENDERS LLC</b>  Mailing Address <b>1 FINANCIAL PLAZA</b>  City <b>HARTFORD</b> Mailing State <b>CT</b> Zip <b>06103</b> ParcelZoning <b>MX-1</b>	Account Number  Property Location <b>35-39 LAFAYETTE ST</b> Property Use <b>L PARKING</b> Most Recent Sale Date <b>2/25/2022</b> Legal Reference <b>07916-0088</b> Grantor <b>COURTHOUSE PARKING LLC</b>  Sale Price <b>0</b> Land Area <b>18,105.000 acres</b>
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### Current Property Assessment

Card 1 Value	Building Value <b>0</b>	Xtra Features Value <b>5,320</b>	Land Value <b>240,800</b>	Total Value <b>246,120</b>
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### Building Description

Building Style <b>N/A</b> # of Living Units <b>0</b> Year Built <b>N/A</b> Building Grade <b>N/A</b> Building Condition <b>N/A</b> Finished Area (SF) <b>6002</b> Number Rooms <b>0</b> # of 3/4 Baths <b>0</b>	Foundation Type <b>N/A</b> Frame Type <b>N/A</b> Roof Structure <b>N/A</b> Roof Cover <b>N/A</b> Siding <b>N/A</b> Interior Walls <b>N/A</b> # of Bedrooms <b>0</b> # of 1/2 Baths <b>0</b>	Flooring Type <b>N/A</b> Basement Floor <b>N/A</b> Heating Type <b>N/A</b> Heating Fuel <b>N/A</b> Air Conditioning <b>0%</b> # of Bsmt Garages <b>0</b> # of Full Baths <b>0</b> # of Other Fixtures <b>0</b>
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### Legal Description

### Narrative Description of Property

This property contains 18,105.000 acres of land mainly classified as L PARKING with a(n) N/A style building, built about N/A , having N/A exterior and N/A roof cover, with 0 commercial unit(s) and 0 residential unit(s), 0 room(s), 0 bedroom(s), 0 bath(s), 0 half bath(s).

### Property Images



Disclaimer: This information is believed to be correct but is subject to change and is not warranted.

## Unofficial Property Record Card - Hartford, CT

### General Property Data

Parcel ID <b>226-440-108</b>	Account Number
Prior Parcel ID	Property Location <b>152-154 OAK ST</b>
Property Owner <b>COURTHOUSE LENDERS LLC</b>	Property Use <b>L PARKING</b>
Mailing Address <b>1 FINANCIAL PLAZA</b>	Most Recent Sale Date <b>2/25/2022</b>
City <b>HARTFORD</b>	Legal Reference <b>07916-0088</b>
Mailing State <b>CT</b> Zip <b>06103</b>	Grantor <b>COURTHOUSE PARKING LLC</b>
ParcelZoning <b>MX-1</b>	Sale Price <b>0</b>
	Land Area <b>7,820.000 acres</b>

### Current Property Assessment

Card 1 Value	Building Value <b>0</b>	Xtra Features Value <b>560</b>	Land Value <b>21,980</b>	Total Value <b>22,540</b>
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### Building Description

Building Style <b>N/A</b>	Foundation Type <b>N/A</b>	Flooring Type <b>N/A</b>
# of Living Units <b>0</b>	Frame Type <b>N/A</b>	Basement Floor <b>N/A</b>
Year Built <b>N/A</b>	Roof Structure <b>N/A</b>	Heating Type <b>N/A</b>
Building Grade <b>N/A</b>	Roof Cover <b>N/A</b>	Heating Fuel <b>N/A</b>
Building Condition <b>N/A</b>	Siding <b>N/A</b>	Air Conditioning <b>0%</b>
Finished Area (SF) <b>0</b>	Interior Walls <b>N/A</b>	# of Bsmt Garages <b>0</b>
Number Rooms <b>0</b>	# of Bedrooms <b>0</b>	# of Full Baths <b>0</b>
# of 3/4 Baths <b>0</b>	# of 1/2 Baths <b>0</b>	# of Other Fixtures <b>0</b>

### Legal Description

### Narrative Description of Property

This property contains 7,820.000 acres of land mainly classified as L PARKING with a(n) N/A style building, built about N/A , having N/A exterior and N/A roof cover, with 0 commercial unit(s) and 0 residential unit(s), 0 room(s), 0 bedroom(s), 0 bath(s), 0 half bath(s).

### Property Images



Disclaimer: This information is believed to be correct but is subject to change and is not warranted.

## Unofficial Property Record Card - Hartford, CT

### General Property Data

Parcel ID <b>226-440-109</b> Prior Parcel ID Property Owner <b>COURTHOUSE LENDERS LLC</b>  Mailing Address <b>1 FINANCIAL PLAZA</b>  City <b>HARTFORD</b> Mailing State <b>CT</b> Zip <b>06103</b> ParcelZoning <b>MX-1</b>	Account Number  Property Location <b>156-158 OAK ST</b> Property Use <b>L PARKING</b> Most Recent Sale Date <b>2/25/2022</b> Legal Reference <b>07916-0088</b> Grantor <b>COURTHOUSE PARKING LLC</b>  Sale Price <b>0</b> Land Area <b>7,680.000 acres</b>
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### Current Property Assessment

Card 1 Value	Building Value <b>0</b>	Xtra Features Value <b>210</b>	Land Value <b>21,630</b>	Total Value <b>21,840</b>
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### Building Description

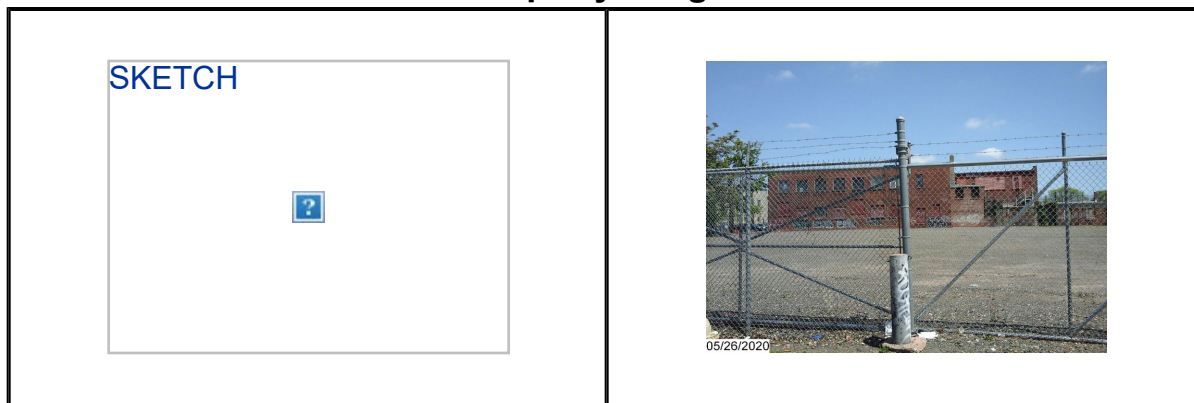
Building Style <b>N/A</b> # of Living Units <b>0</b> Year Built <b>N/A</b> Building Grade <b>N/A</b> Building Condition <b>N/A</b> Finished Area (SF) <b>0</b> Number Rooms <b>0</b> # of 3/4 Baths <b>0</b>	Foundation Type <b>N/A</b> Frame Type <b>N/A</b> Roof Structure <b>N/A</b> Roof Cover <b>N/A</b> Siding <b>N/A</b> Interior Walls <b>N/A</b> # of Bedrooms <b>0</b> # of 1/2 Baths <b>0</b>	Flooring Type <b>N/A</b> Basement Floor <b>N/A</b> Heating Type <b>N/A</b> Heating Fuel <b>N/A</b> Air Conditioning <b>0%</b> # of Bsmt Garages <b>0</b> # of Full Baths <b>0</b> # of Other Fixtures <b>0</b>
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### Legal Description

### Narrative Description of Property

This property contains 7,680.000 acres of land mainly classified as L PARKING with a(n) N/A style building, built about N/A , having N/A exterior and N/A roof cover, with 0 commercial unit(s) and 0 residential unit(s), 0 room(s), 0 bedroom(s), 0 bath(s), 0 half bath(s).

### Property Images



Disclaimer: This information is believed to be correct but is subject to change and is not warranted.

## Unofficial Property Record Card - Hartford, CT

### General Property Data

Parcel ID <b>226-440-110</b>	Account Number
Prior Parcel ID	Property Location <b>162-164 OAK ST</b>
Property Owner <b>COURTHOUSE LENDERS LLC</b>	Property Use <b>L PARKING</b>
Mailing Address <b>1 FINANCIAL PLAZA</b>	Most Recent Sale Date <b>2/25/2022</b>
City <b>HARTFORD</b>	Legal Reference <b>07916-0088</b>
Mailing State <b>CT</b> Zip <b>06103</b>	Grantor <b>COURTHOUSE PARKING LLC</b>
ParcelZoning <b>MX-1</b>	Sale Price <b>0</b>
	Land Area <b>10,560.000 acres</b>

### Current Property Assessment

Card 1 Value	Building Value <b>0</b>	Xtra Features Value <b>280</b>	Land Value <b>29,680</b>	Total Value <b>29,960</b>
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### Building Description

Building Style <b>N/A</b>	Foundation Type <b>N/A</b>	Flooring Type <b>N/A</b>
# of Living Units <b>0</b>	Frame Type <b>N/A</b>	Basement Floor <b>N/A</b>
Year Built <b>N/A</b>	Roof Structure <b>N/A</b>	Heating Type <b>N/A</b>
Building Grade <b>N/A</b>	Roof Cover <b>N/A</b>	Heating Fuel <b>N/A</b>
Building Condition <b>N/A</b>	Siding <b>N/A</b>	Air Conditioning <b>0%</b>
Finished Area (SF) <b>0</b>	Interior Walls <b>N/A</b>	# of Bsmt Garages <b>0</b>
Number Rooms <b>0</b>	# of Bedrooms <b>0</b>	# of Full Baths <b>0</b>
# of 3/4 Baths <b>0</b>	# of 1/2 Baths <b>0</b>	# of Other Fixtures <b>0</b>

### Legal Description

### Narrative Description of Property

This property contains 10,560.000 acres of land mainly classified as L PARKING with a(n) N/A style building, built about N/A , having N/A exterior and N/A roof cover, with 0 commercial unit(s) and 0 residential unit(s), 0 room(s), 0 bedroom(s), 0 bath(s), 0 half bath(s).

### Property Images



Disclaimer: This information is believed to be correct but is subject to change and is not warranted.

**11**

Amy Di Mauro, COO  
The Hartford Dispensary d/b/a Root Center  
for Advanced Recovery  
335 Broad Street  
Manchester, CT 06040

June 28, 2022

Ms. Josye Utick, Chair,  
and Commission Members  
Planning & Zoning Commission  
City of Hartford  
260 Constitution Plaza  
Hartford, CT 06103

Mr. I Charles Mathews, Director of  
Department of Development Services  
Ms. Aimee Chambers, AICP, Director of  
Planning  
City of Hartford  
260 Constitution Plaza  
Hartford, CT 06103

Re: Zoning Applications of The Hartford Dispensary d/b/a Root Center for  
Advanced Recovery

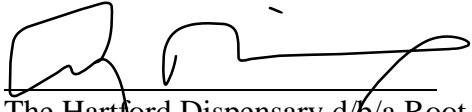
Dear Chair Utick, Commission Members, Mr. Mathews, and Ms. Chambers:

Hartford Dispensary Real Estate, Inc., an affiliate of The Hartford Dispensary d/b/a Root Center for Advanced Recovery (“Root Center”), is under contract to purchase the real property located at 35-39 Lafayette Street (Parcel ID 225-440-113), 152-154 Oak Street (Parcel ID 226-440-108), 156-158 Oak Street (Parcel ID 226-440-109), and 162-164 Oak Street (Parcel ID 226-440-110) in Hartford, Connecticut (the “Subject Property”). Root Center will be filing one or more applications with the Planning & Zoning Commission related to the development of a methadone clinic on the Subject Property.

The law firm of Hinckley Allen is our legal counsel for these applications. Root Center hereby authorizes Hinckley Allen to execute any application forms or other documents in connection with these applications, and to submit documentation pertaining to the applications on its behalf. Attorneys Timothy Hollister and Andrea Gomes of Hinckley Allen will be the primary contacts on this matter.

Thank you for your consideration concerning this matter.

Very truly yours,

By:   
The Hartford Dispensary d/b/a Root  
Center for Advanced Recovery  
Duly Authorized

Courthouse Lenders, LLC  
1 Financial Plaza  
Hartford, CT 06103

June 27, 2022

Ms. Josye Utick, Chair,  
and Commission Members  
Planning & Zoning Commission  
City of Hartford  
260 Constitution Plaza  
Hartford, CT 06103

Mr. I Charles Mathews, Director of  
Department of Development Services  
Ms. Aimee Chambers, AICP, Director of  
Planning  
City of Hartford  
260 Constitution Plaza  
Hartford, CT 06103

Re: Zoning Applications of The Hartford Dispensary d/b/a Root Center for  
Advanced Recovery

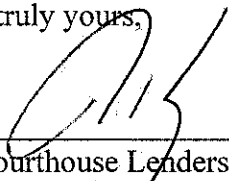
Dear Chair Utick, Commission Members, Mr. Mathews, and Ms. Chambers:

Courthouse Lenders, LLC is the owner of the real property located at 35-39 Lafayette Street (Parcel ID 225-440-113), 152-154 Oak Street (Parcel ID 226-440-108), 156-158 Oak Street (Parcel ID 226-440-109), and 162-164 Oak Street (Parcel ID 226-440-110) in Hartford, Connecticut (the "Subject Property"). Hartford Dispensary Real Estate, Inc., an affiliate of The Hartford Dispensary d/b/a Root Center for Advanced Recovery ("Root Center"), is under contract to purchase the Subject Property.

Courthouse Lenders, LLC understands that Root Center will be filing one or more applications with the Planning & Zoning Commission related to the development of a methadone clinic on the Subject Property. Courthouse Lenders, LLC authorizes Root Center, and its legal counsel at Hinckley Allen, to pursue all necessary land use applications with the City of Hartford regarding the proposed development of the Subject Property.

Thank you for your consideration concerning this matter.

Very truly yours,

By:   
\_\_\_\_\_  
Courthouse Lenders, LLC  
Duly Authorized



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# RESUMES



## TED CUTLER, AIA, LEED AP

CEO, PRINCIPAL-IN-CHARGE

Ted began his architecture career with Tecton in 1994. His role and responsibility grew with expanding opportunities and he was appointed CEO in 2011. The perspective gained by building a career with a single firm has shaped Ted's leadership approach, instilling a commitment to developing internal talent and identifying emerging leaders. As Project Executive, Ted has managed many of Tecton's most complex and time sensitive projects, with an eye on team composition, consistent communication and overall team performance.

### EDUCATION

Pennsylvania State University  
Bachelor of Arts and  
Bachelor of Science in Architecture

Harvard Business School  
High Potential Leadership Program

### REGISTRATIONS

Registered Architect  
in Connecticut, Massachusetts,  
New Hampshire, New York,  
New Jersey, Maryland,  
Pennsylvania and Florida

National Council of Architectural  
Registration Boards (NCARB)

LEED Accredited Professional

### AFFILIATIONS

American Institute  
of Architects (AIA)

Chairman of the Board  
Nutmeg Big Brothers/Big Sisters

Connecticut Business &  
Industry Association (CBIA)

Connecticut Health Council

Construction Institute  
Visionaries Forum

MetroHartford Alliance

Southern New England Chapter  
of the LEAN Construction Institute

US Green Building Council

### RELEVANT PROJECT EXPERIENCE

- Root Center for Advanced Recovery | New Health Clinic | New Britain, CT
- Root Center for Advanced Recovery | Health Clinic Renovations | Middletown, Manchester, Hartford, New London, Bristol, CT
- Hartford Hospital | Center for Education, Simulation and Innovation | Hartford, CT
- Hartford Healthcare | Multiple locations
- Wheeler Clinic | Integrated Integrated Medicine/Behavioral Health Center | Hartford, CT
- Wheeler Clinic | Integrated Integrated Medicine/Behavioral Health Center | Waterbury, CT
- Wheeler Clinic | Integrated Integrated Medicine/Behavioral Health Center | New Britain, CT
- Wheeler Clinic | Integrated Integrated Medicine/Behavioral Health Center | Plainville, CT
- Baystate Health | Histology Lab | Springfield, MA
- Baystate Pioneer Valley Life Sciences Institute (PVLSI) | Springfield, MA
- Baystate Health Animal Care Facility (BACF) | Springfield, MA
- Eversource Energy | Service Center Renovations | Hartford, Berlin and Meriden, CT
- Rogers Corporation | US Research & Development Manufacturing Headquarters | Rogers, CT
- Arburg International | Sales and Service Center | Rocky Hill, CT
- Chemtura Research Center | Naugatuck, CT
- State of Connecticut | Consolidation of Government Offices | Hartford, CT
- Emhart Glass | Research & Development Manufacturing Locations | CT, FL and NY
- King Industries | New Campus Master Plan and Manufacturing Buildings | Waterbury, CT
- Pitney Bowes Global Technology Center | Danbury, CT
- Pratt & Whitney | Center for Quality and Process Engineering | East Hartford, CT
- State of Connecticut | Forensic Science Laboratory Meriden, CT
- Trumpf, Inc. | US Manufacturing Headquarters | Farmington, CT

**Tecton**  
ARCHITECTS

# RESUMES



## EDUCATION

Porter School of Design  
Associate of Science in Architecture

## AFFILIATIONS

Construction Specifications Institute  
Porter & Chester Institute  
Program Advisor  
Construction Institute  
Birch Grove School  
Building Committee  
Tolland, CT

## PAUL TIRRELL

ASSOCIATE PRINCIPAL, SENIOR PROJECT MANAGER

Paul has worked with Tecton for more than 40 years and currently leads many of Tecton's most complex healthcare projects. His specialized knowledge and experience are key elements when serving as a liaison between the owner, general contractor and architect. His experience in design, document review, specification writing, zoning regulation and code review, client/consultant coordination, product research, budget review/conformance, existing condition review, building surveys and cost estimate compilation provide a tremendous resource to Tecton and clients alike.

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## RELEVANT PROJECT EXPERIENCE

- Root Center for Advanced Recovery | New Health Clinic | New Britain, CT
- Root Center for Advanced Recovery | Health Clinic Renovations | Middletown, Manchester, Hartford, New London, Bristol, CT
- Saint Mary's Hospital | Emergency Department Renovation | Waterbury, CT
- Middlesex Hospital | Behavioral Health Emergency Department | Middletown, CT
- Middlesex Hospital | Integrated Medicine | Middletown, CT
- Middlesex Hospital | Occupational Therapy Renovation | Madison, CT
- Connecticut Children's Medical Center | Dialysis Center | Hartford, CT
- Connecticut Children's Medical Center | Primary Care | Farmington, CT
- Natchaug Hospital | Journey House Addition | Mansfield, CT
- DaVita Dialysis Centers | 400+ Locations throughout the Northeast/Mid-Atlantic
- U.S. Renal Care | Dialysis Centers | Multiple Locations
- Centerplan Construction | Medical Office Building | Hamden, CT
- Kevin's Community Center | Pediatric Medical Office Building | Newtown, CT
- Groups - Recover Together | Life Safety Assessments | Multiple Locations
- State of Connecticut | Forensic Science Laboratory | Meriden, CT
- Bond Vet | New Clinics | Multiple Locations
- Genesis Health Ventures | Multiple Locations
- Health Bridge | Milford, CT
- Athena Healthcare | Multiple Locations



## **HALLISEY, PEARSON & CASSIDY Engineering Associates, Inc.**

630 Main Street  
Cromwell, CT 06416-1444

TELEPHONE: (860) 529-6812  
FAX: (860) 721-7709  
Paul A. Hallisey, P.E. & L.S.  
James P. Cassidy, P.E.

### **HISTORY OF FIRM**

P K Engineering Associates, Inc. was founded and incorporated in 1979 by Paul A. Hallisey, P.E. & L.S., its President and Managing Officer. In 1997, a former employee, James P. Cassidy II, P.E., re-joined the firm as Partner and the firm name was changed to **HALLISEY, PEARSON & CASSIDY ENGINEERING ASSOCIATES, INC.** The firm has been based in the Hartford area since 1979 and is most recently located at 630 Main Street in Cromwell.

For over forty years, the firm has provided clients with civil engineering, construction engineering and land surveying services. It has maintained a close relationship with local, state and federal agencies, as well as architects, developers, contractors and other related professionals.

### **PROFESSIONALS**

**Paul A. Hallisey, P.E. & L.S.**, holds a Bachelor of Civil Engineering from Catholic University of America, awarded in 1953. He is a Registered Professional Engineer in the States of Connecticut (No.7761) and Massachusetts (No.30523), and a Registered Land Surveyor in the State of Connecticut (No. 7761) and is the President of Hallisey, Pearson & Cassidy Engineering Associates, Inc.

He is a current member of the Connecticut Association of Land Surveyors, Connecticut Construction Industries Association, American Society of Civil Engineers, Connecticut Society of Civil Engineers and International Union of Operating Engineers, Local 478, and a past member of the Rocky Hill Planning & Zoning Commission.

**James P. Cassidy II, P.E.**, holds an Associates of Civil Engineering Degree, awarded in 1987. He is a Registered Professional Engineer in the State of Connecticut (No. 20665).

Mr. Cassidy is responsible for civil engineering design, land surveying and construction surveying and has worked on municipal, commercial, industrial and residential projects within the field. Mr. Cassidy is responsible for and very familiar with obtaining municipal and state approvals for the majority of the projects for the firm. He is a current member of the Connecticut Society of Civil Engineers and the Connecticut Association of Land Surveyors.

**Justin M. Packard, E.I.T.**, holds a Bachelor of Science in both Civil Engineering and Environmental Engineering from Clarkson University, awarded in 2018. He was licensed as an Engineer-in-Training (No. 12517) by the State of Connecticut in July 2019.

## **HIGHLIGHTED PROJECTS**

**Capitol Region Education Council**  
**Progress Drive, Wethersfield, CT**  
**James P. Cassidy, Project Engineer** (done under Hallisey & Herbert)

This project involved land surveying and site/civil design for a new 18,000 square foot school for hearing impaired children.

The site design of this project consisted of parking lots and pedestrian walkways to service the new building, a playground area and a landscaped buffer to provide a natural transition between a sensitive abutting residential neighborhood and the school. Mr. Cassidy was responsible for all aspects of this project from its conception through municipal approval and construction.

**Corpus Christie Church and School**  
**Silas Deane Highway, Wethersfield, CT**  
**James P. Cassidy & Lloyd A. Pearson**

This project involved the land surveying and construction surveying services for a new addition to the existing school on this site.

**First School Society (Village Cemetery)**  
**Main Street, Wethersfield, CT**  
**Paul A. Hallisey, Project Engineer**

This project involved continuing surveying services and preparation of plans and civil design for cemetery expansions. Mr. Hallisey has been a member of the First School Society of Wethersfield, the governing body of the Village Cemetery for the past 25 years.

**Bugbee Elementary School**  
**Asylum Avenue, West Hartford, CT**  
**James P. Cassidy, Project Engineer**

This project included surveying and civil/site design to renovate a security entrance and compliance with ADA regulations.

**Fernridge Park**  
**Fern Road, West Hartford**  
**James P. Cassidy, Project Engineer**

This project included surveying and civil/site design for compliance with ADA regulations.

**Lenard Farm Estates**  
**Willow Street**  
**Wethersfield, CT**  
**James P. Cassidy, Project Engineer**

This project consisted of the design of a 21-lot residential subdivision.

The subdivision involved the design of 3 new municipal roads, totaling approximately 1,200 feet in length, and utilities within the roadway, storm drainage design and improvement on and off-site and permitting from municipal agencies.

**Wethersfield Country Club**  
**Country Club Road**  
**Wethersfield, CT**  
**James P. Cassidy, Project Engineer**

This project consisted of the civil design of new Pro Shop Patio area, golf cart path improvements and parking area.

**Wethersfield high School**  
**Wolcott Hill Road**  
**Wethersfield, CT**  
**James P. Cassidy, Project Engineer**

This project involved the site planning and design of new dugouts and an athletic equipment storage building within the existing athletic fields.

**Theresa A. Rook Retirement Community**  
**Timber Hill Road**  
**Cromwell, CT**  
**James P. Cassidy, Project Engineer**

This project involved the site design and permitting for a new 64-unit retirement community on a 16 acre hilltop site. A complex network of detention basins were designed as part of this project to eliminate existing drainage problems. In addition to the detention basin system, a significant off-site storm drainage system was designed to convey storm water from the site to a nearby brook.

## **HIGHLIGHTED MUNICIPAL & FEDERAL PROJECTS**

Clarkstown Police Facility  
Clarkstown, NY  
Services performed: construction surveying

Connecticut Department of Correction- Complex -Z, Firing Range  
Cheshire, CT  
Services performed: construction surveying

Enfield Road 2000 Program  
Enfield, CT  
Services performed: construction surveying

Hartford Police Station  
Hartford, CT  
Services performed: construction surveying

Groton-New London Airport  
Groton, CT  
Services performed: site planning and survey for new building

Hartford Post Office  
Hartford, CT  
Services performed: site planning and survey for additions

Springdale Station Post Office  
Stamford, CT  
Services performed: construction surveying

## **HIGHLIGHTED HOSPITAL PROJECTS**

St. Francis Hospital & Medical Center

Hartford, CT

Services performed: land & construction surveying and site planning

Bristol Medical Center

Bristol, CT

Services performed: construction surveying

UCONN Medical Center

Farmington, CT

Services performed: land & construction surveying and site planning

Greenwich Hospital Cancer Center

Greenwich, CT

Services performed: construction surveying



## CLIENT REFERENCE LIST

Drisdelle Homes LLC  
915 Silas Deane Highway  
Wethersfield, CT 06109  
Phone: (860) 563-6020  
Contact: Ron Drisdelle

Shepard Steel Company  
110 Meadow Street  
Hartford, CT 06114  
Phone: (860) 250-6288  
Contact: Dan Moyal

Lawlor Builders Inc.  
114 Peria Drive  
Rocky Hill, CT 06067  
Phone: (860) 257-1180  
Contact: Tim Lawlor

Ralph Camputaro & Son Excavating, Inc.  
1 Enterprise Drive  
North Branford, CT 06471  
Phone: (203) 668-4574  
Contact: Nick Miano

C.S. Margison, Inc.  
28 Round Hill Road  
Farmington, CT 06032  
Phone: (860) 676-0604  
Contact: Doug Margison

Berlin Steel Construction Company  
76 Depot Road  
Kensington, CT 06037  
Phone: (860) 798-6512  
Contact: Steve Rich

New England Retail Properties, Inc.  
150 Hartford Avenue  
Wethersfield, CT 06109  
Phone: (860) 529-9000  
Contact: Matthew Halprin

Town of Cromwell  
Engineering Department  
41 West Street  
Cromwell, CT 06416  
Phone: (860) 632-3420  
Contact: Jon Harriman, P.E.

Engineering Department  
761 Old Main Street  
Rocky Hill, CT 06067  
Phone: (860) 258-2766  
Contact: Stephen Sopolak, P.E.

Dimeo Construction Company  
700 State Street Suite 101  
New Haven, CT 06511  
Phone: (203) 464-9116  
Contact: Greg Manzolino

M.T. Ford Industries, Inc.  
645 Main Street  
Somers, CT 06071  
Phone: (860) 281-3991  
Contact: Hector Andrade

Executive Auto Group, Inc.  
1180 North Colony Road  
Wallingford, CT 06492  
Phone: (866) 660-1498  
Contact: John L. Orsini

Tomasso Brothers, Inc.  
1 Liberty Square  
New Britain, CT 06051  
Phone: (860) 224-9977  
Contact: Leo Gagne



## Mark Vertucci, PE, PTOE

*Vice President*

“As a child, I drew chalk roads on my driveway and installed paper road signs around my house. I coerced my mother to take me on long day trips just to drive along roads I had never been on before. Transportation has always been a passion of mine. To me, it is not all about the destination. Getting there is half the fun.”

[mvertucci@fando.com](mailto:mvertucci@fando.com)

800.286.2469 x5381

### EDUCATION

BS, Civil Engineering - 1998  
Rensselaer Polytechnic Institute

### LICENSES & REGISTRATIONS

Professional Engineer CT  
Professional Engineer MA  
Professional Engineer RI  
Professional Engineer NY  
Prof Traffic Operations Engineer

### PROFESSIONAL AFFILIATIONS

Inst Transportation Engineers

### EXPERIENCE

26 Years Professional Experience

Mark is a Vice President in our Transportation Business Line. He has many years of experience in traffic engineering, transportation planning, site development, and roadway improvement projects. Throughout his career, he has prepared numerous traffic impact studies, planning studies, corridor studies, parking studies, and traffic management plans.

Mark has extensive experience with traffic signal design projects, roadway design projects, and intelligent transportation systems. Mark is certified by the Institute of Transportation Engineers (ITE) as a Professional Traffic Operations Engineer (PTOE), and the current President of the Connecticut Chapter of ITE.

### REPRESENTATIVE PROJECTS:

CTDOT On-call Traffic Engineering, throughout CT  
Harbor Point Development, Stamford, CT  
Two-way Street Conversion Study, New Haven, CT  
High Frequency Crash Locations, State Project 170-3601, CTDOT, New Haven, CT  
City-wide Bicycle and Pedestrian Improvements, Stamford, CT  
Greenwich Avenue Corridor Improvements and Roundabout Design, Stamford, CT  
LOTICIP Roundabout, New London, CT  
Clearance Interval and Pedestrian Timing Revisions, CTDOT, State Project 174-387, Various Locations, CT  
APS Signal Upgrades, State Projects 171-371 and 171-381, CTDOT, Greater Hartford Area, CT  
Route 34 Expressway to Boulevard Conversion Public/Private Partnership, New Haven, CT  
Citywide Traffic Management Plan, Norwalk, CT